Date: 15.06.2021

To,

Member Secretary, Industry - II,
Ministry of Environment, Forest & Climate Change,
Vayu Wing, Indira Paryavaran Bhavan,
Jor Bagh Road, Jor Bagh, New Delhi – 110003.

Sir,

Sub: Submission of updated application to obtain Environmental Clearance for the proposed project "Manufacturing of Active Pharmaceutical Ingredients (API's)" at Plot No. 62, Kadechur Industrial area, Yadagir Taluk & District, Karnataka-585221.

Ref: 1. Online application dated 25-03-2021 with Proposal No. IA/KA/IND2/206839/2021.

2. Proceedings of 9th Expert Appraisal Committee (Industry-3 Sector) meeting held during April 12-13, 2021.

Sl No.	Observations	Reply
1	The Notification dated 27.03.2020 is only for API not for intermediates. If the proposal is for API & Intermediate both, please apply for TOR. PP needs to submit the undertaking that the products are related to API only.	As per Ministry of Environment, Forest and Climate Change Notification dated 27th March 2020 & 15th Oct 2020, the project involves manufacturing of Active Pharmaceutical Ingredients (API's) which is under 5(f) category and hence application is being submitted under B2 Category Project. The undertaking letter is attached along with the covering letter.
2	The information filled in Form I/PFR/Reports is vogues/insufficient to address the environmental concern; accordingly, PP needs to revise the Form-1/PFR/EMP and other Reports.	The revised Form I, PFR and EMP are uploaded in the portal.
3	EMP is not adequate and not addressing the concern of Environment. Consultant has not read the provisions of the EIA Notification and applied the proposal in hurry without addressing the concern of	Environmental management Plan has been updated as per the provisions of the EIA Notification 2006 and copy of the same has been uploaded in the portal.

	EMP. Revised EMP needs to be submitted.	
4	Details of Raw material and its linkage and its mitigation measure during transportation needs to be submitted	The list of raw materials along with the quantities are attached as ANNEXURE-4. The project site is located with road distance of 180 km from Hyderabad and all the raw materials required for the projects will be obtained from thereby road. Storage, handling and transportation of raw materials with mitigation measures are detailed in EMP report.
5	As per the Ministry OM No. 22-23/2019-IA.III, dated 28.01.2021, the PP/Consultant needs to submit the details of pollution load i.e. quantity and quality, including composition, of emissions, discharges and waste (hazardous, solid & industrial) generation from the activities for further deliberations before the EAC.	As per the MoEF & CC OM No. 22-23/2019-IA.III, dated 28.01.2021, we have provided the information of product wise pollution loads includes, Water & Effluent details with effluent characteristics, Hazardous Solid waste details, Emission details, Gaseous emission details and Solvent Vapour loss details in the EMP report.
6	Details accreditation of Consultants under QCI/NABET along with certificate and disclosure of Consultant needs to be uploaded.	M/s. AM Enviro Engineers, Bengaluru is located at No. 14/1, 2nd Floor, HARIKRUPA, Pattalamma Temple Street, Basavanagudi, Bengaluru – 560 004 and has been accredited as Category A organization under QCI-NABET scheme for Accreditation of EIA Consultant Organizations Versions 3 for preparing EIA/EMP reports with Certificate No. NABET/EIA/1922/IA0056. The copy of NABET Certificate is attached as ANNEXURE-11 and consultant disclosure is detailed in Chapter-6 of EMP report.
7	Details of land conversion documents needs to be uploaded.	The proposed project is in KIADB notified Industrial area. Hence land conversion is not applicable. KIADB land Gazette notification copy is attached as ANNEXURE-9.
8	All old CTEs/CTOs/ HW Authorization to be uploaded to verify the violation, if any.	The proposed project is a Greenfield Project. Hence, old CTEs/CTOs/ HW Authorization are not applicable.
9	PP got land on 20.03.2021. However, CETP & TSDF NOC has obtained on 18.03.2021. Please provide the details.	M/s. Laureatz Technochem Pvt Ltd proposed for API manufacturing unit at Kadechur Industrial area, Yadagir Taluk & District, Karnataka, and

		accordingly requested KIADB, to allot 2 acre of land with Application dated 07-10-2020, KIADB confirmed the land and issued the demand notice to pay initial payment with letter dated **KIADB/HO/Allot/Secy-3/11436 /2020-21 dated:22-01-2021** With continuation of the demand notice, M/s. Laureatz Technochem paid the initial payment to KIADB on 20-02-2021, approached with written letter to KIADB on 06-03-2021 for allotment of land and parallelly approached M/s. Mother Earth Environ Tech Pvt. Ltd to have membership for CETP and TSDF facility. KIADB took time to issue the allotment letter but M/s. Mother Earth Environ Tech Pvt Ltd processed and issued the CETP and TSDF membership agreement one day earlier than the allotment letter. M/s. Laureatz Technochem Pvt Ltd. has submitted a letter to MoEF regarding the same subject, and it is attached along with the revised application.
10	On examination it is observed by the Ministry that the Consultant has submitted many applications with same type of data and in-adequate information in Form-I, PFR & EMP. Please revise all the application as per provisions of the EIA Notification, 2006.	The revised application is submitted in the portal.

In view of the above, we are requesting you to issue us the environmental clearance at the earliest.

Enclosures:

1. Form1, PFR, EMP report, additional attachments.

Thanking You,

Yours Faithfully,
For **M/s. Laureatz Technochem Pvt Ltd**

Authorized Signatory

LAUREATZ TECHNOCHEM PVT. LTD. HYD.

Encl: as above

ENVIRONMENTAL MANAGEMENT PLAN

PREPARED FOR

"MANUFACTURING OF ACTIVE PHARMACEUTICAL INGREDIENTS (API)"

AT

PLOT NO. 62, KADECHUR INDUSTRIAL AREA, YADAGIR TALUK & DISTRICT, KARNATAKA.

NEW PROJECT BY

M/s. LAUREATZ TECHNOCHEM PVT LTD

PLOT NO. 147, SRI SAI NILAYAM, PRAGATHI NAGAR, KUKATPALLI, (NEAR JNTU), HYDERABAD, TELANGANA-500090

Prepared By

AM ENVIRO ENGINEERS

[ISO 9001-2015 CERTIFIED COMPANY]

(QCI/NABET Accreditation No. NABET/EIA/1922/IA0056)

No. 14/1, 2nd Floor, HARIKRUPA, Pattalamma Temple Street,
Basavanagudi, Bengaluru - 560 004
Ph. No. : 080 2657 6577

DOCUMENT NO. AMEE/IND/EMP/49

Quality Council of India

National Accreditation Board for Education & Training

CERTIFICATE OF ACCREDITATION

AM Enviro Engineers

No.14/1, Harikrupa, Patalamma Temple Street, Basavanagudi, Bangalore, Karnataka-560004

Accredited as Category - A organization under the QCI-NABET Scheme for Accreditation of EIA Consultant Organizations: Version 3 for preparing EIA/EMP reports in the following sectors:

Sl. No	Sector Description	Sector (as per) NABET	Sector (as per) MoEFCC	Cat.
1.	Mining of minerals - opencast mining only	1	1 (a) (i)	B
2.	Metallurgical industries (secondary – ferrous only)	8	3 (a)	B
3.	Pesticides industry and pesticide specific intermediates (excluding formulations)	17	5 (b)	A
4.	**Synthetic organic chemicals industry** (dyes & dye intermediates; bulk drugs and intermediates **excluding** drug formulations; synthetic rubbers; basic organic chemicals, other synthetic organic chemicals and chemical intermediates)	21	5 (f)	A
5.	Building and construction projects	38	8 (a)	B
6.	Townships and Area development projects	39	8 (b)	B

Note: Names of approved EIA Coordinators and Functional Area Experts are mentioned in IA AC Minutes dated February 21, 2020 on QCI-NABET website.

The Accreditation shall remain in force subject to continued compliance to the terms and conditions mentioned in NABET's letter of accreditation bearing no. QCI/NABET/ENV/ACO/20/1271 dated March 12, 2020. The accreditation needs to be renewed before the expiry date by AM Enviro Engineers, Bangalore following due process of assessment.

Sr. Director, NABET	***Certificate No.***	***Valid till***
Dated: March 12, 2020	***NABET/EIA/1922/IA0056***	***Dec 30, 2022***

For the updated List of Accredited EIA Consultant Organizations with approved Sectors please refer to QCI-NABET website.

Declaration by the Head of the accredited consultant organization/ authorized person

I, **Mr. Mahadevaswamy P.** hereby, confirms and certify that the application and EMP report has been prepared by us on behalf of AM ENVIRO ENGINEERS for proposed "Active Pharmaceutical Ingredients (API's) manufacturing unit" by M/s. LAUREATZ TECHNOCHEM PVT LTD (Proposal No: IA/KA/IND2/206839/2021) located at Plot No. 62, Kadechur Industrial area, Yadagir Taluk & District, Karnataka – 585221.

Signature and Date:

Name: Mr. Mahadevaswamy P
Date: 18/06/2021
Designation: CEO

1.	**Name of the Accredited Consultant Organisation**	**M/s. AM ENVIRO ENGINEERS, BENGALURU**
2.	**Address of the Accredited Consultant Organisation**	No. 14/1, 2nd Floor, HARIKRUPA, Pattalamma Temple Street, Basavanagudi, Bengaluru - 560 004 Ph: 080-26576577 mail ID: admin@amee.in Website: www.amee.in
3.	**Accreditation number**	NABET/EIA/1922/IA0056
4.	**Sector of Accreditation**	5 (f) Synthetic Organic Chemical Manufacturing Unit
5.	**Category of Accreditation (Eligible for Category A / Eligible for Category B)**	Accredited as "Category A"
6.	**Validity of Accreditation (date up to which the Accreditation is valid)**	Valid till – Dec 30, 2022

Laureatz
TECHNOCHEM

Laureatz Technochem Pvt Ltd.

Date: 15.06.2021

LETTER OF UNDERTAKING

We, M /s. Laureatz Technochem Pvt. Ltd hereby declare that we have hired the Environmental Consultant M/s. AM Enviro Engineers, Bangalore to prepare the EMP report for the proposed project "Manufacturing of Active Pharmaceutical Ingredients (API)" located at Plot No. 62, Kadechur Industrial area, Yadgir Taluk & District, Karnataka. The content (Information and data) as given by us and mentioned by the consultant in the EMP report are factually correct with full knowledge of the undersigned.

Thanking you,

Yours faithfully

For M/s. Laureatz Technochem Pvt. Ltd

LAUREATZ TECHNOCHEM PVT. LTD. HYD.

Authorized Signatory

Plot 147, Sri Sai Nilayam, Pragathi Nagar, Kukatpally, Hyderabad - 500090. Telangana. India
CIN: U74999TG2017PTC116685, GSTIN: 36AADCL2975P1ZU
Email: laureatz.sri@gmail.com, Phone: +919491407373

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6	CETP AGREEMENT COPY
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8	ALLOTMENT LETTER
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10	LAYOUT PLAN
11	NABET ACCREDITATION CERTIFICATE

CHAPTER - 1

1.0 INTRODUCTION

1.1 PURPOSE OF THE REPORT

M/s. Laureatz Technochem Pvt. Ltd has proposed for establishment of new API manufacturing industry at Plot No. 62, Kadechur industrial area, Yadagir Taluk & District, Karnataka. As per the EIA notification vide gazette no. S.O. 1533 dated 14th September 2006, the proposed project comes under activity 5 (f) "Synthetic organic chemicals industry" of Category- "B".

The Karnataka – Telangana interstate boundary is at 2.64 Km in South direction from the proposed project site. Hence the proposed project has to obtain environmental clearance from MoEF & CC.

Ministry of Environment, Forest and Climate Change categorized Active Pharmaceutical Ingredients manufacturing units as 'B2' for a period up to 30th March 2021 as per the notification dated 27th March 2020 and OM dated 15th Oct 2020, as an interim measure to handle the Novel Corona Virus (COVID-19) outbreak.

In this context, to submit the application to obtain environmental clearance under B2 category as per the EIA notification 2006, Environmental management plan has been prepared.

1.2 DETAILS OF PROJECT PROPONENT

M/s. Laureatz Technochem Pvt. Ltd is a private limited firm and is promoted by Mr. T.V.Srihari and T.Ramani. Mr T.V.Srihari, is a Chemical Engineer and also a Postgraduate in Economics. He has vast experience of over 34 years in the field of Pharma industry by serving major Pharma players like Natco Pharma, SMS Pharma, Lupin group (Concept Labs), TTK Pharma, Neuland Labs, Clinfield India, JBF Industries, Phalanx Labs etc. He is having rich experience in the fields of manufacturing, (exposed to number of drugs synthesis), R&D, process engineering, more than 20 of his inventions were patented, plant design and implementation of various projects from green field to manufacturing. He worked in various management levels like Director in Phalanx Labs, Vice-President (Technical) in SMS Pharmaceuticals Limited, General Manager (Technical) in Natco Pharma Limited, as Senior Manager in JBF Industries limited, middle management level Lupin group (Concept Laboratories), TTK Pharma, Clinfields India Limited, Neuland Laboratories Ltd. etc. He participated in various global pharmaceutical meets, exhibitions and international Green chemistry seminars. He is a member of green chemistry organization.

Mrs. Ramani Tadimalla, aged about 57 years is a Graduate in arts from Andhra University. Mrs. Ramani is an expert in deploying the best of the leadership practices with Results Based Measurement being the core theme. Played an effective role as Strategy Expert; as the prime negotiator with all the stakeholders. Mrs. Ramani brings in 15+ years of experience as a Strategy Specialist. She learned the ethics and techniques to promote her own firm.

1.3 LOCATION OF THE PROJECT

M/s. Laureatz Technochem Pvt. Ltd is located at Plot No. 62, Kadechur Industrial area, Yadagir Taluk & District, Karnataka. The Project site is close to Yadagir Raichur road which is at a distance of 1 km towards South-West side and the nearest railway station is Chegunta railway station at 3.7 km towards SW. The nearest airport is Rajiv Gandhi International Airport located at a distance of 140.9 km from the site towards North East. The maximum elevation above Mean Sea level of the project site is 363 m. The project site co-ordinates ranges from Latitude – 16.516923° to 16.517494° and Longitude– 77.313713° to 77.314952°.

TABLE-1.1: ENVIRONMENTAL SETTINGS

Particulars	Details		
Plant site co-ordinates (Latitude & Longitude)	Corners	Latitude	Longitude
	A	16°31'2.95"N	77°18'49.37"E
	B	16°31'0.98"N	77°18'49.39"E
	C	16°31'0.93"N	77°18'53.80"E
	D	16°31'2.90"N	77°18'53.83"E
Temperature	Max. 42ºC, Min. 26ºC		
Present land-use	KIADB land (Industrial area)		
Average rainfall	850 mm per year		
Nearest Highway	NH-167 (Yadgir - Raichur Road) – 1 km (SW)		
Nearest Railway station	Chegunta Railway Station - 3.7 km (SW)		
Nearest Airport	Rajiv Gandhi International Airport, Shamshabad –140.9 Km (NE)		
Nearest Water body	Seasonal Nala – 50 m (W) Kadechur lake - 1.5 km (NE) Bhima river – 8.7 km (SW) Krishna river - 12.3 km (SW)		
Nearest Village	Kadechur – 1.2 Km (E) Shattihalli – 2.5 km (NW)		
Nearest Town/City	Yadgir city – 33.6 Km (NW)		
Seismic Zone	Seismic zone-II as per IS-1893 (Part-1) – 2002		
Interstate boundary	Karnataka – Telangana Interstate Boundary - 2.64 Km (S)		

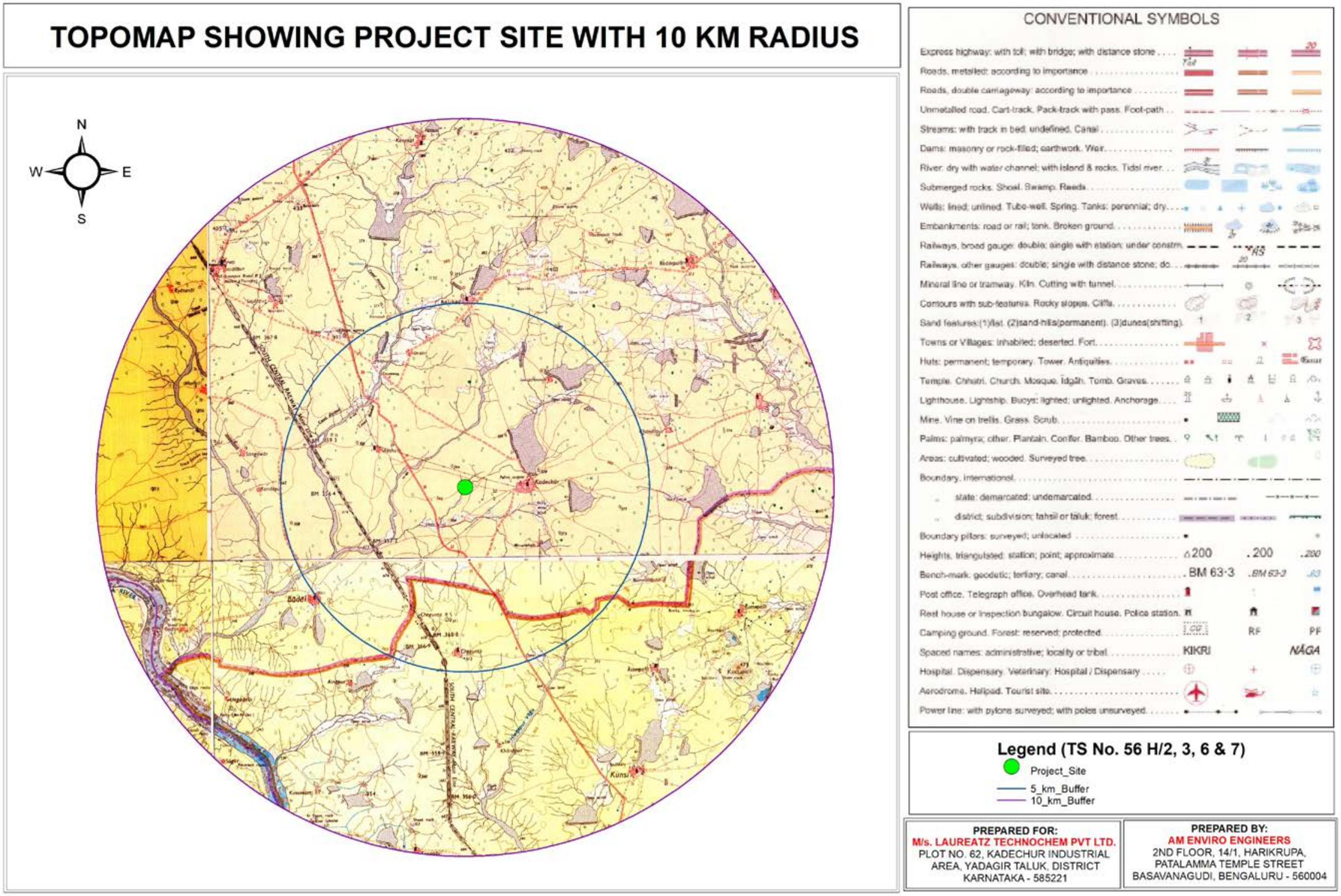

FIGURE – 1.1: TOPOMAP (1:50,000) WITH 10 KM RADIUS DEMARCATION

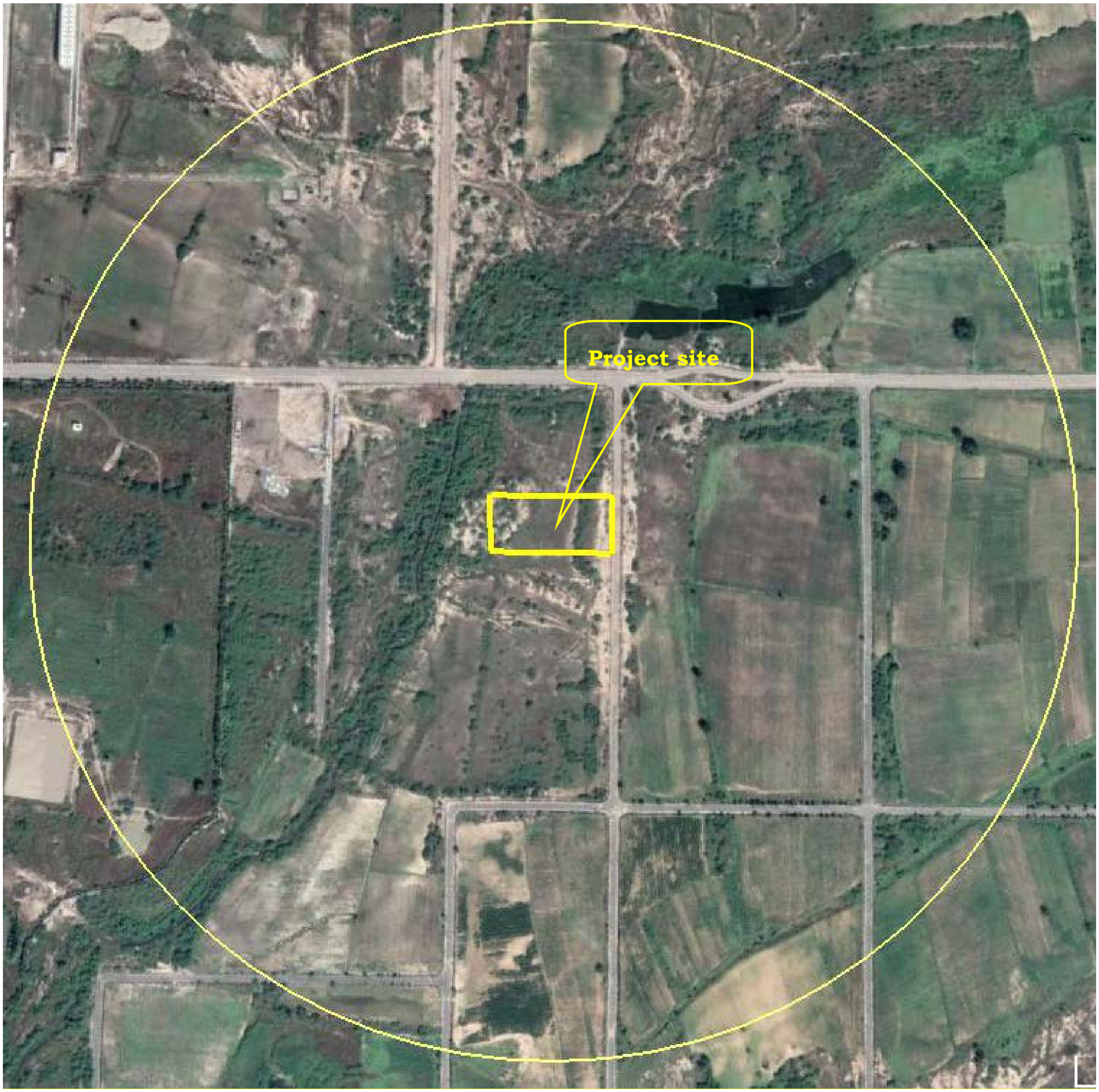

FIGURE: 1.2: GOOGLE IMAGE SHOWING 500 M RADIUS AROUND THE SITE

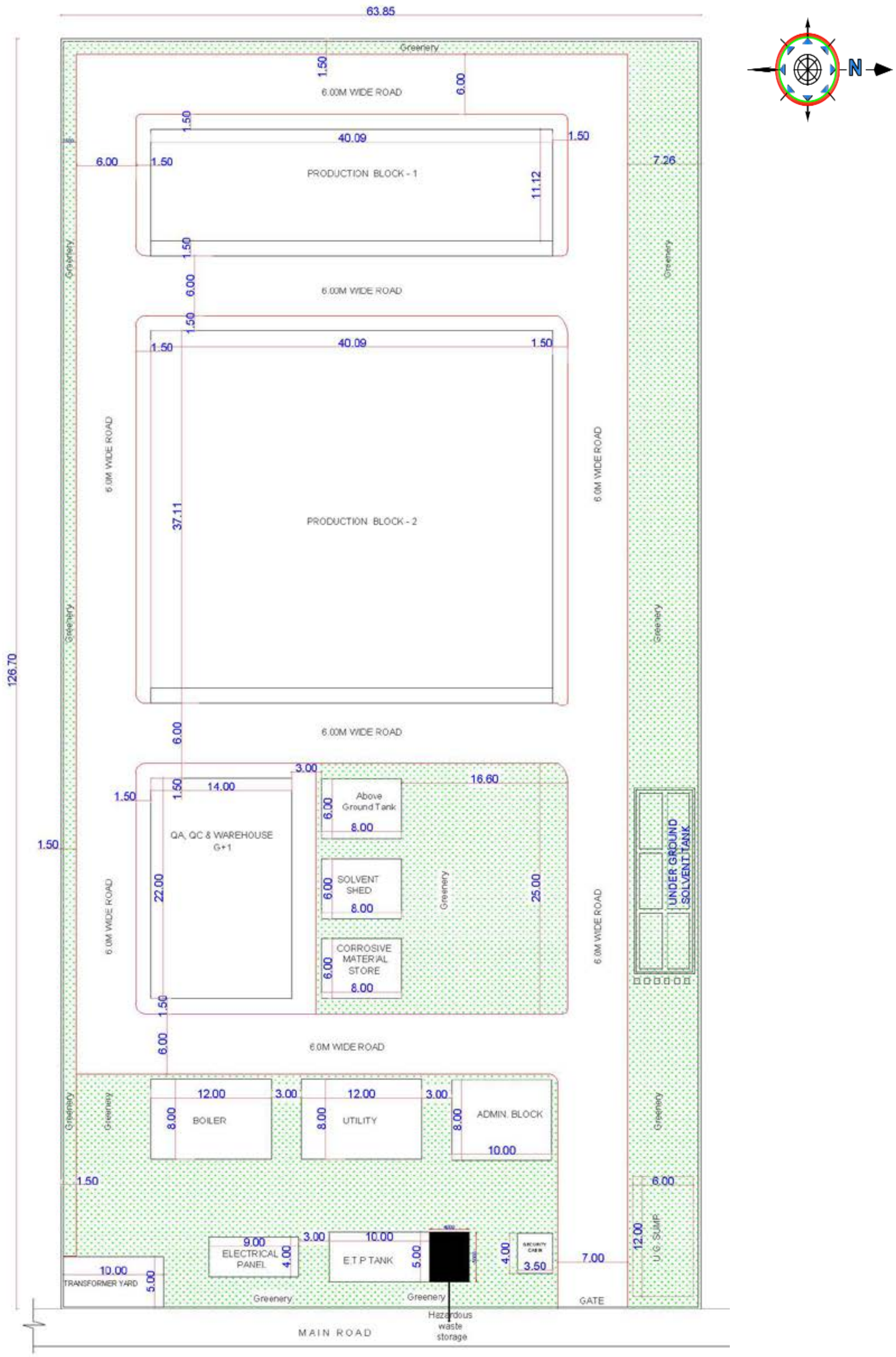

FIGURE – 1.3: LAYOUT PLAN OF THE PROPOSED PROJECT SITE

FIGURE-1.4: PHOTOS OF THE PROJECT SITE

1.4 BRIEF DESCRIPTION OF THE PROJECT

KIADB has allotted 2.0 acres of land to M/s. Laureatz Technochem Pvt. Ltd at Plot No. 62, Kadechur Industrial area, Yadagir Taluk & District, Karnataka in the year of 20-03-2021. The industry is proposing for manufacturing of API of 48 TPM capacity.

The project falls in the activities listed under the EIA notification- 2006 hence does require prior Environmental Clearance under the EIA notification 2006. The proposed project is covered under activity 5 (f) "Synthetic organic chemicals industry" of Category- "B" of MoEF as per the EIA notification vide gazette no. S.O. 1533 dated 14th September 2006. As per the MoEF notification dated 27th March 2020 & 15th Oct 2020, Pharmaceutical industries are categorized as 'B2' accordingly application has been submitted to MoEF & CC.

The Karnataka – Telangana interstate boundary is at 2.64 Km in South direction from the proposed project site. Hence the proposed project has to obtain environmental clearance from MoEF & CC.

1.5 IMPORTANCE OF THE PROJECT

The drugs demand in India is increasing rapidly due to rapid growth of population. The requirement addition at the present rate will not be able to meet the projected demand and would result in a large drug deficit. To mitigate the gap between demands and supply Govt. of India is facilitating large scale capacity additions at shorter time through public and private investments. India with its large talented manpower, cost effective chemical synthesis, legal & financial framework is poised to become sourcing destination of drugs to the global market.

CHAPTER - 2

2.0 PROJECT DESCRIPTION

2.1 TYPE OF PROJECT

M/s. Laureatz Technochem Pvt. Ltd has proposed for establishment of new API manufacturing industry at Kadechur industrial area, Yadagir Taluk & District, Karnataka. As per the EIA notification vide gazette no. S.O. 1533 dated 14th September 2006, the proposed project comes under activity 5 (f) "Synthetic organic chemicals industry" of Category- "B" of MoEF.

2.2 NEED FOR THE PROJECT

India with its large talented manpower, cost effective chemical synthesis, legal & financial framework is poised to become sourcing destination of API's to the global market. Global economic progress and social wellbeing depend a lot on health, both human and animal. Therefore, M/s. Laureatz Technochem Pvt. Ltd wants to help make a difference in these two areas by ability to compete, innovate and perform. Industry strategies revolve around the changing requirements of customers and partners, and we comply with evolving standards of regulators.

2.3 PROJECT MAGNITUDE

The total production capacity from the proposed project is 48 TPM. The list of the proposed products is given in below table.

TABLE – 2.1: LIST OF PROPOSED PRODUCTS WITH CAPACITY

S. No	Name of Products	Qty. in TPM	CAS No.	Therapeutic Use
1.	Adefovir	2	142340-99-6	To treat chronic (long-term) hepatitis B infection
2.	Bortezomib	1	179324-69-7	Multiple myeloma
3.	Capecitabine	5	154361-50-9	Anti-Cancer
4.	Clopidogrel Bisulphate	5	120202-66-6	Cardiovascular
5.	Dapagliflozin	2	461432-26-8	Anti-diabetic

6.	Dapoxetine Hydrochloride	2	129938-20-1	Inhibitor
7.	Darunavir Ethanolate	3	635728-49-3	Antiviral
8.	Empagliflozin	2	864070-44-0	Anti-diabetic
9.	Etodolac	1	41340-25-4	Anti-inflammatory
10.	Etoricoxib	15	202409-33-4	Anti-inflammatory
11.	Famotidine	3	76824-35-6	To treat gastritis
12.	Imatinib Mesylate	1	152459-95-5	Anti-Cancer
13.	Irinotecan HCl	1	136-572-09-3	Topoisomerase I inhibitors
14.	Ivabradine HCl	2	148849-67-6	To treat heart disease
15.	Lenalidomide	1	191732-72-6	To treat anemia
16.	Linezolid	5	165800-03-3	Antibiotic
17.	Mesalamine	10	89-57-6	Ulcerative colitis
18.	Olmesartan Medoximil	1	144689-63-4	Anti-hypertension
19.	Pantoprazole Sodium	8	138786-67-1	To treat gastritis
20.	Piroctone Olamine	5	68890-66-4	Antifungal
21.	Ramipril	5	87333-19-5	To treat high blood pressure
22.	Risperidone	2	106266-06-2	Schizophrenia
23.	Sacubitril	2	149709-62-6	Chronic heart failure and reduced ejection fraction
24.	Sparfloxacin	5	110871-86-8	Antibiotic
25.	Tadalafil	5	171596-29-5	To treat erection problems
26.	Tamsulosin hydrochloride	1	106463-17-6	To treat Benign Prostatic Hyperplasia (BPH)
27.	Telmisartan	5	144701-48-4	Anti-hypertensive
28.	Thalidomide	1	50-35-1	To treat a skin condition and cancer
29.	Triclabendazole	3	68786-66-3	Anthelmintics
30.	Zoledronic acid	1	165800-06-6	To treat high levels of calcium
	Total (6 products)	**48**		

Note: From the above list of products, any 6 products will be manufactured at a given point of time.

TABLE-2.2: LIST OF PROPOSED BY-PRODUCTS

S .No	Name of the Product	Name of the By Product	Quantity in Kgs/Day
1	Capecitabine	Peridine Hydrochloride	59.69
2	Famotidine	Potassium chloride	53.14
3	Piroctone Olamine	Aluminium hydroxide solution	1452.5
4	Pantoprazole Sodium	Potassium Sulphate	60
		Ammonium Phosphate	35
		Sodium Acetate	110
		Ammonium Chloride	72.25
5	Telmisartan	Sodium phosphate	251

TABLE-2.3: SALIENT FEATURES OF PROPOSED MANUFACTURING OF API'S

Description	Details
Project Name	Manufacturing of Active Pharmaceutical Ingredients (API)
Proponent	M/s. Laureatz Technochem Pvt. Ltd
Total Site Area	8089.8 Sq.m (2.0 acres)
Greenbelt area	2694.3 Sq.m (33.3%)
Land	KIADB land
Products capacity	48 TPM (6 products)
Man power	55 no's
Total Water required	135.3 KLD (Fresh water – 83.1 KLD)
Effluent generation	67.6 KLD (Domestic sewage – 2.1 KLD)
Treatment Plant Capacity	Sent to CETP, Kadechur
Source of water	KIADB
Cooling tower capacity	2 X 150 TR, 1 X 300 TR
Power	500 KVA
Boiler	1 X 4 TPH (Briquettes/Coal)
Scrubbers	2 X 500 cfm & 1 X 1000 cfm (Two stage)
Thermic fluid heater	2,00,000 Kcal/hr. (Briquettes/Coal)
Power Source	GESCOM
Power Back up	1X 250 KVA
Project cost	6.6 Crores

2.4 PROCESS DESCRIPTION

Process description of the proposed product along with route of synthesis, flow diagram & material balance is attached as **ANNEXURE –3.**

2.5 RAW MATERIAL REQUIREMENT

2.5.1 MAJOR RAW MATERIALS

Many raw materials are required for the chemical synthesis processes that are used by the industry. During transportation of the raw materials, the procedures given in the MSDS will be followed and the list of raw materials is enclosed as **ANNEXURE -4**. The mode of transportation is through roads.

(I). STORAGE, HANDLING AND TRANSPORTATION OF RAW MATERIALS & PRODUCTS

Raw materials are stored in containers in the storage area, products are stored in product house. Raw materials are transported through trucks to the plant and within the plant small vehicles such as forklifts are used to move the raw materials. Products are transported through vehicles according to the requirement and capacity of the customer requirement.

a) STORAGE

Industry will provide adequate and proper storage facilities for all the raw materials and finished products. Corrosive substances will be stored away from the moisture. Solid raw material will be stored in covered area and liquid raw material will be stored in closed horizontal tank. Hazardous chemicals and solid wastes will be stored away from other plant activities. The storage yard of chemicals will be isolated and it will be equipped with all necessary safety measures.

2.5.2. SOLVENT REQUIREMENTS

Solvents are of immense importance in Pharmaceutical Industry. Various solvents are stored and handled every day in different stages of manufacturing. In the proposed API manufacturing facility of M/s. Laureatz Technochem Pvt. Ltd, utmost care will be taken from the design stage to minimize losses and also hazards. Steps will be taken from the receipt to final disposal are as follows. Dedicated fresh solvent storage facility will be provided to meet uninterrupted supply of different solvents to the various process areas. The fresh solvents used during the course of processing get contaminated and come out of the process units with impurities. These solvents are recovered and reused after purification.

The basic points considered in the design, installation and operation of solvent storage and handling facility are

1. Solvent storage capacity required for each solvent.
2. Solvents stored in tanks & drums.
3. Capacity of Unloading/loading facility for each solvent.
4. Sizing of tank, pump and pipeline.
5. Preparation of basic P & ID for storage and transfer
6. Tank farm lay out design.

All the solvents are highly flammable and hence pose potential fire hazard. These solvents stored in the storage area fall under the purview of Petroleum Act and Rules, which are implemented by chief controller of explosives (CCOE). The layout and design of solvent storage area shall conform to the latest petroleum rules and PESO guidelines.

The fresh solvent requirement will be depended on generation of distillation loss. The details of solvent consumption and loss details are given below.

TABLE-2.4: PROPOSED SOLVENT USAGE, LOSSES AND RECOVERY

Sl. No	Product Name	Qty/ month in kg	Qty/ day in kg	No of batches per day	Solvent	Qty. in kg/day				
						Solvent input	Solvent Recovery	Solvent Loss	Solvent in Wastewater	Solvent in residue
1.	Adefovir	2000	66.67	4.76	DMF	333.35	309.54	14.29	0	9.52
		2000	66.67	4.76	Toluene	333.35	285.72	14.29	19.05	14.29
2.	Bortezomib	1000	33.33	3.33	N-Heptane	10	9.67	0.33	0	0
		1000	33.33	3.33	THF	43.33	40.83	2.17	0.33	0
		1000	33.33	3.33	MDC	148.3	141.21	4.09	0	3
		1000	33.33	3.33	Diisopropyl Ether	79.5	74.3	3.53	1.67	0
		1000	33.33	3.33	IPA	16.67	15.84	0.33	0	0.5
		1000	33.33	3.33	Methanol	100	88.5	5.83	1.67	4
		1000	33.33	3.33	DMF	50	47.5	0.1	0	2.4
		1000	33.33	3.33	Ethyl Acetate	66.67	63.33	2.67	0	0.67
		1000	33.33	3.33	n-Heptane	123.33	117.33	4.5	0	1.5
		1000	33.33	3.33	Acetone	50	47.5	2.5	0	0
3.	Capecitabine	5000	166.7	6.67	MDC	6733.4	6400.13	133.34	0	200
		5000	166.7	6.67	Ethyl acetate	5666.7	5386.77	113.34	0	166.67
		5000	166.7	6.67	Methanol	2000.0	1900.04	40	26.67	33.33
4.	Clopidogrel Bisulphate	5000	166.7	3.33	Methylene Dichloride	999.96	949.96	50	0	0
		5000	166.7	3.33	Acetonitrile	166.66	159.99	6.67	0	0
		5000	166.7	3.33	Toluene	2283.2	2193.24	90	0	0
		5000	166.7	3.33	Isopropyl alcohol	333.32	319.99	13.33	0	0
		5000	166.7	3.33	Methanol	129.99	123.32	6.67	0	0
		5000	166.7	3.33	n-Hexane	833.3	789.97	40	3.33	0

		5000	166.7	3.33	MEK	483.31	459.98	23.33	0	0
		5000	166.7	3.33	Acetone	483.31	459.98	20	0	3.33
5.	Dapagliflozin	2000	66.67	1.33	MDC	400.02	380.02	13.33	0	6.67
		2000	66.67	1.33	Toluene	546.69	506.69	20	10.67	9.33
		2000	66.67	1.33	Methanol	400.02	373.35	13.33	6.67	6.67
		2000	66.67	1.33	N-Hexane	126.67	120.01	2.66	2.67	1.33
		2000	66.67	1.33	THF	333.35	306.68	13.33	6.67	6.67
		2000	66.67	1.33	Acetonitrile	400.02	378.69	20	0	1.33
		2000	66.67	1.33	MDC	400.02	380.02	20	0	0
6.	Dapoxetine HCl	2000	66.67	0.83	Methanol	995.00	943.00	40.00	2.00	10.00
		2000	66.67	0.83	Ethyl acetate	1170.7	1112.18	58.54	0	0
7.	Darunavir Ethanolate	3000	100.0	1.00	N-Methyl-2-Pyrrolidinone	224.88	211.39	8.99	4.5	0
		3000	100.0	1.00	Ethyl acetate	1094.4	1039	53.45	2	0
		3000	100.0	1.00	Ethanol	329.83	313.44	14.39	2	0
8.	Empagliflozin	2000	66.67	0.67	Toluene	400.02	366.69	13.33	10.67	9.33
		2000	66.67	0.67	Methanol	400.02	366.69	16.66	10	6.67
		2000	66.67	0.67	THF	400.02	366.69	13.33	10.67	9.33
		2000	66.67	0.67	Acetonitrile	200.01	183.34	10	4.67	2
		2000	66.67	0.67	MDC	200.01	183.34	10	0	6.67
9.	Etodolac	1000	33.33	0.17	Methanol	124.99	122.95	5	0	1.2
10.	Etoricoxib	15000	500.0	5.00	EDC	1250	1190	25	0	35
		15000	500.0	5.00	Hexane	1000	950	20	0	30
		15000	500.0	5.00	Toluene	2500	2375	50	25	50
		15000	500.0	5.00	THF	6000	5700	120	45	135
11.	Famotidine	3000	100.0	1.00	Acetone	170	161	8	0	1
		3000	100.0	1.00	Methanol	39	37	1	1	0

12.	Imatinib Mesylate	1000	33.33	0.67	IPE	133.33	126.66	2.67	0	4
		1000	33.33	0.67	Methanol	1072	1017	21.57	12.66	20.77
		1000	33.33	0.67	n-Butanol	666.67	633.34	13.33	5.33	14.67
		1000	33.33	0.67	IPA	166.67	158	3.34	5.33	0
		1000	33.33	0.67	MDC	533.33	506.67	10.66	0	16
		1000	33.33	0.67	Ethyl acetate	80	76	1.33	2.67	0
13.	Irinotecan HCl	1000	33.33	3.33	MDC	100	95	2	0	3
		1000	33.33	3.33	Di isopropyl ether	100	95	2	0	3
		1000	33.33	3.33	Iso propyl alcohol	166.67	158.33	3.33	3.33	1.68
		1000	33.33	3.33	N-methyl-2-Pyrrolidine	133.33	126.67	2.66	0	4
14.	Ivabradine HCl	2000	66.67	1.33	MDC	40	38	0.8	0	1.2
		2000	66.67	1.33	Acetone	40	38	0.8	0.4	0.8
		2000	66.67	1.33	DMSO	13.33	12.67	0.26	0.4	0
		2000	66.67	1.33	MIBK	20	19	0.4	0	0.6
		2000	66.67	1.33	IPA	40	31.67	0.66	0	7.67
		2000	66.67	1.33	DMF	26.67	25.33	0.54	0	0.8
15.	Lenalidomide	1000	33.33	1.33	Methanol	53.33	50.67	1.06	0.8	0.8
		1000	33.33	1.33	Dichloromethane	20	19	0.4	0	0.6
		1000	33.33	1.33	Hexane	40	38	0.8	0	1.2
16.	Linezolid	5000	166.7	1.67	MIBK	2000.0	1908.37	91.67	0	0
		5000	166.7	1.67	MDC	2666.7	2533.38	133.34	0	0
		5000	166.7	1.67	Methanol	2083.3	1955.04	95	33.34	0
		5000	166.7	1.67	Ethyl acetate	1000.0	950.02	50	0	0
17.	Mesalamine	10000	333.3	10.01	Aniline	260.26	203.2	57.06	0	0
18.	Olmesartan Medoximil	1000	33.33	0.33	THF	233.31	221.64	4.67	3.67	3.33
		1000	33.33	0.33	Ethyl acetate	116.66	110.99	2.34	1	2.33

		1000	33.33	0.33	Di isopropyl ether	33.33	31.66	1.67	0	0
		1000	33.33	0.33	IPA	199.98	189.98	6.67	0	3.33
		1000	33.33	0.33	MDC	399.96	379.96	8	0	12
		1000	33.33	0.33	Acetone	166.65	156.65	3.34	3.33	3.33
19.	Pantoprazole Sodium	8000	266.7	1.33	Acetone	1333.3	1259.97	66.66	2.67	4
		8000	266.7	1.33	Toluene	1066.6	1002.64	53.33	4.67	6
		8000	266.7	1.33	MDC	2933.2	2790.6	140	0	2.67
		8000	266.7	1.33	Methanol	499.99	442.66	50	3.33	4
		8000	266.7	1.33	Methanol	666.65	613.32	26.67	4	16
		8000	266.7	1.33	Chloroform	1399.9	1333.3	66.67	0	0
20.	Piroctone Olamine	5000	166.7	0.83	Methanol	2500.0	2331.71	124.17	31.25	12.92
		5000	166.7	0.83	EDC	833.35	791.68	41.67	0	0
		5000	166.7	0.83	Ethyl acetate	833.35	783.35	37.5	0	12.5
21.	Ramipril	5000	166.7	0.33	Ethyl acetate	200	190	10	0	0
		5000	166.7	0.33	Ethanol	216.67	206	10.67	0	0
22.	Risperidone	2000	66.67	0.13	MIBK	40	38	2	0	0
		2000	66.67	0.13	DMF	3.33	2.93	0.27	0	0.13
		2000	66.67	0.13	IPA	66.67	62.94	3.33	0	0.4
23.	Sacubitril	2000	66.67	0.67	Toluene	466.69	446.69	10	0	10
		2000	66.67	0.67	Acetone	266.68	253.35	6.66	0	6.67
		2000	66.67	0.67	Methanol	266.68	253.35	6.66	0	6.67
24.	Sparfloxacin	5000	166.7	1.67	Toluene	2333.3	2200.04	116.67	16.67	0
		5000	166.7	1.67	Ethanol	4305.7	4064.05	213.9	163.9	0
25.	Tadalafil	5000	166.7	1.67	DMSO	250.01	238.34	6.67	2.5	2.5
		5000	166.7	1.67	Methanol	250.01	238.34	6.67	2.5	2.5
26.	Tamsulosin HCl	1000	33.33	0.17	Methanol	149.99	142.49	5	0	2.5
		1000	33.33	0.17	Ethyl acetate	83.33	79.17	2.5	0.83	0.83

		1000	33.33	0.17	n-Hexane	83.33	79.17	3.33	0	0.83
		1000	33.33	0.17	Ethanol	149.99	142.49	5	0	2.5
27.	Telmisartan	5000	166.7	1.67	Methanol	4491.5	4338.17	221.65	29.49	3.33
		5000	166.67	1.67	Chloroform	533.31	506.65	26.66	0	0
		5000	166.7	1.67	MDC	1999.9	1896.59	100	0	3.33
		5000	166.7	1.67	Acetone	749.97	711.64	36.66	0	1.67
		5000	166.7	1.67	n-Hexane	166.66	158.33	8.33	0	0
28.	Thalidomide	1000	33.33	0.33	N,N-DMF	33.33	29	3.33	0.67	0.33
29.	Triclabendazole	3000	100.0	0.20	Methanol	3100	2945	62	78.95	48
		3000	100.0	0.20	Toluene	500	475	10	7	8
		3000	100.0	0.20	Ethyl acetate	500	475	10	0	15
30.	Zoledronic acid	1000	33.33	3.33	Ethyl acetate + Toluene	466.66	433.33	33.33	0	0
		1000	33.33	3.33	Chloro benzene	133.33	100	33.33	0	0

Synthetic Organic Chemicals involves the use of various chemicals and organic solvents either directly as reactant or for extraction of a product of interest from the reaction mixture. The chemicals required for the process are bought from the local markets. Mode of transportation of all raw materials and finished products for / from the project site through road. The list of solvents & hazardous and other chemicals with their storage capacity for the manufacture of above products are presented in below table.

TABLE-2.5: LIST OF SOLVENTS & STORAGE CAPACITY

Sl. No.	Solvent Name	Maximum storage (KL)	Physical status	Storage	Storage pressure & temp
1	Methanol	25	Liquid	Tanks	Ambient
2	MDC	25	Liquid	Tanks	Ambient
3	Ethyl Acetate	25	Liquid	Tanks	Ambient
4	Toluene	20	Liquid	Tanks	Ambient
5	THF	20	Liquid	Tanks	Ambient
6	Ethanol	20	Liquid	Tanks	Ambient
7	Acetone	15	Liquid	Drums	Ambient
8	Hexane	15	Liquid	Drums	Ambient

These materials are procured and stored in tankers and drums. They will be procured based on the production requirement.

During transportation of the raw material the procedures given in the MSDS will be followed. M/s. Laureatz Technochem Pvt. Ltd is not proposing use of banned chemicals and Hazardous chemicals in the proposed project.

2.6 RESOURCE REQUIREMENT

2.6.1 WATER REQUIREMENT

During operation phases water for the proposed project will be procured through KIADB water supply. Total water requirement during operation phase is estimated at 135.3 KLD (Fresh water–83.1 KLD), out of which approximately 2.5 KLD water required for domestic consumption, 10.7 KLD for gardening and remaining 122.1 KLD for industrial use. Wastewater generation is 67.6 KLD including domestic wastewater of 2.1

KLD. The effluents will be segregated into High TDS of 37.1 KLD and Low TDS streams of 30.5 KLD. The effluents generated from industrial process, after primary treatment will be sent to CETP, Kadechur. Domestic sewage will be passed to Septic tank followed by multigrade filter and the treated water will be reused for gardening purpose.

TABLE-2.6: CONSOLIDATED POLLUTION LOAD

S. No	Name of Products	Quantity per Month	Quantity per Day	Quantity in kgs/day													
				Water input	Water in Effluent	Effluents per day						Process Organic residues	Inorganic Residue	Total S.W	Spent carbon	Spent Catalyst	Process Emission
						TDS Load	Total Organics in effluents	COD load in Kgs	HTDS	LTDS	Total Effluents						
1	Adefovir	2000	66.67	238.1	238.1	47.95	20.86	31.29	306.9	0	306.9	16	0	16	0	0	0
2	Bortezomib	1000	33.33	1400	1408.77	97.43	17.4	26.1	949.47	574.13	1523.6	91.33	0	91.33	0	0	25.81
3	Capecitabine	5000	166.67	3333.3	3342.12	176.13	26.67	40	3544.9	0	3544.92	482.53	0	482.53	66.67	0	41.29
4	Clopidogrel Bisulphate	5000	166.67	5833.3	6184.5	236.07	3.33	7.47	6423.9	0	6423.9	593.67	72.53	666.2	21	0	64.94
5	Dapagliflozin	2000	66.67	1133.3	1117.69	220.08	29.37	73.12	1367.1	0	1367.15	38.53	0	38.53	0	0	16.94
6	Dapoxetine Hydrochloride	2000	66.67	2437.5	2441.02	87.17	235	375.83	2763.2	0	2763.18	10.13	0	10.13	11.67	0	0
7	Darunavir Ethanolate	3000	100	554.72	554.72	55.12	4	8.96	613.84	0	613.84	85.36	0	85.36	0	0	0
8	Empagliflozin	2000	66.67	1333.3	1314	62.35	46.09	69.14	731.11	691.33	1422.44	41.43	0	41.43	0	0	43.8
9	Etodolac	1000	33.33	66.67	219.2	0	1	2.24	0	73.1	73.1	4.04	11.19	15.23	0	0	0
10	Etoricoxib	15000	500	10500	10218.2	730.25	114.95	255.45	9518.4	1544.9	11063.4	558.65	0	558.65	10	0	545.25
11	Famotidine	3000	100	825	863.11	24.4	25.8	36.55	874	39.31	913.31	0	2.4	2.4	3	0	12.1
12	Imatinib Mesylate	1000	33.33	1400	1404.31	39.35	25.33	38	1126.3	342.67	1468.99	62.96	1.33	64.29	3.33	0	9.07
13	Irinotecan HCl	1000	33.33	83.33	83.33	0	3.33	5	86.67	0	86.67	16.13	0	16.13	0	0	4.2
14	Ivabradine	2000	66.67	133.33	136.4	21.01	0.8	1.52	155.15	3.07	158.21	26.63	35.99	62.61	1.33	0	0
15	Lenalidomide	1000	33.33	13.33	15.91	13.89	0.4	0.6	30.2	0	30.2	3.63	0	3.63	0.33	0.33	10.73
16	Linezolid	5000	166.67	3833.3	3876	142	89.5	89.32	2667	1440.5	4107.5	264.17	0	264.17	16.67	0	0
17	Mesalamine	10000	333.33	4904.9	4904.9	480.48	0	0	5385.4	0	5385.39	142.14	393.39	535.54	50.05	0	0
18	Olmesartan Medoximil	1000	33.33	455.56	447.78	45.56	8.89	13.33	502.22	0	502.22	32.67	52.89	85.56	0	0	2.12
19	Pantoprazole Sodium	8000	266.67	5066.6	5144.09	135.2	28	45.77	2315.6	2991.6	5307.29	108.11	0	108.11	13.33	0	88.48
20	Piroctone Olamine	5000	166.67	3316.6	1908	70.42	26.42	39.63	1584	420.83	2004.83	46.25	16.67	62.92	4.17	0	108.09
21	Ramipril	5000	166.67	50	57.38	0	0	0	0	57.38	57.38	3.95	0	3.95	3.33	0	0
22	Risperidone	2000	66.6667	13.33	13.33	1.47	0	0	14.8	0	14.8	0.93	0	0.93	1.33	0	9.62
23	Sacubitril	2000	66.67	400	400	12.67	0	0	412.67	0	412.67	82.67	0	82.67	0	0	7.33
24	Sparfloxacin	5000	166.67	4166.7	4174.57	124.9	136.7	291.22	4436.2	0	4436.17	15.73	0	15.73	16.67	0	69.92
25	Tadalafil	5000	166.67	200	201.2	0	13.2	20	0	214.4	214.4	10.17	0	10.17	0	0	15.95
26	Tamsulosin hydrochloride	1000	33.33	500	500	0	1.67	3.03	0	501.67	501.67	34.54	0	34.54	0	0	7.11
27	Telmisartan	5000	166.67	5383.3	5179.28	198.33	103.5	127.3	4766.7	1097.8	5864.45	139.73	0	139.73	16.67	5	13.88
28	Thalidomide	1000	33.33	233.33	233.33	9	0.67	2.09	243	0	243	2.57	0	2.57	1.67	0	9.1
29	Triclabendazole	3000	100	1500	1516.73	45.46	70.19	71.31	667.71	964.67	1632.38	37.63	0	37.63	0	2	49.4
30	Zoledronic acid	1000	33.33	266.67	266.67	170	47.67	53.86	484.33	0	484.33	25.67	0	25.67	16.67	0	0
	Total (6 products)	**48000**	**1600**	**35854.9**	**35805.5**	**2041.34**	**749.84**	**1212.24**	**34075.5**	**2642.73**	**36718.2**	**2180.89**	**582.66**	**2763.55**	**187.73**	**7.33**	**926.08**

TABLE-2.7: WATER CONSUMPTION & EFFLUENT GENERATION WITH TREATMENT MECHANISM

Sl. No.	Purpose	Fresh Water (KLD)	Recycled water (KLD)	Total Water requirement (KLD)	Effluent generation (KLD)	Treatment method
1	Process	51.1	-	51.1	36.7	Sent to CETP, Kadechur
2	Scrubbing	3	-	3	3	
3	RO reject	-	-	-	15.3	
4	Boiler	23.5	-	23.5	3.4	
5	Cooling tower	-	41.5	41.5	4.1	
6	Washing	3	-	3	3	
7	Domestic Usage	2.5	-	2.5	2.1	Septic tank followed by multigrade filter
8	Gardening	-	10.7	10.7	-	-
Total		**83.1**	**52.2**	**135.3**	**67.6**	

2.6.2 POWER REQUIREMENT

Overall Power demand during operation phase is 500 KVA. The supply of power is met through GESCOM supply. Diesel generators set of 1X250 KVA will be provided as power backup in case of power failure.

2.6.3 PROJECT COST

The overall project cost for the proposed project is 6.6 Crores.

TABLE 2.8: BREAKUP OF THE PROJECT COST

Particulars	Amount (Rs. Crores)
Land	1.39
Building, civil work	2.60
Plant & Machinery -Mechanical, Utilities, etc.	1.86
Furniture, Fixtures and other assets	0.40
Preliminary Preoperative	0.15
Miscellaneous	0.20
Total	**6.60**

2.7 LAND REQUIREMENT

M/s Laureatz Technochem Pvt. Ltd acquired the KIADB land. The present land use is industrial. The land use break up for various activities within the facility is given below.

TABLE-2.9: LAND USE DETAILS

Sl no	Description	Area (Sqmt)	Area in percentage (%)
1	Ground coverage area	2725.5	33.7
2	Green belt area	2694.3	33.3
3	Roads Area	2670.0	33.0
	Total	**8089.8**	**100**

2.8 RESOURCE OPTIMIZATION AND RECYCLING

After the reaction is complete the solvents are recovered in a distillation unit. The residue from the distillation unit is collected in a container and sent to co processing. The recovered solvents are collected in drums, labeled and analyzed. Then they are reused (recycled) for the process.

Chemical synthesis produces majority of drugs currently available in the market. Chemical synthesis consists of four steps - reaction, separation, purification, and drying. Large volume of solvents are used during chemical syntheses, extractions, and solvent interchanges. The bulk drug manufacturing process utilizes various process equipment and chemical methods. Sources of emissions include dryers, reactors, distillation units, storage and transfer of materials, filtration, extraction, centrifugation, and crystallization. Chemical synthesis consists of one or more batch reactions followed by separation and purification steps utilizing organic and inorganic reactants, solvents, and catalysts, and is solvent-intensive. Waste streams generated are numerous and complex due to the raw materials used and the varied nature of operations. Organic synthesis generates a mother liquor containing unconverted reactants, byproducts, and residual product in a solvent or aqueous base, as well as acids, bases, metals, etc.

In the proposed project in the stage of separation, there are by products which are generated and which will be recovered by considering the market values. Mainly By product recovery reduces the load on effluent treatment plant and it can be reused so that the fresh raw material consumption will reduce.

TABLE-2.10: LIST OF BY-PRODUCTS

S .No	Name of the Product	Name of the By Product	Quantity in Kgs/Day
1	Capecitabine	Peridine Hydrochloride	59.69
2	Famotidine	Potassium chloride	53.14
3	Piroctone Olamine	Aluminium hydroxide solution	1452.5
4	Pantoprazole Sodium	Potassium Sulphate	60
		Ammonium Phosphate	35
		Sodium Acetate	110
		Ammonium Chloride	72.25
5	Telmisartan	Sodium phosphate	251

As a green chemistry initiative, industry will be using palladium carbon in the hydrogenation reaction in the place of raney nickel.

In the proposed project, conservation has adequately addressed and hence, water consumption is optimized. All process effluent will be sent to CETP. M/s. Laureatz Technochem Pvt. Ltd obtained CETP and TSDF agreement (M/s. Mother Earth Environ Tech Pvt. Ltd) dated 18.03.2021 for discharge of Wastewater and hazardous waste generated from the industry. Treated water is available from the CETP for non-portable purposes; it will be procured and used for cooling tower make up which will be around 41.5 KLD and for gardening which will be around 10.7 KLD. So that the fresh water consumption will be 83.1 KLD.

2.9 WASTE MANAGEMENT

The various types of waste from different units of the proposed plant are described underneath:

2.9.1 LIQUID WASTE GENERATION & UTILIZATION AND DISPOSAL

Water is used both for process operations as well as for other non-process purposes. However, the use and discharge practices and the characteristics of the wastewater will vary depending on the operations conducted at the facility. Process wastewater includes water used for reaction, water used to clean process equipment and floors. Non-process wastewater includes no contact cooling water (e.g., used in heat exchangers), no contact ancillary water (e.g., boiler blow down, bottle washing), sanitary wastewater and wastewater from other source. The wastewater generated will be sent to CETP after primary treatment.

TABLE-2.11: EFFLUENT DETAILS

S. NO	Unit	HTDS (KLD)	LTDS (KLD)	Waste water Generation in KLD	Treatment Method
1	Process	34.1	2.6	36.7	Sent to CETP, Kadechur
2	Washings	-	3	3	
3	Boiler Blow Down	-	3.4	3.4	
4	Cooling towers Blow Down	-	4.1	4.1	
5	Scrubber System	3	-	3	
6	RO reject	-	15.3	15.3	
7	Domestic	-	2.1	2.1	Septic tank followed by multigrade filter
	Total	**37.1**	**30.5**	**67.6**	-

2.9.2 SOLID WASTE GENERATION & UTILIZATION AND DISPOSAL

Both non-hazardous and hazardous wastes are generated during all stages of pharmaceutical manufacturing. These wastes can include off- specification or obsolete raw materials or products, spent solvents, reaction residues, used filter media, still bottoms, used chemical reagents, dusts from filtration or air pollution control equipment, raw material packaging wastes, and laboratory wastes.

TABLE-2.12: SOLID & HAZARDOUS WASTE DETAILS

S. No	Category of the HW	Name of the Hazardous Waste	Quantity	Disposal Method
Hazardous waste generation from plant				
1	5.1	Waste oils & Grease/ Used Mineral oil	0.2 KL/Annum	Agencies authorized by KSPCB
2	5.2	Oil Soaked Cotton	2 Kgs/month	KSPCB authorized Vendor
3	20.3	Distillation Residue	830 kgs/day	Store in secured manner and hand over to authorized cement industry for Co-processing
4	28.1	Process Residues & Waste	2764 Kgs/day	Store in secured manner and hand over to authorized cement industry for Co-processing/TSDF
5	28.2	Spent Catalyst	7.3 kgs/day	Store in secured manner and hand over to authorized recycler
6	28.3	Spent Carbon + Hyflow	188 Kgs/Day	Store in secured manner and hand over to authorized cement industry for Co-processing
7	28.4	Off Specification Products	1 TPM	Store in secured manner and hand over to authorized cement industry for Co-processing/TSDF
8	28.5	Date expired products	500 Kgs/Month	Store in secured manner and hand over to authorized cement kiln for Co-processing/ TSDF
9	33.1	Detoxified-Container & Container Liners of Hazardous Chemicals and Wastes	250 No's/Month	After complete detoxification, shall be disposed to the outside agencies.
10	33.2	Contaminated cotton rags or other cleaning materials	25 Kgs/month	Store in secured manner and hand over to KSPCB Authorized Vendor
11	A1160	Used Lead Acid batteries	2 No's/Annum	Returned back to dealer/ Supplier
Other & Miscellaneous Solid Wastes				
12	--	Coal ash	1120 kgs/day	Sent to Brick Manufacturers

13		Briquette ash	2860 kgs/day	Sent to fertilizer industries
14	--	Residues from Scrubber	143 kg/day	Shall be stored in secured manner & handed over to TSDF.
15	--	Used PPE	5 Kgs/ Month	Sent to authorized vendor
16	--	E- Waste	150 Kgs/ Annum	Authorized recyclers
17	--	Plastic Waste	200 Kgs/ Annum	Authorized recyclers
18	--	Metal Scrap	3 TPA	Sale to outside agencies/ recyclers
19	--	Used Filters (HEPA filters, Oil Filters etc.)	25 Nos /year	Sent to TSDF
20	--	Used / Discarded RO Membranes	0.2 TPA	Sent to TSDF

2.10 PROPOSED SCHEDULE FOR APPROVAL AND IMPLEMENTATION

The industry will take necessary approvals from the consented authority and start the construction immediately after obtaining Environmental Clearance.

TABLE 2.13: TIME FRAME FOR COMPLETION OF THE PROJECT

Details of work	Aug 2021 to July 2022	Dec 2021 to April 2022
Building and construction work	12 months	
Erection of reactors and service facilities		12 months
Total	**24 months**	

CHAPTER - 3

ENVIRONMENTAL IMPACTS & PROPOSED MITIGATION MEASURES

3.1 ENVIRONMENTAL SCENARIO FOR THE PROJECT

Every developmental activity interacts with the environment and leaves some environmental impact. Some environmental impacts associated with the current project are also inevitable. As per good manufacturing practices, such environmental impacts arising out of the project are identified well in advance and the consequences are assessed for incorporating the preventive/mitigation measures through a precautionary approach.

The proposed project would create impacts on the environment in two distinct phases:

Phase 1: During the construction phase which may be regarded as temporary or short – term

Phase 2: During the operation stage which will have marginal impact.

3.2 ANTICIPATED IMPACTS AND MITIGATION MEASURES CONSTRUCTION PHASE

Environmental impacts during the construction phase can be attributed to the site preparation, excavation of trenches, erection & mechanical fabrication, construction activities, transportation etc. The potential for environmental impact during construction phase on most of the environmental components, is temporary, and the environment returns back to its previous status on completion of the construction. State of the art technology will be adopted for control of pollution during project execution phase, whenever and wherever applicable.

All construction activities generally cause disruptions to the pre project environmental quality. The following environmental protection measures shall be incorporated as part of terms and conditions of contract for implementation by the contractor or the authority as appropriate. Recommendations made to minimize impacts during construction phase are delineated below:

TABLE-3.1: IMPACTS DURING CONSTRUCTION PHASE

S. No.	Environmental parameter	Impacts	Mitigate measures
1	Water	Short term negative impacts due to water consumption & sewage disposal	Water requirement for construction phase will be very minor and for short period and will be fulfilled by KIADB through tankers. Thus, there will not be any significant impact on water environment. • The wastewater generation will be from the domestic activities. Domestic effluent will be disposed of through mobile Septic tank followed by soak pit. • Greenbelt development will have positive impact on ground water table. • Measures will be implemented to prevent seepage of liquid materials into ground where it could contaminate groundwater and soil. ✓ Ensure prompt cleaning up of accidental spillages ✓ Measures will be followed to prevent the contamination of hydrological features by diesel, grease, oil, etc. derived from the working area ✓ The machinery / equipment will be maintained in a good operating condition ✓ Specially designated areas will be created for vehicle maintenance ✓ Strom water will be routed through the drain after passing though the siltation tank to avoid carrying of sand. • Provisions will be made to ensure the construction vehicles stick to the access track to prevent mud & dirt being deposited on roads. • All mud & dirt deposited on the roads from the construction activities will be cleaned. • Adopting good construction and engineering

			practices will help in mitigating the water pollution.
2	Air	Short term negative impacts because of dust emission due to site cleaning, road laying, earthwork, transportation & construction	As the project, changes will be carried out within the premises, very negligible site cleaning will be required. • Construction confined to proposed project site will be carried out as per the requirement. • The emissions will be temporary and confined within proposed project boundary. It is not expected to contribute significantly to the ambient air quality. • However, the unit will take following measures for control of dust emissions: ✓ Use of plastic cover sheet while transporting raw material at site ✓ The heights, from which materials will be dropped, will be the minimum practical height to limit fugitive dust generation. ✓ Use of water sprinkling system at site for dust suppression ✓ Provision of barricade sheet of steel sheet/ tin sheet of minimum 3m heights to protect the surrounding area from the dust ✓ All transportation vehicles will be suitably covered with tarpaulin & overloading of the vehicles will be avoided. ✓ PUC certified vehicles will be used to avoid the exhaust emission. • The construction activity will be carried out during day time only. • Greenbelt development will have significant impact in reduction of dust dispersion.
3	Land	Short term negative impact due to change in top layer of soil	Project construction will be carried out within the premises. Therefore no change will occur in land use pattern as well as there will not be any significant topographical change. However, temporary change in top layer of soil will be occurred but the construction activity will help in fixation of soil, thereby reducing the soil

			erosion. • Top soil to be generated during construction activity will be preserved and used for the green belt development. Other excavated earth from the construction activity will be used for the backfilling and leveling in low laying area. • Greenbelt development will have significant impact in reduction of the soil erosion.
4	Noise	Short term negative impact due to increase in noise level by site cleaning, road laying, earthwork, transportation & construction activities	The noise impacts due to construction activities will be local; limited to the premises and for very short period of time. • The noise generated from construction machinery will be kept low by keeping the moving parts serviced and properly lubricated. • The construction activity will be carried out during day time only. • Vehicular movement carrying raw materials will be avoided during night time. • The vehicles will be regularly maintained and optimum use of the same will be made. • Adequate PPE's (ear plugs, ear muffs, helmet, mask etc.) will be provided to the workers. • PUC certified vehicles will be used. • Greenbelt development will have significant impact in reduction of the noise.
5	Socio-economic environment	Short term positive impact by employment generation	Temporary employment will be generated due to construction activities and related services like transportation of construction materials, mechanical erections etc. Proper facility for domestic water supply, sanitation, domestic fuel and other essential community services shall be made available to the construction workers.
6	Ecology	Long term positive impact due to green	Unit will provide greenbelt area in premises which will have positive impact on local flora & fauna.

		belt development	

3.3 ANTICIPATED IMPACTS AND MITIGATION MEASURES DURING OPERATIONAL PHASE

Several control measures have been incorporated in the process technology to minimize the generation of wastes and subsequent environmental impacts during the operational phase. Strict adherence to these pollution prevention and control measures shall moderate the environmental impacts to the minimum possible level during operational phase. In general, the environmental management plan during operational phase of the plant shall be directed to the following:

- It shall be ensured that all the pollution control / environment management systems are commissioned before the commencement of operation of the project.
- Wherever possible, the control systems shall be interlinked with the operational units, so that failure of the control system shall shut down the respective operational unit.
- Regular performance evaluation of the control systems shall be undertaken to ensure their optimum performance.
- Preventive maintenance schedule of the control systems will be matching with that of the respective operational unit.
- Regular monitoring for various components of environment shall be undertaken to ensure effective functioning of pollution control measures as well as to safe guard against any unforeseen changes in environment.
- Efforts shall be made to ensure the maximum utilization of wastes generated.

A program of vegetation reinstatement should be undertaken to compensate for loss of vegetation cover during construction phase.

During the operational phase, there will not be any significant impacts on various environmental components. The various accidental spillage/emission which can lead to emergencies are not covered in the present study.

3.3.1 MANAGEMENT OF AIR ENVIRONMENT

The main raw materials required for the proposed project are various chemicals, solvents, etc., for production of Synthetic Organic Chemicals, Briquettes/Coal for boilers & and Diesel for DG sets. The main sources of pollution envisaged from the proposed project are as follows.

- Process emissions
- Boiler & DG set emissions
- Details of process, boiler and DG set emissions as follows

TABLE-3.2: PROPOSED AIR EMISSIONS AND CONTROL METHOD

SI. No	Stack attached to	Fuel used	Fuel consumption	Number of stacks	Stack/s height	Emissions	Air pollution control unit
1	Process section	-	-	3	10 m AGL	Acid mist, NH_3, HBr, HF, HI, C_2H_5, O_2, CO_2, H_2	Scrubber (3 no's)
D.G. sets							
2	1 X 250 KVA	HSD (L/hr)	52	1	4 m AGL	SOx, NOx, PM	Acoustic Measures
Boiler							
3	1 X 4 TPH	Briquettes (TPD)	11	1	30 m AGL	SO2, NOx, PM	Multi cyclone separators
		Coal (TPD)	8				
Thermic Fluid Heater							
5	Thermic Fluid Heater – 2,00,000 Kcal/Hr	Coal /Briquette (TPD)	2 3	1	15 m AGL	SO2, NOx, SPM,	Chimney

a. Fugitive Emissions from Solvents Handling & Recovery and Mitigation Measures

Various types of solvents are used in the Synthetic Organic Chemicals process. Fugitive emissions are expected from the reactors in the workroom, storage tanks area and as well as from handling area. Product wise solvent usage, losses and recovery are estimated based on the material balance.

Industry proposed several steps to minimize the solvent vapour emanations and recovery procedures. To control fugitive emission from process/ reaction, all reactors will be equipped with two stage condensers – primary condenser and secondary condenser. For effective condensation of vapour during reaction and distillation, primary condenser will be provided chilled water and secondary condenser will be provided chilled brine of as utility. Solvents and chemicals are handled in closed loop to avoid emission to atmosphere. Chemicals are stored under controlled temperatures to avoid evaporation during storage.

Solvent management for effective recovery:

- ✓ Reactor and solvent handling pump will have mechanical seals to prevent leakage.
- ✓ Condensers will be provided with sufficient Heat Transfer Area and residence time so as to achieve maximum recovery.
- ✓ Solvents will be stored in a separate space specified with all safety measures.
- ✓ Proper earthing will be provided in all the electrical equipment wherever solvent handling is done.
- ✓ Low boiling solvents storage tanks are insulated
- ✓ Entire plant where solvents are used, the equipment's/pumps/fittings will be of flame proof.

Mitigation Measures

To control the fugitive emissions generated during various operations in the industry, the following mitigation measures will be adopted.

- ✓ All reactors will be provided by double condensers.
- ✓ Mechanical seals will be provided for all the reactors for improving emission control measures.
- ✓ Mother liquors will be collected in closed drums.
- ✓ Wherever possible, pressure nutch filters (PNF) will be used in place of centrifuges to reducing the solvent emissions.

Process Emissions and Mitigation Measures

Manufacturing of Synthetic Organic Chemicals will result in gaseous emissions. Maximum Process emissions with their quantities and treatment method are presented in Table 3.3. Gaseous emissions will be scrubbed in multi stages with water /caustic / solution based on the characteristics of gases.

TABLE-3.3: PROPOSED PROCESS EMISSIONS AND CONTROL METHOD

S. No	Name of the Gas	Quantity in Kg/Day	Treatment Method	Disposal Method
1	Hydrogen chloride	609.7	Scrubbed by using water media	Generated Dil. HCl will be reused within the industry
2	Ammonia	27.5		Generated NH_4OH will be reused within the industry
3	Sulphur dioxide	80.1	Scrubbed by using C.S. Lye solution	Residues from the reaction will be sent to TSDF
4	Hydrogen Bromide	21.3		
5	Hydrogen Fluoride	3.3		
6	Hydrogen Iodide	19.9		
7	Pentane	9.2	Dispersed into atmosphere	-
8	Oxygen	104.8		
9	Carbon dioxide	259.2		
10	Hydrogen	20.2	Dispersed into atmosphere through flame arrester	-

b. Flue gas emissions and mitigation measures

During operational stage of the plant, Particulate Matter (PM), Sulphur dioxide (SO_2) and Oxides of Nitrogen (NOx) emissions would be the major criteria air pollutants. However, the emission concentrations are insignificant.

Stack emissions in this unit are from boilers and DG sets, which will be released to atmosphere at elevated level at considerable level. DG sets will be used as standby during power failure.

TABLE 3.4: EMISSION CHARACTERISTICS DETAILS OF BOILER

Particulars	Units	4.0 TPH Boiler	
Type of Fuel	--	Briquettes	Coal
Coal Consumption	TPD	11	8
Ash Content	%	26	14
Sulphur Content	%	0.002	1.5
No. of Stacks	No	1	
Height of stack	M	30	
Diameter of Stack	M	0.3	
Temperature of Flue Gas	^{o}C	120	
Velocity of Flue Gas	m/s	9.5	
Emission Details			
Particulate Matter as PM	gm/sec	5.5	3.3
Sulphur dioxide as SO2	gm/sec	0.004	0.9
Oxides of Nitrogen as NOx	gm/sec	0.006	0.7
Pollution Control Details			
Pollution control equipment	Multi Cyclone separator		

TABLE 3.5: STACK EMISSION DETAILS OF DG SET

Capacity in KVA	Emission of PM in gm/sec	Emission of SO2 in gm/sec	Emission of NOx in gm/sec	Stack dia. in m	Flue Gas Temp. in ˚C	Stack Height in (m)	Flue gas Velocity in m/sec
250 KVA	0.014	0.11	0.48	0.3	140	4m AGL	14

TABLE 3.6: STACK EMISSION DETAILS FOR THERMIC FLUID HEATER

Particulars	Units	Thermic fluid heater	
Thermo pack Boiler Capacity	Kcal/hr.	2,00,000	
Type of Fuel	--	Coal	Briquette
Fuel Consumption per Day	TPD	2	3
Stack Temperature	^{o}C	190	192
Velocity	m/sec	5.3	5.3
Stack Height	m	15	15
Stack Diameter	m	0.2	0.2
Ash content	%	0.14	0.26
Sulphur Content	%	1.3	0.001
Emission of PM	gm/ sec	0.8	1.4
Emission of SO2	gm/ sec	0.2	0.001
Emission of NOx	gm/ sec	0.2	0.002

3.3.2 MANAGEMENT OF WATER ENVIRONMENT

With respect to water environment; three aspects are generally considered in study, availability & requirement of water, wastewater generation and its disposal.

Water Requirement: Total water requirement for the proposed project is 135.3 KLD, out of which fresh water requirement is 83.1 KLD which will be met from KIADB.

Unit will regularly check and maintain water consumption records for the proposed project. The area falls in industrial zone, specifically chemical & pharmaceutical industries and looking to the lot of sub-surface pollution in and around the area and proposed handling of hazardous chemicals by the unit, it is not advisable to recharge aquifer directly through the recharge well. Rain water can also be stored and utilized for plantation and other purposes. Thus, it is suggested to collect, store and utilize the rain water for plantation and other industrial purposes. Water balance chart is presented below.

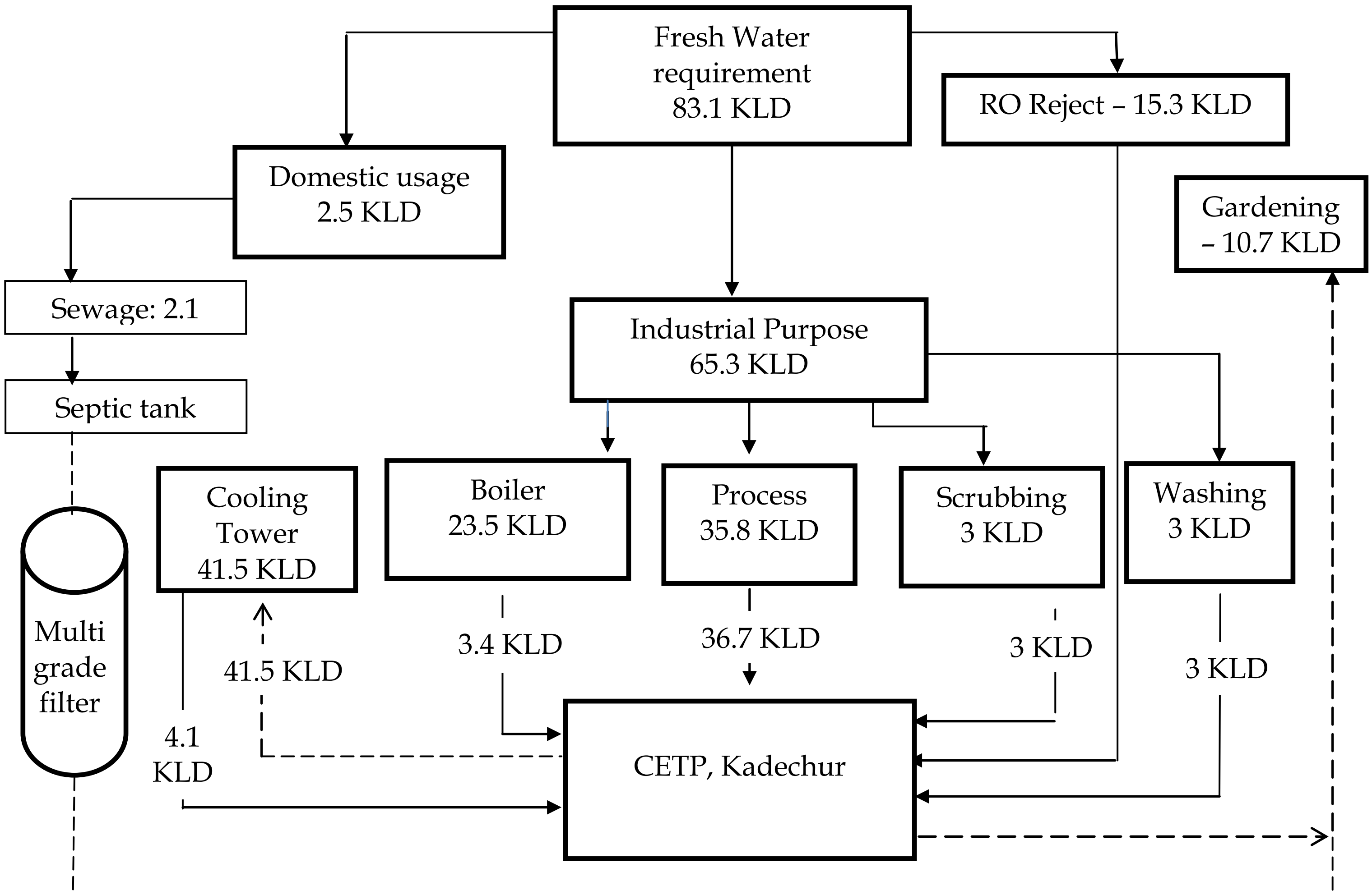

FIGURE 3.1: WATER BALANCE CHART

Hence, there will not be any adverse impact on water environment due to water availability and water requirement for the proposed project.

Wastewater generation:

Two different streams of effluent will be generated and will be sent to CETP, Kadechur.

S. NO	Unit	HTDS (KLD)	LTDS (KLD)	Waste water Generation in KLD	Treatment Method
1	Process	34.1	2.6	36.7	Sent to CETP, Kadechur
2	Washings	-	3	3	
3	Boiler Blow Down	-	3.4	3.4	
4	Cooling towers Blow Down	-	4.1	4.1	
5	Scrubber System	3	-	3	
6	RO reject	-	15.3	15.3	
7	Domestic	-	2.1	2.1	Septic tank followed by multigrade filter
	Total	**37.1**	**30.5**	**67.6**	-

Disposal of Effluent:

Effluent generated from industry will be collected in Equalization tank of capacity 75 KL and Neutralization tank of capacity 75 KL and later will be sent to CETP, Kadechur. Separate drains for storm water and wastewater collection will be provided. Open drains for storm water shall be provided and be kept neat and clean all the time and free of any cross connection from process source.

TABLE: 3.7: UNTREATED WATER CHARACTERISTICS

SL. NO.	PARAMETER	EXPECTED RANGE
1	pH	5-9
2	TSS	200 – 8,000 mg/L
3	TDS	500 – 56,000 mg/L
4	COD	600– 34,000 mg/L
5	BOD	500 – 12,000 mg/L

TABLE: 3.8: CETP TREATED WATER CHARACTERISTICS

SL. NO.	PARAMETER	CHARACTERISTIC RANGE
1	pH	6.5-8.0
2	TSS	Nil
3	TDS	<250 mg/L
4	COD	<50 mg/L
5	BOD	<30 mg/L

The wastewater generated from the industrial process and utilities is sent to CETP, Kadechur. There will not be any discharge of wastewater on the land. Domestic sewage will be passed to Septic tank followed by multigrade filter and the treated water will be reused for gardening purpose. Besides, there will be separate storm water and industrial wastewater drains to eliminate chances of mixing of rainwater with wastewater. Hazardous wastes will be stored, managed and handled as per hazardous wastes rules. All bulk chemicals and fuel storage areas will be provided with dyke wall/bunds to eliminate chances of any spillages/leakages entering into the storm water drain. No significant adverse impact on the surface and ground water or soil quality is envisaged in view of the proposed mitigation measures.

DETAILS OF RAIN WATER HARVESTING

To control soil erosion by storm water management and rain water harvesting to utilize the same for industrial uses, facility has been proposed after assessing the potential at the project. Details as follows.

1. Production Block – 1,2 of 1934 sqm
2. Ware house of 308 sqm

The total area of 2242 Sqmt.

Rainfall intensity in Yadagir – 850 mm/year

By considering 45 days of rainfall average rainfall = 850/45 days = 18.8 mm/day

Harvestable rainfall from the rooftop area Q =C I A

Where, C is runoff coefficient.

I is intensity of rainfall in mm.

A is area in Sqm.

Total rainfall = (0.9 x 2242 x 18.8)/1000 = 38 m^3/day

It is proposed to have roof water collection tank of capacity 80 cum.

RUNOFF CALCULATIONS

I. Runoff from Roads & Paved Area = (0.7 X 2670 X 18.8)/1000 = 35.1 m^3/day

II. Runoff from Landscape Area = (0.25 X 2694.3 X 18.8) /1000 = 12.6 m^3/day

Total runoff from hard paved and landscape area = 48 m^3/ day

Runoff from Landscape, Roads & Paved Area will pass through the Oil & grease trap and Siltation tank and let in to external storm water drain.

3.3.3 MANAGEMENT OF NOISE ENVIRONMENT

- The sources of intermittent noise generating equipment will be provided with appropriate acoustic barriers so that the noise level within 100 m of these facilities when in operation will be less than 70 dBA.
- Walls and ceilings of building will be lined with sound absorbing materials, wherever required
- Sheet metal casting and housing will be insulated with sound absorbing materials
- Noise generating sources and their platforms will be maintained properly to minimize noise vibrations generated by them
- Personnel working near the noisy machines in different plant locations, will be provided with well-designed ear muffs / plugs (effective noise reduction 10-15 dBA).
- Green belt will be developed to act as a noise barrier.
- Noise barriers/ shields in the form of walls, beams will be provided around the units wherever found feasible
- Training to personnel will be imparted to generate awareness about effects of noise and importance of using PPEs.

3.3.4 IMPACT OF TRAFFIC

During industrial activities, mainly emission of dust and gases from movement of vehicles and industrial activity is expected. Cement roads will be developed internally at the project site. However, following measures will be taken to reduce / contain such emissions:

- Transport vehicles and construction equipment's / machineries will be properly maintained to reduce air emissions.
- Vehicles and equipment's will be periodically checked for pollutant emissions against stipulated norms.
- Idle running of vehicles will be minimized during material loading / unloading operations.

3.3.5 SOLID WASTE MANAGEMENT

All process waste is considered as hazardous waste and segregated into process organic residues, Inorganic salts and spent carbon. The organic residues and spent carbon will be disposed to cement units, for use as alternate fuel either in the solid or liquid form as recommended by CPCB. Inorganic salts will be sent to landfill at TSDF, for incineration. Hazardous/Solid waste will be segregated, detoxified and collected in the HDPE drums/bags and will be stored in the covered and raised platform with leachate collection system till its disposal. All wastes including hazardous & non-hazardous wastes will be disposed through the method approved/permitted by the competent authority.

Hence, issues of impacts on land due to the solid/hazardous waste are not envisaged. In addition to these mitigation measures, proponent will be dedicated to maintain healthy greenbelt, which can have beneficial impact to land use, land cover and for prevention of erosion of topsoil.

3.3.6 MANAGEMENT OF SOCIO-ECONOMIC FACTORS

Local people will be employed as far as possible to avoid migration of people from outside the study area.

3.3.7 GREEN BELT DEVELOPMENT

The main purpose of green belt designing is to make the greenery work as barrier to the project site. Even, otherwise as per normal practice, the green belt provision is made around the permanent installations, subject to varying degrees of green belt thickness in the context of usual wind direction, its velocity and intensity in that specific area.

An ideal green belt always imparts scenic beauty besides providing roosting/perching place for birds and ground surface for naturally available reptiles, other flora and fauna species, to make the area more natural and hazard free.

PROPOSED AFFORESTATION

The industry proposes to develop green belt. With respect to the proposed activities more species are proposed and details are as follows.

TABLE 3.9: LIST OF PROPOSED SPECIES

TREES			
1	Indian cork tree	*Millingtonia hortensis*	82
2	Country gooseberry	*Phyllonthus ocidus*	89
3	Indian coral tree	*Erythrina variegate*	77
4	Teak	*Tectona grandis*	81
5	Beat Tree	*Aegle marmelos*	75
6	Neem tree	*Azadirachta indica*	63
7	Custard apple	*Anona squomosa*	67
8	Indian Tulip tree	*Spathodea companulata*	75
TOTAL			**609**
SHRUBS			
1	Firebush	*Hamelia patens*	40
2	Hibiscus	*Hibiscus rosa-sinensis*	36
3	Sky flower	*Duranta erecta*	35
4	Jungle geranium	*Ixora chinensis*	50
5	Scarlet bush	*Hamelia patens*	38
6	Australian Wattle	*Acacia catechu*	30
7	Golden showers	*Carissa spmarum*	30
TOTAL			**259**
GRAND TOTAL			**868**

TABLE 3.10: IMPLEMENTATION PROGRAMME FOR GREENBELT DEVELOPMENT

Plan Period	Area (sq.m)	No. of Trees & Shrubs	Trees & Shrubs
August – October, 2021	696	252	Teak, Custard apple, Scarlet bush, Hibiscus, Australian Wattle
November –December 2021, January 2022	668	197	Indian cork tree, Indian Tulip tree, Firebush
February – April, 2022	645	225	Indian coral tree, Neem tree, Jungle geranium, Sky flower
May – July, 2022	686	194	Beat tree, Country gooseberry, Golden showers
Total	**2695**	**868**	

`3.3.8 HEALTH AND SAFETY

Following measures will be adopted in the plant:

- Regular inspection and maintenance of pollution control systems.
- All measures related to safety such as safety appliances, training, safety awards, posters, slogans will be undertaken.
- The workers exposed to noisy sources will be provided with ear muffs/plugs.
- Adequate facilities for drinking water and toilets will be provided to the employees.
- The fire and safety equipment will be properly utilized and maintained regularly.
- The health of the workers will be regularly checked by a well-qualified doctor and proper records will be kept for each worker.

3.3.9. RISK ASSESSMENT

a. Identification of Hazards

- Hazard identification is the most critical step in the risk assessment. This is because to identify the hazards, experience, detailed process knowledge, engineering codes, checklist, HAZOPs etc is required.
- Hazard identification is carried out to ascertain the controls required and available in order to mitigate the risk of exposure to the hazards. This would substantially help in overcoming costly errors and prolonged delays that may be caused due to the design changes that may be required on a later date.
- Hazard assessment is carried out at the equipment design stage and the control / mitigation measures are put in place overcome them to avoid costly errors at a later stage.
- Hazard assessment in our plant is carried out examining the, material storage, type of operations, locations to find out the facilities in place to overcome the risks of exposure to the hazards.
- After a critical analysis of the chemicals used, stored, defined safe operating procedures and the different manufacturing processes, the following table lists the safety measures / installations in place and mitigation measures to overcome the hazards.

Following are the Hazards identified in proposed project activities:

- Fire Hazards
- Spillage of Hazardous chemicals which leads to Air pollution
- Explosion Hazards
- Toxic gas release
- Noise

TABLE:3.11 LIST OF SOLVENTS

S.NO	NAME OF THE SOLVENT	PHYSICAL STATE	MODE OF STORAGE	MAX. INVENTORY IN KL.	NATURE OF HAZARD	NFPA RATING
1.	Methanol	Liquid	Tank	25	Flammable	H: 1 F: 3 R: 0
2.	MDC	Liquid	Tank	25	Harmful	H: 2 F: 1 R: 0
3.	Ethyl Acetate	Liquid	Tank	25	Flammable	H: 1 F: 3 R: 0
4.	Toluene	Liquid	Tank	20	Flammable	H: 2 F: 3 R: 0
5.	THF	Liquid	Tank	20	Flammable	H: 2 F: 3 R: 1
6.	Ethanol	Liquid	Tank	20	Flammable	H: 3 F: 2 R: 0
7.	Acetone	Liquid	Drums	15	Flammable	H: 1 F: 3 R: 0
8.	Hexane	Liquid	Drums	15	Flammable	H: 2 F: 3 R: 0

b. Handling Precautions

- Use in a closed system under argon or nitrogen.
- Do not get in eyes, on skin or clothing.
- Do not breathe vapors or mist.
- Store in a cool place. Keep container closed.
- Keep away from sources of ignition, water, air, acids and oxidizing agents
- In case of fire, do not use water or carbon dioxide

c. Emergency Preparedness

- On Site Emergency Plan
- Training & Awareness

d. Safe Practices [Handling, Storage, Transportation And Unloading Of Chemicals]

Drums

Liquid Raw materials will be transferred from the drums to the day tank situated at the production block with the help of leak proof drum pumps / pumps /Vacuum through pipe lines from day tank to reaction vessel unloading by gravity.

Storage Tanks

Solvent will be transferred to the day tank situated at the production block with the help of mechanical seal pump through pipe lines from the tank, from day tank to reaction vessel unloading by gravity.

Tank is connected to chilled water circulated condenser with reflux system.

Measures to Avoid Evaporation

- Keep containers tightly closed.
- Keep away from heat, spark & flame
- Keep away from sources of ignition
- Store in a cool, dry, well-ventilated area away from incompatible substances.

Safety Systems

- Designated areas with proper indication & safety signs.
- Double earthling systems
- Flame arrestor to the vent
- Flame proof transferring pumps
- Handling precautions/SOP protocol
- Pressure Gauges
- Level indicators
- Flame proof lighting to storage yard

Transportation / Unloading

Highly inflammable chemicals will be transported by road. Therefore, adequate safety precautions for transportation are followed. During transportation of hazardous chemicals, MSDS & TREM card will be provided to driver. As per Motor Vehicle Rules, PESO rules and Factory Rules all safety precautions will be followed during transportation of hazardous chemicals.

The following safety precautions are suggested during transportation of toxic, inflammable and corrosive chemicals in tankers, while loading and unloading, transportation and meeting the emergencies arising out of leakages and spillages of hazardous materials:

- Park the vehicle at designated place.
- Stop the engine.
- Check-up spark arrester.
- Provide earthing to tanker securely.
- Ensure that fireman is available near the place with proper equipment's.
- Connect the piping properly
- Before start unloading, check that, there should not be any leakage.
- In case of leakage, immediately attend the leakages & rectify it.
- After unloading is over, close the lid properly.

- Vehicle to be started only after removal of all pipelines connected with tanker.

Safety Instructions For Transportation Of Hazardous Materials

- The name of the chemical along with pictorial sign denoting the dangerous goods should be marked on the vehicle and the packing material.
- The name of the transporter, his address and telephone number should be clearly written on the road tanker and on the vehicle.
- The tanker or vehicle should not be used to transport any material other than what is written on it.
- Only trained drivers and cleaners should transport hazardous chemicals.
- The transporter and the manufacturer must ensure the safe transportation of the material.
- The Tanker / Vehicle should be checked for its fitness and safe condition before loading.
- During loading and unloading, the tanker/vehicle should be braked and isolated against any movement, while loading/unloading, use safety appliances.
- The tanker / vehicle should not be overloaded beyond the weight permitted by R.T.O.
- Check for leakages from the line connections / containers before starting and Stopping the filling operations.
- Drive the vehicles carefully, especially in crowded localities and on Bumpy roads.
- Do not apply sudden break.
- The tanker / vehicle should not be parked for long time on the way and especially in crowded places. Park the vehicle away from residential areas

Spill Control

- For all plants spill control procedures will be displayed. Spillage shall be controlled as per concerned spill control procedure.
- Unprotected personnel up wind will be kept upwind.
- Like any spilled materials to contain. Absorb spilled liquid by dry absorbent

clay or vermiculite.

- Collect most of the contaminated absorbent with shovel for further disposal/incineration.
- If spill of material directly on the ground, dig up and remove saturated soil for disposal/incineration.
- Inactivate poisonous chemical with suitable method.

e. Effect And Consequence Analysis

- In a plant handling hazardous chemicals, the main hard due to storage, handling and use of these chemicals. If these chemicals are released into the atmosphere, they may cause damage due to resulting fires or vapor clouds last over pressures depend upon the reactivity class of material between two explosive limits.

Operating Parameters

- Potential vapor release for the same material depends significantly on the operating conditions especially for any liquefied gas, operating conditions are very critical to assess the damage potential.
- If we take up an example of ammonia, if it is stored at ambient temperature say 30^0C, and then the vapor release potential of the inventory is much higher as compared to the case if it is stored at 0^0C.

Inventory

- Inventory analysis is commonly used in understanding the relative hazards and short listing of release scenarios.
- Inventory plays an important role in regard to the potential hazard.
- Larger the inventory of a vessel or a system, larger the quantity of potential release.
- The potential vapor release [source strength] depends upon the quantity of liquid release, the properties of the materials and the operating conditions [pressure, temperature].

- If all these influencing parameters are combined into a matrix and vapor source strength estimated for each release case, a ranking should become a credible exercise.

Loss of Containment

- Plant inventory can get discharged to environment due to Loss of Containment.
- Certain features of materials to be handled at the plant need to the clearly understood to firstly list out all significant release cases and then to short list release scenarios for a detailed examination.
- Liquid release can be either instantaneous or continuous.
- Failure of a vessel leading to an instantaneous outflow assumes the sudden appearance of such a major crack that practically all of the contents above the crack shall be released in a very short time.
- The more likely event is the case of liquid release from a hole in a pipe connected the vessel. The flow rate will depend on the size of the hole as well as on the pressure, which was present, in front of the hole, prior to the accident. Such pressure is basically dependent on the pressure in the vessel.
- The vaporization of released liquid depends on the vapor pressure and weather conditions. Such consideration and others have been kept in mind both during the initial listing as well as during the short listing procedure.

Detailed risk assessment report is attached as ANNEXURE- 7

CHAPTER - 4

4.0 ENVIRONMENTAL MONITORING PROGRAM

4.1 INTRODUCTION

Environmental monitoring is an essential tool for sustainable development & ensuring effective most implementation & monitoring of environmental management plan & mitigation measures. It is also very essential to keep updating the environmental management system for effective conservation of environment along with ongoing project activities/operation. It provides exact idea for mitigation measures to be implemented as it is linked with actual distraction of environmental quality due to the project activities. Hence, monitoring of critical parameters of environmental quality is very essential in the routine activity schedule of project operation.

4.2 OBJECTIVES OF MONITORING

An Environmental Monitoring Programme shall be scheduled for the following major objectives:

- Assessment of the changes in environmental conditions, if any, during the project operation/activities.
- Monitoring & tracking the effectiveness of Environment Management Plan & implementation of mitigation measures planned.
- Identification of any significant adverse transformation in environmental condition to plan additional mitigation measures.

4.3 MONITORING SCHEDULE

Environmental Monitoring Schedules are prepared covering various stages of project advancement such as constructional phase and regular operational phase.

4.3.1 MONITORING SCHEDULES DURING CONSTRUCTIONAL PHASE

Environmental impacts during the construction phase can be attributed to the site preparation activity and the mobilization of workforce. The impacts of the construction phase on the environment would be basically of transient nature and are expected to wear out gradually on completion of the construction programme. However, once the construction of the project is completed and its operations started, these operation stage impacts would overlap the impacts due to the construction activities.

Environmental attributes Monitoring schedules during construction phase will be as per the CFE issued from KSPCB and EC issued from MoEF&CC.

4.3.2 MONITORING SCHEDULES DURING OPERATION PHASE

The control measures that will be undertaken during the operation phase to mitigate the impacts that may be caused during the operation of the project are as follows:

- Periodic monitoring of the environmental attributes to check the adequacy and effectiveness of the pollution control measures employed.
- The major sources of emission are D.G sets, boiler stack, production block (reactor) scrubber stacks which will be of adequate height to disperse the pollutants. Adequate green belt has been developed to mitigate the pollution arising due to movement of vehicles. Regular monitoring of DG-Stack and Ambient air quality will be carried out.
- Effluent will be sent to CETP for further treatment.
- Noise pollution will be curbed by using proper acoustic enclosures for D.G sets and reactors, thereby the ambient noise levels will be maintained below the CPCB limits of 75 dB for industrial areas. Personal protective equipment's will be provided to those workers who work in areas of high noise.
- Rainwater harvesting system has been designed to utilize the underground water system sustainably.
- Proper maintenance of greenbelt will be ensured.
- Adequate safety measures conforming to the occupational health and safety policy will be taken to prevent accidents/hazards to the workers.

Proposed monitoring schedule for environmental parameters is given in following table.

TABLE 4.1: PROPOSED MONITORING SCHEDULE FOR ENVIRONMENTAL PARAMETERS

Sl No	ATTRIBUTE	PARAMETERS	FREQUENCY OF MONITORING
1.	Stack Monitoring	SPM, SO2, NOx and process emissions	Every Month or as specified by State pollution Control Board
2.	Ambient air quality within premises	PM10, PM2.5 SO2, NOx, VOC	Every Month or as specified by State pollution Control Board
3.	Ambient air quality outside premises	PM10, PM2.5 SO2, NOx,	Once in a year or as specified by State pollution Control Board
4.	Water monitoring	Ph, Temp., TDS, TSS,Hardness,BOD, COD, heavy metals, etc.	Once in a year or as specified by State pollution Control Board
5.	Noise monitoring within premises	Noise levels	Every Month or as specified by State pollution Control Board
6.	Noise monitoring outside premises	Noise levels	Every Month or as specified by State pollution Control Board

4.4 SITE SPECIFIC BASELINE DATA

4.4.1 LAND ENVIRONMENT

The main objective of this section is to provide environmental baseline status of the proposed project site so that temporal changes due to the proposed development on the surroundings can be assessed.

TABLE 4.2: PHYSICO-CHEMICAL CHARACTERISTICS OF THE SOIL

Parameters with units	Results
Physical properties:	
Description: brown colored soil.	
Coarse sand, (%)	38
Fine sand, (%)	22
Silt, (%)	28
Clay, (%)	12
Colour	Brown
Chemical properties:	
pH (1:2)	7.30
Electrical conductivity, (1:2) (µS/cm)	74
Moisture content,%	1.8
Organic matter, (%)	1.26
Chloride as Cl, mg/kg	16.0
Magnesium as Mg, mg/kg	1814
Available Nitrogen as N, mg/kg	102.8
Available Phosphorus as P, mg/kg	44.2
Available Potassium as K, mg/kg	132.2
Copper as Cu, mg/kg	24.2
Mercury as Hg, mg/kg	<0.05
Cadmium as Cd, mg/kg	1.24
Selenium as Se, mg/kg	<0.05
Arsenic as As, mg/kg	<0.05
Lead as Pb, mg/kg	4.6
Zinc as Zn, mg/kg	1.6
Manganese as Mn, mg/kg	9.4
Cyanide as Cn, mg/kg	BDL

4.4.2 WATER ENVIRONMENT

Industrialization at any region is contingent on the availability of sufficient water resources as there would be a continuous requirement of water for various industrial activities. The potential for exploitation and contamination of either or both surface and ground water resources in the project area would increase through discharge of effluents. In order to identify the possible impacts on water environment due to the major industrial development project, the available water resources have been collected and analyzed to assess the existing quality to represent the baseline status of water environment.

TABLE 4.3: WATER TEST RESULTS

Sl. No	Parameter	Results	Maximum Desirable Limit IS 10500 : 2012	Maximum Permissible Limit IS 10500 : 2012
1	Color (hazen units)	<5.0	5	15
2	Odor	Agreeable	Agreeable	Agreeable
3	Taste	Agreeable	Agreeable	Agreeable
4	Electrical Conductivity, µs/cm	838	-	-
5	pH Value	7.30	6.5 – 8.5	No relaxation
6	Turbidity, NTU	0.5	1	5
7	Chloride as Cl, mg/L	62.92	250	1000
8	Total hardness as CaCO3, mg/L	120	200	450
9	Calcium as Ca, mg/L	26.4	75	200
10	Magnesium as Mg, mg/L	14.84	30	100
11	Total Dissolved Solids, mg/L	394	500	2000
12	Sulphate as SO4, mg/L	14.84	200	400
13	Fluoride as F, mg/L	0.8	1.0	1.5
14	Chromium as Cr+, mg/L	BDL	0.05	No relaxation
15	Residual Free Chlorine, mg/L	BDL	0.2	1
16	Alkalinity as CaCO3, mg/L	106.4	200	450
17	Nitrates as NO3, mg/L	7.34	45	No relaxation
18	Copper as Cu, mg/L	BDL	0.05	1.5
19	Iron as Fe, mg/L	BDL	0.3	No relaxation
20	Manganese as Mn, mg/L	BDL	0.1	0.3
21	Phenolic compounds as C6H5OH, mg/L	Absent	0.001	0.002
22	Mercury as Hg, mg/L	BDL	0.001	No relaxation
23	Cadmium as Cd, mg/L	BDL	0.003	No relaxation
24	Selenium as Se, mg/L	BDL	0.01	No relaxation
25	Arsenic as As, mg/L	BDL	0.01	No relaxation
26	Cyanide as CN, mg/L	Absent	0.05	No relaxation
27	Lead as Pb, mg/L	BDL	0.01	No relaxation
28	Zinc as Zn, mg/L	BDL	5	15
29	Anionic detergents as MBAS, mg/L	Absent	0.20	1.0
30	Aluminium as Al, as mg/L	BDL	0.03	0.2
31	Boron as B, mg/L	BDL	0.5	1.0
32	Coliform Organism / 100ml	<1	Less than 1	IS 1622 – 1981
33	Escherichia coli / 100ml	<1	Absent	IS 1622 – 1981
Note: BDL for Cr: 0.005, Cu: 0.01, Fe: 0.1, Mn: 0.01, Hg: 0.001, Cd:0.003, Se:0. 0.01, As:0.01, Pb:0.01, Al:0.005, B:0.5,Zn: 0.01, CN:0.05				

4.4.3 AIR ENVIRONMENT

The major objective of baseline air monitoring is to evaluate the existing air quality of the area. Formulation of baseline Ambient Air Quality (AAQ) data of the study area occupies a significant role in assessing the conformity to standards of the ambient air quality during the construction and operation of the proposed project. The ambient air quality has been monitored for all the parameters as per NAAQS notified on 16th September, 2009. The major air pollutants monitored on 24 hourly bases are, Particulate matter (PM10 and PM2.5 µg/m3), Sulfur dioxide and oxides of Nitrogen. Sampling and analysis of the above variables is according to the guidelines of Central Pollution Control Board.

TABLE 4.4: AMBIENT AIR QUALITY RESULTS

Sl.No	Test Parameters	Results	Limits (As Per NAAQS)
1	Particulate Matter PM10, µg/m3	64.26	100
2	Particulate Matter PM2.5, µg/m3	24.20	60
3	Nitrogen Dioxide NOx, µg/m3	28.20	80
4	Sulphur dioxide as SO2, µg/m3	18.26	80

4.4.4 NOISE ENVIRONMENT

The objective of noise pollution survey in the study area was to assess the impact of noise generated by the existing noise sources in the region especially on the human settlements. The noise levels of a region can be estimated from the cumulative noise pressure levels considering all the noise pollution sources in the region and the prevailing environmental conditions.

Noise Level Stipulated by KSPCB for Residential area is 55 dB (A) (During day time) and 45 dB(A) (During night time), For Commercial area 65 dB (A) (During day time) and 55 dB(A) (During night time), For Industrial area 75 dB (A) (During day time) and 70 dB(A) (During night time)

TABLE 4.5: MEASURED AMBIENT NOISE LEVELS

Location	Results			KSPCB Limit
	Parameter			
	L min Result	L max Result	Leq Result	
North Side Boundary Area	52.1	54.6	53.35	75 dB (A) (During day time)
South Side Boundary Area	52.9	54.8	53.85	
East Side Boundary Area	51.5	54.8	53.05	
West Side Boundary Area	51.9	52.8	52.35	

TABLE 4.6: ENVIRONMENTAL MONITORING PLAN & COST

	Item	Parameter	Frequency	Location	Unit cost per sampling & Analysis (Rs)	Samples per year (No)	Cost per year (Rs)
1	Air quality	PM_{10}, $PM_{2.5}$, SO_2, NO_x, O_3, Pb, CO, NH_3, C_6H_6, BaP, As, Ni	Monthly	3 locations around periphery of site	6500	36	2,34,000
2	Indoor Air quality	PM_{10}, $PM_{2.5}$, SO_2, NO_2	Monthly	3 locations	3500	36	1,26,000
3	Ambient Noise	Equivalent Noise Level	Monthly	3 locations around periphery of site	500	36	18,000
4	Exhaust from DG set	SO_2, SPM	Monthly	Stacks of 1X 250 KVA	2500	12	30,000
5	Boiler emissions	PM, SO_2, CO, NO_x	Monthly	1 no 4 TPH	2500	12	30,000
6	Wastewater Analysis	p^H, BOD, COD, TSS, TDS	Monthly	Process, Washings, Boiler Blow Down, Cooling Towers Blow Down, Scrubbing System, Domestic	2500	12	30,000
Total Cost during Operation per Year							**4,68,000**

4.5 ENVIRONMENTAL MANAGEMENT CELL

In addition to preparing an EMP, it is also necessary to have a permanent organizational set up to ensure its effective implementation. Hence, M/s. Laureatz Technochem Pvt. Ltd will create a team consisting of officers from various departments to co-ordinate the activities concerned with management and implementation of the environmental control measures. This team undertakes the activity of monitoring the stack emissions, ambient air quality, noise level etc. either departmentally or by appointing external agencies wherever necessary. Regular monitoring of environmental parameters is being carried - out to find out any deterioration in environmental quality and also to take corrective steps, if required, through respective internal departments.

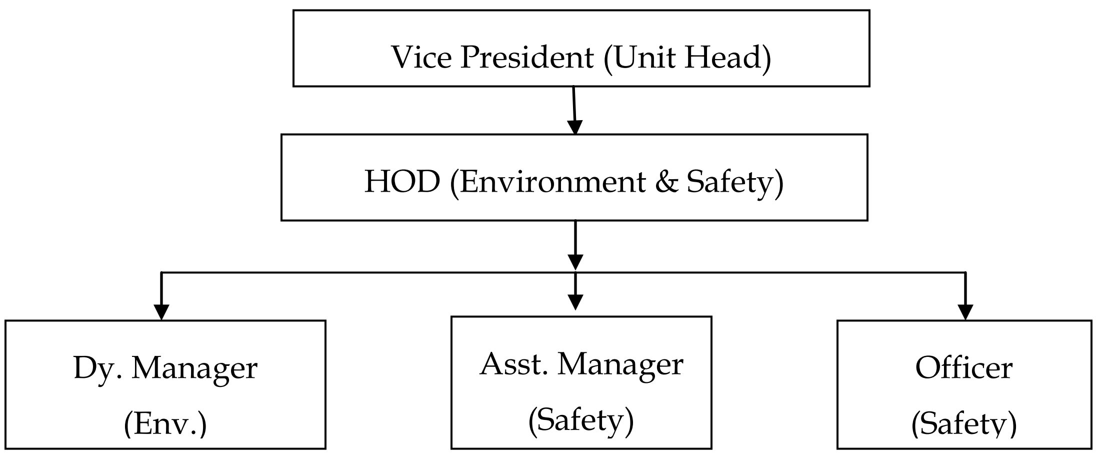

FIGURE 4.1: ORGANOGRAM OF ENVIRONMENTAL MANAGEMENT CELL

The cell will also be responsible for monitoring of the plant safety and safety related systems which include:

Checking of safety related operating conditions.

Visual inspection of safety equipment's.

Preparation of a maintenance plan and documentation of maintenance work specifying different maintenance intervals and the type of work to be performed.

Other responsibilities of the cell will include:

Conduct and submit annual Environmental Audit. KSPCB registered agency will be retained to generate the data in respect of air, water, noise, soil and meteorological data and prepare the Environmental Audit report. Timely renewal of Consolidated Consents & Authorization (CC & A) will also be taken care of.

Submitting environmental monitoring report to KSPCB. Data monitored by the cell will be submitted to the Board regularly and as per the requirement of KSPCB. The cell will also take mitigative or corrective measures as required or suggested by the Board.

Keeping the management updated on regular basis about the conclusions / results of monitoring activities and proposes measures to improve environment preservation and protection.

Conducting regular safety drills and training programs to educate employees on safety practices. A qualified and experienced safety officer will be responsible for the identification of the hazardous conditions and unsafe acts of workers and advise on corrective actions, organize training programs and provide professional expert advice on various issues related to occupational safety and health.

Conducting safety and health audits to ensure that recommended safety and health measures are followed.

CHAPTER - 5

5.0 PROJECT BENEFITS

5.1 PROPOSED BUDGETORY PROVISIONS FOR EMP

Adequate budgetary provisions have been made by management for execution of environmental management plans. The details of total capital and recurring (per annum) for environmental pollution control measures are given in following table.

TABLE 5.1: TOTAL CAPITAL AND RECURRING COST

S. No.	Description	Amount in lakhs	Amount in lakhs
		Investment cost	Maintenance cost
1	Pollution Control equipment's (Scrubber, Multi Cyclone separators)	35	10
2	Rainwater Harvesting system	5	2
3	Green Belt Development	10	2
4	Occupational health and safety	5	1
5	Storm water drains and fire management	20	2
6	Environmental laboratory	5	0.5
	TOTAL	**80**	**17.5**

5.2 CORPORATE ENVIRONMENTAL RESPONSIBILITY

In accordance with O.M. F. No. 22-65/2017-IA.III dated 30th September 2020 issued by MoEF&CC by suppressing the CER notification dated 1st May 2018, Government of India, the industry is willing to allocate amount of Rs. 7 Lakhs in 5 years against each of the activities and the time frame within which such activities will be completed as below.

1st Year	2nd Year	3rd year	4th year	5th year	Total	Proposed CER activities
2 Lakh	2 Lakh	1 Lakh	1 Lakh	1 Lakh	7 Lakhs	• Providing sanitation facility to Kudlur government school • Providing drinking water facility to Kudlur Village

5.3 EMPLOYMENT POTENTIAL

The manpower is one of the main resource requirements to operate and maintain the plant in a better and efficient way. Total 55 personnel of working employees will be required in the plant.

5.4 FINDINGS

The following findings are to be mentioned:

- The Project will have no significant environmental impacts during operations.
- Project risks will be minimized through rigorous enforcement of international design and operational standards.
- The environmental and safety aspects of the Project are straightforward and well understood.

5.5 CONCLUSIONS

The project can cause significant impacts only during construction phase due to the various activities involved during that phase. However, strict adherence to the mitigative measures as identified under the EMP, strengthened by adequate environmental monitoring and auditing and good operating practices, including the special operation methods as prescribed, will go a long way in effectively reducing the impacts as to negligible levels.

During operation phase of the project, none of the routine activities will cause any noticeable impact on any component of the environment, including the socio-economic component. Provision of green belt and rain water harvesting, storm water management shall further facilitate in overall scenario management of Environment.

Thus, it can be concluded on a positive note that after the implementation of the mitigation measures and Environmental Management Plan, the proposed project shall have negligible impact on environment and will benefit the local people and economy.

CHAPTER 6

DISCLOSURE OF CONSULTANT

6.1 DECLARATION BY CONSULTANT DEVELOPING EMP REPORT

M/s. AM Enviro Engineers, Bengaluru is a prominent provider of environmental consulting to wide range of clients. Our comprehensive range of diversified services includes obtaining environmental clearance from SEIAA/MoEF, CRZ clearance from MoEF, preparation of EIA/EMP and approval/authorization from KSPCB.

TABLE-6.1: DISCLOSURE OF CONSULTANT

Project proponent	**M/s. Laureatz Technochem Pvt. Ltd**
Project site	New API manufacturing industry at Plot No. 62, Kadechur industrial area, Yadagir Taluk & District, Karnataka.
Type of project	Manufacturing of API
Category of project as per EIA notification	5 (f) of Category-B2, "Synthetic organic chemicals industry"
EIA consultant organization	**M/s. AM ENVIRO ENGINEERS Bengaluru**
Contact information	No. 14/1, 2nd Floor, HARIKRUPA, Pattalamma Temple Street, Basavanagudi, Bengaluru - 560 004
Status of accreditation with NABET	**Certificate No. NABET/EIA/1922/IA0056.**

PRE-FEASIBILITY REPORT

PREPARED FOR

"MANUFACTURING OF ACTIVE PHARMACEUTICAL INGREDIENTS (API)"

AT

PLOT NO. 62, KADECHUR INDUSTRIAL AREA, YADAGIR TALUK & DISTRICT, KARNATAKA.

NEW PROJECT BY

M/s. LAUREATZ TECHNOCHEM PVT LTD

PLOT NO. 147, SRI SAI NILAYAM, PRAGATHI NAGAR, KUKATPALLI, (NEAR JNTU), HYDERABAD, TELANGANA-500090

Prepared By

AM ENVIRO ENGINEERS
[ISO 9001-2015 CERTIFIED COMPANY]
(QCI/NABET Accreditation No. NABET/EIA/1922/IA0056)
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1. EXECUTIVE SUMMARY

M/s. Laureatz Technochem Pvt. Ltd has been allotted an area of 2.0 acres by KIADB for "Manufacturing of Active Pharmaceutical Ingredients (API)" at Plot No. 62, Kadechur Industrial area, Yadagir Taluk & District of Karnataka State. The proposed total production capacity of API is of 48 TPM.

TABLE 1.1: SALIENT FEATURES OF THE PROJECT

Sl. No.	Description	Details
1.	Name of the project	Manufacturing of Active Pharmaceutical Ingredients (API) by M/s. Laureatz Technochem Pvt. Ltd
2.	Location of the project	Plot No. 62, Kadechur Industrial area, Yadagir Taluk & District, Karnataka State
3.	Total land requirement for the project	8089.8 Sqmt (2 Acres)
4.	Total water requirement & Source	Total water requirement – 135.3 KLD (Fresh water – 83.1 KLD) Source: KIADB water
5.	Total Power requirement & Source	Power requirement: 500 KVA Source: GESCOM DG: 1X 250 KVA
6.	Rehabilitation and Resettlement	No R & R issue is involved
7.	Manpower	55 no's
8.	Estimated cost of the project	6.6 Crores

2. INTRODUCTION OF THE PROJECT/BACKGROUND INFORMATION

i. Identification of project and project proponent.

M/s. Laureatz Technochem Pvt. Ltd is proposed to establish the API manufacturing unit at Kadechur Industrial Area, Yadagir Taluk & District of Karnataka state with a total capacity of 48 TPM.

Details of Project Proponent:

M/s. Laureatz Technochem Pvt. Ltd is a private limited firm and is promoted by Mr. T.V.Srihari and T.Ramani. Mr T.V.Srihari, is a Chemical Engineer and also a Postgraduate in Economics. He has vast experience of over 34 years in the field of Pharma industry by serving major Pharma players like Natco Pharma, SMS Pharma, Lupin group (Concept Labs), TTK Pharma, Neuland Labs, Clinfield India, JBF Industries, Phalanx Labs etc. He is having rich experience in the fields of manufacturing, (exposed to number of drugs synthesis), R&D, process engineering, more than 20 of his inventions were patented, plant design and implementation of various projects from green field to manufacturing. He worked in various management levels like Director in Phalanx Labs, Vice-President (Technical) in SMS Pharmaceuticals Limited, General Manager (Technical) in Natco Pharma Limited, as Senior Manager in JBF Industries limited, middle management level Lupin group (Concept Laboratories), TTK Pharma, Clinfields India Limited, Neuland Laboratories Ltd. etc. He participated in various global pharmaceutical meets, exhibitions and international Green chemistry seminars. He is a member of green chemistry organization.

Mrs. Ramani Tadimalla, aged about 57 years is a Graduate in arts from Andhra University. Mrs. Ramani is an expert in deploying the best of the leadership practices with Results Based Measurement being the core theme. Played an effective role as Strategy Expert; as the prime negotiator with all the stakeholders. Mrs. Ramani brings in 15+ years of experience as a Strategy Specialist. She learned the ethics and techniques to promote her own firm.

ii.Brief description of nature of the project

Drug discovery for therapeutic use to improve the human health is a fast changing field. To keep pace with international developments, Indian pharmaceutical industry needs to constantly upgrade their product portfolio and production volumes. Under similar circumstances, M/s. Laureatz Technochem Pvt. Ltd proposed for manufacturing of Active pharmaceutical ingredients. The project area comes under notified Industrial Area. Hence the project falls under item no-5(f) of schedule to EIA notification, dated 14th September 2006.

iii. Need for the project and its importance to the country or region

The drugs demand in India is increasing due to rapid growth of population. The requirement addition at the present rate will not be able to meet the projected demand and would result in a large drug deficit. To mitigate the gap between demands and supply Govt. of India is facilitating large scale capacity additions at shorter time through public and private investments. India with its large talented manpower, cost effective chemical synthesis, legal & financial framework is poised to become sourcing destination of bulk drugs to the global market.

iv. Demand and supply gap

Over the years, the production of bulk drug has made significant progress. The drug & pharmaceutical industry in India meets around 70% of the country's demand for bulk drugs, pharmaceutical formulations, chemicals, tablets, capsules, orals and injectibles. There are about 250 large Pharmaceuticals manufacturers and suppliers and about 8000 Small Scale Pharmaceutical & Drug Units which form the core of the pharmaceutical industry in India (including 5 Central Public Sector Units). These bulk drugs and pharmaceuticals manufacturers produce the complete range of pharmaceutical formulations i.e. medicines ready for consumption by patients and about 350 bulk drugs i.e. chemicals having therapeutic value and used for production of pharmaceutical formulations. (Source: pharmaceutical-india.com)

v. Imports v/s. Indigenous production

Today, the pharmaceutical industry manufactures the entire range of therapeutic products and is capable of producing raw materials for the manufacture of a wide range of drugs from the basic stage as well as a range of pharmaceutical machinery and equipment. Apart from building up domestic capacity, leading Indian companies have established marketing and manufacturing activities in a large number of countries including USA and countries of Europe as well as expanded through acquisitions in these countries. The sector has therefore evolved from being dominated by multinational companies in the 1950's to some imports and indigenous manufacturing in the 1970's and then protected by the legislative provisions of the older Patents Act 1970, to significant indigenous production and subsequent exports. The Act of 1970 excluded product patents on pharmaceuticals, allowing the mushrooming of a vigorous generics industry in India which could meet not only domestic demand for drugs at lower prices but could also export cheaper drugs to other Third World countries. Further, the government policies restricted imports of finished formulations, imposed high tariff rates and introduced strict price control regulation through the 1970 Drugs Price Control Order. The multi- national companies are now looking at India not only for its traditional strengths in manufacturing but also as a highly attractive location for research and development (R&D), particularly in the conduct of clinical trials and other services. The consumption potential offered by more than one billion inhabitants, rising affluent customers and the changing lifestyles offer huge potential domestically for the sector. Currently, the Indian pharmaceutical industry is one of the world's largest and most developed, ranking 4th in volume terms and 13th in value terms. The country accounted for 8 percent of global production and 2 percent of world markets in pharmaceuticals. Most of the domestic pharmaceutical drug requirements are met by the domestic industry. In the segment of Active Pharmaceutical Ingredients (APIs) India ranks third in the world producing about 500 different APIs. (Source: Pharmexcil.org)

vi . Export Possibility

The company has no plans to export its products outside the country. All the products produced are requirement of domestic market.

vii. Domestic/ Export Markets

Over 60 per cent of India's bulk drug production is exported. India's pharmaceutical exports are to the tune of Rs 87 billion, of which formulations contribute nearly 55 per cent and the rest 45 per cent comes from bulk drugs.

viii. Employment generation (direct and indirect) due to the project

M/s. Laureatz Technochem Pvt. Ltd has planned to have employees about 55 no's to operate the unit.

3. PROJECT DESCRIPTION

i. Type of project including interlinked and interdependent project if any

To cater the needs of the market, M/s. Laureatz Technochem Pvt. Ltd has proposed to establish Active Pharmaceutical Ingredients (API) manufacturing unit at Plot No. 62, Kadechur Industrial area, Yadagir Taluk & District, Karnataka.

There are no interlinked or interdependent projects.

ii. Location (map showing general location, specific location, and project boundary & Project site layout) with coordinates

The project site is located at Kadechur Industrial area, Yadagir Taluk & District, Karnataka State. The project site co-ordinates ranges from Latitude – 16.516923° to 16.517494° and Longitude– 77.313713° to 77.314952°. The location map showing is as shown below.

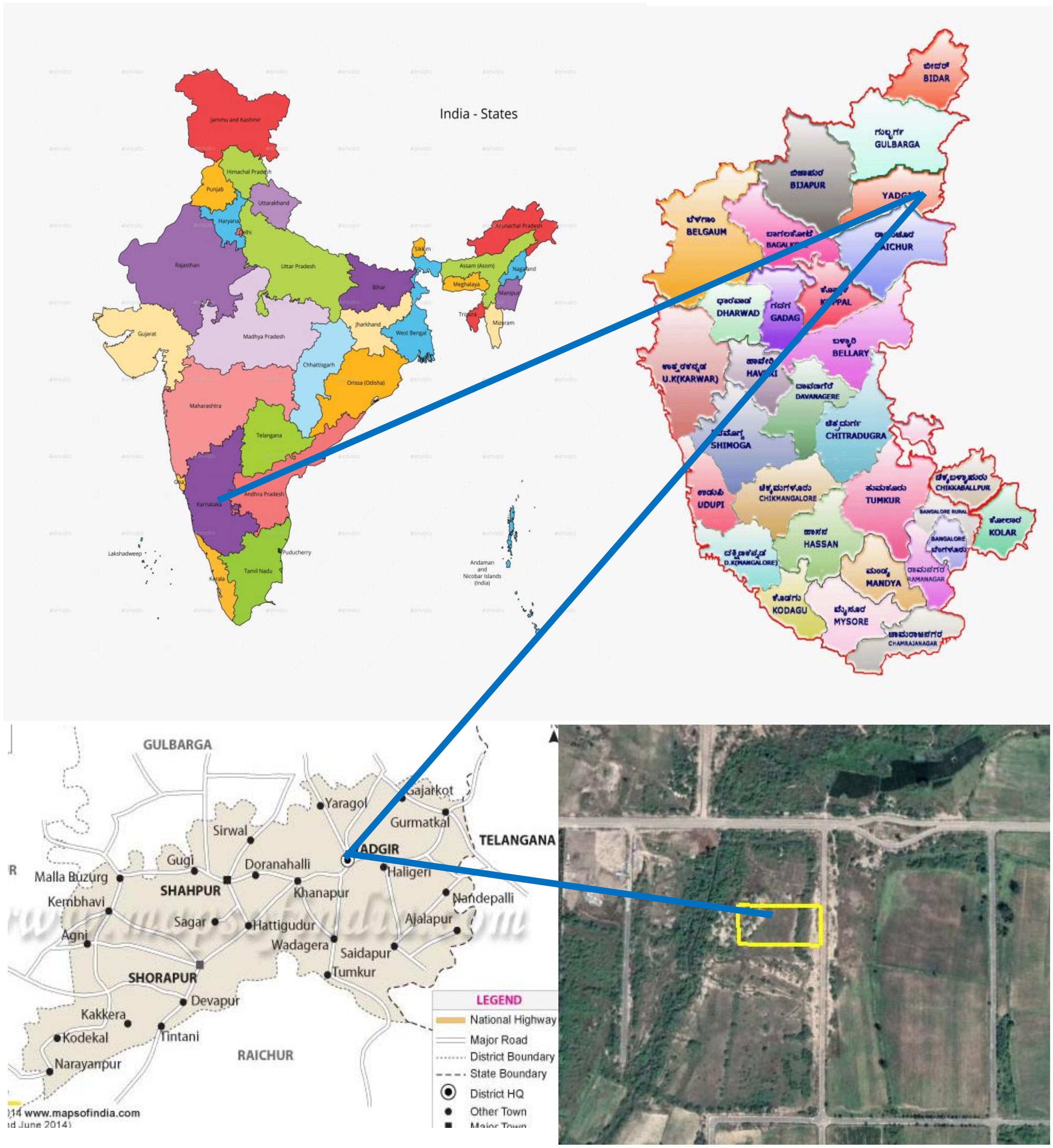


FIGURE 3.1: LOCATION MAP

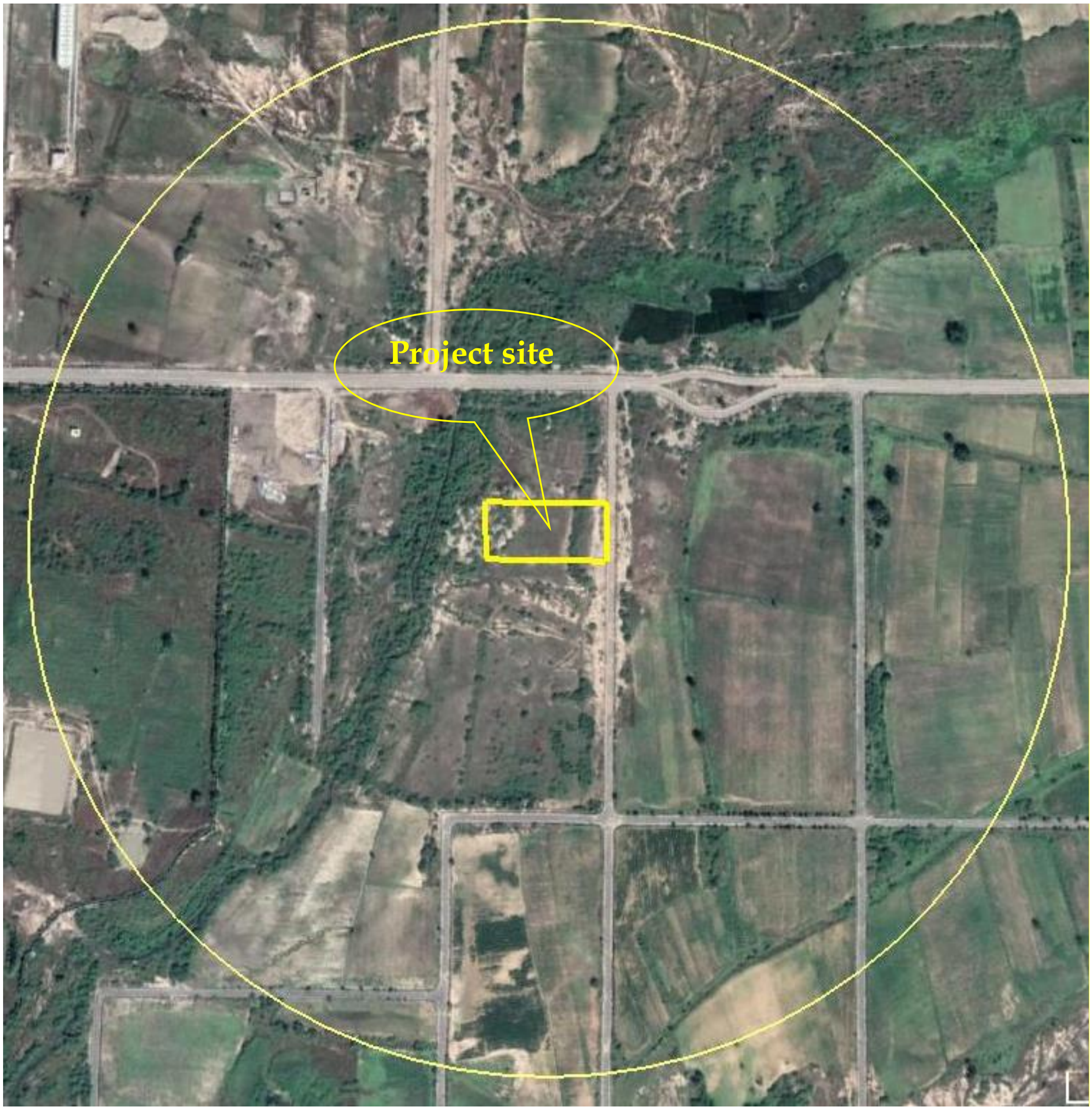


FIGURE: 3.2 GOOGLE IMAGE SHOWING 500 M RADIUS FROM THE PROJECT SITE

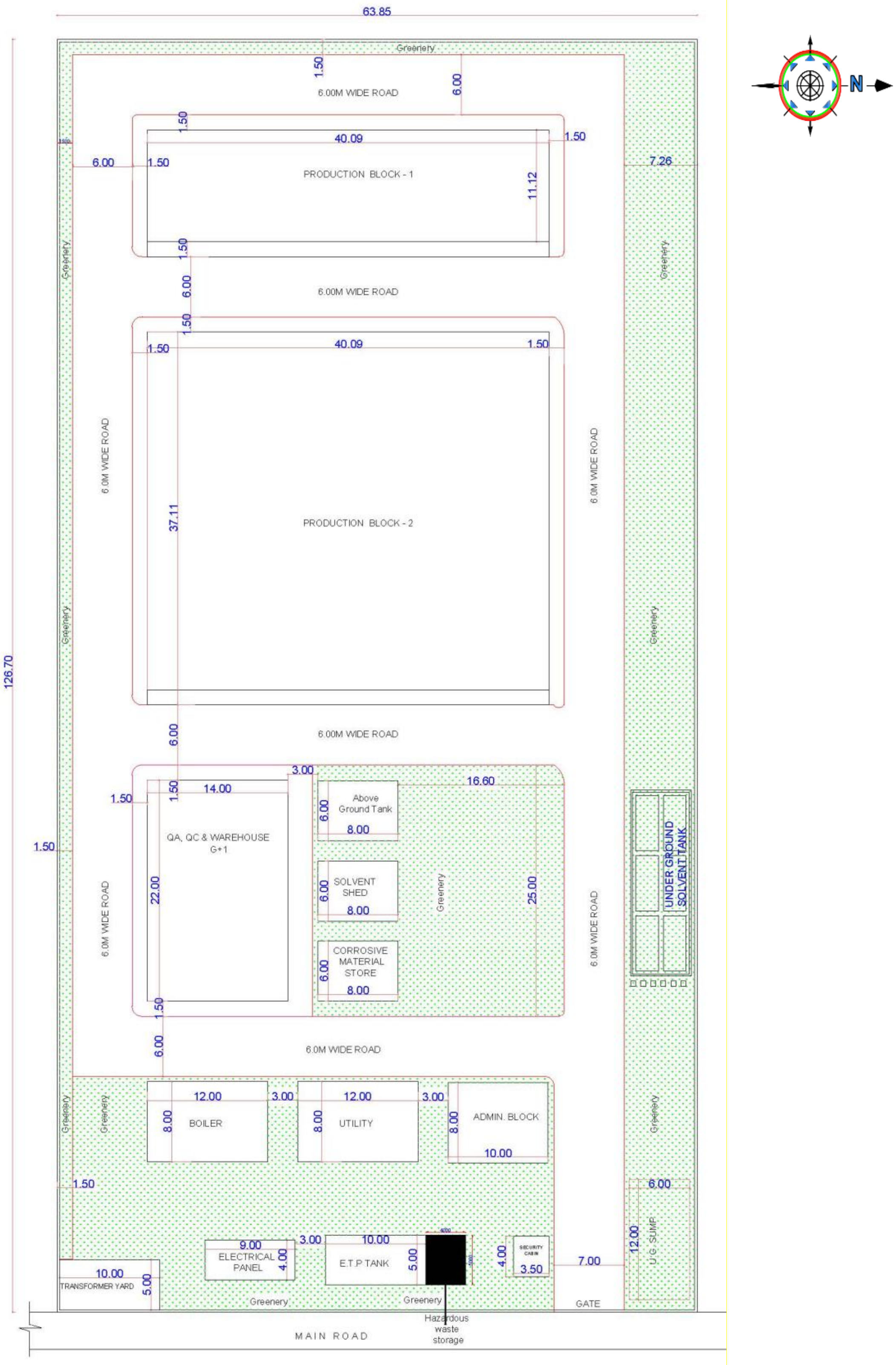


FIGURE: 3.3 LAYOUT PLAN OF THE PROJECT SITE

iii. Details of alternate sites considered and the basis of selecting the proposed site, particularly the environmental considerations gone into should be highlighted

There is no any alternate site as the proposed site is acquired.

Since the project is located in Kadechur Industrial area, Yadagir Taluk & District, Karnataka and the site has distinct advantages such as accessibility to road, electricity and water supply. The following factors which influence the site selection have been very favourable to select this site.

- The plant site is located within the Industrial Estate.
- Land requirement for the proposed project is 2 acres which is in notified KIADB Industrial area
- Topographically, the area is generally plain.
- The area is not covered by any notified forests.
- No clearance of existing land & vegetation.
- Proximity of National Highways and railways station, Transport of raw materials and manufactured drugs.

TABLE 3.1: DETAILS OF ENVIRONMENTAL SETTINGS

Particulars	Details		
Plant site co-ordinates (Latitude & Longitude)	Corners	Latitude	Longitude
	A	16°31'2.95"N	77°18'49.37"E
	B	16°31'0.98"N	77°18'49.39"E
	C	16°31'0.93"N	77°18'53.80"E
	D	16°31'2.90"N	77°18'53.83"E
Temperature	Max. 42ºC, Min. 26ºC		
Present land-use	KIADB land (Industrial area)		
Average rainfall	850 mm per year		
Nearest Highway	NH-167 (Yadgir - Raichur Road) – 1 km (SW)		
Nearest Railway station	Chegunta Railway Station - 3.7 km (SW)		
Nearest Airport	Rajiv Gandhi International Airport, Shamshabad –140.9 Km (NE)		

Nearest Water body	Seasonal Nala – 50 m (W) Kadechur lake - 1.5 km (NE) Bhima river – 8.7 km (SW) Krishna river - 12.3 km (SW)
Nearest Village	Kadechur – 1.2 Km (E) Shattihalli – 2.5 km (NW)
Nearest Town/City	Yadgir city – 33.6 Km (NW)
Seismic Zone	Seismic zone-II as per IS-1893 (Part-1) – 2002
Interstate boundary	Karnataka – Telangana Interstate Boundary - 2.64 Km (S)

iv. Size or magnitude of operation

The total production capacity from the proposed project is 48 TPM. The list of the proposed products is given in below table.

TABLE 3.2: LIST OF PROPOSED PRODUCTS WITH CAPACITY

S. No	Name of Products	Qty. in TPM	CAS No.	Therapeutic Use
1.	Adefovir	2	142340-99-6	To treat chronic (long-term) hepatitis B infection
2.	Bortezomib	1	179324-69-7	Multiple myeloma
3.	Capecitabine	5	154361-50-9	Anti-Cancer
4.	Clopidogrel Bisulphate	5	120202-66-6	Cardiovascular
5.	Dapagliflozin	2	461432-26-8	Anti-diabetic
6.	Dapoxetine Hydrochloride	2	129938-20-1	Inhibitor
7.	Darunavir Ethanolate	3	635728-49-3	Antiviral
8.	Empagliflozin	2	864070-44-0	Anti-diabetic
9.	Etodolac	1	41340-25-4	Anti-inflammatory
10.	Etoricoxib	15	202409-33-4	Anti-inflammatory
11.	Famotidine	3	76824-35-6	To treat gastritis
12.	Imatinib Mesylate	1	152459-95-5	Anti-Cancer
13.	Irinotecan HCl	1	136-572-09-3	Topoisomerase I inhibitors
14.	Ivabradine HCl	2	148849-67-6	To treat heart disease
15.	Lenalidomide	1	191732-72-6	To treat anemia
16.	Linezolid	5	165800-03-3	Antibiotic
17.	Mesalamine	10	89-57-6	Ulcerative colitis

18.	Olmesartan Medoximil	1	144689-63-4	Anti-hypertension
19.	Pantoprazole Sodium	8	138786-67-1	To treat gastritis
20.	Piroctone Olamine	5	68890-66-4	Antifungal
21.	Ramipril	5	87333-19-5	To treat high blood pressure
22.	Risperidone	2	106266-06-2	Schizophrenia
23.	Sacubitril	2	149709-62-6	Chronic heart failure and reduced ejection fraction
24.	Sparfloxacin	5	110871-86-8	Antibiotic
25.	Tadalafil	5	171596-29-5	To treat erection problems
26.	Tamsulosin hydrochloride	1	106463-17-6	To treat Benign Prostatic Hyperplasia (BPH)
27.	Telmisartan	5	144701-48-4	Anti-hypertensive
28.	Thalidomide	1	50-35-1	To treat a skin condition and cancer
29.	Triclabendazole	3	68786-66-3	Anthelmintics
30.	Zoledronic acid	1	165800-06-6	To treat high levels of calcium
	Total (6 products)	**48**		

Note: From the above list of products, any 6 products will be manufactured at a given point of time.

TABLE 3.3: LIST OF PROPOSED BY-PRODUCTS

S .No	Name of the Product	Name of the By Product	Quantity in Kgs/Day
1	Capecitabine	Peridine Hydrochloride	59.69
2	Famotidine	Potassium chloride	53.14
3	Piroctone Olamine	Aluminium hydroxide solution	1452.5
4	Pantoprazole Sodium	Potassium Sulphate	60
		Ammonium Phosphate	35
		Sodium Acetate	110
		Ammonium Chloride	72.25
5	Telmisartan	Sodium phosphate	251

The process description for the proposed products along with route of synthesis, flow diagram, material balances are attached as **ANNEXURE - 3.**

v. **Raw material required along with estimated quantity likely source marketing area of final product/s, mode of transport of raw material and**

finished product

The list of raw materials along with quantities is attached as **ANNEXURE –4.** The raw materials will be sourced from local market and also from the different suppliers across the world. The raw materials and finished products will be transported through road.

vii. Resource optimization/recycling and reuse envisaged in the project if any should be briefly outlined

After the reaction is complete the solvents are recovered in a distillation unit. The residue from the distillation unit is collected in a container and sent for co-processing. The recovered solvents are collected in drums, labelled and analysed. Then they are reused (recycled) for the process.

In the proposed project, conservation has adequately addressed and hence, water consumption is optimized. All process effluent and domestic sewage will be sent to CETP.

viii. Availability of water its source, energy/power requirement and source should be given.

TABLE 3.4: WATER CONSUMPTION & EFFLUENT GENERATION WITH TREATMENT MECHANISM

Sl. No.	Purpose	Fresh Water (KLD)	Recycled water (KLD)	Total Water requirement (KLD)	Effluent generation (KLD)	Treatment method
1	Process	51.1	-	51.1	36.7	Sent to CETP, Kadechur
2	Scrubbing	3	-	3	3	
3	RO reject	-	-	-	15.3	
4	Boiler	23.5	-	23.5	3.4	
5	Cooling tower	-	41.5	41.5	4.1	
6	Washing	3	-	3	3	
7	Domestic Usage	2.5	-	2.5	2.1	Septic tank followed by multigrade filter
8	Gardening	-	10.7	10.7	-	-
Total		**83.1**	**52.2**	**135.3**	**67.6**	

The total fresh water demand for proposed project is 83.1 KLD, which is met by KIADB. Power demand is 500 KVA which is met by GESCOM.

ix. Quantity of wastes to be generated (liquid & solid) and scheme for their management/disposal

The various types of waste from different units of the proposed plant are described underneath:

a) Liquid Waste:

All the products require water during the process. The wastewater generated from the plant is 67.6 KLD and will be sent to CETP.

TABLE 3.5: EFFLUENT DETAILS

S. NO	Unit	HTDS (KLD)	LTDS (KLD)	Waste water Generation in KLD	Treatment Method
1	Process	34.1	2.6	36.7	Sent to CETP, Kadechur
2	Washings	-	3	3	
3	Boiler Blow Down	-	3.4	3.4	
4	Cooling towers Blow Down	-	4.1	4.1	
5	Scrubber System	3	-	3	
6	RO reject	-	15.3	15.3	
7	Domestic	-	2.1	2.1	Septic tank followed by multigrade filter
	Total	**37.1**	**30.5**	**67.6**	-

b) Solid Waste Generation & Utilization and Disposal

The details of solid and hazardous waste generated along with the mode of disposal is detailed in below table.

TABLE 3.6: HAZARDOUS & SOLID WASTE DETAILS

S. No	Category of the HW	Name of the Hazardous Waste	Quantity	Disposal Method
Hazardous waste generation from plant				
1	5.1	Waste oils & Grease/ Used Mineral oil	0.2 KL/Annum	Agencies authorized by KSPCB
2	5.2	Oil Soaked Cotton	2 Kgs/month	KSPCB authorized Vendor
3	20.3	Distillation Residue	830 kgs/day	Store in secured manner and hand over to authorized cement industry for Co-processing
4	28.1	Process Residues & Waste	2764 Kgs/day	Store in secured manner and hand over to authorized cement industry for Co-processing/TSDF
5	28.2	Spent Catalyst	7.3 kgs/day	Store in secured manner and hand over to authorized recycler
6	28.3	Spent Carbon + Hyflow	188 Kgs/Day	Store in secured manner and hand over to authorized cement industry for Co-processing
7	28.4	Off Specification Products	1 TPM	Store in secured manner and hand over to authorized cement industry for Co-processing/TSDF
8	28.5	Date expired products	500 Kgs/Month	Store in secured manner and hand over to authorized cement kiln for Co-processing/ TSDF
9	33.1	Detoxified-Container & Container Liners of Hazardous Chemicals and Wastes	250 No's/Month	After complete detoxification, shall be disposed to the outside agencies.
10	33.2	Contaminated cotton rags or other cleaning materials	25 Kgs/month	Store in secured manner and hand over to KSPCB Authorized Vendor
11	A1160	Used Lead Acid batteries	2 No's/Annum	Returned back to dealer/ Supplier

Other & Miscellaneous Solid Wastes				
12	--	Coal ash	1120 kgs/day	Sent to Brick Manufacturers
13	--	Briquette ash	2860 kgs/day	Sent to fertilizer industries
14	--	Residues from Scrubber	143 kg/day	Shall be stored in secured manner & handed over to TSDF.
15	--	Used PPE	5 Kgs/ Month	Sent to authorized vendor
16	--	E- Waste	150 Kgs/ Annum	Authorized recyclers
17	--	Plastic Waste	200 Kgs/ Annum	Authorized recyclers
18	--	Metal Scrap	3 TPA	Sale to outside agencies/ recyclers
19	--	Used Filters (HEPA filters, Oil Filters etc.)	25 Nos /year	Sent to TSDF
20	--	Used / Discarded RO Membranes	0.2 TPA	Sent to TSDF

TABLE 3.7: PROCESS EMISSION DETAILS

S. No	Name of the Gas	Quantity in Kg/Day	Treatment Method	Disposal Method
1	Hydrogen chloride	609.7	Scrubbed by using water media	Generated Dil. HCl will be reused within the industry
2	Ammonia	27.5		Generated NH_4OH will be reused within the industry
3	Sulphur dioxide	80.1	Scrubbed by using C.S. Lye solution	Residues from the reaction will be sent to TSDF
4	Hydrogen Bromide	21.3		
5	Hydrogen Fluoride	3.3		
6	Hydrogen Iodide	19.9		
7	Pentane	9.2	Dispersed into atmosphere	-
8	Oxygen	104.8		
9	Carbon dioxide	259.2		
10	Hydrogen	20.2	Dispersed into atmosphere through flame arrester	-

TABLE 3.8: STACK EMISSION DETAILS FOR PROPOSED BOILERS

Particulars	Units	4.0 TPH Boiler	
Type of Fuel	--	Briquettes	Coal
Coal Consumption	TPD	11	8
Ash Content	%	26	14
Sulphur Content	%	0.002	1.5
No. of Stacks	No	1	
Height of stack	M	30	
Diameter of Stack	M	0.3	
Temperature of Flue Gas	°C	120	
Velocity of Flue Gas	m/s	9.5	
Emission Details			
Particulate Matter as PM	gm/sec	5.5	3.3
Sulphur dioxide as SO2	gm/sec	0.004	0.9
Oxides of Nitrogen as NOx	gm/sec	0.006	0.7
Pollution Control Details			
Pollution control equipment	Multi Cyclone separator		

TABLE 3.9: STACK EMISSION DETAILS FOR PROPOSED DG SETS

Capacity in KVA	Emission of PM in gm/sec	Emission of SO2 in gm/sec	Emission of NOx in gm/sec	Stack dia. in m	Flue Gas Temp. in °C	Stack Height in (m)	Flue gas Velocity in m/sec
250 KVA	0.014	0.11	0.48	0.3	140	4m AGL	14

TABLE 3.10: STACK EMISSION DETAILS FOR THERMIC FLUID HEATER

Particulars	Units	Thermic fluid heater	
Thermo pack Boiler Capacity	Kcal/hr.	2,00,000	
Type of Fuel	--	Coal	Briquette
Fuel Consumption per Day	TPD	2	3
Stack Temperature	°C	190	192
Velocity	m/sec	5.3	5.3
Stack Height	m	15	15
Stack Diameter	m	0.2	0.2
Ash content	%	0.14	0.26
Sulphur Content	%	1.5	0.002
Emission of PM	gm/ sec	0.8	1.4
Emission of SO2	gm/ sec	0.2	0.001
Emission of NOx	gm/ sec	0.2	0.002

x. Schematic representations of the feasibility drawing which give information of EIA purpose

Ministry of Environment, Forest and Climate Change categorized active pharmaceutical ingredients manufacturing units as 'B2' for a period up to 30th March 2021 as per the notification dated 27th March 2020 and OM dated 15th Oct 2020, as an interim measure to handle the Novel Corona Virus (COVID-19) outbreak. In this context, EIA study has been excepted and Environmental management plan has been prepared.

4. SITE ANALYSIS

(i) Connectivity:

The plant site is well connected by road to the major national and state highway network. The approach road to the site would have to be suitably laid by making it a two-lane road suitable for movement of heavy loads involved including the construction materials.

The Project site is close to Yadagir Raichur road which is at a distance of 1 km towards South - West side and the nearest railway station is Chegunta railway station at 3.7 km towards SW. The nearest airport is Rajiv Gandhi International Airport located at a distance of 140.9 km from the site towards North East.

(ii) Land Form, Land use and Land ownership:

M/s. Laureatz Technochem Pvt. Ltd acquired 2 acres of land at KIADB notified industrial area.

(iii) Topography (along with map):

Topographically, the site is plain and devoid of rocky outcrops and does not have any forests. No significant cutting or filling activities are required for land development activities. Entire site area is under industrial occupation and no cultivation land exists. No clearance of existing land, vegetation or buildings is involved. The project site is located at the Northern part of Karnataka. The elevation in the project site is 363 meter above mean sea level. An area covering 10 km radius, with project site as centre, topo sheet has been prepared and shown subsequently.

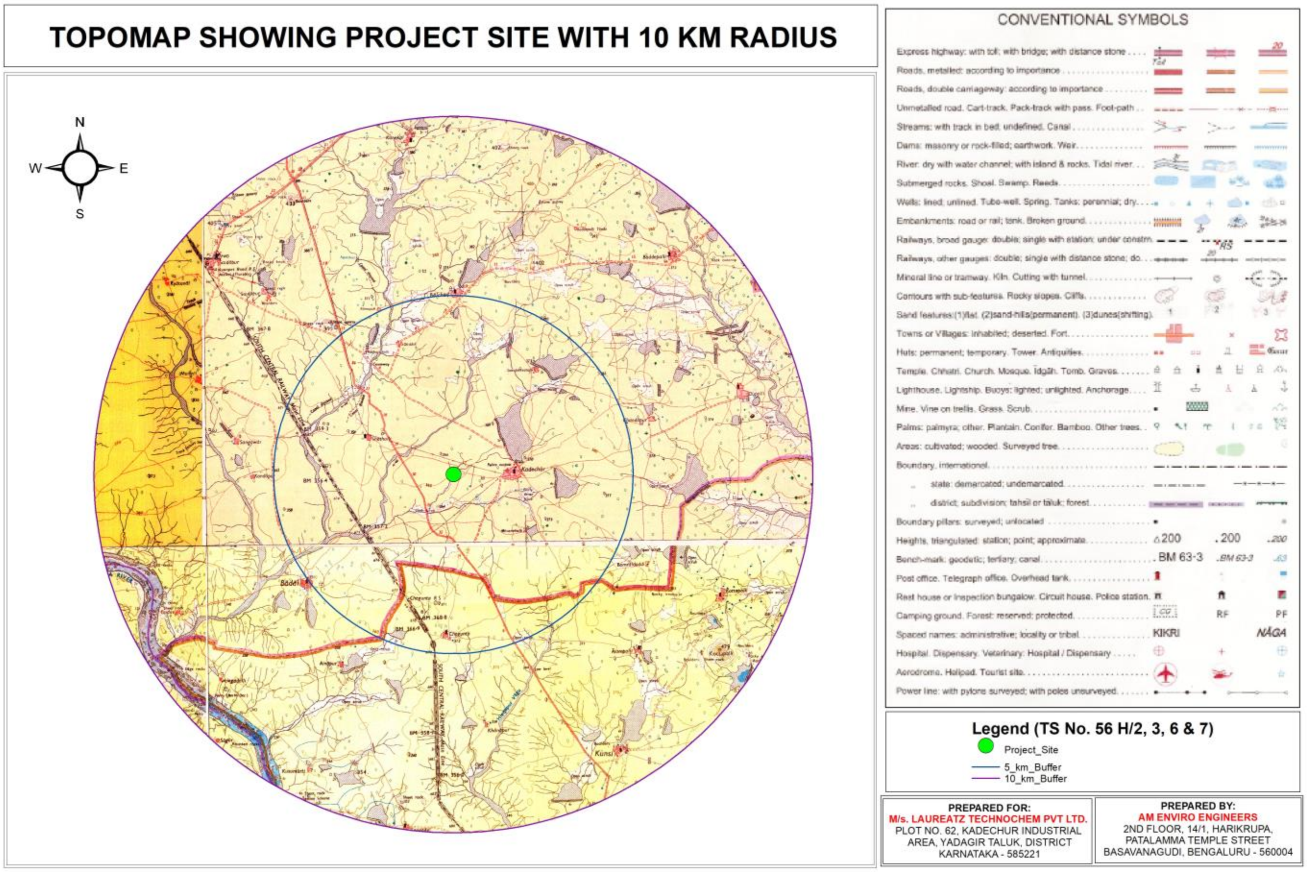


FIGURE: 4.1 TOPOMAP COVERING 5 KM & 10 KM RADIUS FROM THE PROJECT SITE

(iv) Existing land use pattern (agriculture, non-agriculture, forest, water bodies (including area under CRZ)), shortest distances from the periphery of the project to periphery of the forests, national park, wild life sanctuary, eco sensitive areas, water bodies (distance from the HFL of the river), CRZ, In case of notified industrial area, a copy of the gazette:

The district is bounded by Gulbarga district in the north, Bijapur district in west, Raichur district in south and Telangana in the east. The existing land use patter is industrial and the project site is in the KIADB notified industrial area. There are no reserved forests, national parks, wild life sanctuary and CRZ regions within 10 km radius. There is no HFL from the periphery of the project site. There are no eco-sensitive locations within 10 Km from the site.

(v) Existing Infrastructure:

There is no existing infrastructure and utilities in the proposed project site.

(vi) Soil Classification:

Soils: The vast stretch of fertile black soil of the district is known for bumper red gram and jowar Crops and the district is also referred to as the "Daal bowl" of the state. The soil types in the taluk are deep black, medium black soil, shallow soil and lateritic soil. The thickness of deep & medium black soil varies from 0.5 to 3.6 m. Infiltration rate of shallow, medium and deep black soil is moderate to poor. Infiltration rate of medium black soil recorded in the district is 2.5 cm/hr.

(vii) Climatic data from secondary sources:

Climatic Conditions of the site based on IMD, Bangalore are as followed: Average Annual Maximum Temperature: 42°C

Average Annual minimum Temperature: 26°C

Average Annual Rainfall: 850 mm

(viii) Social Infrastructure available

For transportation, the project site is well connected to Raichur-Yadgir road at a distance of 1 km towards South West side & Chenguta railway station at a distance of 3.7 km. The nearest village is Kadechur at a distance of 1.2 km. Other basic infrastructures like primary, secondary and higher schools, colleges, Community and primary health care centres banks, temples, are located at Yadgir district which is at 33.6 km from the project site.

The impact of human settlement is expected to be positive, as apart from some people being directly employed, many others will get indirect employment.

5. PLANNING BRIEF

i. Planning concept (type of industries, facilities, transportation etc) Town and Country Planning/Development authority Classification:

The proposed API manufacturing unit is located within the Kadechur Industrial Area, Yadagir Taluk & district of Karnataka State. The proposed site is earmarked by KIADB. No buildings or infrastructure is existing in proposed land. There is internal KAIDB road which is approach road to the project site. Approval from appropriate competent authority will be obtained.

ii. Population Projection:

Not applicable.

iii. Land use planning (breakup along with green belt etc):

TABLE 5.1: LANDUSE DETAILS

Sl no	Description	Area (Sqmt)	Area in percentage (%)
1	Ground coverage area	2725.5	33.7
2	Green belt area	2694.3	33.3
3	Roads Area	2670.0	33.0
	Total	**8089.8**	**100**

iv. Assessment of Infrastructure Demand (Physical & Social): Service Buildings

M/s. Laureatz Technochem Pvt. Ltd proposed to establish API manufacturing unit at Kadechur industrial area, Yadgir Taluk and District. The project facility includes building blocks of production, raw material storage, office building and finished product storage area and other facilities. The project is proposed at KIADB industrial area which is developed in terms of roads and electricity supply. There is water source available to the project from the nearby Bhima river.

v. Roads

Approach road to project site is formed.

vi. Amenities/Facilities:

M/s. Laureatz Technochem Pvt. Ltd proposed to establish API manufacturing unit at Kadechur industrial area, Yadgir Taluk and District. The project facility includes building blocks of production, raw material storage, office building and finished product storage area and other facilities.

6. PROPOSED INFRASTRUCTURE

i. **Industrial Area**: The proposed project is manufacturing of API and will takes place in KIADB Industrial area.

ii. **Residential Area**: NA.

iii. Greenbelt: 2694.3 Sqmt (33.3%)

iv. **Social Infrastructure:** Necessary support infrastructure will be provided as per the requirement of the project.

v. **Connectivity:** Project site is well connected by an asphalted road and near National highway NH-167 (Raichur-Yadagir Road) just 1 km (SW) away from the Factory entrance.

vi. **Drinking Water Management:** The water demand is met from KIADB (Karnataka Industrial Areas Development Board). The requirement of water for the unit is for domestic, industrial purposes and landscape development.

vii. **Sewerage system:** The wastewater generated from Boiler blow down, cooling tower blow down and domestic sewage will be sent to CETP.

viii. **Industrial waste management:**

a. Air Environment:

The major air pollution sources from the industry are DG sets, boilers, scrubber stack connected to process sections. These sources will be provided with control systems with stacks of adequate height so as to disperse the emanating flue gases containing SPM, oxides of sulfur, nitrogen and process emissions free from acid/alkali and Volatile organic carbons without affecting the ground level concentrations and also dedicated scrubbers will be provided exclusively to the process section with adequate stack height as per the regulatory requirements.

i. **Sources:**

Boilers: The industry is proposing for Briquettes/Coal fired Boilers of capacity 1 X 4TPH.

D.G. sets: Diesel generator of 1X250 KVA capacity will be installed to serve as an alternative source of power supply to this unit.

ii. **Mitigative measures:**

1. Process emission will be connected to scrubber with a stack attached.
2. The vapours will be collected through exhaust system consisting of hood, duct and vacuum fan and then vented out.
3. Stack will be provided to D.G. sets.
4. Boilers are connected with multi cyclone separator.
5. Plantation of green trees around the factory building and premises to control the intensity of noise to the surrounding area.
6. Use of PPE's

b. **Noise Environment:**

i. **Sources:**

Generators, Reactors, Compressors, Fans

ii. **Mitigative measures:**

1. Acoustic barriers or shields to the machineries.
2. Vibration free foundations for machineries
3. Acoustical walls and roofs to the building where such machineries are installed.
4. Segregation of machineries having high noise level in isolated buildings.
5. Sound control measures to steam vents.
6. Proper maintenance of machineries especially oiling and greasing of bearing and gears etc.
7. Avoiding vibration of machineries with proper design of machineries such as speed, balancing etc.

8. Use of personnel protective such as ear muff and ear plugs for persons working in such locations.
9. Plantation of green trees around the factory building and premises to control the intensity of noise to the surrounding area.

c. **Water Environment:** The water demand is met from KIADB (Karnataka Industrial Areas Development Board). The requirement of water for the unit is for domestic, industrial purposes and landscape development. The total fresh water requirement for the industry is 83.1 KLD.

i. **Sources:**

- Process water
- Cooling tower blow down
- Floor wash
- Boiler blow down

ii. **Mitigative measures:**

1. Rain water harvesting plan will be executed effectively & a storage reservoir of adequate capacity will be provided to hold rainwater.
2. Recycle of process water including steam condensate.
3. Control of water taps, washings, leakages from pump glands and flanged joints.
4. Floor cleaning with water will be replaced with dry cleaning.

d. Hazardous waste management:

i. **Sources:**

Used oil, Spent carbon, Polythene bags, Used fiber drums, etc.

ii. **Mitigative measures:**

1. Used oil shall be collected in leak proof containers & disposed to Central Pollution Control Board / Karnataka State Pollution Control Board registered authorized recyclers.
2. The solid from the bottom of the neutralization tank will have a selling potentiality. In such case, this solid will be sold to the parties who have a license from

handling the same, other waste will be sent to TSDF.

3. The boiler ash will be given to the brick manufactures by which we can be sure of safe disposal system.

ix. **Solid waste management:** Oil soaked cotton wastes, discarded containers, etc are the solid wastes generated and it will be stored in secured manner & handed over to the Karnataka State Pollution Control Board authorized recyclers.

x. **Power Requirements and Supply and Source**: The total power requirement of the proposed plant is about 500 KVA, which will be met from GESCOM.

7. REHABILITATION & RESETTLEMENT (R & R) PLAN

There is no human settlement or structures at the project site. Thus no R & R issue is involved.

8. PROJECT SCHEDULE AND COST ESTIMATE

i. Likely date of start of construction and likely date of completion (Time schedule for the project to be given)

The industry will take necessary approvals from the consented authority and start the construction immediately after obtaining Environmental Clearance and Consent For Establishment.

TABLE 8.1: TIME FRAME FOR COMPLETION OF THE PROJECT

Details of work	Aug 2021 to July 2022	Dec 2021 to April 2022
Building and construction work	12 months	
Erection of reactors and service facilities		12 months
Total	**24 months**	

ii. Estimated project cost along with analysis in terms of economic viability of the project.

The overall project cost for the proposed API manufacturing unit is 6.6 Crores. The breakup is given below.

TABLE 8.2: BREAKUP OF THE PROJECT COST

Particulars	Amount (Rs. Crores)
Land	1.39
Building, civil work	2.60
Plant & Machinery -Mechanical, Utilities, etc.	1.86
Furniture, Fixtures and other assets	0.40
Preliminary Preoperative	0.15
Miscellaneous	0.20
Total	**6.60**

9. ANALYSIS OF PROPOSAL

i. Financial and social benefits with special emphasis on the benefit to the local people including tribal population, if any, in the area

The proposal will bring employment opportunities. It will also bring trade opportunities to the country.

ANNEXURE-1

LIST OF PROPOSED PRODUCTS AND BY PRODUCTS

ANNEXURE-1

LIST OF PROPOSED PRODUCTS WITH CAPACITY

S. No	Name of Products	Qty. in TPM	CAS No.	Therapeutic Use
1.	Adefovir	2	142340-99-6	To treat chronic (long-term) hepatitis B infection
2.	Bortezomib	1	179324-69-7	Multiple myeloma
3.	Capecitabine	5	154361-50-9	Anti-Cancer
4.	Clopidogrel Bisulphate	5	120202-66-6	Cardiovascular
5.	Dapagliflozin	2	461432-26-8	Anti-diabetic
6.	Dapoxetine Hydrochloride	2	129938-20-1	Inhibitor
7.	Darunavir Ethanolate	3	635728-49-3	Antiviral
8.	Empagliflozin	2	864070-44-0	Anti-diabetic
9.	Etodolac	1	41340-25-4	Anti-inflammatory
10.	Etoricoxib	15	202409-33-4	Anti-inflammatory
11.	Famotidine	3	76824-35-6	To treat gastritis
12.	Imatinib Mesylate	1	152459-95-5	Anti-Cancer
13.	Irinotecan HCl	1	136-572-09-3	Topoisomerase I inhibitors
14.	Ivabradine HCl	2	148849-67-6	To treat heart disease
15.	Lenalidomide	1	191732-72-6	To treat anemia
16.	Linezolid	5	165800-03-3	Antibiotic
17.	Mesalamine	10	89-57-6	Ulcerative colitis
18.	Olmesartan Medoximil	1	144689-63-4	Anti-hypertension
19.	Pantoprazole Sodium	8	138786-67-1	To treat gastritis
20.	Piroctone Olamine	5	68890-66-4	Antifungal
21.	Ramipril	5	87333-19-5	To treat high blood pressure
22.	Risperidone	2	106266-06-2	Schizophrenia
23.	Sacubitril	2	149709-62-6	Chronic heart failure and reduced ejection fraction
24.	Sparfloxacin	5	110871-86-8	Antibiotic
25.	Tadalafil	5	171596-29-5	To treat erection problems
26.	Tamsulosin hydrochloride	1	106463-17-6	To treat Benign Prostatic Hyperplasia (BPH)
27.	Telmisartan	5	144701-48-4	Anti-hypertensive

28.	Thalidomide	1	50-35-1	To treat a skin condition and cancer
29.	Triclabendazole	3	68786-66-3	Anthelmintics
30.	Zoledronic acid	1	165800-06-6	To treat high levels of calcium
	Total (6 products)	**48**		

Note: From the above list of products, any 6 products will be manufactured at a given point of time.

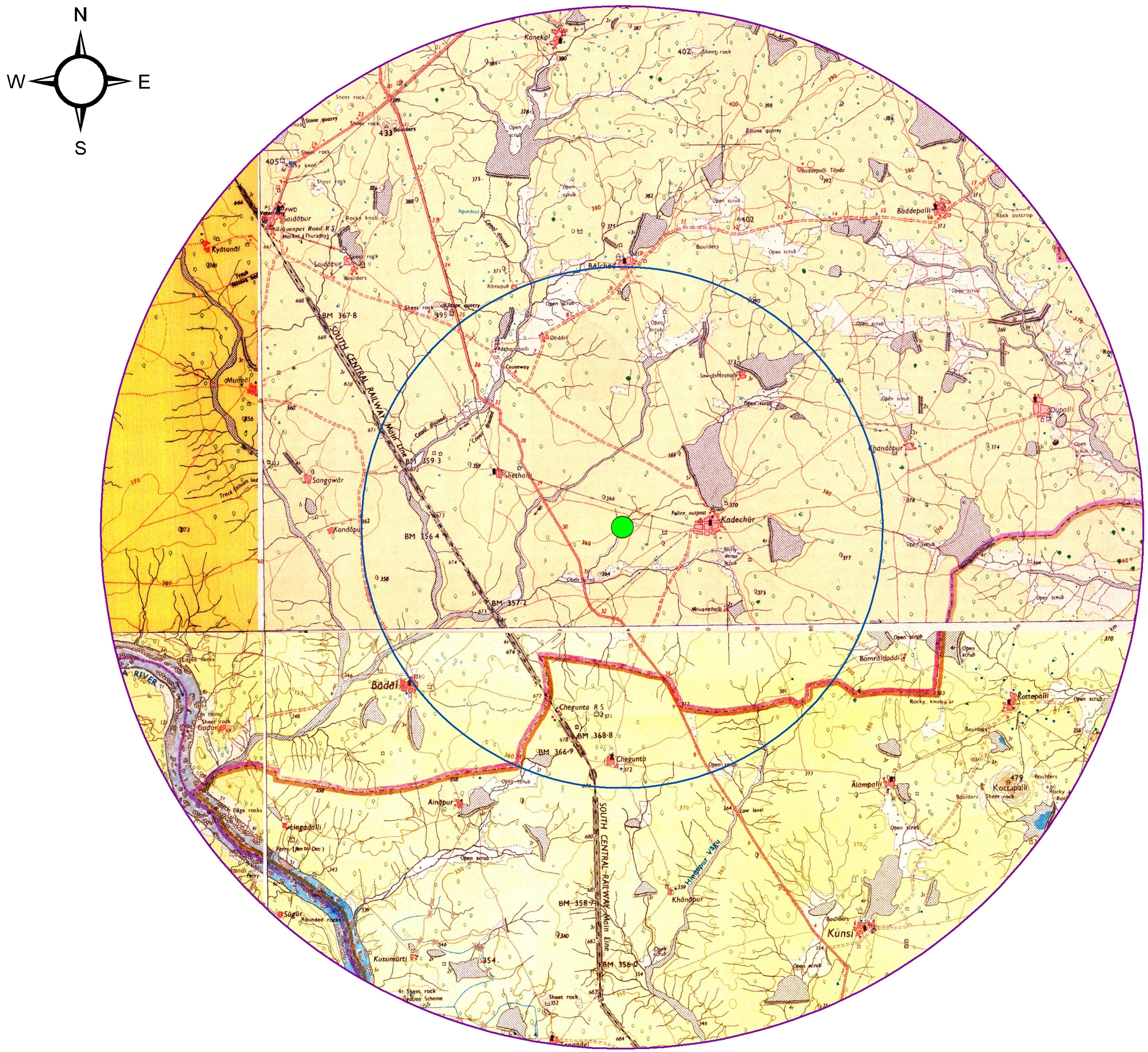
LIST OF PROPOSED BY-PRODUCTS

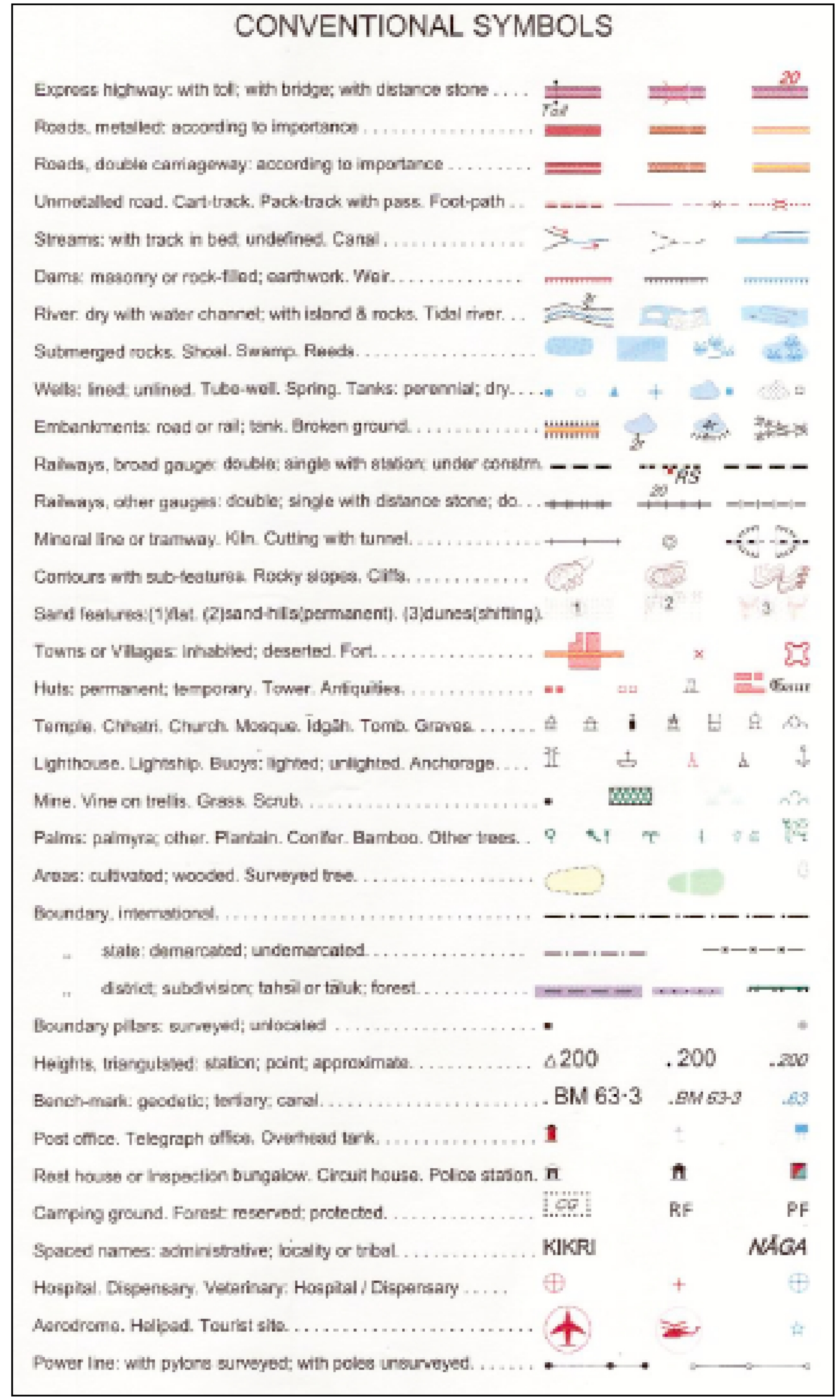
S .No	Name of the Product	Name of the By Product	Quantity in Kgs/Day
1	Capecitabine	Peridine Hydrochloride	59.69
2	Famotidine	Potassium chloride	53.14
3	Piroctone Olamine	Aluminium hydroxide solution	1452.5
4	Pantoprazole Sodium	Potassium Sulphate	60
		Ammonium Phosphate	35
		Sodium Acetate	110
		Ammonium Chloride	72.25
5	Telmisartan	Sodium phosphate	251

ANNEXURE-2

TOPOSHEET

TOPOMAP SHOWING PROJECT SITE WITH 10 KM RADIUS





Legend (TS No. 56 H/2, 3, 6 & 7)

- Project_Site
- 5_km_Buffer
- 10_km_Buffer

PREPARED FOR:
M/s. LAUREATZ TECHNOCHEM PVT LTD.
PLOT NO. 62, KADECHUR INDUSTRIAL AREA, YADAGIR TALUK, DISTRICT KARNATAKA - 585221

PREPARED BY:
AM ENVIRO ENGINEERS
2ND FLOOR, 14/1, HARIKRUPA, PATALAMMA TEMPLE STREET BASAVANAGUDI, BENGALURU - 560004

ANNEXURE-3

PROCESS DESCRIPTION, ROUTE OF SYNTHESIS ALONG WITH MATERIAL BALANCE

1. ADEFOVIR

Process Description

Stage-1

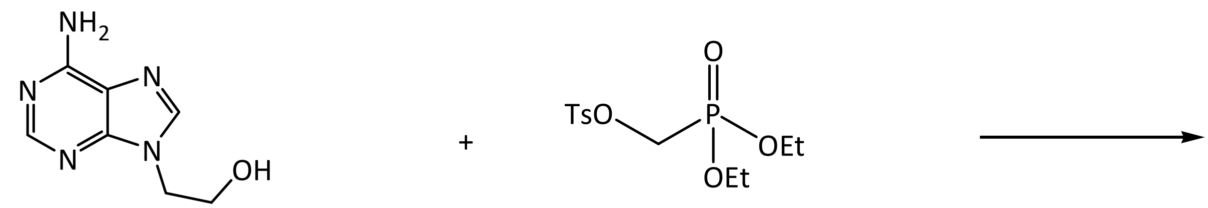
2-(6-Amino-9H-purin-9yl) ethanol reacts with Diethyl P-Toluene sulfonyloxy methylphophonate and Magnesium tert butoxide in presence of DMF to give Adefovir.

ADEFOVIR

Route of Synthesis

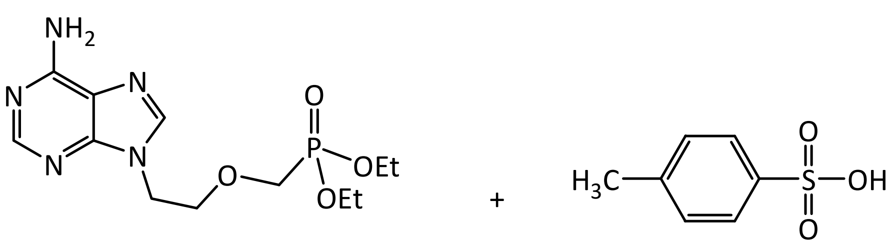
Stage-1

Step-A



2-(6-Amino-9*H*-purin-9-yl)ethanol
M.F:$C_7H_9N_5O$
M.Wt:179.18

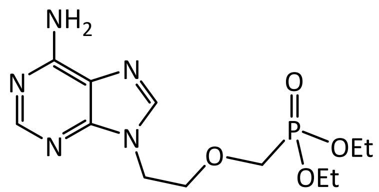
Diethyl p-toluenesulfonyloxy methylphosphonate
M.F:$C_{12}H_{19}O_6PS$
M.Wt:322.31



Diethyl ((2-(6-amino-9*H*-purin-9-yl)ethoxy)methyl)phosphonate
M.F:$C_{12}H_{20}N_5O_4P$
M.Wt:329.29

Paratoluene Sulphonic acid
$C_7H_8O_3S$
172.20

Step-B



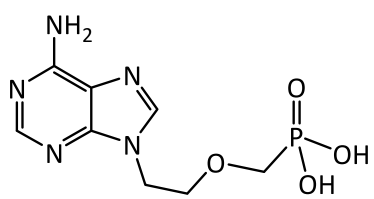
\+ 2 NH_4OH + 2 HCl →

Diethyl ((2-(6-amino-9*H*-purin-9-yl)ethoxy)methyl)phosphonate

M.F:$C_{12}H_{20}N_5O_4P$
M.Wt:329.29

Ammonium hydroxide
2X35.05=70.1

2X36.5=73.0



\+ 2 CH_3CH_2OH + 2 NH_4Cl

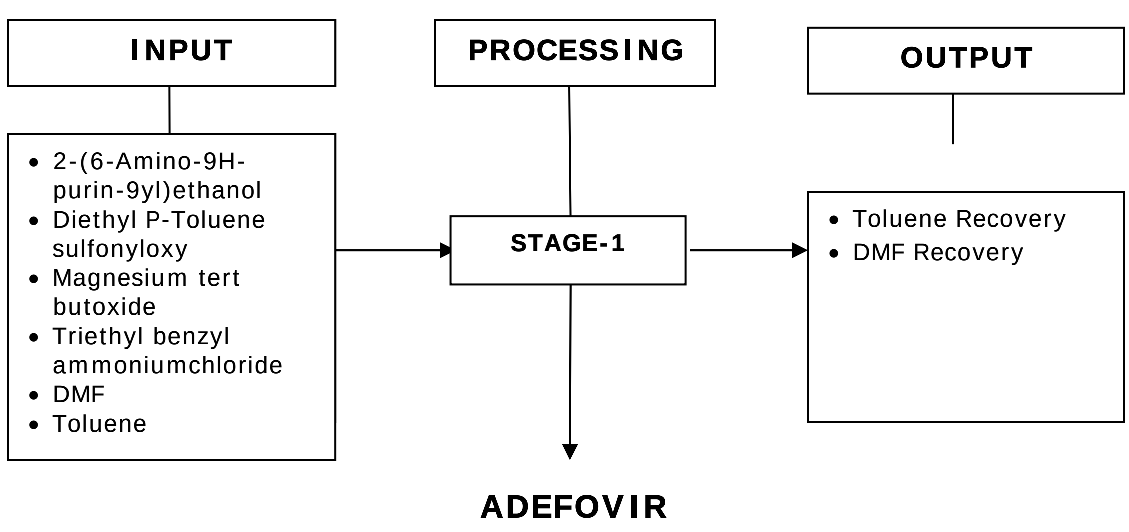
Adefovir
M.F:$C_8H_{12}N_5O_4P$
M.Wt:273.19

Ethanol
92.14

106.98

ADEFOVIR

Flow Chart:



ADEFOVIR

Material Balance

Material balance of Adefovir Stage-1 Batch Size: 14.0Kg				
Name of the input	Quantity in Kg		Name of the out put	Quantity In Kg
2-(6-Amino-9H-purin-9yl)ethanol	10.00		Adefovir	14.00
Diethyl P-Toluene sulfonyloxy methylphophonate	18.00		DMF Recovery	65.00
Magnesium tert butoxide	3.00		DMF Loss	3.00
Triethyl benzyl ammoniumchloride	2.00		Toluene Recovery	60.00
DMF	70.00		Toluene Loss	3.00
Toluene	70.00		Effluent water	128.90
Hydrochloric acid	4.00		(water-100,p-Toluene sulphonic acid-9.62, Magnesium tert butoxide-3, triethyl benzyl ammonium chloride-2, ethanol-4.76,ammonium chloride-5.52,Toluene-4)	
Ammonium hydroxide	3.62		Organic Residue	6.72
Water	100.00		(Organic Impurities-1.72, DMF-2,Toluene-3	
Total	280.62		Total	280.62

2. BORTEZOMIB

Process Description:

Stage-1:

Isobutyl boronic acid reacts with Pinanediol in presence of Heptane to give Stage-1 Product.

Stage-2:

Stage-1 product reacts with Zinc chloride and n-hexyl Lithium in presence of THF and Sulphuric acid to give stage-2 product

Stage-3:

Stage-2 product reacts with 1,1,1,3,3,3-Hexamethyl-disilazane in presence of Tetra hydro furan and Di isopropyl ether to give stage-3 product

Stage-4:

Stage-3 product reacts with Trifluoro Acid in presence of Diisopropyl ether to give stage-4 product.

Stage-5:

L-phenyl Alanine undergoes chlorination with Thionyl chloride and methanol in presence of IPA to give Stage-5 product.

Stage-6:

Stage-5 product reacts with Pyrazine carboxylic acid in presence of Ethyl Acetate, N-Heptane, Acetone and sodium hydroxide to give stage-6 product

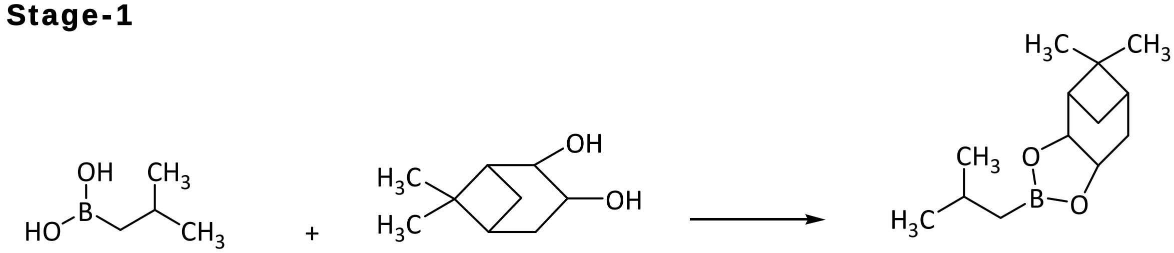
Stage-7:

Stage-6 product reacts with Stage-4 compound in presence of MDC and methanol to give Stage-7 product.

Stage-8:

Stage-7 product reacts with Isobutyl boronic acid in presence of n-Heptane, MDC and Methanol to give Bortezomib.

Route of Synthesis:
Stage-1



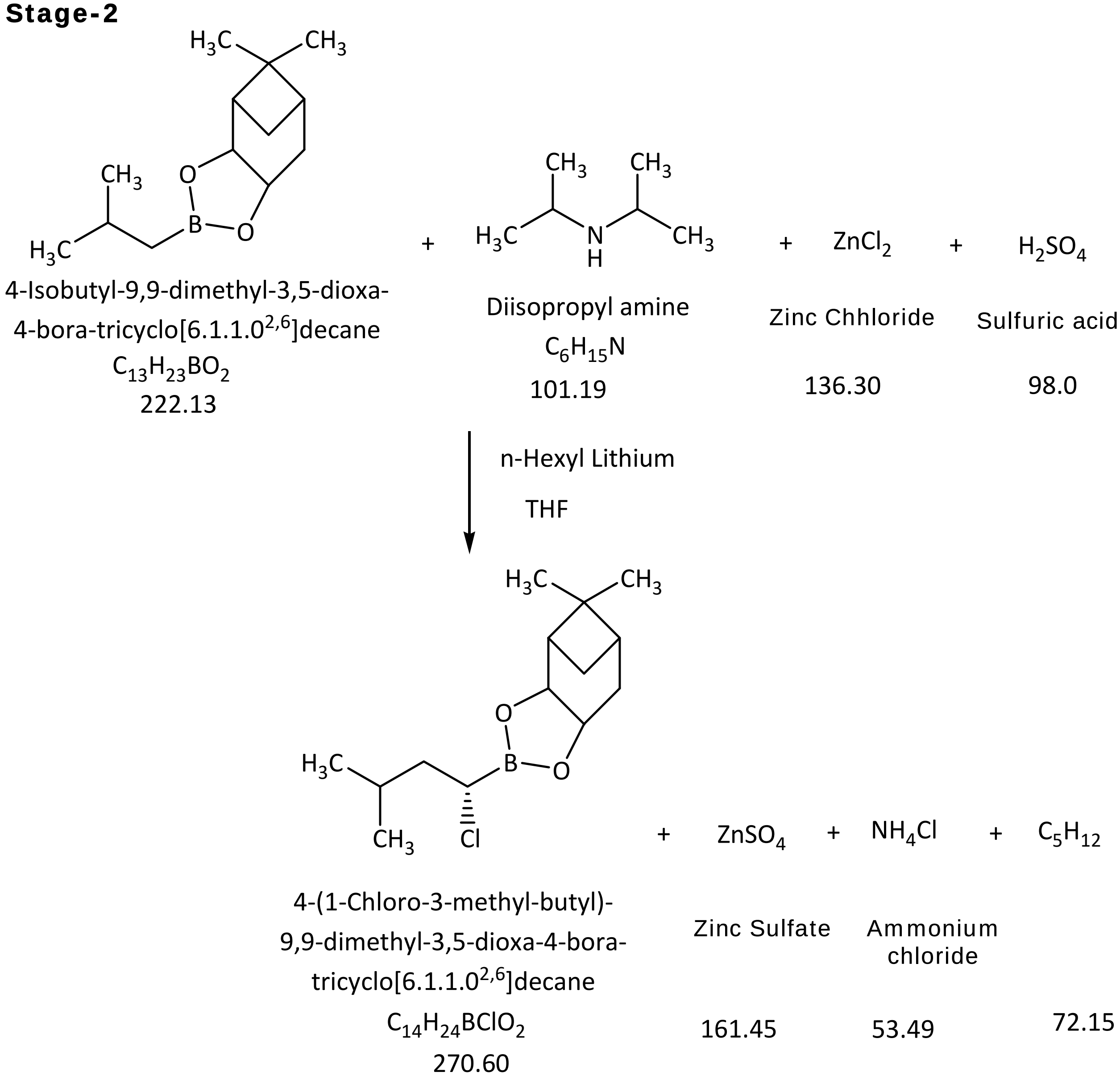
Isobutyl boronic acid
$C_4H_{11}BO_2$
101.94

Pinanediol
$C_9H_{16}O_2$
156.22

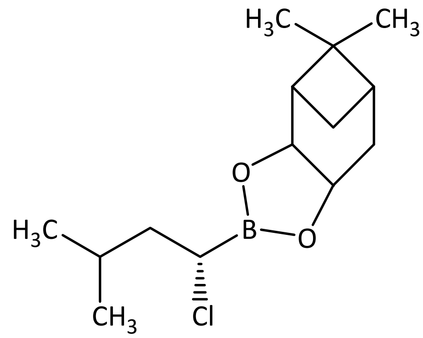
4-Isobutyl-9,9-dimethyl-3,5-dioxa-4-bora-tricyclo[6.1.1.0^{2,6}]decane
$C_{13}H_{23}BO_2$
222.13

+ 2 H_2O
36.00

Stage-2


4-Isobutyl-9,9-dimethyl-3,5-dioxa-4-bora-tricyclo[6.1.1.0^2,6]decane
$C_{13}H_{23}BO_2$
222.13
Diisopropyl amine
$C_6H_{15}N$
101.19
$ZnCl_2$
Zinc Chhloride
136.30
H_2SO_4
Sulfuric acid
98.0
n-Hexyl Lithium
THF
4-(1-Chloro-3-methyl-butyl)-9,9-dimethyl-3,5-dioxa-4-bora-tricyclo[6.1.1.0^2,6]decane
$C_{14}H_{24}BClO_2$
270.60
$ZnSO_4$
Zinc Sulfate
161.45
NH_4Cl
Ammonium chloride
53.49
C_5H_{12}
72.15

Stage-3

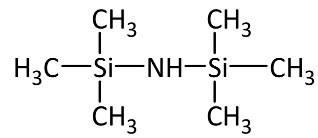


4-(1-Chloro-3-methyl-butyl)-9,9-dimethyl-3,5-dioxa-4-bora-tricyclo[6.1.1.0^{2,6}]decane

$C_{14}H_{24}BClO_2$

270.60

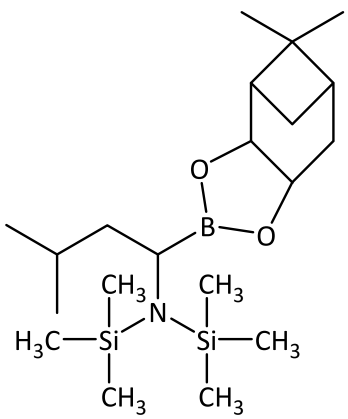
+



1,1,1,3,3,3-Hexamethyl-disilazane

$C_6H_{19}NSi_2$

161.39



4-[1-(1,1,1,3,3,3-Hexamethyl-disilazan-2-yl)-3-methyl-butyl]-9,9-dimethyl-3,5-dioxa-4-bora-tricyclo[6.1.1.0^{2,6}]decane

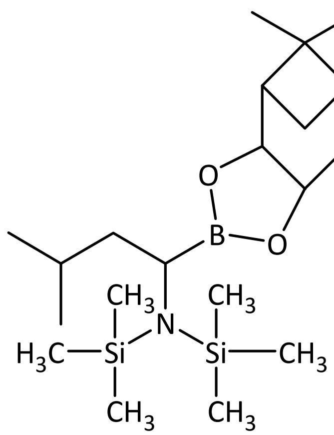
$C_{20}H_{42}BNO_2Si_2$

395.53

+ HCl ↑

36.50

Stage-4

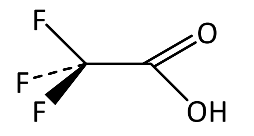


4-[1-(1,1,1,3,3,3-Hexamethyl-disilazan-2-yl)-3-methyl-butyl]-9,9-dimethyl-3,5-dioxa-4-bora-tricyclo[6.1.1.0^{2,6}]decane

$C_{20}H_{42}BNO_2Si_2$

395.53

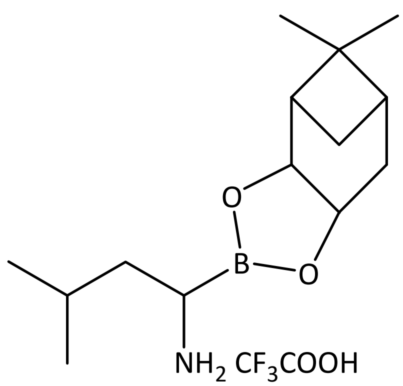
\+



Trifluoro Acetic Acid

$C_2HF_3O_2$

114.02

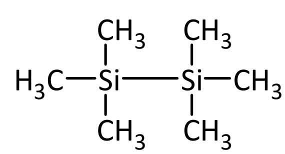


1-(9,9-Dimethyl-3,5-dioxa-4-bora-tricyclo[6.1.1.0^{2,6}]dec-4-yl)-3-methyl-butylamine trifluoro-acetic acid

$C_{16}H_{27}BF_3NO_4$

365.20

\+

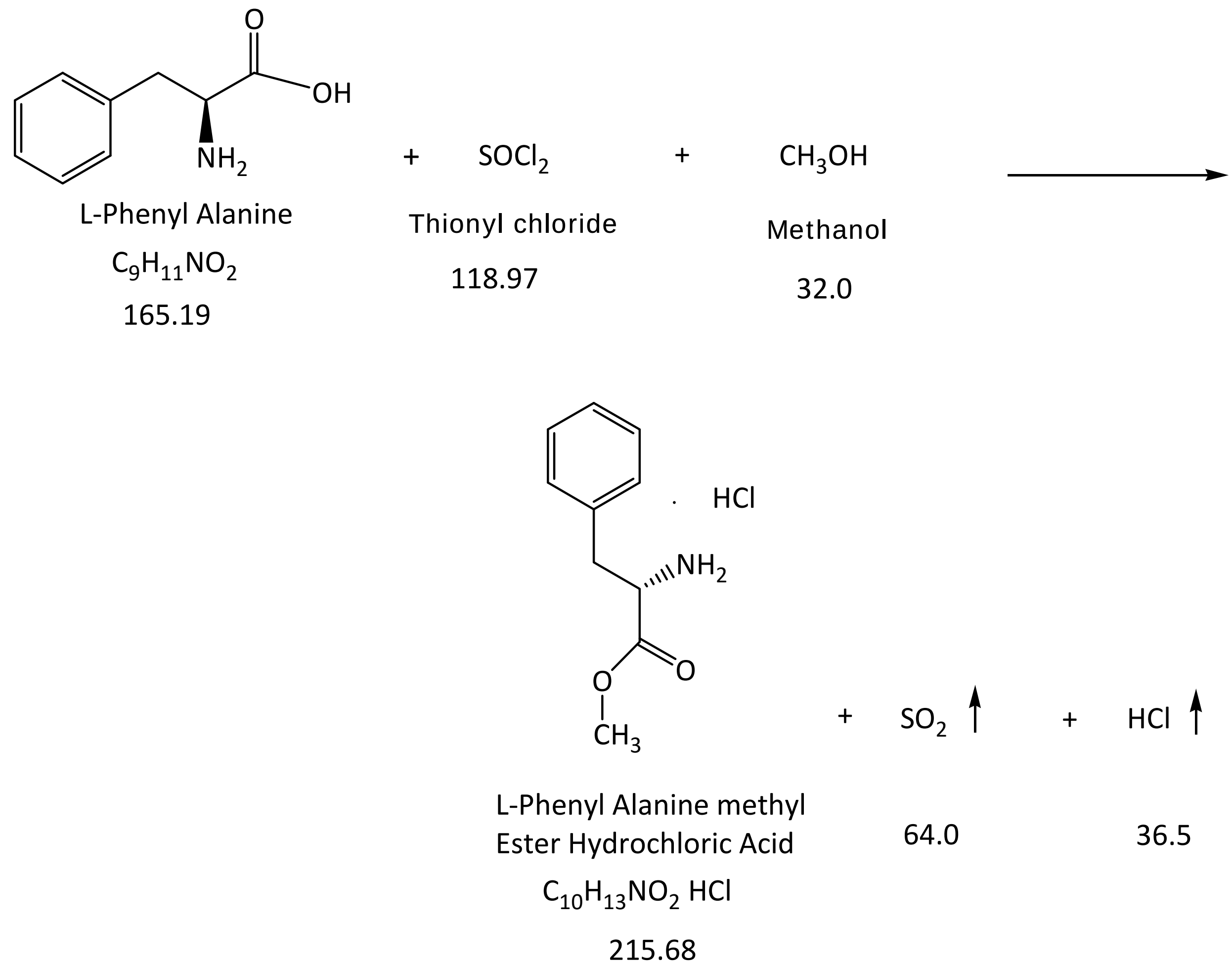


1,1,1,2,2,2-Hexamethyl-disilane

$C_6H_{18}Si_2$

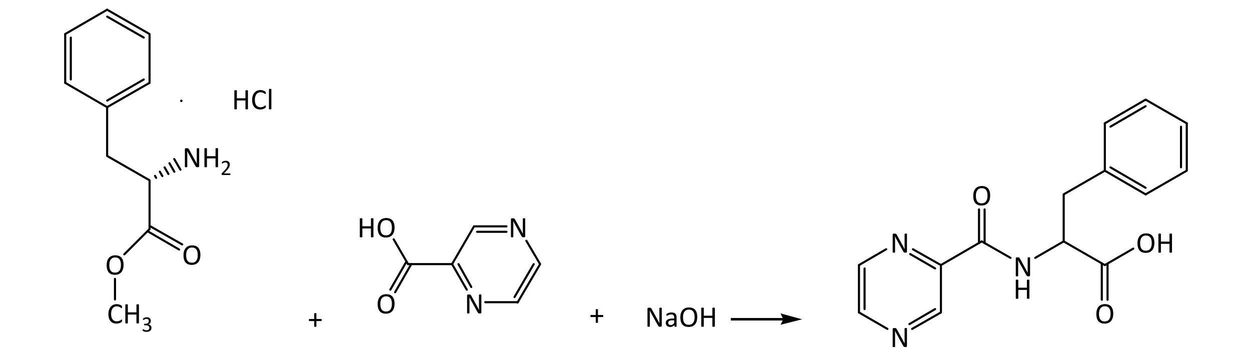
146.38

Stage-5



O
OH
NH2
L-Phenyl Alanine
C9H11NO2
165.19
+
SOCl2
Thionyl chloride
118.97
+
CH3OH
Methanol
32.0
· HCl
NH2
O
O
CH3
L-Phenyl Alanine methyl
Ester Hydrochloric Acid
C10H13NO2 HCl
215.68
+
SO2
64.0
+
HCl
36.5

Stage-6

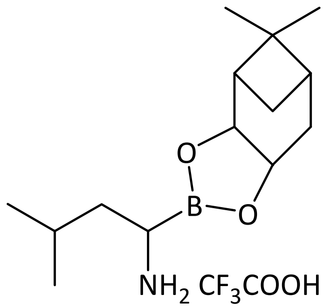


L-Phenyl Alanine methyl Ester Hydrochloric Acid	Pyrazine carboxylic acid	NaOH	N-(Pyrazinyl carbonyl) L-phenyl Alanine
$C_{10}H_{13}NO_2$ HCl	$C_5H_4N_2O_2$		$C_{14}H_{13}N_3O_3$
215.68	124.1	40.0	271.27

+ NaCl + CH_3OH + H_2O

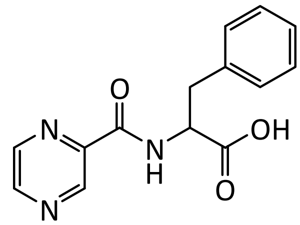
58.5 32.0 18.0

Stage-7



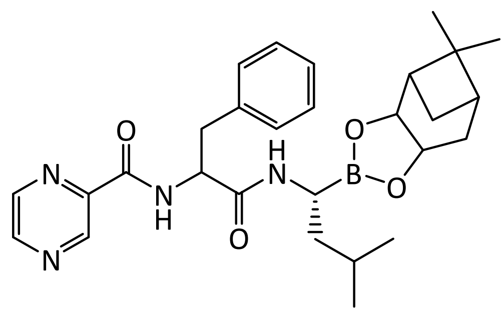
1-(9,9-Dimethyl-3,5-dioxa-4-bora-tricyclo[6.1.1.0^{2,6}]dec-4-yl)-3-methyl-butylamine;trifluoro-acetic acid
(Stage-4)
$C_{16}H_{27}BF_3NO_4$
365.2

+



N-(Pyrazinyl carbonyl) L-phenyl Alanine
(Stage-6)
$C_{14}H_{13}N_3O_3$
271.27

→

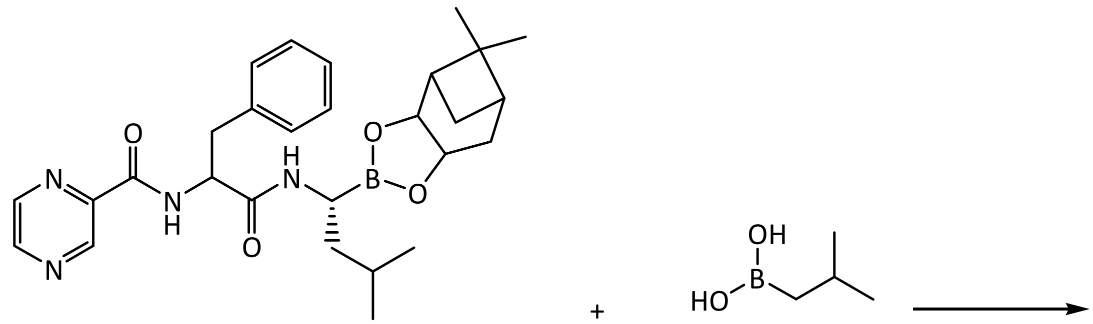


Pyrazine-2-carboxylic acid {1-[1-(9,9-dimethyl-3,5-dioxa-4-bora-tricyclo[6.1.1.0^{2,6}]dec-4-yl)-3-methyl-butylcarbamoyl]-2-phenyl-ethyl}-amide
$C_{28}H_{37}BN_4O_4$
504.43

+ CF_3COOH + H_2O

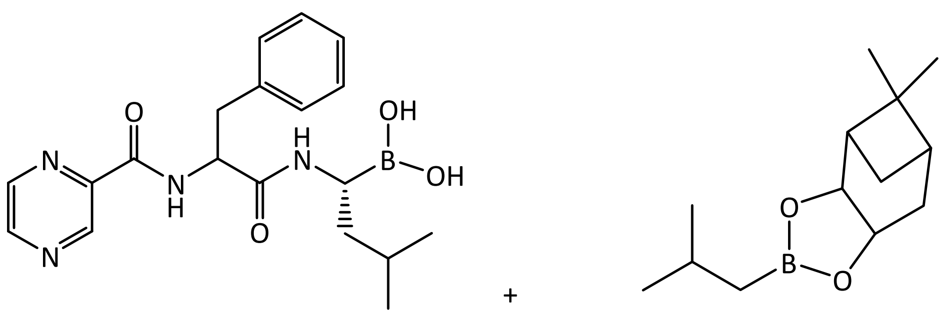
114.02 18.0

Stage-8



Pyrazine-2-carboxylic acid {1-[1-(9,9-dimethyl-3,5-dioxa-4-bora-tricyclo[6.1.1.0^{2,6}]dec-4-yl)-3-methyl-butylcarbamoyl]-2-phenyl-ethyl}-amide
$C_{28}H_{37}BN_4O_4$
504.43

Isobutyl boronic Acid
$C_4H_{11}BO_2$
101.94

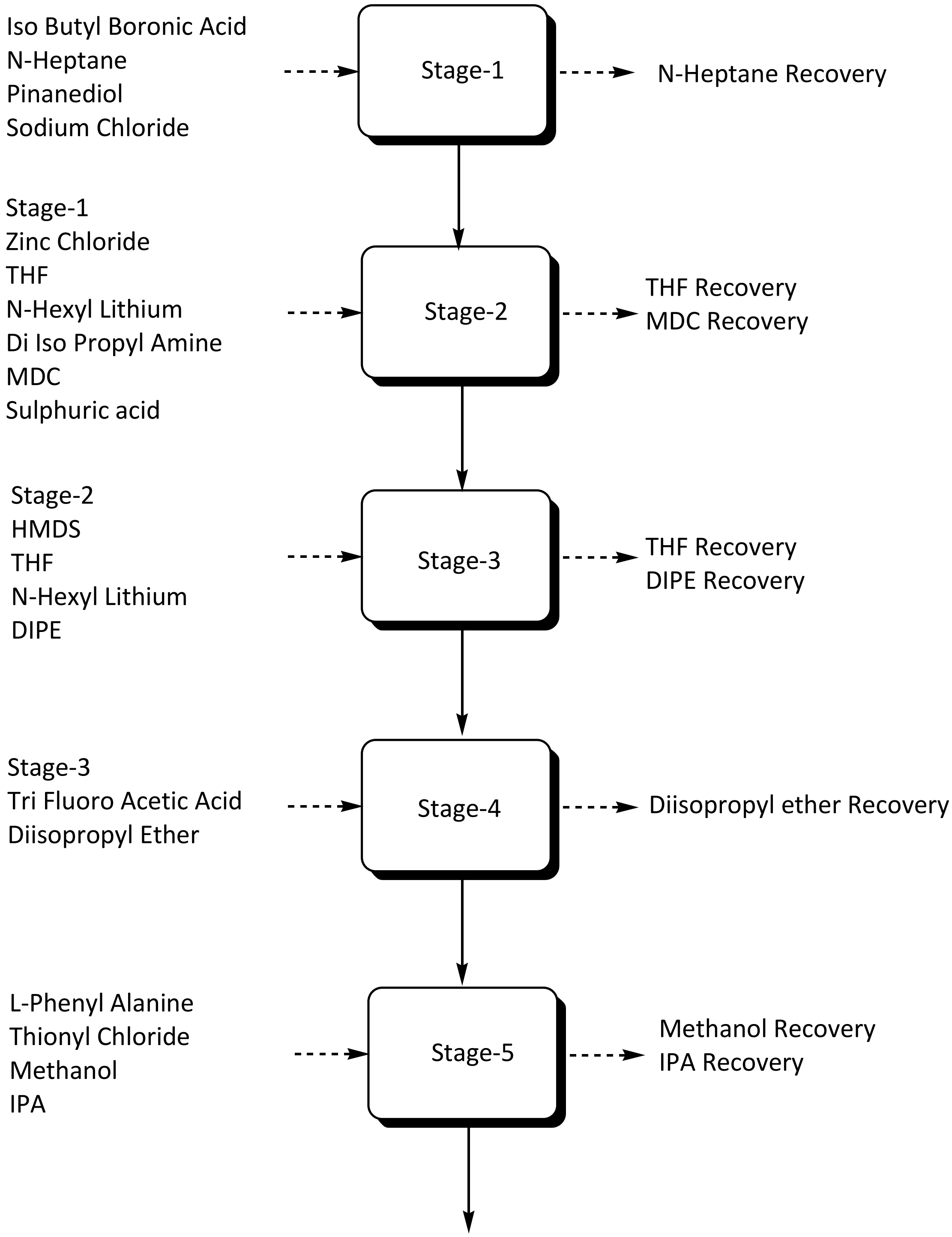


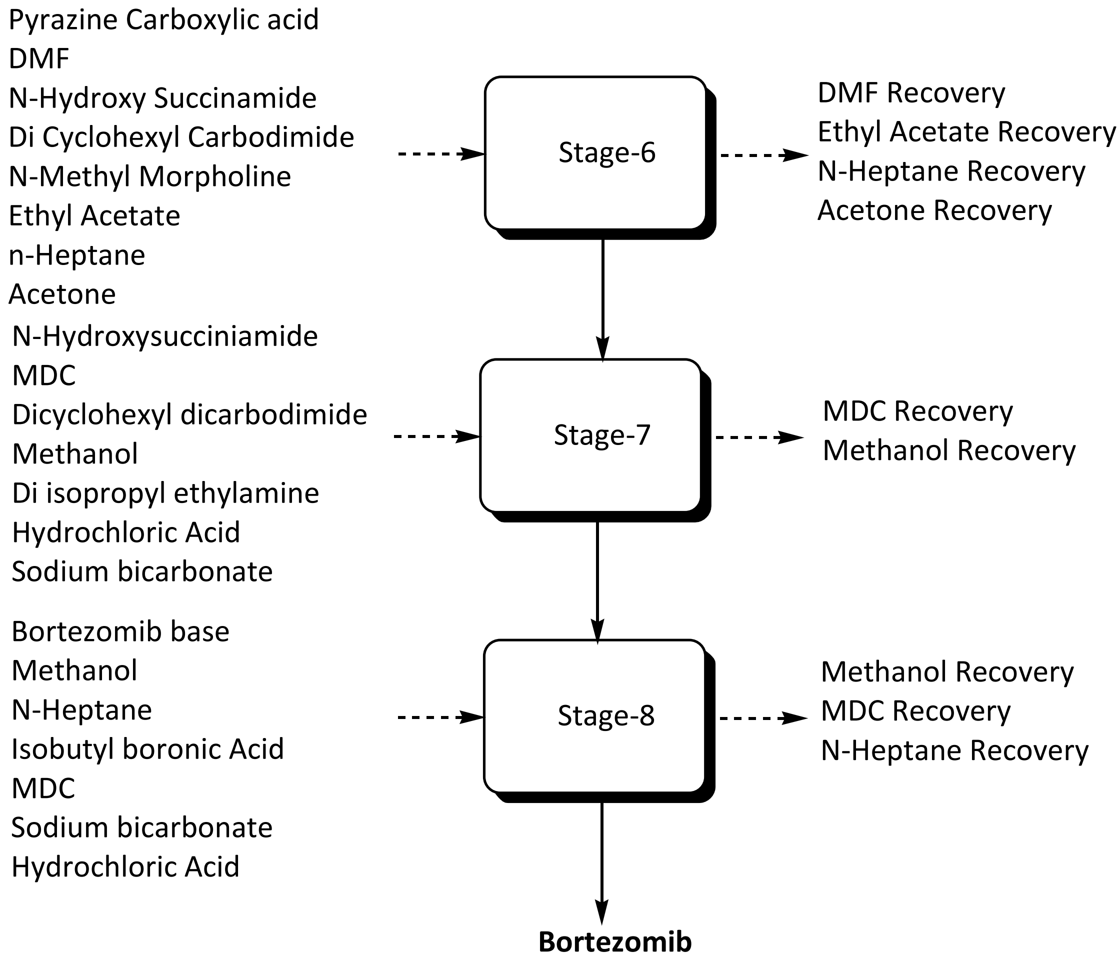
Bortezomib
$C_{19}H_{25}BN_4O_4$
384.24

4-Isobutyl-9,9-dimethyl-3,5-dioxa-4-bora-tricyclo[6.1.1.0^{2,6}]decane
$C_{13}H_{23}BO_2$
222.13

BORTEZOMIB

Flow chart:




Pyrazine Carboxylic acid
DMF
N-Hydroxy Succinamide
Di Cyclohexyl Carbodimide
N-Methyl Morpholine
Ethyl Acetate
n-Heptane
Acetone
Stage-6
DMF Recovery
Ethyl Acetate Recovery
N-Heptane Recovery
Acetone Recovery
N-Hydroxysucciniamide
MDC
Dicyclohexyl dicarbodimide
Methanol
Di isopropyl ethylamine
Hydrochloric Acid
Sodium bicarbonate
Stage-7
MDC Recovery
Methanol Recovery
Bortezomib base
Methanol
N-Heptane
Isobutyl boronic Acid
MDC
Sodium bicarbonate
Hydrochloric Acid
Stage-8
Methanol Recovery
MDC Recovery
N-Heptane Recovery
Bortezomib

BORTEZOMIB

Material Balance:

MATERIAL BALANCE OF BORTEZOMIB STAGE 1 BATCH SIZE :10.0 KG			
NAME OF THE INPUT	**QUANTITY IN KG**	**NAME OF THE OUT PUT**	**QUANTITY IN KG**
Iso Butyl Boronic Acid	4.00	Stage-1	8.50
N-Heptane	3.00	• N-Heptane Recovery	2.90
Pinanediol	6.25	• N-Heptane Loss	0.10
		Effluent Water	11.48
Sodium Chloride	0.06	• Water-10. • Generated water-1.42 • Sodium chloride-0.06	
Water	10.00		
		Organic residue	0.33
		• Process Resiue-.0.33	
Total	**23.31**	**Total**	**23.31**

MATERIAL BALANCE OF BORTEZOMIB STAGE 2 BATCH SIZE :10.0 KG			
NAME OF THE INPUT	**QUANTITY IN KG**	**NAME OF THE OUTPUT**	**QUANTITY IN KG**
Stage-1	8.50	Stage-2	10.00
Zinc Chloride	5.50	THF Recovery	9.40
THF	10.00	THF Loss	0.50
N-Hexyl Lithium	1.25	MDC Recovery	11.88
Di Isopropyl amine	4.00	MDC Loss	0.62
MDC	12.50	Effluent Water – 49.57 • Water-40 • Zinc sulphate-6.18 • Ammonium chloride-2.04 • THF-0.1 • n-Hexyl Lithium-1.25	49.57
Sulphuric acid	4.00		
Water	40.00	Process Emission Pentane – 2.76	2.76
		Organic residue – 1.02 (Process Residue-1.02)	1.02
Total	**85.75**	**Total**	**85.75**

MATERIAL BALANCE OF BORTEZOMIB STAGE 3 BATCH SIZE : 10.0KG				
NAME OF THE INPUT	**QUANTITY IN KG**		**NAME OF THE OUT PUT**	**QUANTITY IN KG**
Stage-2	10.00		Stage-3	14.00
HMDS	6.00		THF Recovery	2.85
THF	3.00		THF Loss	0.15
N-Hexyl Lithium	3.50		DIPE Recovery	1.29
DIPE	1.35		DIPE Loss	0.06
			N-Hexyl Lithium Reuse	3.50
			Process Emission – 1.35 (Hydrogen chloride-1.35)	1.35
			Organic Residue – 0.65 (Process Residue-0.65)	0.65
Total	23.85		Total	23.85

MATERIAL BALANCE OF BORTEZOMIB STAGE 4 BATCH SIZE : 10.0 KG				
NAME OF THE INPUT	**QUANTITY IN KG**		**NAME OF THE OUT PUT**	**QUANTITY IN KG**
Stage-3	14.00		Stage-4	12.00
Tri Fluoro Acetic Acid	4.25		Diisopropyl ether Recovery	21.00
Diisopropyl Ether	22.50		Diisopropyl ether Loss	1.00
DM Water	50.00		Effluent Water (Water-50,Hexamethyl disilane-5.18,DIPE-0.5)	55.68
			Organic residue Process residue – 1.07	1.07
Total	90.75		Total	90.75

MATERIAL BALANCE OF BORTEZOMIB STAGE 5 BATCH SIZE :10.0KG				
NAME OF THE INPUT	**QUANTITY IN KG**		**NAME OF THE OUT PUT**	**QUANTITY IN KG**
L-Phenyl Alanine	6.00		Stage-5	7.50
Thionyl Chloride	4.50		Methanol Recovery	2.85
Methanol	5.00		Methanol Loss	1.25
IPA	5.00		IPA Recovery	4.75
			IPA Loss	0.10
			Process Emission – 3.64 (Hydrogen chloride-1.32, Sulfurdioxide-2.32)	3.64
			Organic Residue – 1.60 (Process Residue-0.55 Distillation residue – 1.05 (IPA-0.15, Methanol – 0.9)	1.60
Total	20.50		Total	20.50

MATERIAL BALANCE OF BORTEZOMIB
STAGE 6
BATCH SIZE :10.0 KG

NAME OF THE INPUT	QUANTITY IN KG		NAME OF THE OUT PUT	QUANTITY IN KG
Stage-5	7.50		Stage-6	9.00
Pyrazine Carboxylic acid	4.50		• DMF Recovery	14.25
DMF	15.00		• DMF Loss	0.03
n-Hydroxy Succinamide	3.00		• Ethyl Acetate Recovery	19.00
Di Cyclohexyl Carbodimide	1.00		• Ethyl Acetate Loss	0.80
n-Methyl Morpholine	0.35		• n-Heptane Recovery	19.00
Ethyl Acetate	20.00		• n-Heptane Loss	1.00
n-Heptane	20.00		• Acetone Recovery	14.25
Acetone	15.00		• Acetone Loss	0.75
Sodium Hydroxide	1.50		Effluent Water – 168.11 • Water-150, • Generated water-0.62, • Sodium chloride-2.03, Methanol-1.11,HCl-10, • DCC-1 • n-Hydroxy Succinamide-3, • n-Methylmorpholine-0.35	168.11
Hydrochloric Acid	10.00			
DM Water	150.00		Organic residue – 1.66 • Process Residue-0.74 • Distillation Residue-0.92 (DMF-0.72,Ethyl acetate-0.2)	1.66
Total	247.85		Total	247.85

MATERIAL BALANCE OF BORTEZOMIB STAGE-7 BATCH SIZE :10.0 KG				
NAME OF THE INPUT	**QUANTITY IN KG**		**NAME OF THE OUT PUT**	**QUANTITY IN KG**
Stage-4	12.00		Bortezomib Base	1.40
Stage-6	9.00		• MDC Recovery	14.25
N-Hydroxysucciniamide	0.25		• MDC Loss	0.30
MDC	15.00		• Methanol Recovery	9.50
Dicyclohexyl dicarbodimide	0.40		• Methanol Loss	0.20
Methanol	10.00		• Effluent Water	8.49
Di isopropyl ethylamine	0.45		Water-70, • Generated water-0.59 Sodium bicarbonate-0.2, • HCl-0.25,DIPA-0.45	71.49
Hydrochloric Acid	0.25		Organic Residue – 11.92 • Process residue -11.17 • Trifluoro acetic acid-.3.75 • Distillation Residue-0.75 (Methanol-0.30,MDC-0.45)	11.92
Sodium bicarbonate	0.20			
DM Water	70.00			
Total	117.55		Total	117.55

MATERIAL BALANCE OF BORTEZOMIB STAGE 8 BATCH SIZE- 10.0 KG				
NAME OF THE INPUT	**QUANTITY IN KG**		**NAME OF THE OUT PUT**	**QUANTITY IN KG**
Bortezomib base	15.00		Bortezomib	10.00
Methanol	15.00		Methanol Recovery	14.20
N-Heptane	17.00		Methanol Loss	0.30
Isobutyl boronic Acid	3.25		MDC Recovery	16.20
MDC	17.00		MDC Loss	0.35
Sodium bicarbonate	0.19		N-Heptane Recovery	16.20
Hydrochloric Acid	0.06		N-Heptane Loss	0.35
Water	100.00		Effluent Water – 100.75 (Water-100,Sodium bicarbonate-0.19,HCl-0.06, Methanol-0.5)	100.75
			Organic Residue – 9.15 (Process residue-8.25 4-Isobutyl -9-9 dimethyl-3,5 – dioxa-a-bora-tricyclo decane-6.60 Distillation Residue-0.9 (MDC-0.45,N-Heptane-0.45)	9.15
Total	167.50		Total	167.50

3. CAPECITABINE

Process Description:

Stage-1:

5-Deoxy-5-fluoro cytidine reacts with Chloro phenyl formate in presence of Pyridine and MDC to give Satge-1 compound.

Stage-2:

Satge-1 compound undergoes hydrolysis with sodium hydroxide in presence of MDC and HCl to give Satge-2 compound.

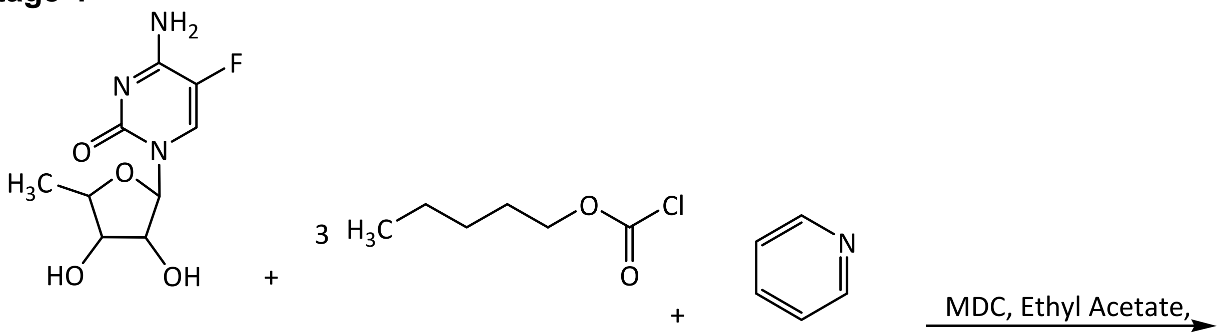
Stage-3:

Stage-2 compound undergoes purification in ethyl acetate to give Capecitabine

CAPECITABINE

Route of Synthesis:

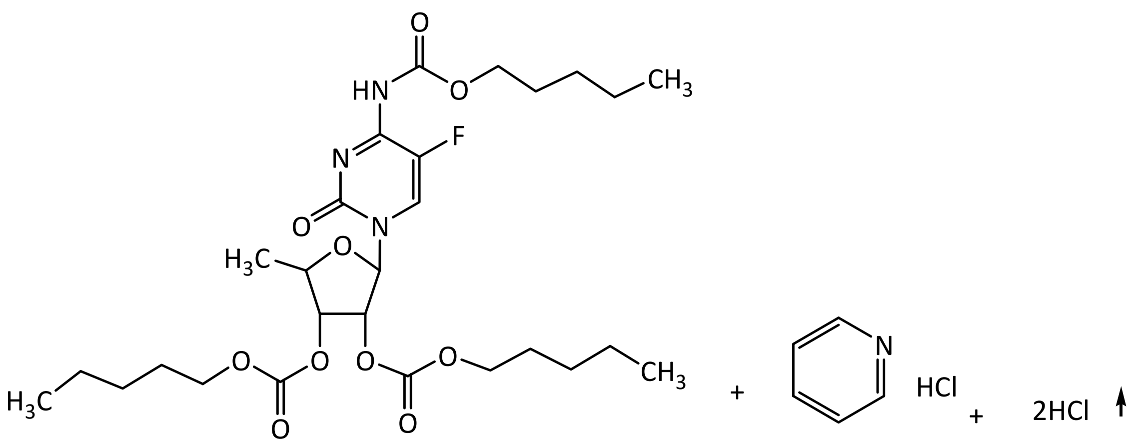
Stage-1



5-Deoxy-5-fluoro cytidine
$C_9H_{12}FN_3O_4$
245.21

Chloro pentyl formate
$C_6H_{11}ClO_2$
3X150.6=451.8

Pyridine
C_5H_5N
79.10

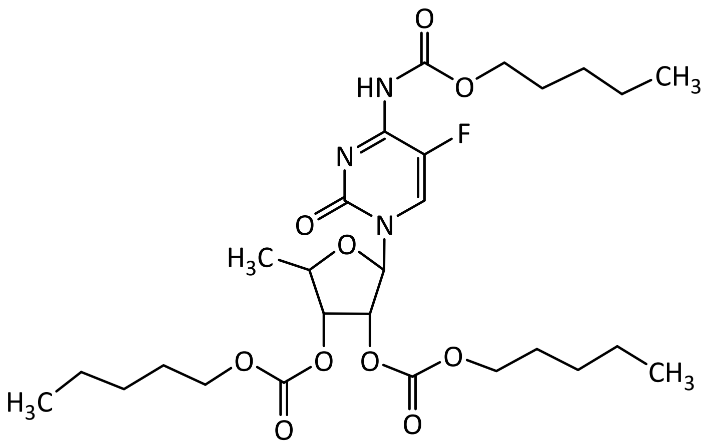


Carbonic acid 5-(5-fluoro-2-oxo-4-pentyloxy carbonylamino-2*H*-pyrimidin-1-yl)-2-methyl-4-pentyloxy carbonyloxy-tetrahydro-furan-3-yl ester pentyl ester
$C_{27}H_{42}FN_3O_{10}$
587.63

Pyridine Hydrochloride
C_5H_6ClN
115.56

72.92

Stage-2



+ 3 HCl + NaOH ⟶

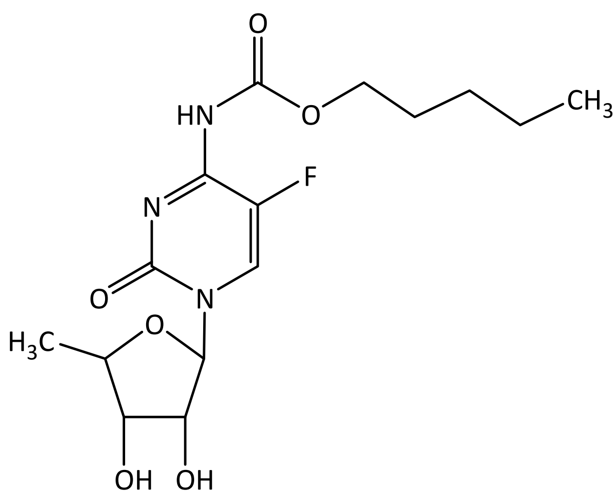
Carbonic acid 5-(5-fluoro-2-oxo-4-pentyloxy carbonylamino-2*H*-pyrimidin-1-yl)-2-methyl-4-pentyloxy carbonyloxy-tetrahydro-furan-3-yl ester pentyl ester

$C_{27}H_{42}FN_3O_{10}$

587.63

36.46 X 3= 109.38

40.00



+ 2 $C_6H_{11}ClO_2$ + NaCl + H_2O

[1-(3,4-Dihydroxy-5-methyl-tetrahydro-furan-2-yl) -5-fluoro-2-oxo-1,2-dihydro-pyrimidin-4-yl]-carbamic acid pentyl ester

$C_{15}H_{22}FN_3O_6$

359.35

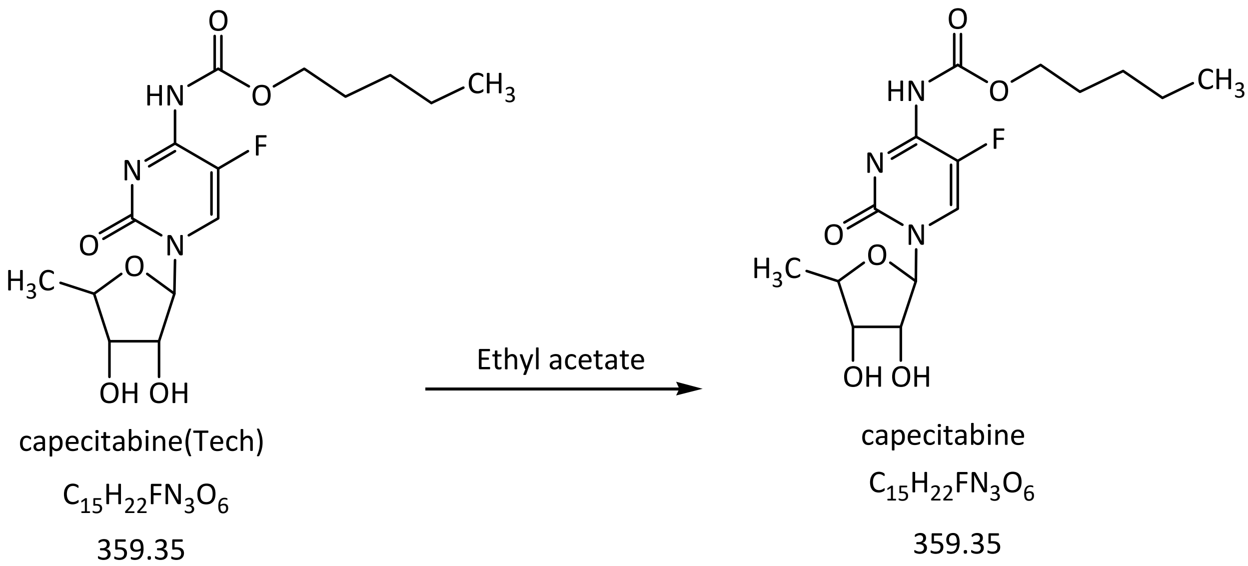
Chloro Pentayl Formate

15.6 x 2=301.20

58.44

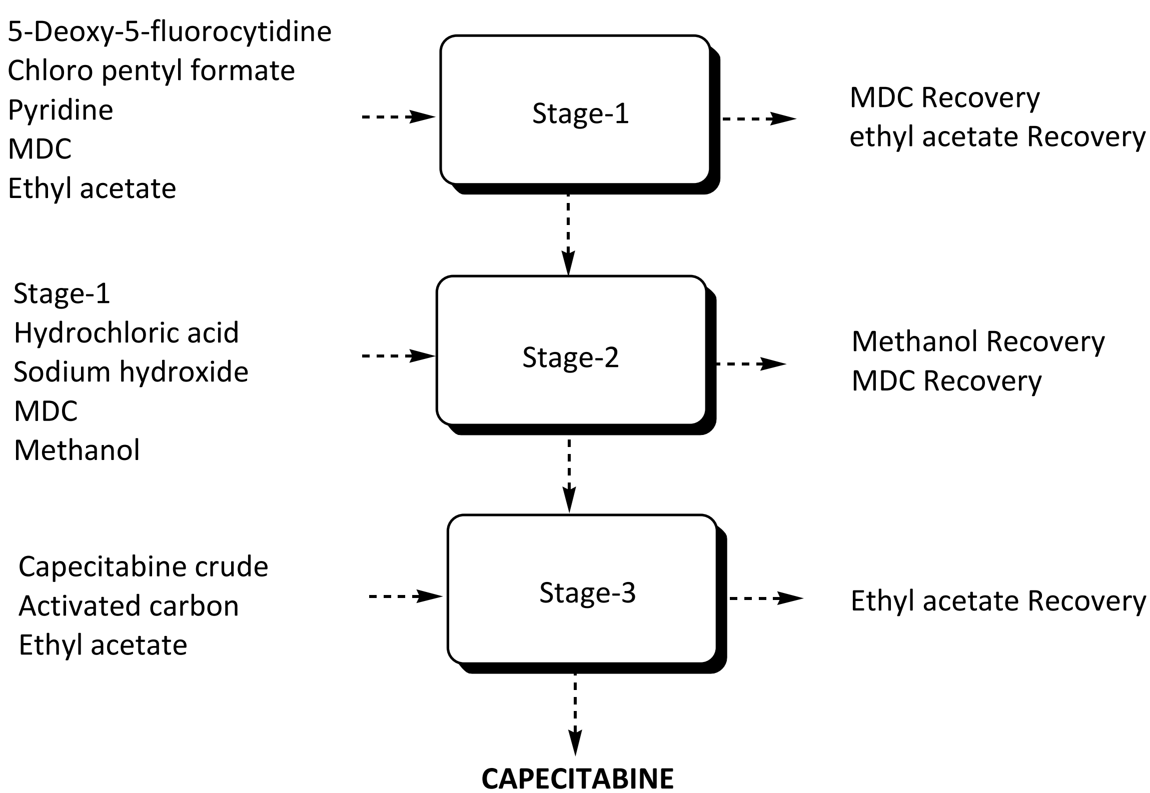
18.02

Stage-3



CAPECITABINE

Flowchart:



CAPECITABINE

Material Balance:

Material Balance of Capecitabine Stage-1 Batch Size: 25.00Kg				
Name of the input	Quantity in Kg		Name of the out put	Quantity in Kg
5-Deoxy-5-fluorocytidine	19.00		Stage-1	43.00
Chloro pentyl formate	35.00		MDC Recovery	627.00
Pyridine	6.25		MDC Loss	13.00
MDC	660.00		Ethyl acetate Recovery	333.00
Ethyl acetate	350.00		Ethyl acetate Loss	7.00
			By-product	8.95
			– 8.95)	0
			Process Emissions	6.19
			(Hydrogen chloride – 6.19)	0
			Organic Residue	32.11
			Process Residue-2.11, Distillation Residue-30 (MDC-20,Ethylacetate-10)	
Total	1070.25		Total	1070.25

Material Balance of Capecitabine Stage-2 Batch Size: 25.00Kg				
Name of the input	Quantity in Kg		Name of the out put	Quantity in Kg
Stage-1	43.00		Stage-2	26.00
Hydrochloric acid	8.00		MDC Recovery	333.00
Sodium hydroxide	3.00		MDC Loss	7.00
MDC	350.00		Methanol Recovery	285.00
Methanol	300.00		Methanol Loss	6.00
Water	500.00		Effluent water (Water-500, generated water-1.318, Sodium chloride-4.42, Methanol-4) Chloro pentyl formate -22)	531.73
			Organic Residue	15.27
			Process Residue-0.27, Distillation Residue-15 (MDC-10,Methanol-5)	
Total	1204.00		Total	1204.00

Material Balance of Capecitabine Stage-3 Batch Size: 25.00Kg				
Name of the input	Quantity in Kg		Name of the out put	Quantity in Kg
Capecitabine crude	26.00		Capecitabine (pure)	25.00
Activated carbon	10.00		Ethyl acetate Recovery	475.00
Ethyl acetate	500.00		Ethyl acetate Loss	10.00
			Spent carbon	10.00
			Organic Residue	25.00
			Process Residue-10 Distillation Residue-15 (Ethylacetate-15)	
Total	536.00		Total	545.00

4. CLOPIDOGREL BISULPHATE

Process Description

Stage-1

Amino-(2-chloro-phenyl) acetic acid methyl ester Hydrochloride reacts with Sodium carbonate in presence of Dichloromethane as a solvent media to give Stage-1 as a product.

Stage-2

Stage-1 product reacts with Amino-(2-chloro-phenyl) acetic acid methyl ester and Isopropyl alcohol hydrochloride to give Stage-2 as a product.

Stage-3

Stage-2 Product reacts with Formaldehyde and Sodium carbonate in presence of Dichloromethane as a solvent media to give stage-3 as a product.

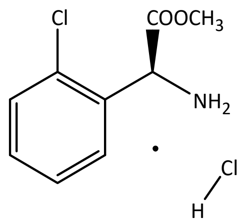
Stage-4

Stage-3 product reacts with Sulphuric acid in presence of Acetone as a solvent media to give Clopidogrel Bisulphate.

CLOPIDOGREL BISULPHATE

Route of Synthesis:

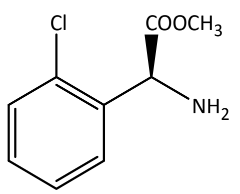
Stage-1:



\+ Na_2CO_3 $\xrightarrow{\text{Dichloromethane}}$

Amino-(2-chloro-phenyl)
-acetic acidmethyl ester
Hydrochloride
$C_9H_{11}Cl_2NO_2$
236.10

Sodium carbonate
105.99



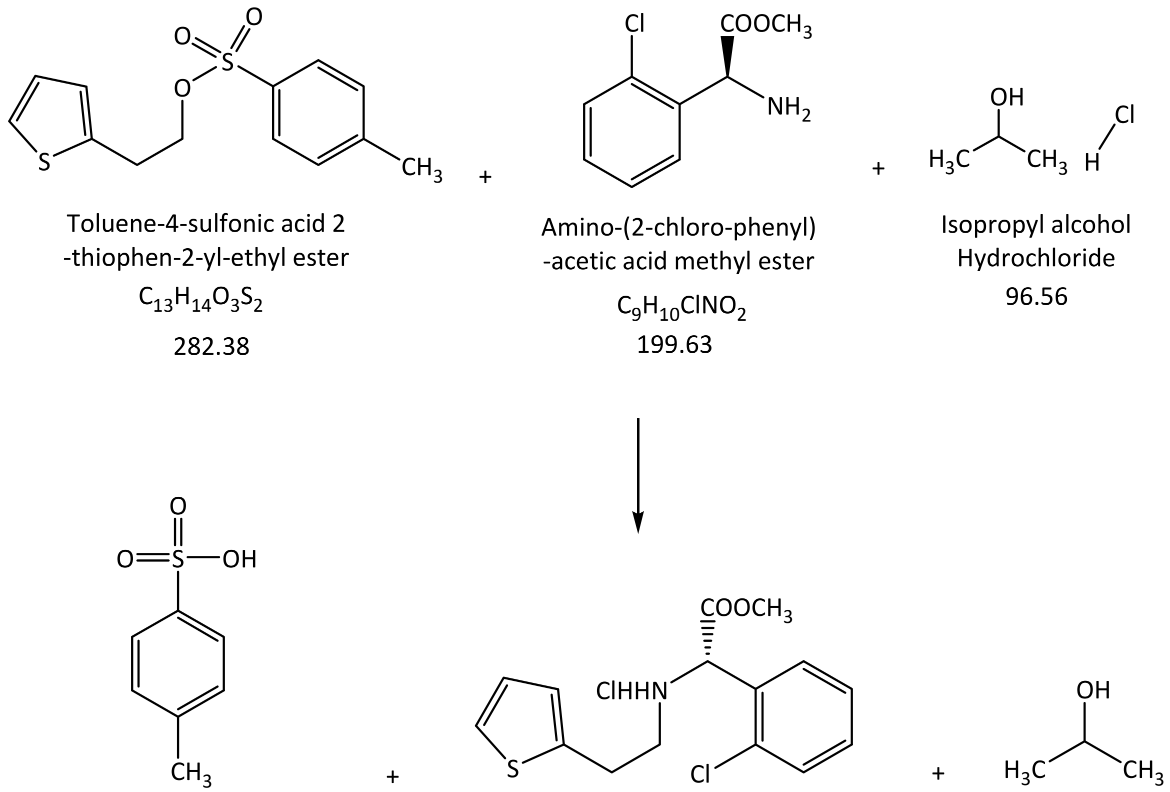
\+ NaCl + $NaHCO_3$

Amino-(2-chloro-phenyl)-acetic
acid methyl ester
$C_9H_{10}ClNO_2$
199.63

Sodium chloride
58.5

Sodium bicarbonate
84.01

Stage-2:



Toluene-4-sulfonic acid 2 -thiophen-2-yl-ethyl ester
$C_{13}H_{14}O_3S_2$
282.38

Amino-(2-chloro-phenyl) -acetic acid methyl ester
$C_9H_{10}ClNO_2$
199.63

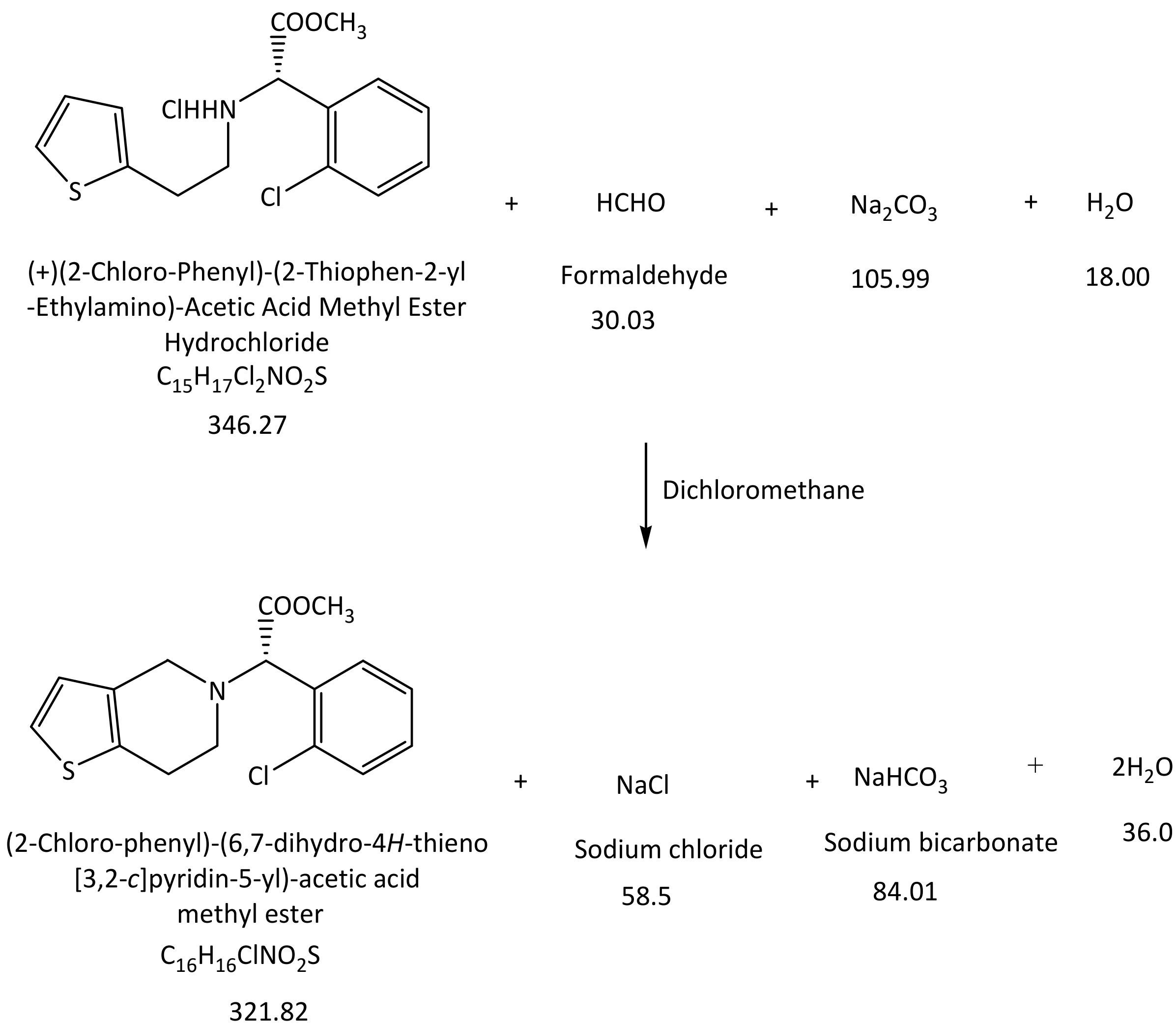
Isopropyl alcohol Hydrochloride
96.56

Toluene-4-sulfonic acid
$C_7H_8O_3S$
172.20

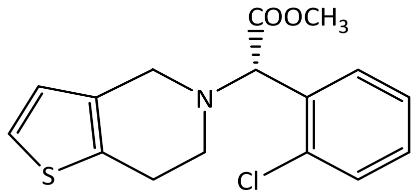
(+)(2-Chloro-Phenyl)-(2-Thiophen-2-yl -Ethylamino)-Acetic Acid Methyl Ester Hydrochloride
$C_{15}H_{17}Cl_2NO_2S$
346.27

Isopropyl alcohol
60.10

Stage-3:


COOCH3
ClHHN
S
Cl
+
HCHO
+
Na2CO3
+
H2O
(+)(2-Chloro-Phenyl)-(2-Thiophen-2-yl
-Ethylamino)-Acetic Acid Methyl Ester
Hydrochloride
C15H17Cl2NO2S
346.27
Formaldehyde
30.03
105.99
18.00
Dichloromethane
COOCH3
N
S
Cl
+
NaCl
+
NaHCO3
+
2H2O
(2-Chloro-phenyl)-(6,7-dihydro-4H-thieno
[3,2-c]pyridin-5-yl)-acetic acid
methyl ester
C16H16ClNO2S
321.82
Sodium chloride
58.5
Sodium bicarbonate
84.01
36.0

Stage-4:



(2-Chloro-phenyl)-(6,7-dihydro-4*H*-thieno [3,2-*c*]pyridin-5-yl)-acetic acid methyl ester

$C_{16}H_{16}ClNO_2S$

321.82

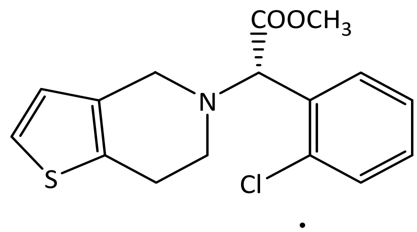
\+

H_2SO_4

Sulphuric acid

98.08

$\xrightarrow{\text{Acetone}}$



H_2SO_4

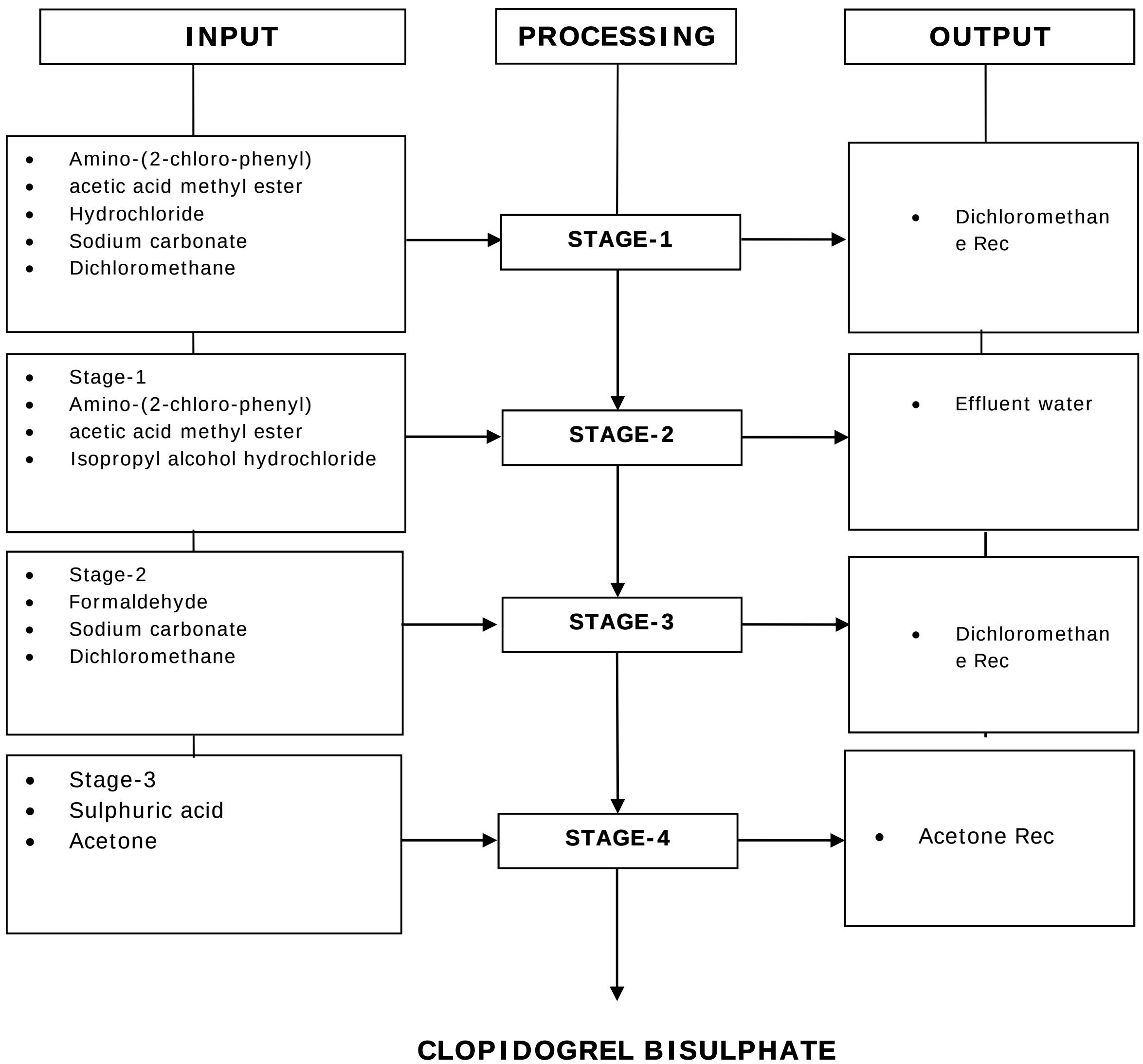
Clopidogrel bisulphate-II

$C_{16}H_{18}ClNO_6S_2$

419.90

CLOPIDOGREL BISULPHATE

Flow Chart:



CLOPIDOGREL BISULPHATE

Material Balance:

MATERIAL BALANCE OF CLOPIDOGREL BISULPHATE STAGE-1 BATCH SIZE: 50.0 KGS			
INPUT		**OUTPUT**	
NAME OF THE INPUT	**QUANTITY IN KGS**	**NAME OF THE OUTPUT**	**QUANTITY IN KGS**
Glycine methyl ester HCl	87.25	Stage-1	63.00
Methylene Dichloride	300.00	Methylene Dichloride Recovery	285.00
Sodium carbonates (20%)	140.00	Methylene Dichloride Loss	15.00
Sodium sulfate	9.00	Effluent water	1136.22
Water	1000.00	(water-986.7,Generated water-6.65,Sodium chloride-30.87, Water from Sodium carbonate-112)	
		Inorganic Residue	9.00
		(Sodium sulfate-9)	
		Process Emissions	11.62
		(Carbon dioxide-11.62)	
		Organic Residue	16.41
Total	**1536.25**	**Total**	**1536.25**

MATERIAL BALANCE OF CLOPIDOGREL BISULPHATE STAGE-2 BATCH SIZE: 50.0 KGS			
INPUT		**OUTPUT**	
NAME OF THE INPUT	**QUANTITY IN KGS**	**NAME OF THE OUTPUT**	**QUANTITY IN KGS**
Stage-1	63.00	Stage-2	62.30
Tosylate	90.00	Acetonitrile Recovery	48.00
Acetonitrile	50.00	Acetonitrile Loss	2.00
Toluene	685.00	Toluene Recovery	658.00
Activated carbon	6.30	Toluene Loss	27.00
Isopropyl alcohol	100.00	Isopropyl alcohol Recovery	96.00
IPA.HCl (24%)	85.00	Isopropyl alcohol Loss	4.00
Methanol	25.00	Methanol Recovery	24.00
		Methanol Loss	1.00
		IPA Recovery	52.90
		Spent carbon	6.30
		Organic Residue	122.80
		(Paratoluene sulphonic acid-54.88,Organic impurities-67.92)	
Total	**1104.30**	**Total**	**1104.30**

MATERIAL BALANCE OF CLOPIDOGREL BISULPHATE STAGE-3 BATCH SIZE: 50.0 KGS			
INPUT		**OUTPUT**	
NAME OF THE INPUT	**QUANTITY IN KGS**	**NAME OF THE OUTPUT**	**QUANTITY IN KGS**
Stage-2	62.30	Stage-3	44.75
Paraformaldehyde	21.42	n-Hexane Recovery	237.00
Liq.Ammonia solution	19.00	n-Hexane Loss	12.00
n-Hexane	250.00	Effluent water	790.95
Activated carbon	6.80	(Water-746.77,Sodium chloride-20.95,Generated water-3.23, Liq.Ammonia solution-19, n-Hexane-1)	
Sodium sulfate	12.76	Process Emissions	7.88
Sodium carbonate	19.00	(Carbon dioxide-7.88)	
DM Water	750.00	Inorganic Residue	12.76
		(Sodium sulfate-12.76)	0
		Spent carbon	6.80
		Organic Residue	29.14
Total	**1141.28**	**Total**	**1141.28**

MATERIAL BALANCE OF CLOPIDOGREL BISULPHATE STAGE-4 BATCH SIZE: 50.0 KGS			
INPUT		**OUTPUT**	
NAME OF THE INPUT	**QUANTITY IN KGS**	**NAME OF THE OUTPUT**	**QUANTITY IN KGS**
Stage-3	44.75	Clopidogrel Bisulphate	50.00
Methyl ethyl ketone	145.00	MEK Recovery	138.00
Conc.H_2SO_4	14.00	MEK Loss	7.00
Acetone	145.00	Acetone Recovery	138.00
Methanol	14.00	Acetone Loss	6.00
		Methanol Recovery	13.00
		Methanol Loss	1.00
		Organic Residue	9.75
		(Unreacted stage-3-6.37,Organic impurities-2.38,Acetone-1)	
Total	**362.75**	**Total**	**362.75**

5. DAPAGLIFLOZIN

Process Description:

Stage-1

Gluconolacotone reacts with Trimethyl silane and N-Methyl morpholine in presence of MDC to give Stage-1 product.

Stage-2

Stage-1 reacts with 4-Bromo-1-chloro-2-(4-ethoxy benzyl) benzene and Methanol in presence of Toluene to give Stage-2 product.

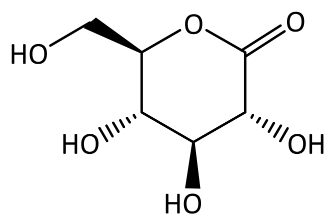
Stage-3

Stage-2 reacts with Triethylsilane in presence of MDC to give Stage-3 product.

DAPAGLIFLOZIN

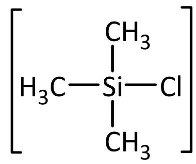
Route of Synthesis

Stage-1



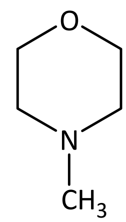
3,4,5-Trihydroxy-6-hydroxymethyl
-tetrahydro-pyran-2-one
$C_6H_{10}O_6$
178.14

+ 4



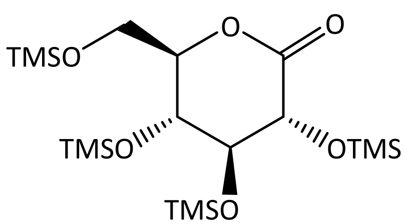
Trimethylsilyl Chloride
C_3H_9ClSi
4X108.64=434.56

+ 4



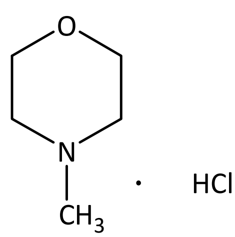
N-Methyl morpholine
$C_5H_{11}NO$
4X101.15=404.60

↓ MDC



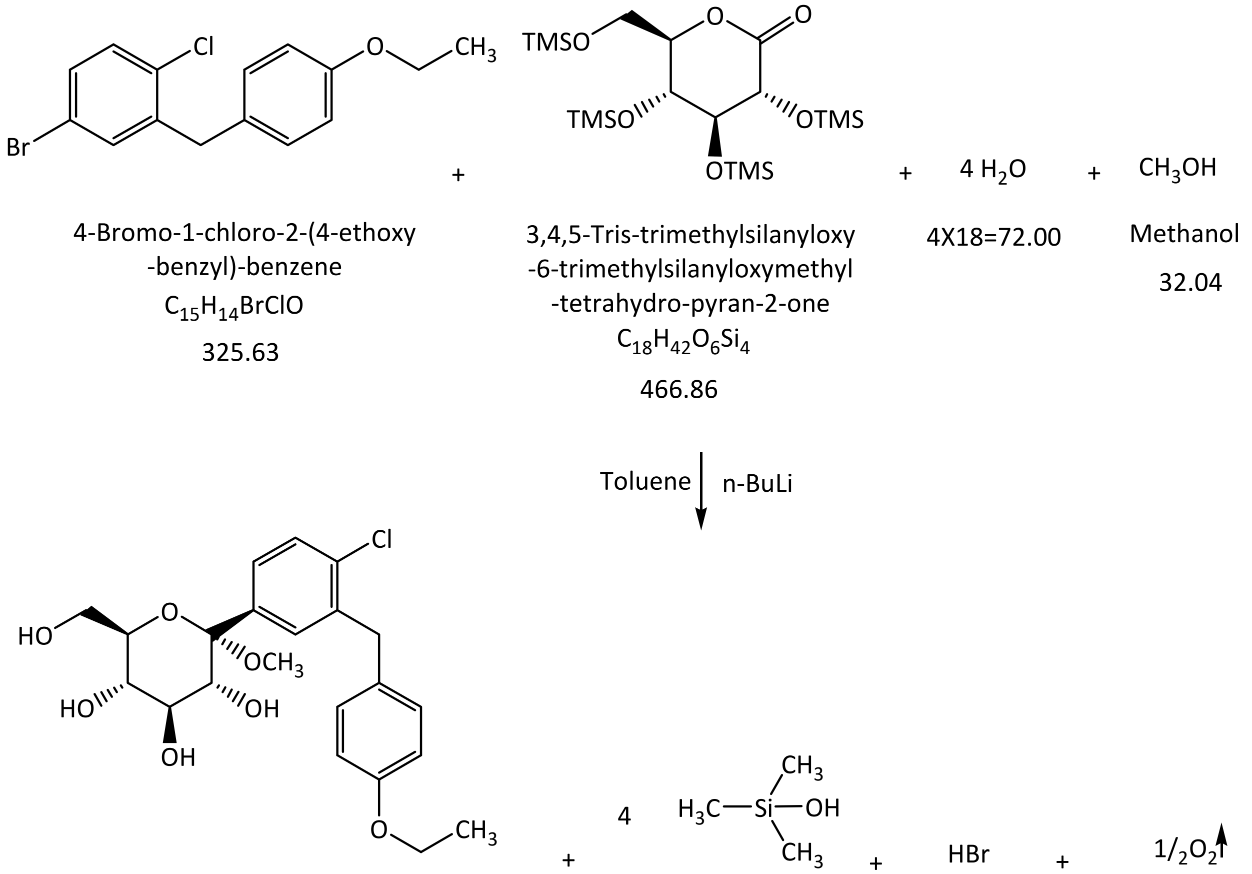
3,4,5-Tris-trimethylsilanyloxy
-6-trimethylsilanyloxymethyl
-tetrahydro-pyran-2-one
$C_{18}H_{42}O_6Si_4$
466.86

+ 4



N-Methyl morpholine
Hydrochloride
$C_5H_{12}ClNO$
4X137.61=550.44

Stage-2



4-Bromo-1-chloro-2-(4-ethoxy-benzyl)-benzene
$C_{15}H_{14}BrClO$
325.63

\+

3,4,5-Tris-trimethylsilanyloxy-6-trimethylsilanyloxymethyl-tetrahydro-pyran-2-one
$C_{18}H_{42}O_6Si_4$
466.86

\+ 4 H_2O
4X18=72.00

\+ CH_3OH
Methanol
32.04

Toluene | n-BuLi

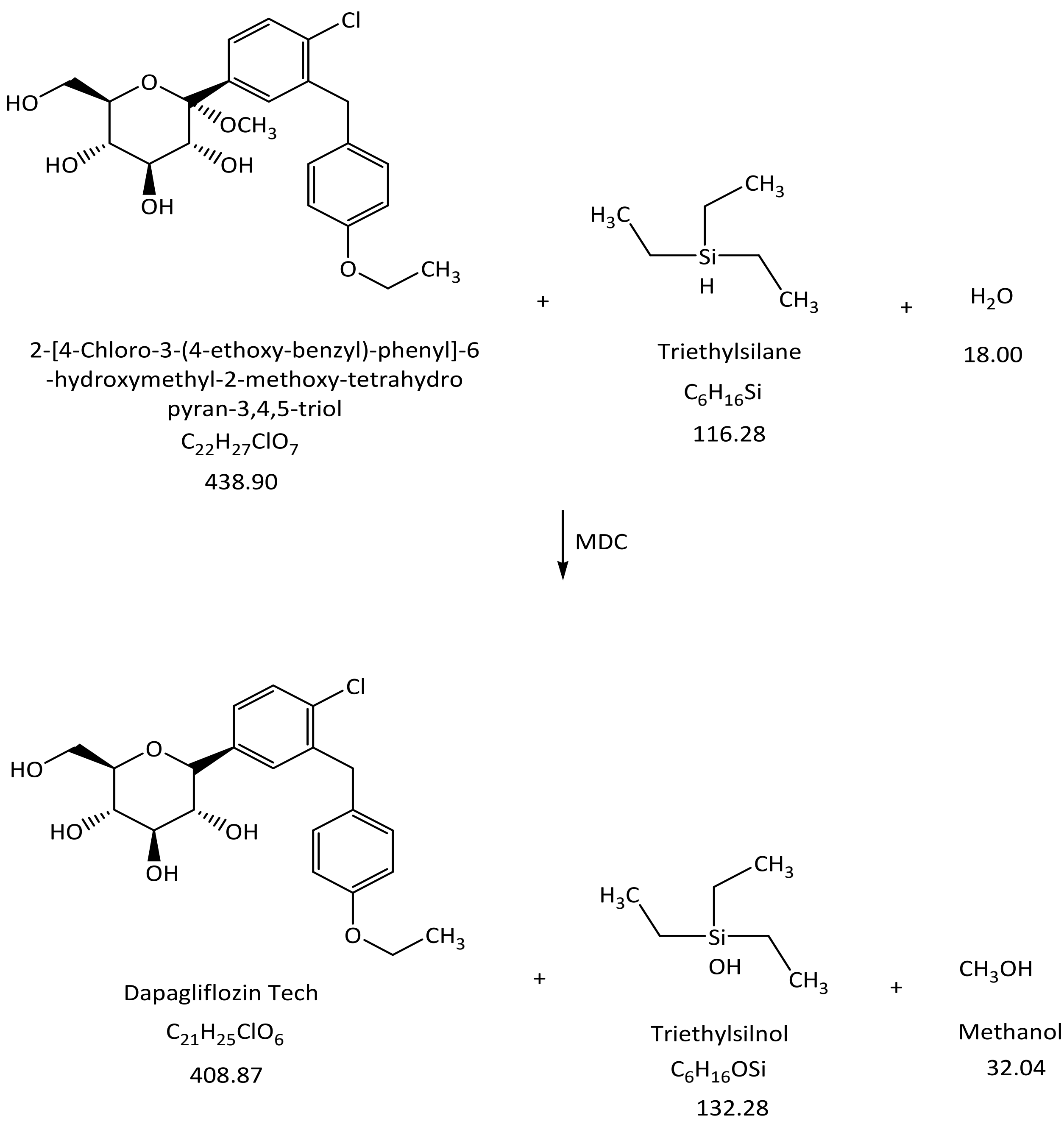
2-[4-Chloro-3-(4-ethoxy-benzyl)-phenyl]-6-hydroxymethyl-2-methoxy-tetrahydro pyran-3,4,5-triol
$C_{22}H_{27}ClO_7$
438.90

\+ 4 $(CH_3)_3SiOH$
Trimethyl-silane
4X90.20=361.80

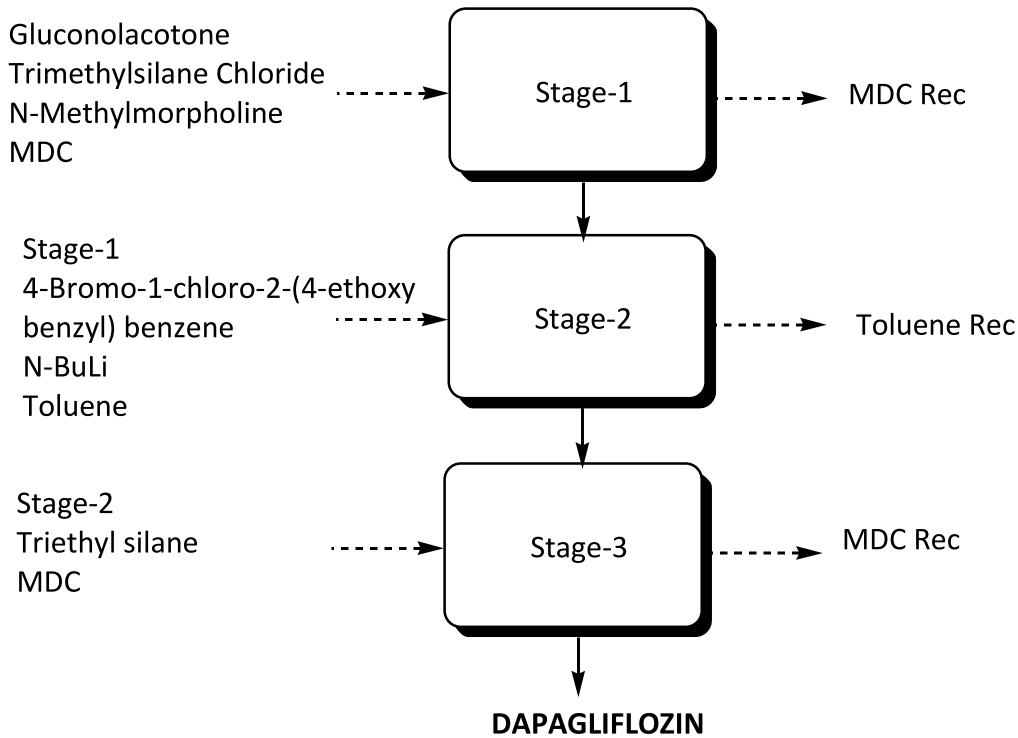
\+ HBr
Hydrogen bromide
80.91

\+ $1/_2O_2\uparrow$
Oxygen gas
$^1/_2$X32=16.0

Stage-3


Cl
HO
O
OCH3
HO
OH
OH
O
CH3
+
CH3
H3C
Si
H
CH3
+
H2O
2-[4-Chloro-3-(4-ethoxy-benzyl)-phenyl]-6
-hydroxymethyl-2-methoxy-tetrahydro
pyran-3,4,5-triol
$C_{22}H_{27}ClO_7$
438.90
Triethylsilane
$C_6H_{16}Si$
116.28
18.00
MDC
Cl
HO
O
HO
OH
OH
O
CH3
+
CH3
H3C
Si
OH
CH3
+
CH_3OH
Dapagliflozin Tech
$C_{21}H_{25}ClO_6$
408.87
Triethylsilnol
$C_6H_{16}OSi$
132.28
Methanol
32.04

Flow Chart



Material Balance

Material Balance of Dapagliflozin Stage-1 Batch Size: 50.0Kgs			
Name of the input	Quantity in Kg	Name of the out put	Quantity in Kg
3,4,5-trihydroxy-6-hydroxymethyl-tetrahydro-pyran-2-one	25.00	Stage-1	62.00
Trimethylsilane Chloride	59.00	MDC Recovery	285.00
N-Methylmorpholine	55.00	MDC Loss	10.00
MDC	300.00	Toluene Recovery	150.00
Toluene	160.00	Toluene Loss	5.00
Sod.Dihydrogen phosphate	2.00	Effluent water – 229.78 (Water-150, Sod. Di hydrogen phosphate-2, Sodium chloride-2, N-Methyl morpholine HCl-74.78 Toluene-3)	231.78
Sodium chloride	2.00		
Water	150.00	Organic Residue – 9.22 (Process residue -2.22 Distillation residue –7 MDC-5, Toluene – 2)	9.22
Total	753.00	Total	753.00

Material Balance of Dapagliflozin
Stage-2
Batch Size: 50.0Kgs

Name of the input	Quantity in Kg	Name of the out put	Quantity in Kg
Stage-1	62.00	Stage-2	56.00
4-Bromo-1-chloro-2-(4-ethoxy benzyl) benzene	43.00	Methanol Recovery	280.00
N-BuLi	10.00	Methanol Loss	10.00
Methanol	300.00	Toluene Recovery	230.00
Toluene	250.00	Toluene Loss	10.00
THF	250.00	THF Recovery	230.00
n-Hexane	95.00	THF Loss	10.00
Water	400.00	n-Hexane Recovery	90.00
	0	n-Hexane Loss	2.00
	0	Effluent water (Water-390.53,Trimethyl silane-47.61, Toluene – 5, THF-5,n-Hexane – 2, Methanol-3, N-Buli-10)	463.14
	0		
	0	Process Emissions (Oxygen-2.10, Hydrogen Bromide -10.64)	12.74
	0		
	0	Organic Residue – 16.12 (Process residue -3.12 ,Distillation residue - 1 Toluene-5, n-Hexane- 1, THF-5, Methanol-2)	16.12
	0		
Total	1410.00	Total	1410.00

Material Balance of Dapagliflozin Stage-3 Batch Size: 50.0Kgs				
Name of the input	Quantity in Kg		Name of the out put	Quantity in Kg
Stage-2	56.00		Dapagliflozin	50.00
Triethyl silane	15.000		Acetonitrile Recovery	284.00
Acetonitrile	300.00		Acetonitrile Loss	15.00
MDC	300.00		MDC Recovery	285.00
Sodium bicarbonate	6.00		MDC Loss	15.00
Sodium chloride	6.00		Effluent water (Water-297.74,Triethylsilnol-16.67, Methanol-4.03, , Sodiumbicarbonate-6, Sodiumchloride-6)	330.44
Water	300.00			
			Organic Residue – 3.56 (Process residue -2.56 Distillation residue – 1 (Acetonitrile-1))	3.56
Total	983.00		Total	983.00

6. DAPOXETINE HYDROCHLORIDE

Process Description:

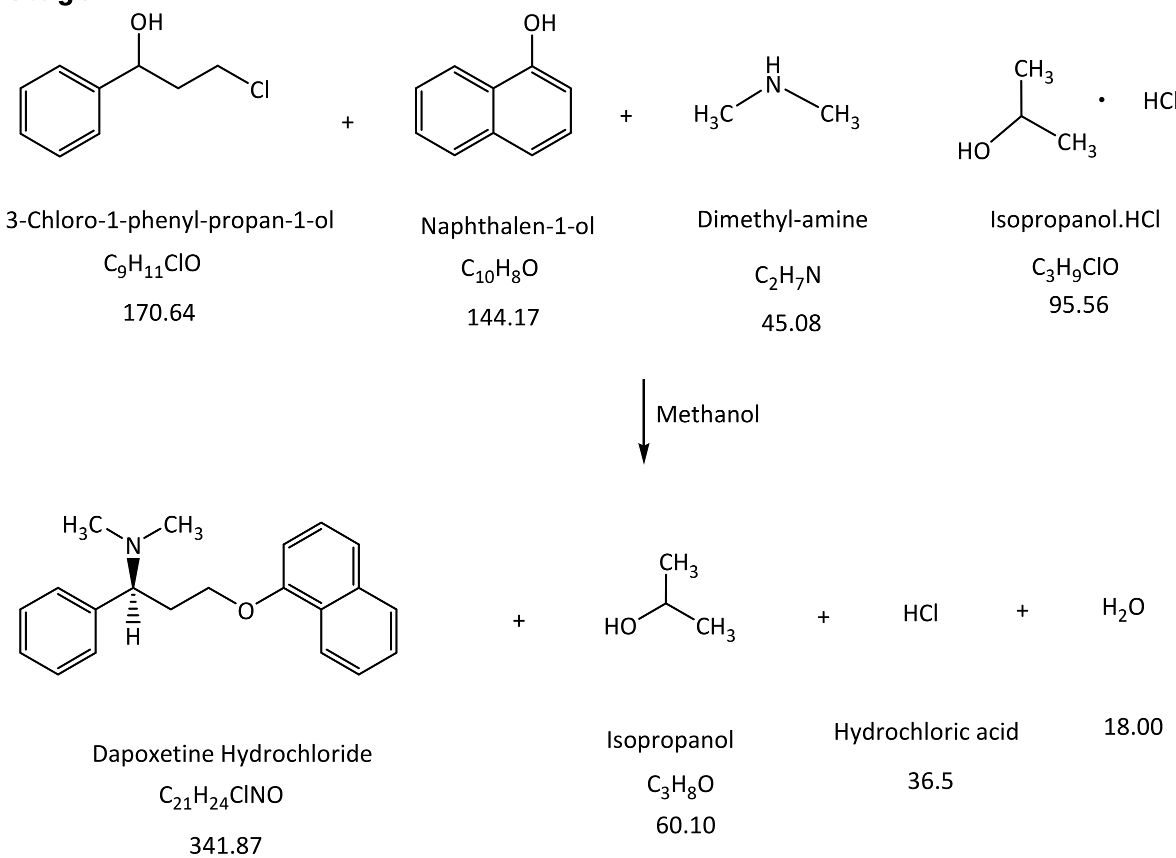
Stage-1

(S)-3-Chloro-1-phenyl propan-1-ol reacts with 1-Napthol in the presence of Di methyl amine and Isopropanol HCl in the presence of Methanol as a solvent media to give Dapoxetine Hydrochloride as product.

DAPOXETINE HYDROCHLORIDE

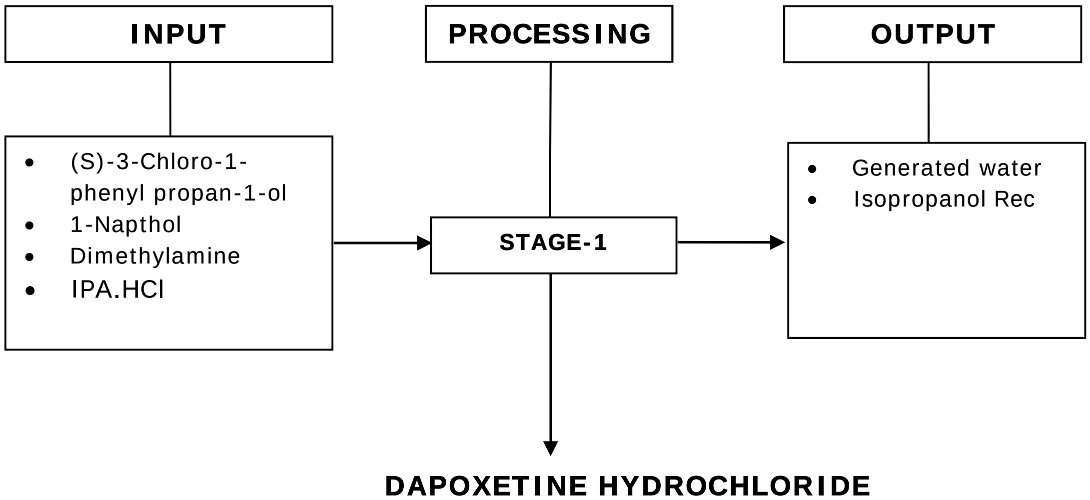
Route of Synthesis:

Stage -1:



DAPOXETINE HYDROCHLORIDE

Flow Chart:



DAPOXETINE HYDROCHLORIDE

Material Balance:

MATERIAL BALANCE OF DAPOXETINE HYDROCHLORIDE STAGE-1 BATCH SIZE: 80.0 KGS			
INPUT		**OUTPUT**	
NAME OF THE INPUT	**QUANTITY IN KGS**	**NAME OF THE OUTPUT**	**QUANTITY IN KGS**
(S)-3-Chloro-1-phenyl propan-1-ol reacts	40.00	Dapoxetine Hydrochloride	80.00
1-Napthol	34.00	Methanol Recovery	943.00
Dimethylamine	10.56	Methanol Loss	40.00
IsopropanolHCl	22.4	Ethyl acetate Recovery	1334.75
Dimethyl sulfoxide	280.00	Ethyl acetate Loss	70.25
Sodium chloride	34.00	Effluent water	3315.82
Mesyl chloride	50.00	(Water-2925,Generated water-4.22,Isopropanol-14.08,Mesyl chloride-50, N,N-Dimethyl amino pyridine -0.02,HCl-8.5,DMSO-280,Sodium chloride-32, Methanol-2)	0
Triethylamine	126.00	Triethylamine Recovery (For Reuse)	126.00
N,N-Dimethyl amino pyridine	0.02	Spent carbon	14.00
Methanol	995.00	Organic Residue	12.16
Ethyl acetate	1405.00	(Methanol-10)	
Activated carbon	14.00	Process residue- 2.16	
Water	2925.00		
Total	**5935.98**	**Total**	**5935.98**

7. DARUNAVIR ETHANOLATE

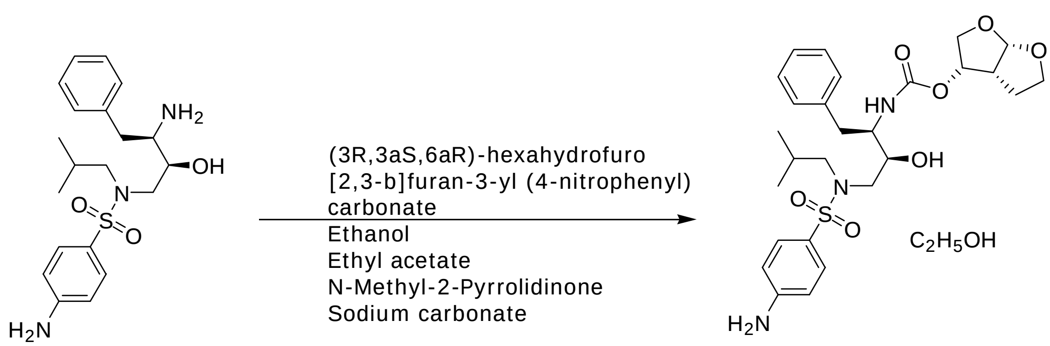
Process Description

Stage-1

4-Amino-N-((2S,3S)-3-amino-2-hydroxy-4-phenylbutyl)-N-isobutylbenzenesulfonamide reacts with (3R,3aS,6aR)-Hexahydrofuro [2,3-b]furan-3-yl (4-nitrophenyl) carbonate in presence of Ethanol, N-Methyl-2-Pyrrolidinone, Sodium Carbonate and Sodium Chloride. After completion of reaction Ethyl Acetate and purified water were added to the reaction mass, organic layer was filtered and purified by using Ethanol to form the Darunavir Ethanolate.

Route of synthesis

Stage-1



4-amino-*N*-((2*S*,3*R*)-3-amino-2-hydroxy-4-phenylbutyl)-*N*-isobutylbenzenesulfonamide

$C_{20}H_{29}N_3O_3S$

391.53

Darunavir Ethanolate

$C_{29}H_{43}N_3O_8S$

593.73

Flow Chart

INPUT

- 4-Amino-N-((2S,3S)-3-amino-2-hydroxy-4-phenylbutyl)-N-Isobutyl Benzene sulfonamide
- (3R,3aS,6aR)-Hexahydrofuro [2,3-b]furan-3-yl (4-nitro phenyl) carbonate
- Ethanol
- N-Methyl-2-pyrrolidinone
- Sodium Carbonate
- Sodium chloride
- Ethyl acetate
- Water

PROCESSING

STAGE-1

OUTPUT

- Ethyl acetate Recovery
- Ethanol Recovery
- Spent carbon
- Effluent water
- Organic Residue

Darunavir Ethanolate

Material Balance:

Material balance of Darunavir Ethanolate Stage-1 Batch Size: 100.0Kg			
INPUT		**OUTPUT**	
NAME OF THE INPUT	**QUANTITY IN KGS**	**NAME OF THE OUTPUT**	**QUANTITY IN KGS**
(3R,3aS,6aR)-Hexahydrofuro [2,3-b]furan-3-yl (4-nitrophenyl) carbonate	83.95	Darunavir Ethanolate	100
4-Amino-N-((2S,3S)-3-amino-2-hydroxy-4-phenylbutyl)-N-isobutylbenzenesulfonamide	109.44	Solvent Recovery	0
Ethanol	329.83	• N-Methyl-2-Pyrrolidinone	211.39
Ethyl acetate	1094.45	• N-Methyl-2-Pyrrolidinone loss	8.99
N-Methyl-2-Pyrrolidinone	224.88	• Ethyl acetate	1039
Sodium Carbonate	29.98	• Ethyl acetate loss	53.45
Sodium Chloride	16.49	• Ethanol	313.34
Water	554.72	• Ethanol loss	14.392
		Effluent Water	613.84
		• Sodium chloride-16.49 • p- Nitrophenol-6.65 • Sodium carbonate-29.98 • N-methyl pyrrolidinon-4.5 • Ethano-2 • Ethyl acetate-2 • Water -554.72	0
		Organic residue	89.34
		• Unreacted Organic impurities • Organic impurities Ethyl acetate	0
Total	**2443.74**	**Total**	**2443.742**

8. EMPAGLIFLOZIN

Process Description:

Stage-1:

2-Chloro-5-iodo-benzoic acid reacts with fluorbenzene in presence of Toluene to give stage-1 product.

Stage-2:

Stage-1 product reacts with Tetrahydro-furan-3-ol in presence of Toluene to give stage-2 product.

Stage-3:

Stage-2 product undergoes reduction with sodium borohydride in presence of THF and Aluminium chloride to give stage-3 product.

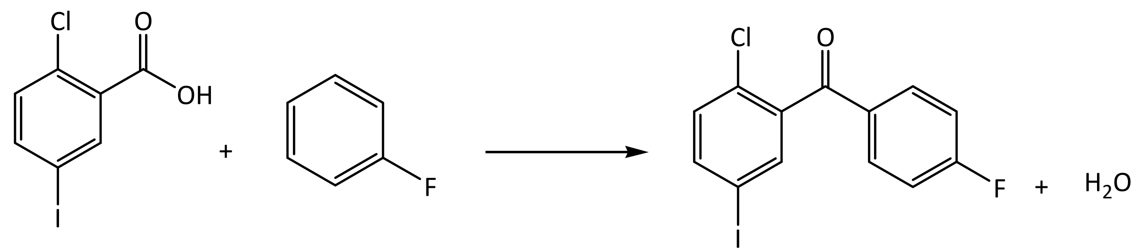
Stage-4:

Stage-3 product reacts with 3,4,5-Tris-trimethylsilanyloxy-6-trimethylsilanyloxymethyl-tetrahydro-pyran-2-one in presence of Acetonitrile, MDC and Methanol to give Empagliflozin.

EMPAGLIFLOZIN

Route of synthesis:

Stage-1



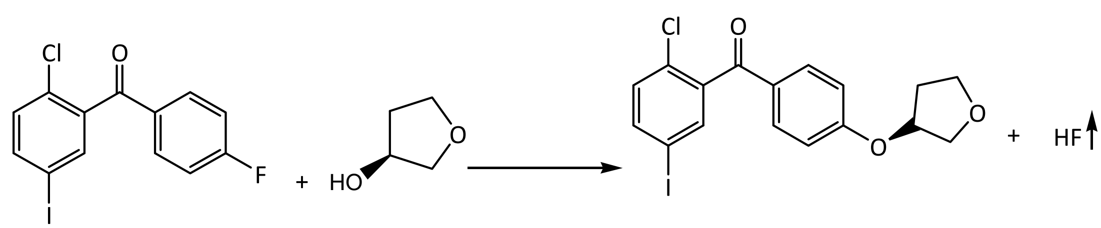
2-Chloro-5-iodo-benzoic acid
$C_7H_4ClIO_2$
282.46

Fluoro-benzene
C_6H_5F
96.10

(2-Chloro-5-iodo-phenyl)-(4-fluoro-phenyl)-methanone
$C_{13}H_7ClFIO$
360.55

18.02

Stage-2



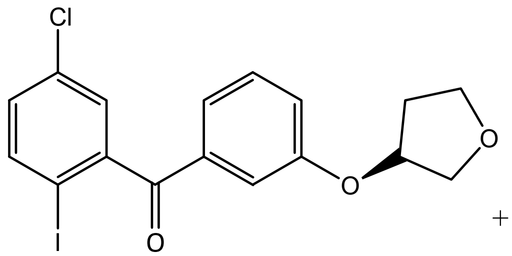
(2-Chloro-5-iodo-phenyl)-(4-fluoro-phenyl)-methanone
$C_{13}H_7ClFIO$
360.55

Tetrahydro-furan-3-ol
$C_4H_8O_2$
88.11

(2-Chloro-5-iodo-phenyl)-[4-(tetrahydro-furan-3-yloxy)-phenyl]-methanone
$C_{17}H_{14}ClIO_3$
428.65

Hydrogen fluoride
20.01

Stage-3



+ $NaBH_4$ + 2 H_2O + HCl $\xrightarrow{\text{THF, Aluminium chloride}}$

(5-Chloro-2-iodo-phenyl)-[3-(tetrahydro-furan-3-yloxy)-phenyl]-methanone

$C_{17}H_{14}ClIO_3$

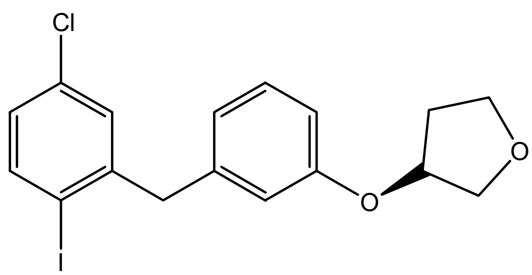
428.65

Sodium borohydride

37.83

36.03

36.46



+ H_3BO_3 + NaCl + 2 H_2 ↑

3-[3-(5-Chloro-2-iodo-benzyl)-phenoxy]-tetrahydro-furan

$C_{17}H_{16}ClIO_2$

414.67

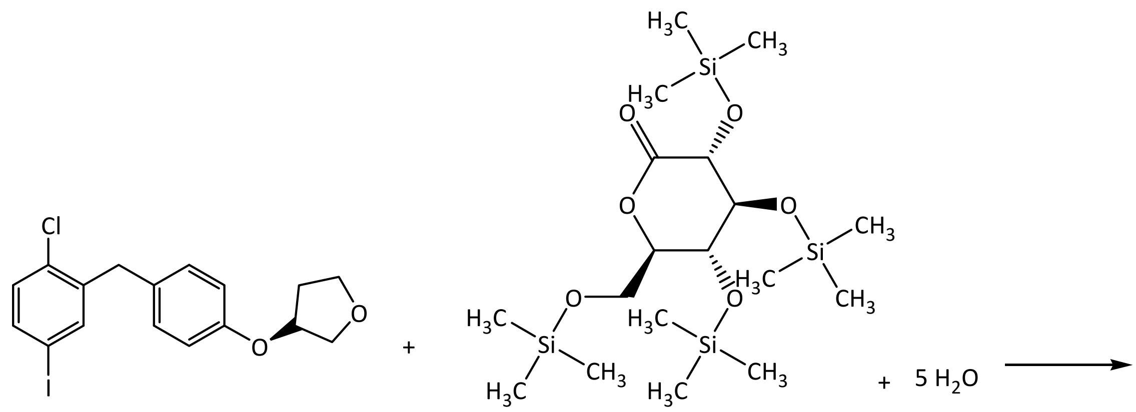
Boric acid

61.83

58.44

4.03

Stage-4



3-[4-(2-Chloro-5-iodo-benzyl)-phenoxy]-tetrahydro-furan

$C_{17}H_{16}ClIO_2$

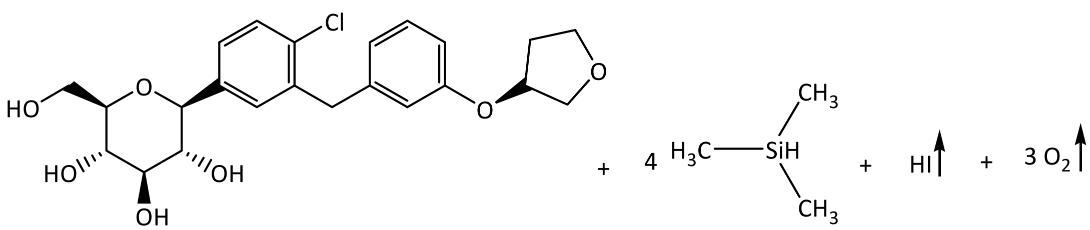
414.67

3,4,5-Tris-trimethylsilanyloxy-6-trimethylsilanyloxymethyl-tetrahydro-pyran-2-one

$C_{18}H_{42}O_6Si_4$

466.86

90.08



Empagliflozin

$C_{23}H_{27}ClO_7$

450.91

Trimethyl silane

$C_{12}H_{40}Si_4$

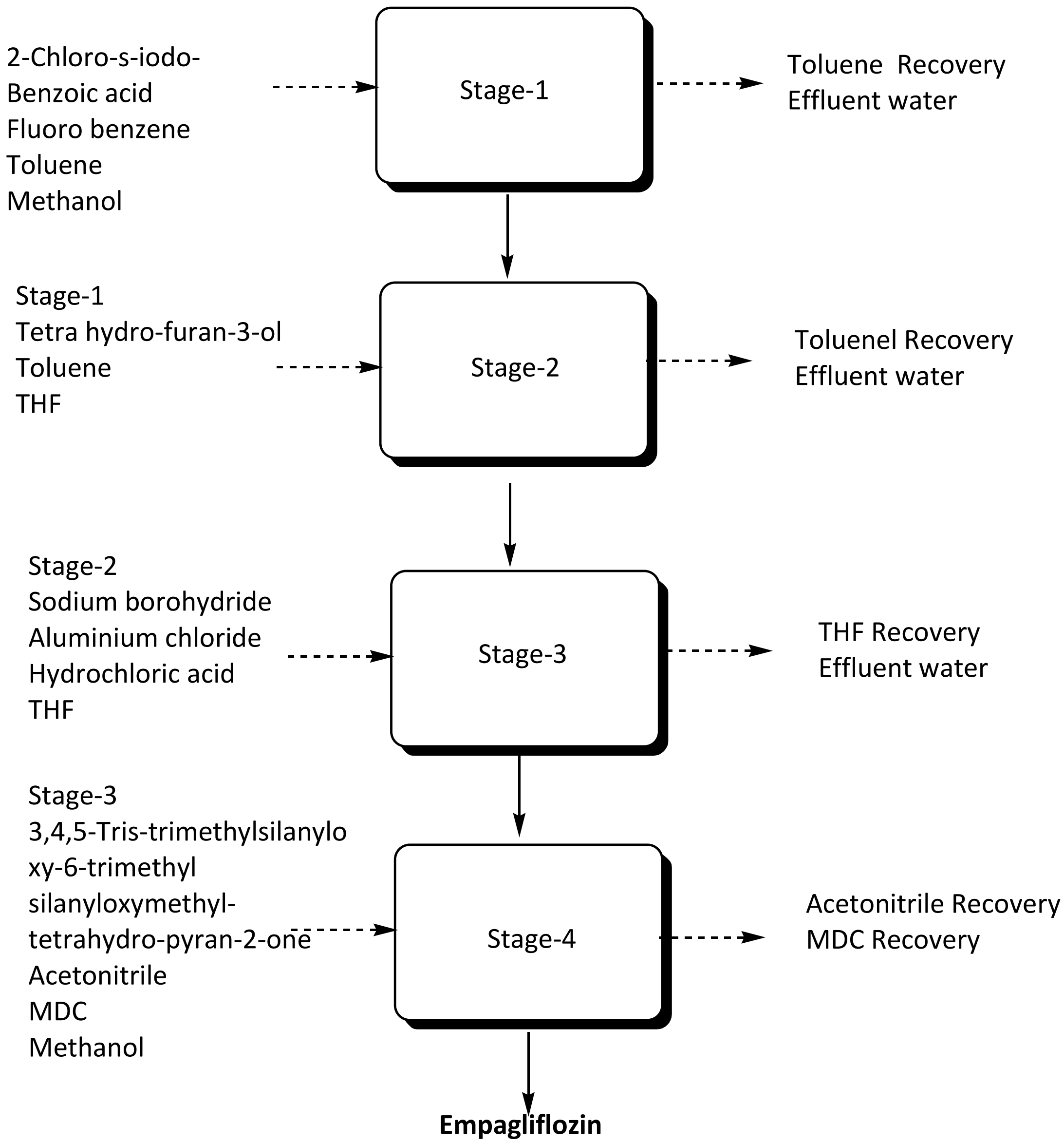
4x74.20=296.8

127.91

96.00

EMPAGLIFLOZIN

Flowchart:



EMPAGLIFLOZIN

Material Balance:

Material Balance of Empagliflozin Stage1 Batch Size: 100.0 Kg			
Name of the input	Quantity in Kg	Name of the out put	Quantity in Kg
2-Chloro-s-iodo-Benzoic acid	72.00	Stage-1	90.00
Fluoro benzene	25.00	Toluene Recovery	275.00
Toluene	300.00	Toluene Loss	10.00
Methanol	300.00	Methanol Recovery	275.00
Water	500.00	Methanol Loss	10.00
		Effluent Water – 521 (Water- 500, generated water - 5, Toluene – 8, Methanol – 8)	521.00
		Organic Residue – 16 (process residue -2, Distillation residue – 14 Methanol- 7, Toluene -7)	16.00
Total	1197.00	Total	1197.00

Material Balance of Empagliflozin Stage 2 Batch Size: 100.0 Kg			
Name of the input	Quantity in Kg	Name of the out put	Quantity in Kg
Stage-1	90.00	Stage-2	105.00
Tetra hydro-furan-3-ol	22.00	Toluene Recovery	275.00
Toluene	300.00	Toluene Loss	10.00
THF	300.00	THF Recovery	275.00
Water	500.00	THF Loss	10.00
		Effluent Water – 516 (Water- 500, Toluene – 8, THF – 8)	516.00
		Process emission (Hydrogen fluoride – 4.99)	4.99
		Organic Residue – 16.01 (process residue -2.01, Distillation residue – 14 THF- 7, Toluene -7)	16.01
Total	1212.00	Total	1212.00

Material Balance of Empagliflozin Stage 3 Batch Size: 100.0 Kg				
Name of the input	Quantity in Kg		Name of the out put	Quantity in Kg
Stage-2	105.00		Stage-3	100.00
Sodium borohydride	9.50		THF Recovery	275.00
Aluminium chloride	10.00		THF Loss	10.00
Hydrochloric acid	9.00		Effluent Water – (Water- 491, THF – 8, boric acid – 15.14, sodium chloride – 14.32, Aluminium chloride -10)	538.46
THF	300.00		Process emission (Hydrogen-1.)	1.00
Water	500.00		Organic Residue – 9.04 (process residue -2.04, Distillation residue – 7 THF- 7)	9.04
Total	933.50		Total	933.50

Material Balance of Empagliflozin Stage 4 Batch Size: 100.0 Kg				
Name of the input	Quantity in Kg		Name of the out put	Quantity in Kg
Stage-3	100.00		Empagliflozin	100.00
3,4,5-Tris-trimethylsilanyloxy-6-trimethylsilanyloxymethyl-tetrahydro-pyran-2-one	109.00		Acetonitrile Recovery	275.00
Acetonitrile	300.00		Acetonitrile loss	15.00
MDC	300.00		MDC recovery	275.00
Methanol	300.00		MDC Loss	15.00
Water	500.00		Methanol Recovery	275.00
			Methanol Loss	15.00
			Effluent Water – (Water- 475, Methanol-7, Acetonitrile – 7, Trimethylsilane -69.2)	558.20
			Process emission (Hydrogen Iodide – 29.84, Oxygen- 29.86.)	59.70

			Organic Residue – 21.10 (process residue -5.10 Distillation residue – 16 Acetonitrile -3, Methanol- 3, MDC-10)	21.10
Total	1609.00		Total	1609.00

9. ETODOLAC

Process Description

Stage – 1

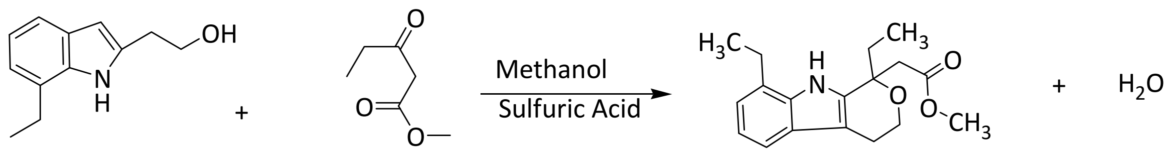
2(3a Ethyl-3aH- indol-3-yl)-ethanol reacts with 3-Oxo pentanoic acid methyl ester in presence of Methanol and Sulphuric acid to give stage -1 product

Stage – 2

Stage -1 product undergoes Hydrolysis with Sodium hydroxide in presence of Water, Methanol and HCl to give **Etodolac** product

Route of Synthesis:

Stage-1



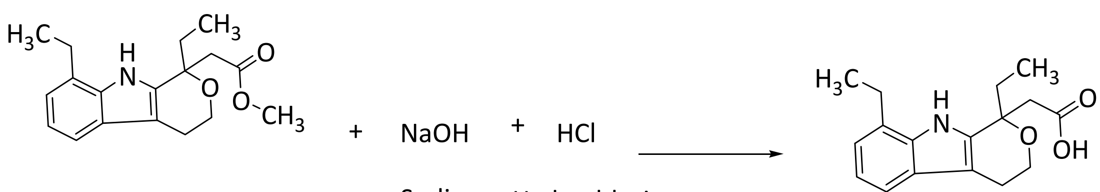
7-Ethyl Tryptophol
$C_{12}H_{15}NO$
189.25

3-Oxo-pentanoic acid methyl ester
$C_6H_{10}O_3$
130.14

Etodolac methyl ester
(1,8-Diethyl-1,3,4,9-tetrahydro-pyrano [3,4-*b*]indol-1-yl)-acetic acid methyl ester
$C_{18}H_{23}NO_3$
301.380

H_2O
18.02

Stage-2



Etodolac methyl ester
(1,8-Diethyl-1,3,4,9-tetrahydro-pyrano [3,4-*b*]indol-1-yl)-acetic acid methyl ester
$C_{18}H_{23}NO_3$
301.380

Sodium Hydroxide
40.0

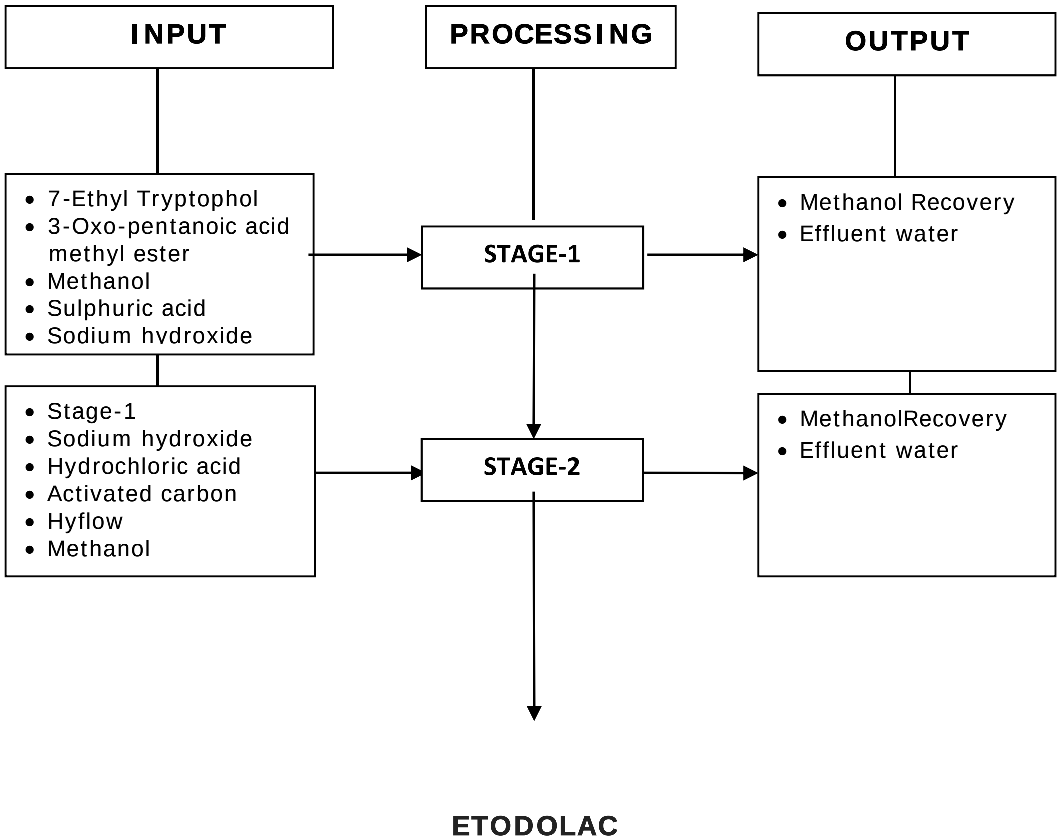
Hydrochloric acid
36.46

Etodolac
$C_{17}H_{21}NO_3$
287.35

+ NaCl
Sodium Chloride
58.44

+ CH_3OH
Methanol
32.03

Flow Chart:


INPUT
PROCESSING
OUTPUT
7-Ethyl Tryptophol
3-Oxo-pentanoic acid methyl ester
Methanol
Sulphuric acid
Sodium hydroxide
STAGE-1
Methanol Recovery
Effluent water
Stage-1
Sodium hydroxide
Hydrochloric acid
Activated carbon
Hyflow
Methanol
STAGE-2
MethanolRecovery
Effluent water
ETODOLAC

ETODOLAC

Material Balance:

MATERIAL BALANCE OF ETODOLAC STAGE-1 BATCH SIZE: 200.0 KGS			
INPUT		**OUTPUT**	
NAME OF THE INPUT	**QUANTITY IN KGS**	**NAME OF THE OUTPUT**	**QUANTITY IN KGS**
7-Ethyl Tryptophol	160.00	Stage-1	234.00
3-Oxo-pentanoic acid methyl ester	110.00	Methanol Recovery	475.00
Methanol	500.00	Methanol Loss	20.00
Sulphuric acid	24.00	Effluent water	595.20
Sodium hydroxide	100.00	(Water-500,Generated water-15.20,Sodium hydroxide-80)	
Water	500.00	Inorganic Residue	44.00
		(Sodium sulphate)	
		Organic residue	25.80
		Process Residue-20.80 Distillation Residue-5 (Methanol)	
Total	**1394.00**	**Total**	**1394.00**

MATERIAL BALANCE OF ETODOLAC STAGE-2 BATCH SIZE: 200.0 KGS			
INPUT		**OUTPUT**	
NAME OF THE INPUT	**QUANTITY IN KGS**	**NAME OF THE OUTPUT**	**QUANTITY IN KGS**
Stage-1	234.00	Etodolac	200.00
Sodium hydroxide	30.00	Methanol Recovery	262.80
Hydrochloric acid	28.00	Methanol Loss	10.00
Activated carbon	15.00	Effluent water	845.16
Hyflow	3.00	(Water-800, Sodium chloride-45.16)	0
Methanol	250.00	Spent Carbon & Hyflow	18.00
Water	800.00	Organic residue	24.04
		Process residue -22.02 Distillation residue-2.2 (Metahnol)	
Total	**1360.00**	**Total**	**1360.00**

10. ETORICOXIB

Process Description:

Stage-1

Thioanisole react with Acetyl chloride in presence of EDC as a solvent media to give as stage-1 as product.

Stage-2

Stage-1 product reacts with sulphur in presence of sodium hydroxide to give Stage-2 as a product.

Stage-3

Stage-2 product reacts with Methyl-6-methyl Nicotinate in presence of Tetra hydro furan as a solvent media to give Stage-3 as a product.

Stage-4

Chloro acetyl chloride reacts with Dimethyl formamide & Phosphorus oxychloride in presence of THF as a solvent media to give Stage-4 as a product.

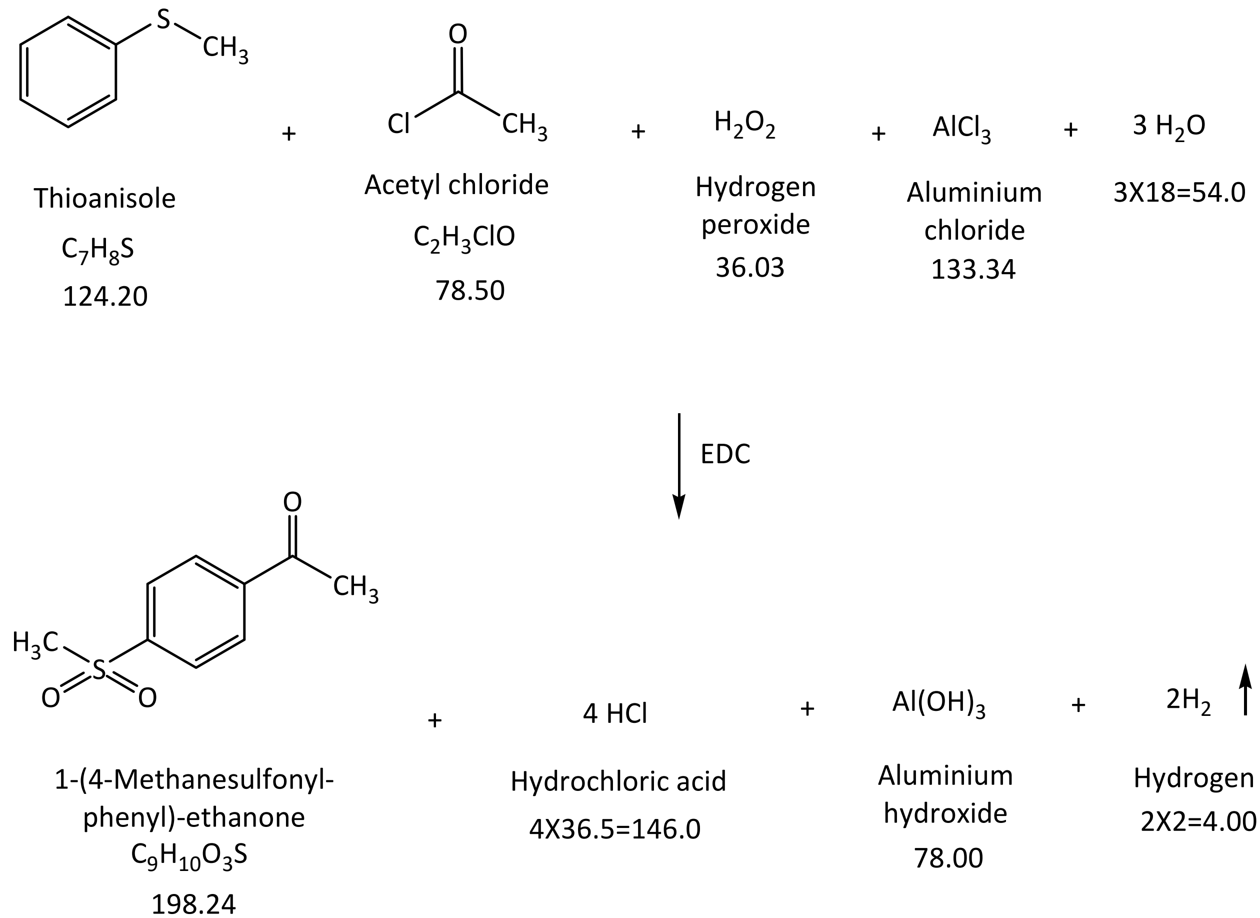
Stage-5

Stage-3 & Stage-4 product condensed in presence of toluene as a solvent media to give Etoricoxib as a product.

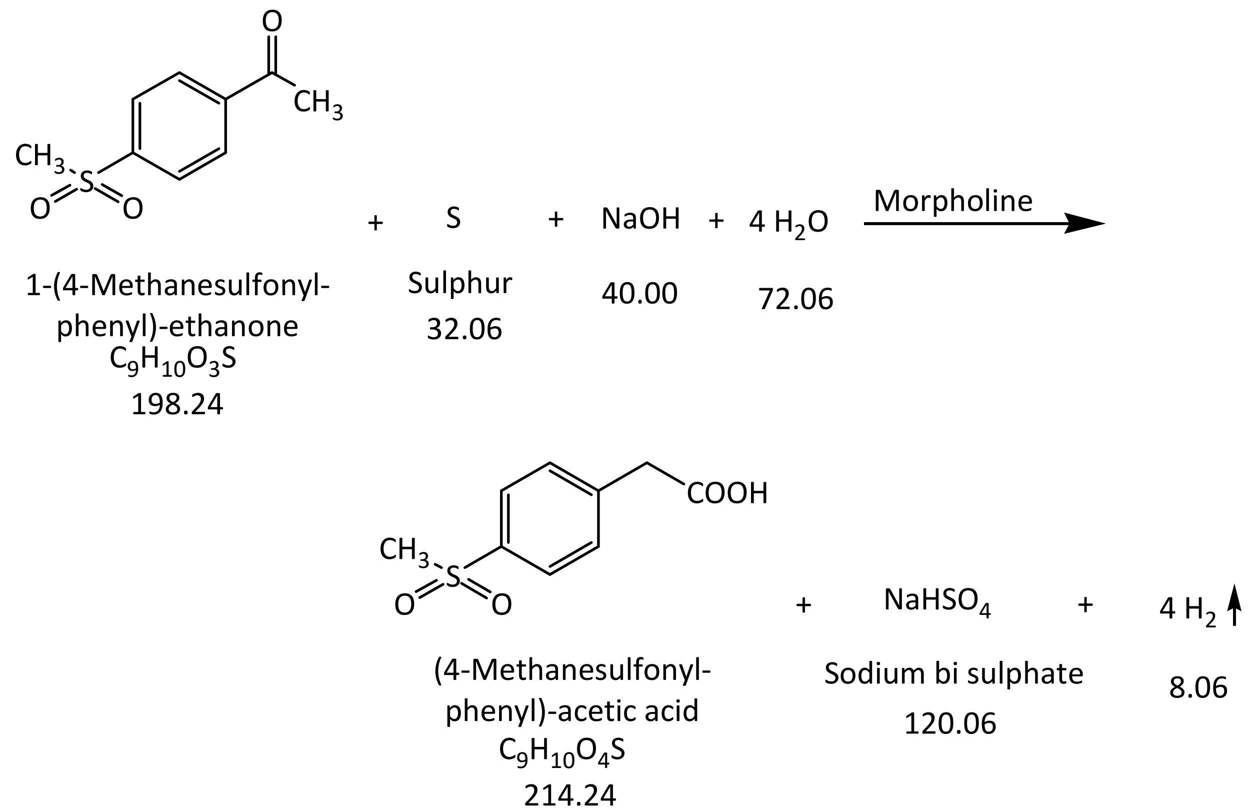
ETORICOXIB

Route of synthesis:

Stage-1:

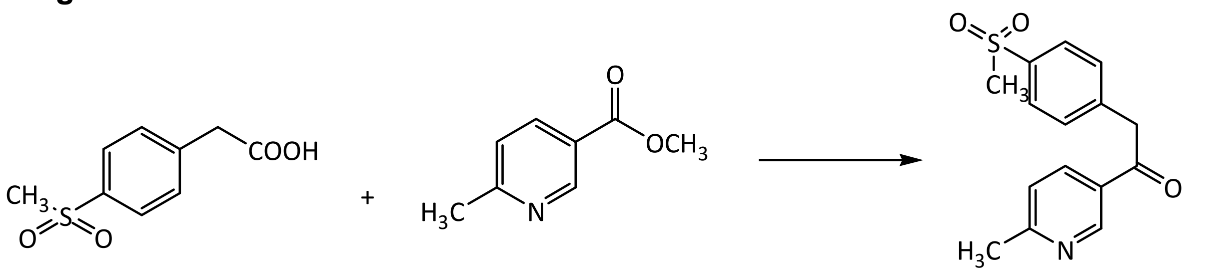


Stage-2:



O
CH_3
CH_3
S
O
O
+
S
+
NaOH
+
4 H_2O
Morpholine
1-(4-Methanesulfonyl-phenyl)-ethanone
$C_9H_{10}O_3S$
198.24
Sulphur
32.06
40.00
72.06
COOH
CH_3
S
O
O
+
$NaHSO_4$
+
4 H_2
(4-Methanesulfonyl-phenyl)-acetic acid
$C_9H_{10}O_4S$
214.24
Sodium bi sulphate
120.06
8.06

Stage-3:



(4-Methanesulfonyl-phenyl)-acetic acid
$C_9H_{10}O_4S$
214.24

6-Methyl-nicotinic acid methyl ester
$C_8H_9NO_2$
151.16

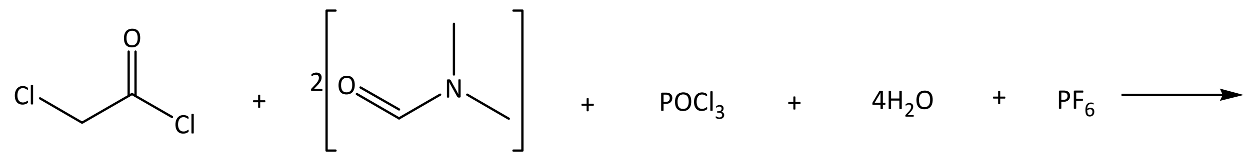
2-(4-Methanesulfonyl-phenyl)-1-(6-methyl-pyridin-3-yl)-ethanone
$C_{15}H_{15}NO_3S$
289.35

+ CH_3OH + $CO_2\uparrow$

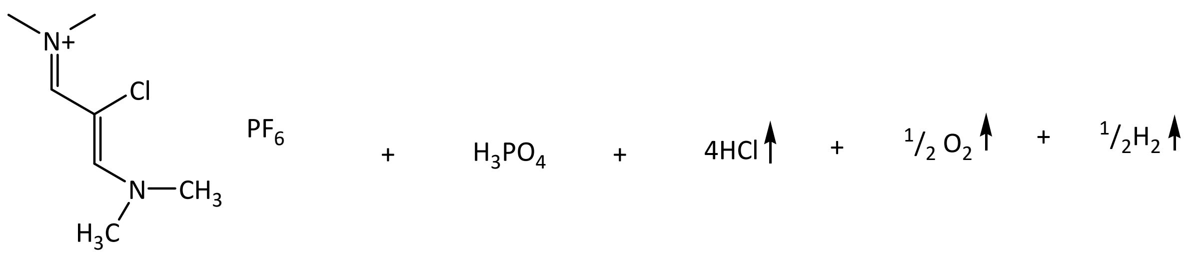
Methanol
32.04

Carbon dioxide
44.00

Stage-4:

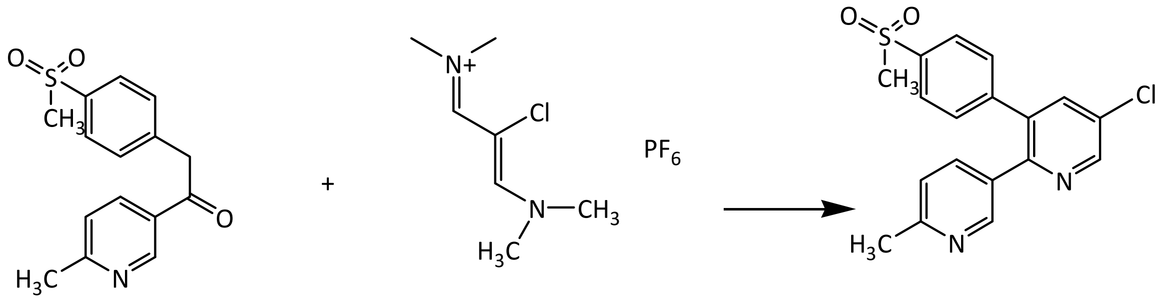


Chloroacetyl chloride	Dimethyl formamide	Phosphorous oxychloride		Phosphorus Hexafluoride
$C_2H_2Cl_2O$	C_3H_7NO			
112.94	2 X 73.09=146.18	153.33	4 X 18=72.06	144.96



(2-Chloro-3-dimethylamino -allylidene)-dimethyl-ammonium salt of Phosphorus Hexafluoride	Phosphoric acid	Hydrogen chloride	Oxygen	Hydrogen
$C_7H_{14}ClN_2 . PF_6$				
306.62	98	145.84	$^1/_2$ X 32 = 16.0	$^1/_2$ X 2 = 1.0

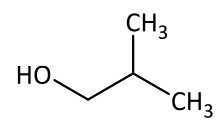
Stage-5:



2-(4-Methanesulfonyl-phenyl)-1
-(6-methyl-pyridin-3-yl)-ethanone
$C_{15}H_{15}NO_3S$
289.35

(2-Chloro-3-dimethylamino
-allylidene)-dimethyl-ammonium
salt of Phosphorus Hexafluoride
$C_7H_{14}ClN_2.\ PF_6$
306.62

Etorocoxib
$C_{18}H_{15}ClN_2O_2S$
358.84

+ HPF_6 + $NH_3\uparrow$ + 

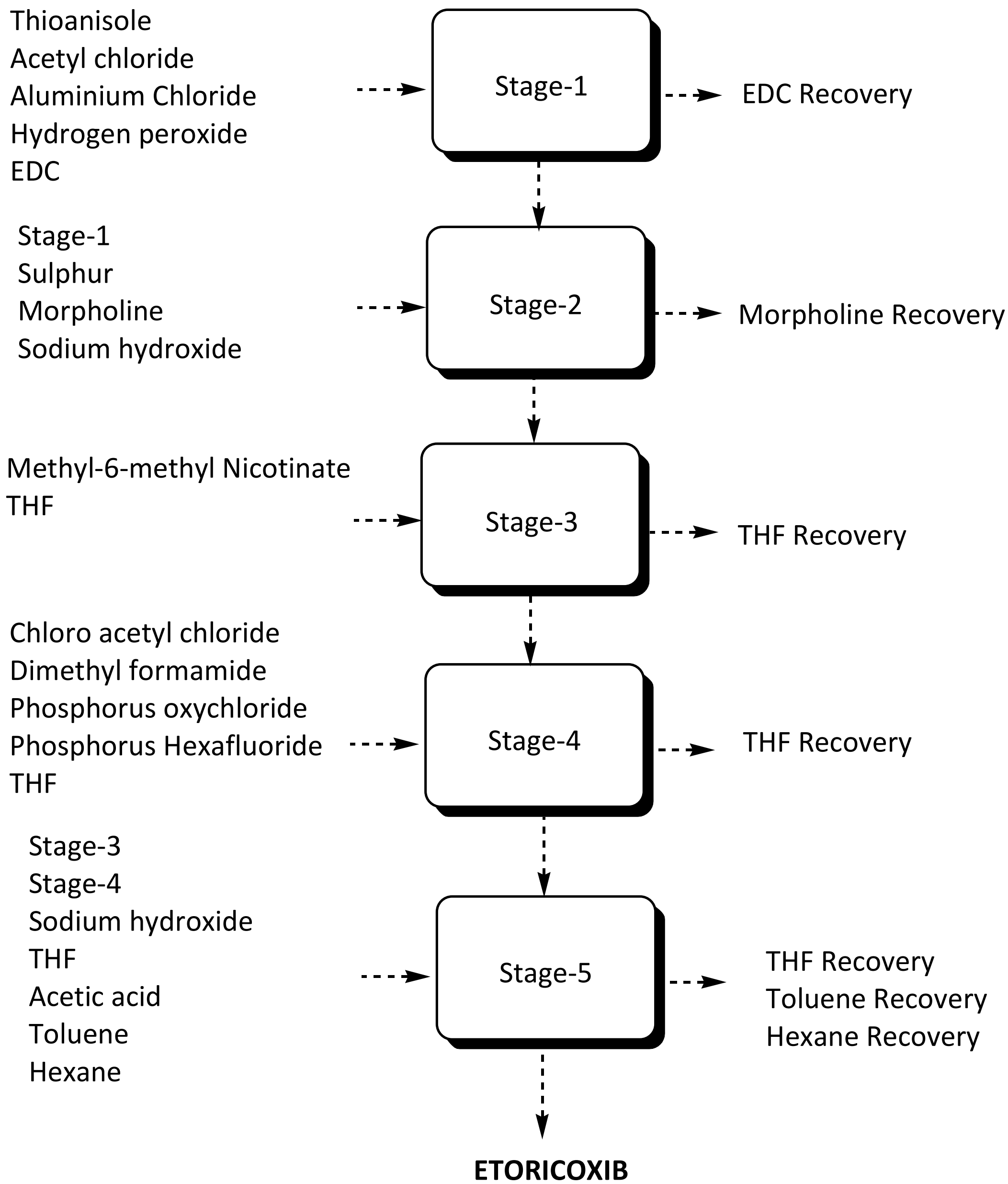
Hydrogen Phosphorus
Hexafluoride
145.97

Ammonia
17.03

Isobutanol
74.12

ETORICOXIB

Flow Chart:



ETORICOXIB

Material Balance:

Material Balance of Etoricoxib Stage-1 Batch Size:100.0Kg				
Name of the input	Quantity in Kg		Name of the out put	Quantity in Kg
Thioanisole	36.00		Stage-1	56.00
Acetyl chloride	23.00		EDC Recovery	238.00
Aluminium Chloride	39.00		EDC Loss	5.00
Hydrogen peroxide	10.50		Effluent water	506.95
EDC	250.00		(Water-484.35 , Aluminium hydroxide-22.6)	
Water	500.00		Process Emission	43.48
			(Hydrogen-1.16, Hydrogen chloride-42.32)	
			Organic Residue Process residue-2.07 Distillation Residue-7 (EDC)	9.07
Total	858.50		Total	858.50

Material Balance of Etoricoxib Stage-2 Batch Size:100.0Kg				
Name of the input	Quantity in Kg		Name of the out put	Quantity in Kg
Stage-1	56.00		Stage-2	60.00
Sulphur	9.10		Effluent water	413.62
Sodium hydroxide	11.30		(Water-379.7,Sodium bisulphate-33.92)	
Morpholine	10.00		Process Emission	2.26
Water	400.00		(Hydrogen)	
			Organic Residue Process residue-10.52 (Morpholine-10)	10.52
Total	486.40		Total	486.40

Material Balance of Etoricoxib Stage-3 Batch Size:100.0Kg				
Name of the input	Quantity in Kg		Name of the out put	Quantity in Kg
Stage-2	60.00		Stage-3	81.00
Methyl-6-methyl Nicotinate	42.85		THF Recovery	285.00
THF	300.00		THF Loss	6.00
Water	300.00		Effluent water	308.99
			(Water-300,Methanol-8.99)	0
			Process Emission	12.32
			(Carbon dioxide)	0
			Organic Residue Process residue-0.54 Distillation Residue-9 (THF-9)	9.54
Total	702.85		Total	702.85

Material Balance of Etoricoxib Stage-4 Batch Size:100.0Kg				
Name of the input	Quantity in Kg		Name of the out put	Quantity in Kg
Chloro acetyl chloride	32.00		Stage-4	86.00
Dimethyl formamide	41.20		THF Recovery	285.00
Phosphorus oxychloride	43.50		THF Loss	6.00
Phosphorus Hexafluoride	41.00		Effluent water	408.38
THF	300.00		(Water-379.58,Phosphoric acid-27.8 ,THF-1)	
Water	400.00		Process Emissions	46.21
			(Oxygen-4.53,Hydrogen-0.28, Hydrogen chloride-41.4)	
			Organic Residue	26.11
			(Process residue-18.11, Distillation Residue-8 (THF-8)	
Total	857.70		Total	857.70

Material Balance of Etoricoxib Stage-5 Batch Size:100.0Kg				
Name of the input	Quantity in Kg		Name of the out put	Quantity in Kg
Stage-3	81.00		Etoricoxib	100.00
Stage-4	86.00		THF Recovery	570.00
Sodium hydroxide	10.00		THF Loss	12.00
THF	600.00		Toluene Recovery	475.00
Acetic acid	20.00		Toluene Loss	10.00
Toluene	500.00		Hexane Recovery	190.00
Hexane	200.00		Hexane Loss	4.00
Activated carbon	2.00		Effluent water	574.73
Water	500.00		(water-500,Hydrogen phosphorus hexafluoride-40.94, Isobutanol-20.79,Toluene-5,THF-8)	
			Spent carbon	2.00
			Process Emission	4.78
			(Ammonia)	
			Organic Residue	56.49
			(Process tresideu-30.49, Distillation Residue-26 (THF-10,Toluene-10,Hexane-6)	
Total	1999.00		Total	1999.00

11. FAMOTIDINE

Process Description:

Stage-1

1, 3-Dichloro acetone reacts with Guanyl thiourea in the presence of Acetone as solvent media to give Stage-2 as product.

Stage-2

Stage-1 product reacts with Thiourea, N-Sulfamyl-3-chloropropionamidine, Sodium hydroxide and acetic acid in the presence of Methanol as solvent media to give Stage-2 as product.

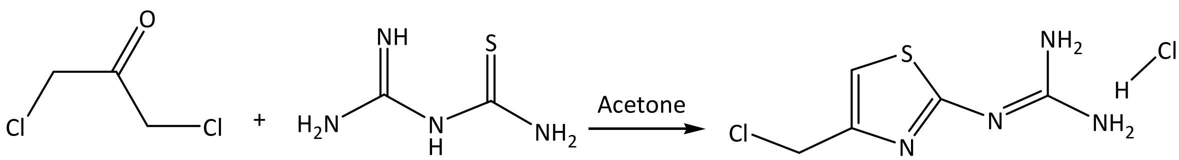
Stage-3

Stage-2 product reacts with ammonia in the presence of Methanol as solvent media to give Famotidine as product.

FAMOTIDINE

Route of Synthesis:

Stage-1



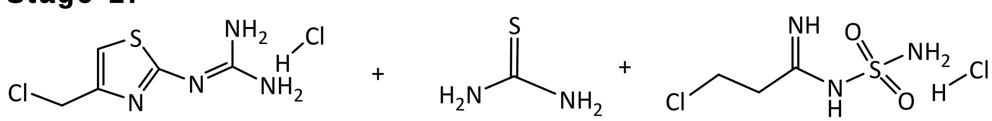
1,3-Dichloro acetone
$C_3H_4Cl_2O$
126.97

Guanyl thiourea
$C_2H_7N_4S$
119.16

N-(4-Chloromethyl-thiazol-2-yl) -guanidine; hydrochloride
$C_5H_9Cl_2N_4S$
228.15

+ H_2O
18.0

Stage-2:



\+ 3 KOH

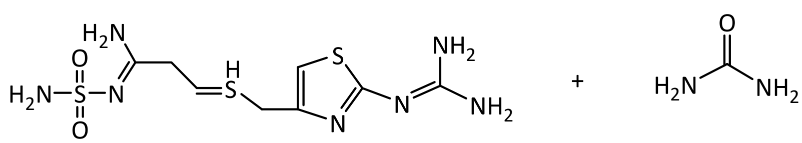
N-(4-Chloromethyl-thiazol-2-yl) -guanidine; hydrochloride
$C_5H_9Cl_2N_4S$
228.15

Thiourea
CH_4N_2S
76.12

N-Sulfamyl-3-chloropropion amidine Hydrochloride
$C_3H_9Cl_2N_3O_2S$
222.13

Potassium hydroxide
3X56.11=168.33

Methanol



\+ 3 KCl + $2H_2O$

N'-(aminosulfonyl)-3-[[[(2-[(diaminomethylene) amino]-4-thiazolyl]methyll]thio]- propanamide acetate
$C_8H_{15}N_7O_2S_3$
337.45

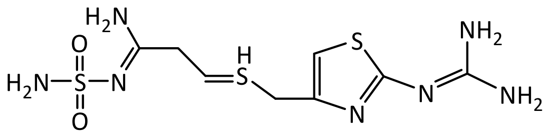
Urea
60.06

Potassium chloride
3X74.55=223.65

36.0

\+ HCl ↑
Hydrogen chloride
36.5

Stage-3:



\+ CH_3COOH + NH_3 ⟶

N'-(aminosulfonyl)-3-[[[(2-[(diaminomethylene) amino]-4-thiazolyl]methyll]thio]-propanamide

$C_8H_{15}N_7O_2S_3$

337.45

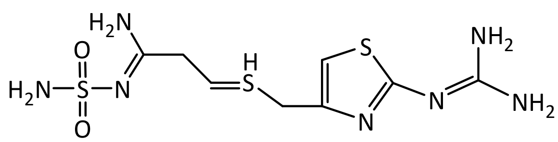
Acetic acid

60.05

Ammonia

17.0

$\downarrow$ Methanol



\+ CH_3COONH_4

Famotidine (Pure)

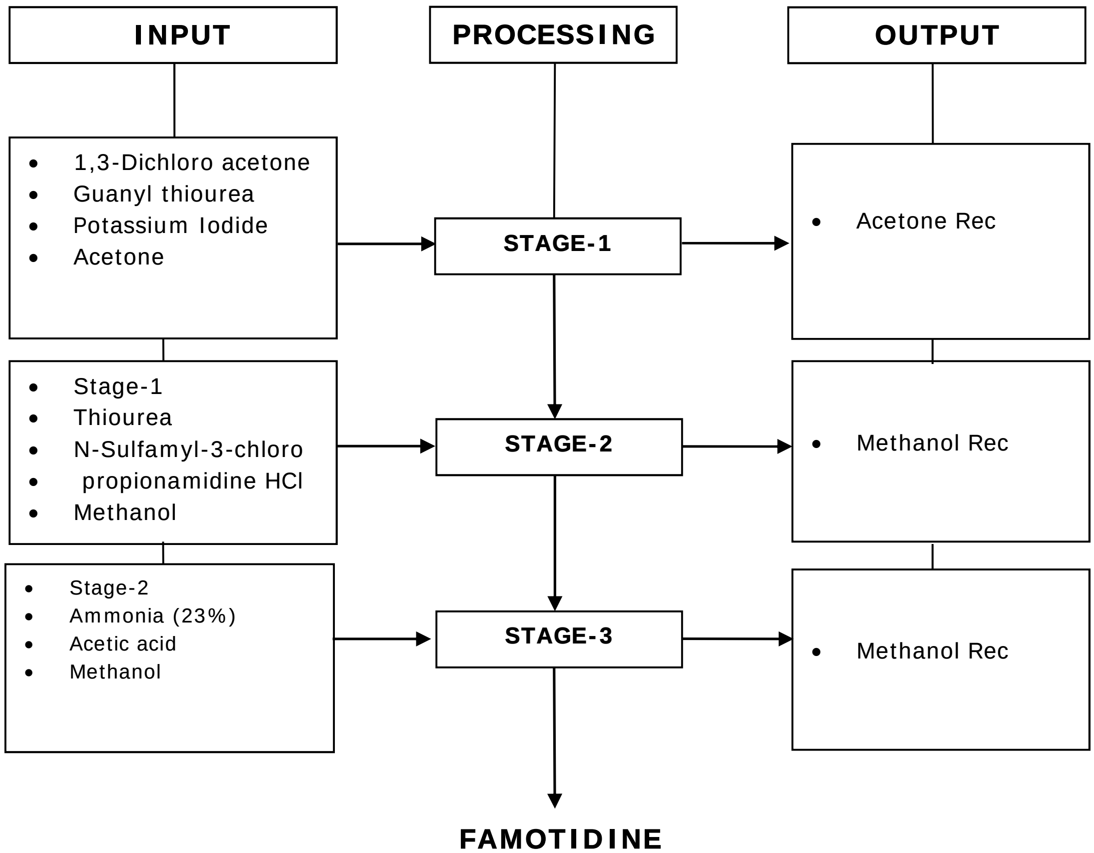
$C_8H_{15}N_7O_2S_3$

337.45

Ammonium formate

77.08

Flow Chart:


INPUT
PROCESSING
OUTPUT
1,3-Dichloro acetone
Guanyl thiourea
Potassium Iodide
Acetone
STAGE-1
Acetone Rec
Stage-1
Thiourea
N-Sulfamyl-3-chloro
propionamidine HCl
Methanol
STAGE-2
Methanol Rec
Stage-2
Ammonia (23%)
Acetic acid
Methanol
STAGE-3
Methanol Rec
FAMOTIDINE

Material Balance:

MATERIAL BALANCE OF FAMOTIDINE STAGE-1 BATCH SIZE: 100.0 KGS			
INPUT		**OUTPUT**	
NAME OF THE INPUT	**QUANTITY IN KGS**	**NAME OF THE OUTPUT**	**QUANTITY IN KGS**
1,3-Dichloro acetone	52.00	Stage-1	88.97
Guanyl thiourea	43.48	Acetone Recovery	161.00
Potassium Iodide	2.40	Acetone Loss	8
Acetone	170.00	Generated water	7.51
		Inorganic solid waste	1.40
		(Potassium Iodide)	
		Organic residue	1
Total	**267.88**	**Total**	**267.88**

MATERIAL BALANCE OF FAMOTIDINE STAGE-2 BATCH SIZE: 100.0 KGS			
INPUT		**OUTPUT**	
NAME OF THE INPUT	**QUANTITY IN KGS**	**NAME OF THE OUTPUT**	**QUANTITY IN KGS**
Stage-1	88.97	Stage-2	125.70
Thiourea	25.13	Generated water	12.00
Sodium hydroxide	40.00	Byproduct	53.14
N-Sulfamyl-3-chloro propionamidine HCl	68.64	(Potassium chloride)	
		Process Emission	12.10
		(Hydrogen chloride)	
		Urea Solution for Gardening	19.80
Total	**222.74**	**Total**	**222.74**

MATERIAL BALANCE OF FAMOTIDINE STAGE-3 BATCH SIZE: 100.0 KGS			
INPUT		**OUTPUT**	
NAME OF THE INPUT	**QUANTITY IN KGS**	**NAME OF THE OUTPUT**	**QUANTITY IN KGS**
Stage-2	125.70	Famotidine	100.00
Ammonia (23%)	17.30	Methanol Recovery	37.00
Acetic acid	5.00	Methanol Loss	1.00
Methanol	39.00	Effluent water	874.00
Activated carbon	3.00	(Water-825,Water from ammonia-18.6,Acetic acid-5, Ammonium acetate-24.4, Methanol-1)	
Water	825.00	Spent carbon	3.00
Total	**1015.00**	**Total**	**1015.00**

12. IMATINIB MESYLATE

Process Description:

Stage-1:

o-Tolylamine undergoes nitration with nitric acid in presence of sulphuric acid to give stage-1 product.

Stage-2:

Stage-1 product reacts with cynamaide and nitric acid in presence of methanol to give Stage-2 product.

Stage-3:

Stage-2 product reacts with 3-dimethyl amino-1-pyridin-3-yl-propenone in presence of n-butanol to give Stage-3 product.

Stage-4:

Stage-3 product undergoes hydrogenation with hydrogen in presence of Palladium carbon and Methanol to give Stage-4 product.

Stage-5:

Stage-4 product undergoes condensation with 4-(4-methylpiperazin-1-yl)methyl benzoic acid dihydro chloride in presence of MDC to give stage-5 Imatinb product.

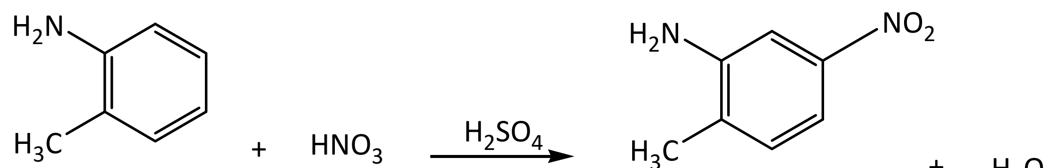
Stage-6:

Imatinib product undergoes salt formation with methane sulphonic acid in presence of methanol to give Imatinib Mesylate

IMATINIB MESYLATE

Route of Synthesis:

Stage-1



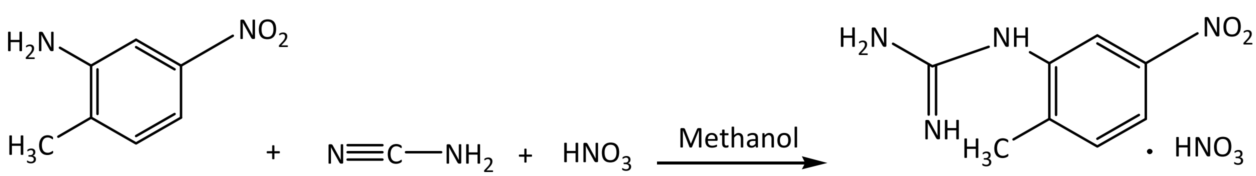
o-Tolylamine
C_7H_9N
107.15

63.01

2-Methyl-5-nitro-phenylamine
$C_7H_8N_2O_2$
152.15

18.0

Stage-2



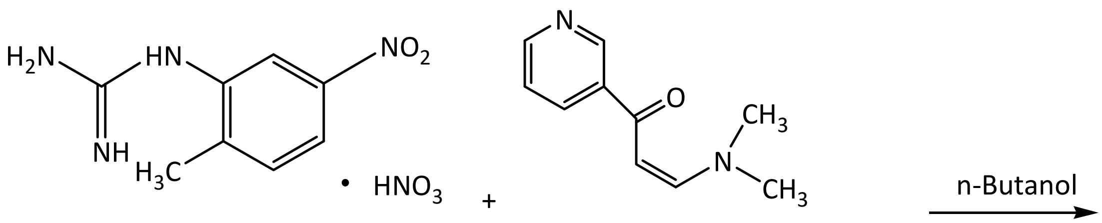
2-Methyl-5-nitro-phenylamine
$C_7H_8N_2O_2$
152.15

Cynamaide
CH_2N_2
42.04

63.01

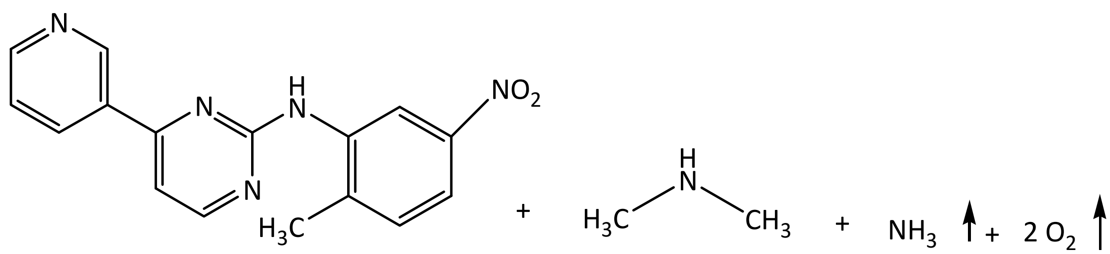
N-(2-Methyl-5-nitro-phenyl)-guanidine nitrate
$C_8H_{11}N_5O_5$
257.20

Stage-3



N-(2-Methyl-5-nitro-phenyl)-guanidine nitrate
$C_8H_{11}N_5O_5$
257.20

3-Dimethylamino-1-pyridin-3-yl-propenone
$C_{10}H_{12}N_2O$
176.22



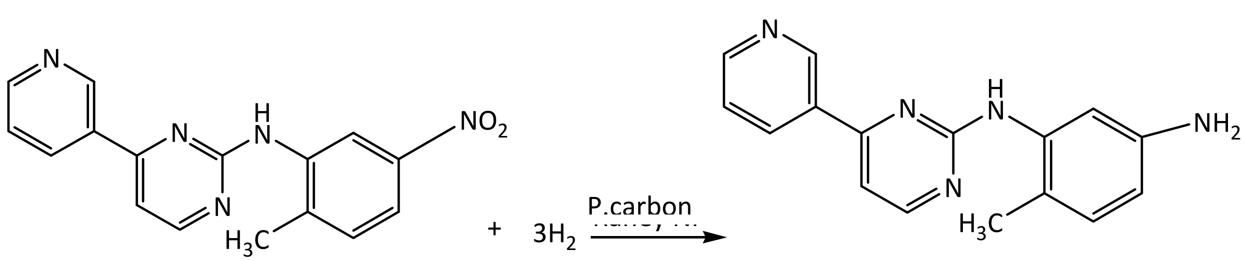
(2-Methyl-5-nitro-phenyl)-(4-pyridin-3-yl-pyrimidin-2-yl)-amine
$C_{16}H_{13}N_5O_2$
307.31

Di methyl amine
C_2H_7N
45.08

17.03

64.00

Stage-4



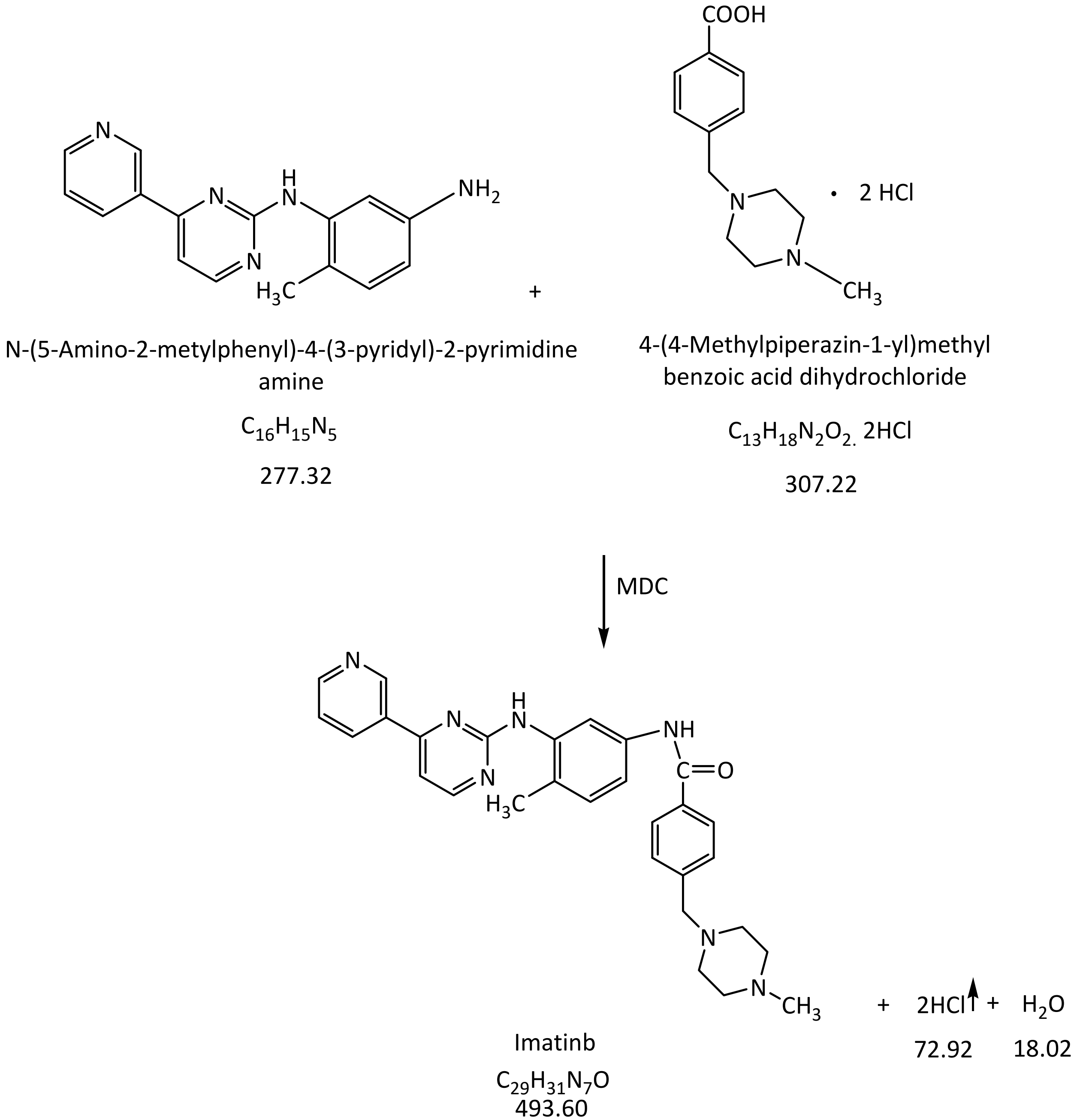
(2-Methyl-5-nitro-phenyl)-(4-pyridin-3-yl-pyrimidin-2-yl)-amine
$C_{16}H_{13}N_5O_2$
307.31

6.05

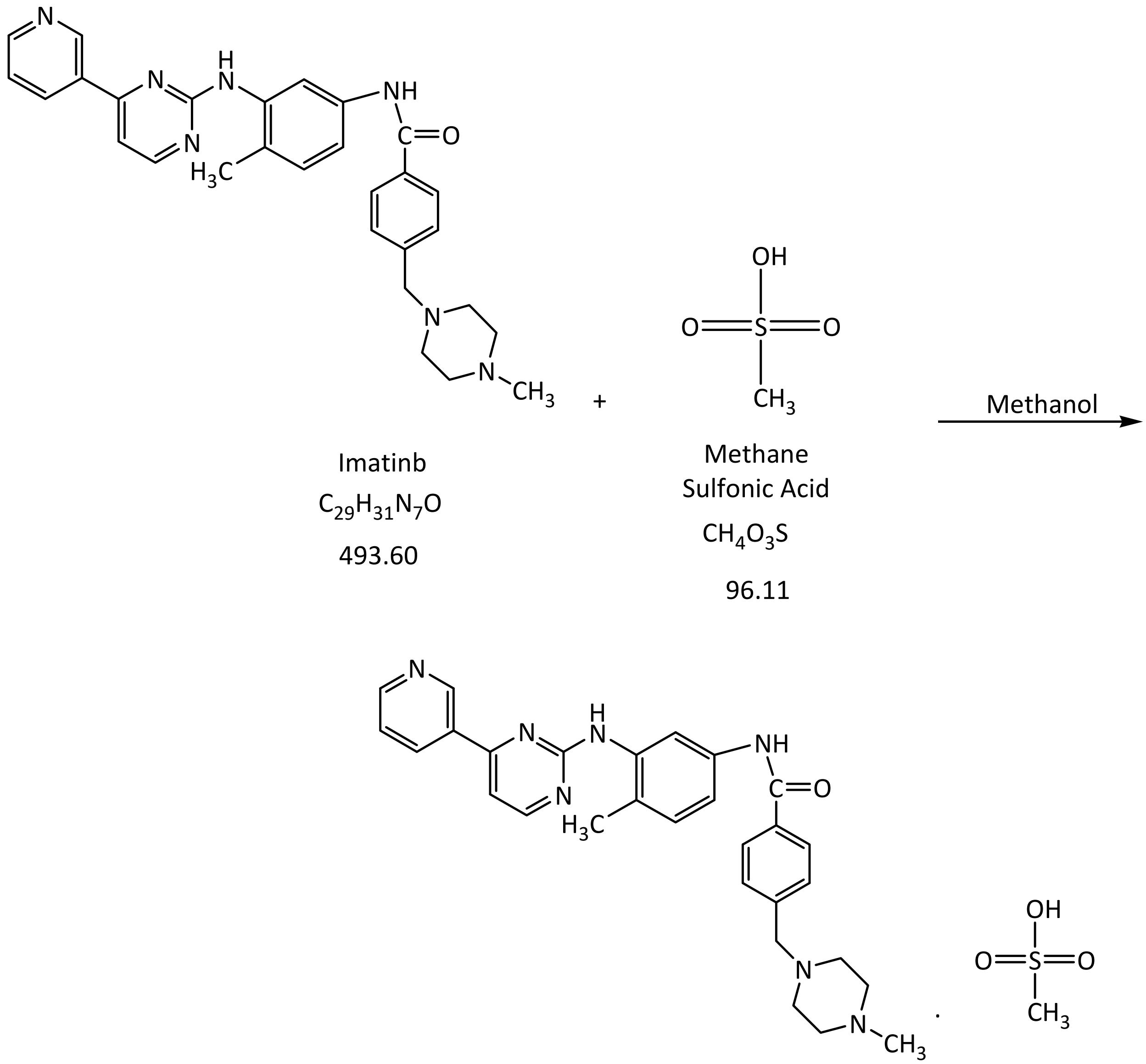
N-(5-Amino-2-metylphenyl)-4-(3-pyridyl)-2-pyrimidine amine
$C_{16}H_{15}N_5$
277.32

+ $2H_2O$
36.03

Stage-5


COOH
N
H
N
N
NH2
N
• 2 HCl
N
N
H3C
+
CH3
N-(5-Amino-2-metylphenyl)-4-(3-pyridyl)-2-pyrimidine amine
$C_{16}H_{15}N_5$
277.32
4-(4-Methylpiperazin-1-yl)methyl benzoic acid dihydrochloride
$C_{13}H_{18}N_2O_{2.}$ 2HCl
307.22
MDC
NH
C=O
N-CH3
+ 2HCl + H_2O
72.92 18.02
Imatinb
$C_{29}H_{31}N_7O$
493.60

Stage-6



Imatinb

$C_{29}H_{31}N_7O$

493.60

Methane Sulfonic Acid

CH_4O_3S

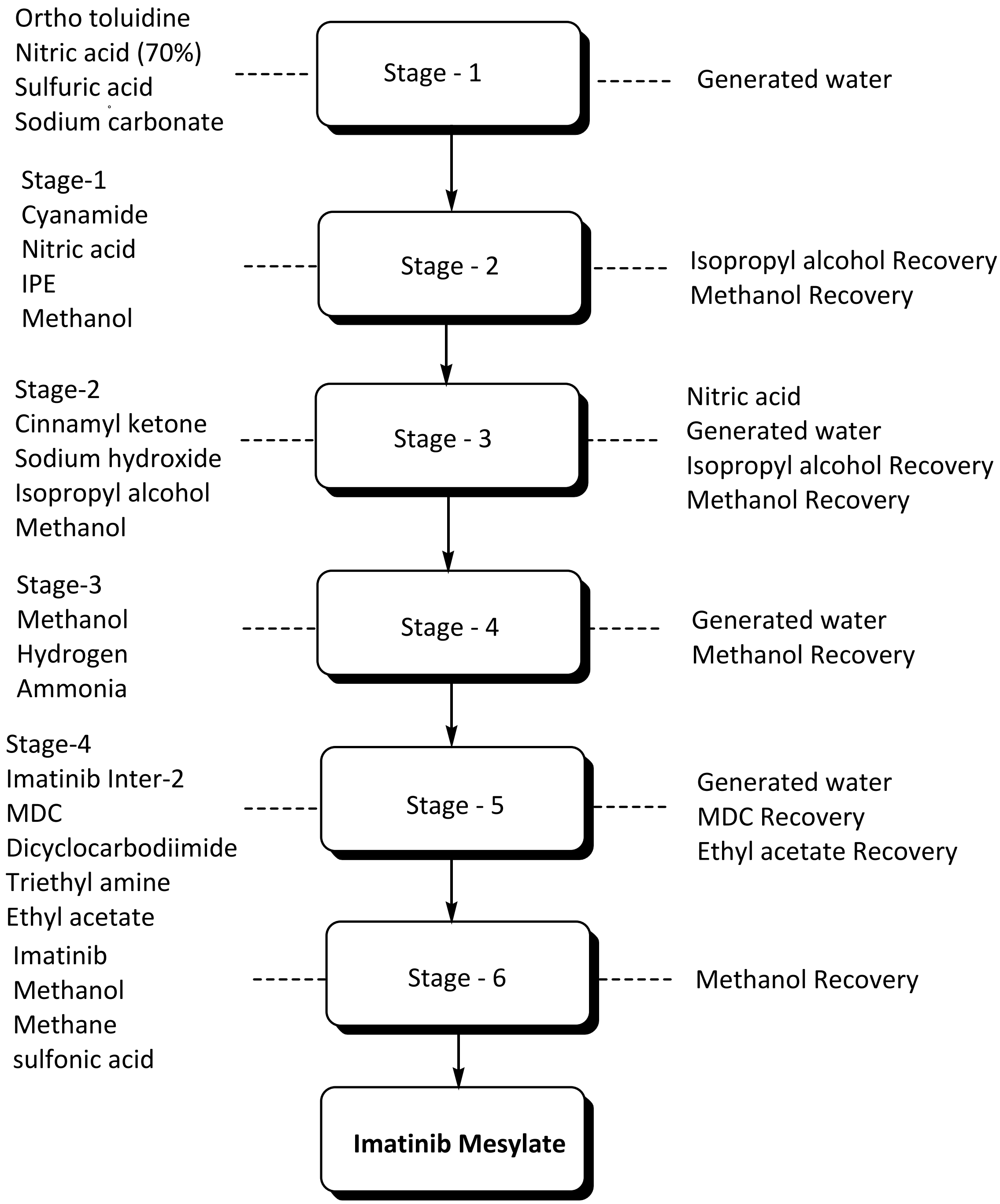
96.11

Imatinb Mesylate

$C_{30}H_{35}N_7O_4s$

589.71

FLOW CHART OF IMATINIB MESYLATE



IMATINIB MESYLATE

Material Balance of Imatinib Mesylate Stage-1 Batch Size:50Kg				
Name of the input	Quantity in Kg		Name of the out put	Quantity in Kg
Ortho tolylamine	10.00		Stage-1	14.00
Nitric acid	6.00		Effluent water	526.70
Sulfuric acid	15.00		(Water-500, generated water-1.70, Sulfuric acid-15, Sodium carbonate-10)	
Sodium carbonate	10.00		Organic Residue	0.93
Water	500.00		(Process Residue-0.93)	
Total	541.00		Total	541.00

Material Balance of Imatinib Mesylate Stage-2 Batch Size:50Kg				
Name of the input	Quantity in Kg		Name of the out put	Quantity in Kg
Stage-1	14.00		Stage-2	23.00
Cyanamide	4.00		IPE Recovery	190.00
Nitric acid	6.00		IPE Loss	4.00
n-Butanol	600.00		Methanol Recovery	190.00
IPE	200.00		Methanol Loss	4.00
Methanol	200.00		n-Butanol Recovery	570.00
Water	500.00		n-Butanol Loss	12.00
			Effluent water	514.00
			(Water-500, Methanol-6, N-Butanol-8)	0
			Organic Residue	17.00
			Process residue-1, Distillation Residue-16 (N-Butanol-10,IPE-6)	
Total	1524.00		Total	1524.00

Material Balance of Imatinib Mesylate
Stage-3
Batch Size:50Kg

Name of the input	Quantity in Kg		Name of the out put	Quantity in Kg
Stage-2	23.00		Stage-3	27.00
n-Butanol	400.00		Isopropyl alcohol Recovery	237.00
3-dimethylamino-1-pyridin-3-yl propenone	15.75		Isopropyl alcohol Loss	5.00
Sodium hydroxide	6.00		Methanol Recovery	237.00
Isopropyl alcohol	250.00		Methanol Loss	5.00
Methanol	250.00		n-Butanol Recovery	380.00
Water	200.00		n-Butanol Loss	8.00
			Effluent water	220.03
			(Water-200, Dimethylamine-4.03, Methanol-8,IPA-8)	
			Process Emission	7.30
			(Ammonia-1.55,Oxygen-5.75)	
			Organic Residue	18.42
			Process Residue-6.42, Distillation Residue-12 (n-Butanol -12)	
Total	1144.75		Total	1144.75

Material Balance of Imatinib Mesylate Stage-4 Batch Size:50Kg				
Name of the input	Quantity in Kg		Name of the out put	Quantity in Kg
Stage-3	27.00		Stage-4	24.00
Methanol	450.00		Methanol Recovery	427.00
Hydrogen	0.55		Methanol Loss	9.00
Palladium carbon	5.00		Palladium carbon reuse	5.00
Ammonia	20.00		Effluent water	527.16
Water	500.00		(Water-500, Generated water-3.16, Ammonia-20,Methanol-4)	
			Organic Residue	10.39
			Process Residue-0.39, Distillation Residue-10 (Methanol-10)	
Total	1002.55		Total	1002.55

Material Balance of Imatinib Mesylate Stage-5 Batch Size:50Kg				
Name of the input	Quantity in Kg		Name of the out put	Quantity in Kg
Stage-4	24.00		Imatinib	42.00
Imatinib Intermediate-2 (4-(4-methyl piperazin-1-yl)methyl benzoic acid di hydrochloride)	26.60		MDC Recovery	760.00
MDC	800.00		MDC Loss	16.00
Dicyclocarbodiimide	10.00		Ethyl acetate Recovery	114.00
Ethyl acetate	120.00		Ethyl acetate Loss	2.00
Sodium sulphate	2.00		Effluent water	415.60
Water	400.00		(Water-400, generated water-1.6 Dicyclocarbodiimide-10, Ethyl acetate-4)	
			Inorganic solid waste	2.00
			(Sodium sulphate)	
			Process Emission	6.30
			(Hydrogen chloride)	
			Organic Residue	24.70
			(Process residue-.0.7, Distillation Residuie-24 (MDC-24)	
Total	1382.60		Total	1382.60

Material Balance of Imatinib Mesylate Stage-6 Batch Size:50Kg				
Name of the input	Quantity in Kg		Name of the out put	Quantity in Kg
Imatinib	42.00		Imatinib Mesylate	50.00
Methanol	700.00		Methanol Recovery	665.00
Methane sulfonic acid	10.00		Methanol Loss	14.00
Activated carbon	5.00		Spent carbon	5.00
			Organic Residue	23.00
			(Process Residue-2, Distillation Residue-21 Methanol-21)	
Total	757.00		Total	757.00

13. IRINOTECAN HYDROCHLORIDE

Process Description

Stage-1
Step-A

[1,4']Bipiperidinyl-1'-carbonyl chloride Hydrochloride undergoes condensation with 4,11-Diethyl-4,9-dihydroxy-1,12-dihydro-4H-2-oxa-6,12a-diaza-dibenzo[b,h]fluorene-3,13-dione in presence of MDC, Diisopropylether & N-Methyl-2-pyrrolidone to give Step-A compound.

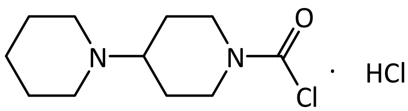
Step-B

Irinotecan Base (Step-A) undergoes salt formation with HCl in presence of IsoPropyl Alcohol to give irinotecan hydrochloride.

IRINOTECAN HYDROCHLORIDE

Route of synthesis:

Stage-1
Step -A

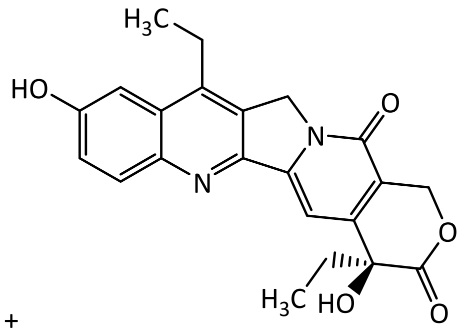


[1,4']Bipiperidinyl-1'-carbonyl chloride Hydrochloride

$C_{11}H_{20}Cl_2N_2O$

267.20

+

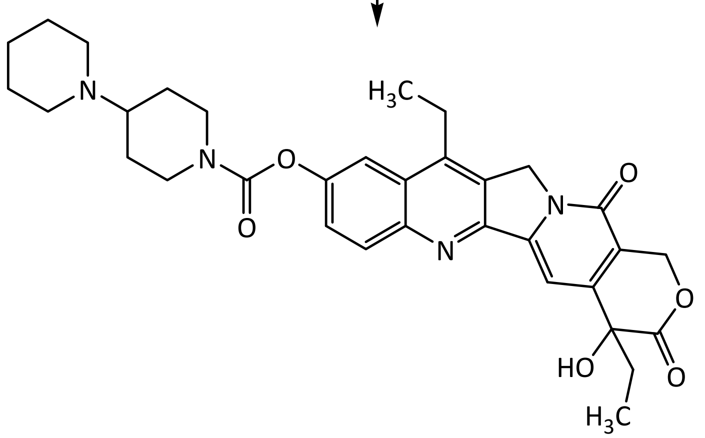


4,11-Diethyl-4,9-dihydroxy-1,12-dihydro-4*H*-2-oxa-6,12a-diaza-dibenzo[*b*,*h*] fluorene-3,13-dione

$C_{22}H_{20}N_2O_5$

392.40

↓ MDC, N-Methyl-2-Pyrrolidone, Diisopropyl ether



[1,4']Bipiperidinyl-1'-carboxylic acid 4,11-diethyl-4-hydroxy-3,13-dioxo-3,4,12,13-tetrahydro-1*H*-2-oxa-6, 12a-diaza-dibenzo[*b*,*h*]fluoren-9-yl ester

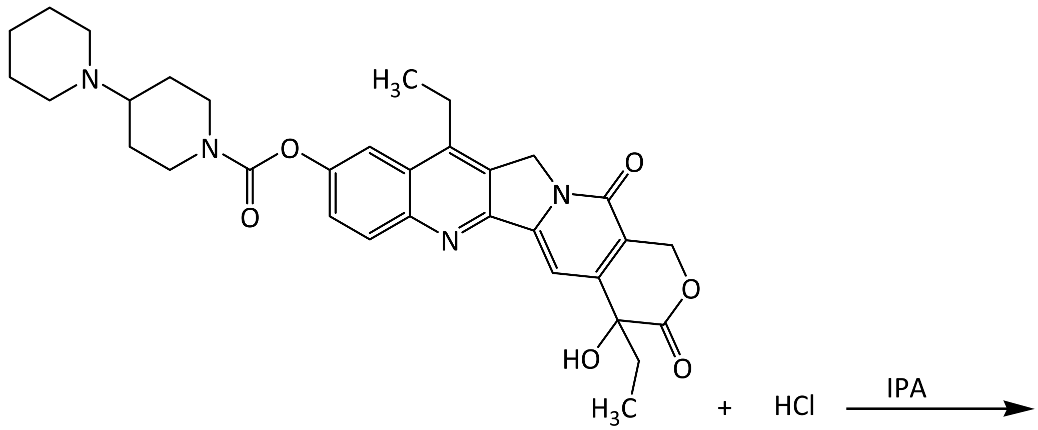
$C_{33}H_{38}N_4O_6$

586.68

+ 2 HCl ↑

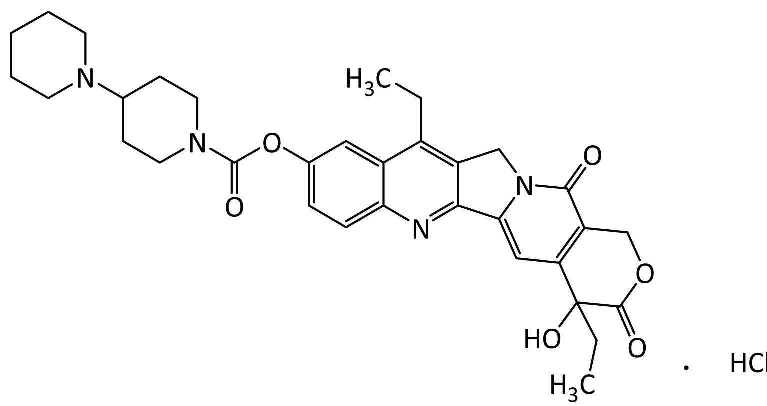
72.92

Step-B



Irinotecan Base
$C_{33}H_{38}N_4O_6$
586.68

36.46



Irinotecan Hydrochloride
$C_{33}H_{38}N_4O_6.HCl$
623.14

IRINOTECAN HYDROCHLORIDE

[1,4']Bipiperidinyl-1'-carbonyl chloride Hydrochloride
4,11-Diethyl-4,9-dihydroxy-1,12-dihydro-4H-2-oxa-6,12a-diaza-dibenzo[b,h]fluorene-3,13-dione
Methylene di chloride
N-methyl-2-Pyrrolidine
Di isopropyl ether
Iso propyl alcohol
Hydrochloric acid

→ Stage - 1 →

MDC Recovery
Di isopropyl ether Recovery
Iso propyl alcohol Recovery

↓

Irinotecan Hydrochloride

IRINOTECAN HYDROCHLORIDE

Material balance:

Material Balance of Irinotecan Hydrochloride Stage-1 Batch Size:10Kg				
Name of the input	Quantity in Kg		Name of the out put	Quantity in Kg
[1,4']Bipiperidinyl-1'-carbonyl chloride Hydrochloride	5.00		Irinotecan Hydrochloride	10.00
4,11-Diethyl-4,9-dihydroxy-1,12-dihydro-4H-2-oxa-6,12a-diaza-dibenzo[b,h]fluorene-3,13-dione	7.00		MDC Recovery	28.50
Methylene di chloride	30.00		MDC Loss	0.60
N-methyl-2-Pyrrolidine	40.00		Di isopropyl ether Recovery	28.50
Di isopropyl ether	30.00		Di isopropyl ether Loss	0.60
Iso propyl alcohol	50.00		Iso propyl alcohol Recovery	47.50
Hydrochloric acid	0.60		Iso propyl alcohol loss	1.00
Water	25.00		N-methyl-2-Pyrrolidine Recovery	38.00
			N-methyl-2-Pyrrolidine loss	0.80
			Effluent water (Water-25, IPA-1)	26.00
			Process emission (Hydrogen chloride)	1.26
			Organic Residue	4.84
			(Process Residue-1.34, Distillation Residue-3.5 (MDC-0.9, Di isopropyl ether -0.9, IPA-0.5, N-methyl-2-Pyrrolidine-1.2)	
Total	187.60		Total	187.60

14. IVABRADINE HYDROCHLORIDE

Process Description:

Stage-1:

1,3-dihydro-7,8-dimethoxy-2-oxo-1H-3-benzazepine reacts with 3-chloro-1-bromo propane in presence of potassium hydroxide, MDC and Acetone to give stage-1 product.

Stage-2:

Stage-1 product reacts with Sodium Iodide in presence of MDC and Acetone to give stage-2 product.

Stage-3:

Stage-2 product reacts with 1-[(7S)-3,4-dimethoxybicyclo[4.2.0]octa-1,3,5-trien-7-yl]-N-methylmethanamine in presence of Potassium carbonate ,DMSO and MIBK to give stage-3 product.

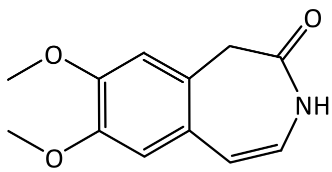
Stage-4:

Stage-3 product reacts with hydrogen gas in presence of pd/c,IPA,DMF anf HCl to give Ivabradine Hydrochloride.

IVABRADINE HYDROCHLORIDE

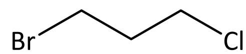
Route of Synthesis:

Stage-1:



1,3-Dihydro-7,8-dimethoxy-2H-3-benzazepin-2-one
$C_{12}H_{13}NO_3$
219.24

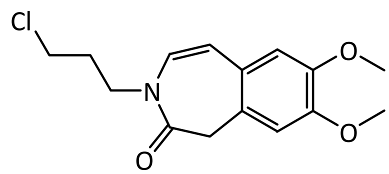
\+



1-Bromo-3-Chloropropane
C_3H_6BrCl
157.44

\+ KOH
56.11

$\xrightarrow{\text{MDC,Acetone}}$

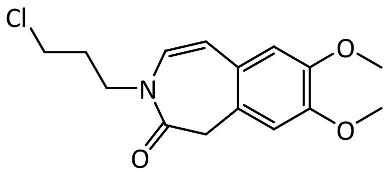


3-(3-Chloropropyl)1,3-Dihydro-7,8-dimethoxy-2H-3-benzazepin-2-one
$C_{15}H_{18}ClNO_3$
295.76

\+ KBr
119.00

\+ H_2O
18.02

Stage-2:



3-(3-Chloropropyl)1,3-Dihydro-
7,8-dimethoxy-
2H-3-benzazepin-2-one

$C_{15}H_{18}ClNO_3$

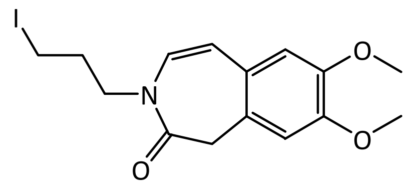
295.76

+ NaI

Sodium Iodide

149.89

$\xrightarrow{\text{Acetone, MDC,Hyflow}}$



3-(3-iodopropyl)1,3-Dihydro-
7,8-dimethoxy-
2H-3-benzazepin-2-one

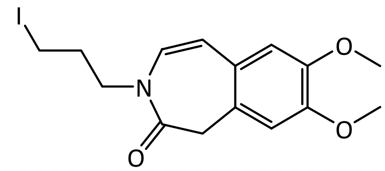
$C_{15}H_{18}INO_3$

387.21

+ NaCl

58.44

Stage-3:

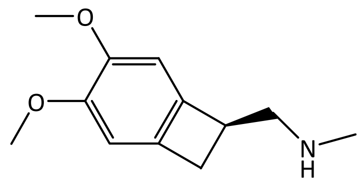


3-(3-iodopropyl)1,3-Dihydro-7,8-dimethoxy-2H-3-benzazepin-2-one

$C_{15}H_{18}INO_3$

387.21

+



1-[(7S)-3,4-dimethoxybicyclo[4.2.0] octa-1,3,5-trien-7-yl]-N-methylmethanamine

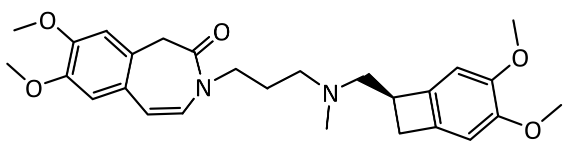
$C_{12}H_{17}NO_2$

207.27

+ K_2CO_3 + HCl

138.21 36.46

$\xrightarrow{\text{DMSO,MIBK}}$

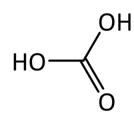


3-{3-[(3,4-Dimethoxy-bicyclo[4.2.0]octa-1(6),2,4-trien-7-ylmethyl)-methyl-amino]-propyl}-7,8-dimethoxy-1,3-dihydro-benzo[*d*]azepin-2-one

$C_{27}H_{34}N_2O_5$

466.57

+



Carbonic acid

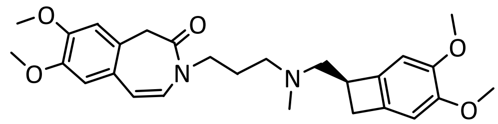
CH_2O_3

62.02

+ KI + KCl

166.00 74.55

Stage-4:



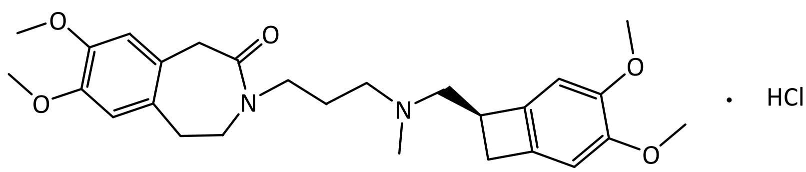
3-{3-[(3,4-Dimethoxy-bicyclo[4.2.0]octa-1(6),2,4-trien-7-ylmethyl)-methyl-amino]-propyl}-7,8-dimethoxy-1,3-dihydro-benzo[*d*]azepin-2-one

$C_{27}H_{34}N_2O_5$

466.57

+ H_2 + HCl $\xrightarrow{\text{Pd/C, IPA ,DMF}}$

2.02 36.46



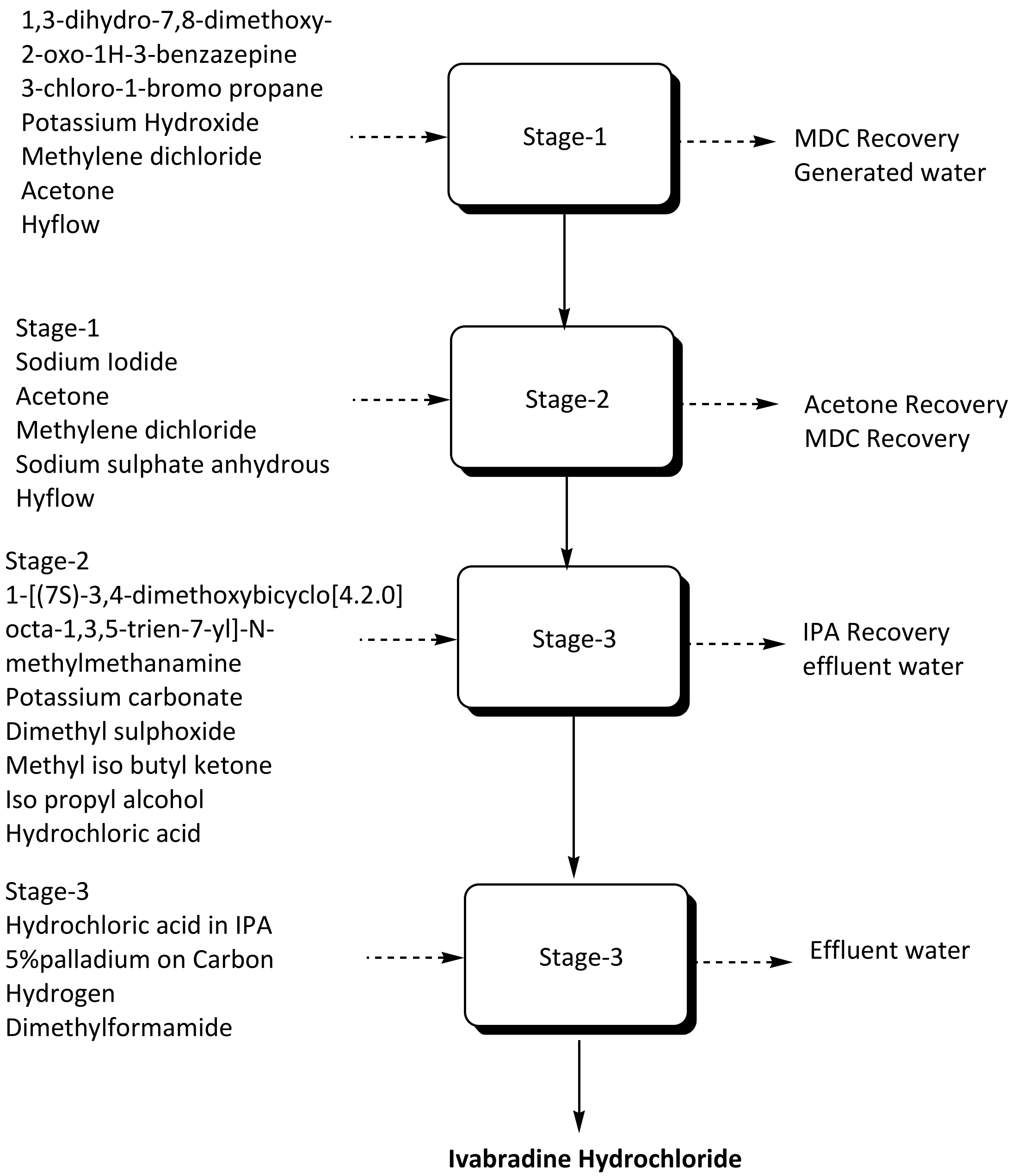
IVABRADINE HYDROCHLORIDE

$C_{27}H_{37}ClN_2O_5$

505.05

IVABRADINE HYDROCHLORIDE

Flowchart:



IVABRADINE HYDROCHLORIDE

Material Balance:

Material Balance of Ivabradine Hydrochloride Stage-1 Batch Size: 50.0Kgs				
Name of the input	Quantity in Kg		Name of the out put	Quantity in Kg
1,3-dihydro-7,8-dimethoxy-2-oxo-1H-3-benzazepine	28.00		Stage-1	36.00
3-chloro-1-bromo propane	20.50		Methylene dichloride recovery	14.25
Potassium Hydroxide	7.16		Methylene dichloride loss	0.30
Methylene dichloride	15.00		Inorganic Solid Waste (Potassium Bromide)	15.19
Acetone	20.00		Acetone recovery	19.00
Hyflow	0.50		Acetone loss	0.40
			Spent Hyflow	0.50
			Generated water	2.30
			Organic residue (Process Residue-2.17, Distillation Residue-(Acetone-0.6, MDC-0.45)	3.22
Total	91.16		Total	91.16

Material Balance of Ivabradine Hydrochloride Stage-2 Batch Size: 50.0Kgs				
Name of the input	Quantity in Kg		Name of the out put	Quantity in Kg
Stage-1	36.00		Stage-2	45.00
Sodium Iodide	19.00		Acetone recovery	9.50
Acetone	10.00		Acetone process loss	0.20
Methylene dichloride	15.00		Methylene dichloride recovery	14.25
Sodium sulphate anhydrous	0.50		Methylene dichloride process loss	0.30
Hyflow	0.50		Effluent water (Water-50 Sodium chloride-7.11, acetone-0.3)	57.41
Water	50.00		Inorganic solid waste (Sodium sulphate)	0.50
			Spent Hyflow	0.50
			Organic Residue (Process Residue-2.89, Distillation Residue-0.45 (MDC-0.45)	3.34
Total	131.00		Total	131.00

Material Balance of Ivabradine Hydrochloride Stage-3 Batch Size: 50.0Kgs					
Name of the input	Quantity in Kg		Name of the out put	Quantity in Kg
Stage-2	45.00		Stage-3	52.00
1-[(7S)-3,4-dimethoxybicyclo[4.2.0]octa-1,3,5-trien-7-yl]-N-methylmethanamine	24.00		Dimethyl sulphoxide recovery	9.50
Potassium carbonate	17.00		Dimethyl sulphoxide loss	0.20
Dimethyl sulphoxide	10.00		Methyl iso butyl ketone recovery	14.25
Methyl iso butyl ketone	15.00		MIBK loss	0.30
Iso propyl alcohol	10.00		Iso propyl alcohol recovery	9.50
Hydrochloric acid	5.00		Iso propyl alcohol loss	0.20
Water	50.00		Effluent water (Water-50, Potassium chloride-8.65, DMSO-0.3)	58.95
			Inorganic solid waste (Potassium iodide-19.29, Carbonic acid-7.20)	26.49
			Organic residue – 4.61 (Process residue-3.86, Distillation Residue-0.75 (MIBK-0.45, IPA-0.30)	4.61
Total	176.00		Total	176.00

Material Balance of Ivabradine Hydrochloride Stage-4 Batch Size: 50.0Kgs				
Name of the input	Quantity in Kg		Name of the out put	Quantity in Kg
Stage-3	52.00		Ivabradine Hydrochloride	50.00
Hydrochloric acid in IPA	20.00		Isopropyl alcohol recovery	14.25
5%palladium on Carbon	0.50		Isopropyl alcohol loss	0.30
Hydrogen	0.25		Dimethylformamide recovery	19.00
Dimethylformamide	20.00		Dimethylformamide loss	0.40
	0		Organic residue (Process Residue- 2.75 Distillation Residue-1.05 (IPA-5.45, DMF-0.6)	8.80
Total	92.75		Total	92.75

15. LENALIDOMIDE

Process Description:

Stage-1:

2-Bromomethyl-3-nitro-benzoic acid reacts with 3-amino-piperidine2,6-dione in presence of methanol and MDC to give stage-1 product.

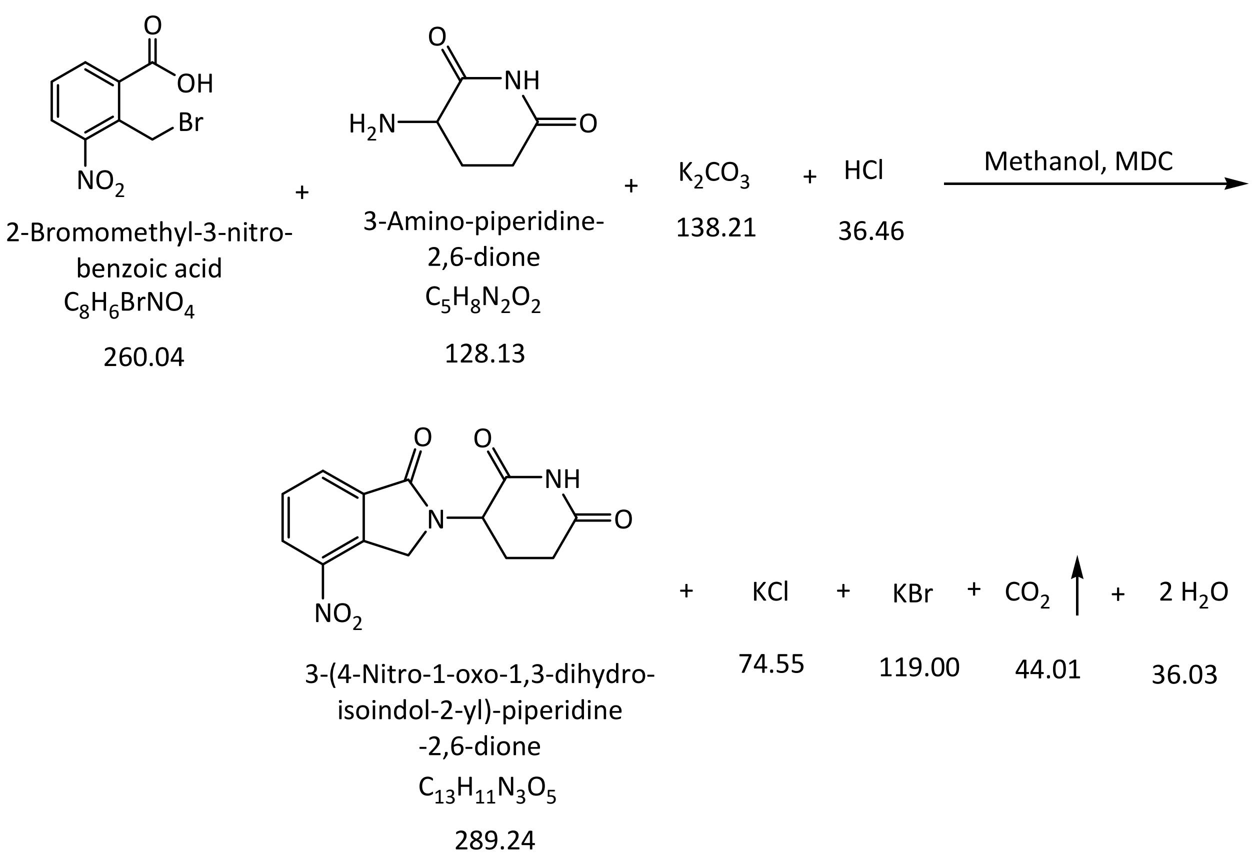
Stage-2:

Stage-1 product undergoes Hydrogenation with hydrogen in presence of Methanol and Pd/c to give Lenalidomide.

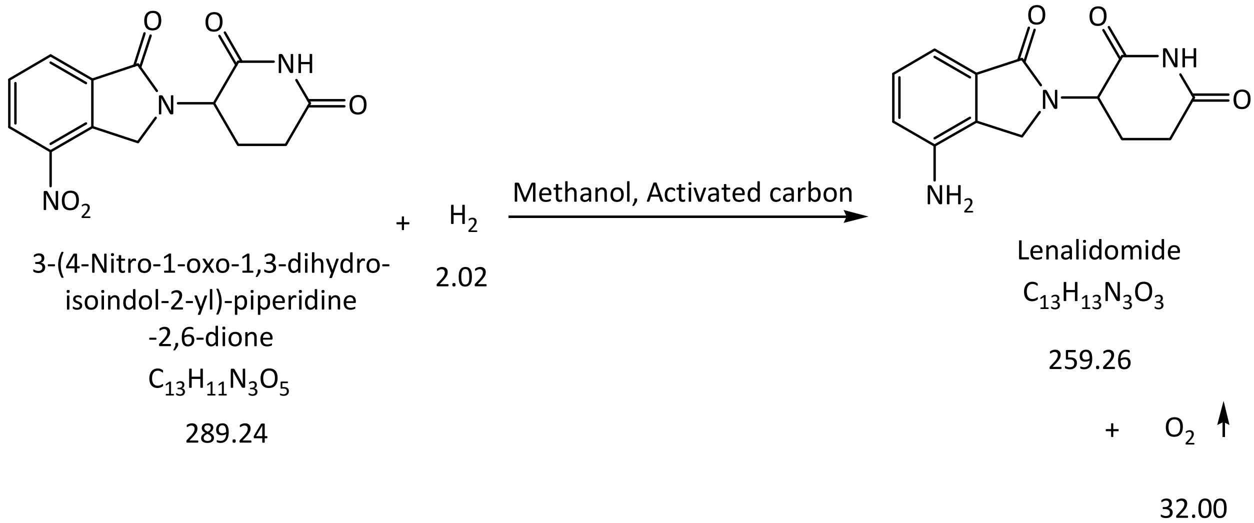
LENALIDOMIDE

Route of synthesis:

Stage-1

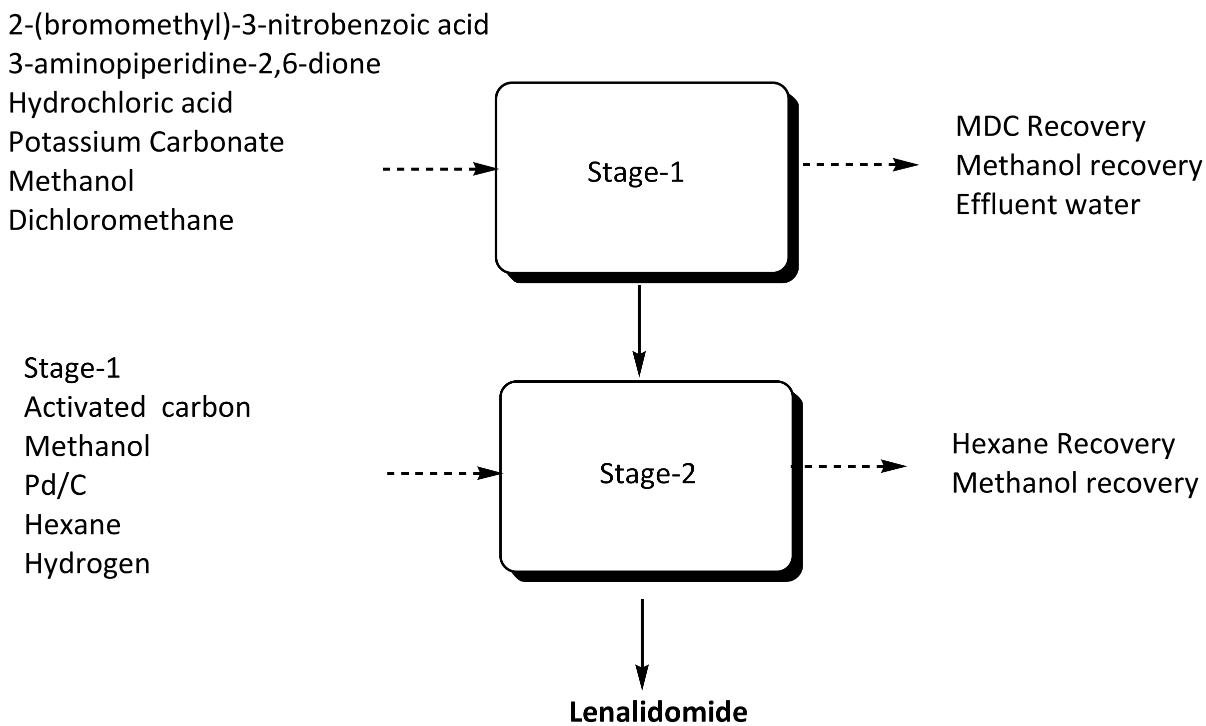


Stage-2



LENALIDOMIDE

Flowchart:



LENALIDOMIDE

Material balance:

Material Balance of Lenalidomide Stage-1 Batch Size: 25.0Kgs				
Name of the input	Quantity in Kg		Name of the out put	Quantity in Kg
2-(bromomethyl)-3-nitrobenzoic acid	28.00		Stage-1	30.00
3-aminopiperidine-2,6-dione	14.00		Methanol Recovery	19.00
Hydrochloric acid	4.00		Methanol loss	0.40
Potassium Carbonate	15.00		Dichloromethane recovery	14.25
Methanol	20.00		Dichloromethane loss	0.30
Dichloromethane	15.00		Effluent water (Water-20,Generated water-3.87, Potassium chloride-8.02, Potassium bromide-12.81, Methanol-0.6)	45.30
Water	20.00		Process emission (Carbon dioxide – 4.73)	4.73
			Organic residue (Process residue-1.57, Distillation Residue-(MDC-0.45)	2.02
Total	116.00		Total	116.00

Material Balance of Lenalidomide Stage-2 Batch Size: 25.0Kgs				
Name of the input	Quantity in Kg		Name of the out put	Quantity in Kg
Stage-1	30.00		Stage-1	25.00
Activated carbon	0.50		Methanol recovery	19.00
Methanol	20.00		Methanol loss	0.40
Pd/C	0.5		Hexane recovery	28.50
Hexane	30.0		Hexane loss	0.60
Hydrogen	0.25		Spent Pd/C	0.50
			Spent Carbon	0.50
			Process emission (oxygen- 3.32)	3.32
			Organic residue (Process residue-1.93 Distillation Residue-1.5 (Methanol-0.6, Hexane-0.9)	3.43
Total	81.25		Total	81.25

16. LINEZOLID

Process Description:

Stage-1

R-3-(3-Fluoro-4-morpholinophenyl)-2-oxooxazolidin-5-yl) methyl methane sulfonate reacts with Potassium phthalide in the presence of TEBAC, MIBK as solvent media to get Stage-1 as product.

Stage-2

Stage-1 product reacts with Monomethyl amine in the presence of methanol as solvent media to get stage-2 as product.

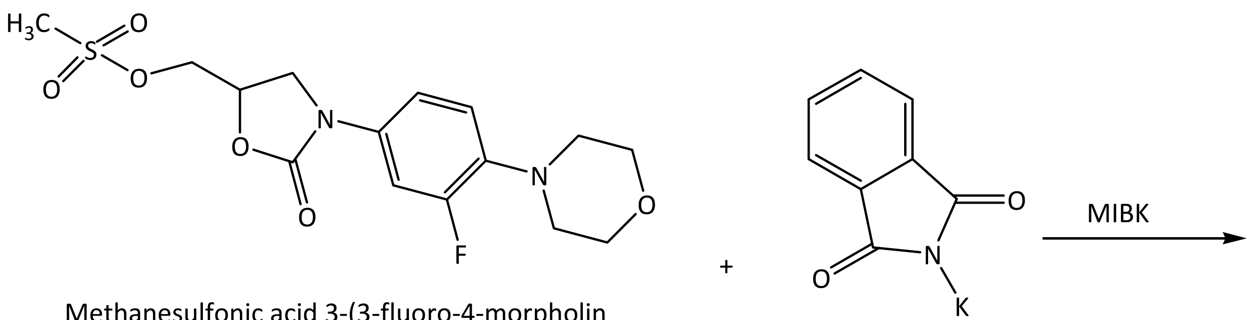
Stage-3

Stage-2 product reacts with acetic anhydride by using Ethyl acetate as solvent media to give Linezolid as product.

LINEZOLID

Route of Synthesis:

Stage-1:



Methanesulfonic acid 3-(3-fluoro-4-morpholin -4-yl-phenyl)-2-oxo-oxazolidin-5-ylmethyl ester

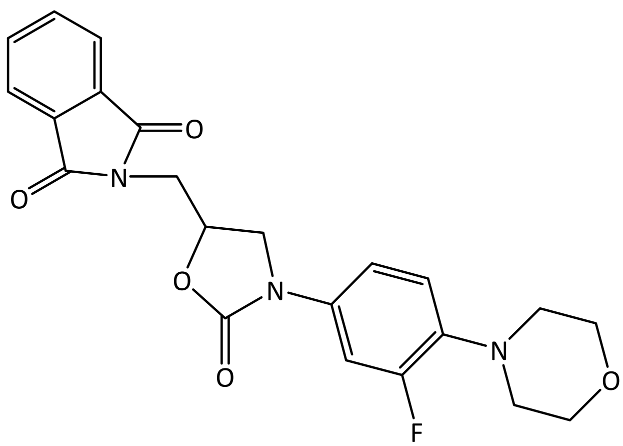
$C_{15}H_{19}FN_2O_6S$

374.38

\+ Potassium phthalimide

$C_8H_4KNO_2$

185.22



\+ CH_3SO_3K

2-[3-(3-Fluoro-4-morpholin-4-yl-phenyl)-2-oxo -oxazolidin-5-ylmethyl]-isoindole-1,3-dione

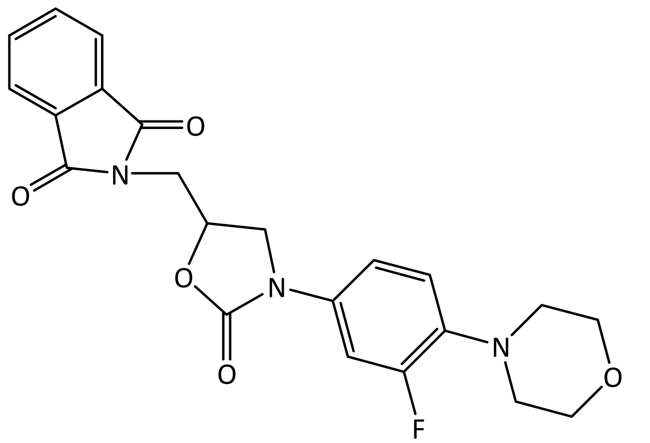
$C_{22}H_{20}FN_3O_5$

425.41

Methane sulfonic acid Potassium salt

134.19

Stage-2:



2-[3-(3-Fluoro-4-morpholin-4-yl-phenyl)-2-oxo
-oxazolidin-5-ylmethyl]-isoindole-1,3-dione

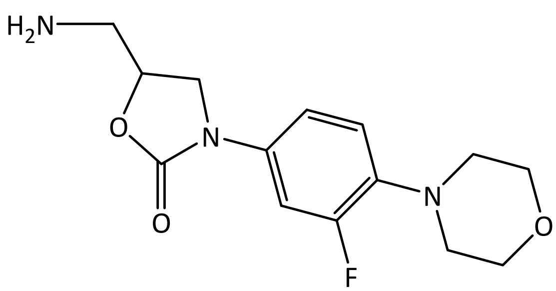
$C_{22}H_{20}FN_3O_5$

425.41

\+ NH_2CH_3 $\xrightarrow{\text{Methanol}}$

Mono methyl amine

31.06

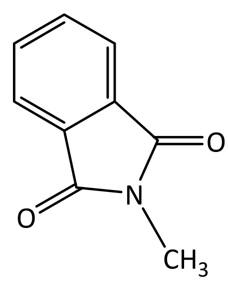


5-Aminomethyl-3-(3-fluoro-4-morpholin
-4-yl-phenyl)-oxazolidin-2-one

$C_{14}H_{18}FN_3O_3$

295.13

\+

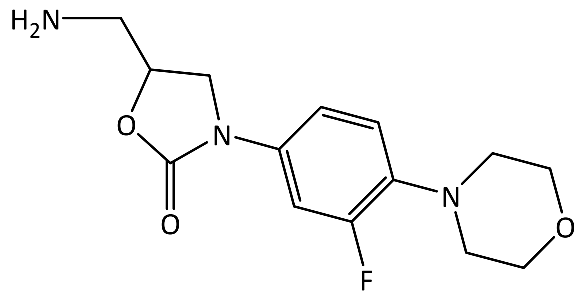


2-Methyl-isoindole-1,3-dione

$C_9H_7NO_2$

161.15

Stage-3:

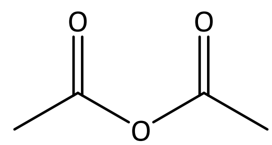


5-Aminomethyl-3-(3-fluoro-4-morpholin -4-yl-phenyl)-oxazolidin-2-one

$C_{14}H_{18}FN_3O_3$

295.13

\+



Acetic anhydride

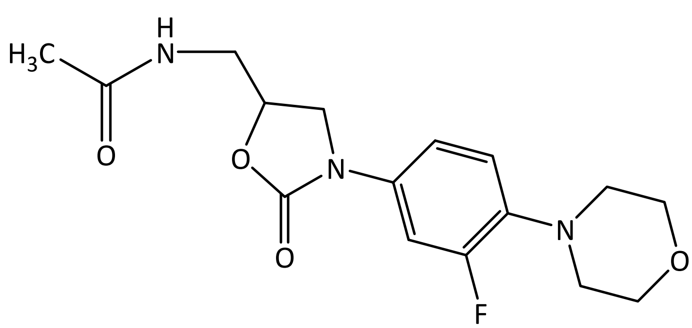
$C_4H_6O_3$

102.09

\+ NaOH

Sodium Hydroxide

40.0



Linezolid

$C_{16}H_{20}FN_3O_4$

337.14

\+ CH_3COONa

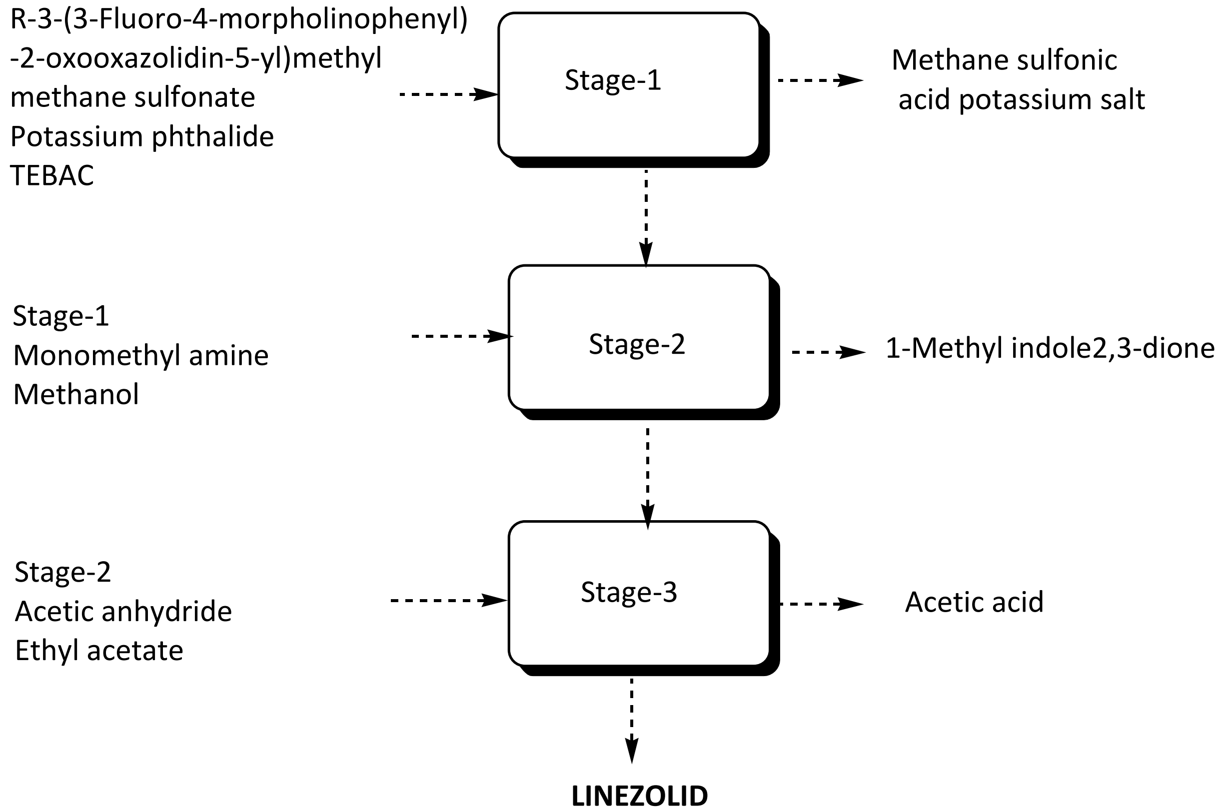
82.03

\+ H_2O

18.0

LINEZOLID

Flow-Chart:



Material Balance:

Material Balance of Linezolid Stage-1 Batch Size:100Kg				
Name of the input	Quantity in Kg		Name of the out put	Quantity in Kg
R-3-(3-Fluoro-4-morpholinophenyl)-2-oxooxazolidin-5-yl) methyl methane sulfonate	210.00		Stage-1	180.00
Potassium phthalide	104.00		MIBK Recovery	1145.00
TEBAC	10.00		MIBK Loss	55.00
MIBK	1200.00		MDC Recovery	760.00
MDC	800.00		MDC Loss	40.00
Methanol	800.00		Methanol Recovery	745.00
Water	1500.00		Methanol Loss	40.00
			Effluent water	1600.20
			(Water-1500,Methane sulfonic acid potassiumsalt -75.2, Methanol-15, TEBAC-10)	
			Organic Residue	58.80
Total	4624.00		Total	4624.00

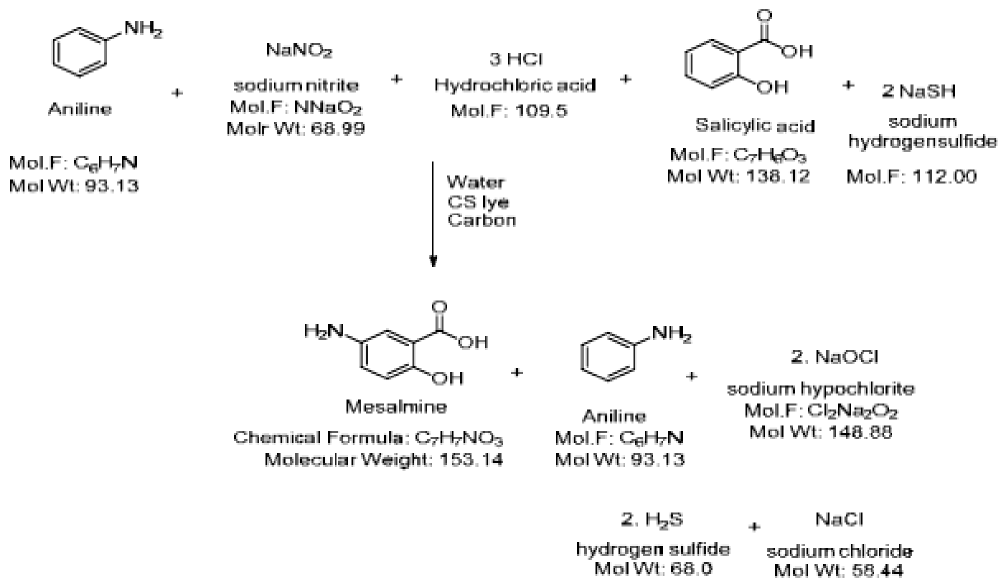
Material Balance of Linezolid Stage-2 Batch Size:100Kg				
Name of the input	Quantity in Kg		Name of the out put	Quantity in Kg
Stage-1	180.00		Stage-2	120.00
Methyl amine (40%)	30.00		Methanol Recovery	428.00
Methanol	450.00		Methanol Loss	22.00
Water	200.00		Effluent Water	223.00
			(Water-200,Methanol-5,Water from monomethyl amine-18)	
			Organic Solid Waste	67.00
Total	860.00		Total	860.00

Material Balance of Linezolid Stage-3 Batch Size:100Kg				
Name of the input	Quantity in Kg		Name of the out put	Quantity in Kg
Stage-2	120.00		Linezolid	100.00
Acetic Anhydride	42.00		MDC Recovery	760.00
MDC	800.00		MDC Loss	40.00
Ethyl acetate	600.00		Ethyl acetate Recovery	570.00
Sodium hydroxide	12.00		Ethyl acetate Loss	30.00
Activated Carbon	10.00		Effluent Water	641.30
Water	600.00		(Water-600,Sodium Acetate-33.7, generated water-7.6)	
			Spent Carbon	10.00
			Organic Residue	32.70
Total	2184.00		Total	2184.00

17. MESALAMINE

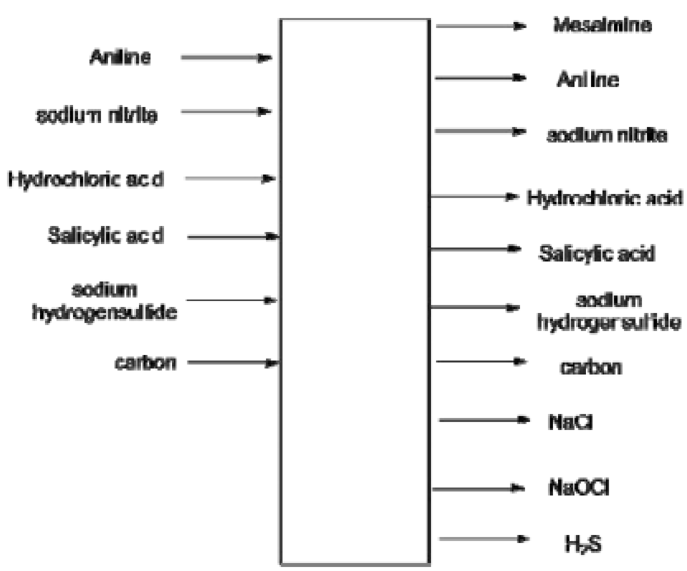
2.1.7 Process Description of Mesaiamine

Reaction Schemes



Process Description:

Aniline reacts with $NaNO_2$ in the presence of salicylic acid to form 5-Phenylazosalicylicacid. 5-Phenylazosalicylicacid reacts with NaSH to form Masalamine.



' Process Flow Diagram of Mesalamine

Materia l Balance of Mesalamine

Stage I

Input	Quantity (Kg/day)	Output	Quantity (Kg/day)	Remarks
Aniline	26	Mesalamine	33.3	Final product
sodium nitrite	19.3	Aniline	20.3	To Wastewater
Hydrochloric acid	30.6	Sodium hypo chlorite	32.4	Inorganic residue
Salicylic acid	38.5	Sodium chloride	23.5	To Wastewater
sodium hydrosulfide	31.3	Hydrogen sulfide	18.1	To Scrubber
Carbon	5	Aniline	5.7	Organic residue
Water	490	Salicylic acid	8.5	Organic residue
Sodium hydroxide	7.2	Carbon	5	To solid waste
		Sodium nitrite	4.2	To Wastewater
		Sodium hydrosulfide	6.9	Inorganic residue
		Water	490	To Wastewater
Total Input	**647.9**	**Total Output**	**647.9**	

18. OLMESARTAN

Process Description:

Stage-1

2-Propyl-1H-imidazole-4, 5-dicarboxylic acid diethyl ester reacts with methyl magnesium bromide in presence of Ammonium chloride and THF to give Stage-1 product.

Stage-2

Stage-1 reacts with 5-(4’bromo methyl-biphenyl-2-yl)-1-trityl-5H-tetrazole in presence of TBAB as catalyst and Acetone to give stage-2 product.

Stage-3

Stage-2 reacts with Lithium hydroxide in presence of THF to give Stage-3 product.

Stage-4

Stage-3 reacts with 4-chloromethyl-5-methyl-[1, 3] dioxolan-2-one in presence of MDC to give stage-4 product.

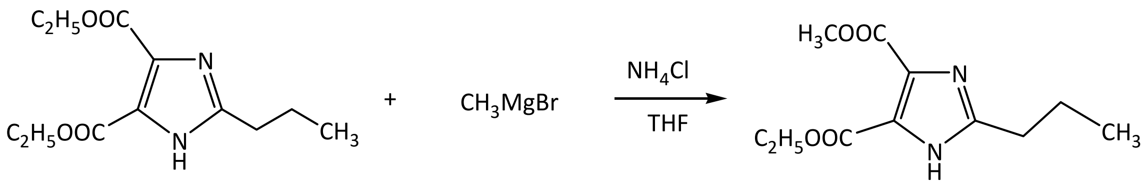
Stage-5

Stage-4 reacts with acetic acid in presence of Isopropyl alcohol to give Olmesartan.

OLMESARTAN

Route of synthesis:

Stage-1:



2-Propyl-1*H*-imidazole -4,5-dicarboxylic acid diethyl ester
$C_{12}H_{18}N_2O_4$
254.28

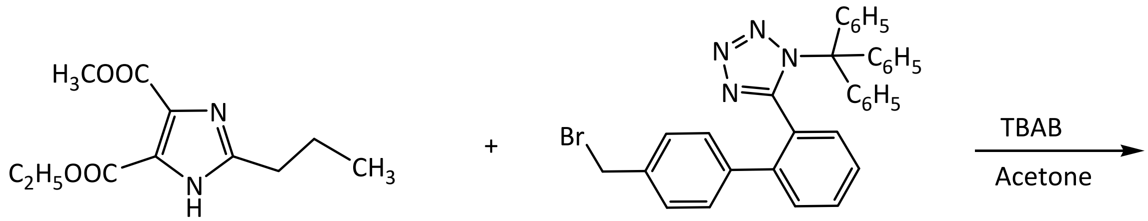
Methyl magnesium bromide
119.24

2-Propyl-1*H*-imidazole-4,5-dicarboxylic acid 5-ethyl ester 4-methyl ester
$C_{11}H_{16}N_2O_4$
240.25

+ C_2H_5MgBr

Ethyl magnesium bromide
133.27

Stage-2:



2-Propyl-1*H*-imidazole-4,5-dicarboxylic acid 5-ethyl ester 4-methyl ester

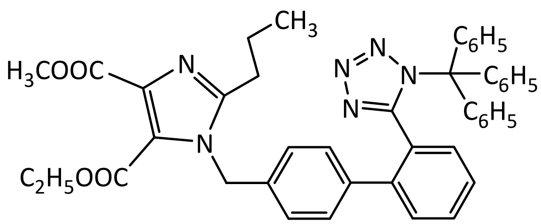
$C_{11}H_{16}N_2O_4$

240.25

5-(4'-Bromomethyl-biphenyl -2-yl)-1-trityl-5*H*-tetrazole

$C_{33}H_{25}BrN_4$

557.48



\+ HBr

2-Propyl-1-[2'-(1-trityl-5*H*-tetrazol-5-yl)-biphenyl -4-ylmethyl]-1*H*-imidazole-4,5-dicarboxylicacid 5-ethyl ester 4-methyl ester

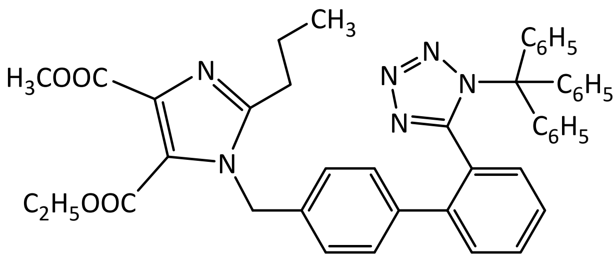
$C_{44}H_{40}N_6O_4$

716.82

Hydrobromic acid

80.91

Stage-3:



+ LiOH $\xrightarrow{THF}$

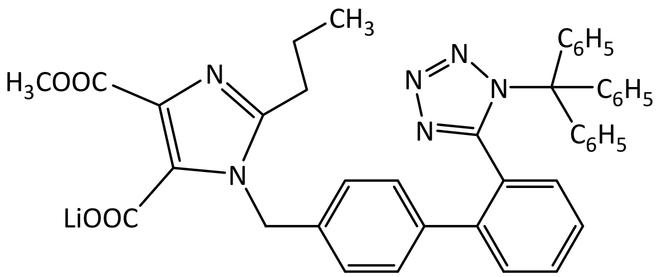
2-Propyl-1-[2'-(1-trityl-5*H*-tetrazol-5-yl)-biphenyl
-4-ylmethyl]-1*H*-imidazole-4,5-dicarboxylicacid
5-ethyl ester 4-methyl ester

$C_{44}H_{40}N_6O_4$

716.82

Lithium
Hydroxide

23.94



+ C_2H_5OH

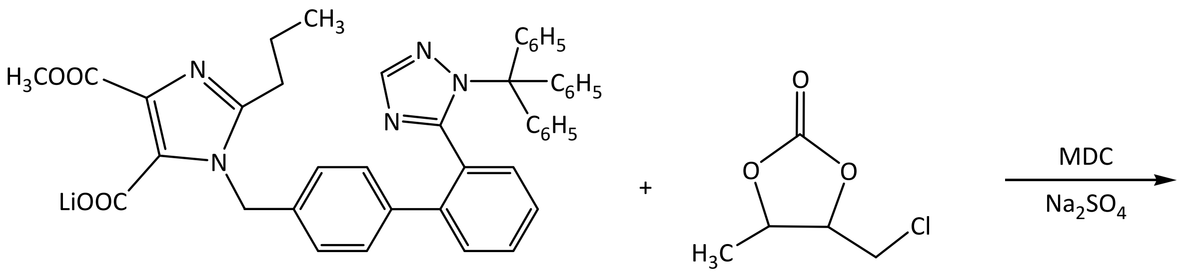
2-Propyl-1-[2'-(1-trityl-5*H*-tetrazol-5-yl)-biphenyl
-4-ylmethyl]-1*H*-imidazole-4,5-dicarboxylicacid
5-ethyl ester 4-methyl ester

$C_{42}H_{35}LiN_6O_4$

694.70

46.06

Stage-4:



2-Propyl-1-[2'-(1-trityl-5*H*-tetrazol-5-yl)-biphenyl
-4-ylmethyl]-1*H*-imidazole-4,5-dicarboxylicacid
5-ethyl ester 4-methyl ester

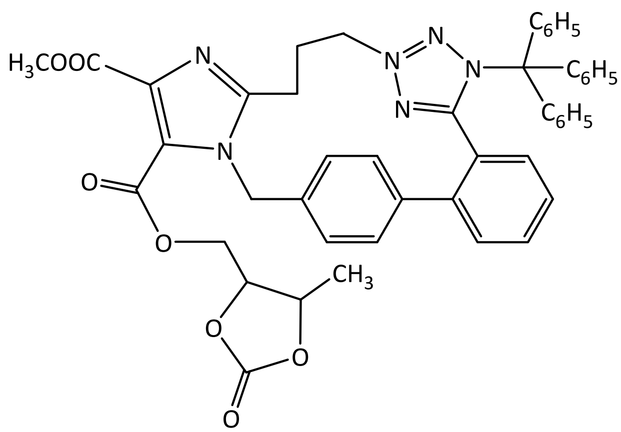
$C_{42}H_{36}LiN_6O_4$

693.71

4-Chloromethyl-5-methyl
-[1,3]dioxolan-2-one

$C_5H_7ClO_3$

150.56



\+ LiCl

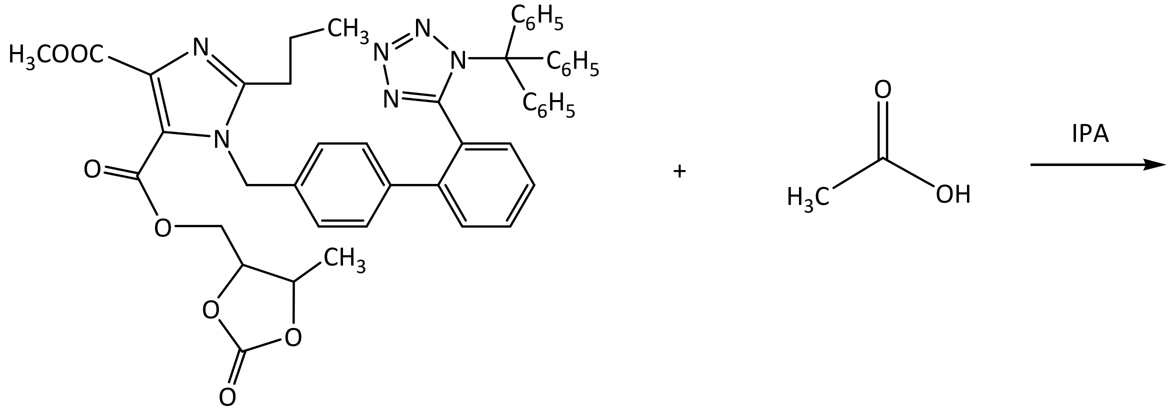
2-Propyl-1-[2'-(1-trityl-5*H*-tetrazol-5-yl)-biphenyl-4-ylmethyl]
-1*H*-imidazole-4,5-dicarboxylic acid 4-methyl ester
5-(5-methyl-2-oxo-[1,3]dioxolan-4-ylmethyl) ester

$C_{47}H_{41}N_6O_7$

801.86

42.39

Stage-5:



2-Propyl-1-[2'-(1-trityl-5*H*-tetrazol-5-yl)-biphenyl-4-ylmethyl]
-1*H*-imidazole-4,5-dicarboxylic acid 4-methyl ester
5-(5-methyl-2-oxo-[1,3]dioxolan-4-ylmethyl) ester

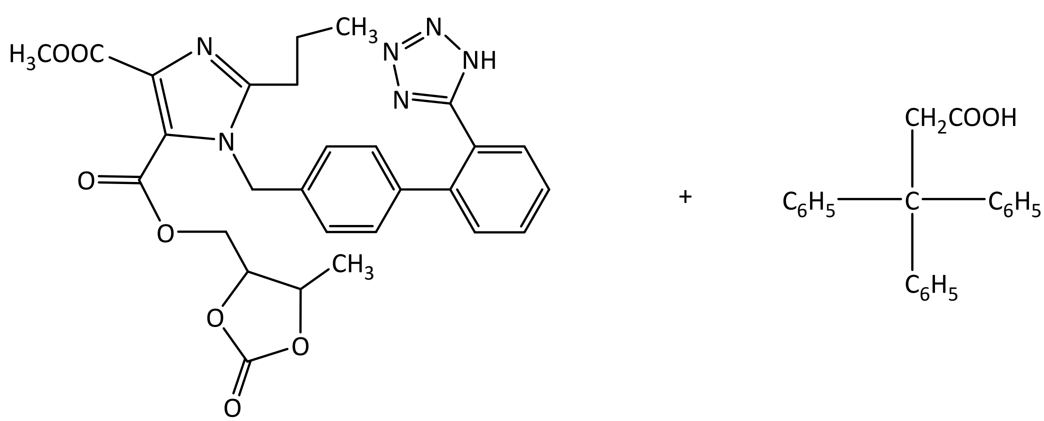
$C_{47}H_{42}N_6O_7$

802.87

Acetic acid

$C_2H_4O_2$

60.05



Olmesartan

$C_{28}H_{28}N_6O_7$

560.55

3,3,3-Triphenyl-propionic acid

$C_{21}H_{18}O_2$

302.37

OLMESARTAN

Flow chart:

INPUT	PROCESSING	OUTPUT
• 2-Propyl-1H-imidazole-4,5 • dicarboxylic acid diethyl ester • Methyl magnesium bromide • Ammonium chloride • THF	STAGE-1	• Ethyl magnesium bromide • THF Rec
• Stage-1 • 5(4'-Bromomethyl-biphenyl- • 2-yl)-1-trityl-5H-tetrazole • TBAB • Acetone	STAGE-2	• Hydrobromic acid • Acetone Rec
• Stage-2 • Lithium hydroxide • THF	STAGE-3	• THF Rec
• Stage-3 • 4-chloromethyl-5-methyl • -[1,3]dioxolan-2-one • MDC • Sodium sulphate	STAGE-4	• Lithium chloride • MDC Rec
• Stage-4 • Acetic axid • IPA	STAGE-5	• 3,3,3-Triphenyl propionic acid • IPA Rec

OLMESARTAN

OLMESARTAN

Material Balance:

MATERIAL BALANCE OF OLMESARTAN STAGE-1 BATCH SIZE: 100.0 KGS			
INPUT		**OUTPUT**	
NAME OF THE INPUT	**QUANTITY IN KGS**	**NAME OF THE OUTPUT**	**QUANTITY IN KGS**
2-Propyl-1H-imidazole-4,5-dicarboxylic acid diethyl ester	68.00	Stage-1	60.00
Methyl magnesium bromide	31.90	THF Recovery	475.00
Tetrahydrofuran	500.00	THF Loss	10.00
Ammonium chloride	10.00	Ethyl acetate Recovery	143.00
Ethyl acetate	150.00	Ethyl acetate Loss	3.00
Sodium sulphate	4.50	Diiso propyl ether Recovery	95.00
Di isopropyl ether	100.00	Diiso propyl ether Loss	5.00
Water	300.00	Effluent water	353.65
		(Water-300,Ethyl magnesium bromide-35.65, Ammonium chloride-10, THF-8)	
		Inorganic solid waste	4.50
		(Sodium sulfate)	
		Organic Residue	15.25
		Process residue - 4.25, Distillation residue -11 (THF-7, Ethyl acetate -4)	
Total	**1164.40**	**Total**	**1164.40**

MATERIAL BALANCE OF OLMESARTAN STAGE-2 BATCH SIZE: 100.0 KGS			
INPUT		**OUTPUT**	
NAME OF THE INPUT	**QUANTITY IN KGS**	**NAME OF THE OUTPUT**	**QUANTITY IN KGS**
Stage-1	60.00	Stage-2	153.00
TrityltriazoleButylbromide(TTBB)	140.00	Acetone Recovery	470.00
TBAB	10.00	Acetone Loss	10.00
Potassium carbonate	20.00	Effluent water	557.05
Acetone	500.00	(Water-500,Potassium bromide-34.45,Generated water-2.6,TBAB-10, Acetone-10)	
Activated Carbon	10.00	Spent Carbon	10.00
Water	500.00	Process Emission	6.36
		(Carbon dioxide)	
		Organic Residue	33.59
		Process reidue-23.59, Distillation residue -10 (Acetone-10)	
Total	**1240.00**	**Total**	**1240.00**

MATERIAL BALANCE OF OLMESARTAN STAGE-3 BATCH SIZE: 100.0 KGS			
INPUT		**OUTPUT**	
NAME OF THE INPUT	**QUANTITY IN KGS**	**NAME OF THE OUTPUT**	**QUANTITY IN KGS**
Stage-2	153.00	Stage-3	142.00
Lithium hydroxide	6.90	THF Recovery	190.00
Tetrahydrofuran	200.00	THF Loss	4.00
Ethyl acetate	200.00	Ethyl acetate Recovery	190.00
Sodium chloride	28.00	Ethyl acetate Loss	4.00
Sodium sulphate	2.00	Effluent Water	647.60
Water	600.00	(Water-	

		600,Lithium hydroxide-1.8,Ethanol-9.8, Sodium chloride-28, Sodium sulfate-2, ethy acetate -3, THF-3)	
		Organic Residue	11.30
		Process residue -6.3, Distillation residue -5 (THF-3, Ethyl acetate -3)	
Total	**1189.90**	**Total**	**1188.90**

MATERIAL BALANCE OF OLMESARTAN STAGE-4 BATCH SIZE: 100.0 KGS			
INPUT		**OUTPUT**	
NAME OF THE INPUT	**QUANTITY IN KGS**	**NAME OF THE OUTPUT**	**QUANTITY IN KGS**
Stage-3	142.00	Stage-4	145.00
4-chloromethyl-5-methyl-[1,3]dioxolan-2-one	30.80	MDC Recovery	1140.00
N,N-Di methyl Acetamide	8.30	MDC Loss	24.00
TEA	25.00	Effluent water	341.97
MDC	1200.00	(Water-300,TEA-25, Lithium chloride-8.67,N,N-Dimethyl Acetamide-8.3)	
Sodium sulphate	22.00	Inorganic Solid Waste	22.00
Water	300.00	(Sodium Sulfate)	
		Organic Residue	55.13
		Process residue-19.13, Distillation residue -36 (MDC-36)	

Total	**1728.10**	**Total**	**1728.10**

MATERIAL BALANCE OF OLMESARTAN STAGE-5 BATCH SIZE: 100.0 KGS			
INPUT		**OUTPUT**	
NAME OF THE INPUT	**QUANTITY IN KGS**	**NAME OF THE OUTPUT**	**QUANTITY IN KGS**
Stage-4	145.00	Olmesartan	100.00
Acetic acid	65.00	IPA Recovery	570.00
Isopropyl alcohol	600.00	IPA Loss	20.00
		Acetic Acid Recovery	50.00
		Organic solid waste	70.00
		Process residue - 1.24, (3,3,3-Triphenyl propionic Acid-54.6, Acetic acid-4.16) Distillation residue – 10 (IPA- 10)	
Total	**810.00**	**Total**	**810.00**

19. PANTOPRAZOLE SODIUM

Process Description

Stage-1

Maltol and Dimethyl sulphate condense in Acetone solvent medium. Excess Dimethyl sulphate is removed by treating the reaction mass with Potassium Carbonate. Reaction takes place as per the below equation.

Stage-2

Stage-1 compound on treating with Liquor Ammonia solution stage-2 compound is formed. Reaction proceeds as per the below equation

Stage-3

Stage-2 compound on reaction with Phosphorous oxy chloride produces stage-3 compound. Further reaction is stopped by treating the reaction mass with water. Final product is extracted with MDC and after distilling out MDC compound is obtained. Below is the reaction scheme.

Stage-4

Stage-3 compound when reacts with Hydrogen peroxide in presence of Acetic acid, stage-4 compound is obtained. Methanol is the solvent employed.

Stage-5

Stage-4 compound on reaction with Methanol in sodium methoxide presence produces stage-5 compound. Execs Methanol is used. Below is the reaction

Stage-6

Above stage compound on reaction with Acetic anhydride produces an intermediate.MDC used as solvent. Product is precipitated with C.S. Flakes. Below is the reaction scheme.

Stage-7

Stage-6 compound when reacts with Sodium hydroxide MDC is used as solvent.

Stage-8

Stage-7 compound when reacts with Thionyl chloride an intermediate is formed.MDC is used as solvent. Product is crystallized in Methanol. Finally product is purified with Acetone.

Stage-9

When 2-Chloromethyl-3, 4-dimethoxy-pyridine Hydrochloride reacts with 5-diFluoro methoxy-2-mercapto-benzimidazole, in presence of Sodium hydroxide, product is formed. Methylene dichloride is the solvent.

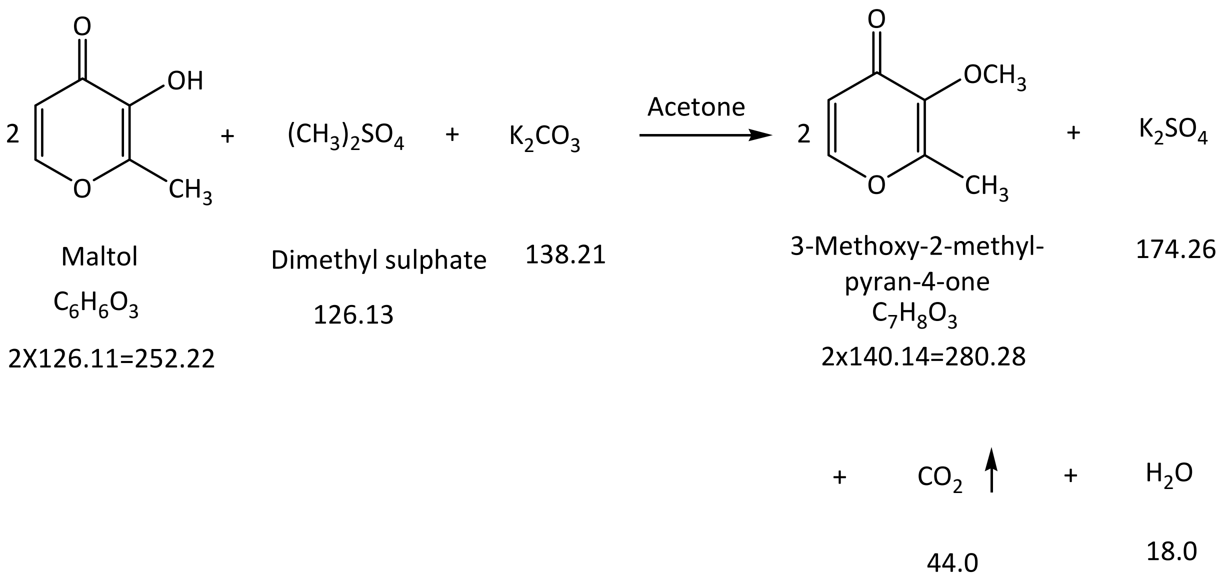
Stage-10

Stage-9 is treated with Sodium hypochlorite in presence of Sodium hydroxide, to produce the Pantoprazole sodium .This is purified in Acetone. Methylene dichloride is used as solvent.

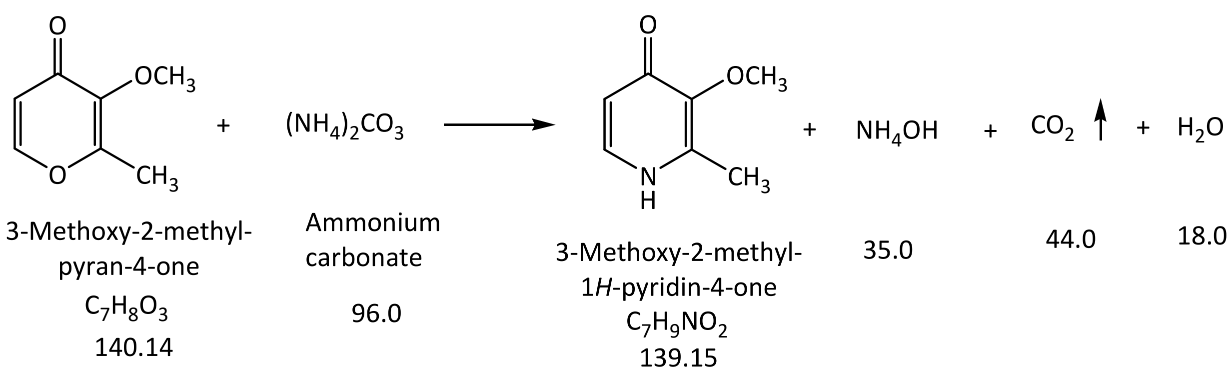
PANTOPRAZOLE SODIUM

Route of Synthesis:

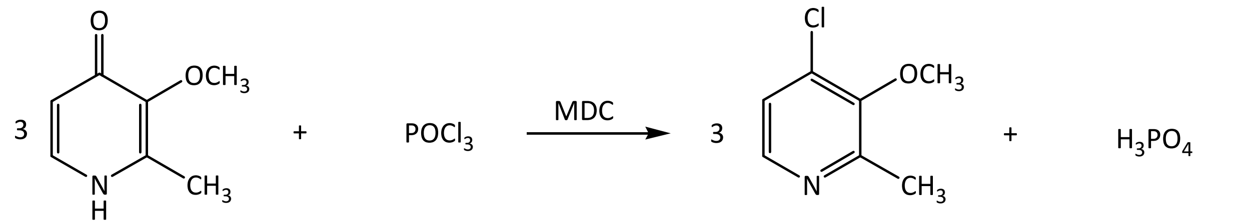
Stage-1:



Stage-2:



Stage-3:



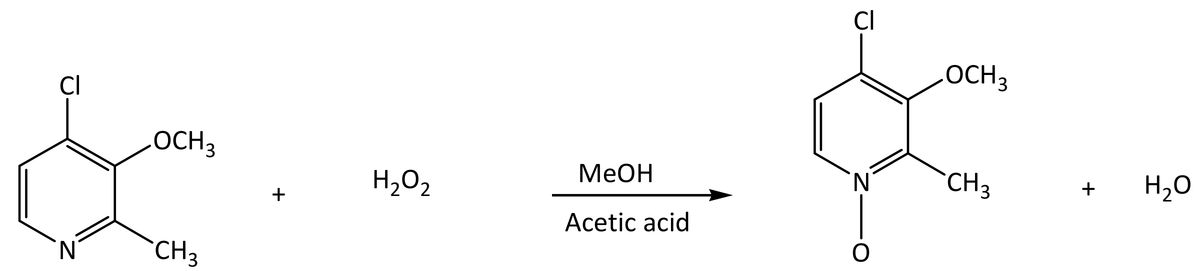
3-Methoxy-2-methyl-1*H*-pyridin-4-one
$C_7H_9NO_2$
3X139.15=417.45

Phosphorous oxychloride
153.33

4-Chloro-3-methoxy-2-methyl-pyridine
C_7H_8ClNO
3X157.60=472.8

Phosphoric Acid
98.0

Stage-4:



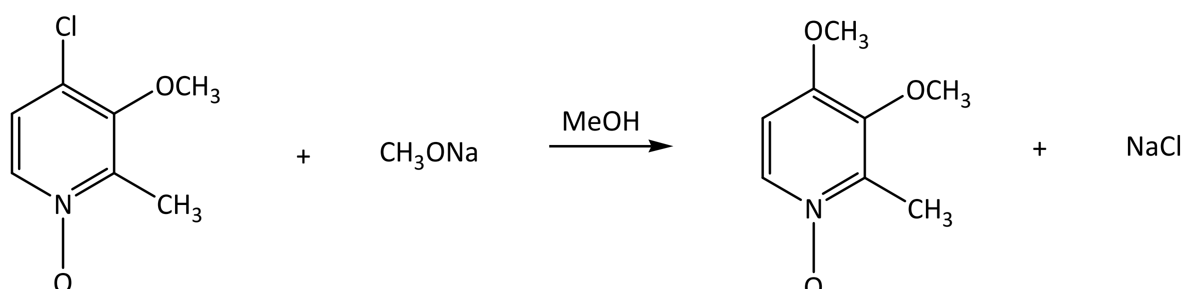
4-Chloro-3-methoxy-2-methyl-pyridine
C_7H_8ClNO
157.60

Hydrogen peroxide
34.01

3-methoxy-2-methyl-4-chloro pyridine-N-oxide
C_7H_8ClNO
173.60

18.0

Stage-5:



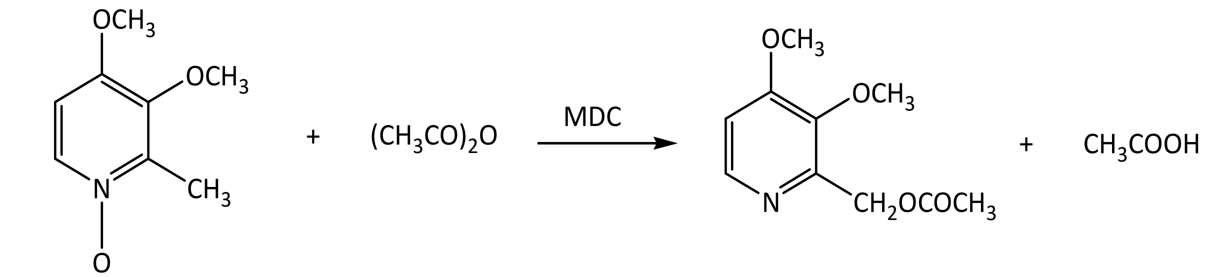
3,4-Dimethoxy-2-methyl pyridine-N-oxide
C_7H_8ClNO
173.60

54.02

3,4-Dimethoxy-2-methyl pyridine-N-oxide
$C_8H_{11}NO_3$
169.18

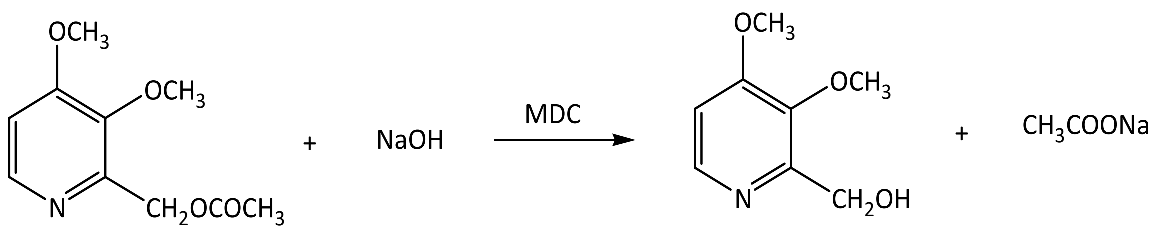
58.5

Stage-6:



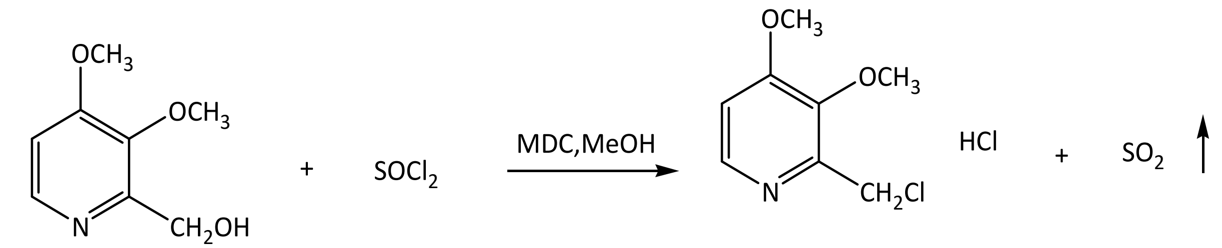
3,4-Dimethoxy-2-methyl pyridine-N-oxide	Acetic anhydride	Acetic acid 3,4-dimethoxy-pyridin-2-ylmethyl ester	Acetic acid
$C_8H_{11}NO_3$		$C_{10}H_{13}NO_4$	
169.18	102.09	211.21	60.0

Stage-7



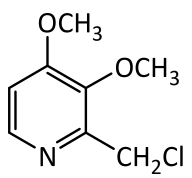
Acetic acid 3,4-dimethoxy-pyridin-2-ylmethyl ester		(3,4-Dimethoxy-pyridin-2-yl)-methanol	Sodium acetate
$C_{10}H_{13}NO_4$		$C_8H_{11}NO_3$	
211.21	40.0	169.18	82.03

Stage-8:

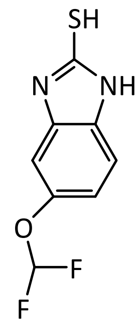


(3,4-Dimethoxy-pyridin-2-yl)-methanol	Thionyl chloride	2-Chloromethyl-3,4-dimethoxy-pyridine Hydrochloride	Sulphur dioxide
$C_8H_{11}NO_3$		$C_8H_{11}Cl_2NO_2$	
169.18	118.97	224.12	64.0

Stage-9:



HCl +



+ 2 NH_4OH $\xrightarrow{\text{MDC}}$

2-Chloromethyl-3,4-dimethoxy-pyridine Hydrochloride

$C_8H_{10}ClNO_2.HCl$

224.12

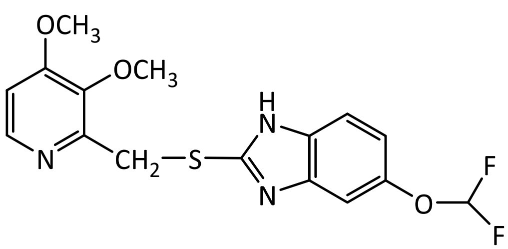
5-Difluoromethoxy-2-mercaptobenzimidazole

$C_8H_6F_2N_2OS$

216.21

Ammonium hydroxide

2X35.04=70.08



+ 2 NH_4Cl + 2 H_2O

5-Difluoromethoxy-2-(3,4-dimethoxy-pyridin-2-ylmethylsulfanyl)-1*H*-benzoimidazole

$C_{16}H_{15}F_2N_3O_3S$

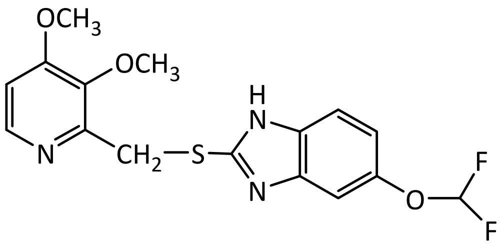
367.37

Ammonium chloride

106.98

2x18.0=36

Stage-10:



5-Difluoromethoxy-2-(3,4-dimethoxy-pyridin-2-ylmethylsulfanyl)-1*H*-benzoimidazole

$C_{16}H_{15}F_2N_3O_3S$

367.37

\+ NaOCl

Sodium hypochlorite

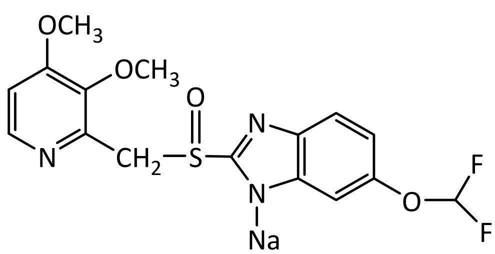
74.44

\+ NaOH

Sodium hydroxide

40.0

$\xrightarrow[\text{Acetone}]{\text{MDC}}$



Pantoprazole sodium

$C_{16}H_{14}F_2N_3NaO_4S$

405.35

\+ NaCl

Sodium chloride

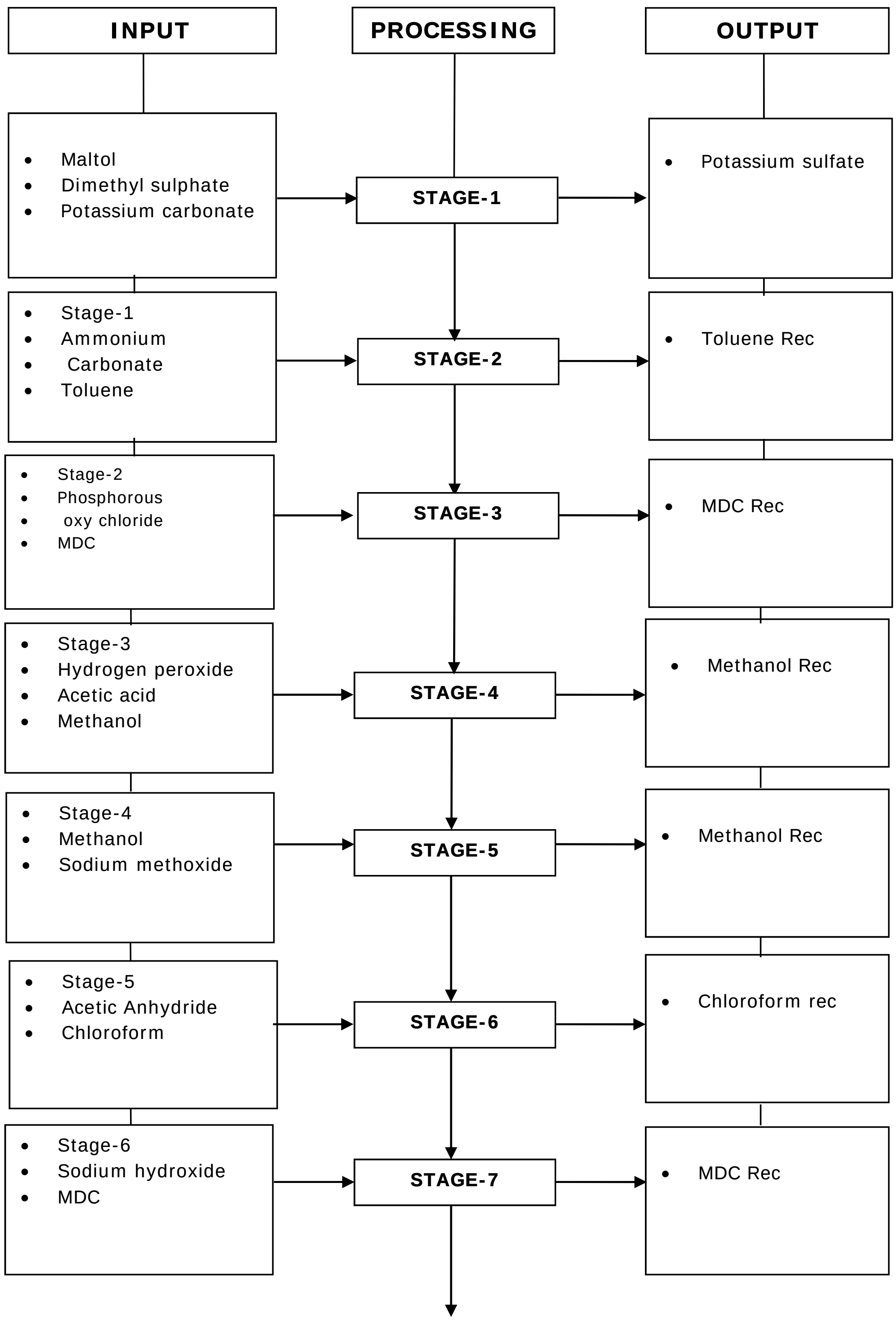
58.5

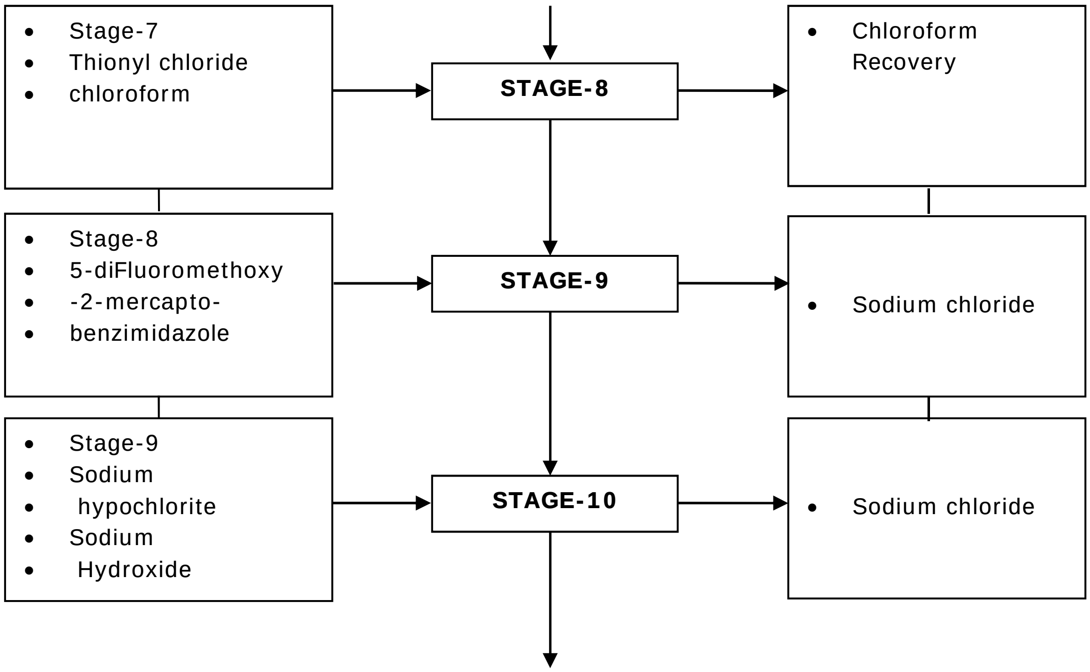
\+ H_2O

18.0

PANTOPRAZOLE SODIUM

Flow Chart:


INPUT
PROCESSING
OUTPUT
Maltol
Dimethyl sulphate
Potassium carbonate
STAGE-1
Potassium sulfate
Stage-1
Ammonium
Carbonate
Toluene
STAGE-2
Toluene Rec
Stage-2
Phosphorous
oxy chloride
MDC
STAGE-3
MDC Rec
Stage-3
Hydrogen peroxide
Acetic acid
Methanol
STAGE-4
Methanol Rec
Stage-4
Methanol
Sodium methoxide
STAGE-5
Methanol Rec
Stage-5
Acetic Anhydride
Chloroform
STAGE-6
Chloroform rec
Stage-6
Sodium hydroxide
MDC
STAGE-7
MDC Rec



PANTOPRAZOLE SODIUM

Material Balance:

MATERIAL BALANCE OF PANTOPRAZOLE SODIUM STAGE-1 BATCH SIZE: 200.0 KGS			
INPUT		**OUTPUT**	
NAME OF THE INPUT	**QUANTITY IN KGS**	**NAME OF THE OUTPUT**	**QUANTITY IN KGS**
Maltol	66.00	Stage-1	73.00
Dimethyl sulphate	33.00	Acetone Recovery	378.00
Potassium carbonate	36.00	Acetone Loss	20.00
Acetone	400.00	Generated water	4.70
		Process Emission	11.46
		(Carbon dioxide)	
		By-Product	45.60
		(Potassium Sulphate)	
		Organic Residue	2.24
		(Organic Impurities-0.24, Acetone-2)	
Total	**535.00**	**Total**	**535.00**

MATERIAL BALANCE OF PANTOPRAZOLE SODIUM STAGE-2 BATCH SIZE: 200.0 KGS			
INPUT		**OUTPUT**	
NAME OF THE INPUT	**QUANTITY IN KGS**	**NAME OF THE OUTPUT**	**QUANTITY IN KGS**
Stage-1	73.00	Stage-2	72.00
Ammonium Carbonate	50.00	Toluene Recovery	280.00
Toluene	300.00	Toluene Loss	15.00
Water	600.00	Effluent Water	629.57
		(Water-600,Ammonium hydroxide-18.2 ,Generated water-9.37,Toluene-2)	0
		Organic Residue	3.53
		(Organic Impurities-0.53, Toluene-3)	0
		Process Emission	22.90
		(Carbon dioxide)	
Total	**1023.00**	**Total**	**1023.00**

MATERIAL BALANCE OF PANTOPRAZOLE SODIUM STAGE-3 BATCH SIZE: 200.0 KGS

INPUT		OUTPUT	
NAME OF THE INPUT	**QUANTITY IN KGS**	**NAME OF THE OUTPUT**	**QUANTITY IN KGS**
Stage-2	72.00	Stage-3	79.00
Phosphorous oxy chloride	26.00	MDC Recovery	285.00
Ammonia	9.00	MDC Loss	15.00
Methylenedichloride	300.00	Effluent Water	600.00
Water	600.00	(Water-600)	0
		By-Product	26.30
		(Ammonium phosphate)	0
		Organic Residue	1.70
Total	**1007.00**	**Total**	**1007.00**

MATERIAL BALANCE OF PANTOPRAZOLE SODIUM STAGE-4 BATCH SIZE: 200.0 KGS			
INPUT		**OUTPUT**	
NAME OF THE INPUT	**QUANTITY IN KGS**	**NAME OF THE OUTPUT**	**QUANTITY IN KGS**
Stage-3	79.00	Stage-4	87.00
Hydrogen peroxide	17.00	MDC Recovery	668.00
Acetic acid	30.00	MDC Loss	30.00
Methanol	250.00	Methanol Recovery	233.00
Sodium Hydroxide	20.00	Methanol Loss	12.50
MDC	700.00	Effluent Water	419.50
Water	400.00	(Water-400, Generated water-17, Methanol-2.5)	
		By-Product	41.00
		(Sodium acetate)	
		Organic Solid Waste	5.00
		(Organic Impurities-1,MDC-2,Methanol-2)	
Total	**1496.00**	**Total**	**1496.00**

MATERIAL BALANCE OF PANTOPRAZOLE SODIUM STAGE-5 BATCH SIZE: 200.0 KGS	
INPUT	**OUTPUT**

NAME OF THE INPUT	QUANTITY IN KGS	NAME OF THE OUTPUT	QUANTITY IN KGS
Stage-4	87.00	Stage-5	85.00
Methanol	500.00	Methanol Recovery	460.00
Sodium methoxide	27.00	Methanol Loss	20.00
Acetic Acid	10.00	Effluent Water	642.20
Water	600.00	(Water-600, Sodium Chloride-29.2,Methanol-3,Acetic acid-10)	0
		Organic Residue	16.8
		Process residue-4.8 Methanol-12	
Total	**1224.00**	**Total**	**1224.00**

MATERIAL BALANCE OF PANTOPRAZOLE SODIUM STAGE-6 BATCH SIZE: 200.0 KGS			
INPUT		**OUTPUT**	
NAME OF THE INPUT	**QUANTITY IN KGS**	**NAME OF THE OUTPUT**	**QUANTITY IN KGS**
Stage-5	85.00	Stage-6	106.00
Acetic Anhydride	172.00	Chloroform Recovery	190.00
Chloroform	200.00	Chloroform Loss	10.00
Water	400.00	Acetic acid Recovery	101.00
		Effluent Water	400.00
		(Water-400)	0
		Organic Residue	50.00
Total	**857.00**	**Total**	**857.00**

MATERIAL BALANCE OF PANTOPRAZOLE SODIUM STAGE-7 BATCH SIZE: 200.0 KGS			
INPUT		**OUTPUT**	
NAME OF THE INPUT	**QUANTITY IN KGS**	**NAME OF THE OUTPUT**	**QUANTITY IN KGS**
Stage-6	106.00	Stage-7	85.00
MDC	200.00	MDC Recovery	190.00
Sodium hydroxide	20.00	MDC Loss	10.00
Water	200.00	Effluent Water	200.00
		(Water-200)	
		By-Product	41.00
		(Sodium acetate)	
Total	**526.00**	**Total**	**526.00**

MATERIAL BALANCE OF PANTOPRAZOLE SODIUM STAGE-8 BATCH SIZE: 200.0 KGS

INPUT		OUTPUT	
NAME OF THE INPUT	**QUANTITY IN KGS**	**NAME OF THE OUTPUT**	**QUANTITY IN KGS**
Stage-7	85.00	Stage-8 (Chloro compound)	112.00
Thionyl chloride	60.00	Chloroform Recovery	810.00
Chloroform	850.00	Chloroform Loss	40.00
Methanol	125.00	Methanol Recovery	99.00
Acetone	200.00	Methanol Loss	25.00
		Acetone Recovery	189.00
		Acetone Loss	10.00
		Process Emission	32.00
		(Sulphur Dioxide)	
		Organic Residue	3.00
		(Organic Impurities-1, Methanol-1,Acetone-1)	
Total	**1320.00**	**Total**	**1320.00**

MATERIAL BALANCE OF PANTOPRAZOLE SODIUM STAGE-9 BATCH SIZE: 200.0 KGS			
INPUT		**OUTPUT**	
NAME OF THE INPUT	**QUANTITY IN KGS**	**NAME OF THE OUTPUT**	**QUANTITY IN KGS**
Stage-8	112.00	Stage-9	183.00
5-diFluoromethoxy-2-mercapto-Benzimidazole	108.00	Toluene Recovery	472.00
Ammonium hydroxide	35.50	Toluene Loss	25.00
Toluene	500.00	Effluent Water	619.50
Water	600.00	(Water-600, gen.Water-18, Toluene-1.5)	0
		B-Product	54.19
		(Ammonium chloride)	0
		Organic Residue	1.81
		(Organic Impurities-0.31, Toluene-1.5)	
Total	**1355.50**	**Total**	**1355.50**

MATERIAL BALANCE OF PANTOPRAZOLE SODIUM STAGE-10 BATCH SIZE: 200.0 KGS

INPUT		OUTPUT	
NAME OF THE INPUT	**QUANTITY IN KGS**	**NAME OF THE OUTPUT**	**QUANTITY IN KGS**
Stage-8	183.00	Pantoprazole Sodium	200.00
Sodium hypochlorite	37.00	MDC Recovery	950.00
Sodium Hydroxide flakes	20.00	MDC Loss	50.00
Ammonium Chloride	25.00	Acetone Recovery	378.00
Methylene dichloride	1000.00	Acetone Loss	20.00
Activated Carbon	10.00	Effluent Water	465.00
Acetone	400.00	(Water-400,gen.water-9, Sodium chloride-29, Aluminum chloride-25, Acetone-2)	0
Water	400.00	Spent carbon	10.00
		Organic Residue	2.00
Total	**2075.00**	**Total**	**2075.00**

20. PIRACTONE OLAMINE

Process Description:

Stage-1

3, 3-Dimethyl acrylic acid undergoes Condensation with Methanol to give Stage-1 compound in presence PTSA.

Stage-2

Stage-1 compound and 3, 5, 5 tri methyl hexanoyl chloride undergoes friedel craft reaction in presence of anhydride Aluminum tri chloride and EDC at cooling to give Stage-2 compound

Stage-3

Stage-2 compound Cyclised with Sodium methoxide in Methanol at cooling to give Stage-3 compound.

Stage-4

Stage-3 compound reacts with hydroxylamine hydrochloride and sodium carbonate in presence of Ethyl acetate to give Stage-4 compound

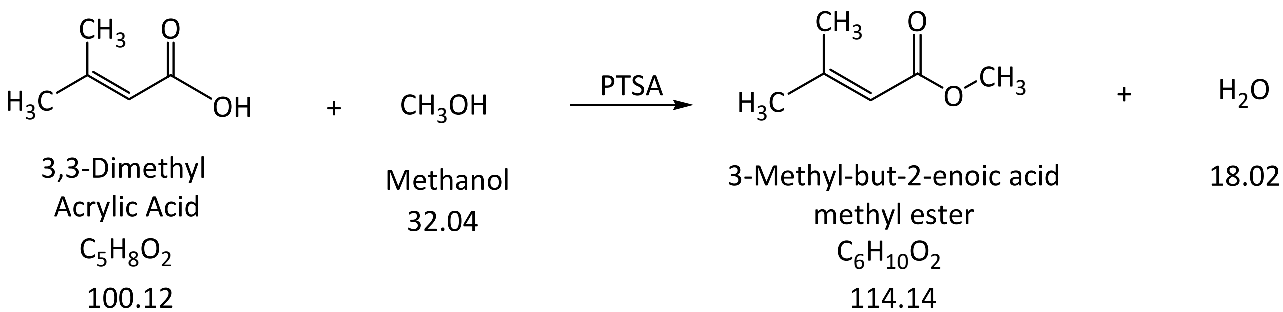
Stage-5

Stage-4 compound reacts with mono ethanol amine in presence of Ethyl acetate to give Piroctone Olamine.

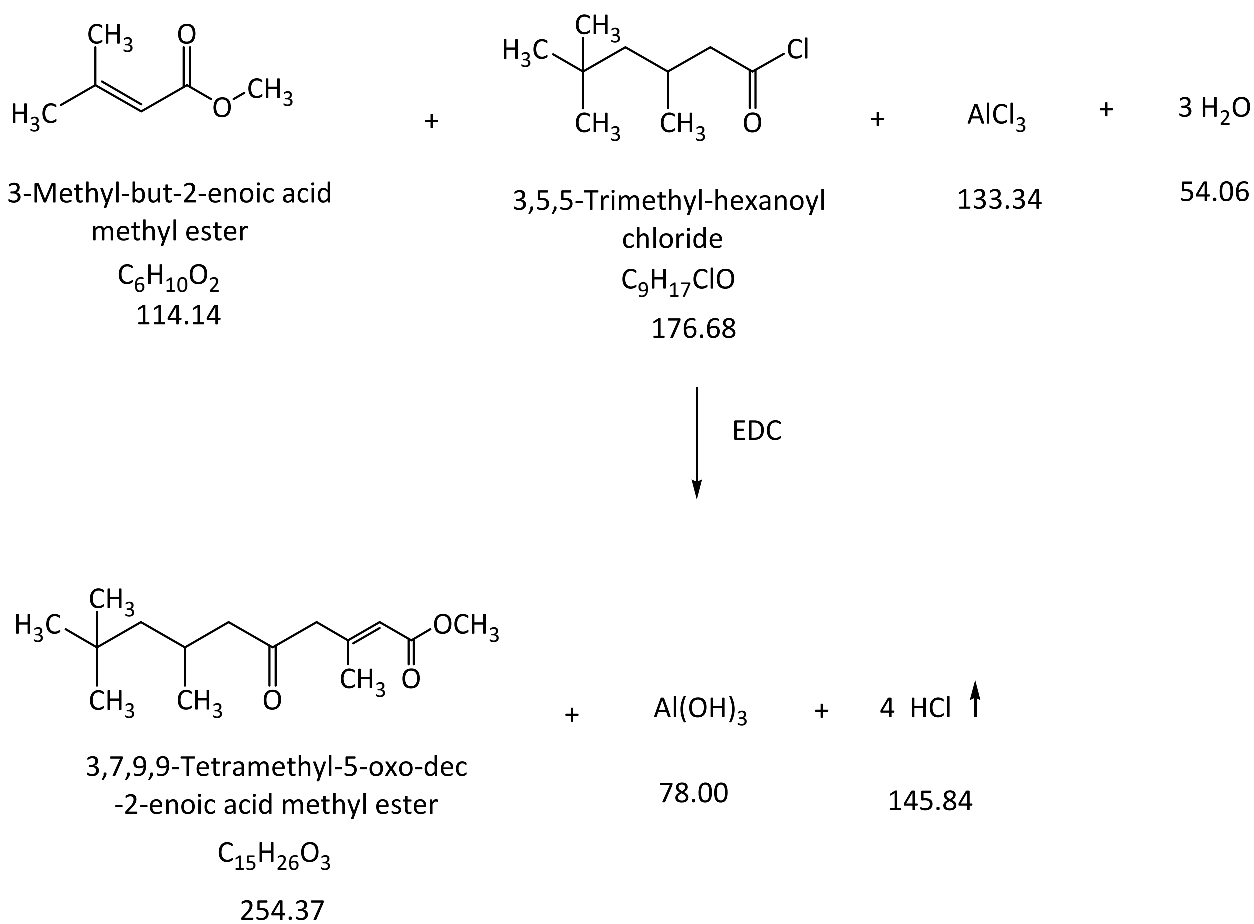
PIRACTONE OLAMINE

Route of synthesis:

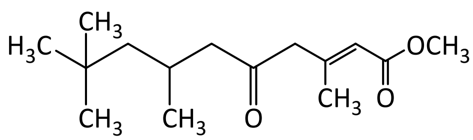
Stage-1



Stage-2



Stage-3

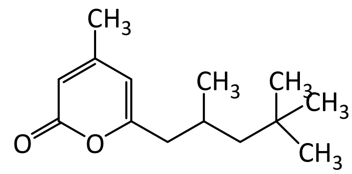


3,7,9,9-Tetramethyl-5-oxo-dec
-2-enoic acid methyl ester

$C_{15}H_{26}O_3$

254.37

$\xrightarrow{\text{Sodium Methoxide}}$



4-Methyl-6-(2,4,4-trimethyl
-pentyl)-pyran-2-one

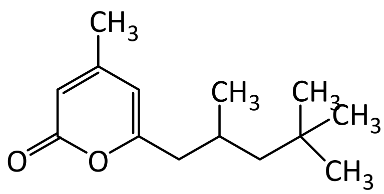
$C_{14}H_{22}O_2$

222.32

\+ CH_3OH

32.04

Stage-4



4-Methyl-6-(2,4,4-trimethyl
-pentyl)-pyran-2-one

$C_{14}H_{22}O_2$

222.32

\+ NH_4OCl

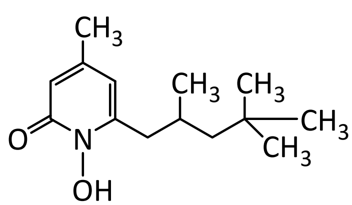
Hydroxylamine
hydrochloride

69.49

\+ $NaHCO_3$

84.01

$\xrightarrow{\text{Ethyl acetate, Toluene}}$



1-Hydroxy-4-methyl-6-
(2,4,4-trimethyl-pentyl)-
1*H*-pyridin-2-one

$C_{14}H_{23}NO_2$

237.34

\+ NaCl

58.44

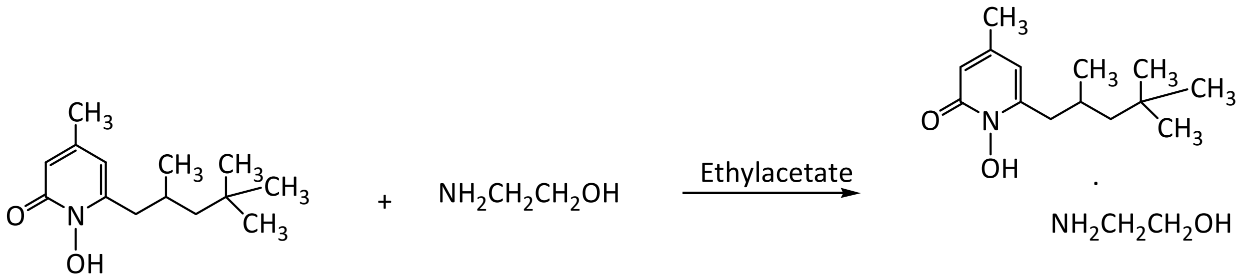
\+ $CO_2\uparrow$

44.01

\+ 2 H_2O

36.0

Stage-5



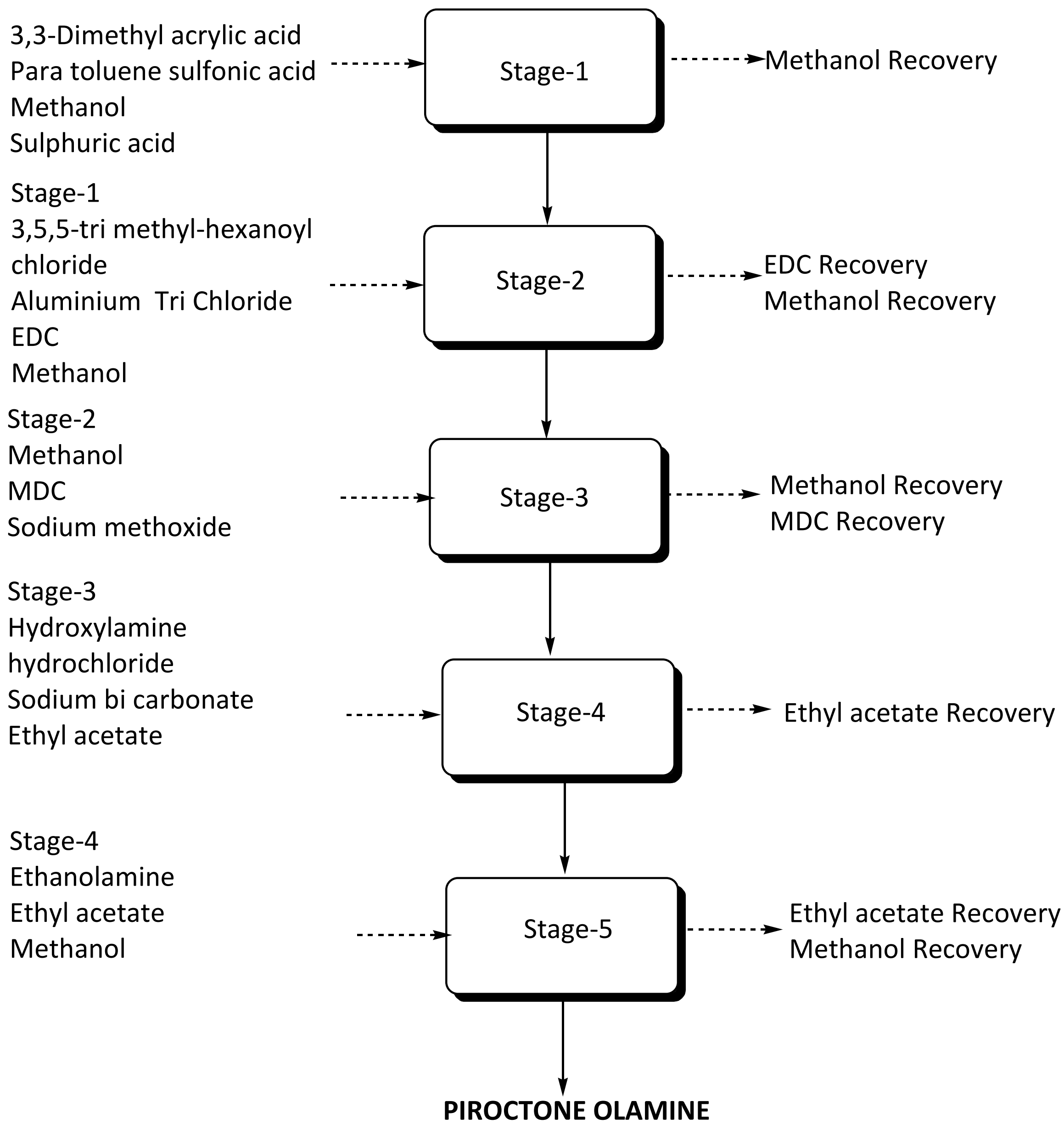
1-Hydroxy-4-methyl-6-(2,4,4-trimethyl-pentyl)-1*H*-pyridin-2-one
$C_{14}H_{23}NO_2$
237.34

Ethanolamine
61.08

Piractone Olamine
$C_{16}H_{30}N_2O_3$
298.42

PIROCTONE OLAMINE

Flow Chart



PIROCTONE OLAMINE

Material Balance

Material Balance of Piroctone Olamine Stage-1 Batch Size: 200.00Kgs				
Name of the input	Quantity in Kg		Name of the out put	Quantity in Kg
3,3-Dimethyl acrylic acid	85.00		Stage-1	78.00
Para toluene sulfonic acid	20.00		Methanol Recovery	438.00
Methanol	500.00		Methanol loss	24.00
Sodium sulphate	5.00		Effluent water	540.30
Water	500.00		(water-500,Generated water-15.3, Para toluene sulfonic acid-20,Methanol-5)	
			Inorganic solid waste	5.00
			(Sodium sulphate)	
			Organic Residue	24.70
			(Organic Impurities-19.2, Methanol-5.5)	
Total	1110.00		Total	1110.00

Material Balance of Piroctone Olamine Stage-2 Batch Size: 200.00Kgs				
Name of the input	Quantity in Kg		Name of the out put	Quantity in Kg
Stage-1	78.00		Stage-2	172.00
3,5,5-tri methyl-hexanoyl chloride	121.00		EDC Recovery	950.00
Aluminium Tri Chloride	93.00		EDC Loss	50.00
EDC	1000.00		Methanol Recovery	475.00
Methanol	500.00		Methanol Loss	25.00
Sodium sulphate	7.00		By-Product	1750.00
Water	1730.00		(Aluminium hydroxide solution)	
			Process Emissions	100.00
			(Hydrogen chloride-100)	
			Inorganic solid waste	7.00
			(Sodium sulphate)	
Total	3529.00		Total	3529.00

Material Balance of Piroctone Olamine Stage-3 Batch Size: 200.00Kgs				
Name of the input	Quantity in Kg		Name of the out put	Quantity in Kg
Stage-2	172.00		Stage-3	150.00
Methanol	1000.00		Methanol Recovery	945.00
Sodium methoxide	25.00		Methanol Loss	50.00
Sodium sulphate	2.00		Effluent Water	796.70
Water	750.00		(Water-750,Methanol-21.7, Sodium methoxide-25)	
			Inorganic solid waste	2.00
			(Sodium sulphate)	
			Organic residue	5.30
			(Organic impurities-0.3,Methanol-5)	
Total	1949.00		Total	1949.00

Material Balance of Piroctone Olamine Stage-4 Batch Size: 200.00Kgs				
Name of the input	Quantity in Kg		Name of the out put	Quantity in Kg
Stage-3	150.00		Stage-4	160.00
Hydroxylamine hydrochloride	47.00		Ethyl acetate Recovery	470.00
Sodium bi carbonate	57.00		Ethyl acetate Loss	20.00
Ethyl acetate	500.00		Effluent Water	565.80
Sodium sulphate	3.00		(water-500,Generated water-24.3, Sodium chloride-39.5)	
Water	500.00		Process emission	29.70
			(Carbon dioxide)	
			Inorganic solid waste	3.00
			(Sodium sulphate)	
			Organic Residue	10.50
			(Organic Impurities-0.5,Ethyl acetate-10)	
Total	2057.00		Total	2057.00

Material Balance of Piroctone Olamine Stage-5 Batch Size: 200.00Kgs				
Name of the input	Quantity in Kg		Name of the out put	Quantity in Kg
Stage-4	160.00		Piractone Olamine	200.00
Ethanolamine	45.00		Ethyl acetate Recovery	470.00
Ethyl acetate	500.00		Ethyl acetate loss	25.00
Methanol	1000.00		Methanol Recovery	940.00
Activated carbon	5.00		Methanol loss	50.00
Sodium sulphate	3.00		Effluent water	505.00
Water	500.00		(Water-500,Methanol-5)	
			Spent carbon	5.00
			Inorganic solid waste	3.00
			(Sodium sulphate)	
			Organic Residue	15.00
			(Organic Impurities-5,Ethyl acetate-5,Methanol-5)	
Total	2213.00		Total	2213.00

21. RAMIPRIL

Process description:

Stage-1

2-(1-carboxy-ethylamino)-4-phenyl-butyric acid ethyl ester undergoes condensation with (cis, endo)-octahydro-cyclopenta[b]pyrrole-2(s)-carboxylic acid to give Stage-1 compound in presence of Ethyl acetate and Triethylamine.

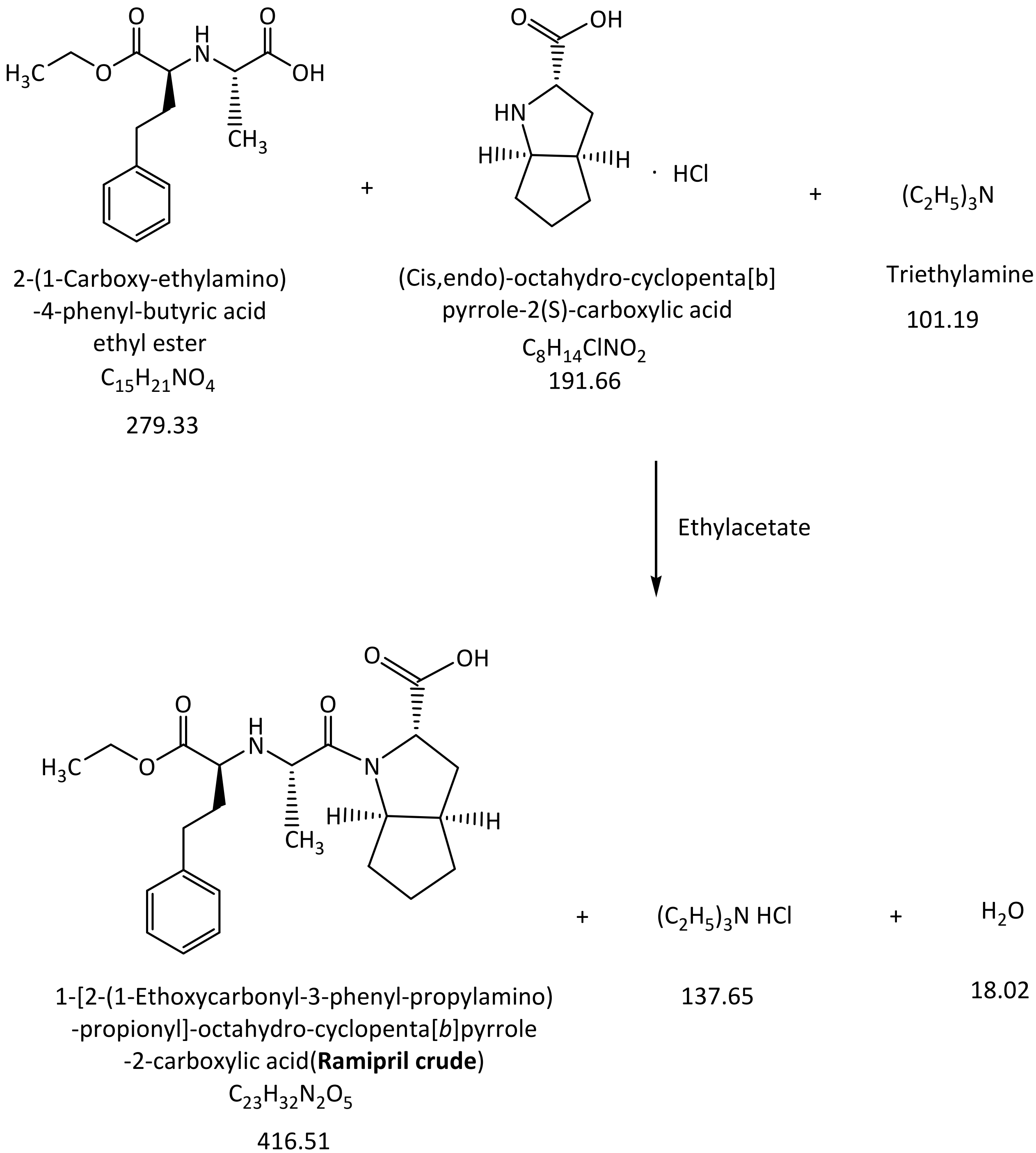
Stage-2

Stage-1 compound Purification with Ethanol to give Ramipril

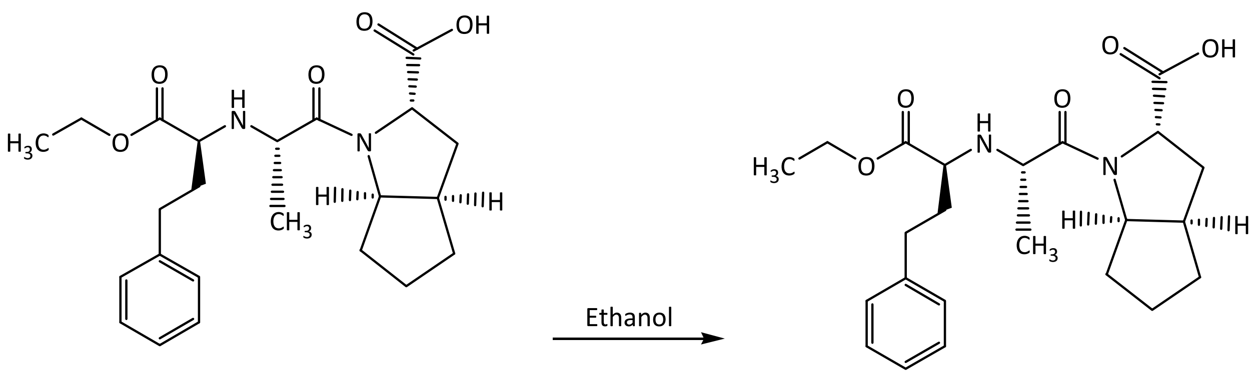
RAMIPRIL

Route of synthesis:

Stage-1



Stage-2

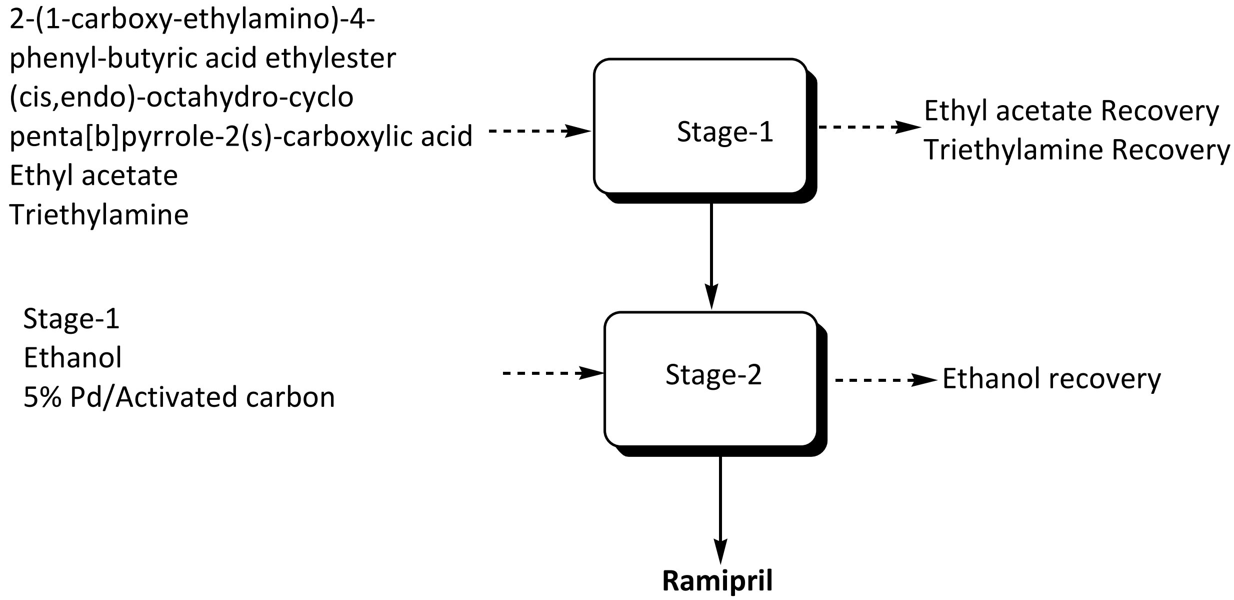


1-[2-(1-Ethoxycarbonyl-3-phenyl-propylamino)
-propionyl]-octahydro-cyclopenta[*b*]pyrrole
-2-carboxylic acid(**Ramipril crude**)
$C_{23}H_{32}N_2O_5$
416.51

1-[2-(1-Ethoxycarbonyl-3-phenyl-propylamino)
-propionyl]-octahydro-cyclopenta[*b*]pyrrole
-2-carboxylic acid(**Ramipril pure**)
$C_{23}H_{32}N_2O_5$
416.51

RAMIPRIL

Flow chart:



RAMIPRIL

Material Balance

Material balance of Ramipril Stage-1 Batch Size: 500.00Kg				
Name of the input	Quantity in Kg		Name of the out put	Quantity In Kg
2-(1-carboxy-ethylamino)-4-phenyl-butyric acid ethylester	343.00		Stage-1	510.00
(cis,endo)-octahydro-cyclopenta[b]pyrrole-2(s)-carboxylic acid hydrochloride	236.00		By-Product	645.00
Ethyl acetate	600.00		(Triethyl amine Hydrochloride)	
Triethylamine	600.00		Ethyl acetate Recovery	570.00
Water	100.00		Ethyl acetate Loss	30.00
			Effluent water	122.15
			(water-100,Generated water-22.13)	
			Organic residue	1.85
Total	1879.00		Total	1879.00

Material balance of Ramipril Stage-2 Batch Size: 500.00Kg				
Name of the input	Quantity in Kg		Name of the out put	Quantity In Kg
Stage-1	510.00		Ramipril (Pure)	500.00
Ethanol	650.00		Ethanol recovery	618.00
5% Pd/Activated carbon	10.00		Ethanol loss	32.00
Water	50.00		Effluent water	50.00
			(Water-50)	
			Spent 5% Pd/Activated carbon	10.00
			Organic residue	10.00
Total	1220.00		Total	1220.00

22. RISPERIDONE

Process Description:

Stage-1

3-(2-chloroethyl)-2-Methyl-6,7,8,9-tetrahydro-4H-pyridol[1,2]pyrimidin-4-one hydrochloride reacts with 6-Fluoro-3-(4-piperidinyl)-1,2-benzisoxazole in the presence of Sodium bicarbonate and MIBK as a solvent media to give stage-1 as product.

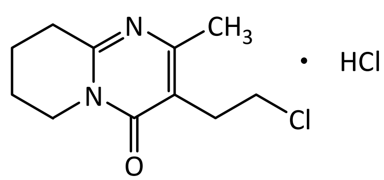
Stage-2

Stage -1 undergoes purification in the presence of IPA as a solvent media to give Risperidone as product.

RISPERIDONE

Route of synthesis:

Stage-1:

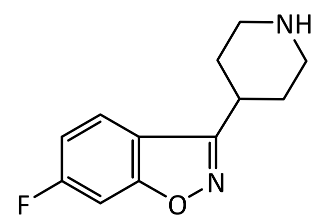


3-(2-chloroethyl)-6,7,8,9-tetrahydro-2-methylpyrido[1,2-a]pyrimidin-4-one hydrochloride

$C_{11}H_{16}Cl_2N_2O$

263.16

\+

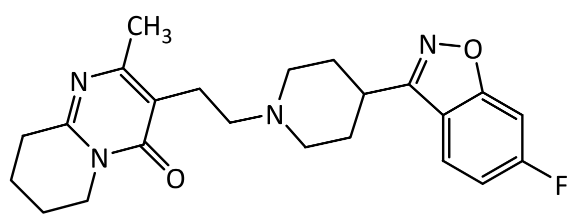


6-Fluoro-3-(4-piperidinyl) -1,2 benzisoxazole

$C_{12}H_{13}FN_2O$

220.24

$\xrightarrow{\text{MIBK}}$



3-[2-[4-(6-fluoro-1,2-benzisoxazol-3-yl)piperidin-1-yl]-2-methyl-6,7,8,9-tetrahydro-4H-pyrido-[1,2-a]pyrimidin-4-one

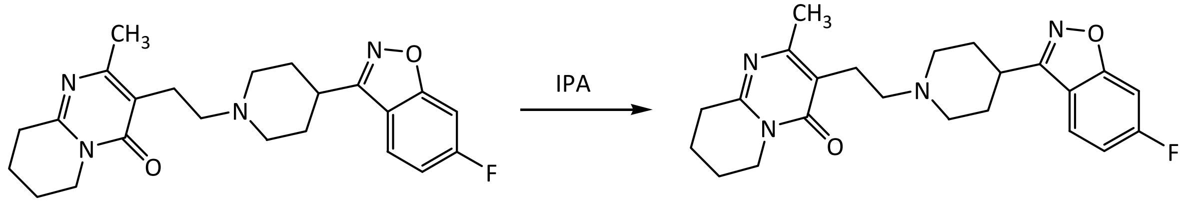
$C_{23}H_{27}FN_4O_2$

410.48

\+ 2 HCl

2X36.5=73.0

Stage-2:



Risperidone crude

$C_{23}H_{27}FN_4O_2$

410.48

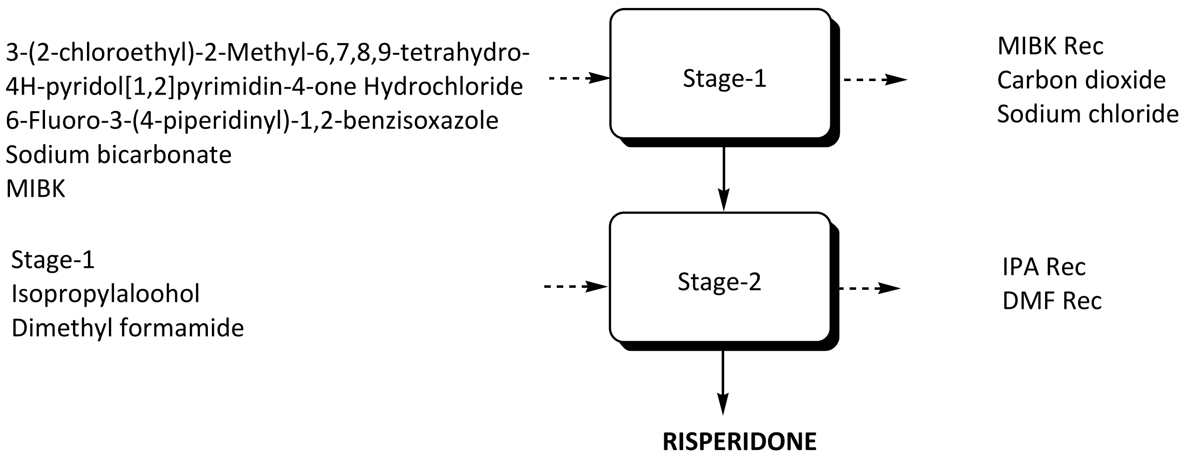
Risperidone Pure

$C_{23}H_{27}FN_4O_2$

410.48

RISPERIDONE

Flow Chart:



RISPERIDONE

Material Balance:

Material Balance of Risperidone Stage-1 Batch Size: 500Kgs				
Name of the input	Quantity in Kg		Name of the out put	Quantity in Kg
6-Fluoro-3-(4-piperidinyl)-1,2-benzisoxazole Hydrochloride	260.00		Stage-1	503.00
3-(2-Chloroethyl)-2-=Methyl-6,7,8,9-Tetrahydro-4H-pyrido [1,2-α]Pyrimidin-4-one HCl	315.12		MIBK Recovery	285.00
Potassium iodide	2.00		MIBK Loss	15.00
Methyl Isobutyl ketone	300.00		Effluent water	111.00
Sodium hydroxide	9.00		(Water-100 Sodium hydroxide-9,Potassium iodide-2)	
Water	100.00		Process Emission	72.12
			(Hydrogen chloride-72.12)	
Total	986.12		Total	986.12

Material Balance of Risperidone Stage-2 Batch Size: 500 Kgs				
Name of the input	Quantity in Kg		Name of the out put	Quantity in Kg
Stage-1	503.00		Risperidone (pure)	500.00
Isopropyl alcohol	500.00		IPA Recovery	472.00
DMF	25.00		IPA Loss	25.00
Activated carbon	5.00		DMF Recovery	22.00
Hyflow	5.00		DMF Loss	2.00
			Organic Residue	7.00
			(Organic impurities-3,IPA-3,DMF-1)	
			Spent carbon & hyflow	10.00
Total	1038.00		Total	1038.00

23. SACUBITRIL

Process Description

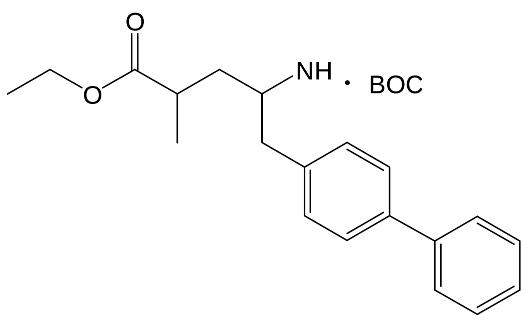
Stage-1

Tris(4-methoxyphenyl)borane ammonia complex reacts with Hydrochloric acid in presence of Acetone and Toluene to given Stage-1 products.

Stage-2

Stage-1 products reacts with Furan-2,5-dione in presence of Toluene and Methanol to give Sacubitril.

Stage-1

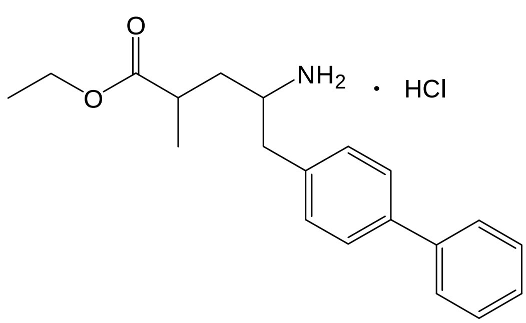


\+ 2HCl $\xrightarrow[\text{Acetone}]{\text{Toluene}}$

Tris(4-methoxyphenyl)borane ammonia complex

$C_{21}H_{24}BNO_3^{\bullet}$
349.23

72.92



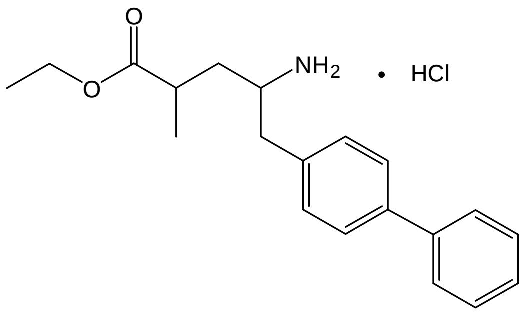
\+ BOC. Cl

4-Amino-5-biphenyl-4-yl-2-methyl-
pentanoic acid ethyl ester

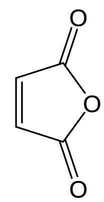
$C_{20}H_{26}ClNO_2^{\bullet}$
347.88

74.27

Stage-2



+



+ $NaHCO_3$ $\xrightarrow[\text{Methanol}]{\text{Toluene}}$

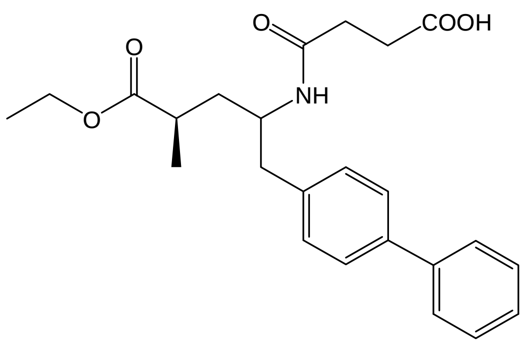
4-Amino-5-biphenyl-4-yl-2-methyl-
pentanoic acid ethyl ester

$C_{20}H_{26}ClNO_2$•
Mol. Wt.: 347.88

Furan-2,5-dione

$C_4H_2O_3$
98.06

84.01



+ NaOCl + CO_2 ↑

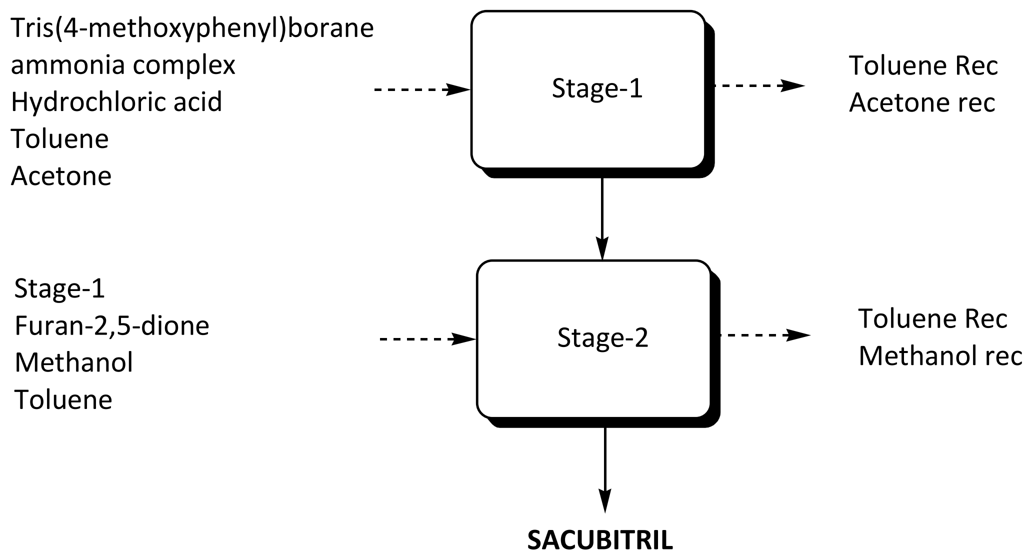
4-(4-decan-2-yloxy-3-nitrophenyl)-
3-methylbenzoate

$C_{24}H_{30}NO_5$
412.50

74.44

44.01

Flow Chart



Material Balance:

Material Balance of Sacubitril Stage-1 Batch Size: 100.0 Kg				
Name of the input	Quantity in Kg		Name of the out put	Quantity in Kg
Tris(4-methoxyphenyl)borane	98		Stage-1	90
Hydrochoric acid	73		Toluene Recovery	290
Toluene	300		Toluene Loss	5
			Acetone recovery	380
			Acetone loss	10
Acetone	400		Effluent water	300
Water	300		(Water-300)	
			Organic residue	96
			Process residue-60, Toluene-5, Acetone-10, Boc.CI-21,	
Total	1171		Total	1171

Material Balance of Sacubitril Stage-2 Batch Size: 100.0 Kg			
Name of the input	Quantity in Kg	Name of the out put	Quantity in Kg
Stage-1	90	Sacubitril	100
Furan-2,5-dione	26	Toluene Recovery	380
Toluene	400	Toluene Loss	10
Methanol	400	Methanol recovery	380
Sodium bicarbonate	22	Methanol loss	10
Acetone	0	Effluent water	319
Water	300	(Water-300, Sodium hypochlorite-19)	0
		Process emission Carbon dioxide	11
		Organic residue	28
		Process residue-8, Toluene-10, Methanol-10,	
Total	1238	Total	1238

24. SPARFLOXACIN

The Pharma is produced in five stages.

Stage-1

Pentafluorobenzoic acid, Thionylchloride, Diethylmalonate, Sodium Hydroxide and Magnesium react together to produce stage-1 compound. Toluene is the solvent. Inorganic salts are removed by water wash. Finally product is purified with Ethanol.

Stage-2

Above product on reaction with Triethyloxoformamide, Cyclopropylamine and Potassium caronate produces, stage-2 compound. Ethanol is the solvent used. Inorganic salts are removed by water wash.

Stage-3

This stage compound is obtained upon reaction between above stage, Benzyl amine and Potassium carbonate in Toluene solvent medium. Product is purified by removing of inorganic salts with water wash.

Stage-4

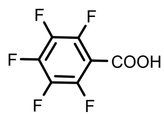
This stage compound is produced by the reaction between above stage and Hydrogen in Ethanol solvent medium.

Stage-5: Pharma

Stage-4 is converted to Pharma by the reaction between above stage and Dimethylpiperazine in presence of Potassium Hydroxide. Ethanol is the solvent used in the process. Pharma is purified with water wash.

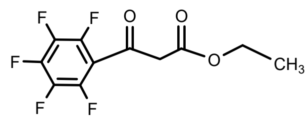
ROUTE O F SYNTHESIS OF SPARFLOXACIN

Stage-1



+ $SOCl_2$ + $(C_2H_5COO)CH_2$ + NaOH + 1/2 Mg $\xrightarrow[\text{Ethanol}]{\text{Toluene}}$

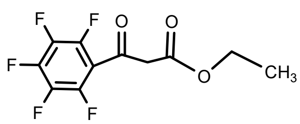
pentafluorobenzoic acid	Thionylchloride	Diethylmalonate	Sodium hydroxide	Magnesium
$C_7HF_5O_2$ Mol. Wt.: 212.1	Mol. Wt.: 119	Mol. Wt.: 160	Mol. Wt.: 40	Mol. Wt.:1/2x 24=12



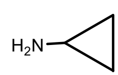
+ SO_2 + NaCl + 1/2 $MgCl_2$ + C_2H_5OH + CO_2 + H

Stage-1	Sulphurdioxide	Sodium chloride	Magnesium chloride	Ethanol	Carbondioxide	Hydrogen
$C_{11}H_7F_5O_3$ Mol. Wt.: 282.2	Mol. Wt.: 64	Mol. Wt.:58.5	Mol. Wt.:1/2x95=47.5	Mol. Wt.: 46	Mol. Wt.: 44	Mol. Wt.: 1

Stage-2

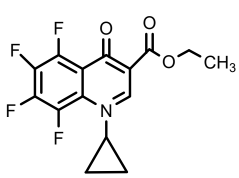


+ $HC(OC_2H_5)_3$ +



+ 1/2 K_2CO_3 $\xrightarrow[\text{Water}]{\text{Ethanol}}$

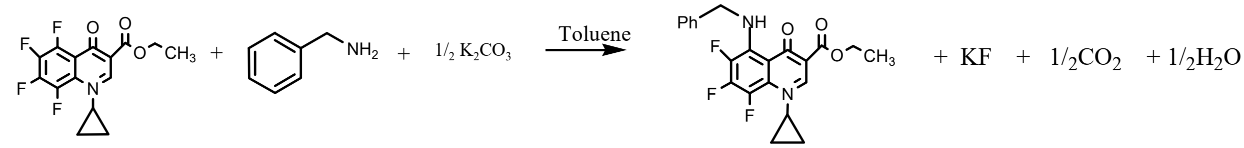
Stage-1	Triethyloxoformamide	Cyclopropylamine	Pot.Carbonate
$C_{11}H_7F_5O_3$ Mol. Wt.: 282.2	Mol. Wt.: 148	C_3H_7N Mol. Wt.: 57.1	Mol. Wt.: 138



+ 3 C_2H_5OH + KF + 1/2 CO_2 + 1/2 H_2O

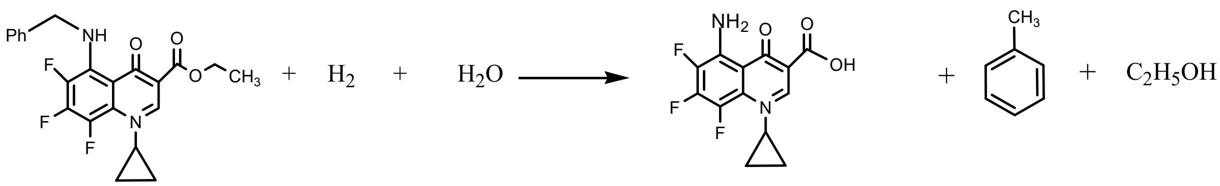
Stage-2	Ethanol	Potassium Fluoride	Carbondioxide	water
$C_{15}H_{11}F_4NO_3$ Mol. Wt.: 329.2	Mol. Wt.: 3x46 =138	Mol. Wt.:58	Mol. Wt.: 1/2 x 44=22	Mol. Wt.: 1/2x18=9

Stage-3



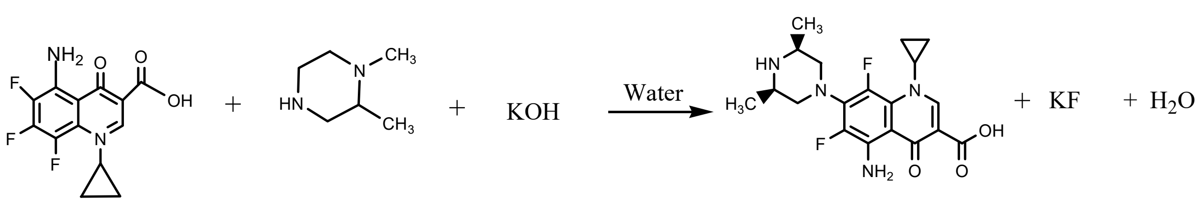
Stage-2	benzylamine	Potassium carbonate	Stage-3			
$C_{15}H_{11}F_4NO_3$	C_7H_9N		$C_{22}H_{19}F_3N_2O_3$			
Mol. Wt.: 329.2	Mol. Wt.: 107.2	Mol. Wt.: 1/2x138=69	Mol. Wt.: 416.4	Mol. Wt.:58	Mol. Wt.: 22	Mol. Wt.: 9

Stage-4



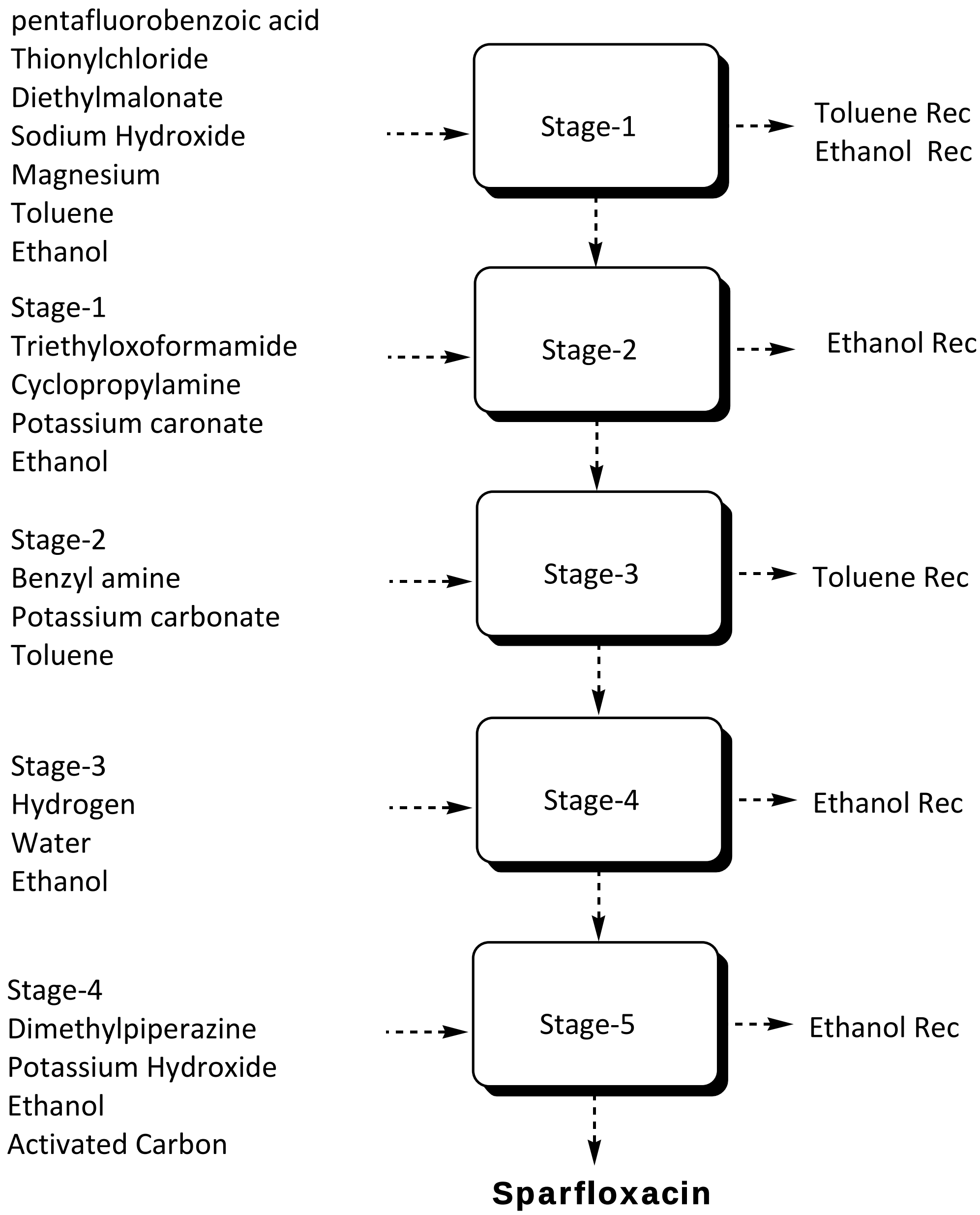
Stage-3	Hydrogen	Water	Stage-4	Toluene	Ethanol
$C_{22}H_{19}F_3N_2O_3$			$C_{13}H_9F_3N_2O_3$	C_7H_8	
Mol. Wt.: 416.4	Mol. Wt.: 2	Mol. Wt.: 18	Mol. Wt.: 298.4	Mol. Wt.: 92.1	Mol. Wt.: 46

Stage-5



Stage-4	dimethylpiperazine	Potassium Hydroxide	Sparfloxacin	Pot.Fluoride	Water
$C_{13}H_9F_3N_2O_3$	$C_6H_{14}N_2$		$C_{19}H_{22}F_2N_4O_3$		
Mol. Wt.: 298.4	Mol. Wt.: 114.2	Mol. Wt.:56	Mol. Wt.: 392.4	Mol. Wt.: 58	Mol. Wt.: 18

Flow chart


pentafluorobenzoic acid
Thionylchloride
Diethylmalonate
Sodium Hydroxide
Magnesium
Toluene
Ethanol
Stage-1
Toluene Rec
Ethanol Rec
Stage-1
Triethyloxoformamide
Cyclopropylamine
Potassium caronate
Ethanol
Stage-2
Ethanol Rec
Stage-2
Benzyl amine
Potassium carbonate
Toluene
Stage-3
Toluene Rec
Stage-3
Hydrogen
Water
Ethanol
Stage-4
Ethanol Rec
Stage-4
Dimethylpiperazine
Potassium Hydroxide
Ethanol
Activated Carbon
Stage-5
Ethanol Rec
Sparfloxacin

MATERIAL BALANCE OF SPARFLOXACIN

Material balance of Sparfloxacin Stage-1 Batch Size: 100Kg				
Name of the input	Quantity in Kg			Quantity in Kg
pentafluorobenzoic acid	60.00		Stage-1	75.00
Thionylchloride	33.66		Toluene recovery	570.00
Diethylmalonate	45.26		Toluene loss	30.00
Sodium Hydroxide	11.31		Ethanol recovery	95.00
Magnesium	4.00		Ethanol Loss	5.00
Toluene	600.00		Effluent water	542.94
Ethanol	100.00		(water-500,Sodium chloride-16.54,Magnesium chloride-13.4,Ethanol-13)	
Water	500.00		Process Emissions	30.48
			(Carbon dioxide-12.4,Hydrogen-0.28,Sulphur dioxide-17.8)	
			Organic Residue	5.81
Total	1354.23		Total	1354.23

Material balance of Sparfloxacin Stage-2 Batch Size: 100Kg				
Name of the input	Quantity in Kg			Quantity in Kg
Stage-1	75.00		Stage-2	83.90
Triethyloxoformamide	40.00		Ethanol recovery	713.00
Cyclopropylamine	15.17		Ethanol Loss	37.00
Potassium caronate	18.33		Effluent Water	555.13
Ethanol	750.00		(Water-500,Gen water-2.43,Potassium fluoride-15.4,Ethanol-37.3)	
Water	500.00		Process Emissions	5.84
			(Carbondioxide)	
			Organic Residue	3.63
Total	1398.50		Total	1398.50

Material balance of Sparfloxacin Stage-3 Batch Size: 100Kg				
Name of the input	Quantity in Kg			Quantity in Kg
Stage-2	83.90		Stage-3	106.10
Benzyl amine	27.32		Toluene recovery	750.00
Potassium carbonate	17.60		Toluene loss	40.00
Toluene	800.00		Effluent water	427.09
Water	400.00		(Water-400,Gen water-2.29,Potassium fluoride-14.8,Toluene-10)	
			Process Emission	5.63
			(Carbondioxide)	
Total	1328.82			1328.82

Material balance of Sparfloxacin Stage-4 Batch Size: 100Kg				
Name of the input	Quantity in Kg			Quantity in Kg
Stage-3	106.10		Stage-4	76.00
Hydrogen	0.50		Ethanol recovery	190.00
Water	800.00		Ethanol Loss	10.00
Ethanol	200.00		Toluene generation	23.46
			Effluent water	807.14
			(Water-795.42,Ethanol-11.72)	
Total	1106.60		Total	1106.60

Material balance of Sparfloxacin Stage-5:Pharma Batch Size: 100Kg				
Name of the input	Quantity in Kg			Quantity in Kg
Stage-4	76.00		Stage-5:Pharma	100.00
Dimethylpiperazine	29.10		Ethanol recovery	465.00
Potassium Hydroxide	14.30		Ethanol Loss	25.00
Ethanol	500.00		Effluent water	329.40
Water	300.00		(Water-300,Potassium fluoride-14.8,Gen water-4.6,Ethanol-10)	
Activated Carbon	10.00		Spent Carbon	10.00
Total	929.40		Total	929.40

25. TADALAFIL

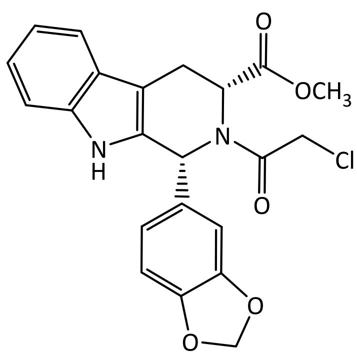
Process Description

Stage-1

(1R-3R)-Methyl-1, 2, 3, 4-tetrahydro-2-chloroacetyl1-(3, 4-methylenedioxyphenyl)-9H-pyrido [3, 4-b]-3-carboxylate reacts with Aq methylamine in presence of DMSO and Methanol to give Tadalafil

Route of Synthesis

Stage-1:



(1R,3R)-methyl-1,2,3,4-tetrahydro-2-chloroacetyl -1-(3,4-methylenedioxyphenyl)-9H-pyrido [3,4-b]-3-carboxylate

$C_{22}H_{19}ClN_2O_5$

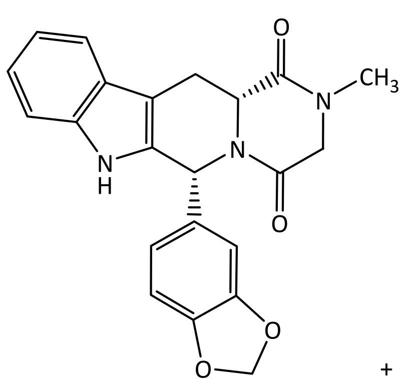
426.85

\+ CH_3NH_2

Methyl amine

31.06

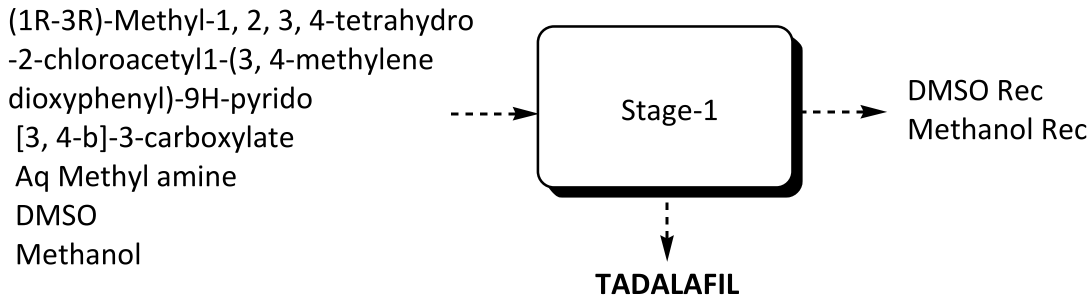
$\xrightarrow{\text{DMSO,MeOH}}$



\+ HCl + CH_3OH

Tadalafil	Hydrochloric acid	Methanol
$C_{22}H_{19}N_3O_4$	36.5	32.04
389.40		

Flow Chart:



TADALAFIL

Material Balance:

Material Balance of Tadalafil Stage-1 Batch Size: 100.0Kg			
Name of the input	Quantity in Kg	Name of the out put	Quantity in Kg
(1R-3R)-Methyl-1, 2, 3, 4-tetrahydro-2-chloroacetyl1-(3, 4-methylene dioxyphenyl)-9H-pyrido [3, 4-b]-3-carboxylate	112.00	Tadalafil	100.00
Aq methyl amine (40%)	10.00	DMSO Recovery	143.00
Dimethyl sulphoxide	150.00	DMSO Loss	4.00
Methanol	150.00	Methanol Recovery	143.00
Water	150.00	Methanol Loss	4.00
		Effluent water - (Water-150,Water from Methyl amine-0.90,Methanol-8.40, DMSO-1.5)	160.80
		Process emission (Hydrogen Chloride – 9.57)	9.57
		Organic Residue – 7.63 Process residue –4.63 Distillation residue – 3 (DMSO-1.5, Methanol-1.5)	7.63
Total	572.00	Total	572.00

26. TAMSULOSIN HCL

Process Description

Stage-1

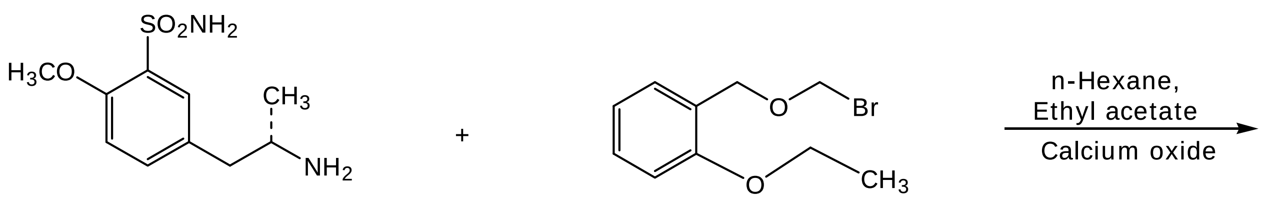
(S)-5-(2-Aminopropyl)-2-methoxybenzenesulfonamide reacts with 2-methoxy benzene sulfonamide in presence of Sodium hydroxide and Ethyl acetate to give Stage-1 compound.

Stage-2

Stgae-1 compound undergoes purification in Methanol and Ethanol to give Tamsulosine HCl

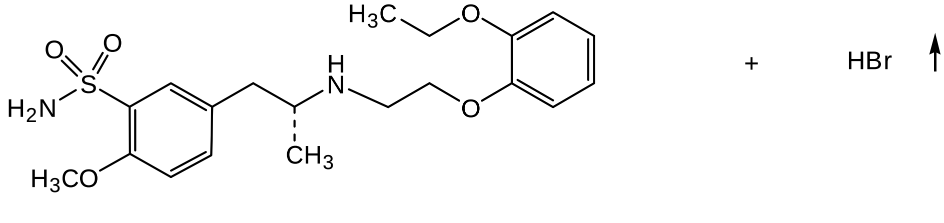
Route of Synthesis

Stage-1



(*S*)-5-(2-Aminopropyl)-2-methoxy benzenesulfonamide
$C_{10}H_{16}N_2O_3S$
244.31

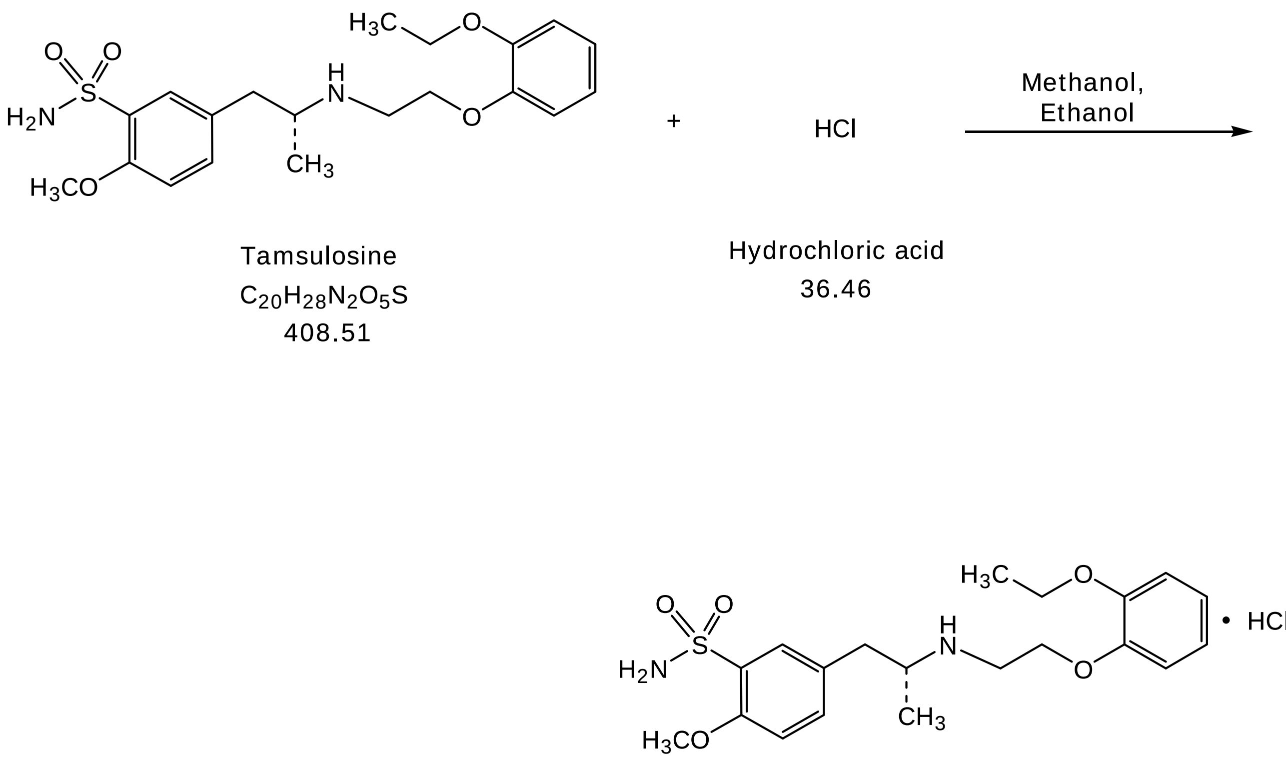
1-((Bromomethoxy)methyl)-2-ethoxybenzene
$C_{10}H_{13}BrO_2$
245.11



Tamsulosine
$C_{20}H_{28}N_2O_5S$
408.51

Hydrogen Bromide
80.91

Stage-2

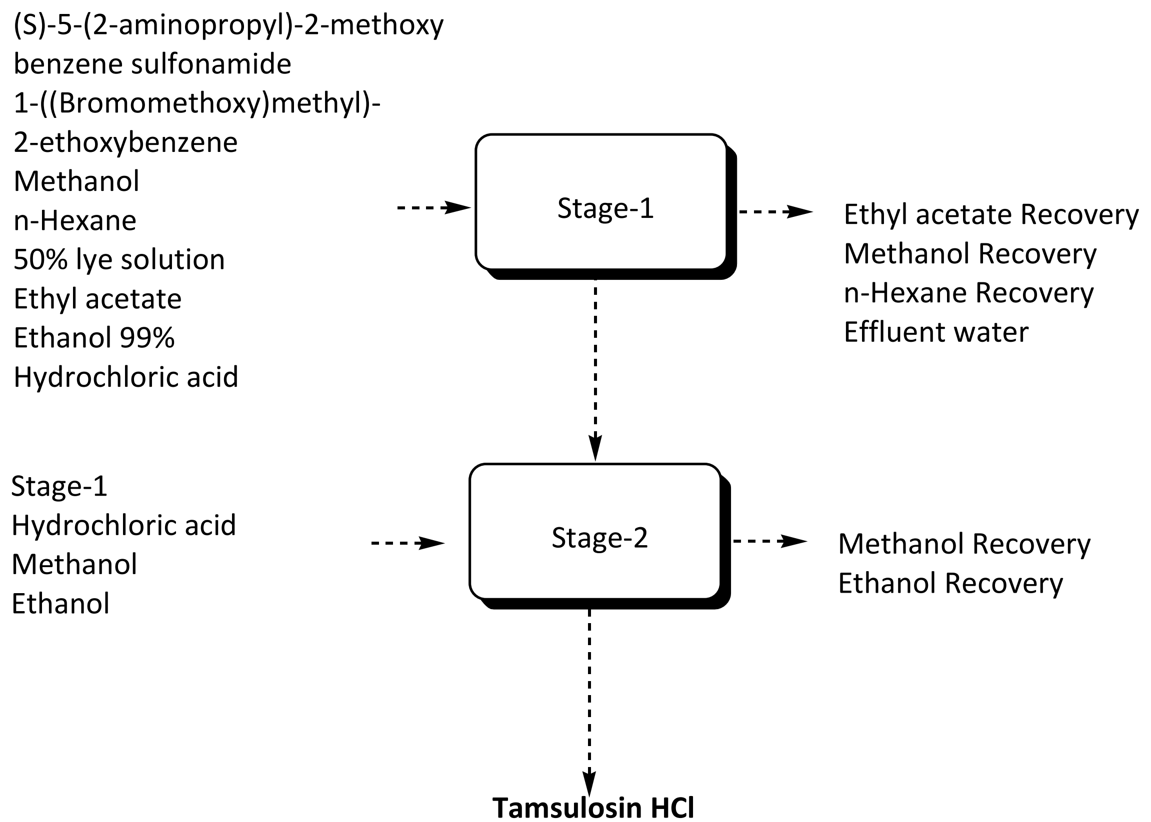


Tamsulosine
$C_{20}H_{28}N_2O_5S$
408.51

Hydrochloric acid
36.46

Tamsulosine HCl
$C_{20}H_{29}ClN_2O_5S$
444.97

Flow Chart:



Material Balance

Material Balance of Tamsulosin HCl Stage-1 Batch Size:200 Kg				
Name of the input	Quantity in Kg		Name of the out put	Quantity in Kg
(S)-5-(2-aminopropyl)-2-methoxybenzene sulfonamide	129.00		Stage-1	194.00
1-((Bromomethoxy)methyl)-2-ethoxybenzene	130.00		• Methanol Recovery	475.00
Methanol	500.00		• Methanol Loss	20.00
n-Hexane	500.00		• n-Hexane Recovery	475.00
50% lye solution	20.00		• n-Hexane Loss	20.00
Ethyl acetate	500.00		• Ethyl acetate Recovery	475.00
Ethanol 99%	500.00		• Ethyl acetate Loss	15.00
Hydrochloric acid	10.00		• Ethanol Recovery	475.00
Water	1500.00		• Ethanol Loss	20.00
			Effluent Water	1505.00

			• Water-1500 • Ethyl acetate-5	0
			Process emission	42.69
			• Hydrogen Bromide-42.69	0
			Organic Residue	72.31
			• Process Residue-52.31 • Distillation residue-20 • Ethyl acetate-5 • n-Hexane-5 • Methanol-5 • Ethanol-5	
Total	3789.00		Total	3789.00

Material Balance of Tamsulosin HCl **Stage-2** **Batch Size: 200Kg**				
Name of the input	Quantity in Kg		Name of the out put	Quantity in Kg
Stage-1	194.00		Tamsulosin HCl	200.00
Hydrochloric acid	17.30		• Methanol Recovery	380.00
Methanol	400.00		• Methanol Loss	10.00
Ethanol	400.00		• Ethanol Recovery	380.00
			• Ethanol Loss	10.00
			Organic Residue	31.30
			• Process Residue-11.30 • Distillation residue -20 • Methanol-10 • Ethanol-10	
Total	1011.30		Total	1011.30

27. TELMISARTAN

Process Description

Stage-1

Step-A

Methyl-4-(butyramido)3-methyl-5-nitrobenzoate undergoes hydrogenation in the presence of Palladium carbon as catalyst by using Methanol as solvent media to give Stage-1A as product.

Step-B

Stage-1A product reacts with sodium hydroxide and hydrochloric acid to give Stage-1B as product.

Stage-2

Stage-1 B product reacts with N-Methylbenzene-1,2-diamine in the presence of Sodium hydroxide and polyphosphoric acid to give Stage -2 as product.

Stage-3

Stage-2 product reacts with 1, 3-dibromo-5, 5-dimethylimidazolidine-2,4-dione in the presence of Chloroform as solvent media to give Stage-3 as product.

Stage-4

Stage-2 product reacts with Stage-3 and potassium hydroxide in the presence of acetone as solvent media to give Stage-4 as product.

Stage-5

Stage-4 product reacts with potassium hydroxide and hydrochloric acid in the presence of MDC as solvent media to give stage-5 as product.

Stage-6

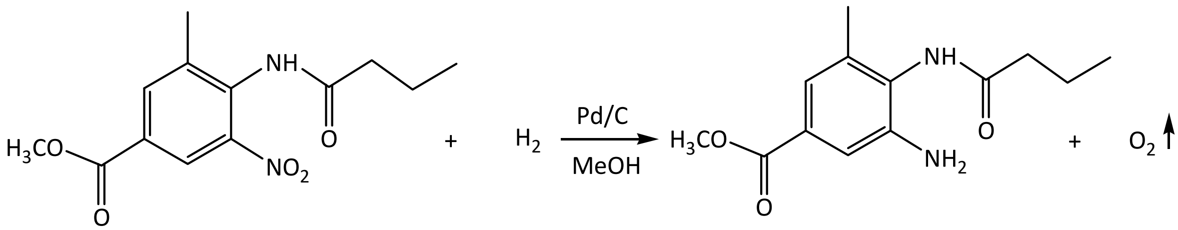
Stage-5 product undergoes purification with Methanolic ammonia, acetic acid and activated carbon in the presence of methanol as solvent media to give Telmisartan as product.

TELMISARTAN

Route of Synthesis:

Stage-1

Step-A



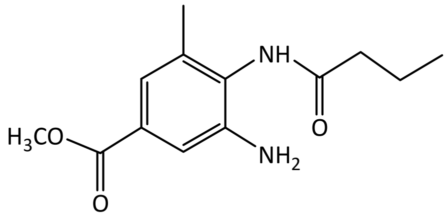
methyl-4-(buytramido)-3-methyl
-5-nitrobenzoate
$C_{13}H_{16}N_2O_5$
280.28

Hydrogen
2.0

Methyl-3-amino-4-(buytramido)
-5-methylbenzoate
$C_{13}H_{18}N_2O_3$
250.29

Oxygen
32.0

Step-B

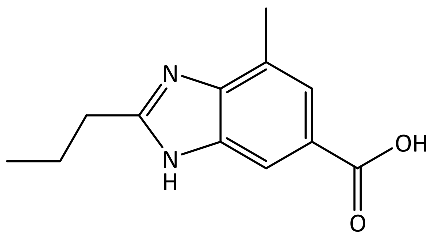


Methyl-3-amino-4-(buytramido)
-5-methylbenzoate
$C_{13}H_{18}N_2O_3$
250.29

+ NaOH + HCl →

Sodium hydroxide
40.0

Hydrochloric acid
36.5



7-Methyl-2-propyl-3H-benzoimidazole-5-carboxylic acid
$C_{12}H_{14}N_2O_2$
218.25

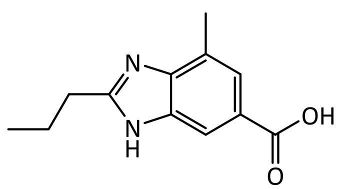
+ CH_3OH + NaCl + H_2O

Methanol
32.0

Sodium chloride
58.5

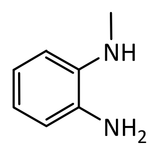
Water
18.0

Stage-2



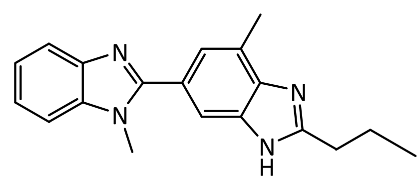
7-Methyl-2-propyl-3H-benzoimidazole-5-carboxylic acid
$C_{12}H_{14}N_2O_2$
218.25

+



N-Methylbenzene-1,2-diamine
$C_7H_{10}N_2$
122.17

$\xrightarrow[\text{NaOH}]{\text{PPA}}$

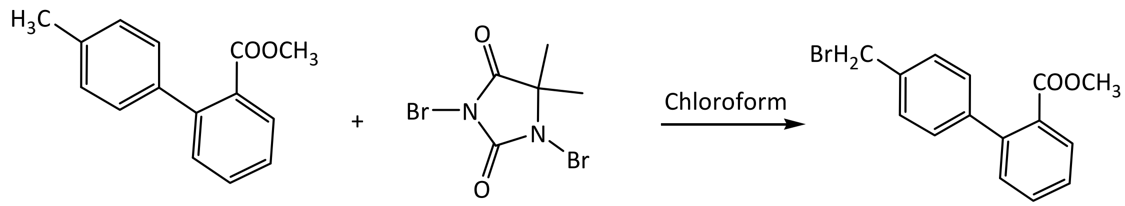


1,7'-dimethyl-2'-propyl-1*H*,3'*H*-2,5'-bibenzo[*d*]imidazole
$C_{19}H_{20}N_4$
304.39

+ $2H_2O$
36.0

H_3PO_4	+	3 NaOH	→	Na_3PO_4	+	3 H_2O
Phosphoric Acid		Sodium hydroxide		Sodium phosphate		Water
98.0		3X40=120		163.94		3X18=54

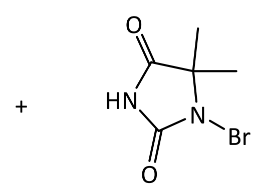
Stage-3



methyl-4-methyl-1,1-biphenyl-2-carboxylate
$C_{15}H_{14}O_2$
226.27

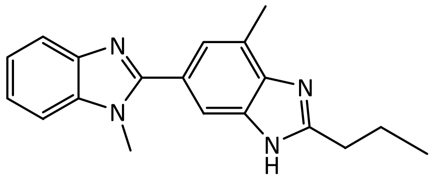
1,3-Dibromo-5,5-dimethyl imidazolidine-2,4-dione
$C_5H_6N_2O_2$
285.92

4-(bromomethyl)biphenyl-2-carboxylic acid methyl ester
$C_{15}H_{13}BrO_2$
305.17



1-Bromo-5,5-dimethyl imidazolidine-2,4-dione
$C_5H_7BrN_2O_2$
207.03

Stage-4

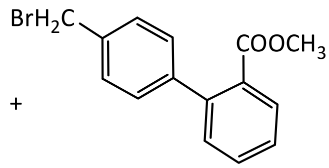


1,7'-dimethyl-2'-propyl-1*H*,3'*H*-2,5'-bibenzo[*d*]imidazole

$C_{19}H_{20}N_4$

304.39

\+



4-(bromomethyl)biphenyl -2-carboxylic acid methyl ester

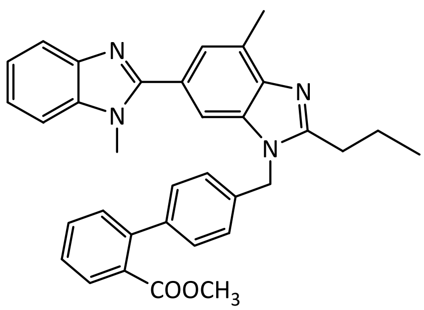
$C_{15}H_{13}BrO_2$

305.17

\+ KOH $\xrightarrow{\text{Acetone}}$

Potassium hydroxide

56.11



methyl 4'-((1,7'-dimethyl-2'-propyl-1*H*,3'*H*-[2,5'-bibenzo[*d*]imidazol]-3'-yl)methyl)-[1,1'-biphenyl]-2-carboxylate

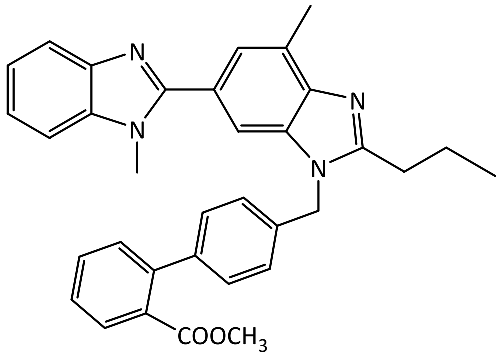
$C_{34}H_{32}N_4O_2$

528.64

\+ KBr $\uparrow$ + H_2O

119.0 18.0

Stage-5



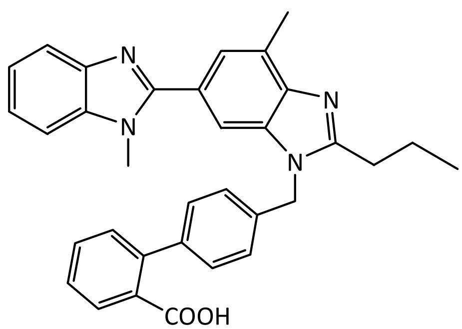
methyl 4'-((1,7'-dimethyl-2'-propyl-1*H*,3'*H*-[2,5'-bibenzo[*d*]imidazol]-3'-yl)methyl)-[1,1'-biphenyl]-2-carboxylate

$C_{34}H_{32}N_4O_2$

528.64

\+ KOH + HCl $\xrightarrow{MeOH}$

KOH	HCl
Potassium hydroxide	Hydrochloric acid
56.11	36.5



4'-((1,7'-dimethyl-2'-propyl-1*H*,3'*H*-[2,5'-bibenzo[*d*]imidazol]-3'-yl)methyl)-[1,1'-biphenyl]-2-carboxylic acid

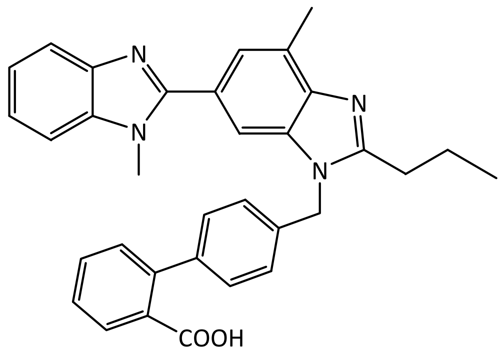
$C_{33}H_{30}N_4O_2$

514.62

\+ CH_3OH + KCl

CH_3OH	KCl
32.0	74.55

Stage-6



+ CH_3OH NH_3 + CH_3COOH $\xrightarrow{MeOH}$

4'-((1,7'-dimethyl-2'-propyl-1*H*,3'*H*-[2,5'-bibenzo[*d*]imidazol]-3'-yl)methyl)-[1,1'-biphenyl]-2-carboxylic acid

$C_{33}H_{30}N_4O_2$

514.62

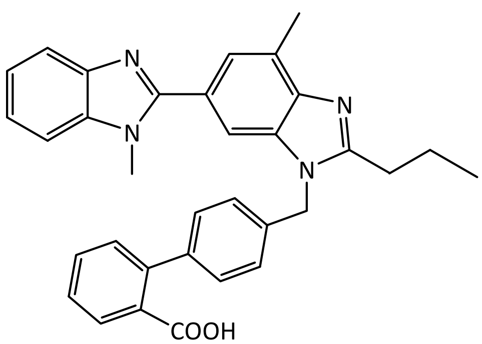
Methanolic ammonia

CH_7NO

49.07

Acetic acid

60.0



+ CH_3COONH_4 + CH_3OH

Telmisaratn

$C_{33}H_{30}N_4O_2$

514.62

Ammonium acetate

77.08

Methanol

32.0

TELMISARTAN

Flow chart:

INPUT	PROCESSING	OUTPUT
• Methyl-4-(butyramido)-3-methyl-5-nitrobenzene • Methanol • Palladium carbon(Wet 5% MC) • Sodium hydroxide • Stage-1	STAGE-1	• Product • Methanol Rec • Effluent water • Process Emission • Organic Residue
• Stage-1 • N-Methylbenzene-1,2-diamine • Poly phosphoric acid • Sodium hydroxide	STAGE-2	• Product • Effluent water • Organic Residue
• Methyl-4-methyl-1,1-biphenyl- • 2-carboxylate • 1,3-dibromo-5,5-dimethyl • imidazolidine-2,4-dione	STAGE-3	• Product • n-Hexane Rec • Effluent water • Chloroform Recovery • Organic solid waste
• Stage-2 • Stage-3 • Potassium hydroxide • Acetone	STAGE-4	• Product • Acetone Rec • Effluent water • Organic Residue
• Stage-4 • Potassium hydroxide • MDC • Methanol • Hydrochloric acid (20%)	STAGE-5	• Product • Carbon Dioxide • Effluent water • MDC Rec • Methanol Rec • Organic Residue
• Stage-5 • Methanolic ammonia • Acetic acid • Methanol	STAGE-6	• Product • Methanol Rec • Effluent water

TELMISARTAN

Material Balance:

MATERIAL BALANCE OF TELMISARTAN STAGE-1 BATCH SIZE: 100.0 KGS			
INPUT		**OUTPUT**	
NAME OF THE INPUT	**QUANTITY IN KGS**	**NAME OF THE OUTPUT**	**QUANTITY IN KGS**
Methyl-4-(butyramido)-3-methyl-5-nitrobenzene	73.00	Stage-1	55.00
Methanol	865.00	Methanol Recovery	822.00
Palladium carbon(Wet 5% MC)	3.00	Methanol Loss	43.00
Sodium hydroxide	10.40	Effluent water	550.20
Hydrochloric acid	31.60	(Water-500,generated water-4.6, Sodium chloride-15.2,Hydrochloric acid-22.1, Generated Methanol-8.3)	
Water	500.00	Spent Palladium Carbon	3.00
		Process Emission	8.33
		(Oxygen)	
		Organic Residue	1.47
Total	**1483.00**	**Total**	**1483.00**

MATERIAL BALANCE OF TELMISARTAN STAGE-2 BATCH SIZE: 100.0 KGS			
INPUT		**OUTPUT**	
NAME OF THE INPUT	**QUANTITY IN KGS**	**NAME OF THE OUTPUT**	**QUANTITY IN KGS**
Stage-1	55.00	Stage-2	73.00
N-Methylbenzene-1,2-diamine	32.00	Effluent Water	658.67
Phosphoric acid	90.00	(Water-600,generated water-58.67)	
Sodium hydroxide	110.20	By-Product	150.56
Water	600.00	(Sodium Phosphate)	
		Organic Residue	4.97
Total	**887.20**	**Total**	**887.20**

MATERIAL BALANCE OF TELMISARTAN STAGE-3 BATCH SIZE: 100.0 KGS			
INPUT		**OUTPUT**	
NAME OF THE INPUT	**QUANTITY IN KGS**	**NAME OF THE OUTPUT**	**QUANTITY IN KGS**
Methyl-4-methyl-1,1-biphenyl-2-carboxylate	57.00	Stage-3	73.50
1,3-dibromo-5,5-dimethyl imidazolidine-2,4-dione	72.00	Chloroform Recovery	304.00

Azo bis isobutyronitrile	2.90	Chloroform Loss	16.00
Sodium meta bisulphate	4.30	n-Hexane Recovery	95.00
Chloroform	320.00	n-Hexane Loss	5.00
n-Hexane	100.00	Effluent water	407.20
Water	400.00	(Water-400,Sodium meta bisulphate-4.3,Azobis isobutyronitrile-2.9,)	
		Organic Solid Waste	55.50
		(organic impurities-3.37,1-Bromo-5,5-dimethyl imidazoline-2,4-dione-52.13)	
Total	**956.20**	**Total**	**956.20**

MATERIAL BALANCE OF TELMISARTAN **STAGE-4** **BATCH SIZE: 100.0 KGS**			
INPUT		**OUTPUT**	
NAME OF THE INPUT	**QUANTITY IN KGS**	**NAME OF THE OUTPUT**	**QUANTITY IN KGS**
Stage-2	73.00	Stage-4	123.00
Stage-3	73.50	Acetone Recovery	427.00

Potassium hydroxide	18.00	Acetone Loss	22.00
Acetone	450.00	Effluent water	939.30
Water	900.00	(Water-900,generated water-4.3, Potassium hydroxide-4.5,Acetone-2,Potassium bromide-28.5)	
		Organic Residue	3.20
		(Organic Impurities-2.2,Acetone-1)	
Total	**1514.50**	**Total**	**1514.50**

MATERIAL BALANCE OF TELMISARTAN **STAGE-5** **BATCH SIZE: 100.0 KGS**			
INPUT		**OUTPUT**	
NAME OF THE INPUT	**QUANTITY IN KGS**	**NAME OF THE OUTPUT**	**QUANTITY IN KGS**
Stage-4	123.00	Stage-5	115.00
Potassium hydroxide	15.00	MDC Recovery	1138.00
MDC	1200.00	MDC Loss	60.00
Methanol	1000.00	Methanol Recovery	948.00
Hydrochloric acid (20%)	50.00	Methanol Loss	50.00
Acetic acid	40.00	Effluent water	706.20

Activated carbon	5.00	(Water-600,Potassium chloride-17.3,Methanol-7.4,Acetic acid-40, water from HCl-40,Hydrochloric acid-1.5)	
Water	600.00	Spent Carbon	5.00
		Organic Residue	10.80
		(Organic Impurities-6.8, Methanol-2,MDC-2)	
Total	**3033.00**	**Total**	**3033.00**

MATERIAL BALANCE OF TELMISARTAN **STAGE-6** **BATCH SIZE: 100.0 KGS**			
INPUT		**OUTPUT**	
NAME OF THE **INPUT**	**QUANTITY IN KGS**	**NAME OF THE OUTPUT**	**QUANTITY IN KGS**
Stage-5	115.00	Telmisartan	100.00
Methanolic ammonia	50.00	Methanol Recovery	833.00
Acetic acid	20.00	Methanol Loss	40.00
Methanol	830.00	Effluent water	257.10
Activated carbon	5.00	(Water-230,Acetic acid-	

		2.4, Generated Methanol-2,Ammonium acetate-22.7)	
Water	230.00	Spent Carbon	5.00
		Organic Residue	7.90
Total	**1243.00**	**Total**	**1243.00**

28. THALIDOMIDE

Process Description:

Stage-1

2-(2,6-Dihydro tetrahydro pyran-3-yl) isoindole-1,3-dione reacts with urea in the presence of Ethanol as solvent media to give Thalidomide as product.

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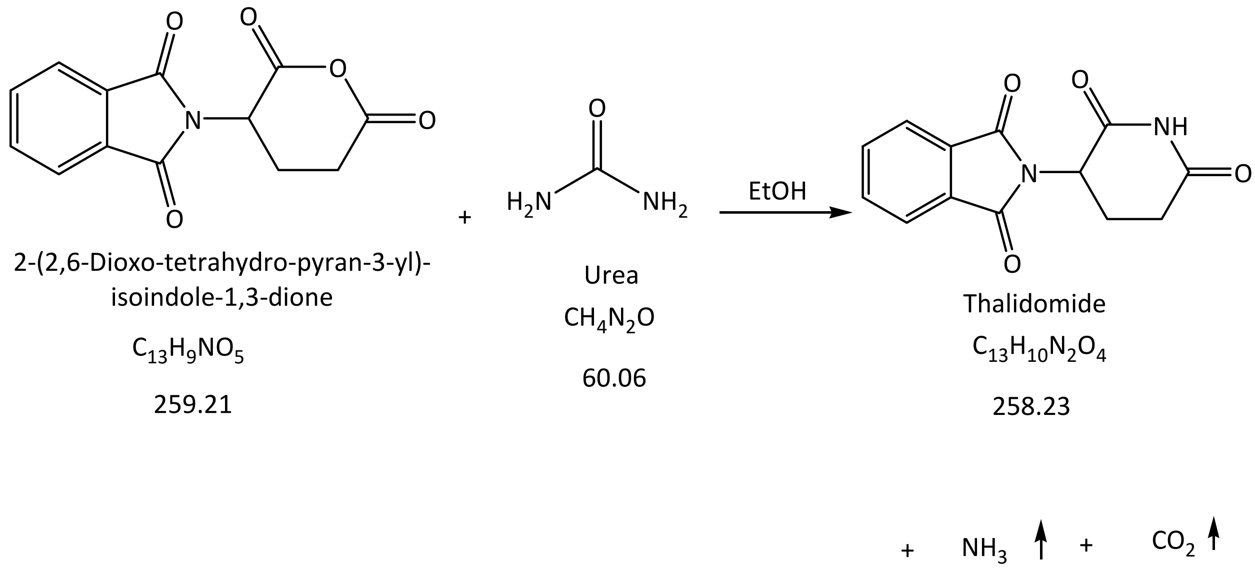
THALIDOMIDE

Route of Synthesis:

Stage-1:



2-(2,6-Dioxo-tetrahydro-pyran-3-yl)-isoindole-1,3-dione

$C_{13}H_9NO_5$

259.21

Urea

CH_4N_2O

60.06

Thalidomide

$C_{13}H_{10}N_2O_4$

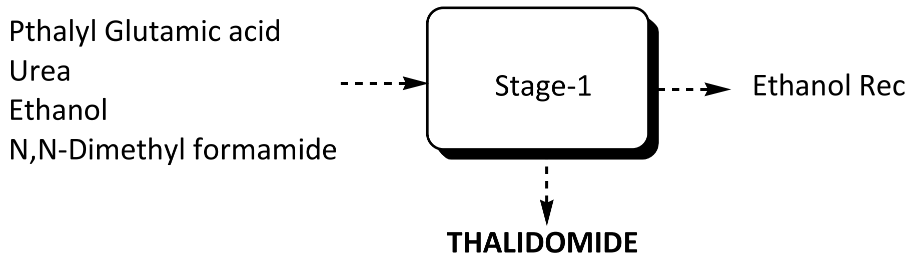
258.23

+ NH_3 ↑ + CO_2 ↑

17.0 44.0

THALIDOMIDE

Flow Chart:



THALIDOMIDE

Material Balance:

Material Balance of Thalidomide Stage-1 Batch Size: 100.00Kgs				
Name of the input	Quantity in Kg		Name of the out put	Quantity in Kg
Pthalyl Glutamic acid	116.00		Thalidomide	100.00
Urea	25.00		N,N-Dimethyl formamide Recovery	87.00
N,N-Dimethyl formamide	100.00		N,N-Dimethyl formamide Loss	10.00
Sodium carbonate	20.00		Effluent water	729.00
Activated carbon	5.00		(Water-700,Ammonia-7,Sodium carbonate-20,DMF-2)	
Water	700.00		Process Emissions	27.30
			(Carbon dioxide-19.7,Ammonia-7.6)	
			Spent carbon	5.00
			Organic Residue	7.70
			(Organic impurities-6.7,DMF-1)	
Total	966.00		Total	966.00

29. TRICLABENDAZOLE

Process Description:

Stage-1:

3, 4, Dichloro aniline undergoes Acetylation with Acetic anhydride in presence of acetic acid to give Acetamide further it is reacts with Nitric acid and potassium hydroxide to give stage-1 product

Stage-2:

Stage-1 product reacts with 2, 3, Dichloro Phenol in presence of DMSO to give Stage-2 product

Stage-3:

Stage-2 product undergoes reduction with Hydrogen in presence of Methanol and Palladium carbon to give Stage-3 product

Stage-4:

Stage-3 product reacts with carbon disulfide and sodium hydroxide in presence of Methanol to give Stage- 4 product

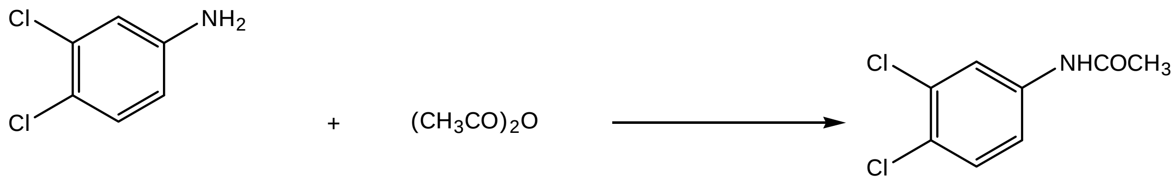
Stage-5:

Stage-4 product reacts with Dimethyl sulphate in presence of methanol and Sodium hydroxide to give Triclabendazole.

Route of Synthesis

Stage-1

Step-A



3,4-Dichloro-phenylamine
$C_6H_5Cl_2N$
162.02

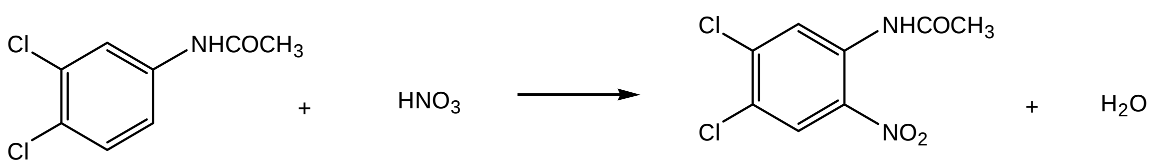
Acetic anhydride
102.09

N-(3,4-Dichloro-phenyl)-acetamide
$C_8H_7Cl_2NO$
204.05

+ CH_3COOH

Acetic acid
60.05

Step-B



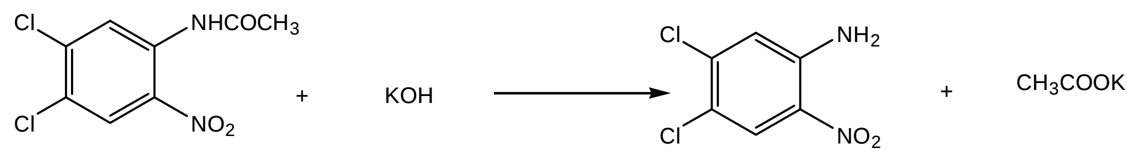
N-(3,4-Dichloro-phenyl)-acetamide
$C_8H_7Cl_2NO$
204.05

Nitric acid
63.01

N-(4,5-Dichloro-2-nitro-phenyl)-acetamide
$C_8H_6Cl_2N_2O_3$
249.05

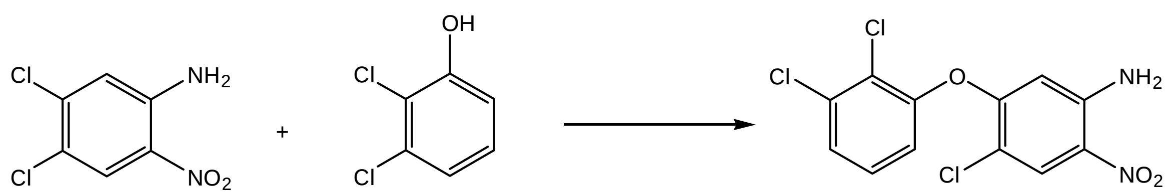
18.02

Step-C



N-(4,5-Dichloro-2-nitro-phenyl)-acetamide	Potassium Hydroxide	4,5-Dichloro-2-nitro-phenylamine	Potassium acetate
$C_8H_6Cl_2N_2O_3$	56.11	$C_6H_4Cl_2N_2O_2$	98.14
249.05		207.01	

Stage-2

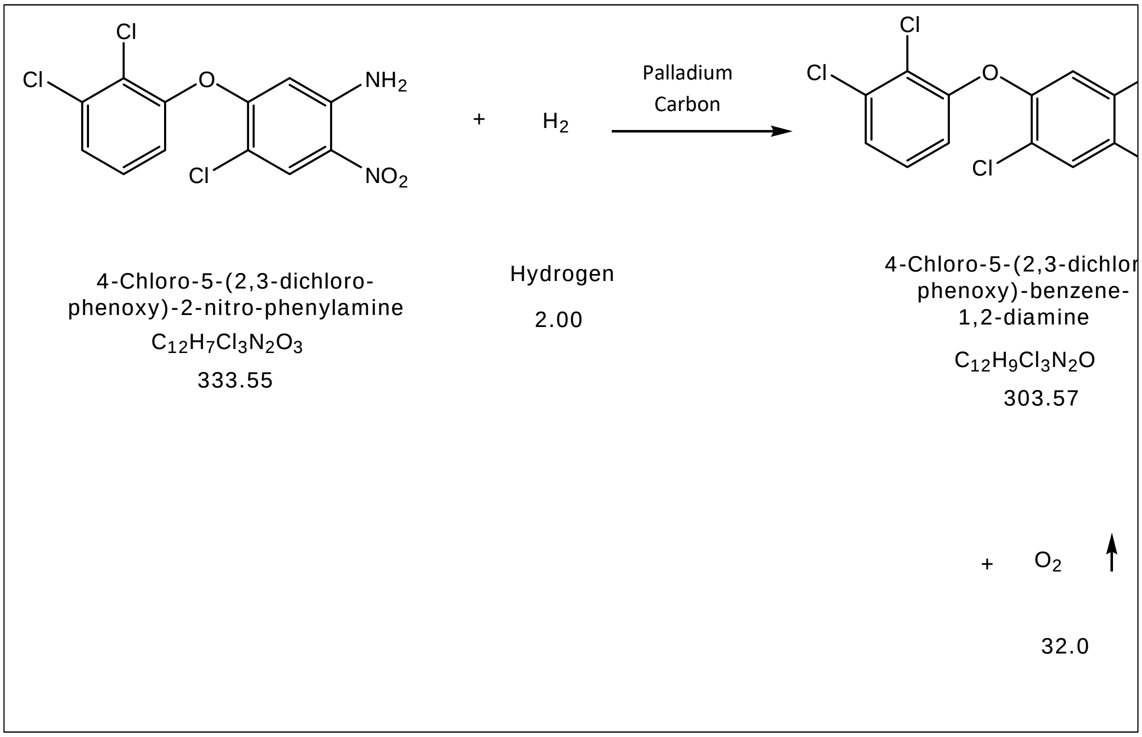


4,5-Dichloro-2-nitro-phenylamine	2,3-Dichloro-phenol	4-Chloro-5-(2,3-dichloro-phenoxy)-2-nitro-phenylamine
$C_6H_4Cl_2N_2O_2$	$C_6H_4Cl_2O$	$C_{12}H_7Cl_3N_2O_3$
207.01	163	333.55

\+ HCl $\uparrow$

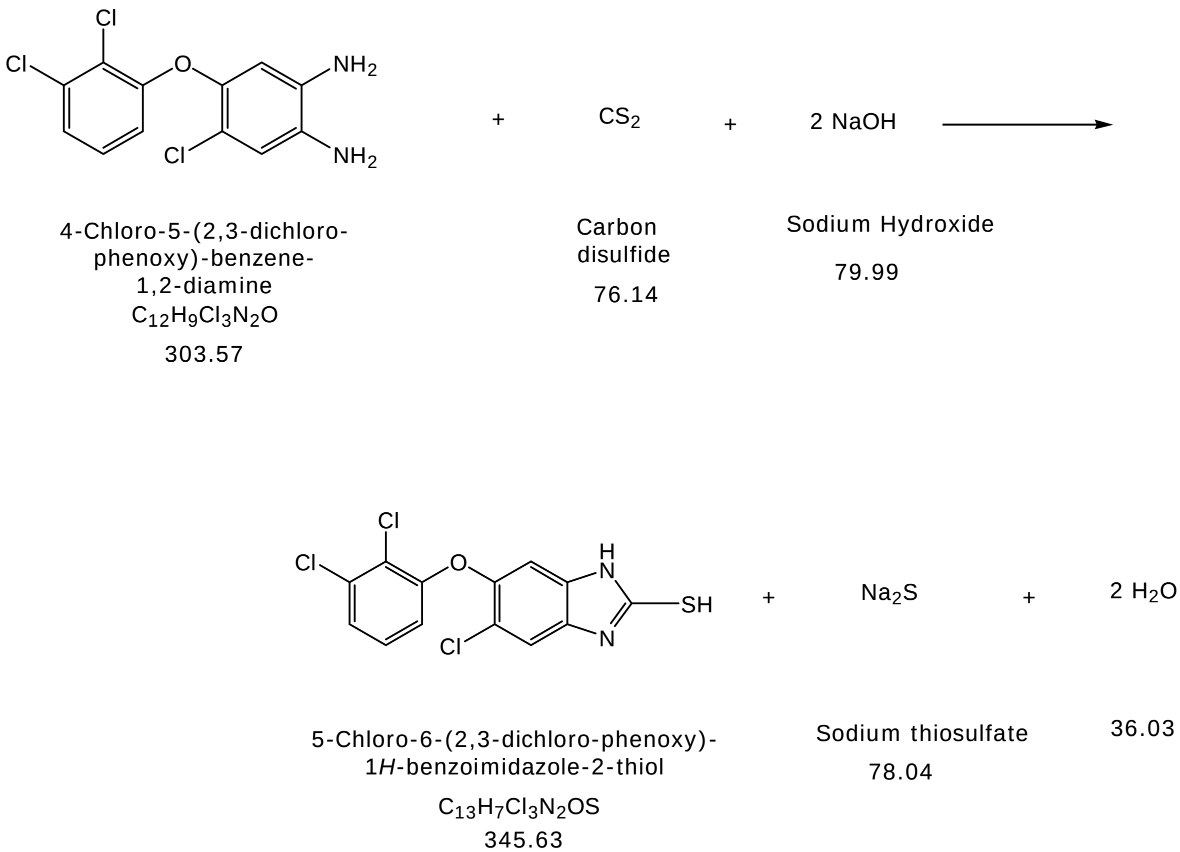
36.5

Stage-3



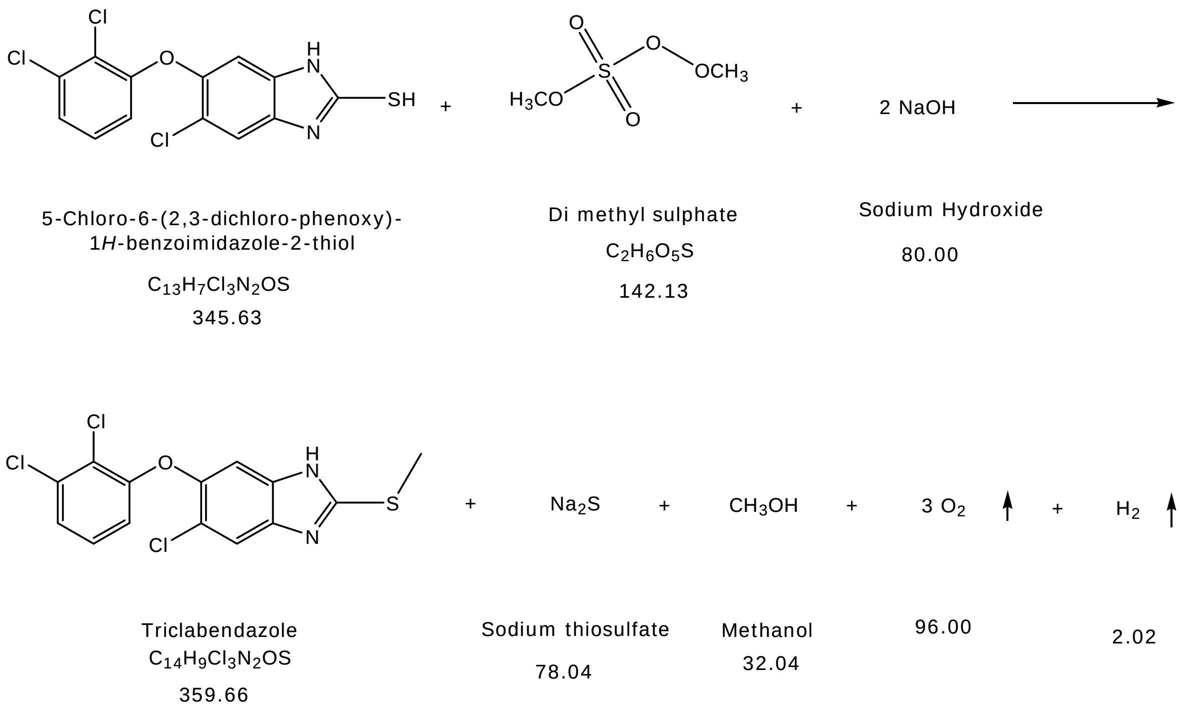
Cl
Cl
O
NH2
Cl
NO2
+
H2
Palladium
Carbon
Cl
Cl
O
Cl
4-Chloro-5-(2,3-dichloro-
phenoxy)-2-nitro-phenylamine
C12H7Cl3N2O3
333.55
Hydrogen
2.00
4-Chloro-5-(2,3-dichlor
phenoxy)-benzene-
1,2-diamine
C12H9Cl3N2O
303.57
+
O2
32.0

Stage-4



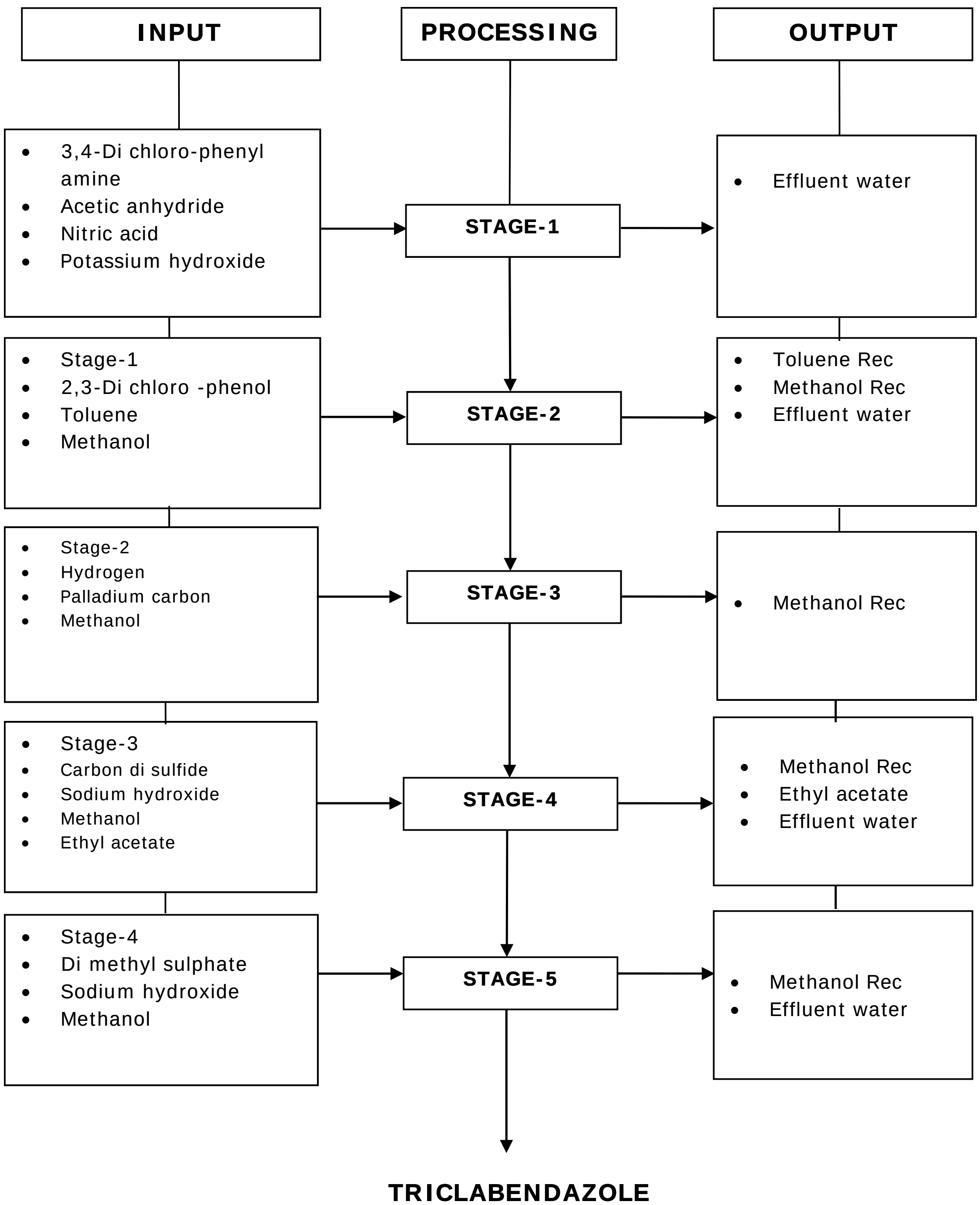
+ CS_2 + 2 NaOH
4-Chloro-5-(2,3-dichloro-phenoxy)-benzene-1,2-diamine
$C_{12}H_9Cl_3N_2O$
303.57
Carbon disulfide
76.14
Sodium Hydroxide
79.99
+ Na_2S + 2 H_2O
5-Chloro-6-(2,3-dichloro-phenoxy)-1*H*-benzoimidazole-2-thiol
$C_{13}H_7Cl_3N_2OS$
345.63
Sodium thiosulfate
78.04
36.03

Stage-5


5-Chloro-6-(2,3-dichloro-phenoxy)-1*H*-benzoimidazole-2-thiol
$C_{13}H_7Cl_3N_2OS$
345.63
+
Di methyl sulphate
$C_2H_6O_5S$
142.13
+
2 NaOH
Sodium Hydroxide
80.00
Triclabendazole
$C_{14}H_9Cl_3N_2OS$
359.66
+ Na_2S
Sodium thiosulfate
78.04
+ CH_3OH
Methanol
32.04
+ 3 O_2
96.00
+ H_2
2.02

TRICLABENDAZOLE

Flow Chart



TRICLABENDAZOLE

Material Balance:

MATERIAL BALANCE OF TRICLABENDAZOLE STAGE-1 BATCH SIZE: 500.0 KGS			
INPUT		**OUTPUT**	
NAME OF THE INPUT	**QUANTITY IN KGS**	**NAME OF THE OUTPUT**	**QUANTITY IN KGS**
3,4-Di chloro-phenyl amine	283.00	Stage-1	328.00
Acetic anhydride	179.00	Effluent water	1795.33
Nitric acid	107.00	(Water-1500, Acetic acid-104.67, Potassium acetate-160.31, generated water-30.35)	
Potassium hydroxide	92.00	Organic residue	37.67
Water	1500.00	Process Residue-37.67	
Total	**2161.00**	**Total**	**2161.00**

MATERIAL BALANCE OF TRICLABENDAZOLE STAGE-2 BATCH SIZE: 500.0 KGS			
INPUT		**OUTPUT**	
NAME OF THE INPUT	**QUANTITY IN KGS**	**NAME OF THE OUTPUT**	**QUANTITY IN KGS**
Stage-1	328.00	Stage-2	511.00
2,3-Di chloro -phenol	258.00	Methanol recovery	665.00
Toluene	500.00	Methanol loss	14.00
Methanol	700.00	Toluene recovery	475.00
Water	1500.00	Toluene loss	10.00
		Effluent water	1516
		(Water-1500, Toluene -7, Methanol-9)	
		Process emission	57.64
		(Hydrogen chloride – 57.64)	
		Organic residue	37.36

		Process Residue-17.36 Distillation bottom Residue-20 (Methanol-12, Toluene-8,)	
Total	**3286.00**	**Total**	**3286.00**

MATERIAL BALANCE OF TRICLABENDAZOLE **STAGE-3** **BATCH SIZE: 500.0 KGS**			
INPUT		**OUTPUT**	
NAME OF THE **INPUT**	**QUANTITY IN KGS**	**NAME OF THE OUTPUT**	**QUANTITY IN KGS**
Stage-2	511.00	Stage-3	450.00
Hydrogen	3.05	Methanol Recovery	760.00
Palladium Carbon	10.00	Methanol Loss	16.00
Methanol	800.00	Effluent water	1512.00
Water	1500.00	(Water-1500,Methanol-12)	
		Spent Palladium Carbon	10.00
		Process emission	48.90
		(Oxygen – 48.90)	
		Organic Residue	27.15
		Process Residue-15.15, Distillation Residue-12 (Methanol-12)	
Total	**2824.05**	**Total**	**2824.05**

MATERIAL BALANCE OF TRICLABENDAZOLE STAGE-4 BATCH SIZE: 500.0 KGS			
INPUT		**OUTPUT**	
NAME OF THE INPUT	**QUANTITY IN KGS**	**NAME OF THE OUTPUT**	**QUANTITY IN KGS**
Stage-3	450.00	Stage-4	496.00
Carbon di sulfide	113.00	Methanol Recovery	760.00
Sodium hydroxide	120.00	Methanol Loss	16.00
Methanol	800.00	Ethyl acetate recovery	475.00
Ethyl acetate	500.00	Ethyl acetate loss	10.00
Water	1500.00	Effluent water	1680.75
		(Water-1500,Methanol-12, Di sodium sulfide-115.45, generated water-53.30)	
		Organic Residue	45.25
		Process Residue-18.25, Distillation residue-27 (Methanol-12, Ethyl acetate-15)	
Total	**3483.00**	**Total**	**3483.00**

MATERIAL BALANCE OF TRICLABENDAZOLE STAGE-5 BATCH SIZE: 500.0 KGS			
INPUT		**OUTPUT**	
NAME OF THE INPUT	**QUANTITY IN KGS**	**NAME OF THE OUTPUT**	**QUANTITY IN KGS**
Stage-4	496.00	Triclabendazole	500.00
Di methyl sulphate	204.00	Methanol Recovery	760.00
Sodium hydroxide	115.00	Methanol Loss	16.00
Methanol	800.00	Effluent water	1657.80
Water	1500.00	(Water-1500,Methanol-	

		45.95, Di sodium sulfide-111.85)	
		Process emission	140.47
		(Oxygen-137.58, Hydrogen-2.89)	
		Organic Residue	40.73
		Process residue-28.73, Distillation Residue-12 (Methanol-12)	
Total	**3115.00**	**Total**	**3115.00**

30. ZOLEDRONIC ACID

Process Description

Stage-1

Imidazole and methyl chloro acetate react in the presence of catalyst and base salt medium. Then the resulting compound hydrolysis with water to form 1H-Imidazole acetic acid.

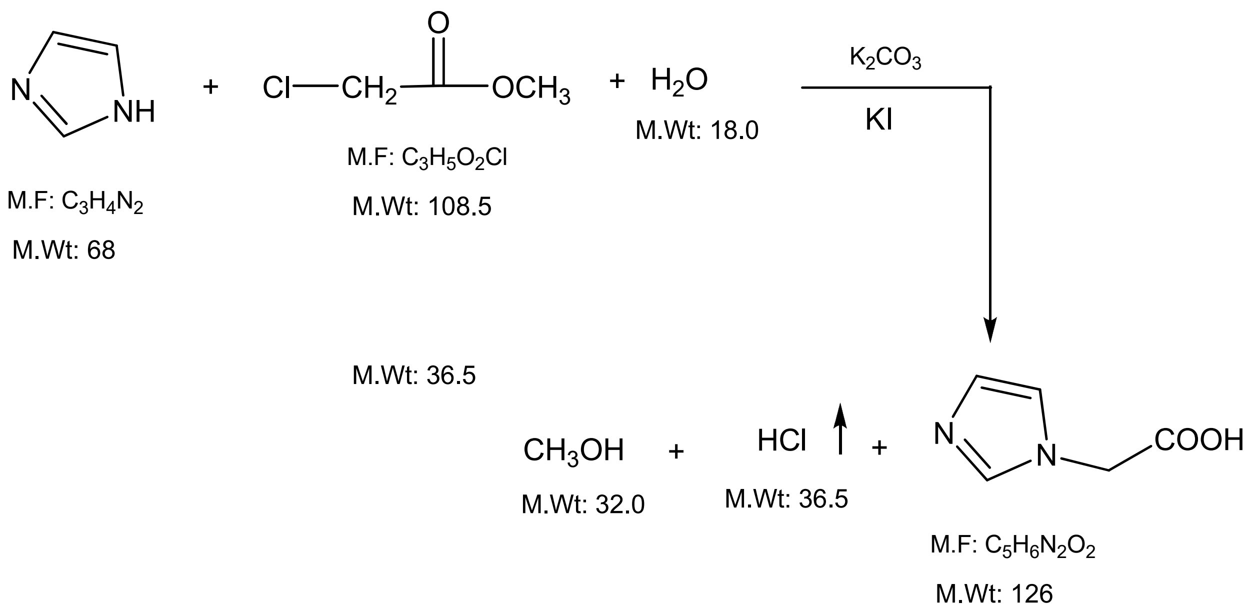
Stage-2

1H-Imidazole acetic acid reacts with phosphorous trichloride and ortho phosphoric acid to form acid compound. Then reacts with Hydrochloric acid and hydrolysis water to get zoledronic acid. It is purified with carbon treatment.

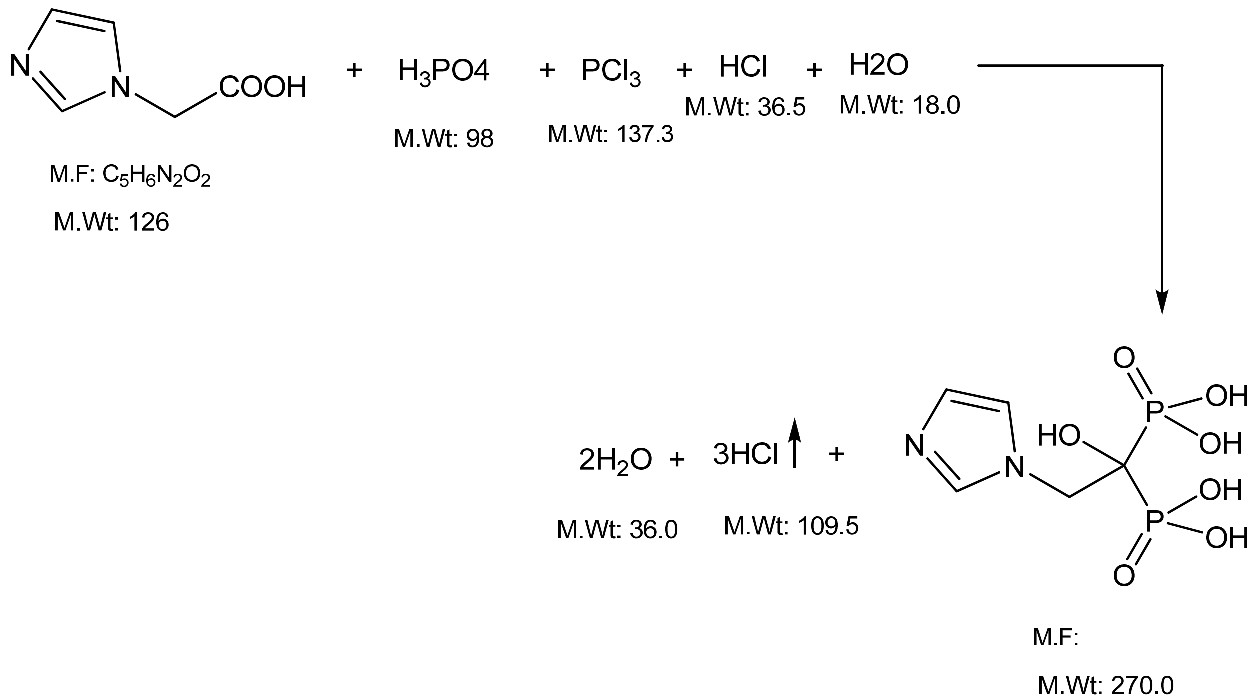
ZOLEDRONIC ACID

ROUTE OF SYNTHESIS

Stage-1

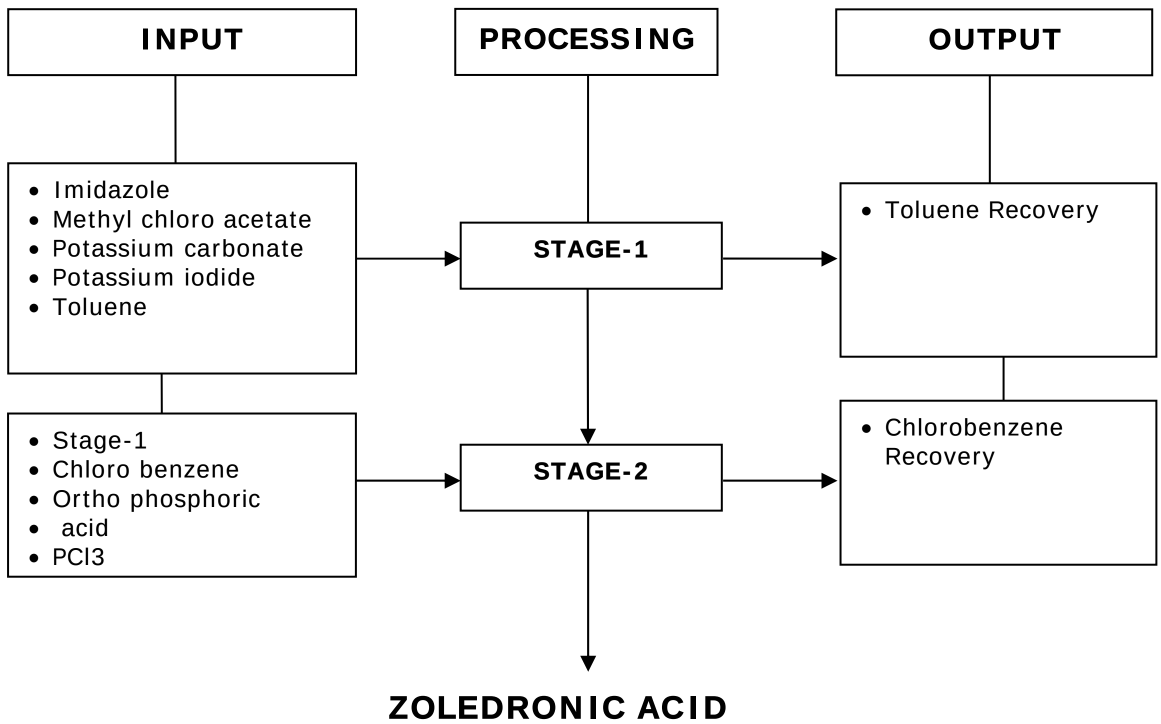


Stage-2



COOH
+ H3PO4 + PCl3 + HCl + H2O
M.F: C5H6N2O2
M.Wt: 126
M.Wt: 98
M.Wt: 137.3
M.Wt: 36.5
M.Wt: 18.0
2H2O + 3HCl +
M.Wt: 36.0
M.Wt: 109.5
HO
OH
OH
OH
OH
M.F:
M.Wt: 270.0

Flow Chart:


INPUT
PROCESSING
OUTPUT
Imidazole
Methyl chloro acetate
Potassium carbonate
Potassium iodide
Toluene
STAGE-1
Toluene Recovery
Stage-1
Chloro benzene
Ortho phosphoric
acid
PCl3
STAGE-2
Chlorobenzene Recovery
ZOLEDRONIC ACID

Material balance:

Material balance of Zoledronic acid Stage-1 Batch size: 10.0 Kg			
INPUT		OUTPUT	
NAME OF THE INPUT	QUANTITY IN KGS	NAME OF THE OUTPUT	QUANTITY IN KGS
Imidazole	14.30	Stage-1	9.3
Methyl chloro acetate	34.30	• Recovery solvent mixture (Ethyl acetate + Toluene)	130.00
Potassium carbonate	26.00	• Solvent loss	10.00
Potassium iodide	3.00	Effluent water	145.30
Toluene	60.00	• Water-80 • Organic Impurities-14.30 • HCl-25 • K2CO3-26	
Water	80.00	Organic solid waste	3.00
Ethyl acetate	80.00		
Total	**297.6**	**Total**	**297.6**

Material balance of Zoledronic acid Stage-2 Batch size: 10.0 Kg			
INPUT		OUTPUT	
NAME OF THE INPUT	QUANTITY IN KGS	NAME OF THE OUTPUT	QUANTITY IN KGS
Stage-1	9.30	Zoledronic acid	10.00
Chloro benzene	40.00	• Chloro benzene Recovery	30.00
Ortho phosphoric acid	16.50	• Chloro benzene Loss	10.00
PCl_3	23.60	Effluent water	66.90
Water	26.00	• Water-26 • Ortho phosphoric Acid-28.60 • Gen.Water-10.8 • HCl-1.5	0
HCl	25.50	Oranic residue	24.00
Total	**140.9**	**Total**	**140.9**

ANNEXURE-4

LIST OF RAW MATERIALS

LIST OF RAW MATERIALS

1. ADEFOVIR

S. No	Raw material used	Quantity per batch in kg	Quantity per day in kg
1	2-(6-Amino-9H-purin9yl)ethanol	10	47.60
2	Ammonium hydroxide	3.62	17.23
3	Diethyl P-Toluene sulfonyloxy methylphophonate	18	85.68
4	DMF	70	333.20
5	Hydrochloric acid	4	19.04
6	Magnesium tert butoxide	3	14.28
7	Toluene	70	333.20
8	Triethyl benzyl ammoniumchloride	2	9.52

2. BORTEZOMIB

S. No	Raw material used	Quantity per batch (kg)	Quantity per day in kg
1	Acetone	15	49.95
2	Di Cyclohexyl Carbodimide	1.4	4.66
3	Di Isopropyl amine	4	13.32
4	Di isopropyl ethylamine	0.45	1.50
5	DIPE	23.85	79.42
6	DMF	15	49.95
7	Ethyl Acetate	20	66.60
8	HMDS	6	19.98
9	Hydrochloric Acid	10.31	34.33
10	IPA	5	16.65
11	Iso Butyl Boronic Acid	7.25	24.14
12	L-Phenyl Alanine	6	19.98
13	MDC	44.5	148.19
14	Methanol	30	99.90
15	N-Heptane	40	133.20
16	N-Hexyl Lithium	4.75	15.82
17	n-Hydroxy Succinamide	3.25	10.82
18	n-Methyl Morpholine	0.35	1.17
19	Pinanediol	6.25	20.81
20	Pyrazine Carboxylic acid	4.5	14.99
21	Sodium bicarbonate	0.39	1.30

22	Sodium Chloride	0.06	0.20
23	Sodium Hydroxide	1.5	5.00
24	Sulphuric acid	4	13.32
25	THF	13	43.29
26	Thionyl Chloride	4.5	14.99
27	Tri Fluoro Acetic Acid	4.25	14.15
29	Zinc Chloride	5.5	18.32

3. CAPECITABINE

S. No	Raw material used	Quantity per batch (kg)	Quantity per day in kg
1	5-Deoxy-5-fluorocytidine	19	126.73
2	Chloro pentyl formate	35	233.45
3	Pyridine	6.25	41.69
4	MDC	660	4402.20
5	Ethyl acetate	350	2334.50
6	Hydrochloric acid	8	53.36
7	Sodium hydroxide	3	20.01
8	MDC	350	2334.50
9	Methanol	300	2001.00
10	Capecitabine crude	26	173.42
11	Activated carbon	10	66.70
12	Ethyl acetate	500	3335.00

4. CLOPIDOGREL BISULPHATE

S. No	Raw material used	Quantity per batch (kg)	Quantity per day in kg
1	Acetone	145	482.85
2	Acetonitrile	50	166.50
3	Activated carbon	13.1	43.62
4	Conc.H2SO4	14	46.62
5	Glycine methyl ester HCl	87.25	290.54
6	IPA.HCl (24%)	85	283.05
7	Isopropyl alcohol	100	333.00
8	Liq.Ammonia solution	19	63.27
9	Methanol	39	129.87
10	Methyl ethyl ketone	145	482.85
11	Methylene Dichloride	300	999.00
12	n-Hexane	250	832.50
13	Paraformaldehyde	21.42	71.33

14	Sodium carbonate	19	63.27
15	Sodium carbonates (20%)	140	466.20
16	Sodium sulfate	21.76	72.46
17	Toluene	685	2281.05
18	Tosylate	90	299.70

5. DAPAGLIFLOZIN

S. No	Raw material used	Quantity per batch (kg)	Quantity per day in kg
1	3,4,5-trihydroxy-6- hydroxymethyl-tetrahydro- pyran-2-one	25	33.25
2	Trimethylsilane Chloride	59	78.47
3	N-Methylmorpholine	55	73.15
4	MDC	300	399.00
5	Toluene	160	212.80
6	Sod.Dihydrogen phosphate	2	2.66
7	Sodium chloride	2	2.66
8	4-Bromo-1-chloro-2-(4- ethoxy benzyl) benzene	43	57.19
9	N-BuLi	10	13.30
10	Methanol	300	399.00
11	Toluene	250	332.50
12	THF	250	332.50
13	n-Hexane	95	126.35
14	Triethyl silane	15	19.95
15	Acetonitrile	300	399.00
16	MDC	300	399.00
17	Sodium bicarbonate	6	7.98
18	Sodium chloride	6	7.98

6. DAPOXETINE HYDROCHLORIDE

S. No	Raw material used	Quantity per batch (kg)	Quantity per day in kg
1	(S)-3-Chloro-1-phenyl propan-1-ol	40	33.20
2	1-Napthol	34	28.22
3	Activated carbon	14	11.62
4	Dimethyl sulfoxide	280	232.40
5	Dimethylamine	10.56	8.76
6	Ethyl acetate	1405	1166.15
7	IsopropanolHCl	22.4	18.59

8	Mesyl chloride	50	41.50
9	Methanol	995	825.85
10	N,N-Dimethyl amino pyridine	0.02	0.02
11	Sodium chloride	34	28.22
12	Triethylamine	126	104.58

7. DARUNAVIR ETHANOLATE

S. No	Raw material used	Quantity per batch (kg)	Quantity per day in kg
1	(3R,3aS,6aR)-Hexahydrofuro [2,3-b]furan-3-yl (4-nitrophenyl) carbonate	83.95	83.95
2	4-Amino-N-((2S,3S)-3-amino-2-hydroxy-4- phenylbutyl)-N-isobutylbenzenesulfonamide	109.44	109.44
3	Ethanol	329.83	329.83
4	Ethyl acetate	1094.45	1094.45
5	N-Methyl-2-Pyrrolidinone	224.88	224.88
6	Sodium Carbonate	29.98	29.98
7	Sodium Chloride	16.49	16.49

8. EMPAGLIFLOZIN

S. No	Raw material used	Quantity per batch (kg)	Quantity per day in kg
1	2-Chloro-s-iodo-Benzoic acid	72	48.24
2	3,4,5-Tris-trimethylsilanyloxy-6-trimethylsilanyloxymethyl-tetrahydropyran-2-one	109	73.03
3	Acetonitrile	300	201.00
4	Aluminium chloride	10	6.70
5	Fluoro benzene	25	16.75
6	Hydrochloric acid	9	6.03
7	MDC	300	201.00
8	Methanol	600	402.00
9	Sodium borohydride	9.5	6.37
10	Tetra hydro-furan-3-ol	22	14.74
11	THF	600	402.00
12	Toluene	600	402.00

9. ETODOLAC

S. No	Raw material used	Quantity per batch (kg)	Quantity per day in kg
1	7-Ethyl Tryptophol	160	27.20
2	3-Oxo-pentanoic acid methyl ester	110	18.70
3	Methanol	500	85.00
4	Sulphuric acid	24	4.08
5	Sodium hydroxide	100	17.00
6	Lithium hydroxide	6.9	1.17
7	Tetrahydrofuran	200	34.00
8	Ethyl acetate	200	34.00
9	Sodium chloride	28	4.76
10	Sodium sulphate	2	0.34

10. ETORICOXIB

S. No	Raw material used	Quantity per batch (kg)	Quantity per day in kg
1	Thioanisole	36	180.00
2	Acetyl chloride	23	115.00
3	Aluminium Chloride	39	195.00
4	Hydrogen peroxide	10.5	52.50
5	EDC	250	1250.00
6	Sulphur	9.1	45.50
7	Sodium hydroxide	11.3	56.50
8	Morpholine	10	50.00
9	Methyl-6-methyl Nicotinate	42.85	214.25
10	THF	1200	6000.00
11	Chloro acetyl chloride	32	160.00
12	Dimethyl formamide	41.2	206.00
13	Phosphorus oxychloride	43.5	217.50
14	Phosphorus Hexafluoride	41	205.00
15	Sodium hydroxide	10	50.00
16	Acetic acid	20	100.00
17	Toluene	500	2500.00
18	Hexane	200	1000.00
19	Activated carbon	2	10.00

11. FAMOTIDINE

S. No	Raw material used	Quantity per batch (kg)	Quantity per day in kg
1	1,3-Dichloro acetone	52	52.00
2	Guanyl thiourea	43.48	43.48
3	Potassium Iodide	2.4	2.40
4	Acetone	170	170.00
5	Thiourea	25.13	25.13
6	Sodium hydroxide	40	40.00
7	N-Sulfamyl-3-chloro propionamidine HCl	68.64	68.64
8	Ammonia (23%)	17.3	17.30
9	Acetic acid	5	5.00
10	Methanol	39	39.00
11	Activated carbon	3	3.00

12. IMATINIB MESYLATE

S. No	Raw material used	Quantity per batch (kg)	Quantity per day in kg
1	3-dimethylamino-1-pyridin-3-yl propenone	15.75	10.55
2	Activated carbon	5	3.35
3	Ammonia	20	13.40
4	Cyanamide	4	2.68
5	Dicyclocarbodiimide	10	6.70
6	Ethyl acetate	120	80.40
7	Hydrogen	0.55	0.37
8	Imatinib	42	28.14
9	Imatinib Intermediate-2 (4-(4-methyl piperazin-1- yl)methyl benzoic acid di hydrochloride)	26.6	17.82
10	IPE	200	134.00
11	Isopropyl alcohol	250	167.50
12	MDC	800	536.00
13	Methane sulfonic acid	10	6.70
14	Methanol	1600	1072.00
15	n-Butanol	1000	670.00
16	Nitric acid	12	8.04
17	Ortho tolylamine	10	6.70
18	Raney nickel	5	3.35
19	Sodium carbonate	10	6.70

20	Sodium hydroxide	6	4.02
21	Sodium sulphate	2	1.34
22	Sulfuric acid	15	10.05

13. IRINOTECAN HCL

S. No	Raw material used	Quantity per batch (kg)	Quantity per day in kg
1	[1,4']Bipiperidinyl-1'- carbonyl chloride Hydrochloride	5	16.65
2	4,11-Diethyl-4,9- dihydroxy-1,12-dihydro-4H-2-oxa-6,12a-diaza-dibenzo[b,h]fluorene-3,13- dione	7	23.31
3	Methylene di chloride	30	99.90
4	N-methyl-2-Pyrrolidine	40	133.20
5	Di isopropyl ether	30	99.90
6	Iso propyl alcohol	50	166.50
7	Hydrochloric acid	0.6	2.00

14. IVABRADINE HCL

S. No	Raw material used	Quantity per batch (kg)	Quantity per day in kg
1	1,3-dihydro-7,8-dimethoxy-2-oxo1H-3-benzazepine	28	37.24
2	1-[(7S)-3,4- dimethoxybicyclo[4.2.0]octa-1,3,5- trien-7-yl]-N-methylmethanamine	24	31.92
3	3-chloro-1-bromo propane	20.5	27.27
4	5%palladium on Carbon	0.5	0.67
5	Acetone	30	39.90
6	Dimethyl sulphoxide	10	13.30
7	Dimethylformamide	20	26.60
8	Hydrochloric acid	5	6.65
9	Hydrochloric acid in IPA	20	26.60
10	Hydrogen	0.25	0.33
11	Hyflow	1	1.33
12	Iso propyl alcohol	10	13.30
13	Methyl iso butyl ketone	15	19.95
14	Methylene dichloride	15	19.95
15	Methylene dichloride	15	19.95
16	Potassium carbonate	17	22.61

17	Potassium Hydroxide	7.16	9.52
18	Sodium Iodide	19	25.27
19	Sodium sulphate anhydrous	0.5	0.67

15. LENALIDOMIDE

S. No	Raw material used	Quantity per batch (kg)	Quantity per day in kg
1	[1,4']Bipiperidinyl-1'- carbonyl chloride Hydrochloride	5	6.65
2	4,11-Diethyl-4,9- dihydroxy-1,12-dihydro4H-2-oxa-6,12a-diazadibenzo[b,h]fluorene-3,13- dione	7	9.31
3	Di isopropyl ether	30	39.90
4	Hydrochloric acid	0.6	0.80
5	Iso propyl alcohol	50	66.50
6	Methylene di chloride	30	39.90
7	N-methyl-2-Pyrrolidine	40	53.20

16. LINEZOLID

S. No	Raw material used	Quantity per batch (kg)	Quantity per day in kg
1	R-3-(3-Fluoro-4- morpholinophenyl)-2-oxooxazolidin-5-yl) methyl methane sulfonate	210	350.70
2	Potassium phthalide	104	173.68
3	TEBAC	10	16.70
4	MIBK	1200	2004.00
5	MDC	800	1336.00
6	Methanol	1250	2087.50
7	Methyl amine (40%)	30	50.10
8	Acetic Anhydride	42	70.14
9	MDC	800	1336.00
10	Ethyl acetate	600	1002.00
11	Sodium hydroxide	12	20.04
12	Activated Carbon	10	16.70

17. MESALAMINE

S. No	Raw material used	Quantity per batch (kg)	Quantity per day in kg
1	Aniline	26	260.26
2	Sodium nitrite	19.3	193.19
3	Hydrochloric Acid	30.6	306.31
4	Salicylic Aacid	38.5	385.39
5	Sodium hydrosulfide	31.3	313.31
6	Carbon	5	50.05
7	Sodium hydroxide	7.2	72.07

18. OLMESARTAN MEDOXIMIL OTL-III

S. No	Raw material used	Quantity per batch (kg)	Quantity per day in kg
1	2-Propyl-1H-imidazole-4,5- dicarboxylic acid diethyl ester	68	22.44
2	4-chloromethyl-5-methyl- [1,3]dioxolan-2-one	30.8	10.16
3	Acetic acid	65	21.45
4	Acetone	500	165.00
5	Activated Carbon	10	3.30
6	Ammonium chloride	10	3.30
7	Di isopropyl ether	100	33.00
8	Ethyl acetate	350	115.50
9	Isopropyl alcohol	600	198.00
10	Lithium hydroxide	6.9	2.28
11	MDC	1200	396.00
12	Methyl magnesium bromide	31.9	10.53
13	N,N-Di methyl Acetamide	8.3	2.74
14	Potassium carbonate	20	6.60
15	Sodium chloride	28	9.24
16	Sodium sulphate	28.5	9.41
17	TBAB	10	3.30
18	TEA	25	8.25
19	Tetrahydrofuran	700	231.00
20	TrityltriazoleButylbromide(TTBB)	140	46.20

19. PANTOPRAZOLE SODIUM

S. No	Raw material used	Quantity per batch (kg)	Quantity per day in kg
1	5-diFluoromethoxy-2-mercapto-	108	143.64
2	Acetic acid	40	53.20
3	Acetic Anhydride	172	228.76
4	Acetone	600	798.00
5	Activated Carbon	10	13.30
6	Ammonia	9	11.97
7	Ammonium Carbonate	50	66.50
8	Ammonium Chloride	25	33.25
9	Ammonium hydroxide	35.5	47.22
10	Chloroform	1050	1396.50

20. PIROCTONE OLAMINE

S. No	Raw material used	Quantity per batch (kg)	Quantity per day in kg
1	3,3-Dimethyl acrylic acid	85	70.55
2	3,5,5-tri methyl-hexanoyl chloride	121	100.43
3	Activated carbon	5	4.15
4	Aluminium Tri Chloride	93	77.19
5	EDC	1000	830.00
6	Ethanolamine	45	37.35
7	Ethyl acetate	1000	830.00
8	Hydroxylamine hydrochloride	47	39.01
9	Methanol	3000	2490.00
10	Para toluene sulfonic acid	20	16.60
11	Sodium bi carbonate	57	47.31
12	Sodium methoxide	25	20.75
13	Sodium sulphate	20	16.60

21. RAMIPRIL

S. No	Raw material used	Quantity per batch (kg)	Quantity per day in kg
1	(cis,endo)-octahydro- cyclopenta[b]pyrrole- 2(s)-carboxylic acid hydrochloride	236	77.88
2	2-(1-carboxy- ethylamino)-4-phenyl- butyric acid ethylester	343	113.19
3	5% Pd/Activated carbon	10	3.30

4	Ethanol	650	214.50
5	Ethyl acetate	600	198.00
6	Triethylamine	600	198.00

22. RISPERIDONE

S. No	Raw material used	Quantity per batch (kg)	Quantity per day in kg
1	6-Fluoro-3-(4- piperidinyl)-1,2- benzisoxazole Hydrochloride	260	33.80
2	3-(2-Chloroethyl)-2-Methyl-6,7,8,9- Tetrahydro-4H-pyrido[1,2-α]Pyrimidin-4-one HCl	315.12	40.97
3	Potassium iodide	2	0.26
4	Methyl Isobutyl ketone	300	39.00
5	Sodium hydroxide	9	1.17
6	Isopropyl alcohol	500	65.00
7	DMF	25	3.25
8	Activated carbon	5	0.65
9	Hyflow	5	0.65

23. SACUBITRIL

S. No	Raw material used	Quantity per batch (kg)	Quantity per day in kg
1	Tris(4- methoxyphenyl)borane ammonia complex	98	65.66
2	Hydrochoric acid	73	48.91
3	Toluene	700	469.00
4	Acetone	400	268.00
5	Furan-2,5-dione	26	17.42
6	Methanol	400	268.00
7	Sodium bicarbonate	22	14.74

24. SPARFLOXACIN

S. No	Raw material used	Quantity per batch (kg)	Quantity per day in kg
1	Pentafluorobenzoic acid	60	100.20
2	Thionylchloride	33.66	56.21
3	Diethylmalonate	45.26	75.58
4	Sodium Hydroxide	11.31	18.89

5	Magnesium	4	6.68
6	Toluene	600	1002.00
7	Ethanol	1050	1753.50
8	Triethyloxoformamide	40	66.80
9	Cyclopropylamine	15.17	25.33
10	Potassium caronate	18.33	30.61
11	Benzyl amine	27.32	45.62
12	Potassium carbonate	17.6	29.39
13	Toluene	800	1336.00
14	Hydrogen	0.5	0.84

25. TADALAFIL

S. No	Raw material used	Quantity per batch (kg)	Quantity per day in kg
1	(1R-3R)-Methyl-1, 2, 3, 4- tetrahydro-2-chloroacetyl1-(3, 4- methylene dioxyphenyl)-9H-pyrido [3, 4-b]- 3-carboxylate	112	187.04
2	Aq methyl amine (40%)	10	16.70
3	Dimethyl sulphoxide	150	250.50
4	Hydrogen peroxide	17	28.39
5	MDC	2200	3674.00
6	Methanol	1025	1711.75
7	Phosphorous oxy chloride	26	43.42
8	Sodium Hydroxide	60	100.20
9	Sodium hypochlorite	37	61.79
10	Sodium methoxide	27	45.09
11	Thionyl chloride	60	100.20
12	Toluene	800	1336.00

26. TAMSULOSIN HYDROCHLORIDE

S. No	Raw material used	Quantity per batch (kg)	Quantity per day in kg
1	(S)-5-(2-aminopropyl)-2- methoxybenzene sulfonamide	129	21.93
2	1-((Bromomethoxy)methyl)- 2-ethoxybenzene	130	22.10
3	50% lye solution	20	3.40
4	Ethanol	900	153.00
5	Ethyl acetate	500	85.00
6	Hydrochloric acid	27.3	4.64

7	Methanol	900	153.00
8	n-Hexane	500	85.00

27. TELMISARTAN

S. No	Raw material used	Quantity per batch (kg)	Quantity per day in kg
1	Methyl-4-(butyramido)-3-methyl-	73	121.91
2	Methanol	865	1444.55
3	Palladium carbon(Wet 5% MC)	3	5.01
4	Sodium hydroxide	10.4	17.37
5	Hydrochloric acid	31.6	52.77
6	N-Methylbenzene-1,2-diamine	32	53.44
7	Phosphoric acid	90	150.30
8	Sodium hydroxide	110.2	184.03
9	Methyl-4-methyl-1,1-biphenyl-2-	57	95.19
10	1,3-dibromo-5,5-dimethyl	72	120.24
11	Azo bis isobutyronitrile	2.9	4.84
12	Sodium meta bisulphate	4.3	7.18
13	Chloroform	320	534.40
14	n-Hexane	100	167.00
15	Potassium hydroxide	18	30.06
16	Acetone	450	751.50

28. THALIDOMIDE

S. No	Raw material used	Quantity per batch (kg)	Quantity per day in kg
1	Pthalyl Glutamic acid	116	38.28
2	Urea	25	8.25
3	N,N-Dimethyl formamide	100	33.00
4	Sodium carbonate	20	6.60
5	Activated carbon	5	1.65

29. TRICLABENDAZOLE

S. No	Raw material used	Quantity per batch (kg)	Quantity per day in kg
1	2,3-Di chloro –phenol	258	51.60
2	3,4-Di chloro-phenyl amine	283	56.60
3	Acetic anhydride	179	35.80

4	Carbon di sulphide	113	22.60
5	Di methyl sulphate	204	40.80
6	Ethyl acetate	500	100.00
7	Hydrogen	3.05	0.61
8	Methanol	3100	620.00
9	Nitric acid	107	21.40
10	Palladium Carbon	10	2.00
11	Potassium hydroxide	92	18.40
12	Sodium hydroxide	235	47.00
13	Toluene	500	100.00

30. ZOLEDRONIC ACID

S. No	Raw material used	Quantity per batch (kg)	Quantity per day in kg
1	Imidazole	14.3	47.62
2	Methyl chloro acetate	34.3	114.22
3	Potassium carbonate	26	86.58
4	Potassium iodide	3	9.99
5	Toluene	60	199.80
6	Ethyl acetate	80	266.40
7	Chloro benzene	40	133.20
8	Ortho phosphoric acid	16.5	54.95
9	PCl3	23.6	78.59
10	HCl	25.5	84.92

ANNEXURE-5

TSDF AGREEMENT COPY

Laureatz
TECHNOCHEM

Laureatz Technochem Pvt Ltd.

Date: 26.04.2021

To,

The Member Secretary, Industry - II,
Ministry of Environment, Forest & Climate Change,
Vayu Wing, Indira Paryavaran Bhavan,
Jor Bagh Road, Jor Bagh, New Delhi – 110003.

Sir,

Sub: Regarding MoU agreement with CETP and TSDF

With reference to the above subject, M/s. Laureatz Technochem Pvt Ltd proposed for API manufacturing unit at Kadechur Industrial area, Yadagir Taluk & District, Karnataka-585221 and accordingly requested KIADB, to allot 2 acre of land with Application dated 07-10-2020, KIADB confirmed the land and issued the demand notice to pay initial payment with letter dated **KIADB/HO/Allot/Secy-3/11436 /2020-21 dated:22-01-2021** With continuation of the demand notice, M/s. Laureatz Technochem paid the initial payment to KIADB on 20-02-2021, approached with written letter to KIADB on 06-03-2021 for allotment of land and parallelly approached M/s. Mother Earth Environ Tech Pvt. Ltd to have membership for CETP and TSDF facility. KIADB took time to issue the allotment letter but M/s. Mother Earth Environ Tech Pvt Ltd processed and issued the CETP and TSDF membership agreement one day earlier than the allotment letter. Here with we are submitting the actuals and facts in this regard.
Requesting you to kindly consider the same and issue us the environmental clearance at the earliest.

Thanking You,
Yours Faithfully,
For **M/s. Laureatz Technochem Pvt Ltd,**

LAUREATZ TECHNOCHEM HYD.

Sri. T. V. Srihari
Managing Director

Encl: as above

KARNATAKA INDUSTRIAL AREAS DEVELOPMENT BOARD
(A Government of Karnataka Undertaking)
49, 4th & 5th Floors, 'East Wing', Khanija Bhavan, Race Course Road, Bengaluru - 560 001
Phone : 080-22265383 Fax : 080-22267901
Website : www.kiadb.in email: ceoemkiadb@gmail.com

No. IADB/HO/Allot/23147/14148 /2020-21 Date: 20.03.2021.

RPAD

Prop: T.V.Srihari,
M/s. Laureatz Technochem Pvt Ltd,
Plot No.147, Sri Sai Nilayam,
Near Tennis Park Pragtinagar,
Kutbullapur, Niza,
Hyderbad-500 090.

Sis,

ALLOTMENT LETTER

Sub: Allotment of 2.00 acres (8094.00 Smtrs) of land in Plot No.62 of Kadechur Industrial Area, Yadgir District – reg.

Ref : 1. 122th SLSWCC meeting dt: 07.01.2021.
2. Your letter dt: 16.03.2021.

****

In pursuance of the approval given by the 122th SLSWCC meeting dt: 07.01.2021 you have been 2.00 acres (8094.00 Smtrs) of land in Plot No.62 of Kadechur Industrial Area, Yadgir District for Manufacture of **"APIS & Intermediates"** subject to the terms and conditions indicated in the Annexe-A appended hereto and also the terms and conditions mentioned hereafter.

1. The allotment of land is on lease –cum sale basis for a period of **10** years. The lease is liable to be cancelled automatically in case the land is not utilized within a period of three years in case of MSME, large projects or five years in cases of mega, ultra mega, super mega projects as defined in the industrial policy or the land is not utilized within a specified period approved by DLSWCC/SLSWCC/SHLCC/ Allotment Committee without obtaining valid extensions from the concerned investment approving committees detailed in (c)(iii) of Annexe 'A'.
   The tentative premium payable for allotment of the said land has been fixed at **Rs.37.50/- Lakhs** per Acre.

2. (a) The tentative premium of the said plot is **Rs.75,00,000/-.** and EMD **Rs.10,000/-** per acre

   (b). The tentative premium of the land shall be paid as follows:

   i. A Sum of Rs.**15,10,000/-** being paid vide Rt. No.0050337 dt:16.03.2021 is adjusted towards 20% land cost & EMD.

   ii. A sum of Rs.**60,00,000/-** being the balance 80% of the tentative premium of land shall be paid within **150 days** from the date of this letter ie on or before **17.08.2021.**

Secretary-II
Karnataka Industrial Areas Development Board
Bengaluru - 560 001.

MEMBERSHIP No. MEEPL/MEM/ 2021 / 2022 / 97

MEEPL

MOTHER EARTH ENVIRON TECH PRIVATE LIMITED

(A DIVISION OF CHAITRA GROUP)

An Integrated Management System Certified Company | Quality Management System-ISO 9001:2015
Environmental Management System – ISO 14001:2015 | Occupational Health and Safety Management System- ISO 45001:2018

Plot No. 158 to 164, KIADB Kadechur Industrial Estate, Kadechur Village, Tehsil and Yadgiri District, Karnataka - 585221

JAS-ANZ ICS

Reg. No.: RI91/10468

COMMON HAZARDOUS WASTE

TREATMENT STORAGE DISPOSAL FACILITY (CHWTSDF)

MANAGING HAZARDOUS WASTE

MEMBERSHIP CERTIFICATE

This Is To Certify that LAUREATE TECHNOCHEM PVT LTD

Plot No. 62, KIADB, Kadechur Industrial Area,

Yadgir District - 585221 - Karnataka

is a member of Mother Earth Environ Tech Pvt. Ltd.

Date : 19/03/2021

This certificate is valid up to 31/03/2022

Mother Earth Environ Tech Pvt. Ltd. Kadechur

T.V.

Authorised Signatory

सत्यमेव जयते

INDIA NON JUDICIAL

Government of Karnataka

e-Stamp

Certificate No.	:	IN-KA78725130448674T
Certificate Issued Date	:	18-Mar-2021 10:35 AM
Account Reference	:	NONACC/ kakscsa08/ KENGERI1/ KA-BA
Unique Doc. Reference	:	SUBIN-KAKAKSCSA0831843972352205T
Purchased by	:	MOTHER EARTH ENVIRONMENT TECH PVT LTD
Description of Document	:	Article 12 Bond
Description	:	AGREEMENT
Consideration Price (Rs.)	:	0 (Zero)
First Party	:	MOTHER EARTH ENVIRONMENT TECH PVT LTD
Second Party	:	LAUREATZ TECHNO CHEM PVT LTD
Stamp Duty Paid By	:	MOTHER EARTH ENVIRONMENT TECH PVT LTD
Stamp Duty Amount(Rs.)	:	50 (Fifty only)

Karnataka State Co-Operative Societies Association Branch K.S Town 560060

Please write or type below this line

THIS AGREEMENT is made at Bengaluru on this 19th **day of March 2021** BY AND BETWEEN **M/s MOTHER EARTH ENVIRON TECH PRIVATE LIMITED**, a Company registered under the Companies Act, 1956 and having its registered office at No.13, Challeghatta Village, Kengeri Hobli, Bengaluru South Taluk, Bengaluru - 560074, Karnataka, India, represented by its Director Sri Hemanth Gowda P, S/o Sri T N Paramesh (hereinafter referred as "MEEPL/Operator" which expression shall unless repugnant to the subject or context include its administrators, successors and assigns) as Party No.1 AND

M/s. LAUREATZ TECHNOCHEM PVT LTD., having its Factory at Plot No.62, KIADB,

For LAUREATZ TECHNOCHEM PVT LTD

Managing Director

For MOTHER EARTH ENVIRON TECH PRIVATE LIMITED

Director

Kadechur Industrial Area, Yadgir Taluk & District, Karnataka, having its Registered office at Plot No.147, Sri Sai Nilayam, Pragathi nagar, Kukatpalli, (near JNTU), Hyderabad-500090, Telangana, represented by its Managing Director Mr.T.V. Srihari, S/o Rama Seshagiri Rao aged about 60 hereinafter referred as "GENERATOR/User" which expression shall unless repugnant to the subject or context include its administrators, successors and assigns) as Party No.2

The OPERATOR and GENERATOR hereinafter individually referred as 'Party' and collectively as 'Parties'.

WHEREAS OPERATOR is engaged in the business of Waste Management and presently operating 'Common Hazardous Waste Treatment, Storage and Disposal Facility (TSDF)' Plot No 158 - 164, KIADB Kadechur Industrial Area, Plot No 158-164, KIADB Kadechur I.E, Kadechur, Yadgir Dist., Karnataka State, under its control, as per the guidelines under Hazardous Rules and as per the authorization of CPCB/KSPCB.

WHEREAS the GENERATOR being desirous of availing the services of collection, transport, treatment, storage and disposal of Hazardous Waste generated at their premises approached OPERATOR and the same has been accepted by OPERATOR on the terms and conditions set out in this agreement read with the provisions of Hazardous Waste Rules and supervision of KSPCB.

NOW THEREFORE in consideration of the above, the OPERATOR and GENERATOR have agreed to enter into this agreement under the terms and conditions set forth hereinafter.

NOW IT IS HEREBY AGREED BY AND BETWEEN THE PARTIES HERETO AS FOLLOWS:

1. DEFINITIONS AND INTERPRETATION

1.1 **Definitions**: In this Agreement, including in the recitals hereof, the following words, expressions and abbreviations shall have the following meanings, unless the context otherwise requires:

"Agreement" means this agreement including all attachments, annexure or Schedules annexed thereto.

"CPCB" means Central Pollution Control Board.

"Hazardous Rules" means Hazardous Waste (Management, Handling & Trans boundary Movement) Rules, 2008 as amended from time to time.

"MoEF" means Ministry of Environment & Forests.

"KSPCB" means Karnataka State Pollution Control Board, Karnataka in the state in which the TSDF operated by OPERATOR is situated.

For LAUREATZ TECHNOCHEM PVT LTD

J.V.Srihari

Managing Director

For MOTHER EARTH ENVIRON TECH PRIVATE LIMITED

Director

"TSDF" means the Common Hazardous Waste Treatment, Storage & Disposal Facility by name "MOTHER EARTH ENVIRON TECH PRIVATE LIMITED" (MEEPL) operated by OPERATOR and located at Plot No 158 - 164, KIADB Kadechur Industrial Area, Plot No 158-164, KIADB Kadechur I.E, Kadechur, Yadgir Dist, , Karnataka State, pursuant to the Consent for Operation Storage and Disposal of Hazardous Waste bearing No. AW -319253, dated 24.07.2020 valid up to 30.06.2024 issued by the Competent Authority under Section 25/26 of the Water (Prevention and Control of Pollution) Act, 1974, under Section 21 of Air (Prevention and Control of Pollution) Act, 1981 and Authorization under the Provisions of Hazardous Waste (Management, Handling & Trans boundary Movement) Rules, 2008.

"Waste" means Hazardous waste generated in the premises of the GENERATOR.

1.2 **Interpretation**: In this Agreement, unless the subject or context otherwise requires:

A. Reference to the singular number shall include references to the plural number and vice-versa;

B. References to a "person" shall include references to natural persons, partnership firms, companies, bodies corporate and associations, whether incorporated or not or any other organization or entity including any governmental or political subdivision, ministry, department or agency thereof;

C. References to recitals, clauses and schedules / annexure are to recitals, clauses and schedules to this Agreement;

D. Any reference herein to a statutory provision shall include such provision, as in force for the time being and as from time to time, amended or re-enacted in so far as such amendment or re-enactment is capable of applying to any transactions covered by this Agreement.

E. Clause headings used herein are only for ease of reference and shall not affect the interpretation of this Agreement.

1.3 The Schedules / Annexure shall form an integral part of this agreement.

1.4 All capitalized terms used in this agreement which have not been specifically defined in this Agreement shall, unless in consistent with the context have the meanings assigned to them under the Authorization Agreement.

2 SCOPE OF SERVICES

2.1 The scope of services to be provided by OPERATOR under this agreement shall be collection, transportation, treatment, storage and disposal of Hazardous waste generated at the premises of the GENERATOR located at: Plot No.62, KIADB, Kadechur Industrial Area, Yadgir Taluk & District, Karnataka

For LAUREATZ TECHNOCHEM PVT LTD

Managing Director

For MOTHER EARTH ENVIRON TECH PRIVATE LIMITED

Director

2.2 It is agreed between the Parties that OPERATOR shall provide the above services to the GENERATOR through Mother Earth Environ Tech Private Limited (MEEPL), a TSDF operated by OPERATOR

2.3 OPERATOR shall dispose the Waste as per the mandate of the CPCB guidelines with the provisions of Hazardous Waste Rules.

2.4 OPERATOR also agrees to accept even non-hazardous wastes from the GENERATOR provided that the concerned KSPCB issues 'NO OBJECTION' to the GENERATOR.

3 GENERAL CONDITIONS

3.1 The GENERATOR shall immediately upon execution of this agreement, become registered member of OPERATOR by paying a membership non-refundable fee of **Rs.5000-00. (Excluding GST)**

3.2 Security deposit/Advances shall be adjustable against user charges in the event either party decides to terminate this agreement. No financial charges are applicable on such security deposit. The member shall pay (Rs10000) Ten Thousand only a Security Deposit (interest free), equal to the summation of disposal charges and transportation charges of one month or minimum Rs. 50,000/- whichever is higher at the time of membership, which is refundable on termination of agreement.

3.3 The GENERATOR shall take the representative of the OPERATOR to collect the sample of the hazardous waste and inform the entire process details which leads to generation of such Waste, for the purpose of determining the Waste characteristics and to decide parameters for comprehensive analysis, as well as its final pathway of treatment, storage and disposal of the Waste.

3.4 OPERATOR shall carry on the comprehensive analysis of the Waste in its laboratory or at the collaborative laboratory mutually agreed by the operator at the cost of the GENERATOR, as per the parameters prescribed by CPCB/KSPCB. The comprehensive analysis report shall be used by OPERATOR to determine the disposal pathway based on the waste characteristics & as per MoEF, CPCB and the KSPCB rules and guidelines issued from time to time. The disposal pathway shall be mutually agreed between the GENERATOR & OPERATOR and shall form basis for disposal/ user charges.

3.5 The charges for Collection, Transport, Treatment, Storage and Disposal Facility (herein after called as USER CHARGES) will be applicable to GENERATOR as per Annexure – Item No. 01, Item No. 02, Item No. 03 & Item No 04 (wherever applicable) User Charges quoted in Annexure head wise are the initial basis rates for the GENERATOR which is indicative and all the charges which are defined by MEEPL on a time to time basis shall apply on pro-rata basis common to all MEEPL MEMBERS who have signed similar agreement with MEEPL.

3.6 MEEPL, on receipt of information from the GENERATOR, will plan and schedule collection of the Waste from the GENERATOR premises. Safety of community (humans, flora and fauna) during transportation is of prime importance and thus safety information

For LAUREATZ TECHNOCHEM PVT LTD

Managing Director

For MOTHER EARTH ENVIRON TECH PRIVATE LIMITED

Director

will have to be provided by the GENERATOR in (Form 8), Waste Transportation Manifest (Form 10) and TREM Card (Form 9) for every Waste type as per Hazardous Waste (Management and Handling) Rules 1989 and as amended from time to time. In the event of false information to MEEPL of any nature, all associated direct and indirect liabilities are the responsibility of the GENERATOR.

3.6 The GENERATOR shall provide the details of Waste to OPERATOR as mentioned below:

i) Complete details of the Waste and its characteristics regarding presence of explosive / ignitable / corrosive / toxic / odorous compounds in the manifest provided to the transporter for safe transportation and disposal.

ii) Safety Information in 'Form 8', 'waste transportation manifest' in Form 10 and 'TREM card' in Form 9 for every Waste type as per Hazardous Rules.

3.7 OPERATOR shall analyse the Waste received through finger print analysis as per the parameters prescribed by CPCB/KSPCB.

3.8 In the event there are any differences in the analysis results of comprehensive analysis and finger print analysis, the GENERATOR may either accept the results of OPERATOR or send their samples to a mutually agreed third party analysis at their own cost. Any discrepancy in this respect shall be informed to the KSPCB.

3.9 The GENERATOR shall provide a fresh comprehensive analysis report when there is a change in the waste characteristics, manufacturing processes, changes in product mix etc.

3.10 In the event of any false information or withholding information, all the liabilities, whether directly or indirectly arising therefrom, during transportation, handling, treatment & disposal shall be the responsibility of the GENERATOR.

3.11 The GENERATOR shall provide an advance declaration during April every year assuring quantity of Waste they would be sending to OPERATOR during that Financial Year till 31st March and declare Waste quantities on annual/monthly basis as per Hazardous Rules as per the declaration format provided in Annexure.

3.12 In case of OPERATOR agreeable to provide its containers available at its TSDF to the GENERATOR, the GENERATOR has to pay the container maintenance charges to OPERATOR as per **Annexure Item No. 4.**

3.13 The Waste supplied by the GENERATOR shall not contain any kind of nuclear / radioactive or any other prohibited material which is against CPCB/KSPCB/MOEF&CC guidelines as amended from time to time.

3.14 OPERATOR shall also supply specially designed containers to help segregate the Waste and arrange the transportation of such containers bearing the waste from the premises of the GENERATOR.

For LAUREATZ TECHNOCHEM PVT LTD

Managing Director

For MOTHER EARTH ENVIRON TECH PRIVATE LIMITED

Director

3.15 In case a waste is classified as explosive in nature, the fact has to be informed to MEEPL. Detailed information on its characteristics and safe handling practices shall be furnished in advance to MEEPL. In case no information is provided, or information is held back and in the event of any explosion or accident during transportation and during handling taking place at MEEPL site, the GENERATOR shall be solely responsible for all such associated direct and indirect liabilities.

4 USER CHARGES & TERMS OF PAYMENT:

4.1 The GENERATOR shall pay monthly user charges to OPERATOR for its services as per the slab mentioned in **Annexure Item Nos 1,2& 3**, which is based upon the declaration given by the GENERATOR as per Annexure. In addition the GENERATOR shall also be liable for payment of applicable taxes, levies etc., if any, on the user charges.

4.2 The user charges are subject to annual revision on the basis of government of India wholesale price index and also in every event of escalation of fuel costs, power tariff, change in disposal technologies / method, wage hike etc.

4.3 OPERATOR shall send the monthly user charges invoice to the GENERATOR on or before 5th of every succeeding month and the bill amount shall be payable by the GENERATOR on or before 15th of the same month. The GENERATOR shall clear the bills within a period of 15 days from the date of receipt of the invoice.

4.4 In case of delayed payments the GENERATOR shall be liable to pay interest at the rate of one and a half per cent (1.5%) per month on the outstanding amount during the default period. In the event of any bill amount along with interest being overdue for more than three months, OPERATOR reserves its right of refusal to extend/provide its services to the GENERATOR and even to terminate this agreement with immediate effect without prejudice to any other steps that it might take against the GENERATOR for recovery of its overdues.

4.5 In case, for any reason, if MEEPL vehicle is sent back to MEEPL without providing the waste even after being requisitioned by the GENERATOR, the GENERATOR has to bear and pay the TRANSPORT CHARGE for that trip as mentioned under **Annexure Item 03** for the full capacity load of vehicle.

5 PERIOD OF AGREEMENT

This Agreement shall be valid for a period of 5 years (Five Years) effective from 19/03/2021 subjected to earlier termination by either party in accordance with the provisions of this agreement.

6 FORCE MAJEURE

Notwithstanding anything else contained herein, neither Party hereto shall be liable for damages or to have this agreement terminated for any delay or default in the performance of such Party hereunder if such delay or default in performance derives from conditions beyond the reasonable control of such Party, including but not limited to, acts of god,

For MOTHER EARTH ENVIRON TECH PRIVATE LIMITED

Director

For LAUREATZ TECHNOCHEM PVT LTD

Managing Director

strikes, fires, floods, extreme drought, shortage of supply, riots, work stoppages, embargoes, governmental actions or damage to the plant or facility or any cause unavoidable or beyond the control of either party including any arbitrary ruling by the Government prohibiting the handling of the Waste or continuing domestic or international problems such as wars or insurrections.

7 INDEMNITY

The GENERATOR do hereby indemnify, keep indemnified and hold harmless the OPERATOR, its representatives, nominees and officers (including without limitation, reimbursement of any loss suffered by OPERATOR and / or its officers, directors, employees, agents or affiliates and their legal costs), awards, damages, losses and / or expenses, either pecuniary or non-pecuniary in nature, arising directly or indirectly, whether during collection or transportation or treatment or storage or disposal, as a result of:

a) The Waste supplied by or collected from the GENERATOR in case of any mismatch of waste from TREM Card or finger prints; and any non-disclosure or wrong disclosure of any information as to the characteristic of waste, or

b) Any civil or criminal proceedings or liability under any law for any unlawful dumping of untreated wastes by the GENERATOR either at the project site of OPERATOR or anywhere else.

c) Any violation or non-compliance by the GENERATOR of the provisions of Hazardous Rules, Water (Prevention and Control of Pollution) Act, 1974 and Air (Prevention and Control of Pollution) Act, 1981 including any modifications, amendments made thereto and any new acts and rules legislated and promulgated governing the activity under this Agreement during the term of this Agreement or any extension thereof.

8. TAKE OVER OF UNIT OF THE GENERATOR

In the event of Change of Management in respect of the GENERATOR by way of takeover of the unit for any reason what-so-ever (including takeover of the assets & liabilities) by a new Management, the old management as well as the new management shall be liable & responsible for payment & settlement of the dues of MEEPL, if any existing on the date of such Management transfer. However, the old Management shall be liable for the amount due, if any only till the date of such Management transfer. Post the effective date of Management transfer, the new Management shall be liable & responsible for all payments, if any & whenever arising under this agreement.

9 EVENTS OF DEFAULT

The following shall constitute GENERATOR's events of default:

a. If the GENERATOR fails / refuses to pay its bills / dues for the user charges payable under this Agreement.

For LAUREATZ TECHNOCHEM PVT LTD

Managing Director

For MOTHER EARTH ENVIRON TECH PRIVATE LIMITED

Director

*In case of **GENERATOR** to:*

Attn: T.V. Srihari, Managing Director, M/s. LAUREATZ TECHNOCHEM PVT LTD

*In case of **OPERATOR** to:*

Attn: Director, Mother Earth Environ Tech Pvt. Ltd.

And shall be deemed to have been duly given or made by way of presentation as under:

(a) if personally delivered, upon delivery at the address of the relevant Party;

(b) if sent by registered post with acknowledgement due, then expiry of seven (7) days after such posting;

(c) if sent by facsimile, upon receipt of confirmation from the receiver, that the facsimile has been received;

(d) If sent by courier, four (4) days after the date of such dispatch.

15.2 Either party may notify the other Party of any change in its name, relevant address or contact number for the purposes of Clause 15.1 as provided herein above.

16 SURVIVAL

Notwithstanding anything contained in this Agreement, the provisions of clauses 4, 7 and 9 of this Agreement shall continue for a period of 5 years after termination of this agreement or expiry of the period of this agreement whichever is later.

17 DISPUTE RESOLUTION

All disputes arising out of this agreement and the contents thereof between the GENERATOR and OPERATOR shall be referred to an Arbitration in accordance with the provisions of the Arbitration and Conciliation Act, 1996. The arbitration proceedings shall be conducted in English and the Arbitration shall take place at Bangalore. The arbitral award shall be final and binding upon both the parties.

For LAUREATZ TECHNOCHEM PVT LTD

Managing Director

For MOTHER EARTH ENVIRON TECH PRIVATE LIMITED

Director

18 APPLICABLE LAW

OPERATOR and the GENERATOR mutually agree that the courts of law at Bangalore shall have jurisdiction over all the disputes arising out of this Agreement & the decision of such Courts shall be final & binding upon both the parties.

For M/s Laureatz Technochem Pvt Ltd

For LAUREATZ TECHNOCHEM PVT LTD

T.V. Srihari

Name: T.V. Srihari Managing Director
Designation: Managing Director

Witness:

Signature g. Balakrishna

Name I.BALAKRISHNA.

Designation Engineering Division

Witness:

Signature

Name --

Designation-----------------------------------

For M/s Mother Earth Environ Tech Pvt Ltd

For MOTHER EARTH ENVIRON TECH PRIVATE LIMITED

Name: Hemanth Go Director
Designation: Director

Witness:

Signature

Name --

Designation-----------------------------------

Witness:

Signature A. Nandan

Name ABHINANDAN

Designation MARKETING

ANNEXURE

Common Hazardous Waste Treatment Storage & Disposal Facility

1) User Charges:

The GENERATOR shall pay the following applicable User Charges based on the Waste Types.

Sr. No.	Name Of Waste	Mode of Disposal	Rate Per M.T
1			
2			
3			
4			
5			

2) Comprehensive Analysis Fee: Rs.15000-00 per waste sample (Valid for 2 years and if there is any process and raw material change, client will be intimated thereupon and another comprehensive analysis required for that waste shall be conducted at the cost of the GENERATOR)

3) Transportation Charges:

a) Waste Transport Charges: (To & Fro)

Minimum Charges shall be Rs. 3000 for 0 to 20 Km, Rs. 5000 for 21 to 50 km and Rs. 6750 for 51 to 100 Km both ways from our facility per trip. For above 100 Km Rs. 6.75 per Km per ton charge will be applicable for both sides. The charges shall be calculated by taking into consideration minimum 90% of the container loading capacity/vehicle capacity. Since the diesel rate is fluctuating frequently the transportation charges/rate is calculated every month based on the average diesel rate during the month. The Distance (D) will be considered on actual basis from the waste generating site of the unit/s to the TSDF site.

b) Truck Detention Charges:

Maximum time of Three hours is allowed for the truck to be detained at the premises of the GENERATOR from the time of reporting of the truck to the Security Gate of the premises of the GENERATOR. In the event this three hours period is exceeded, then Rs. 500/- per additional hour shall be charged as detention charges unless it is mutually agreed and accepted beforehand between both the parties in writing about the truck detention beyond the stipulated maximum period of three hours.

For LAUREATZ TECHNOCHEM PVT LTD

Managing Director

For MOTHER EARTH ENVIRON TECH PRIVATE LIMITED

Director

4) Container Maintenance Charges:

[Applicable when containerized truck Services are utilized]
The GENERATOR has to pay the following charges as mentioned below towards the services of the Container, if opted for by the GENERATOR. The cost of such maintenance service shall be decided and mutually agreed upon by both the parties.

Note: Since these containers will be replaced after three years, the applicable container maintenance charges will be valid for **three** years only.

a) Container Handling Charges:

The GENERATOR shall pay for Container Handling Charges to MEEPL as follows for utilizing the Material Handling Equipment.

For Hook lift/Crane Operations: Rs.....N/A........./- per MT
For Waste transported by GENERATOR, Handling (Unloading) Charges shall be Rs.N/A../- per MT, if not transported by a Dumper/Tipper.

5) TAXES / LEVIES: All Government / Municipal / Panchayat Taxes / Duties/ Levies/ Octroi / Tolls etc, as applicable from time to time, shall be payable by the GENERATOR.

6) Other/ Miscellaneous Terms & Conditions:

- This membership is valid as long as the GENERATOR is in good standing with the TSDF and has continued valid authorization from KSPCB regarding the Waste Generation.
- The membership deposit is one time nonrefundable deposit with benefits for full tenure of TSDF. The deposit will not be refunded, when desired to discontinue membership, before the end of life of TSDF.
- This TSDF shall accept all kinds of land fillable hazardous wastes, as classified in Hazardous Waste Rules, as amended from time to time for disposal.
- Acceptance of waste is dependent on the fulfillment of regulatory and statutory guidelines for operations of TSDF issued from time to time.
- Pathway of disposal of wastes and its price shall be decided based on the guidelines issued from time to time by regulatory authorities and shall be at the discretion of TSDF.
- From the date of signing of agreement, the GENERATOR shall submit samples as stipulated in Clause Nos.3.3 and 3.4 of this Agreement for comprehensive analysis within 15 days. The analysis report generated by OPERATOR will form the basis of disposal pathway along with disposal charges as per **Annexure Item No. 02** which will be annexed after analysis of the sample and will form part of this agreement.

For LAUREATZ TECHNOCHEM PVT LTD

Managing Director

For MOTHER EARTH ENVIRON TECH PRIVATE LIMITED

Director

DECLARATION

We **M/s. LAUREATZ TECHNOCHEM PVT LTD**, hereby declare that based on our industry production and our annual projections we shall be disposing the following Hazardous Waste types to MEEPL. (Additional sheets could be used for multiple waste types)

- The Avg. Yearly generation of Hazardous Waste is expected as follows.

1. Avg. ________ MT per year of ____________________ type of Hazardous WASTE
2. Avg. ________ MT per year of ____________________ type of Hazardous WASTE
3. Avg. ________ MT per year of ____________________ type of Hazardous WASTE
4. Avg. ________ MT per year of ____________________ type of Hazardous WASTE

FOR ... For LAUREATZ TECHNOCHEM PVT LTD

J.V.S.M.

Managing Director

Authorized Signatory
The GENERATOR, the Second Party.

Witness 1: Name: I Balakrishna

Sign: 9.Balakrishna

Company/Occupation: Laureatz-Technochem pvt Ltd.

Designation: Engineering sm.

Witness 2: Name: ____________________

Sign:

Company/Occupation: ____________

Designation: ______________

For LAUREATZ TECHNOCHEM PVT LTD

ANNEXURE-6

CETP AGREEMENT COPY

MEMBERSHIP No. MEEPL/MEM/ 2021 / 2022 /28

MEEPL

MOTHER EARTH ENVIRON TECH PRIVATE LIMITED

(A DIVISION OF CHAITRA GROUP)

An Integrated Management System Certified Company | Quality Management System-ISO 9001:2015
Environmental Management System – ISO 14001:2015 | Occupational Health and Safety Management System- ISO 45001:2018

Plot No. 158 to 164, KIADB Kadechur Industrial Estate, Kadechur Village, Tehsil and Yadgiri District, Karnataka - 585221

JAS-ANZ ICS

Reg. No.: RI91/10468

COMMON EFFLUENT TREATMENT PLANT (CETP)

MEMBERSHIP CERTIFICATE

This Is To Certify that LAUREATE TECHNOCHEM PVT LTD
Plot No. 62, KIADB, Kadechur Industrial Area,
Yadgir District - 585221 - Karnataka

is a member of Mother Earth Environ Tech Pvt. Ltd.

Date : 19/03/2021

This certificate is valid up to 31/03/2022

Mother Earth Environ Tech Pvt. Ltd. Kadechur

T.V. Rao

Authorised Signatory

सत्यमेव जयते

INDIA NON JUDICIAL

Government of Karnataka

e-Stamp

Certificate No.	:	IN-KA78727406909669T
Certificate Issued Date	:	18-Mar-2021 10:36 AM
Account Reference	:	NONACC/ kakscsa08/ KENGERI1/ KA-BA
Unique Doc. Reference	:	SUBIN-KAKAKSCSA0831847745196846T
Purchased by	:	MOTHER EARTH ENVIRONMENT TECH PVT LTD
Description of Document	:	Article 12 Bond
Description	:	AGREEMENT
Consideration Price (Rs.)	:	0 (Zero)
First Party	:	MOTHER EARTH ENVIRONMENT TECH PVT LTD
Second Party	:	LAUREATZ TECHNO CHEM PVT LTD
Stamp Duty Paid By	:	MOTHER EARTH ENVIRONMENT TECH PVT LTD
Stamp Duty Amount(Rs.)	:	50 (Fifty only)

Karnataka State Co-Operative Societies Association Branch K.S Town 560060

Please write or type below this line

THIS AGREEMENT is made at Bengaluru, Karnataka on this 19th Day of March 2021BY AND BETWEEN **M/s MOTHER EARTH ENVIRON TECH PRIVATE LIMITED**, a Company registered under the Companies Act, 1956 and having its registered office at No.13, Challeghatta Village, Kengeri Hobli, Bengaluru South Taluk, Bengaluru - 560074, Karnataka, India, represented by its Director Sri T N Paramesh S/o Ninge Gowda (hereinafter referred as "MEEPL/Operator" which expression shall unless repugnant to the subject or context include its administrators, successors and assigns) as Party No.1

AND

M/s. LAUREATZ TECHNOCHEM PVT LTD, having its Factory at Plot No.62, KIADB,

For LAUREATZ TECHNOCHEM PVT LTD
Managing Director

For MOTHER EARTH ENVIRON TECH PRIVATE LIMITED
Director

Kadechur Industrial Area, Yadgir Taluk & District, Karnataka and its Registered Office at Plot No.147, Sri Sai Nilayam, Pragathi nagar, Kukatpalli, (near JNTU), Hyderabad-500090, Telangana, represented by its Managing Director T.V. Srihari, S/o Rama Seshagiri Rao aged about 60 Years (Hereinafter referred as "GENERATOR/User" which expression shall unless repugnant to the subject or context include its administrators, successors and assigns) as PartyNo.2

The OPERATOR and GENERATOR hereinafter individually referred as 'Party' and collectively as 'Parties'.

WHEREAS OPERATOR is engaged in the business of Waste Management and presently operating 'Common Effluent Treatment Plant (CETP)' at Plot No. 157 & 158 Kadechur industrial Area Yadgir District - 562112, Karnataka State, under its control, as per the guidelines under Hazardous Rules and as per the authorization of CPCB/KSPCB.

Whereas the OPERATOR offered the facility of CETP to GENERATOR and GENERATOR expressed willingness to availing the services of collection, transport, treatment, storage and disposal of Hazardous Waste generated at their premises, on the terms and conditions set out in this agreement read with the provisions of Hazardous Waste Rules and supervision of KSPCB.

NOW THEREFORE in consideration of the above, the OPERATOR and GENERATOR have agreed to enter into this agreement under the terms and conditions set forth hereinafter.

NOW IT IS HEREBY AGREED BY AND BETWEEN THE PARTIES HERETO AS FOLLOWS:

1. DEFINITIONS AND INTERPRETATION

1.1 **Definitions**: In this Agreement, including in the recitals hereof, the following words, expressions and abbreviations shall have the following meanings, unless the context otherwise requires:

"Agreement" means this agreement including all attachments, annexure or Schedules annexed thereto.

"CPCB" means Central Pollution Control Board.

"Hazardous Rules" means Hazardous Waste (Management, Handling &Trans boundary Movement) Rules, 2008 as amended from time to time.

"MoEF" means Ministry of Environment & Forests.

"KSPCB" means Karnataka State Pollution Control Board, Karnataka in the state in which the TSDF operated by OPERATOR is situated.

"CETP" means the Common Effluent Treatment Plant by name "MOTHER EARTH ENVIRON TECH PRIVATE LIMITED" (MEEPL) operated by OPERATOR and

For LAUREATZ TECHNOCHEM PVT LTD

J.V. Srihari

Managing Director

For MOTHER EARTH ENVIRON TECH PRIVATE LIMITED

C. H. Bose

Director

located at Plot No. 158 to 162 Kadechur industrial Area Yadgir District - 562112, Karnataka State, pursuant to setup the CETP and EC obtained from MoEF &CC F>No.21-8/2014-IA-III dtd: 14-10-2016

"Effluent" means Liquid waste generated in the premises of the GENERATOR.

ZLD means zero Liquid discharge facility

"LOW TDS" means Liquid waste generated in the premises of the GENERATOR as per Annexure- Parameter.

"HIGH TDS" means Liquid waste generated in the premises of the GENERATOR as per Annexure- B parameter.

12 **Interpretation**: In this Agreement, unless the subject or context otherwise requires:

A. Reference to the singular number shall include references to the plural number and vice-versa;

B. References to a "person" shall include references to natural persons, partnership firms, companies, bodies corporate and associations, whether incorporated or not or any other organization or entity including any governmental or political subdivision, ministry, department or agency thereof;

C. References to recitals, clauses and schedules / annexure are to recitals, clauses and schedules to this Agreement;

D. Any reference herein to a statutory provision shall include such provision, as in force for the time being and as from time to time, amended or re-enacted in so far as such amendment or re-enactment is capable of applying to any transactions covered by this Agreement.

E. Clause headings used herein are only for ease of reference and shall not affect the interpretation of this Agreement.

13 The Schedules / Annexure shall form an integral part of this agreement.

14 All capitalized terms used in this agreement which have not been specifically defined in this Agreement shall, unless inconsistent with the context have the meanings assigned to them under the Authorization Agreement.

2 SCOPE OFSERVICES

The scope of services to be provided by OPERATOR under this agreement shall be collection, transportation, treatment, and disposal (ZLD treatment) of Liquid Effluent as mentioned in Annexure- A & Annexure – B generated at the premises of the GENERATOR located at Plot No.62, KIADB, Kadechur Industrial Area Yadgir District – 562112, Karnataka, India. The GENERATOR agrees to accept the services of OPERATOR on non-exclusive basis in case of CETP is unable to take the effluent only

For LAUREATZ TECHNOCHEM PVT LTD

For MOTHER EARTH ENVIRON TECH PRIVATE LIMITED

Director

Managing Director

2.1 It is agreed between the Parties that OPERATOR shall provide the above services to the GENERATOR through Mother Earth Environ Tech Private Limited (MEEPL), a CETP operated by OPERATOR (Proposed CETP at Kadechur Industrial Area, Yadgir).

2.2 OPERATOR shall dispose the Waste as per the mandate of the CPCB/KSPCB guidelines with the provisions of Hazardous Waste Rules.

2.3 OPERATOR agrees to accept liquid Effluent as mentioned in Annexure A & B wastes from the GENERATOR provided that the concerned KSPCB issues 'NO OBJECTION'Authorises to use the CETP of the operator to the GENERATOR.

3 GENERALCONDITIONS

3.1 The GENERATOR shall immediately upon execution of this agreement, become registered Life time member of OPERATOR by paying a membership non-refundable fee of **Rs.10000-00. (Rs Ten Thousand Only, Excluding GST)**

3.2 Security deposit/Advances shall be adjustable against user charges in the event either party decides to terminate this agreement. No financial charges are applicable on such Security deposit of Rs 1,00,000/ (Rs. One lakh only), if when OPERATORCETP is ready to receive the effluent. The Security deposit which is refundable/adjustable as mentioned above on termination of agreement.

3.3 The GENERATOR shall take the representative of the OPERATOR to collect the sample of the Effluent types, for the purpose of determining the Liquid Waste characteristics and to decide parameters for analysis, as well as its final pathway of ZLD treatment.

3.4 OPERATOR shall carry on the analysis of the Effluent Waste in its laboratory or at the collaborative laboratory mutually agreed by the Parties operator, as per the parameters Agreed between OPERATOR & GENERATOR. The comprehensive analysis report shall be used by OPERATOR to determine the disposal pathway based on the waste characteristics as per ZLD treatment at CETP.

3.5 The charges for Collection, Transport, ZLD Treatment and Disposal (herein after called as USER CHARGES) will be applicable to GENERATOR as per Annexure-C – Item No. 01 for Low TDS(Parameter-A & Parameter-B) & Item No. 02 for High TDS (wherever applicable) User Charges quoted in Annexure-C head wise. Any Changes in the USER CHARGES shall be with mutual consent. Based on mutual consent between OPERATOR and GENERATOR Annexure -C will be revised, However User charges agreed at the time of Agreement signing will be valid for minimum eighteen months from the date of lifting first tanker of Effluent.

3.6 MEEPL, on receipt of information from the GENERATOR, will plan and schedule collection of the Effluent Waste from the GENERATOR premises. Safety of community (humans, flora and fauna) during transportation is of prime importance and thus safety information will have to be provided by the GENERATOR in (Form 8), Waste Transportation Manifest (Form 10) and TREM Card (Form 9) for every Waste type as per Hazardous Waste (Management and Handling) Rules 1989 and as amended from time to

For LAUREATZ TECHNOCHEM PVT LTD

Managing Director

For MOTHER EARTH ENVIRON TECH PRIVATE LIMITED

Director

time. MEEPL has to ensure the quality of effluent being lifted, before leaving the GENERATOR Premises no claims will be accepted once tanker leaves the premises. The GENERATOR shall provide the details of Waste to OPERATOR as mentioned below:

i. Complete details of the Waste and its characteristics regarding presence of explosive compounds in the manifest provided to the transporter for safe transportation and disposal.

ii. Safety Information in 'Form 8', 'waste transportation manifest' in Form 10 and TREM card' in Form 9 for every Waste type as per Hazardous Rules.

3.7 OPERATOR shall analyze the Waste received and intimating to the concerned GENERATOR. If there is any discrepancy, this is acceptable provided if the effluent collected from one GENERATOR is not mixed with others.

3.8 In the event there are any differences in the analysis results of comparing to Annexure-A & Annexure-B results, OPERATOR and GENERATOR may approach a mutually agreed third party lab for analysis, in this event whoever is wrong has to bear the cost of analysis. Any discrepancy in this respect shall be mutually solved by GENERATOR & OPERATOR.

3.9 The GENERATOR shall provide a fresh comprehensive analysis report when there is a change in the waste characteristics, manufacturing processes and changes in product mix etc.

3.10 The GENERATOR shall provide an advance declaration during every year quarterly rolling plan of forecast of quantity of Waste they would be sending to OPERATOR during the quarter till that Financial Year till 31stMarch and declare Waste quantities on quarterly/monthly basis.

3.11 The OPERATOR will take full responsibility for 365 days of collection, transportation and treatment as per ZLD method without any trouble to the GENERATOR. During Annual Maintenance period, Collection of effluent from GENERTOR will continue. In case of any unavoidable emergencies it will mutually discussed to manage to treat the Effluent

3.12 The OPERATOR will take full responsibility for legal visits by any legal bodies at CETP behalf of any GENERATOR but prior intimation at least 48 hrs. before need to be intimated.

3.13 If there is **change in the parameters** prescribed in Annexure-A and Annexure-B, The GENERATOR and OPERATOR mutually discussed and if there are any Increase /Decrease of treatment charges applicable for treating that effluent will be mutually discussed and concluded by GENERATOR & OPERATOR

4 USER CHARGES&TERMS OF PAYMENT:

4.1 The GENERATOR shall pay monthly user charges to OPERATOR for its services as per in **Annexure Item Nos 1&2.** This is based upon the declaration given by the

For LAUREATZ TECHNOCHEM PVT LTD

For LAUREATZ TECHNOCHEM PVT LTD

For MOTHER EARTH ENVIRON TECH PRIVATE LIMITED

Managing Director

Director

GENERATOR as per Annexure. In addition, the GENERATOR shall also be liable for payment of applicable taxes, levies etc., if any, on the user charges. Invoice will be raised on the quantity supplied on Monthly basis

42 The user charges are generally fixed, in case of any considerable operating cost variation, OPERATOR may submit the proposal of revision of USER CHARGES, OPERATOR and GENERATOR will have discussion on the same and conclude in mutually acceptable way based on escalation of prices which are consumed in CETP. However, this clause will be applicable after Eighteen Months of starting the effluent lifting from individual GENERATORS.

43 OPERATOR shall send the monthly user charges invoice to the GENERATOR on or before 5th of every succeeding month and the bill amount shall be payable by the GENERATOR on or before 4th of subsequent month. The GENERATOR shall clear the bills within a period of 30 days from the date of receipt of the invoice.

44 In case of delayed payments more than two month by the GENERATOR, OPERATOR reserves its right of refusal to extend/provide its services to the GENERATOR and even to terminate this agreement within one month from the default period without prejudice to any other steps that it might take against the GENERATOR for recovery of its overdues.

5 PERIOD OFAGREEMENT

This Agreement shall be valid for a period of five (5) years effective from 19/03/2021, subjected to earlier termination by either party in accordance with the provisions of this agreement.

5A REPRESENTATION ANDWARRANTIES

5A.1 The OPERATOR represents and warrants that the OPERATOR shall be solely responsible to ensure that persons deployed by it for the purpose of this contract are adequately trained for collection; handling, transportation, processing and disposal of the waste are provided with such safety gadgets as required. GENERATOR shall not be liable for any mishap, directly or indirectly.

5A.2 The OPERATOR shall transport the wastes collected from GENERATOR in closed container or will suitably cover the loaded wastes so as to not to litter the areas while transporting the waste.

5A.3 The OPERATOR represents and warrants that the OPERATOR shall comply with all the applicable provisions of labor laws including ESI/Bonus, Provident Fund, Workmen's Compensation and other applicable laws, with regard to the persons deployed by it for providing transportation and treatment of the waste hereunder. Further, the OPERATOR shall obtain and maintain at all times a valid license under Contract Labor (R&A) Act, 1970 whenever it is applicable. The OPERATOR shall be solely responsible for any violation of provisions of the labor laws or any other statutory provisions and shall further keep GENERATOR indemnified from all acts of omissions, faults, breaches and/or

For LAUREATZ TECHNOCHEM PVT LTD

Managing Director

For MOTHER EARTH ENVIRON TECH PRIVATE LIMITED

Director

any claim, demand, loss, injury and expenses arising out from the noncompliance of the aforesaid statutory provisions. The OPERATOR's failure to fulfill any of the obligations hereunder and/or under the said Acts, Rules/Regulations and/or any Bye- Laws or rules framed under or any of these, the GENERATOR shall be entitled to recover any of such losses or expenses which it may have to suffer or incur on account of such claims, demands, loss or injury from the OPERATOR.

5A.4 The OPERATOR represents and warrants that the OPERATOR shall comply with all rules and regulations stipulated by the any applicable laws or other applicable government authority and GENERATOR shall not be liable in any manner for improper transportation, processing and disposal of the waste.

5A.5 The OPERATOR represents and warrants that the OPERATOR shall be solely liable for any violation of the Environment (Protection) Act 1986 and the relevant rules made there under.

5B COVENANTS OF THEOPERATOR

5B.1 The OPERATOR shall be responsible for the faithful compliance of the terms and conditions of this Contract. In the event of any breach of the Contract, the remaining work may be performed by another OPERATOR by mutual discussion.

5B.2 The OPERATOR shall be responsible to provide a copy of the valid Consent Letter/Licenses/Registration Certificate or any other relevant document to GENERATOR for the Services upon the signing of this Contract and at any time whenever required by GENERATOR.

5B.3 The OPERATOR shall be responsible to provide a copy of the valid public liability insurance policy to GENERATOR for the purpose of fulfilling their obligation mentioned under this Contract.

5B.4 The OPERATOR shall be responsible for transportation of the waste. Further, the OPERATOR shall be responsible to keep such vehicle road worthy, fit to carry such waste as prescribed by statutory bodies such as, Department of Ecology/Environment, KSPCB, RTO and such other statutory bodies as prescribed from time to time. Such vehicles are used exclusively for the transportation of waste, maintained in good condition and an alternative arrangement made in case of breakdown.

5B.5 The OPERATOR shall be responsible to submit monthly returns to KSPCB or any such applicable government authority of the quantity and nature of the waste received and processed from GENERATOR.

6 FORCEMAJEURE

Notwithstanding anything else contained herein, neither Party hereto shall be liable for damages or to have this agreement terminated for any delay or default in the performance of such Party hereunder if such delay or default in performance derives from conditions beyond the reasonable control of such Party, including but not limited to, acts of god, strikes, fires,

For LAUREATZ TECHNOCHEM PVT LTD

For MOTHER EARTH ENVIRON TECH PRIVATE LIMITED

For LAUREATZ TECHNOCHEM PVT LTD

Director

Managing Director

floods, extreme drought, shortage of supply, riots, work stoppages, embargoes, governmental actions or damage to the plant or facility or any cause unavoidable or beyond the control of either party including any arbitrary ruling by the Government prohibiting the handling of the Waste or continuing domestic or international problems such as wars or insurrections. If a Party's performance of its obligations hereunder is suspended due to an occurrence of a Force Majeure event the other Party may terminate this Agreement without incurring charges.

7. TAKE OVER OF UNIT OF THEGENERATOR/OPERATOR

In the event of Change of Management in respect of the GENERATOR/OPERATOR by way of takeover of the unit for any reason what-so-ever (including takeover of the assets & liabilities) by a new Management, the old management as well as the new management shall be liable & responsible for payment & settlement of the dues of MEEPL/GENERATOR, if any existing on the date of such Management transfer. However, the old Management shall be liable for the amount due, if any only till the date of such Management transfer. Post the effective date of Management transfer, the new Management shall be liable & responsible for all payments, if any & whenever arising under this agreement. (Change to be informed) in case of change of management of MEEPLOPERATOR, OPERATOR will ensure that CETP Operations will be continued uninterruptedly.

8. EVENTS OF DEFAULT

The following shall constitute GENERATOR's events of default:
If the GENERATOR fails / refuses to pay its bills / dues for the user charges payable under this Agreement. As defined in Clause 4.3 & 4.4

9. TERMINATION

9.1 The Operator shall provide two (2) months prior notice to GENERATOR have the right to terminate this Agreement by giving a proper Notice, immediately upon occurrence of the GENERATOR's event of default as stated in point No. 8 above.

9.2 GENERATOR Either party shall have the right to terminate this Agreement by SIX MONTHS prior notice in the event of violation of any of the terms and conditions as agreed upon in this agreement.

10A INDEMNIFICATION

The OPERATOR, apart from providing coverage under the Public Liability Insurance Policy, shall indemnify and hold harmless to GENERATOR, its officers, directors and employees from and against claims, damages, court fees, court awards, losses and expenses arising out of, or resulting from (a) provisions of the service (b) mishandling /omission to handle/process the waste by OPERATOR or its employees or any other person deployed by the OPERATOR (c) non-compliance of applicable laws and rules applicable to this Agreement.

For LAUREATZ TECHNOCHEM PVT LTD

J.V.

Managing Director

For MOTHER EARTH ENVIRON TECH PRIVATE LIMITED

Director

11 ENTIRE AGREEMENT

This Agreement shall be deemed to represent the entire terms and conditions between the parties hereto in respect of the subject matter and shall supersede, cancel and replace any and/or all prior agreements or arrangements, if any, entered into in this behalf, by and between the parties hereto.

12 RELATIONSHIP OF THE PARTIES

Nothing contained herein shall be deemed to constitute a partnership, joint venture or agency by and between the parties hereto.

13 VARIATIONS

This Agreement may be modified and/or amended only in writing, duly executed by the authorized signatories on behalf of the parties hereto.

14 INVALIDITY

In the event that any provisions of this Agreement is held to be illegal, invalid or unenforceable under any present or future laws of the Republic of India, such provisions shall be deemed to terminated forthwith and the remaining parts & provisions of this Agreement shall continue to remain in full force & effect.

15 NOTICES

15.1 Any notice, request, demand or other communication given or made under or in connection with the matters contemplated by this Agreement shall be in writing and shall be delivered personally or sent by registered post with acknowledgement due or by facsimiie or by courier.

In case of ***GENERATOR*** *to:*

Attn: Mr.T.V.Srihari, Managing Director, **LAUREATZ TECHNOCHEM PVT LTD**

In case of ***OPERATOR*** *to:*

Attn: Mr.T.N.Paramesh,Managing Director/s. Mother Earth Environ Tech Pvt. Ltd.

And shall be deemed to have been duly given or made by way of presentation as under:

(a) if personally delivered, upon delivery at the address of the relevant Party;

(b) if sent by registered post with acknowledgement due, then expiry of seven (7) days after such posting;

(c) if sent by facsimile, upon receipt of confirmation from the receiver, that the facsimile has been received;

(d) If sent by courier, four (4) days after the date of such dispatch.

(e) The notice may be sent to e-mail provided by the other party.

15.2 Either party may notify the other Party of any change in its name, relevant address or contact number for the purposes of Clause 15.1 as provided hereinabove.

For LAUREATZ TECHNOCHEM PVT LTD

Managing Director

For MOTHER EARTH ENVIRON TECH PRIVATE LIMITED

Director

16 DISPUTE RESOLUTION

All disputes arising out of this agreement and the contents thereof between the GENERATOR and OPERATOR mutually agree that the courts of law at Raichur shall have jurisdiction over all the disputes arising out of this Agreement& the decision of such Courts shall be final & binding upon both the parties.

17 APPLICABLE LAW

OPERATOR and the GENERATOR mutually agree that the courts of law at Raichur shall have jurisdiction over all the disputes arising out of this Agreement& the decision of such Courts shall be final & binding upon both the parties.

For LAUREATZ TECHNOCHEM PVT LTD.

For LAUREATZ TECHNOCHEM PVT LTD

Name: T.V. Srihari Managing Director
Designation: MANAGING DIRECTOR

Witness

Signature G.Balakrishna

Name I. Balakrishna

Designation: Engineering division

Signature

Name ---

Designation: ………………………………..

For M/s Mother Earth Environ Tech Private Limited For MOTHER EARTH ENVIRON TECH PRIVATE LIMITED

Director

Name: T.N.Paramesh
Designation: MANAGING DIRECTOR

Witness

Signature

Name ---

Designation: ………………………………..

Signature

Name ---

Designation: ………………………………..

ANNEXURE-A

Common Effluent Treatment Plant (CETP) & ZLD facility

1) **Low TDS characteristics:**

PARAMETER-A (Rs 3000,Three Thousand only per M3)

Sl.No	Parameters	Value obtained
1	pH @24.80C AMBIENT	5-9
2	Total Dissolved Solids, mg/L	10000-13500
3	Temperature, ^{0}C	25.8 AMBIENT
4	TSS (in ppm)	500-1000(200-300)
5	Total Hardness as CaCO3, mg/L	800 to 1000(200-500)
6	Chlorides as Cl, mg/L	3000—5000(500-750)
7	Total Alkalinity as CaCO3, mg/L	800 to 1000
8	Oil & Greece, mg/L	50—60
9	Organic Solvents, mg/L	1000-1500(200-400)
10	Chemical Oxygen Demand, mg/L	10000—20000 (1500-2500)
11	Biochemical Oxygen Demand (3Days at 270C), mg/L	8000-12000(3000-4000)

For LAUREATZ TECHNOCHEM PVT LTD

PARAMETER-B (Rs 2100, Twenty One Hundred Only per M3)

Sl. No	Parameters	Value obtained
1	pH @24.80C AMBIENT	5-9
2	Total Dissolved Solids, mg/L	10000-13500
3	Temperature, ^{0}C	25.8 AMBIENT
4	TSS (in ppm)	200-300
5	Total Hardness as CaCO3, mg/L	200 to 500
6	Chlorides as Cl, mg/L	500—750
7	Total Alkalinity as CaCO3, mg/L	800 to 1000
8	Oil & Greece, mg/L	50—60
9	Organic Solvents, mg/L	200-400
10	Chemical Oxygen Demand, mg/L	1500—2500
11	Biochemical Oxygen Demand (3Days at 270C), mg/L	3000-4000

2) **Comprehensive Analysis Fee:** **Rs 5000 per waste sample plus applicable Taxes** (Valid for 2 years and if there is any process and raw material change, client will be **intimated thereupon** and another comprehensive analysis required for that waste shall be conducted at the cost of the GENERATOR)

For MOTHER EARTH ENVIRON TECH PRIVATE LIMITED

Director

For LAUREATZ TECHNOCHEM PVT LTD

Managing Director

ANNEXURE -B

Common Effluent Treatment Plant (CETP) & ZLD facility

1. High TDS characteristics:(

PARAMETER-A (Rs 4000,Four Thousand only per M3)

Sl. No	Parameters	Value obtained
1	pH @24.80C	5-9
2	Total Dissolved Solids, mg/L	50000 to 100000
3	Temperature, ^{0}C	25.8 AMBIENT
4	TSS (inppm)	2000-8000
5	Total Hardness as CaCO3, mg/L	2500 to 5000
6	Chlorides as Cl, mg/L	10000- 20000
7	Total Alkalinity as CaCO3, mg/L	1000 to3000
8	Oil & Greece, mg/L	50—100
9	Organic Solvents, mg/L	2000-4000
10	Chemical Oxygen Demand, mg/L	50000-100000
11	Biochemical Oxygen Demand (3Days at 270C), mg/L	10000-20000

For LAUREATZ TECHNOCHEM PVT LTD

2) Comprehensive Analysis Fee: Rs 6000 per waste sample plus applicable taxes (Valid for 2 years and if there is any process and raw material change, client will be intimated thereupon and another comprehensive analysis required for that waste shall be conducted at the cost of the GENERATOR)

For LAUREATZ TECHNOCHEM PVT LTD

D.Vasm

Managing Director

For MOTHER EARTH ENVIRON TECH PRIVATE LIMITED

Director

ANNEXURE -C

The GENERATOR shall pay the following applicable User Charges (Inclusive of transportation) based on the Waste Types.

Item. No.	Name Of Waste	Mode of Disposal	Rate, Rs Per m3
1	Low TDS (parameter-A)	ZLD	3000
2	Low TDS (Parameter-B)	ZLD	2100

Item. No.	Name of Waste	Mode of Disposal	Rate Per m3
2	High TDS	ZLD	4000/-

Note: The Above-mentioned prices are exclusive of Taxes, Taxes needs to be paid extra as applicable.

For LAUREATZ TECHNOCHEM PVT LTD

Managing Director

For MOTHER EARTH ENVIRON TECH PRIVATE LIMITED

Director

Annexure-E

5) TAXES / LEVIES: _ All Government / Municipal / Panchayat Taxes / Duties/ Levies/Octroi / Tolls etc., as applicable from time to time, shall be payable by the GENERATOR.

❖ **Other/ Miscellaneous Terms &Conditions:**

- This membership is valid as long as the GENERATOR is in good standing with the CETP and has continued valid authorization from KSPCB regarding the Waste Generation.
- The membership Fees is one-time nonrefundable deposit with benefits for full tenure of CETP. The deposit will not be refunded, when desired to discontinue membership.
- Acceptance of waste is dependent on the fulfillment of regulatory and statutory guidelines for operations of CETP issued from time to time.
- Pathway of disposal of wastes shall be decided based on the guidelines issued from time to time by regulatory authorities
- From the date of signing of agreement, the GENERATOR shall submit samples once CETP is starts its Operation as stipulated in Clause Nos.3.3 and 3.4of this Agreement for comprehensive analysis within 15 days. The analysis report generated by OPERATOR will form the basis of disposal of ZLD method pathway along with disposal charges as per **Annexure-A & B Item No. 02** which will be annexed after analysis of the sample and will form part of this agreement.

For LAUREATZ TECHNOCHEM PVT LTD

J.V. Sharma

Managing Director

For MOTHER EARTH ENVIRON TECH PRIVATE LIMITED

Director

ANNEXURE-7

RISK ASSESSMENT REPORT

RISK ASSESSMENT REPORT

The proposed green field project is for the manufacturing of Active Pharmaceutical Ingredients (API's).

1. INTRODUCTION TO RISK ASSESSMENT

M/s. Laureatz Technochem Pvt. Ltd has proposed to establish API manufacturing unit in an area of 8089.8 Sqm (2.0 Acres) at Plot No. 62, Kadechur Industrial area, Yadagir Taluk & District, Karnataka-585221. M/s. Laureatz Technochem Pvt. Ltd handles various chemicals, some of which are hazardous in nature by virtue of their intrinsic chemical properties or their operating temperatures or pressures or a combination of them. Fire, explosion, toxic release or combinations of them are the hazards associated with industrial plants using hazardous chemicals. More comprehensive, systematic and sophisticated methods of Safety Engineering, such as, Hazard Identification and Risk Assessment is essential to improve upon the integrity, reliability and safety of industrial plants, the same has been discussed in detail under their respective headings.

2. OBJECTIVES OF RISK ASSESSMENT

As per CIMAH Rules under Factories Act and Rules, 10 to 13 under Manufacture, Storage and Import of Hazardous Chemicals Rules, 1989 as amended in 2000, under Environment (Protection) Act, 1986 the occupier of the industry using hazardous chemicals in its manufacturing activity is obliged to submit report on Hazard Identification and Risk Assessment to the authorities towards an objective evaluation of safety related to industrial activity and measures taken and to identify what further measures are required to operate the plant in a safe manner.

Hazard Identification and Risk Assessment involves collection of all relevant information on a object, quantifying as much of it as is reasonably practicable in terms of its benefits and deficiencies and making this information available to the decision-maker. It includes the identification and quantification of the various hazards (unsafe conditions) that exist in the factory. On the other hand, risk analysis deals with the identification and quantification of risks; the plant equipment and personnel are exposed to, due to accidents resulting from the hazard present in the factory. Objective of the risk assessment as follows,

- Understand and analyze the maximum credible accident scenarios.
- Design the system for controlling and containing the frequency and consequences of significant effects of emergencies and to prepare disaster management plan.

3. METHODOLOGY FOR RISK ASSESSMENT

- Collection of information with respect to facility, process and hazardous chemicals.
- Collection and analysis of meteorological data of the region
- Identification of the hazardous chemicals as per MSIHC amendment rules.
- Identification of the hazard associated with each chemical, process and operations
- Identification of release type and determine release rate.
- Consequence analysis using ALOHA (Area Locations of Hazardous Atmospheres)

4. IDENTIFICATION OF HAZARDS

- Hazard identification is the most critical step in the risk assessment. This is because to identify the hazards, experience, detailed process knowledge, engineering codes, checklist, HAZOPs etc is required.
- Hazard identification is carried out to ascertain the controls required and available in order to mitigate the risk of exposure to the hazards. This would substantially help in overcoming costly errors and prolonged delays that may be caused due to the design changes that may be required on a later date.
- Hazard assessment is carried out at the equipment design stage and the control / mitigation measures are put in place overcome them to avoid costly errors at a later stage.
- Hazard assessment in our plant is carried out examining the, material storage, type of operations, locations to find out the facilities in place to overcome the risks of exposure to the hazards.
- After a critical analysis of the chemicals used, stored, defined safe operating procedures and the different manufacturing processes, the following table lists the safety measures / installations in place and mitigation measures to overcome the hazards.

Following are the Hazards identified in proposed project activities**:**

- Fire Hazards

- Spillage of Hazardous chemicals which leads to Air pollution
- Explosion Hazards
- Toxic gas release
- Noise

TABLE: 1 AREA WISE IDENTIFIED HAZARDS, PRECAUTIONS TAKEN WITH MITIGATION MEASURES.

S.NO	AREA	IDENTIFIED HAZARD	SEVERITY & NO. OF PERSONS EXPOSED	PRECAUTIONS TAKEN	MITIGATION MEASURES
1]	RM Storage area	Spillage of chemicals	Low to medium 2 persons	1. Approved layout as per legal requirements. 2. Flame proof electrical fittings installed 3. Chemicals stored in safe Containers with secondary containment to prevent spillages. 4. Storage quantity is limited 5. Storage area is well ventilated by a forced air ventilation system. 6. Material accessed only by authorized personnel using mechanized systems 7. Double door entry to ensure a clean atmosphere. 8. Body showers provided for decontamination.	1. Area will be cordoned off. 2. Information will be passed to Emergency control center is informed. 3. Information will be given to the declarer of emergency on the scale of Leakage. 4. Emergency Response teams will be kept on alert for swift response. 5. All hot works being carried out in the surrounding areas will be stopped 6. Personnel working in the area will be evacuated.

S.NO	AREA	IDENTIFIED HAZARD	SEVERITY & NO. OF PERSONS EXPOSED	PRECAUTIONS TAKEN	MITIGATION MEASURES
				9. Personnel are provided with full body protection suits and nose masks to prevent exposure to chemicals. 10.Fire hydrant system with hydrant points with hose reels and nozzles installed to mitigate fire hazards 11.Fire extinguishers deployed adequately 12. Fully fledged medical center /arrangements 13. Periodical occupational health checks to personnel working in the area to assess health effects, if any.	7. Spilled powders will be collected in vacuum cleaners. 8. The spillage will be cleared and the area is made fit work

S.NO	AREA	IDENTIFIED HAZARD	SEVERITY & NO. OF PERSONS EXPOSED	PRECAUTIONS TAKEN	MITIGATION MEASURES
2]	Chemical Tanks Storage area	Fire & Explosion	Medium to Low 2 persons	1. Storage facility located in isolated area 2. Natural ventilation for supply of fresh air 3. No electrical fittings in the area to prevent any fire hazard. 4. No electrical gadgets or items capable of generating static electric charges permitted inside the area. 5. Personnel are trained about Do's & Don'ts during emergency. authorized personnel only 6. No heat sources are permitted near the facility. 7. Hot work is controlled through a work permit system 8. Room kept under lock and key with access to authorized personnel only.	1. Area will be cordoned off. 2. Hot work being carried out in the vicinity will be stopped to prevent accidental spread of fire. 3. Personnel working in the area will be evacuated 4. Emergency control center will be informed 5. Information will be given to the declarer of emergency on the scale of Fire &Explosion. 6. Emergency Response teams will be kept on alert for swift response. 7. The spillage will be cleared and the area is made fit work

S.NO	AREA	IDENTIFIED HAZARD	SEVERITY & NO. OF PERSONS EXPOSED	PRECAUTIONS TAKEN	MITIGATION MEASURES
				9. Storage quantity is limited and material is handled by trained and authorized personnel. 10. Mechanical foam type fire is provided to mitigate fires 11. Fire hydrant system with hose reels are provided in the vicinity	

S.NO	AREA	IDENTIFIED HAZARD	SEVERITY & NO. OF PERSONS EXPOSED	PRECAUTIONS TAKEN	MITIGATION MEASURES
3]	Production Block	Spillages / Fire /Explosion	Low to medium 15 persons	1.Flame proof electrical fittings installed 2. Freight lift installed for movement of material 3. Material stored at production blocks in safe containers for batch charging with secondary containment to prevent Spillages. 4. Earthing and bonding carried out for all reactor vessels and pipelines 5.Nitrogen lines are provided to reaction vessel to create inert atmosphere inside the reactor to avoid fire and explosion 6. Work permit system implemented for hazard assessment in case of any hot work / height work . 7. Work permit system implemented for hazard assessment in case of any hot work / height work.	1. Area will be cordoned off. 2. Power supply will be cut off to the area to prevent accidental fire. 3. All hot work carried out in the vicinity will be stopped. 4. Emergency control center will be informed. 5. Information will be given to the declarer of emergency on the scale of Leakage / Accident. 6. Emergency Response teams will be kept on alert for swift response. 7. Personnel working in the area will be evacuated.

S.NO	AREA	IDENTIFIED HAZARD	SEVERITY & NO. OF PERSONS EXPOSED	PRECAUTIONS TAKEN	MITIGATION MEASURES
				8. Manufacturing area is ventilated by a forced air ventilation system. 9. Fire hydrant system with hydrant points with hose reels and nozzles installed to mitigate fire hazards 10. Fire extinguishers deployed adequately 11. Emergency exit glass door with glass breaking hammer provided for safe escape in case of any emergencies. 12. Eye wash fountain / Body shower provided for decontamination.	

S.NO	AREA	IDENTIFIED HAZARD	SEVERITY & NO. OF PERSONS EXPOSED	PRECAUTIONS TAKEN	MITIGATION MEASURES
4]	Boiler House	Fire / Explosion	Low to medium Approx. 2	1. All requirements specified under Boiler Act and Boiler licensed is adhered to. 2. All electrical fittings are of flameproof type. 3. Entry restricted only to trained and authorized personnel to work in the area. 4. Fire extinguishers are positioned at different locations in case of any emergencies. 5. No material storage is permitted in the area.	1. Shutting down the plant, declaring the emergency. 2. Electrical supply will be isolated. 3. Type of emergency will be informed to the emergency declarer/ central authority. 4. Emergency response teams will be kept on alert for swift action. 5. Movement of personnel and vehicles will prohibited.

S.NO	AREA	IDENTIFIED HAZARD	SEVERITY & NO. OF PERSONS EXPOSED	PRECAUTIONS TAKEN	MITIGATION MEASURES
				6. Area is well ventilated and illuminated for safe working. 7. 24 x 7 manning of the area for monitoring the operation. 8. All maintenance /repair works are carried out after issuing work permits and under constant supervision of experts. 9. Periodical cleaning of soot in furnace to prevent formation of explosive mixtures. 10. Monitoring the boiler operational parameters and periodical cleaning 11. Checking of boiler internals to prevent accidents. 12. Sign boards are displayed to inform personnel about the hazards present in the area	6. Area is well ventilated and illuminated for safe working. 7. 24 x 7 manning of the area for monitoring the operation.

S.NO	AREA	IDENTIFIED HAZARD	SEVERITY & NO. OF PERSONS EXPOSED	PRECAUTIONS TAKEN	MITIGATION MEASURES
5]	Diesel Generator	Noise & Fire	Two	**1.** Noise abatement thru' modular acoustic paneling of D.G sets **2.** Secondary containment to prevent Diesel leakage from day tanks. **3.** Adequate no. of fire extinguishers is kept to handle emergency . **4.** Entry access to the area controlled	1. Information will be given to Emergency control center. 2. Power supply will be cut off to the storage area to prevent accidental fire. 3. All hot work around the area will be stopped and the area will be cordoned off . 4. The concerned maintenance personnel will be carried repairs to mitigate the leakages. 5. Emergency Response Team will be kept on alert for swift response. 6. Periodical occupational health checks to personnel working in the area to assess exposure to noise.

S.NO	AREA	IDENTIFIED HAZARD	SEVERITY & NO. OF PERSONS EXPOSED	PRECAUTIONS TAKEN	MITIGATION MEASURES
6]	Electrical sub stations	Electric shock / fire	2 persons	1.Layout confirm to legal requirements specified under Indian Electrical Rules. 2. Entry restricted to licensed and authorized personnel only. 3. Earthing provided for leakage of stray currents. 4. Electronic mimic panels installed for fault indication at the entry of the sub-station. 5. Insulating rubber mats confirming to I S 15652:2006 provided in front of all electrical switchgear. 6.Periodical inspection and maintenance carried out to ensure good health of the equipment. 7. CO2 / DCP fire extinguishers deployed to handle emergency fires	1. Information will be given to Emergency control center. 2. Power supply will be cut off from incoming source. 3. Electricity supply company is alerted for cut off power supply in case of major risks 4. All hot work around the area will be stopped and the area is cordoned off. 5. The concerned maintenance personnel will be carried repairs to restore normalcy. 6. Emergency Response Team will be kept on alert for swift response

S.NO	AREA	IDENTIFIED HAZARD	SEVERITY & NO. OF PERSONS EXPOSED	PRECAUTIONS TAKEN	MITIGATION MEASURES
7]	Hazardous waste storage room	Fire	Low to medium 2 persons / Unmanned	1. Storage shed in an isolated location. 2. Conditions specified in hazardous waste authorization issued by SPCB implemented. 3. Compatible wastes are stored in separate enclosures. 4. Layout provides adequate ventilation and illumination 5. Secondary containment provided to prevent leakages / spillages. 6. Storage quantity is limited. 7. Periodical disposal of accumulated waste to Authorized landfills. 8. Flame proof electrical fittings installed to prevent fire / explosion hazards	1. Information will be given to Emergency control center. 2. Power supply will be cut off from incoming source. 3. All hot work around the area is stopped and the area is cordoned off. 4. The concerned maintenance personnel will be carried repairs to restore normalcy

S.NO	AREA	IDENTIFIED HAZARD	SEVERITY & NO. OF PERSONS EXPOSED	PRECAUTIONS TAKEN	MITIGATION MEASURES
				9. Eye wash / body shower is provided for decontamination in case of spillage on body parts. 10. PPE box is equipped with gum boots, splash proof safety goggles, aprons for use during handling of chemicals. 11. Access to the area restricted to authorize personnel only. 12. Fire hydrant point with hose reels provided for fire mitigation	5. Emergency Response Team will be kept on alert for swift response. 6. Support of external agencies will be sought in case situation poses major risks and is not controllable by in-house infrastructure

TABLE:2 LIST OF SOLVENTS

S.NO	NAME OF THE SOLVENT	PHYSICAL STATE	MODE OF STORAGE	MAX. INVENTORY IN KL.	NATURE OF HAZARD	NFPA RATING
1.	Methanol	Liquid	Tank	25	Flammable	H: 1 F: 3 R: 0
2.	MDC	Liquid	Tank	25	Harmful	H: 2 F: 1 R: 0
3.	Ethyl Acetate	Liquid	Tank	25	Flammable	H: 1 F: 3 R: 0
4.	Toluene	Liquid	Tank	20	Flammable	H: 2 F: 3 R: 0
5.	THF	Liquid	Tank	20	Flammable	H: 2 F: 3 R: 1
6.	Ethanol	Liquid	Tank	20	Flammable	H: 3 F: 2 R: 0
7.	Acetone	Liquid	Drums	15	Flammable	H: 1 F: 3 R: 0
8.	Hexane	Liquid	Drums	15	Flammable	H: 2 F: 3 R: 0

a. HANDLING PRECAUTIONS

- Use in a closed system under argon or nitrogen.
- Do not get in eyes, on skin or clothing.
- Do not breathe vapors or mist.
- Store in a cool place. Keep container closed.
- Keep away from sources of ignition, water, air, acids and oxidizing agents
- In case of fire, do not use water or carbon dioxide

5. EMERGENCY PREPAREDNESS

- On Site Emergency Plan
- Training & Awareness

6. SAFE PRACTICES [HANDLING, STORAGE, TRANSPORTATION AND UNLOADING OF CHEMICALS]

Drums

Liquid Raw materials will be transferred from the drums to the day tank situated at the production block with the help of leak proof drum pumps / pumps /Vacuum through pipe lines from day tank to reaction vessel unloading by gravity.

6.1 Storage Tanks

Solvent will be transferred to the day tank situated at the production block with the help of mechanical seal pump through pipe lines from the tank, from day tank to reaction vessel unloading by gravity.

Tank is connected to chilled water circulated condenser with reflux system.

6.2 Measures to Avoid Evaporation

- Keep containers tightly closed.
- Keep away from heat, spark & flame
- Keep away from sources of ignition
- Store in a cool, dry, well-ventilated area away from incompatible substances.

6.3 Safety Systems

- Designated areas with proper indication & safety signs.
- Double earthling systems

- Flame arrestor to the vent
- Flame proof transferring pumps
- Handling precautions/SOP protocol
- Pressure Gauges
- Level indicators
- Flame proof lighting to storage yard

6.4 TRANSPORTATION / UNLOADING

Highly inflammable chemicals will be transported by road. Therefore, adequate safety precautions for transportation are followed. During transportation of hazardous chemicals, MSDS & TREM card will be provided to driver. As per Motor Vehicle Rules, PESO rules and Factory Rules all safety precautions will be followed during transportation of hazardous chemicals.

The following safety precautions are suggested during transportation of toxic, inflammable and corrosive chemicals in tankers, while loading and unloading, transportation and meeting the emergencies arising out of leakages and spillages of hazardous materials:

- Park the vehicle at designated place.
- Stop the engine.
- Check-up spark arrester.
- Provide earthing to tanker securely.
- Ensure that fireman is available near the place with proper equipment's.
- Connect the piping properly
- Before start unloading, check that, there should not be any leakage.
- In case of leakage, immediately attend the leakages & rectify it.
- After unloading is over, close the lid properly.
- Vehicle to be started only after removal of all pipelines connected with tanker.

6.5 SAFETY INSTRUCTIONS FOR TRANSPORTATION OF HAZARDOUS MATERIALS

- The name of the chemical along with pictorial sign denoting the dangerous goods should be marked on the vehicle and the packing material.
- The name of the transporter, his address and telephone number should be clearly written on the road tanker and on the vehicle.
- The tanker or vehicle should not be used to transport any material other than what is

written on it.

- Only trained drivers and cleaners should transport hazardous chemicals.
- The transporter and the manufacturer must ensure the safe transportation of the material.
- The Tanker / Vehicle should be checked for its fitness and safe condition before loading.
- During loading and unloading, the tanker/vehicle should be braked and isolated against any movement, while loading/unloading, use safety appliances.
- The tanker / vehicle should not be overloaded beyond the weight permitted by R.T.O.
- Check for leakages from the line connections / containers before starting and Stopping the filling operations.
- Drive the vehicles carefully, especially in crowded localities and on Bumpy roads.
- Do not apply sudden break.
- The tanker / vehicle should not be parked for long time on the way and especially in crowded places. Park the vehicle away from residential areas

6.6 SPILL CONTROL

- For all plants spill control procedures will be displayed. Spillage shall be controlled as per concerned spill control procedure.
- Unprotected personnel up wind will be kept upwind.
- Like any spilled materials to contain. Absorb spilled liquid by dry absorbent clay or vermiculite.
- Collect most of the contaminated absorbent with shovel for further disposal/incineration.
- If spill of material directly on the ground, dig up and remove saturated soil for disposal/incineration.
- Inactivate poisonous chemical with suitable method.

7. EFFECT AND CONSEQUENCE ANALYSIS

- In a plant handling hazardous chemicals, the main hard due to storage, handling and use of these chemicals. If these chemicals are released into the atmosphere, they may cause damage due to resulting fires or vapor clouds last over pressures depend upon the reactivity class of material between two explosive limits.

7.1 OPERATING PARAMETERS

- Potential vapor release for the same material depends significantly on the operating conditions especially for any liquefied gas, operating conditions are very critical to assess the damage potential.
- If we take up an example of ammonia, if it is stored at ambient temperature say 30^0C, and then the vapor release potential of the inventory is much higher as compared to the case if it is stored at 0^0C.

7.2 INVENTORY

- Inventory analysis is commonly used in understanding the relative hazards and short listing of release scenarios.
- Inventory plays an important role in regard to the potential hazard.
- Larger the inventory of a vessel or a system, larger the quantity of potential release.
- The potential vapor release [source strength] depends upon the quantity of liquid release, the properties of the materials and the operating conditions [pressure, temperature].
- If all these influencing parameters are combined into a matrix and vapor source strength estimated for each release case, a ranking should become a credible exercise.

7.3 LOSS OF CONTAINMENT

- Plant inventory can get discharged to environment due to Loss of Containment.
- Certain features of materials to be handled at the plant need to the clearly understood to firstly list out all significant release cases and then to short list release scenarios for a detailed examination.
- Liquid release can be either instantaneous or continuous.
- Failure of a vessel leading to an instantaneous outflow assumes the sudden appearance of such a major crack that practically all of the contents above the crack shall be released in a very short time.
- The more likely event is the case of liquid release from a hole in a pipe connected the vessel. The flow rate will depend on the size of the hole as well as on the pressure, which was present, in front of the hole, prior to the accident. Such pressure is basically dependent on the pressure in the vessel.
- The vaporization of released liquid depends on the vapor pressure and weather conditions. Such consideration and others have been kept in mind both during the initial listing as well as during the short listing procedure.

In the study, Maximum credible loss accident methodology is to be used, therefore, the largest potential hazard inventories have been considered for consequence estimation.

7.4 Damage Criteria

In consequence analysis, use is made of a number of calculation models to estimate the physical effects of an accident [spill of hazardous material] and to predict the damage [lethality, injury, material destruction] of the effects. The calculations can roughly be divided in three major groups.

- Determination of the source strength parameters;
- Determination of the consequential effects;
- Determination of the damage or damage distances.

The basic physical effect models consist of the following.

7.5 Source strength parameters

- Calculation of the outflow of liquid, vapor or gas out of a vessel or a pipe, in case of rupture. Also two-phase outflow can be calculated.
- Calculation, in case of liquid outflow, of the instantaneous flash evaporation and of the dimensions of the remaining liquid pool.
- Calculation of the evaporation rate, as a function of volatility of the material, pool dimensions and wind velocity.
- Source strength equals pump capacities, etc. is some cases.

7.6 Consequential effects

- Dispersion of gaseous material in the atmosphere as a function of source strength, relative density of the gas, weather conditions and topographical situation of the surrounding area.
- Intensity of heat radiation [in KW / m2] due to a fire or a BLEVE, as a function of the distance to the source.
- Energy of vapor cloud explosions [in KW / m2], as a function of the distance to the distance of the exploding cloud.
- Concentration of gaseous material in the atmosphere, due to the dispersion of evaporated chemical. The latter can be either explosive or toxic.
- It may be obvious, that the types of models that must be used in a specific risk study strongly depend upon the type of material involved:
- Gas, vapor, liquid, solid

- Inflammable, explosive, toxic, toxic combustion products
- Stored at high/low temperatures or pressure
- Controlled outflow (pump capacity) or catastrophic failure?

7.7 Selection of Damage Criteria

- The damage criteria give the relation between extent of the physical effects (exposure) and the percentage of the people that will be killed or injured due to those effects
- The knowledge about these relations depends strongly on the exposure. For instance, much more is known about the damage caused by host radiation, than about the damage due to toxic exposure, and for these toxic effects, the knowledge differs strongly between different materials.

In consequence analysis studies, in principle three types of exposure to hazardous effects are distinguished:

- Heat radiation, from a jet, pool fire, a flash fire or a BLEVE.
- Explosion
- Toxic effect, from toxic materials or toxic combustion products.

7.8 Heat Radiation

The consequence caused by exposure to heat radiation is a function of:

- The radiation energy onto the human body [KW /M2]
- The exposure duration[sec]
- The protection of the skin tissue [clothed or naked body]

The limits for 1% of the exposed people to be killed due to heat radiation, and for second-degree burns are given in below:

TABLE:.3 DAMAGES TO HUMAN LIFE DUE TO HEAT RADIATION

EXPOSURE DURATION	RADIATION FOR 1% LETHALITY (KW/M^2)	RADIATION FOR 2^{ND} DEGREE BURNS (KW/M^2)	RADIATION FOR FIRST DEGREE BURNS, (KW/M^2)
10 sec	21.2	16	12.5
30 sec	9.3	7.0	4.0

Since in practical situations, only the own employees will be exposed to heat radiation in case of a fire, it is reasonable to assume the protection by clothing. It can be assumed that people would be able to find a cover or a shield against thermal radiation in 10 sec. time.

Furthermore, 100% lethality may be assumed for all people suffering from direct contact with flames, such as the pool fire, a flash fire or a jet flame. The effects due to relatively lesser incident radiation intensity are given in below.

TABLE:4 EFFECTS DUE TO INCIDENT RADIATION INTENSITY

INCIDENT RADIATION KW/M^2	TYPE OF DAMAGE
0.7	Equivalent to solar radiation
1.6	No discomfort for long exposure
4.0	Sufficient to cause pain within 20 sec. blistering of skin (first degree burns are likely)
9.5	Pain threshold reached after 8 sec. second degree burns after 20 sec.
12.5	Minimum energy required for piloted ignition of wood, melting plastic tubing etc.

7.8 Explosion

In case of vapor cloud explosion, two physical effects may occur:

- A flash fire over the whole length of the explosive gas cloud;
- A blast wave, with typical peak overpressures circular around ignition source.

As explained above, 100% lethality is assumed for all people who are present within the cloud proper.

For the blast wave, the lethality criterion is based on:

- A peak over pressure of 0.1 bars will cause serious damage to 10% of the housing/structures.
- Falling fragments will kill one of each eight persons in the destroyed buildings.

The following damage criteria may be distinguished with respect to the peak overpressures resulting from a blast wave:

TABLE:5 DAMAGE DUE TO OVERPRESSURES

PEAK OVERPRESSURE	DAMAGE TYPE
0.83 bar	Total destruction
0.30 bar	Heavy damage
0.10 bar	Moderate damage
0.03 bar	Significant damage
0.01 bar	Minor damage

From this it may be concluded that p=0.17 E+5 pa corresponds approximately with 1% lethality. Furthermore it is assumed that everyone inside an area in which the peak overpressure is greater than 0.17 E+ 5 pas will be wounded by mechanical damage. For the gas cloud explosion this will be inside a circle with the ignition source as its center.

8. INCIDENTS IMPACT

The identified failure scenarios in plant have been analyzed for the impact zones considering damage due to thermal, explosive and toxic impacts. Each incident will have Impact on the surrounding environment which in extreme case may cross plant boundary.

8.1 MAXIMUM CREDIBLE LOSS ACCIDENT SCENARIOS

A Maximum Credible Accident (MCA) can be characterized as the worst credible accident. In other words: an accident in an activity, resulting in the maximum consequence distance that is still believed to be possible. A MCA-analysis does not include a quantification of the probability of occurrence of the accident. Another aspect, in which the pessimistic approach of MCA studies appears, is the atmospheric condition that is used for dispersion calculations. The Maximum Credible Loss (MCL) scenarios have been developed for the Facility. The MCL cases considered, attempt to include the worst “Credible” incidents-what constitutes a credible incident is always subjective. Nevertheless, guidelines have evolved over the years and based on basic engineering judgment, the cases have been found to be credible and modeling for assessing vulnerability zones is prepared accordingly.

The objective of the study is Emergency planning, hence only holistic & conservative assumptions are used for obvious reasons. Hence, though the outcomes may look pessimistic, the planning for emergency concept should be borne in mind whilst interpreting the results.

In Consequence analysis, geographical location of the source of potential release plays an important role. Consideration of a large number of scenarios in the same geographical location serves little purpose if the dominant scenario has been identified and duly considered.

The Consequence Analysis has been done for selected scenarios by ALOHA [version 5.4.1.] of EPA. The details of software used for MCA analysis are described below.

- A computer based version ALOHA 5.4.1.2 is used to calculate toxic and explosive effect of the accidental release of liquid chemicals within the plant area.
- ALOHA (Areal Locations of Hazardous Atmosphere) is a computer program designed especially for use by people responding to chemical release as well as for emergency planning and training.
- ALOHA was jointly developed by the National Oceanic and Atmospheric Administration (NOAA) and the Environment Protection Agency[EPA]
- The mathematical model is based on the Emergency Response Planning Guidelines (ERPGs) which gives Toxic Levels of Concern (LOCs) to predict the area where a toxic liquid concentration might be high enough to harm people.
- ALOHA models key hazards-toxicity, flammability, thermal radiation (Heat), and over pressure (expansion blast force)-related to chemical releases that result in toxic gas dispersion, fire and/or explosion
-

8.2 CONSEQUENCE ANALYSIS

From the list mentioned below, all the Solvents are considered and have been taken for the consequences analysis considering their hazardous nature, Storage conditions and threshold values, other properties.

TABLE:6 LIST OF SOLVENTS WITH STORAGE CAPACITY

Sl. No.	Solvent Name	Maximum storage (KL)	Physical status	Storage	Storage pressure & temp
1	Methanol	25	Liquid	Tanks	Ambient
2	MDC	25	Liquid	Tanks	Ambient
3	Ethyl Acetate	25	Liquid	Tanks	Ambient
4	Toluene	20	Liquid	Tanks	Ambient
5	THF	20	Liquid	Tanks	Ambient
6	Ethanol	20	Liquid	Tanks	Ambient
7	Acetone	15	Liquid	Drums	Ambient
8	Hexane	15	Liquid	Drums	Ambient

SITE DATA

Location: **KADECHUR**

CHEMICAL DATA:

- Chemical Name: METHANOL
- CAS Number: 67-56-1
- Molecular Weight: 32.04 g/mol
- AEGL-1 (60 min): 530 ppm
- AEGL-2 (60 min): 2100 ppm
- AEGL-3 (60 min): 7200 ppm
- IDLH: 6000 ppm
- LEL: 71800 ppm
- UEL: 365000 ppm
- Ambient Boiling Point: 63.4° C
- Vapor Pressure at Ambient Temperature: 0.23 atm
- Ambient Saturation Concentration: 235,756 ppm or 23.6%

ATMOSPHERIC DATA: (MANUAL INPUT OF DATA)

- Wind: 4.5 meters/second from SW at 3 meters
- Ground Roughness: open country
- Cloud Cover: 5 tenths
- Air Temperature: 31° C
- Stability Class: D
- No Inversion Height
- Relative Humidity: 50%

SOURCE STRENGTH

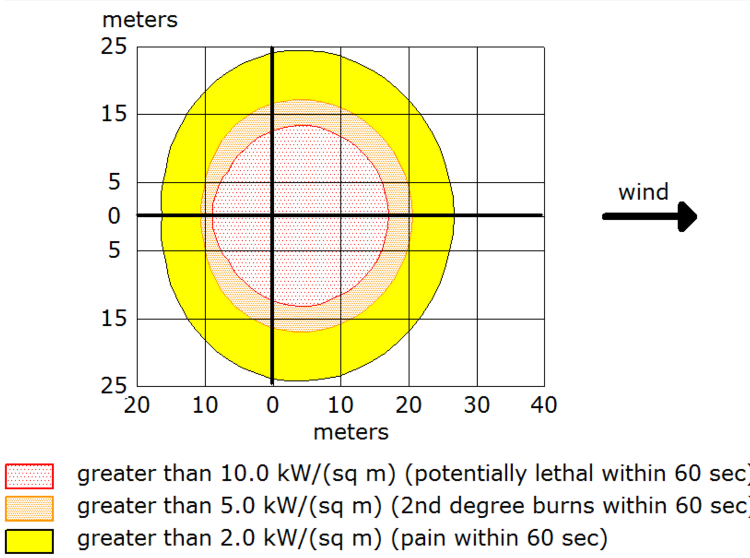
- Leak from hole in horizontal cylindrical tank
- Flammable chemical is burning as it escapes from tank
- Tank Diameter: 3 meters Tank Length: 5 meters
- Tank Volume: 35.3 cubic meters
- Tank contains liquid Internal Temperature: 31° C
- Chemical Mass in Tank: 20000 kilograms

- Tank is 72% full
- Circular Opening Diameter: 3 inches
- Opening is 0.3 meters from tank bottom
- Max Flame Length: 8 meters
- Burn Duration: ALOHA limited the duration to 1 hour
- Max Burn Rate: 210 kilograms/min
- Total Amount Burned: 11,838 kilograms
- Note: The chemical escaped as a liquid and formed a burning puddle.
- The puddle spread to a diameter of 16.3 meters.

THREAT ZONE:

- Threat Modeled: Thermal radiation from pool fire
- Red : 17 meters --- (10.0 kW/(sq m) = potentially lethal within 60 sec)
- Orange: 21 meters --- (5.0 kW/(sq m) = 2nd degree burns within 60 sec)

Yellow: 27 meters --- (2.0 kW/(sq m) = pain within 60 sec)



Common Hazards

- Physical such as ventilation, poor illumination, noise, extreme temperature, humidity and radiation.
- Biological such as variety of pathogenic bacteria and parasites.
- Chemical due to hazardous gases and dusts.
- Ergonomic.

9. Industrial Hygiene Monitoring

- Industrial hygiene monitoring is to be located and identify source of exposure in the workplace so that they can be corrected and to quantify the exposure of employees to chemicals in the air.

10. Occupational Health Monitoring System

Air samples

Locations of samples – air samples are generally collected in one or three locations:

- At the breathing zone of the worker [Personal sample]
- In the general room air [Areas ample]
- At the operation which is generating the hazardous substance [Area sample]

Lengths of samples – Air samples are generally collected for two lengths of time.

- Grab samples [instantaneous] measure conditions at one moment in time and can be likened to a still photograph. They give only a picture of conditions at one place at one instant in time.
- Continuous Samples [range from twenty minutes to 8 – 10 Hours].These is used to evaluate all day exposure by a series of continuous samples. Continuous samples may be thought of as like a motion picture since they record activity taking place in various places over a period of time. They provide an average of conditions over a period samples.

Other sampling methods

Bulk samples

Bulk samples will be collected from settled dust in the work place or from drums or bags of chemicals. Their purpose is to analyze and identify the substances present. For example, bulk samples are used to analyze the percent of asbestos in insulation or dust. Usually, a substance which is greater than one percent of bulk sample is considered a concern.

Wipe Samples

Wipe samples will be used when skin absorption or ingestion is a suspected rote of exposure. The purpose is to show whether skin, respirators, clothing, lunch rooms, lockers, etc. are contaminated.

It can show which surfaces are clean and which are contaminated. It can also show if some surfaces are more contaminated than others.

Sampling Devices

The general principle of sampling is to collect an amount of a contaminant onto a medium from a known quantity of air.

Air samples will be collected using small pumps to suck air from the workroom. The pump is attached by tubing to a sampling device which contains the sampling medium; for example a glass tube containing charcoal.

The sampling method will be used depends on the physical form of the substance:

- DUSTS –The sampling device is a filter of plastic or paper in sholder:
- VAPORS –The sampling device is a glass tube containing activated charcoal as a medium.
- GASES –The sampling device is a bubbler containing a fluid medium to dissolved or react with the gas

The collected samples will be sent to a laboratory where the amount of the substance on the sampling medium [filter, tube, etc.] is measured.

In some cases air monitoring will be conducted by using direct reading instrument such as a monitoring for carbon monoxide these instruments can measure the amount of a contaminant in the air immediately without being sent to a laboratory.

- **PELs** [Permissible Exposure Limits] – these are legal limits which have been established by OSHA.
- Recommended PELs – also reference to as **RELs** [Recommended Exposure Limits] often these values are based on more recent scientific information than the legal PELs enforced by **OSHA**.
- **TLVs** [Threshold Limit Values] – These are exposure limits put out by a nongovernmental group, the **ACGIH** [American Conference of Governmental Industrial Hygienists]. Many of these were adopted as legal requirements.
- Revised **TLVs** are often based on the most recent and accurate scientific information.
- Permissible Exposure Limits by **OSHA** [Occupational Safety and Health Administration] when it started back in 1970.
- **IDLH** [Immediate Dangerous to Life or Health] limits are prescribed by **NIOSH** [National Institute of Occupational Safety and Health]

11. CHEMICAL EXPOSURE LIMITS & EMP FOR THE OCCUPATIONAL SAFETY & HEALTH HAZARDS

TABLE:6 CHEMICAL EXPOSURE LIMITS

S. No	SOLVENT NAME	Exposure Standards		
		ACGIH [TLV]	OSHA [PEL]	NIOSH [IDLH]
1	Acetone	500	750	2500
2	Tetrahydrofuran	50	200	2000
3	Ethanol	1000	1000	1000
4	Methylene Dichloride	500	500	500
5	Ethyl Acetate	250	250	2000
6	Methanol	200	200	6000
7	Hexane	50	50	5000
8	Toluene	50	100	500

Notes:

- All the above Values are in **ppm**
- PPE Means Personal Protective Equipment like Helmets, Safety Google, Breathing apparatus, Nose Masks, Gloves, Gum Shoes etc.,

NOTE: Medical testing reports of the Employees will be available at the time of industry in operation

EMP for the Occupational Safety & Health Hazards so that such exposure can be kept within permissible exposure level (PEL) / Threshold Level value (TLV) so as to protect health of workers.

1. It is proposed to formulate and implement an EMP for Occupational Safety and Health with following aim
   - To keep air-borne concentration of toxic (if available) and hazardous chemicals below PEL and TLV.
   - Protect general health of workers likely to be exposed to such chemicals
   - Providing training, guidelines, resources and facilities to concerned department for occupational health hazards
   - Permanent changes to workplace procedures or work location to be done if it is found necessary on the basis of findings from workplace Monitoring Plan.
2. It is proposed that this EMP be formulated on the guidelines issued by Bureau of Indian

Standards on OH&S Management Systems: IS 18001:2000 Occupational Health and Safety Management Systems.

3. Proposed EMP will be incorporated in Standard Operating Procedure also

4. The proposed EMP will also include measure to keep air-borne concentration of toxic and hazardous chemicals below its PEL and TLV, like…

- Leak Surveys
- Separate storage for toxic chemicals
- Exhaust Ventilation
- Proper illumination
- On-line detectors toxic chemical like Anhydrous Ammonia
- Close processes to avoid spills and exposures
- Atomization of process operations to hazards of manual handling of chemicals
- Supply of proper PPEs like Air mask, Berating canisters, SCBA sets, On-line breathing apparatus at the places where there is possibility of presence of toxic chemicals
- Decontamination procedure for empty drums and carboys.
- Regular maintenance program for pumps, equipment, instruments handling toxic and corrosive chemicals
- Display of warning boards
- Training to persons handling toxic and corrosive chemicals

Workplace Monitoring Plan

- It is proposed that a Workplace Monitoring Plan to be prepared & implemented accordingly.
- Each workplace must be evaluated to identify potential hazards from toxic substances or harmful physical agents. Air-borne concentration of toxic chemicals will be measured and records will be kept.
- The current state-of-the-art exposure measurement model is as follows: For purposes of measuring worker exposure across a single shift it is sufficient to place a reasonably accurate exposure measuring device near the worker's area, within the worker's breathing zone, and have it operate for nearly the full shift. Client has been proposed to study the exposure data when the plant is operative.

Health Evaluation of Workers

- It is proposed that management will devise a plan to check and evaluate the exposure specific health status evaluation of workers.
- Workers will be checked for physical fitness with special reference to the possible health hazards likely to be present, where he/she is being expected to work before being employed for that purpose. Basic examinations like
  1. Liver Function tests,
  2. Chest X-ray,
  3. Audiometry,
  4. Spirometer Vision testing (Far & Near vision, color vision and Any other ocular defect)
  5. ECG, etc. will be carried out.

However, the parameters and frequency of such examination will be decided in consultation with Factory Medical Officer.

- While in work, all the workers will be periodically examined for the health with specific reference to the hazards which they are likely to be exposed to during work. Health evaluation will be carried out considering the bodily functions likely to be affected during work. The parameters and frequency of such examination will be decided in consultation with Factory Medical Officer. Plan of monthly and yearly report of the health status of workers with special reference to Occupational Health and Safety, will be maintained.

12. TREATMENT OF WORKERS AFFECTED BY ACCIDENTAL SPILLAGE OF CHEMICALS

Interim First Aid is essential in many injuries while injured waits for trained personnel to arrive.

12.1 BLEEDING

- Apply direct pressure on the wound with a clean dressing.
- If bleeding continues and you do not suspect a fracture, elevate the wound above the victim's heart and continue to apply direct pressure.
- If bleeding continues, apply pressure at a pressure point.
- Maintain body temperature.
- Do not use a tourniquet unless this is a serious amputation.

12.2 BREATHING PROBLEMS

- Move victim to fresh air if smoke or dangerous gases are present.
- Otherwise, do not move victim.
- If victim loses consciousness, call doctor
- Never enter into a room with toxic gases released -call without protection

12.3 UNCONSCIOUS VICTIM

- Move victim to fresh air if smoke or dangerous gases exist.
- Begin rescue breathing- is First Aid trained ahead of time! Instead.
- Never enter into a room with toxic gases released- call without protection

12.4 CHEMICAL BURNS

- Have victim remain under a safety shower or flush skin with an available water source for 15-30 minutes.
- Remove all contaminated clothing and jewelry.
- Cover burns with dry, loose dressings.
- Wash all clothing thoroughly before wearing it again.

12.5 ACID BURNS

- In case of acid burn, the operator should with all possible speed get under a safety shower and use the full flow of water - the more water the better. A small amount of water will incase severity of the burn Water should be used until all traces of acid have been washed from the burn. Alkaline solutions are not needed; if used at all they should be used only after all acid has been washed from the burn, it may to treat in the same manner as a heat burn.

12.6 CHEMICAL INGESTIONS

- Never enter into a room with toxic gases released without protection
- Do not give victim any food or liquids without specific advice from physician.

12.7 EYE INJURIES FROM CHEMICALS

- Get victim to a safety shower or eye wash immediately.
- Never enter into a room with toxic gases released- call without protection
- Flush eye for 15-30 minutes with both lids held open. Keep the injured eye lower than

the uninjured eye.

- Keep the eyelids open hold fingers at top and bottom of the eyeball. Wrap a bandage loosely around both eyes.

13. SAFE OPERATING PROCEDURES

- Safe operating procedures will be available for all materials, operations and equipment.
- The workers will be informed of consequences of failure to observe the safe operating procedures.
- Safe operating procedures will be formulated and updated, specific to process & equipment and distributed to concerned plant personnel.
- Safety procedures will be prepared and displayed meticulously in Kannada and English languages.

13.1 FIRE PROTECTION

- Well-designed pressured hydrant system comprising with jockey pump, electrical & diesel pumps, hydrant, monitor etc. will be installed at the plant.
- The firefighting system and equipment will be tested and maintained as per relevant standards.
- Heat and smoke detectors will be provided at the plant and calibrated and maintained properly.

13.2 STATIC ELECTRICITY

- All equipment and Storage tanks / Containers of flammable chemicals are will be bounded and earthed properly.
- Electrical pits will be maintained clean and covered.
- Electrical continuity for earthing circuits shall be maintained.
- Periodic inspections shall be done for earth pits and record will be maintained.

13.3 COMMUNICATION SYSTEM

Communication facilities will be checked periodically for its proper functioning.

14. SAFETY INSPECTIONS

The system will be initiated for checklist based routine safety inspection and internal audit of the plant. Safety inspection team will be formed from various disciplines and departments.

15. PREDICTIVE AND PREVENTIVE MAINTENANCE

Predictive and preventive maintenance schedule will be followed in religious manner.

16. ELECTRICAL SAFETY

- Insulation pad at HT panels will be replaced at regular interval.
- Housekeeping in MCC room will be kept proper for safe working conditions.

17. COLOUR CODING SYSTEM

Color coding for piping and utility lines are will be followed in accordance with IS: 2379:1990.

ANNEXURE-8

ALLOTMENT LETTER

KARNATAKA INDUSTRIAL AREAS DEVELOPMENT BOARD
(A Government of Karnataka Undertaking)
49, 4th & 5th Floors, 'East Wing', Khanija Bhavan, Race Course Road, Bengaluru - 560 001
Phone : 080-22265383 Fax : 080-22267901
Website : www.kiadb.in email: ceoemkiadb@gmail.com

No. IADB/HO/Allot/23147/14148 /2020-21 Date: 20.03.2021.

RPAD

Prop: T.V.Srihari,
M/s. Laureatz Technochem Pvt Ltd,
Plot No.147, Sri Sai Nilayam,
Near Tennis Park Pragtinagar,
Kutbullapur, Niza,
Hyderbad-500 090.

Sis,

ALLOTMENT LETTER

Sub: Allotment of 2.00 acres (8094.00 Smtrs) of land in Plot No.62 of Kadechur Industrial Area, Yadgir District – reg.

Ref : 1. 122th SLSWCC meeting dt: 07.01.2021.
2. Your letter dt: 16.03.2021.

****

In pursuance of the approval given by the 122th SLSWCC meeting dt: 07.01.2021 you have been 2.00 acres (8094.00 Smtrs) of land in Plot No.62 of Kadechur Industrial Area, Yadgir District for Manufacture of **"APIS & Intermediates"** subject to the terms and conditions indicated in the Annexe-A appended hereto and also the terms and conditions mentioned hereafter.

1. The allotment of land is on lease –cum sale basis for a period of **10** years. The lease is liable to be cancelled automatically in case the land is not utilized within a period of three years in case of MSME, large projects or five years in cases of mega, ultra mega, super mega projects as defined in the industrial policy or the land is not utilized within a specified period approved by DLSWCC/SLSWCC/SHLCC/ Allotment Committee without obtaining valid extensions from the concerned investment approving committees detailed in (c)(iii) of Annexe 'A'.
   The tentative premium payable for allotment of the said land has been fixed at **Rs.37.50/- Lakhs** per Acre.

2. (a) The tentative premium of the said plot is **Rs.75,00,000/-**. and EMD **Rs.10,000/-** per acre

   (b). The tentative premium of the land shall be paid as follows:

   i. A Sum of Rs.**15,10,000/-** being paid vide Rt. No.0050337 dt:16.03.2021 is adjusted towards 20% land cost & EMD.

   ii. A sum of Rs.**60,00,000/-** being the balance 80% of the tentative premium of land shall be paid within **150 days** from the date of this letter ie on or before **17.08.2021.**

Secretary-II
Karnataka Industrial Areas Development Board
Bengaluru - 560 001.

(c) In the event of your furnishing letter of commitment from KSFC/KSIIDC/ Reserve Bank of India approved Financial Institutions/ Corporations/ Companies agreeing to pay the premium indicated at 2(b)(ii) directly to the Board(applicable only to Medium, Small and Micro Enterprises) the allotment will be confirmed and documentation will be permitted subject to payment of **interest @10.50% per annum** on amount due from the date of handing over possession of land to the date of payment which should be made within 180 days from the date of execution of Lease Agreement.

(d) You should pay lease rent of Rs.1000/- per acre/per annum.

(e) You should pay maintenance charges as may be fixed by the Board from time to time.

(f) Interest at 10.95% per annum shall be levied in case the lease rents are not paid within one month from the date on which the lease rents fall due every year.

3. (a) In case of your failure to pay the amount mentioned at Para 2(b)(ii) before the expiry of the time stipulated therein, this offer of allotment stands automatically cancelled and the Earnest Money Deposit and **20%** of the amount paid by you towards premium stands automatically forfeited.

(b)If the balance premium is not paid within 180 days from the date of execution of lease agreement in respect of cases mentioned at Para 2(c), the plot would be resumed on expiry of the time stipulated without issuing any fresh notice.

4. Soon after receipt of 100% premium of land as at para 3(a)(i) & (ii) and on your acceptance of all the terms and conditions indicated herein before and also those mentioned hereinafter, the possession of land will be handed over within 30 days from the date of payment. At the time of taking over possession, you should produce the original receipts, issued for the payments made, to the Engineer in charge of the area.

5. On taking possession of land, you shall adhere to the time schedule indicated in the Annexe-A.

6. Your failure to take possession of land within 30 days from the date of payment of the premium shall result in cancellation of allotment and **20%** of the amount paid towards premium and E.M.D shall stand forfeited.

7. The Board may accept voluntary surrender of plot subject to levy of penalty at **15%** of the allotment cost paid by you.

8. All taxes in respect of the lease including service tax shall be payable by you to the Board.

9. Any deposits made by you towards allotment consideration will not carry any interest.

Secretary-II
Karnataka Industrial Areas Development Board
Bengaluru - 560 001.

KARNATAKA INDUSTRIAL AREAS DEVELOPMENT BOARD
(A Government of Karnataka Undertaking)
49, 4th & 5th Floors, 'East Wing', Khanija Bhavan, Race Course Road, Bengaluru - 560 001
Phone : 080-22265383 Fax : 080-22267901
Website : www.kiadb.in email: ceoemkiadb@gmail.com

10. Your are also requested to remit **Rs.20,240/-** towards slum improvement Cess as per Govt. Order No. HUD/180/MIB/94/dt: 29.03.1984 together with balance premium.

11. It shall be mandatory for you to obtain all statutory clearances from the Karnataka State Pollution Control Board and other statutory competent authorities before commencement of the approved project.

12. Any deposit made by you towards allotment consideration will not carry any interest.

13. Only jurisdictional courts shall have Jurisdiction.

14. You are required to inform any change in address of the Registered Office or Administrative Office, to the Board immediately.

15. This allotment is subject the other terms and conditions of the lease cum sale agreement the sale deed will be executed after completion of 10 years from the date of execution of lease-cum-sale agreement, even though the project is implemented and 50% or more than of the area allotted has been utilized. You have to clear all the dues before execution of absolute sale deed. After execution of sale deed, the land/shed shall be utilized only for industrial purpose.

16. This letter is issued with the approval of Chief Executive Officer & Executive Member.

Yours faithfully,

20/3/21

AUTHORISED SIGNATORY
Secretary-II
Karnataka Industrial Areas Development Board
Bengaluru - 560 001.

KARNATAKA INDUSTRIAL AREAS DEVELOPMENT BOARD
(A Government of Karnataka Undertaking)
49, 4th & 5th Floors, 'East Wing', Khanija Bhavan, Race Course Road, Bengaluru - 560 001
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Annexe-A

CONDITIONS OF ALLOTMENT

The time schedule prescribed for various activities subsequent to payment of premium.

1.(a) For taking over possession of land.	30 days from the date of payment of entire premium.
(b) For execution of Lease Agreement	30 days from the date of receipt of Possession Certificate.
(c) For commencement of construction and completion of project by commencing production.	Construction should be commenced within nine months from the date of taking over possession and production should be commenced :- i) within a period of three years after taking over possession in case of MSME and large industries ii) within a period of five years after taking over possession in cases of mega, ultra mega and super mega projects. iii) Promoters to seek extension of time in writing by giving valid reasons to be concerned investment approving committees viz., DLSWCC / SLSWCC/ SHLCC/Allotment Committee prior to the above mentioned periods.

2. On being satisfied that the land is not put to use for the purpose for which it was allotted, the Board will be free to re-enter upon and take possession of the whole or any part of the land which has not been put to proper use.

3. If necessary, the interest in this plot of land may be offered as security in order to obtain financial assistance from the Govt. or Corporate bodies like Life Insurance Corporation of India, Karnataka State Financial Corporation, Karnataka State Industrial Investment & Development Corporation, Trustees for Debenture Stock or Banks. However, prior permission of the Board shall be obtained for creating second and subsequent charges on the land.

20/3/21
AUTHORISED SIGNATORY
Secretary-II
Karnataka Industrial Areas Development Board
Bengaluru - 560 001.

ANNEXURE-9

KIADB GAZETTE NOTIFICATION COPY

Land Notification

KA / BG - GPO/ 2515 /WPP-47/ 2009 - 2011

ಕರ್ನಾಟಕ ರಾಜ್ಯಪತ್ರ

ಅಧಿಕೃತವಾಗಿ ಪ್ರಕಟಿಸಲಾದುದು

ವಿಶೇಷ ಪತ್ರಿಕೆ

ಭಾಗ – III | ಬೆಂಗಳೂರು, ಶುಕ್ರವಾರ, ಡಿಸೆಂಬರ್ ೩೦, ೨೦೧೧ (ಪುಷ್ಯ ೯, ಶಕ ವರ್ಷ ೧೯೩೩) | ನಂ. ೧೦೪೮

ವಾಣಿಜ್ಯ ಮತ್ತು ಕೈಗಾರಿಕಾ ಸಚಿವಾಲಯ

ಕರ್ನಾಟಕ ಕೈಗಾರಿಕಾ ಪ್ರದೇಶಾಭಿವೃದ್ಧಿ ಮಂಡಳಿ ಕಾಯ್ದೆ 1966 ರ ಕಲಂ 28(4) ರನ್ವಯ ಅಧಿಸೂಚನೆ

ಸಂಖ್ಯೆ : ಸಿಐ 455 ಎಸ್‌ಪಿಕ್ಯೂ 2011, ಬೆಂಗಳೂರು, ದಿನಾಂಕ : 30ನೇ ಡಿಸೆಂಬರ್, 2011

ಕರ್ನಾಟಕ ಕೈಗಾರಿಕಾ ಪ್ರದೇಶಾಭಿವೃದ್ಧಿ ಕಾಯ್ದೆ 1966 (ಕರ್ನಾಟಕ ಕಾಯ್ದೆ 1966) (ಈ ಮುಂದೆ ಪ್ರಸ್ತುತ ಕಾಯ್ದೆ ಎಂದು ಹೇಳಲಾಗಿದೆ) ಕಲಂ 28(1) ರನ್ವಯ ವಿಹಿತವಾಗಿರುವ ಅಧಿಕಾರದಡಿ ಸಂಖ್ಯೆ:ಸಿಐ:397:ಎಸ್‌ಪಿಕ್ಯೂ:2010:ಬೆಂಗಳೂರು ದಿನಾಂಕ: 15–7–2010 (ಈ ಮುಂದೆ ಅಧಿಸೂಚನೆ ಎಂದು ಹೇಳಲಾಗಿದೆ) ರಂದು ಹೊರಡಿಸಿ ದಿನಾಂಕ: 19–7–2010 ರಂದು ಪ್ರಕಟವಾದ ರಾಜ್ಯ ಪತ್ರದ ಮಟ (1) ರಿಂದ (92) ರ ವರೆಗೆ (ಭಾಗ–3) ರಲ್ಲಿ ಕರ್ನಾಟಕ ಸರ್ಕಾರವು ಪ್ರಸ್ತುತ ಅಧಿಸೂಚನೆಯಲ್ಲಿ ಕಾಣಿಸಿರುವ ಕೈಗಾರಿಕಾ ಅಭಿವೃದ್ಧಿಗೋಸ್ಕರ ಅಂದರೆ ಕೈಗಾರಿಕಾ ಪ್ರದೇಶಕ್ಕಾಗಿ ಪ್ರಸ್ತುತ ಅಧಿಸೂಚನೆಯಲ್ಲಿ ಕಾಣಿಸಿರುವ ಜಮೀನುಗಳನ್ನು ಸ್ವಾಧೀನಪಡಿಸಿಕೊಳ್ಳಲು ತನ್ನ ಉದ್ದೇಶವನ್ನು ಪ್ರಕಟಿಸಿತ್ತು.

ಅದರಂತೆ ಪ್ರಸ್ತುತ ಕಾರ್ಯ್ದೆಯನ್ವಯ 28 ರ ಉಪ ಕಲಂ (3) ರನ್ವಯ ಆದೇಶವನ್ನು ಹೊರಡಿಸಲಾಗಿದೆ. ಮತ್ತು ಈ ಕೆಳಗೆ ಅನುಸೂಚಿಯಲ್ಲಿ ಕಾಣಿಸಿರುವ ಜಮೀನುಗಳು ಪ್ರಸ್ತುತ ಅಧಿಸೂಚನೆಯಲ್ಲಿಯೂ ಕಾಣಿಸಲ್ಪಟ್ಟಿವೆ ಹಾಗೂ ಪ್ರಸ್ತುತ ಅಧಿಸೂಚನೆಯಲ್ಲಿ ಕಾಣಿಸಿರುವ ಉದ್ದೇಶಕ್ಕಾಗಿ ಸ್ವಾಧೀನಪಡಿಸಿ ಕೊಳ್ಳಬೇಕೆಂದು, ಕರ್ನಾಟಕ ಸರ್ಕಾರಕ್ಕೆ ಮನವರಿಕೆಯಾಗಿದೆ.

ಆದುದರಿಂದ ಕರ್ನಾಟಕ ಕೈಗಾರಿಕಾ ಪ್ರದೇಶಾಭಿವೃದ್ಧಿ ಕಾಯ್ದೆ 1966 (ಕರ್ನಾಟಕ ಕಾಯ್ದೆ 18:1966) ರ ಕಲಂ 28 ರ ಉಪ ಕಲಂ (4) ರನ್ವಯ ವಿಹಿತವಾಗಿರುವ ಅಧಿಕಾರದ ಮೇರೆಗೆ ಅಧಿಸೂಚನೆಯಲ್ಲಿ ಕಾಣಿಸಿರುವ ಉದ್ದೇಶಕ್ಕಾಗಿ ಈ ಕೆಳಗೆ ಅನುಸೂಚಿಯಲ್ಲಿ ಕಾಣಿಸಿರುವ ಜಮೀನುಗಳನ್ನು ಸ್ವಾಧೀನಪಡಿಸಿಕೊಳ್ಳಬೇಕೆಂದು ಈ ಮೂಲಕ ಕರ್ನಾಟಕ ಸರ್ಕಾರವು ಘೋಷಿಸಿದೆ.

ಅನುಸೂಚಿ

ಜಿಲ್ಲೆ: ಯಾದಗಿರ ತಾ: ಯಾದಗಿರ ಹೋಬಳಿ: ಸೈದಾಪೂರ ಗ್ರಾಮ: ಕಡೇಚೂರು

ಅ. ಸಂ.	ಖಾತೆದಾರರ ಹೆಸರು	ಅನುಭವದಾರರ ಹೆಸರು	ರಿ.ಸ.ನಂ.	ಸ್ವಾಧೀನಪಡಿಸುವ ಅಂದಾಜು ವಿಸ್ತೀರ್ಣ ಎ-ಗುಂ	ಆಕಾರ ರೂ-ಪೈ	ಜಮೀನಿನ ತರಹೆ	ಚಕಬಂದಿ (ಚತುಃಸೀಮೆ)				ಷರಾ
							ಪೂರ್ವ	ಪಶ್ಚಿಮ	ಉತ್ತರ	ದಕ್ಷಿಣ	
1	2	3	4	5	6	7	8	9	10	11	
1	1)ಖಾಜಾಹುಸೇನ ತಂ/ ಹುಸೇನಸಾಬ ಚೇಗುಂಟ (2-04) 2) ಹುಸೇನಸಾಬ ತಂ/ ಮೌಲಾಲಿ 3)ಖಿಶಾಲಸಾಬ ತಂ/ ಮೌಲಾಲಿ 02-26 4)ಬುರಾನಸಾಬ ತಂ/ ಮೌಲಾಲಿ 5)ಮೆಹಬೂಬ ಹುಸೆನ ತಂ/ ಮೌಲಾಲಿ 6) ಖಾಜಾಹುಸೇನ ತಂ/ ಹುಸೇನಸಾಬ ಚೇಗುಂಟ (0-34)	ಸ್ವಂತ	430/ 1,2,3	05-24	2-44 3-07	ಖುಷ್ಕಿ	428	431	352	429	
2	1) ಖಾಜಾಹುಸೇನ ತಂ/ ಹುಸೇನಸಾಬ (02-14) 2) ಹುಸೇನಸಾಬ ಚಂದಾಪೂರ (0-38) 3) ಹುಸೇನಸಾಬ ಚಂದಾಪೂರ (2-05) 4)ಮಹಿಬೂಬ ಅಲಿ ತಂ/ ಮೌಲನಾಸಾಬ (02-21)	ಸ್ವಂತ	431	10-38 0-05(ಖ) 10-33	4-23 1-00 2-24 2-68	ಖುಷ್ಕಿ	430	432	352	458	
3	1) ಹಣ್ಮಪ್ಪ ತಂ/ ಹಣಮಪ್ಪ ಪೆಂಡ್ರ (3-32) 2) ಆಶಪ್ಪ ತಂ/ ಹಣಮಪ್ಪ ಪೆಂಡ್ರ (3-32) 3)ಬಸಪ್ಪ ತಂ/ ಹಣಮಪ್ಪ (3-32) 4)ತಾಯಪ್ಪ ತಂ/ ಹಣಮಪ್ಪ ಪೆಂಡ್ರ(3-33) 5)ಇಫ್ತಕಾರ ಹುಸೇನ ತಂ/ ಮಷ್ಕದ 6) ಅಬ್ದುಲ್ ರಸೀದ-ಹವಲದಾರ }(2-00) 7)ಖಲೀಲ ಹುಸೇನ ತಂ/ಮಷ್ಕದ 8) ಅಬ್ದುಲ್ ರಸೀದ-ಹವಲದಾರ	ಸ್ವಂತ	432/ ಅ,ಆ	17-09 05-12(ಖ) 11-37	10-05	ಖುಷ್ಕಿ	431	435	433	456	
4	1) ಸೈ ಜೆನುಲ ಆಬುದ್ದೀನ ತಂ/ ಸೈ ಜಮೀರಅಲಿ ಅ ತೊರ್ರಿ(3-25) 2) ಮಾರೆಪ್ಪ ತಂ/ ಸಾಯಿಬಣ್ಣ ಕಂಗಣಿಕರು (3-29) 3) ಸವರಪ್ಪ ತಂ/ಆಶಪ್ಪ ಕಬ್ಬೇರ (04-07)	ಸ್ವಂತ	433/ಅ,ಆ,ಇ	11-21 0-02(ಖ) 11-19	3-76 4-06 4-50	ಖುಷ್ಕಿ	431	434	312	432	
5	1) ಸಿದ್ರಾಮಪ್ಪ ತಂ/ ರಾಮಚಂದ್ರ (00-13) 2) ಅನಂತಯ್ಯ ತಂ/ ಯಂಕಯ್ಯ ದಾಸರ (3-11) 3) ದೊಡ್ಡ ಸಿದ್ದಪ್ಪ ತಂ/ ರಾಮಪ್ಪ 4) ಸಣ್ಣ ಸಿದ್ದಪ್ಪ ತಂ/ ರಾಮಪ್ಪ (1-14) 5) ಖಲೀಲ ಅಷ್ಕದ ತಂ/ ಹಸನಬಾಯಿ (1-11) 6) ಮರಿಲಿಂಗಪ್ಪ ತಂ/ ಬುಡ್ಡೆಪ್ಪ ಬಾಡದ (2-28)	ಸ್ವಂತ	434 ಆ ದಿಂದ ಊ ದ ವರೆಗೆ	18-16	2-28 3-07 3-67	ಖುಷ್ಕಿ	433	437	309	435	

ಅ. ಸಂ.	ಖಾತೆದಾರರ ಹೆಸರು	ಅನುಭವದಾರರ ಹೆಸರು	ರಿ.ಸ.ನಂ.	ಸ್ವಾಧೀನಪಡಿಸುವ ಅಂದಾಜು ವಿಸ್ತೀರ್ಣ ಎ-ಗುಂ	ಆಕಾರ ರೂ-ಪೈ	ಜಮೀನಿನ ತರಹೆ	ಚಕಬಂದಿ (ಚತುಃಸೀಮೆ)				ಷರಾ
							ಪೂರ್ವ	ಪಶ್ಚಿಮ	ಉತ್ತರ	ದಕ್ಷಿಣ	
1	2	3	4	5	6	7	8	9	10	11	
	7) ಖಲೀಲ ಅಹ್ಮದ ತಂ/ ಹಸನಬಾಯಿ (02-30) 8) ರಾಯಪ್ಪ ತಂ/ ಸಾಯಿಬಣ್ಣ ಅನಪೂರ (3-11) 9) ಆದೆಪ್ಪ ತಂ/ ಬುಗ್ಗಪ್ಪ ನಲ್ಲಿ (2-05) 10) ಶಿವಪ್ಪ ತಂ/ ಬುಗ್ಗಪ್ಪ (1-23)										
6	1) ಸಿದ್ರಾಮಪ್ಪ ತಂ/ ರಾಮಪ್ಪ 6-17 2) ರಾಮಚಂದ್ರ ತಂ/ ರಾಯಪ್ಪ 3) ದೊಡ್ಡ ಸಿದ್ದಪ್ಪ ತಂ/ ರಾಮಪ್ಪ 4)ಸಣ್ಣ ಸಿದ್ದಪ್ಪ ತಂ/ ರಾಮಪ್ಪ 6-18 5)ಶಿವನಪ್ಪ ತಂ/ ಬಸಪ್ಪ (6-18) 6) ಮಲ್ಲಪ್ಪ ತಂ/ ನಿಂಗಪ್ಪ ಆಮ್ಲಪ್ಪನೋರ (4-13) 7) ರಾಮಪ್ಪ ತಂ/ ಸಾಯಿಬಣ್ಣ ಅನಪೂರ (2-05)	ಸ್ವಂತ	435,436	32-08	–	ಖುಷ್ಕಿ	432	437	434	436	
7	1) ಮಾರೆಪ್ಪ ತಂ/ ಮಣಿಕಪ್ಪ U/G ಮಾಣಿಕಮ್ಮ ಗಂ/ಮಾಣಿಕಪ್ಪ (9-15) 2) ಮಾರೆಪ್ಪ ತಂ/ ಮಣಿಕಪ್ಪ U/G ಮಾಣಿಕಮ್ಮ ಗಂ/ಮಾಣಿಕಪ್ಪ(5-16)	ಸ್ವಂತ	437/ಅ,ಆ	14-31	10-22 5-87	ಖುಷ್ಕಿ	435	438	ಗಡಿ	ಹಳ್ಳ	
8	1) ಆಶಪ್ಪ ತಂ/ ನರಸಪ್ಪ (2-16) 2) ಶೇಖ ಖಾಸಿಂಅಲಿ ತಂ/ ಶೇಖ ಹಸನಬಾಯಿ (4-04) 3)ನಾಗಪ್ಪ ತಂ/ಸೋಮಪ್ಪ ನೀಲಹಳ್ಳಿ (2-17) 4)ರಾಮಪ್ಪ ತಂ/ ನರಸಪ್ಪ ಹುಣಸಿನ (4-35)	ಸ್ವಂತ	438/1,2,3	16-22	10-00 6-00 2-54	ಖುಷ್ಕಿ	437	445	ಗಡಿ	ಹಳ್ಳ	
	ಶೇಖ ಖಾಸಿಂಅಲಿ ತಂ/ ಹುಸೇನಸಾಬ (2-30)	ಸ್ವಂತ				ಖುಷ್ಕಿ					
9	1)ಮಾಳಪ್ಪ ತಂ/ ರಾಮಪ್ಪ ಆರವಿ (4-26) 2) ಹುಸೇನಪ್ಪ ತಂ/ ಲಚಮಪ್ಪ ಕಾನಕುರ್ತಿ (4-12) 3) ಸಾಬಯ್ಯ ತಂ/ ಆಶಪ್ಪ (2-28) 4) ಹುಸನಪ್ಪ ತಂ/ ಆಶಪ್ಪ (1-31)	ಸ್ವಂತ	439/1,2,3,4	13-17	5-20 4-82 3-03 1-31	ಖುಷ್ಕಿ	438	440	ಗಡಿ	445	
10	1) ಭೀಮಣ್ಣ ತಂ/ ಮಲ್ಲಪ್ಪ ಪೂಜಾರಿ (4-39) 2) ಶಿವರಾಜಪ್ಪ ತಂ/ ಶಿವಣ್ಣ ಪೂಜಾರಿ (5-13) 3) ಶಿವರಾಜಪ್ಪ ತಂ/ ಶಿವಣ್ಣ ಪೂಜಾರಿ (3-30) 4)ಭೀಮಣ್ಣ ತಂ/ ಮಲ್ಲಪ್ಪ (4-03)	ಸ್ವಂತ	440/1,2,3	18-05 0-14(ಖ) 17-31	5-49 5-92 8-57	ಖುಷ್ಕಿ	439	442	ಗಡಿ	444	

ಅ. ನಂ.	ಖಾತೆದಾರರ ಹೆಸರು	ಅನುಭೋಗದಾರರ ಹೆಸರು	ರಿ.ಸ.ನಂ.	ಸ್ವಾಧೀನಪಡಿಸುವ ಅಂದಾಜು ವಿಸ್ತೀರ್ಣ ಎ-ಗುಂ	ಆಕಾರ ರೂ-ಪೈ	ಜಮೀನಿನ ತರಹೆ	ಚೆಕಬಂದಿ (ಚತುಃಸೀಮೆ)				ಷರಾ
							ಪೂರ್ವ	ಪಶ್ಚಿಮ	ಉತ್ತರ	ದಕ್ಷಿಣ	
1	2	3	4	5	6	7	8	9	10	11	
11	1)ಮರೆಪ್ಪ ತಂ/ ಚಂದ್ರಪ್ಪ ಯಲ್ಲಪ್ಪ 2)ನರಸಪ್ಪ ತಂ/ ಭೀಮಪ್ಪ 3)ಬಸಲಿಂಗಪ್ಪ ತಂ/ ಮಾಂತಪ್ಪ 4)ಯಲ್ಲಪ್ಪ ತಂ/ ಚಂದ್ರಪ್ಪ } 13-06 5)ಬಸವರಾಜ ತಂ/ ನಿಂಗಪ್ಪ (2-25) 6) ಮಲ್ಲಪ್ಪ ತಂ. ನಿಂಗಪ್ಪ (2-00) 7)ದೊಡ್ಡ ನರಸಪ್ಪ ತಂ/ ನರಸಪ್ಪ (4-34) 8)ಲಕ್ಷ್ಮಣ ತಂ/ ಹಣಮಂತು ಸಾ/ಶೇಟ್ಟಳ್ಳಿ (4-02) 9)ನರಸಪ್ಪ ತಂ/ ಮಲ್ಲಪ್ಪ ಪಟಗಡ (1-39) 10)ಅನೀಲಕುಮಾರ ತಂ/ ಶೀವರಾಜಪ್ಪ ಪಾಟೀಲ(2-00) 11)ಶರಣಗೌಡ ತಂ/ ರಾಚಣಗೌಡ ಪೋ.ಪಾ(2-17) 12)ಸಾಬಮ್ಮ ಗಂ/ ಮಲ್ಲಿಕಾರ್ಜುನ ತೆಗ್ಗಿನಮನಿ (2-19) 13)ನರಸಪ್ಪ ತಂ/ ಭೀಮಪ್ಪ ಬಾಡದ (4-00) 14)ಬಸವರಾಜ ತಂ/ ನರಸಪ್ಪ ಪೂಜಾರಿ (5-00) 15)ಮಾರೆಪ್ಪ ತಂ/ ಬಾಲಪ್ಪ ನೀಲಹಳ್ಳಿ (4-15) 16)ಸವರೆಪ್ಪ ತಂ/ ಬೀರಪ್ಪ ಬಾಡದ (4-15)	ಸ್ವಂತ	441,442,443	53-12 0-09(ಖ) 53-03	-	ಖುಷ್ಕಿ	440	ಗಡಿ	ಗಡಿ	442	
12	1) ಚೆನ್ನಪ್ಪ ತಂ/ ಅಯ್ಯಪ್ಪ (4-20) 2) ಮಾರೆಮ್ಮ ಗಂ/ ಮಲ್ಲಯ್ಯ ಹೊಸಮನಿ (4-20) 3)ಬುಡ್ಡಪ್ಪ ತಂ/ ಸಾಯಬಣ್ಣ (5-00) 4)ಖಲೀಲ ಅಹ್ಮದ ತಂ/ ಹಸನಬಾಯಿ ಚೋರಗಸ್ತಿ (3-39)	ಸ್ವಂತ	444/ಅ,ಆ	17-39	10-07 10-07	ಖುಷ್ಕಿ	445	443	440	447	
13	1) ಅಬ್ದುಲ ರಹೀಮ ತಂ/ ಹುಸೇನಸಾಬ (1-21) 2) ಶೇಖ ಮಹಿಬೂಬ ಹುಸೇನ ತಂ/ ಹುಸೇನಸಾಬ (2-00) 3)ಹುಸೇನಪ್ಪ ತಂ/ ಲಕ್ಷಮಪ್ಪ (3-35) 4)ಸಾಬಯ್ಯ ತಂ/ ಆಶಪ್ಪ (2-08) 5)ಹುಸೇನಪ್ಪ ತಂ/ ಆಶಪ್ಪ (0-04) 6)ದೇವೆಂದ್ರಪ್ಪ ತಂ/ ಯಂಕಪ್ಪ (2-09)	ಸ್ವಂತ	445/1,2,3,4	11-39 0-09(ಖ) 11-30	3-84 4-17 2-37 2-43	ಖುಷ್ಕಿ	438	444	439	446	
14	1) ಅಬ್ದುಲ ರಹೀಮ ತಂ/ ಹುಸೇನಸಾಬ(0-17) 2) ದೇವಪ್ಪ ತಂ/ಬೀರಪ್ಪ ತೆಗ್ಗಿನ ಮನಿ (2-11) 3) ದೇವಪ್ಪ ತಂ/ಬೀರಪ್ಪ ತೆಗ್ಗಿನ ಮನಿ (2-22) 4)ಸಾಬಯ್ಯ ತಂ/ ಆಶಪ್ಪ (2-01)	ಸ್ವಂತ	446/1,2,3,4	9-23 0-07(ಖ) 9-16	2-75 2-77 2-22 2-57	ಖುಷ್ಕಿ	438	447	445	ಹಳ್ಳ	

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ಕ್ರ. ಸಂ.	ಖಾತೆದಾರರ ಹೆಸರು	ಅನುಭವದಾರರ ಹೆಸರು	ರಿ.ಸ.ನಂ.	ಸ್ವಾಧೀನಪಡಿಸುವ ಅಂದಾಜು ವಿಸ್ತೀರ್ಣ ಎ-ಗುಂ	ಆಕಾರ ರೂ-ಪೈ	ಜಮೀನಿನ ತರಹೆ	ಚಕಬಂದಿ (ಚತುಃಸೀಮೆ)				ಷರಾ
							ಪೂರ್ವ	ಪಶ್ಚಿಮ	ಉತ್ತರ	ದಕ್ಷಿಣ	
1	2	3	4	5	6	7	8	9	10	11	
	5)ಹುಸೇನಪ್ಪ ತಂ/ ಆಶಪ್ಪ (0–11) 6) ದೇವೆಂದ್ರಪ್ಪ ತಂ/ ಯಂಕಪ್ಪ (2–01)										
15	1) ಸೋಮಪ್ಪ ತಂ/ ಮಾಳಪ್ಪ (5–19) 2) ಮಾಳಪ್ಪ ತಂ/ ಸಣ್ಣ ನರಸಪ್ಪ (5–00)	ಸ್ವಂತ	447	10–19 0–09(ಖ) 10–10	9–95	ಖುಷ್ಕಿ	446	443	444	ಹಳ್ಳ	
16	1) ಚಂದ್ರಪ್ಪ ತಂ/ ನರಸಪ್ಪ (1–24) 2) ಚಂದ್ರಪ್ಪ ತಂ/ ನರಸಪ್ಪ (1–10)	ಸ್ವಂತ	448/ಅ,ಆ	2–34	1–69 1–32	ಖುಷ್ಕಿ	449	ಗಡಿ	447	ಹಳ್ಳ	
17	ಖಾರೀಜ ಖಾತಾ ಸರಕಾರಿ (0–29)	–	449	0–29	0–77	ಖುಷ್ಕಿ	ಹಳ್ಳ	448	447	450	
18	1)ಮರಿಲಿಂಗಪ್ಪ ತಂ/ ಸಾಯಬಣ್ಣ (6–00) 2)ಅಬ್ದುಲನಬಿ ತಂ/ ದೌಲತ ಅಲಿ (8–08)	ಸ್ವಂತ	450/1,2	14–08	6–66 8–29	ಖುಷ್ಕಿ	451	ಗಡಿ	449	ದಾರಿ	
19	1) ಸಿದ್ದಪ್ಪಾ ತಂ/ ನರಸಪ್ಪಾ (5–00) 2) ಆಮೀನಾಬಿ ಗಂ/ ನಿಜಾಮಸಾಬ ಪಿಂಜಾರ (2–20) 3) ಶೇಖಮೀರಾ ಸಾಬ ತಂ/ ಶೇಖ ಜೀಲಾನಿ (2–20) 4)ಸಾಬೇರಾ ಬೇಗಂ ಗಂ. ಶೇಖಹುಸೇನ (3–13) 5) ಆಮೀನಾಬಿ ಗಂ/ ನಿಜಾಮಸಾಬ ಲದಾಫ್ (1–20)	ಸ್ವಂತ	451	14–33	14–98	ಖುಷ್ಕಿ	452	450	ಹಳ್ಳ	ದಾರಿ	
20	ಶಿದ್ದಪ್ಪ ತಂ/ ಶರಣಪ್ಪ ಪಾಟೀಲ	ಸ್ವಂತ	452	10–39	10–85	ಖುಷ್ಕಿ	453	451	454	ದಾರಿ	
21	1) ನಿಜಾಮಸಾಬ ತಂ/ ಹುಸೇನಬಾಷಾ ಲದಾಫ (1–18) 2) ಅಬ್ಬಾಸ ಆಲಿ ತಂ/ ಹುಸೇನಬಾಷಾ ಲದಾಫ (1–18) 3) ಅಬ್ಬಾಸ ಆಲಿ ತಂ/ ಅಕ್ಬರ ಆಲಿ 2–36 4) ವಲಿಯೋಧೀನ ತಂ/ ಅಕ್ಬರ ಆಲಿ 5)ಹಜಾರಬೀ ಗಂ/ ಗುಡುಬಾಯಿ ಲದಾಫ್ 6) ನಿಜಾಮಸಾಬ ತಂ/ ಹುಸೇನಬಾಷಾ ಲದಾಫ (1–22) 7) ಅಬ್ಬಾಸ ಅಲಿ ತಂ. ಹುಸೇನಬಾಷಾ ಲದಾಫ (1–01) 8) ಅಬ್ಬಾಸ ಅಲಿ ತಂ/ ಅಕ್ಬರ ಅಲಿ 9) ವಲಿಯೋಧೀನ ತಂ/ ಅಕ್ಬರ ಅಲಿ 2–23 10) ಹಜಾರಬಿ ಗಂ/ ಗುಡುಬಾಯಿ ಲದಾಫ	ಸ್ವಂತ	453/1,2	10–38	5–63 5–00	ಖುಷ್ಕಿ	462	452	454	ಧಾರಿ	
22	1) ಚಾಂದಬಾಷಾ ತಂ/ ನಿಜಾಮಸಾಬ ತುರ್ಕಲದೊಡ್ಡಿ (4–28) 2)ಗೂಡುಬಾಯಿ ತಂ/ ಹುಸೇನಸಾಬ ತುರ್ಕಲದೊಡ್ಡಿ (3–28) 3) ನರಸಪ್ಪ ತಂ/ ಭಿಮಪ್ಪ ಕುರಬರು (4–36) 4) ದೊಡ್ಡ ಚಾಂದಪಾಷ ತಂ/ ಮುಕ್ತುಂಸಾಬ ತುರ್ಕಲದೊಡ್ಡಿ (3–20)	ಸ್ವಂತ	454/1,2	16–32	9–16 9–16	ಖುಷ್ಕಿ	461	437	455	453	

ಅ. ನಂ.	ಖಾತೆದಾರರ ಹೆಸರು	ಅನುಭವದಾರರ ಹೆಸರು	ರಿ.ಸ.ನಂ.	ಸ್ವಾಧೀನಪಡಿಸುವ ಅಂದಾಜು ವಿಸ್ತೀರ್ಣ ಎ-ಗುಂ	ಆಕಾರ ರೂ-ಪೈ	ಜಮೀನಿನ ತರಹೆ	ಚಕಬಂದಿ (ಚತುಃಸೀಮೆ)				ಷರಾ
							ಪೂರ್ವ	ಪಶ್ಚಿಮ	ಉತ್ತರ	ದಕ್ಷಿಣ	
1	2	3	4	5	6	7	8	9	10	11	
23	1) ಖಾಜಾ ಹುಸೇನ ತಂ/ ಲಾಡ್ಲೆಸಾಬ ಚೋರಗಸ್ತಿ (7-00) 2)ಮಕ್ಬದ ಹುಸೇನ ತಂ/ ಹಸನಸಾಬ 3)ಮೌಲಾಲಿ ತಂ/ ಹಸನಸಾಬ 4-05 4)ಮಗದುಮ ಅಲಿ ತಂ/ ಹಸನಸಾಬ	ಸ್ವಂತ	455/ಆ,ಆ	11-05	7-07 4-18	ಖುಷ್ಕಿ	456	436	436	454	
24	1) ಅಸದುಲ್ಲಾ ತಂ/ ಹುಸೇನಸಾಬ (4-00) 2)ಇಷ್ತೀಕಾರ ಹುಸೇನ ತಂ/ಮಕ್ಬದ ಅಬ್ದುಲರಶೀದ ಹವಲದಾರ (5-14) 3) ಖಲೀಲ ಹುಸೇನ ತಂ, ಮಕ್ಬದ್ ಅಬ್ದುಲ ರಶೀದ ಹವಲದಾರ	ಸ್ವಂತ	456	09-14	10-48	ಖುಷ್ಕಿ	457	455	432	461	
25	1) ಮೆಹಬೂಬ ಹುಸೇನ ತಂ/ ಶೇಖಚಾಂದಸಾಬ (4-35) 2) ಬಸವರಾಜ ತಂ/ ಅಯ್ಯಪ್ಪ ಕುರುಬರ (4-12) 3)ಕುಮಾರಿ ಜಾಕೀರಾಬೇಗಂ ತಂ/ ಅನ್ವರ ಹುಸೇನ (4-23) 4) ಅನ್ವರ ಹುಸೇನ ತಂ/ ಹುಸೇನಸಾಬ (1-39) 5) ಅನ್ವರ ಹುಸೇನ ತಂ/ ಹುಸೇನಸಾಬ (1-39)	ಸ್ವಂತ	457/ ಆ ರಿಂದ ಊದ ವರೆಗೆ	17-07	5-64 5-31 5-31 2-30 2-30	ಖುಷ್ಕಿ	458	456	456	460	
26	1) ಹುಸೇನ ಸಾಬ (0-04) 2) ಬಾವಾಸಾಬ (0-05) 3) ನನ್ನೆಸಾಬ ತಂ/ ಲಾಡ್ಲೆಸಾಬ (0-25) 4) ಮಹೆಬೂಬಲಿ ತಂ/ ಮೌಲಾನಾಸಾಬ (1-20) 5) ಲಾಡ್ಲೇಸಾಬ (1-21) 6) ತಾಹೇರಾ ಬೇಗಂ ಗಂ/ ಶೇಖಲಾಡ್ಲೇಸಾಬ (1-10) 7) ನನ್ನೆಸಾಬ (3-06) 8) ಅಲ್ಲಾಭಕ್ಷ ತಂ/ ಮೌಲನಾಸಾಬ 9) ಬಡಾ ಜೈನುಲ್ಲಾ ತಂ/ ಮೌಲನಾಸಾಬ 0-38 10) ಹುಸೇನಮ್ಮ ಗಂ/ ಹುಸೇನದಾಯಿ (1-01) 11) ನನ್ನೆಸಾಬ ತಂ/ ಹಸನಸಾಬ 12) ಮೆಹಬೂಬಸಾಬ ತಂ/ ಹಸನಸಾಬ 1-15	ಸ್ವಂತ	458/ಆ ರಿಂದ ಓದ ವರೆಗೆ	11-09	0-26 0-71 1-72 1-39 3-51 1-6 1-16 1-84	ಖುಷ್ಕಿ	429	457	431	465	
27	1) ಜೋಟಾ ಜೈನುಲ್ಲಾ ತಂ/ ಮೌಲನಾಸಾಬ 2) ಲಾಲಹ್ಮದ ತಂ/ ಮೌಲನಾಸಾಬ 3-17 3) ತಾಹೇರಾ ಬೇಗಂ ಗಂ/ ಶೇಖಲಾಡ್ಲೇಸಾಬ (3-17)	ಸ್ವಂತ	459/ಅ,ಆ	6-35	3-99 3-99	ಖುಷ್ಕಿ	458	460	457	465	
28	1) ಖಾಸಿಂಅಲಿ ತಂ/ ಮಹಿಬೂಬ ಅಲಿ (4-05) 2) ಗೂಡುಬಾಯಿ ತಂ/ ಹುಸೇನಸಾಬ ತುರ್ಕಲದೊಡ್ಡಿ (1-33)	ಸ್ವಂತ	460/1,2,3,4	11-37	4-57 4-07	ಖುಷ್ಕಿ	459	461	457	464	

ಅ. ನಂ.	ಖಾತೆದಾರರ ಹೆಸರು	ಅನುಭವದಾರರ ಹೆಸರು	ರಿ.ಸ.ನಂ.	ಸ್ವಾಧೀನಪಡಿಸುವ ಅಂದಾಜು ವಿಸ್ತೀರ್ಣ ಎ-ಗುಂ	ಆಕಾರ ರೂ-ಪೈ	ಜಮೀನಿನ ತರಹೆ	ಚೆಕಬಂದಿ (ಚತು:ಸೀಮೆ)				ಷರಾ
							ಪೂರ್ವ	ಪಶ್ಚಿಮ	ಉತ್ತರ	ದಕ್ಷಿಣ	
1.	2	3	4	5	6	7	8	9	10	11	
	3) ಚಾಂದಪಾಷಾ ತಂ/ ನೀಜಾಮಸಾಬ (1–32) 4) ಶೇಖಹುಸೇನ ತಂ/ಗೂಡುಬಾಯಿ ತುರುಕನದೋಡ್ಡಿ (1–28) 5) ಶೇಖಬಡೆಸಾಬ ತಂ/ಗೂಡುಬಾಯಿ ತುರುಕನ ದೊಡ್ಡಿ (1–10) 6) ದೊಡ್ಡ ಚಾಂದಪಾಷಾ ತಂ/ ಮಕ್ತುಮಸಾಬ (1–11)										
29	1) ಕಾಸಿಂಅಲಿ ತಂ/ ಮಹಿಬೂಬ ಅಲಿ ತುರ್ಕಲದೋಡ್ಡಿ (4–22) 2) ಚಾಂದಪಾಷಾ ತಂ/ ನೀಜಾಮಸಾಬ ತುರ್ಕಲದೋಡ್ಡಿ(2–03) 3) ಗೂಡುಬಾಯಿ ತಂ/ ಹುಸೇನಸಾಬ ತುರ್ಕಲದೋಡ್ಡಿ(2–03) 4) ಶೇಖಹುಸೇನ ತಂ/ಗೂಡುಬಾಯಿ ತುರ್ಕಲದೋಡ್ಡಿ(1–26) 5) ಶೇಖಬಡೆಸಾಬ ತಂ/ಗೂಡುಬಾಯಿ ತುರುಕನದೊಡ್ಡಿ (1–23) 6) ಅನ್ವರ ಹುಸೇನ ತಂ/ ಮಗ್ದುಮ್‌ಸಾಬ(1–26)	ಸ್ವಂತ	461/1,2	13–23	3–87	ಖುಷ್ಕಿ	460	454	456	462	
30	1) ಲಕ್ಷ್ಮಮ್ಮ ಗಂ/ ಭೀಮಣ್ಣ ಗುಡ್ಲಗಂಟಿ (2–07) 2) ಸೂಗಮ್ಮ ಗಂ/ಚಂದ್ರಪ್ಪಾ (1–04) 3) ಸೂಗಮ್ಮ ಗಂ/ಚಂದ್ರಪ್ಪ (1–04) 4) ಲಕ್ಷ್ಮೀದೇವಮ್ಮ ಗಂ/ ಗುರುಸ್ವಾಮಿ (4–29) 5) ಮಹ್ಮದಲಿ ತಂ/ಬುರಾನಸಾಬ ನಾಯಕ (3–38) 6) ಭೀಮಣ್ಣ ತಂ/ ಚಂದ್ರಪ್ಪ ದುಪ್ಪಲ್ಲಿ (5–07)	ಸ್ವಂತ	462/1,2,3,4	18–09	4–90 5–29 4–13 5–80	ಖುಷ್ಕಿ	464	453	461	ದಾರಿ	
31	1) ಶ್ರೀಮತಿ ಆಶಾಬಿ ಗಂ/ ನಿಜಾಮಸಾಬ (2–24) 2) ಬಡೇಸಾಬ ತಂ/ ಲಾಡ್ಲೆಸಾಬ (2–01)	ಸ್ವಂತ	463/1,2	4–25 0–05(ಖ) 4–20	0–90 0–65	ಖುಷ್ಕಿ	465	462	464	ದಾರಿ	
32	1) ಜಹೀರಾಬೇಗಂ ಗಂ/ ಹಸನ ಪಟೇಲ (7–22) 2)ಸೈಬನಸಾ ತಂ/ ಹೌದರಸ ಚೋರಗಸ್ತಿ (1–20) 3) ಮಹ್ಮದಸಾಬ ತಂ/ ಹಸನಬಾಯಿ } 2–21 4)ಮಹ್ಮದ ಹುಸೇನ ತಂ/ ಹಸನಬಾಯಿ 5) ಸಾಯಿಬನಸಾ ತಂ/ ಹೈದರಸಾಬ (1–20) 6) ಬಡಸಾಬ ತಂ/ ಲಾಡ್ಲೇಸಾಬ (2–21) 7) ಅಲಿಸಾಬ ತಂ/ ಖಾಸಿಂಸಾಬ ಪಟೇಲ } 0–38 8) ಹುಸೇನಬಿ ಗಂ/ ಖಾಸಿಂಪಟೇಲ 9) ಹುಸೇನಸಾ ತಂ/ ಸಾಬನಸಾಬ ಚೋರಗಸ್ತಿ (0–22) 10) ಸಾಹೇಬ ಹುಸೇನ ತಂ/ ಖಾಸಿಂಸಾಬ U/G ಅಮೀನಾಬೀ ಗಂ/ ಖಾಸಿಂ ಸಾಬ (1–20)	ಸ್ವಂತ	464/465	28–24 0–02 ಖ 28–22	9–85 16–09	ಖುಷ್ಕಿ	465	462	460	463	

ಅ. ನಂ.	ಖಾತೆದಾರರ ಹೆಸರು	ಅನುಭವದಾರರ ಹೆಸರು	ರಿ.ಸ.ನಂ.	ಸ್ವಾಧೀನಪಡಿಸುವ ಅಂದಾಜು ವಿಸ್ತೀರ್ಣ ಎ-ಗುಂ	ಆಕಾರ ರೂ-ಪೈ	ಜಮೀನಿನ ತರಹೆ	ಚಕಬಂದಿ (ಚತುಃಸೀಮೆ) ಪೂರ್ವ	ಪಶ್ಚಿಮ	ಉತ್ತರ	ದಕ್ಷಿಣ	ಷರಾ
1	2	3	4	5	6	7	8	9	10	11	
	11) ಕಾಸಿಂಸಾಬ ತಂ/ ಸಾಯಬನಸಾಬ(1–20) 12) ಶೇಖಜಾಕೀರ ಹುಸೇನ ತಂ/ ಕಾಸಿಂಸಾಬ ಚೋರಗಸ್ತಿ(0–17) 13) ಶೇಖಜಾಕೀಯ ಹುಸೇನ ತಂ/ ಕಾಸಿಂಸಾಬ ಚೋರಗಸ್ತಿ(0–17) 14) ಅಲಿಸಾಬ ತಂ/ ಹುಸನಸಾಬ (0–17) 15)ಶೇಖಜಾಕೀರ ಹುಸೇನ ತಂ/ ಕಾಸಿಂಸಾಬ ಚೋರಗಸ್ತಿ (0–17) 16)ಶೇಖಜಾಕೀರ ಹುಸೇನ ತಂ/ ಕಾಸಿಂಸಾಬ ಚೋರಗಸ್ತಿ (0–16) 17) ಶೇಖಜಾಕೀರ ಹುಸೇನ ತಂ/ ಕಾಸಿಂಸಾಬ ಚೋರಗಸ್ತಿ (0–16)										
33	ಸಾಯಬಣ್ಣ ತಂ/ ಮಲ್ಲಪ್ಪ ಮಲಾರ (14–05)	ಸ್ವಂತ	466	14–05 0–01(ಖ) 14–04	12–35	ಖುಷ್ಕಿ	532	465	429	ದಾರಿ	
34	1) ಶಿವರಾಜಪ್ಪ ತಂ/ ಸೋಮಶೇಖರಪ್ಪ ಹಡಪದ (0–18) 2) ಸಿದ್ರಾಮಪ್ಪ ತಂ/ ಸೋಮಶೇಖರಪ್ಪ ಹಡಪದ (02–08)	ಸ್ವಂತ	500	02–26 0–18(ಖ) 02–08	01–87	ಖುಷ್ಕಿ	499	507	501	–	
35	1)ಶಿವರಾಜಪ್ಪ ತಂ/ ಸೋಮಶೇಖರಪ್ಪ ಹಡಪದ (0–23) 2)ಮಹ್ಮದ್ ಇಬ್ರಾಹಿಂ ತಂ/ಚಾಂದಸಾಬ (01–30)	ಸ್ವಂತ	501/ಅ,ಆ	02–13 0–05 ಖ 02–08	1–91	ಖುಷ್ಕಿ	485	506	502	507 500	
36	1)ಮಹಿಬೂಬಿ ಗಂ/ ಮಹಿಬೂಬ ಹುಸೇನ (01–25) 2)ಅಬ್ದುಲ ಖಾದರ ತಂ/ ಚಂದಾಸಾಬ (01–10)	ಸ್ವಂತ	502/1,2	02–35 00–07(ಖ) 02–28	2–30	ಖುಷ್ಕಿ	488	505	503	501	
37	1)ಸಲೀಮಾ ಬಿ ಗಂ/ ಮಹ್ಮದ್ ಅಲಿ (01–11) 2) ಬಡಾ ಜೈನುಲ್ಲಾ ತಂ/ ಮೌಲಾನ ಸಾಬ 3) ಚೋಟ ಜೈನುಲ್ಲಾ ತಂ/ ಮೌಲಾನ ಸಾಬ (01–12) 4) ಲಾಲ ಅಹ್ಮದ ತಂ/ ಮೌಲಾನ ಸಾಬ	ಸ್ವಂತ	503/1,2	2–23 00–07(ಖ) 02–16	02–04	ಖುಷ್ಕಿ	481	505	476 477	502	
38	1)ಹುಸೇನ ಸಾಬ 01–16 2) ಮಹಿಬೂಬ ಹುಸೇನಸಾಬ ತಂ/ಬಡೇಸಾಬ 3)ಮಾರಿಂಬಿ ಬೀ ಗಂ/ ಬುಡ್ಡೇಸಾಬ (00–16) 4)ಅಸಮತ್‌ಬಿ ಬಿನ್ ಲಾಡ್ಲೇಸಾಬ (00–11) 5)ಆಸಮತ್‌ಬಿ ಬಿನ್ ಲಾಡ್ಲೇಸಾಬ (0–11)	ಸ್ವಂತ	504/ಪೈ	02–14 00–05(ಖ) 02–09	01–40 00–40 00–28 00–42	ಖುಷ್ಕಿ	503	523	476	505	

ಅ. ಸಂ.	ಖಾತೆದಾರರ ಹೆಸರು	ಅನುಭವದಾರರ ಹೆಸರು	ರಿ.ಸ.ನಂ.	ಸ್ವಾಧೀನಪಡಿಸುವ ಅಂದಾಜು ವಿಸ್ತೀರ್ಣ ಎ-ಗುಂ	ಆಕಾರ ರೂ-ಪೈ	ಜಮೀನಿನ ತರಹೆ	ಚಕಬಂದಿ (ಚತು:ಸೀಮೆ)				ಷರಾ
							ಪೂರ್ವ	ಪಶ್ಚಿಮ	ಉತ್ತರ	ದಕ್ಷಿಣ	
1	2	3	4	5	6	7	8	9	10	11	
39	1) ಹುಸೇನ್‌ಸಾಬ ತಂ/ ಲಾಡ್ಲೆಸಾಬ (00-24) 2) ಶೇಖಹುಸೇನ ತಂ/ ದಾವಾಸಾಬ ಚಂದಾಪ (00-06)	ಸ್ವಂತ	505	00-31 00-03(ಖ) 00-28	00-20 00-11	ಖುಷ್ಕಿ	502	506	504	506	-
40	1) ಮಹಿಬೂಬ ಹುಸೇನ ತಂ/ ಬುಡ್ಡೆಸಾಬ ಯು/ಜಿ ಅಮೀರಬಿ (00-06) 2) ಮಹಿಬೂಬ ಹುಸೇನ ತಂ/ ಬುಡ್ಡೆಸಾಬ ಯು/ಜಿ ಅಮೀರಬಿ (00-06) 3) ಹುಸೇನ್‌ಸಾಬ ತಂ/ ಲಾಡ್ಲೆಸಾಬ (01-26)	ಸ್ವಂತ	506	01-38 00-04(ಖ) 01-34	02-02	ಖುಷ್ಕಿ	507	510	505	508	
41	1) ಶಿವರಾಜಪ್ಪ ತಂ/ ಸೋಮಶೇಖರಪ್ಪ (00-19) 2) ಸಿದ್ರಾಮಪ್ಪ ತಂ/ ಸೋಮಶೇಖರಪ್ಪ (01-10)	ಸ್ವಂತ	507	01-29 00-04(ಖ) 01-25	01-89	ಖುಷ್ಕಿ	500	508	501	ದಾರಿ	
42	ಹುಸೇನ್‌ಸಾಬ ತಂ/ ಲಾಡ್ಲೆಸಾಬ	ಸ್ವಂತ	508	01-19	00-92	ಖುಷ್ಕಿ	507	510	506	509	
43	1) ಮೌಲಪ್ಪ ತಂ/ ಬಸಣ್ಣ 2) ಹುಸೇನಪ್ಪ ತಂ/ ಬಸಣ್ಣ 3)ಹಣಮಂತ ತಂ/ ಬಸಣ್ಣ 4) ಸೋಮಪ್ಪ ತಂ/ ಮಲ್ಲೇಶಪ್ಪ ಅಗಸರ್ 01-15 5)ಮಾಳಮ್ಮ ಗಂ/ ಬಸವರಾಜ ಅಗಸರ (00-28) 6)ಬಸಮ್ಮ ಗಂ/ ಶಿವಣ್ಣಾ ಅಗಸರ್ (00-28) 7)ಸಿದ್ದಪ್ಪ ತಂ/ ಶರಣಪ್ಪ ಪಾಟೀಲ (02-31)	ಸ್ವಂತ	509/ಅ ದಿಂದ ಈ ವರೆಗೆ	05-22	01-18 0059 00-19 02-36	ಖುಷ್ಕಿ	-	512	510	ನಾಲ	
44	1)ಶೇಖಮಹಬುಬ ಅಲಿ ತಂ/ಮಹ್ಮದಲಿ ಶಹಾಬಾಯಿ (00-28) 2)ಶೇಖಮಹಬುಬ ಅಲಿ ತಂ/ಮಹ್ಮದಲಿ ಶಹಾಬಾಯಿ (01-16)	ಸ್ವಂತ	510/ಪೈ	02-04 00-04(ಖ) 02-00	01-00 02-00	ಖುಷ್ಕಿ	508	511	522	509	
45	ಮದಾರಬೀ ಗಂ/ ಕಾಸಿಂಸಾಬ ಆರದ್ದಾರ್ (00-30)	ಸ್ವಂತ	511	00-30 00-02(ಖ) 00-28	00-60	ಖುಷ್ಕಿ	512	512	516	512	
46	1) ಮದರಬೀ ಗಂ/ ಕಾಸಿಂಸಾಬ ಆರದ್ದಾರ್ (00-27) 2) ಮಹಾದೇವಪ್ಪ ತಂ/ ಬುರಾನಪ್ಪ ಪೆದ್ದಿ (01-22)	ಸ್ವಂತ	512	02-09 00-05(ಖ) 02-04	0-79	ಖುಷ್ಕಿ	509	514	511	ದಾರಿ	
47	ಮದಾರಬೀ ಗಂ/ ಕಾಸಿಂಸಾಬ ಅರದ್ದಾರ್	ಸ್ವಂತ	513	00-32	00-50	ಖುಷ್ಕಿ	512	514	515	512	

ಅ. ನಂ.	ಖಾತೆದಾರರ ಹೆಸರು	ಅನುಭವದಾರರ ಹೆಸರು	ರಿ.ಸ.ನಂ.	ಸ್ವಾಧೀನಪಡಿಸುವ ಅಂದಾಜು ವಿಸ್ತೀರ್ಣ ಎ-ಗುಂ	ಆಕಾರ ರೂ-ಪೈ	ಜಮೀನಿನ ತರಹೆ	ಚಕಬಂದಿ (ಚತು:ಸೀಮೆ)				ಷರಾ
							ಪೂರ್ವ	ಪಶ್ಚಿಮ	ಉತ್ತರ	ದಕ್ಷಿಣ	
1	2	3	4	5	6	7	8	9	10	11	
48	ಖಾರಿಜ ಖಾತಾ (02-27)	–	514/1,	02-27 00-23(ಖ) 02-04	00-86	ಖುಷ್ಕಿ	515	514/2	527	ದಾರಿ	
49	1) ಖಾರಿಜ ಖಾತಾ (00-20) 2) ಬುರಾನಪ್ಪ ಸಾಬಣ್ಣ ಹರಿಜನ (01-00)	ಸ್ವಂತ	514/2	01-20 00-03(ಖ) 01-17	01-22	ಖುಷ್ಕಿ	514/1	–	530	ದಾರಿ	
50	1) ಬಡಿಬಿ ಗಂ/ದಾದಾನಾಯ್ಕ 2) ಖಾಜಾಹುಸೇನ ತಂ/ ನಿಜಾಮಸಾಬ 3) ಮಹ್ಮದ್ ಅಲಿ ತಂ/ ನಿಜಾಮಸಾಬ 4) ಮಹೆಬೂಬಅಲಿ ತಂ/ ನಿಜಾಮಸಾಬ 00-11	ಸ್ವಂತ	515	00-11	00-27	ಖುಷ್ಕಿ	516	514/1	514/1	513	
51	1) ಖಾಜಾಹುಸೇನ ತಂ/ ನಿಜಾಮಸಾಬ (00-27) 2) ಬಡಿಬಿ ಗಂ/ದಾದಾನಾಯ್ಕ (01-10) 3) ಗುಡುಮಾ ಬೇಗಂ ಗಂ/ ಅಹ್ಮದ್ಅಲಿ (00-25)	ಸ್ವಂತ	516	02-22 00-10(ಖ) 02-12	3-24	ಖುಷ್ಕಿ	521	515	517	511	
52	ಇಂದ್ರಾಚಾರಿ ತಂ/ ಭೀಮಾಚಾರಿ	ಸ್ವಂತ	517	0-14	00-42	ಖುಷ್ಕಿ	519	514	518	516	
53	ಇಂದ್ರಾಚಾರ್ಯ ತಂ/ ಭೀಮಾಚಾರಿ	ಸ್ವಂತ	518	00-18 00-01(ಖ) 00-17	0047	ಖುಷ್ಕಿ	520	514/1	524	517	
54	ಕಲ್ಲಪ್ಪ ಚಾರ್ಯ ತಂ/ ಭೀಮಾಚಾರಿ	ಸ್ವಂತ	519	00-06	00-09	ಖುಷ್ಕಿ	520	517	520	516	
55	ಕಲ್ಲಪ್ಪ ಚಾರ್ಯ ತಂ/ ಭೀಮಾಚಾರಿ	ಸ್ವಂತ	520	01-12 00-03(ಖ) 01-09	0-05	ಖುಷ್ಕಿ	523	518	524	519	
56	1)ಶೇಖಮಹೆಬೂಬ ಅಲಿ ತಂ/ ಮಹ್ಮದ ಅಲಿ ಶಹಾಬಾದಿ(0-22) 2)ಶೇಖಮಹೆಬೂಬ ಅಲಿ ತಂ/ಮ ಅಲಿ ಶಹಾಬಾದಿ(1-04)	ಸ್ವಂತ	521/ಪೈ	01-26 00-04(ಖ) 01-22	0-66 01-10	ಖುಷ್ಕಿ	522	516	520	510	
57	ಮಾಳಮ್ಮ ತಂ /ಸಿದ್ದಪ್ಪ ಧನಗರ್	ಸ್ವಂತ	522	00-30 0-01-(ಖ) 00-29	00-62	ಖುಷ್ಕಿ	506	521	523	510	

ಅ. ಸಂ.	ಖಾತೆದಾರರ ಹೆಸರು	ಅನುಭವದಾರರ ಹೆಸರು	ರಿ.ಸ.ಸಂ.	ಸ್ವಾಧೀನಪಡಿಸುವ ಅಂದಾಜು ವಿಸ್ತೀರ್ಣ ಎ-ಗುಂ	ಆಕಾರ ರೂ-ಪೈ	ಜಮೀನಿನ ತರಹೆ	ಚೆಕ್‌ಬಂದಿ (ಚತುಃಸೀಮೆ)				ಷರಾ
							ಪೂರ್ವ	ಪಶ್ಚಿಮ	ಉತ್ತರ	ದಕ್ಷಿಣ	
1	2	3	4	5	6	7	8	9	10	11	
58	ಮಲಕಪ್ಪ ತಂ/ ಮಲ್ಲಪ್ಪ ಹರಿಜನ್	ಸ್ವಂತ	523	01–17 00–04(ಖ) 01–13	01–49	ಖುಷ್ಕಿ	504	520	524	522	
59	ಖಾರೀಜ ಖಾತಾ	ಸ್ವಂತ	524	03–15 00–25(ಖ) 02–30	02–78	ಖುಷ್ಕಿ	475	527	525	520	
60	1) ಖಾರೀಜ ಖಾತಾ (01–33) 2) ನರಸಪ್ಪ ತಂ/ ನರಸಪ್ಪ (00–21)	ಸ್ವಂತ	525	02–14 00–04(ಖ) 02–10	00–19	ಖುಷ್ಕಿ	475	527	525	520	
61	1) ನರಸಪ್ಪ ತಂ/ ನರಸಪ್ಪ ಬೇಗರ್ 2) ಮಾರೆಮ್ಮ ಗಂ/ ಹಣ್ಮಪ್ಪ ಬೇಗರ್ } (01–07) 3)ಸಾಯಬಣ್ಣ ತಂ/ ಬುರಾನಪ್ಪ ಹರಿಜನ (01–07)	ಸ್ವಂತ	526	02–14	00–84	ಖುಷ್ಕಿ	525	–	468	527	
62	ಖಾರೀಜಾ ಖಾತಾ	–	527	02–06 00–04(ಖ) 02–02	01–91	ಖುಷ್ಕಿ	524	528	526	514./1	
63	ಖಾರೀಜಾ ಖಾತಾ	–	528	0–16 00–01(ಖ) 00–15	0–32	ಖುಷ್ಕಿ	527	529	526	527	
64	ಸರಕಾರಿ ಖಾರೀಜಾ ಖಾತಾ	–	529	00–28 00–06(ಖ) 00–22	00–28	ಖುಷ್ಕಿ	528	530	–	530	
65	ಸರಕಾರಿ ಖಾರೀಜಾ ಖಾತಾ	–	530	00–32 00–02(ಖ) 00–30	00–64	ಖುಷ್ಕಿ	527	–	529	514/2	
66	ಸರಕಾರಿ ಖಾರೀಜಾ ಖಾತಾ	–	531	01–21 0–06(ಖ) 01–15	01-12	ಖುಷ್ಕಿ	530	532	–	530	
67	ಜಾವಿದ್ ರಹೆಮಾನ್ ತಂ/ಎಸ್‌ಎಂಎಫ್	ಸ್ವಂತ-	532	06–27 0–15(ಖ) 06–12	01-96	ಖುಷ್ಕಿ	530	466	466	533	

ಕ್ರ. ಸಂ.	ಖಾತೆದಾರರ ಹೆಸರು	[illegible]	ರಿ.ಸ.ನಂ.	ಸ್ವಾಧೀನಪಡಿಸುವ ಅಂದಾಜು ವಿಸ್ತೀರ್ಣ ಎ-ಗುಂ	ಆಕಾರ ರೂ-ಪೈ	ಜಮೀನಿನ ತರಹೆ	ಚಕಬಂದಿ (ಚತುಃಸೀಮೆ)				ಷರಾ
							ಪೂರ್ವ	ಪಶ್ಚಿಮ	ಉತ್ತರ	ದಕ್ಷಿಣ	
1	2	3	4	5	6	7	8	9	10	11	
68	ಸರಕಾರಿ ಖಾರೀಜಾ ಖಾತಾ	–	533	01–02 01–02(ಖ) 00	-	ಖುಷ್ಕಿ	532	466	466	ದಾರಿ	
69	ದೊಡ್ಡಮಲ್ಲಪ್ಪ ತಂ/ ನರಸಪ್ಪ (1–17)	ಸ್ವಂತ	534/1		1-36	ಖುಷ್ಕಿ	537	546	ದಾರಿ	536	
70	ಎಸ.ಪಿ. ನಾಗರಾಜ ತಂ/ಎಮ್.ಆರ್. ಎಸ್ ಪರಸುರಮನ್ 2–20	ಸ್ವಂತ	534/2		2-21	ಖುಷ್ಕಿ	537	546	ದಾರಿ	536	
71	ಎಸ.ಪಿ. ನಾಗರಾಜ ತಂ/ಎಮ್.ಆರ್. ಎಸ್ ಪರಶುರಮನ್ 1–37	ಸ್ವಂತ	534/3	10–03 02–33(ಖ) 07–10	1-80	ಖುಷ್ಕಿ	537	546	ದಾರಿ	536	
72	ಬೂಡ್ಡಪ್ಪ ತಂ/ ನರಸಪ್ಪ 3–14	ಸ್ವಂತ	534/535/ಆ		1-10	ಖುಷ್ಕಿ	537	546	ದಾರಿ	536	
73	ಚಂದಪ್ಪ ತಂ/ ನರಸಪ್ಪ 0–35	ಸ್ವಂತ	534/535/ಇ		0-75	ಖುಷ್ಕಿ	537	546	ದಾರಿ	536	
74	ಎಸ.ಪಿ. ನಾಗರಾಜ ತಂ/ಎಮ್.ಆರ್. ಎಸ್ ಪರಶುರಮನ್ 2–20	ಸ್ವಂತ	534/535/2		2-20	ಖುಷ್ಕಿ	537	546	ದಾರಿ	536	
75	ಎಸ್.ಪಿ. ನಾಗರಾಜನ್ ತಂ/ ಎಂ.ಅರ್.ಎಸ್. ಪರಶುರಮನ್	ಸ್ವಂತ	536	14–38 0–16(ಖ) 14–22	10-77	ಖುಷ್ಕಿ	537	545	535	542	
76	ಚನ್ನಮ್ಮ ಗಂ/ ಶರಣಪ್ಪ ಪಾಟೀಲ	ಸ್ವಂತ	537	09–34 0–04(ಖ) 09–30	08-29	ಖುಷ್ಕಿ	538	536	535	541	
77	1) ಬಡೇಸಾಬ ತಂ/ ಶೇಖಅಲಿ ಚಿಂದಾಪೂರ 01–09 2) ಖಾಜಾಅಜುಮುದ್ದೀನ್ ತಂ/ ಅಬ್ದುಲ್ ಖಾದರ್ ಸಾಬ 3)ದೊಡ್ಡ ಹುಸೇನಸಾಬ ತಂ/ ಬಡೇಸಾಬ 01–05 4)ಸಣ್ಣ ಹಸನಸಾಬ ತಂ/ ಬಡೇಸಾಬ 01–14 5) ಹಸನ್ ಸಾಬ 01–14 6) ಹನ್ನಸಾಹೇಬ ತಂ/ ಬಡೆಸಾಬ 00–13 7) ಅಲ್ಲಿಹುಸೇನ ತಂ/ ಬಡೇಸಾಬ 4–30 8) ಶೇಖಹುಸೇನ ತಂ/ಶೇಖಹಸೇನಸಾಬ 02–07 9) ಬಡೇಸಾಬ ತಂ/ ಮಹಿನುದ್ದೀನ್ 00–29 10) ಶೇಖಹಸನ ತಂ/ಶೇಖಹುಸೇನಸಾಬ 00–15	ಸ್ವಂತ	538/ಅ ದಿಂದ ಅಂ ವರೆಗೆ	16–18 0–03ಖ 16–15	0-59 00-92 01-15 01-15 00-27 03-80 01-76 00-89 00-31 00-29	ಖುಷ್ಕಿ	ದಾರಿ	537	ದಾರಿ	539	

ಅ. ಸಂ.	ಖಾತೆದಾರರ ಹೆಸರು	ಅನುಭವದಾರರ ಹೆಸರು	ರಿ.ಸ.ನಂ.	ಸ್ವಾಧೀನಪಡಿಸುವ ಅಂದಾಜು ವಿಸ್ತೀರ್ಣ ಎ-ಗುಂ	ಆಕಾರ ರೂ-ಪೈ	ಜಮೀನಿನ ತರಹೆ	ಚಕಬಂದಿ (ಚತು:ಸೀಮೆ)				ಷರಾ
							ಪೂರ್ವ	ಪಶ್ಚಿಮ	ಉತ್ತರ	ದಕ್ಷಿಣ	
1	2	3	4	5	6	7	8	9	10	11	
	11)ಬಡೇಸಾಬ ತಂ/ ಮಹಿನುದ್ದೀನ್ 00-14 12)ಹಸನಬಾಯಿ ತಂ/ ಮಹ್ಮದ 00-37 13)ಖಾಸಿಂಅಲಿ ತಂ/ ಬಡೇಸಾಬ ಜೋರ್ಗಸ್ತಿ 00-33 14)ಸಣ್ಣ ಖಾಸಿಂ ತಂ/ ಆಲಿಸಾಬ ಜೋರ್ಗಸ್ತಿ 0-35				00-29 00-75 00-67 0-65						
78	1)ಮಗದುಮಅಲಿ ತಂ/ ಬುರಾನ ಸಾಬ 00-37 2)ಹಸನ್ ಸಾಬ ತಂ/ ಹಸನಬಾಯಿ 00-11 3)ಹಸನಬಾಯಿ ತಂ/ಬುಧಾನಸಾಬ 01-03 4)ಖಾಜಾಹುಸೇನ ತಂ/ ಹುಸೇನಸಾಬ 00-26 5)ಖಾಜಾಹುಸೇನ ತಂ/ ಅಬ್ದುಲ್ ಖಾದರ್ ಕೋನಂಪಲ್ಲಿ 00-37 6)ಅಬ್ದುಲ್ ಖಾದರ್ ತಂ/ ಖಾಜಾಹುಸೇನ ಕೋನಂಪಲ್ಲಿ 00-14 7)ಅಬ್ದುಲ್ ಖಾದರ್ ತಂ/ ಖಾಜಾಹುಸೇನ 00-14 8)ಅಲಾಂ ಹುಸೇನ ತಂ/ ಬುಡ್ಡೇಸಾಬ ಕೋನರಪಲ್ಲಿ } 0-16 9)ಚಾಂದಾಪಾಶಾ ತಂ/ ಬುಡ್ಡೇಸಾಬ ಕೋನಂಪಲ್ಲಿ 10) ಅಲಾಂ ಹುಸೇನ ತಂ/ ಬುಡ್ಡೇಸಾಬ ಕೋನಂಪಲ್ಲಿ } 0-16 11) ಚಾಂದಾಪಾಶಾ ತಂ/ ಬುಡ್ಡೇಸಾಬ ಕೋನಪಲ್ಲಿ 12) ಹಸನ ಸಾಬ ತಂ/ ಹಸನಬಾಯಿ (00-06) 13) ಖಾಜಾಹುಶೇನ ತಂ/ ಅಬ್ದುಲ್‌ಖಾದರ್ (00-05) 14)ಮಹಿಬೂಬಸಾಬ ತಂ/ ಲಾಡ್ಲೇಸಾಬ 00-14 15)ಹುಸೇನಬಾಯಿ ತಂ/ ಹಸನಬಾಯಿ 00-25 16) ಶೇಖ ಹುಸೇನ ತಂ/ ಮಹಿಪಾಹಸನಂ (00-08) 17) ಚಾಂದಪಾಶಾ ತಂ/ಮಹ್ಮದ್ ಅಲಿ ಕೋನಂಪಲ್ಲಿ (00-08) 18) ಶೇಖಹುಸೇನ ತಂ/ ಮೋಹಿದಿಹಸನ (00-08) 19) ಚಾಂದಪಾಶಾ ತಂ/ ಮಹ್ಮದ್‌ಹುಸೇನ (00-08)	ಸ್ವಂತ	539/ಪೈ	5-02 00-01(ಖ) 05-01	00-82 00-25 00-95 00-57 00-82 00-32 00-32 00-36 00-36 00-25 00-32 00-53 00-36 00-36	ಖುಷ್ಕಿ	538	540	538	ದಾರಿ	
79	1)ಶೇಖಅಲಿ ತಂ/ ಮೌಲನಾಸಾಬ ಸಾ//ಚಂದಾಪೂರ 02-29 2) ಮಹ್ಮದ್ ಅಲಿ ತಂ/ ಮೌಲನಾಸಾಬ } 3) ಖತಲ ಅಹ್ಮದ್ ತಂ/ ಮೌಲನಾಸಾಬ } 03-12 4) ಶೇಖಅಲಿ ತಂ/ ಮೌಲನಾಸಾಬ	ಸ್ವಂತ	540/1,2	06-01 00-06(ಖ) 05-35	02-42 01-18	ಖುಷ್ಕಿ	539	541	538	ದಾರಿ	
80	1) ಸೋಮಶೇಖರಪ್ಪಾ ತಂ/ ತಮ್ಮಣ್ಣ ಹಡಪದ್ (04-02) 2) ಮಾಣಿಕರೆಡ್ಡಿ ತಂ/ ಚಂದ್ರಾಯ ಕಣೇಕಲ (07-00) 3) ಮಲ್ಲಿಕಾರ್ಜುನ ತಂ/ ಚಂದ್ರಯ್ಯ (04-00)	ಸ್ವಂತ	541/ಪೈ	15-02 00-10(ಖ) 14-32	13-27	ಖುಷ್ಕಿ	540	542	537	ದಾರಿ	

ಅ. ನಂ.	ಖಾತೆದಾರರ ಹೆಸರು	ಅನುಭವದಾರರ ಹೆಸರು	ರಿ.ಸ.ನಂ.	ಸ್ವಾಧೀನಪಡಿಸುವ ಅಂದಾಜು ವಿಸ್ತೀರ್ಣ ಎ-ಗುಂ	ಆಕಾರ ರೂ-ಪೈ	ಜಮೀನಿನ ತರಹೆ	ಚೆಕಬಂದಿ (ಚತುಃಸೀಮೆ)				ಷರಾ
							ಪೂರ್ವ	ಪಶ್ಚಿಮ	ಉತ್ತರ	ದಕ್ಷಿಣ	
1	2	3	4	5	6	7	8	9	10	11	
81	1) ಶೇಖ ಹುಸೇನ ತಂ/ಹಸನಸಾಬ 01-12 2) ಖಾಜಾ ಹುಸೇನ ತಂ/ ಅಬ್ದುಲ್‌ಖಾದರ್ 01-27 3) ಖಾಜಾ ಹುಸೇನ ತಂ/ ಅಬ್ದುಲ್‌ಖಾದರ್ 01-04 4) ಅಬ್ದುಲ್ ಖಾದರ್ ತಂ/ ಖಾಜಾಹುಸೇನ್ 01-02	ಸ್ವಂತ	542/ 1ರಿಂದ 11 ರ ವರೆಗೆ	11-01 0-01ಖ 11-00	01-12 00-85 00-59 00-57	ಖುಷ್ಕಿ	541	543	536	631	
	5) ಹಸನ ಸಾಬ ತಂ/ ಹುಸೇನಸಾಬ } 01-15 6) ಖಾಜಾ ಹುಸೇನ ತಂ/ ಅಬ್ದುಲ್‌ಖಾದರ್ ಕೋನಳ್ಳಿ 7)ಹುಸೇನಸಾಬ ತಂ/ ಹುಸೇನಸಾಬ 01-03 8) ಅಲ್ಲಾಭಕ್ಷ ತಂ/ ಮಹ್ಮದ್ ಸಾಬ (00-24) 9) ಖಾಜಾ ಹುಸೇನ ತಂ/ಬಾಶಾ (00-24) 10)ಪಾಶ್ಯಾಮಿಯಾ ತಂ/ಹುಸೇನಸಾಬ 01-06 11)ಹುಸೇನಸಾಬ ತಂ/ ಹಸನಬಾಯಿ 01-00 12)ಹಸನಸಾಬ ತಂ/ಹುಸೇನಸಾಬ 00-28 13)ಕಾಸಿಂಅಲಿ ತಂ/ ಹುಸೇನಸಾಬ 00-12 14)ಅಲಂ ಹುಸೇನ ತಂ/ ಹುಸೇನಸಾಬ ಕೋನಂಪಲ್ಲಿ } 0-16 15)ಚಾಂದಾಪಾಶಾ ತಂ/ ಹುಸೇನಸಾಬ ಕೋನಂಪಲ್ಲಿ				00-74 00-88 00-64 00-62 00-54 00-38 00-17						
82	1) ಶೇಖಲಾಡ್ಲೇಸಾಬ ತಂ/ ಶೇಖಚಾಂದಸಾಬ ತಾನಿ (04-39) 2) ಹೊನ್ನೂರಸಾಬ ತಂ/ ಶೇಖಚಾಂದಸಾಬ ತಾನಿ (04-38)	ಸ್ವಂತ	543	10-21 00-24(ಖ) 09-37	06-60	ಖುಷ್ಕಿ	542	544	536	630	
83	ಆಕಬರಅಲಿ ತಂ/ ಮಹ್ಮದ್ ಇಬ್ರಾಹಿಂ ಕಟಗರ್	ಸ್ವಂತ	544	07-36	08-36	ಖುಷ್ಕಿ	543	550	545	629	
84	1) ಮಹಿಬೂಬಅಲಿ ತಂ/ ಬುರಾನ್‌ಸಾಬ್ ಲಾಲಕೋಟಿ(02-05) 2) ಮಹಿಬೂಬಿ ಗಂ/ ನಬೀಸಾಬ ಚಂದಾಪೂರ (04-00) 3) ಮಹಿಬೂಬ ಹುಸೇನ ತಂ/ ಮೌಲನಾಸಾಬ (04-03) 4) ಖಾಜಾ ಹುಸೇನ ತಂ/ ಮೌಲನಾಸಾಬ (04-02)	ಸ್ವಂತ	545/ಪೈ	14-10 00-08(ಖ) 14-02	05-97	ಖುಷ್ಕಿ	539	548	547	544	
85	ಜಾವಿದ ರಹೆಮಾನ್ ಎಸ್.ಎಂ.ಎಫ್. ರಹಮಾನ	ಸ್ವಂತ	546	04-26 00-03(ಖ) 04-23	04-28	ಖುಷ್ಕಿ	535	547	ದಾರಿ	545	
86	1)ಜಾವಿದ ರೆಹೆಮಾನ್ ಎಸ್.ಎಂ.ಎಫ್. ರಹಮಾನ 04-16 2)ಮ ಮಕ್ಕಾಹುಸೇನ ತಂ/ ಮಹ್ಮದ್ ಹುಸೇನ ಪಟಪಾಕ (06-14) 3) ಕಾಸಿಂಅಲಿ ತಂ/ ಮಹ್ಮದ್ ಹುಸೇನಸಾಬ (09-15)	ಸ್ವಂತ	547/1,2	19-06 00-01(ಖ) 19-05	03-74 12-80	ಖುಷ್ಕಿ	535	547	ದಾರಿ	545	

ಅ. ನಂ.	ಖಾತೆದಾರರ ಹೆಸರು	ಅನುಭವದಾರರ ಹೆಸರು	ರಿ.ಸ.ನಂ.	ಸ್ವಾಧೀನಪಡಿಸುವ ಅಂದಾಜು ವಿಸ್ತೀರ್ಣ ಎ-ಗುಂ	ಆಕಾರ ರೂ-ಪೈ	ಜಮೀನಿನ ತರಹೆ	ಚಕಬಂದಿ (ಚತುಃಸೀಮೆ)				ಷರಾ
							ಪೂರ್ವ	ಪಶ್ಚಿಮ	ಉತ್ತರ	ದಕ್ಷಿಣ	
1	2	3	4	5	6	7	8	9	10	11	
87	1)ಮಹಿಬೂಬಹುಸೇನ ತಂ/ ಬುರಾನ್ ಸಾಬ್ 05-30 2) ಮಹಿಬೂಬ ಹುಸೇನ ತಂ/ ಮೌಲಾನಸಾಬ್ ಲಾಲಕೋಟ 06-15 3)ಖಾಜಾ ಹುಸೇನ ತಂ/ ಮೌಲನಾಸಾಬ್ ಲಾಲಕೋಟ	ಸ್ವಂತ	548/1,2	12-05	06-27 03-96	ಖುಷ್ಕಿ	545	549	547	544	
88	1)ಖಾಜಾ ಸಾಬ ತಂ/ ಹುಸೇನಸಾಬ 01-22 2)ಅಜಮೋದ್ದೀನ್ ತಂ/ ಆಮೀರಅಲಿ ಚಂದಾಪೂರ 01-24 3)ಅಜಮೋದ್ದೀನ್ ತಂ/ ಅಮೀರಅಲಿ ಚಂದಾಪೂರ 01-22 4) ಹುಸೇನಸಾಬ ತಂ/ ಹುಸೇನಸಾಬ (00-19) 5) ಮಹಿಬೂಬಹುಸೇನ ತಂ/ ಬುಡ್ಡೇಸಾಬ ಯು/ಜಿ ಅಮೀರಬೀ ಗಂ/ಬುಡ್ಡೇಸಾಬ (01-01) 6)ತಾಹೇರಾಬೇಗಂ ಗಂ/ ಶೇಖಲಾಡ್ಲೇಸಾಬ 00-20 7)ಹಸನ್ ಅಲಿ ತಂ/ ಹುಸೇನಸಾಬ ಚಂದಾಪೂ 00-22 8) ಅಲ್ಲಾಭಕ್ಷ ತಂ/ ಮೌಲನಾಸಾಬ 9) ಬಡಜೌನುಲ್ಲಾ ತಂ/ ಮೌಲಾನಸಾಬ 00-20 10)ಹಸನಾಬಾಯಿ ತಂ/ ಲಾಡ್ಲೇಸಾಬ 01-24 11)ಮೌಲಾಲಿ ತಂ/ ಹುಸೇನಸಾಬ ಸಾ//ಚಂದಾ 03-00	ಸ್ವಂತ	549/1 ರಿಂದ 9 ರ ವರೆಗೆ	12-14	01-57 01-61 01-57 01-52 00-51 00-56 00-51 01-61 03-02	ಖುಷ್ಕಿ	548	552	547	550	
89	1) ಶೇಖಜಾವಿದ ಹುಸೇನ ತಂ ಖಾಜಾ ಹುಸೇನ 2) ಶೇಖ ಹುಸೇನಸಾಬ ತಂ/ ಲಾಡ್ಲೇಸಾಬ 08-04 3) ಅಲಿಸಾಬ ತಂ/ ಲಾಡ್ಲೇಸಾಬ 4) ಖಾಸಿಂಅಲಿ ತಂ/ ಲಾಡ್ಲೇಸಾಬ	ಸ್ವಂತ	550	08-04	08-19	ಖುಷ್ಕಿ	548	551	549	562	
90	1)ಬಡೇಸಾಬ ತಂ/ ಕಾಸಿಂಅಲಿ 03-38 2)ಶೇಖಜಾವಿದ ಹುಸೇನ ತಂ ಖಾಜಾ ಹುಸೇನ 04-08 3)ಆಲಿಸಾಬ ತಂ/ ಲಾಡ್ಲೇಸಾಬ 04-02 4)ಹುಸೇನಸಾಬ ತಂ/ ಲಾಡ್ಲೇಸಾಬ 04-02	ಸ್ವಂತ	551/1 ರಿಂದ 4 ರ ವರೆಗೆ	16-10	04-43 04-70 04-57 04-54	ಖುಷ್ಕಿ	549	559	552	561	
90	ಲಕ್ಷ್ಮವ್ವಾ ಗಂ/ ಮಾರ್ಥಂಡಪ್ಪ	ಸ್ವಂತ	552	15-38	17-39	ಖುಷ್ಕಿ	547	553	ದಾರಿ	551	
91	1) ದೊಡ್ಡಹಣಮಂತ ತಂ/ಅಮಾತೆಪ್ಪ ಕುರುಬರು (03-35) 2) ದೊ, ಹಣಮಂತ ತಂ/ ಅಮಾತೆಪ್ಪ (03-35) 3) ಸಿದ್ದಪ್ಪ ತಂ/ ಕಲ್ಲಪ್ಪ ಮಲ್ಲಪ್ಪನೋರ (02-00) 4) ಮಹಾದೇವಪ್ಪ ತಂ/ ಕಲ್ಲಪ್ಪ (02-00)	ಸ್ವಂತ	553/1,2	15-27	07-90 07-90	ಖುಷ್ಕಿ	552	54	ದಾರಿ	559	

ಅ. ನಂ.	ಖಾತೆದಾರರ ಹೆಸರು	ಅನುಭವದಾರರ ಹೆಸರು	ರಿ.ಸ.ನಂ.	ಸ್ವಾಧೀನಪಡಿಸುವ ಅಂದಾಜು ವಿಸ್ತೀರ್ಣ ಎ-ಗುಂ	ಆಕಾರ ರೂ-ಪೈ	ಜಮೀನಿನ ತರಹೆ	ಚಕಬಂದಿ (ಚತುಃಸೀಮೆ) ಪೂರ್ವ	ಪಶ್ಚಿಮ	ಉತ್ತರ	ದಕ್ಷಿಣ	ಷರಾ
1	2	3	4	5	6	7	8	9	10	11	
	5) ಯಂಕಪ್ಪ ತಂ/ ಭೀಮಶಪ್ಪ ಗುಡ್ಲಾ ಶೆಟ್ಟಿಹಳ್ಳಿ (02-00) 6)ಶರಣಪ್ಪ ತಂ/ ಭೀಮಶಪ್ಪ ಗುಡ್ಲಾ (01-37)										
92	1) ಭೀಮಶಪ್ಪ ತಂ/ಚಂದಪ್ಪ ಗೂಡ್ಲಾ (02-28) 2)ಮಲ್ಲಿಕಾರ್ಜುನ ತಂ/ ನಿಂಗಪ್ಪ ತೆಗ್ಗಿನಮನಿ (02-32) 3)ಮಾಳಪ್ಪ ತಂ/ ಭೀರಪ್ಪ ತೆಗ್ಗಿನಮನಿ (03-30) 4)ರಜಿಯಾ ಬೇಗಂ ಗಂ/ ದೊಡ್ಡಕಾಸಿಂ(07-32)	ಸ್ವಂತ	554/1,2	17-02	10-08 08-51	ಖುಷ್ಕಿ	553	555	ದಾರಿ	558	ಸದರಿ ಸರ್ವೆ ನಂಬರಿನ ಒಳಗೆ ವಿಸ್ತೀರ್ಣ 00-18 ಗುಂಟೆ ಜಮೀನಿನಲ್ಲಿ ರಾಜ್ಯ ಹೆದ್ಧಾರಿ ಹಾಯ್ದು ಹೋಗಿರುತ್ತದೆ.
93	1) ಗುರುಚಾರ್ಯ ತಂ/ ರಾಘವೇಂದ್ರ ಚಾರ್ಯ (00-05) 2) ಬೀರಪ್ಪ ತಂ/ ನಿಂಗಪ್ಪ (07-37) 3) ಮಹಾದೇವಪ್ಪ ತಂ/ ಕಲ್ಲಪ್ಪ (07-36)	ಸ್ವಂತ	555	15-38 00-05(ಖ) 15-33	17-39	ಖುಷ್ಕಿ	554	ಗಡಿ	ದಾರಿ	556	ಸದರಿ ಸರ್ವೆ ನಂಬರಿನ ಒಳಗೆ ವಿಸ್ತೀರ್ಣ 1-20 ಎಕರೆ ಜಮೀನಿನಲ್ಲಿ ರಾಜ್ಯ ಹೆದ್ಧಾರಿ ಹಾಯ್ದು ಹೋಗಿರುತ್ತದೆ
94	1) ಮೌಲಾಲಿ 2)ಖಾಜಾಹುಸೇನ ತಂ/ ಹುಸೇನ ಸಾಬ } 10-39 3) ಶೇಖಕಾಸಿಂಅಲಿ ತಂ/ ಹುಸೇನ ಸಾಬ 4)ಮಹಾದೇವಪ್ಪ ತಂ/ ಚಂದ್ರಪ್ಪ ಶೆಟ್ಟಿ 03-37 5)ಛೋಟಾ ಕಾಶೀಂ ತಂ/ ಅಲ್ಲಿಸಾಬ ಚೋರಗಸ್ತಿ 02-38 6) ಸೂಗಪ್ಪ ತಂ/ ಈಶ್ವರಪ್ಪ ಹಾಲಶೆಟ್ಟಿ (02-12) 7) ಮಲ್ಲಪ್ಪ ತಂ/ ಬಸ್ಸಪ್ಪ ಗುಡ್ಲಾ (02-12) 8) ಶೇಖಬಾಬು ತಂ/ ಬಡೆಸಾಬ 02-16 9)ಶೇಖ ಕಾಶೀಂ ಅಲಿ ತಂ/ ಶೇಖಲಾಡ್ಲೇಸಾಬ 02-30	ಸ್ವಂತ	556/ 1 ರಿಂದ 5 ರ ವರೆಗೆ	16-25	11-99 04-28 03-22 05-01 02-62 03-00	ಖುಷ್ಕಿ	557	ಗಡಿ	555	573	

ಅ. ಸಂ.	ಖಾತೆದಾರರ ಹೆಸರು	ಅನುಭವದಾರರ ಹೆಸರು	ರಿ.ಸ.ನಂ.	ಸ್ವಾಧೀನಪಡಿಸುವ ಅಂದಾಜು ವಿಸ್ತೀರ್ಣ ಎ-ಗುಂ	ಆಕಾರ ರೂ-ಪೈ	ಜಮೀನಿನ ತರಹೆ	ಚಕಬಂದಿ (ಚತುಃಸೀಮೆ)				ಷರಾ
							ಪೂರ್ವ	ಪಶ್ಚಿಮ	ಉತ್ತರ	ದಕ್ಷಿಣ	
1	2	3	4	5	6	7	8	9	10	11	
95	1) ಹುಸೇನಬಿ ಗಂ/ ಸಣ್ಣಕಾಸಿಂ ಅಲಿ (1-20) 2) ಸಣ್ಣ ಕಾಸಿಂ ತಂ/ ಅಲ್ಲಿಸಾಬ ಚೋರಗಸ್ತಿ (1-12) 3) ಶೇಖಬಡೇಸಾಬ ತಂ/ ಹಸನಸಾಬ ಚೋರಗಸ್ತಿ (0-20) 4) ಶೇಖಬಡೇಸಾಬ ತಂ/ ಹಸನಸಾಬ ಚೋರಗಸ್ತಿ (02-24) 5) ಬಡೇಸಾಬ ತಂ/ ಮೋದಿನಸಾಬ (0-10) 6) ಶ್ರೀಮತಿ ಆಶಾಬೀ ಗಂ/ ಖಜಾಹುಸೇನ ಚೋರಗಸ್ತಿ (0-06) 7) ಶೇಖ ಕಾಸಿಂ ತಂ/ ಬಡೆಸಾಬ (01-22) 8) ಮೈಬೂಬಹುಸೇನ ತಂ/ ಮಹ್ಮದಮೌಲಾನಸಾಬ 9)ನಬಿಚಾಂದ ತಂ/ ಮಹ್ಮದಮೌಲಾನಸಾಬ (02-06) 10)ಲಾಡ್ಲೇಸಾಭ ತಂ/ ಮಹ್ಮದಮೌಲಾನಸಾಬ 11)ಲಾಡ್ಲೇಸಾಭ ತಂ/ಮೌಲಾನಸಾಬ (01-00) 12) ಹಸನಅಲಿ ತಂ/ ಅಲ್ಲಿಸಾಬ (03-02)	ಸ್ವಂತ	557/1 ರಿಂದ 10	14-02	01-42	ಖುಷ್ಕಿ	560	556	558	557	
96	1) ಸಿದ್ದಪ್ಪ ತಂ/ ಮರೆಪ್ಪ ಕುರುಬರು (03-27) 2) ನಾಗಪ್ಪ ತಂ/ ಮರೆಪ್ಪ ಕುರುಬರು (03-26) 3) ಹಸನಅಲಿ ಹುಸೇನಸಾಬ (03-26) 4) ಬಿಸ್ಮಿಲ್ಲಾಬಿ ಗಂ/ಬಡೇಸಾಬ ಚೋರಗಸ್ತಿ (03-26)	ಸ್ವಂತ	558/1,2	14-25	08-21 08-18	ಖುಷ್ಕಿ	559	556	554	557	ಸದರಿ ಸರ್ವೆ ನಂಬರಿನ ಒಳಗೆ ವಿಸ್ತೀರ್ಣ 1-35 ಎಕರೆ ಜಮೀನಿನಲ್ಲಿ ರಾಜ್ಯ ಹೆದ್ದಾರಿ ಹಾಯ್ದು ಹೋಗಿರುತ್ತದೆ.
97	1) ಮಹಬೂಬಲಿ ತಂ/ಮಹ್ಮದ್‌ಸಾಬ ಯದ್ಲಾಪೂರ (03-05) 2) ಮಹಬೂಬಿ ಗಂ/ ಮಹಬೂಬಲಿ ಮಟಪಾಕ (03-35) 3)ಖಾದಿರೋದ್ದೀನ್ ತಂ/ ಬುರಾನೋದ್ದೀನ್ 08-24	ಸ್ವಂತ	559/ಅ,ಆ	15-24	07-63 09-38	ಖುಷ್ಕಿ	551	558	563	560	
	1) ಮಹಿಬೂಬ ಹುಸೇನ ತಂ/ ಮೌಲನಾಸಾಬ 2) ನಬಿಚಾಂದ್ ತಂ/ ಮೌಲನಾಸಾಬ 00-25 3) ಲಾಡ್ಲೇಸಾಬ ತಂ/ ಮೌಲನಾಸಾಬ 4ಲಾಡ್ಲೇಸಾಬ ತಂ/ ಮೌಲನಾಸಾಬ 0-11 5) ಖಾಜಾಹುಸೇನ ತಂ/ ಅಲ್ಲಿಸಾಬ 01-24 6) ಹಸ್ಮತ್ ಬೇಗಂ ಗಂ/ ಖಾಸಿಂ ಅಲಿಸಾಬ 03-28 7)ಸೈಯದ್ ಶಬ್ಬೀರ್ ಹುಸೇನ ತಂ/ ಬಡೆಸಾಬ 8)ಹಸಮತ್‌ಬೇಗಂ ಗಂ/ ಶೇಖ ಬಿಡೇಸಾಬ 04-16	ಸ್ವಂತ	560/ 1 ರಿಂದ 6 ರ ವರೆಗೆ	19-12	00-95 01-68 03-81 04-62 04-93	ಖುಷ್ಕಿ	561	557	559	570	ಸದರಿ ಸರ್ವೆ ನಂಬರಿನ ಒಳಗೆ ವಿಸ್ತೀರ್ಣ 2-28 ಎಕರೆ ಜಮೀನಿನಲ್ಲಿ ರಾಜ್ಯ ಹೆದ್ದಾರಿ ಹಾಯ್ದು

ಕ್ರ. ನಂ.	ಖಾತೆದಾರರ ಹೆಸರು	ಅನುಭವದಾರರ ಹೆಸರು	ರಿ.ಸ.ನಂ.	ಸ್ವಾಧೀನಪಡಿಸುವ ಅಂದಾಜು ವಿಸ್ತೀರ್ಣ ಎ-ಗುಂ	ಆಕಾರ ರೂ-ಪೈ	ಮಣ್ಣಿನ ತರಹೆ	ಚಕಬಂದಿ (ಚತು:ಸೀಮೆ)				ಷರಾ
							ಪೂರ್ವ	ಪಶ್ಚಿಮ	ಉತ್ತರ	ದಕ್ಷಿಣ	
1	2	3	4	5	6	7	8	9	10	11	
	9)ಆಶಾಬೀ ಗಂ/ ಖಾಜಾ ಹುಸೇನ ಚೋರಗಸ್ತಿ 04-28 10)ಆಶಾಬೀ ಗಂ/ ಖಾಜಾ ಹುಸೇನ ಚೋರಗಸ್ತಿ04-00				04-20						ಹೋಗಿರುತ್ತದೆ.
98	1) ಸಿದ್ಲಿಂಗಪ್ಪ ತಂ/ ಲಿಂಗಪ್ಪ ಹಣ್ಮಂತನ್ } 08-03 2) ಸಿದ್ದಲಿಂಗಪ್ಪ ತಂ/ ಲಿಂಗಪ್ಪ ತಮ್ಮಣ್ಣನೆ 3) ಅಬ್ದುಲ ಅಜೀಜ ತಂ/ ಅಬ್ದುಲ್‌ರಹಿಮಾನ್ 00-08 4) ಅಬ್ದುಲ ಅಜೀಜ ತಂ/ ಅಬ್ದುಲ್‌ರಹಿಮಾನ್ 08-12	ಸ್ವಂತ	561/ಪೈ	16-23	08-25 00-12 08-32	ಖುಷ್ಕಿ	562	560	551	565	
99	1)ಮಹ್ಮದ್ ಮಿರಾನ್ ತಂ/ ಮಹ್ಮದ್ ಇಬ್ರಾಹಿಂ (04-16) 2)ಲಕ್ಷ್ಮೀಬಾಯಿ ಗಂ/ ಹಳ್ಳೆಪ್ಪದಾಸರ್ (03-30) 3) ಮಹ್ಮದ್ ಜಮೀರ್ ತಂ/ ಮಹ್ಮದ್ ಇಲಿಯಾಸ 4) ಮಹ್ಮದ್ ಶಬ್ಬರ್ ತಂ/ ಮಹ್ಮದ್ ಇಲಿಯಾಸ } (03-20) 5) ಮಹ್ಮದ್ ಖಾಸಿಂ ತಂ/ ಮಹ್ಮದ್ ಇಲಿಯಾಸ	ಸ್ವಂತ	562/1,2,3	11-26 00-01(ಖ) 11-25	04-95 03-789 03-51	ಖುಷ್ಕಿ	563	561	550	564	
100	1) ಮಹ್ಮದ್ ಜಮೀರ್ ತಂ/ ಮಹ್ಮದ್ ಇಲಿಯಾಸ 2) ಮಹ್ಮದ್ ಶಬ್ಬೀರ್ ತಂ/ ಇಲಿಯಾಸ } (03-33) 3) ಮಹ್ಮದ್ ಖಾಸಿಂ ತಂ/ ಇಲಿಯಾಸ 4)ಲಕ್ಷ್ಮೀಬಾಯಿ ಗಂ/ ಹಳ್ಳೆಪ್ಪದಾಸರ್ (03-10) 5)ಮಲ್ಲಿಕಾರ್ಜುನ ತಂ/ ಮಲ್ಲಪ್ಪ ಅಮಾತ್ಯಪ್ಪನೋರ (03-13)	ಸ್ವಂತ	563/1,2,3	10-16	04-18 03-55 03-61	ಖುಷ್ಕಿ	629	562	550	554	
101	1)ಅಜಿಮೋದ್ದೀನ್ ತಯ/ಅಮೀರಲಿ ಚಂದಾಪೂರ(05-20) 2)ಮೆಹಬೂಬ ಹುಸೇನ ತಂ/ ಬುಡ್ಡೆಸಾಬ 05-29	ಸ್ವಂತ	564/1,2	11-09	06-25 06-00	ಖುಷ್ಕಿ	628	565	563	619	
102	1)ಕಾಶಿಂಅಲಿ ತಂ/ಮೆಹಬೂಬಅಲಿ ತುರ್ಕಲದೊಡ್ಡಿ(6-31) 2) ಜಗಲಿಂಗಪ್ಪ ತಂ/ ನರಸಪ್ಪ ಪೂಜಾರಿ (05-20) 3)ಸಣ್ಣ ಚಾಂದಪಾಶಾ ತಂ/ ಮಕ್ತುಮ್‌ಸಾಬ 02-18	ಸ್ವಂತ	565/1,2	14-29	13-75 02-75	ಖುಷ್ಕಿ	564	566	561	567	ಸದರಿ ಸರ್ವೆ ನಂಬರಿನ ಒಳಗೆ ವಿಸ್ತೀರ್ಣ 0-33 ಗುಂಟೆ ಜಮೀನಿನಲ್ಲಿ ರಾಜ್ಯ ಹೆದ್ದಾರಿ ಹಾಯ್ದು ಹೋಗಿರುತ್ತದೆ.
103	1) ಶೇಖಖಾಸಿಂ ಅಲಿ ತಂ/ಹಸನಬಾಯಿ (05-06) 2) ಶೇಖಖಾಸಿಂ ತಂ/ಶೇಖಹುಸೇನ ಕೋನಂಪಲ್ಲಿ (05-33)	ಸ್ವಂತ	566/ಅ-570	8-38	11-99	ಖುಷ್ಕಿ	565	520	561	567	ಸರ್ವೆ ನಂ 566 ನಲ್ಲಿ ವಿಸ್ತೀರ್ಣ 0-33 ಗುಂಟೆ, ಸರ್ವೆ ನಂ 567 ರಲ್ಲಿ 1-23 ಎಕರೆ, ಸರ್ವೆ

ಅ. ನಂ.	ಖಾತೆದಾರರ ಹೆಸರು	ಅನುಭವದಾರರ ಹೆಸರು	ರಿ.ಸ.ನಂ.	ಸ್ವಾಧೀನಪಡಿಸುವ ಅಂದಾಜು ವಿಸ್ತೀರ್ಣ ಎ-ಗುಂ	ಆಕಾರ ರೂ-ಪೈ	ಜಮೀನಿನ ತರಹೆ	ಚಕಬಂದಿ (ಚತು:ಸೀಮೆ)				ಷರಾ
							ಪೂರ್ವ	ಪಶ್ಚಿಮ	ಉತ್ತರ	ದಕ್ಷಿಣ	
1	2	3	4	5	6	7	8	9	10	11	
											ನಂ 568 ರಲ್ಲಿ 0-32 ಗುಂಟೆ, ಜಮೀನುಗಳ ಒಳಗೆ ರಾಜ್ಯ ಹೆದ್ದಾರಿ ಹಾದು ಹೋಗಿರುತ್ತದೆ.
104	ಮೌಲಾಲಿ ತಂ/ ಹುಸೇನಸಾಬ ಗೊಂದೆನೊ 01-29	ಸ್ವಂತ	566/ಅ 570		02-29	ಖುಷ್ಕಿ					
105	ಶೇಖಹುಸೇನ ತಂ/ಮೆಹದಿ ಹಸನ ಕೋನಂಪಲ್ಲಿ 03-31	ಸ್ವಂತ	566/ಇ 570		03-50	ಖುಷ್ಕಿ					
106	1)ಶೆಖಖಾಸಿಂ ಅಲಿ ತಂ/ಶೇಖಹುಸೇನ ಕೋನಂಪಲ್ಲಿ 1-01 2)ಶೆಖಖಾಸಿಂಅಲಿ ತಂ/ಹಸನಾಬಾಯಿ ಕೋನಂಪಲ್ಲಿ 4-19	ಸ್ವಂತ	566/ಈ-570		05-79	ಖುಷ್ಕಿ					
107	1)ಶೇಖಹುಸೇನ ತಂ/ಗೂಡುಬಾಯಿ ತುರುಕಲದೊಡ್ಡಿ(06-18) 2) ಸಣ್ಣ ಚಾಂದಪಾಸ ತಂ/ ಮುಕ್ತುಮಸಾಬ (00-28) 3) ಮಲ್ಲಪ್ಪ ತಂ/ಚನ್ನಮಲ್ಲಪ್ಪ ತೋಳಾ ಕುರುಬರು (08-35) 4) ಮೌಲಸಾಬ ಗಂ/ಗೂಡುಬಾಯಿ (03-27)	ಸ್ವಂತ	567/1,2	19-28	07-80 13-68	ಖುಷ್ಕಿ	564	569	565	568	
108	1)ನಭಿಸಾಬ ತಂ/ ಹಸನಬಾಯಿ ಚಂದಾಪೂರ (07-32) 2)ಅಮೀರಲಿ ತಂ/ಹುಸೇನಸಾಬ ಚಂದಾಪೂರ(07-32)	ಸ್ವಂತ	568/1,2	15-24 0-10(ಖ) 15-14	08-06 08-06	ಖುಷ್ಕಿ ಖುಷ್ಕಿ	619	569	567	617	
109	1) ಸಾಯಿಬಣ್ಣ ತಂ/ ನರಸಪ್ಪ ಪೂಜಾರಿ (07-29) 2) ನರಸಪ್ಪ ತಂ/ ನರಸಪ್ಪ ಪೂಜಾರಿ (08-00)	ಸ್ವಂತ	569	15-29 0-30(ಖ) 14-39	13-33	ಖುಷ್ಕಿ	558	577	570	-	
110	1) ಶೇಖಹುಸೇನ ಸಾಬ ತಂ/ ಹುಸೇನಸಾಬ 05-22 2) ಶೇಖಉಸ್ಮಾನ ತಂ/ ಖಾಜಾಹುಸೇನ 04-06 3)ಶೇಖಹುಸೇನಸಾಬ ತಂ/ ಅಮೀರಲಿ ಕೋನಂಪಲ್ಲಿ 03-13	ಸ್ವಂತ	570/1,2,ಇ	13-01	6-05 03-63	ಖುಷ್ಕಿ ಖುಷ್ಕಿ	566	571	560	569	
111	1)ಖಾಜಾಹುಸೇನ ತಂ/ಅಬ್ದುಲ್ ಖಾದರ್ 01-26 2)ಬುರಾನಸಾಬ ತಂ/ ಹುಸೇನಸಾಬ 01-24 3)ನನ್ನೆಸಾಬ ತಂ/ ಹಸನಾಬಾಯಿ 00-20 4)ಅಲ್ಲಾಬಕ್ಷ ತಂ/ ಗುಲಾಮ ಮಹಮದ್ ಕೋನಂಪಲ್ಲಿ 02-03 5) ಬಾಷುಮಿಯ್ಯಾ ತಂ/ ಹುಸೇನಸಾಬ (02-15)	ಸ್ವಂತ	571/ 1 ರಿಂದ 6	10-23	01-80 01-75 00-55 02-26	ಖುಷ್ಕಿ	570	573	572	577	

ಕ್ರ. ನಂ.	ಖಾತೆದಾರರ ಹೆಸರು	ಅನುಭವದಾರರ ಹೆಸರು	ರಿ.ಸ.ನಂ.	ಸ್ವಾಧೀನಪಡಿಸುವ ಅಂದಾಜು ವಿಸ್ತೀರ್ಣ ಎ-ಗುಂ	ಆಕಾರ ರೂ-ಪೈ	ಜಮೀನಿನ ತರಹೆ	ಚಕಬಂದಿ (ಚತುಃಸೀಮೆ) ಪೂರ್ವ	ಪಶ್ಚಿಮ	ಉತ್ತರ	ದಕ್ಷಿಣ	ಷರಾ
1	2	3	4	5	6	7	8	9	10	11	
	6) ಅಬ್ದುಲ್ ಹಮೀದ ತಂ/ ಖಾಜಹುಸೇನ 02-15 7) ಸೈಯದ್ ಗುಲಾಮ ಯಜ್ದಾನಿ ತಂ/ ಖಾಜಹುಸೇನ				02-59						
112	1)ಶೇಖಹುಸೇನ ತಂ /ಹಸನ್‌ಸಾಬ ಕೋನಂಪಲ್ಲಿ 03-30 2) ಮಹೇಬೂಬ ಹುಸೇನ ತಂ/ ಲಾಡ್ಲೇಸಾಬ 3) ಉಸ್ಮಾನ ತಂ/ ಲಾಡ್ಲೇಸಾಬ 0-08 4) ಮೋಧಿನಹುಸೇನ ತಂ/ ಲಾಡ್ಲೇಸಾಬ 5) ಆಲಂ ಹುಸೇನ ತಂ/ ಬಡೇಸಾಬ 01-38 6) ಚಾಂದಪಾಶಾ ತಂ/ಬಡೆಸಾಬ 7) ಖಾಜಾಹುಸೇನ ತಂ/ಅಬ್ದುಲ್‌ಖಾದರ್ (02-02) 8) ನನ್ನೆಮ್ಮ ಗಂ/ ಅಬ್ದುಲ್ ಹಮೀದ್ ಕೋನಂಪಲ್ಲಿ (01-39) 9) ಹುಸೇನಬಿ ಗಂ/ ಗುಲಾಂ ಯಜದಾನಿ ಕೋನಂಪಲ್ಲಿ 10) ಮಹೇಬೂಬ ಅಲಿ ತಂ/ ಖಾಸಿಂಸಾಬ 11) ಬಹಾದ್ದೂರ್ ಅಲಿ ತಂ/ ಶೇಖಹುಸೇನಸಾಬ 03-27 12) ಅಮೀರಲಿ ತಂ/ ಹುಸೇನಸಾಬ 13) ಮಹೇಬೂಬ ಅಲಿ ತಂ/ ಖಾಸಿಂಸಾಬ 14) ಬಹಾದುರ್ ಅಲಿ ತಂ/ ಹುಸೇನಸಾಬ 02-32 15) ಅಮೀರಲಿ ತಂ/ ಹುಸೇನಸಾಬ 16) ಶೇಖಹುಸೇನ ತಂ/ ಮೊದೀನಹುಸೇನ ಕೊನಂಪಲ್ಲಿ (00-07) 17) ಚಾಂದಪಾಶಾ ತಂ/ ಮಹ್ಮದ ಅಲಿ ಕೊನಂಪಲ್ಲಿ (00-07) 18) ಶೇಖಹುಸೇನ ತಂ/ ಮೊದೀನಹುಸೇನ (01-21) 19) ಚಾಂದಪಾಶಾ ತಂ/ ಮಹ್ಮದ ಅಲಿ (01-20)ಷ 20) ಶೇಖಹುಸೇನ ತಂ/ ಮೊದೀನಹುಸೇನ (00-16) 21) ಚಾಂದಪಾಶಾ ತಂ/ ಮಹ್ಮದ ಅಲಿ (00-16)	ಸ್ವಂತ	572/1 ರಿಂದ 8	18-31	0-22 2-12 04-38 04-00 03-06	ಖುಷ್ಕಿ	570	573	557	571	
113	1) ಸಿರಾಜ ಅ. ಹಸನ್ ತಂ/ ಖಾಸಿಂ ಆಲಿ 2) ಸೈಯದ್ ಅ. ಹಸನ್ ತಂ/ ಖಾಸಿಂ ಅಲಿ 02-04 3) ಮಹಿಬೂಬ ಹುಸೇನ ತಂ/ ಲಾಡ್ಲೇಸಾಬ 4) ಉಸ್ಮಾನ ತಂ/ ಲಾಡ್ಲೇಸಾಬ 01-24 5) ಮೋದಿಹಸನ್ ತಂ/ ಲಾಡ್ಲೇಸಾಬ	ಸ್ವಂತ	573/1 ರಿಂದ 7	19-23	02-21	ತರಿ	572	575	566	576	

ಅ. ನಂ.	ಖಾತೆದಾರರ ಹೆಸರು	ಅನುಭವದಾರರ ಹೆಸರು	ರಿ.ಸ.ನಂ.	ಸ್ವಾಧೀನಪಡಿಸುವ ಅಂದಾಜು ವಿಸ್ತೀರ್ಣ ಎ-ಗುಂ	ಆಕಾರ ರೂ-ಪೈ	ಜಮೀನಿನ ತರಹೆ	ಚಕಬಂದಿ (ಚತು:ಸೀಮೆ)				ಷರಾ
							ಪೂರ್ವ	ಪಶ್ಚಿಮ	ಉತ್ತರ	ದಕ್ಷಿಣ	
1	2	3	4	5	6	7	8	9	10	11	
	6) ಅಲಿಂ ಹುಸೇನ ತಂ/ ಲಾಡ್ಲೇಸಾಬ 7) ಚಾಂದಭಾಶಾ ತಂ/ಬುಡ್ಡೇಸಾಬ 00-08 8) ನನ್ನೆಮ್ಮ ಗಂ/ ಅಬ್ದುಲ್ ಹಮೀದ್ ಕೋಣಂಪಲ್ಲಿ 9) ಹುಸೇನಬಿ ಗಂ/ ಗುಲಾಂಯಜದಾನಿ 02-00 10)ಮಹ್ಮದ್ ಅಲಿ ತಂ/ ಹುಸೇನಸಾಬ 02-26 11)ಖಾಜಾಹುಸೇನ ತಂ/ಅಬ್ದುಲ್ಖಾದರ್ ಕೋನೆಂಪಲ್ಲಿ 04-38 12) ನನ್ನೆಸಾಬ ತಂ ಹುಸೇನಅಲಿ 06-03										
114	1)ಭೀಮರೆಡ್ಡಿ ತಂ/ ಯಂಕಪ್ಪ ಸಾ// ಸೈದಾಪೂರ 05-28 2)ಭೀಮಾರೆಡ್ಡಿ ತಂ/ ಯಂಕಪ್ಪ ಸೈದಾಪೂರ 02-33	ಸ್ವಂತ	574/1,2	08-21	05-07 02-52	ಖುಷ್ಕಿ	573	ಶೆಟ್ಟಿಹಳ್ಳಿ ಗಡಿ	ಶೆಟ್ಟಿಹಳ್ಳಿಗಡಿ	575	
115	1)ಭೀಮರೆಡ್ಡಿ ತಂ/ ಯಂಕಪ್ಪ ಸೈದಾಪೂರ (03-28) 2)ಭೀಮರೆಡ್ಡಿ ತಂ/ ಯಂಕಪ್ಪ ಸೈದಾಪೂರ (08-37)	ಸ್ವಂತ	575/1,2	12-25 00-15(ಖ) 12-10	02-21 06-36	ಖುಷ್ಕಿ	573	ಬಡಿಯಾಳ ಗ್ರಾಮದ ಗಡಿ	574	576	
116	ಸರಕಾರಿ ಗೈರಾಣ (20-19)	–	576	20-19 00-17(ಖ) 20-02	14-84	ಖುಷ್ಕಿ	577	ಬಡಿಯಾಳ ಗ್ರಾಮದ ಗಡಿ	573	579	
117	1) ತಾಹೇರಾಬೇಗಂ ಗಂ/ ಅಲಿಮೌಲಾ (03-29) 2) ಹುಸೇನ ಸಾಬ ತಂ/ ಅಲಿಮೌಲಾ (02-11) 3) ಚಂದ್ರಶೇಖರ ತಂ/ ಗೌರಣ್ಣ 08-27	ಸ್ವಂತ	577/ಅ,ಆ	14-27	05-00 07-48	ಖುಷ್ಕಿ	569	576	571	578	
118	1) ತಾಯಪ್ಪ ತಂ/ ಸಾಯಬಣ್ಣ ಕುರುಬುರ (03-04) 2)ಅಮೀರಲಿ ತಂ/ ಹುಸೇನಸಾಬ (06-06) 3) ಮಹ್ಮದ್‌ಮೈಬೂಬಲಿ ತಂ/ ಸಣ್ಣಹುಸೇನ ಬರನಳ್ಳಿ (03-03)	ಸ್ವಂತ	578	12-13 00-31(ಖ) 11-22	09-36	ಖುಷ್ಕಿ	569	579	577	ದಾರಿ	
119	ಲಕ್ಷ್ಮಪ್ಪ ತಂ/ ತಮ್ಮಾಜಿ	ಸ್ವಂತ	579 580-581- 582	42-27 04-19(ಖ) 38-08	28-06	ಖುಷ್ಕಿ	578	580	576	ದಾರಿ	
120	1) ಲಿಂಗಪ್ಪಾ ತಂ/ ವೀರಪ್ಪಣ್ಣಾ ಬಾಡಿಯಾಲಿ (04-19) 2) ಶಿವರಾಜ ತಂ/ ವೀರಪ್ಪಣ್ಣ (06-20) 3) ಮಲ್ಲಿಕಾರ್ಜುನ ತಂ/ ವೀರಪ್ಪಣ್ಣಾ (06-20)	ಸ್ವಂತ	583	17-19 0-09(ಖ) 17-10	17-43	ಖುಷ್ಕಿ	584	ಬಡಿಯಾಳ ಗ್ರಾಮದ ಗಡಿ	582	591	

ಅ. ನಂ.	ಖಾತೆದಾರರ ಹೆಸರು	ಅನುಭೋ ದಾರರ ಹೆಸರು	ರಿ.ಸ.ನಂ.	ಸ್ವಾಧೀನಪಡಿಸುವ ಅಂದಾಜು ವಿಸ್ತೀರ್ಣ ಎ-ಗುಂ	ಆಕಾರ ರೂ-ಪೈ	ಜಮೀನಿನ ತರಹೆ	ಚೆಕ್ಕುಬಂದಿ (ಚತುಃಸೀಮೆ) ಪೂರ್ವ	ಪಶ್ಚಿಮ	ಉತ್ತರ	ದಕ್ಷಿಣ	ಷರಾ
1	2	3	4	5	6	7	8	9	10	11	
121	1) ಲಿಂಗಪ್ಪ ತಂ/ ವೀರಪ್ಪಣ್ಣ ಬಾಡಿಯಾಳ (07–05) 2) ಶಿವರಾಜ ತಂ/ ವೀರಪ್ಪಣ್ಣ ಖೇಣಿದ ಬಾಡಿಯೋ(7–06)	ಸ್ವಂತ	584	14–11 00–03(ಖ) 14–08	14–91	ಖುಷ್ಕಿ	590	583	ಬಂಡಿ ದಾರಿ	591	
122	1) ಬಸವರಾಜ ಸೂಗಪ್ಪ ಸಾಹುಕಾರ (07–30) 2) ದೇವೆಂದ್ರಪ್ಪ ಸೂಗಪ್ಪ ಸಾಹುಕಾರ (07–31)	ಸ್ವಂತ	585	15–21 01–04(ಖ) 14–17	12–00	ಖುಷ್ಕಿ	587	582	ದಾರಿ	ಬಂಡಿ ದಾರಿ	
123	ಸೂಗಪ್ಪಾ ತಂ/ ಸಿದ್ದಪ್ಪ ಸಾಹುಕಾರ	ಸ್ವಂತ	586	0–13	0–28	ಖುಷ್ಕಿ	587	582	ದಾರಿ	ಬಂಡಿ ದಾರಿ	
124	1) ಸೂಗಪ್ಪಾ ತಂ/ ಸಿದ್ದಪ್ಪ ಸಾಹುಕಾರ (02–20) 2) ಮಹಾದೇವಪ್ಪ ಸೂಗಪ್ಪ ಸಾಹುಕಾರ (07–30)	ಸ್ವಂತ	587	10–10 0–29(ಖ) 09–21	- 07–43	ಖುಷ್ಕಿ	588	585	586	ಬಂಡಿ ದಾರಿ	
125	1) ಮಳಪ್ಪ ತಂ/ ಲಿಂಗಪ್ಪಾ / ಯು/ಜಿ ಲಿಂಗಪ್ಪ ತಂ. ಮಾಳಪ್ಪ (12–00) 2) ಮಾಳಮ್ಮ ತಂ/ ಬ ತಮ್ಮಣ್ಣ ಆರ್ಗ (03–00) 3) ತಿಮ್ಮಣ್ಣ ತಂ/ ತಮ್ಮಣ್ಣ ಆರ್ಗೆ (03–34)	ಸ್ವಂತ	588	18–34 0–34(ಖ) 18–00	14–04	ಖುಷ್ಕಿ	616	587	ದಾರಿ	ಬಂಡಿ ದಾರಿ	
126	1) ಬುಡ್ಡಪ್ಪ ತಂ/ ನರಸಪ್ಪ ಕುರುಬರ (06–09) 2) ಮಲ್ಲಪ್ಪ ತಂ/ನರಸಪ್ಪ (06–09) 3) ಮಾಳಪ್ಪ ತಂ/ನರಸಪ್ಪ ತೋಳಾ (03–05) 4) ನರಸಪ್ಪ ತಂ/ ಚನ್ನಮಲ್ಲಪ್ಪ (03–04)	ಸ್ವಂತ	589	18–27 0–27(ಖ) 18–00	–	ಖುಷ್ಕಿ	614	590	ಬಂಡಿ ದಾರಿ	597	
127	1) ಸಿದ್ದಪ್ಪ ತಂ/ ಸೂಗಪ್ಪಾ ಸಾಹುಕಾರ (07–27) 2) ಬನ್ನಪ್ಪ ತಂ/ ಸೂಗಪ್ಪಾ ಸಾಹುಕಾರ (07–28)	ಸ್ವಂತ	590	15–15	14–92	ಖುಷ್ಕಿ	589	584	ಬಂಡಿ ದಾರಿ	591	
128	1)ಘಂಟಿಮಲ್ಲಪ್ಪಾ ತಂ/ ನರಸಪ್ಪ(06–30) 2) ಬುಡ್ಡಪ್ಪ ತಂ/ ನರಸಪ್ಪ (06–29) 3) ಮಾಳಪ್ಪ ತಂ/ ನರಸಪ್ಪ (03–15) 4) ನರಸಪ್ಪ ತಂ/ ಚನ್ನಮಲ್ಲಪ್ಪ (03–15)	ಸ್ವಂತ	591	20–08 0–04(ಖ) 20–04	20–21	ಖುಷ್ಕಿ	596	ಗಡಿ	590	592	
129	1) ಬುಡ್ಡಪ್ಪ ತಂ/ ನರಸಪ್ಪ (11–33) 2) ಸಾಬಗೌಡ ತಂ/ ಮಲ್ಲಪ್ಪ(04–00) 3) ಮಲ್ಲೇಶಪ್ಪ ತಂ/ ಮಲ್ಲಪ್ಪ (04–00)	ಸ್ವಂತ	592/1,2,3	19–33 0–05(ಖ) 19–28	17–54	ಖುಷ್ಕಿ	596	ಗಡಿ	591	593	

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							ಪೂರ್ವ	ಪಶ್ಚಿಮ	ಉತ್ತರ	ದಕ್ಷಿಣ	
1	2	3	4	5	6	7	8	9	10	11	-
130	1) ಶಾಯಪ್ಪ ತಂ/ ಸಿದ್ಧಲಿಂಗಪ್ಪ ಕೊತ್ತಪಲ್ಲಿ (2-21) 2) ಆಂಜನೇಯ ತಂ/ ಸಕ್ರೆಪ್ಪ ಕೊತ್ತಪಲ್ಲಿ (2-21) 3) ಮಾರೆಪ್ಪ ತಂ/ ಬೀರಪ್ಪ ಕೊತ್ತಪಲ್ಲಿ (2-21) 4) ಮಲ್ಲಿಕಾರ್ಜುನ ತಂ/ ಸಕ್ರೆಪ್ಪ ಕೊತ್ತಪಲ್ಲಿ (2-21) 5) ಬಸಲಿಂಗಪ್ಪ ತಂ/ ಬೀರಪ್ಪ ಕೊತ್ತಪಲ್ಲಿ (2-21) 6) ಮಲ್ಲಿಕಾರ್ಜುನ ತಂ/ ಸಿದ್ಲಿಂಗಪ್ಪ ಕೊತ್ತಪಲ್ಲಿ (2-22)	ಸ್ವಂತ	593	15-07 0-05(ಖ) 15-02	13-40	ಖುಷ್ಕಿ	594	ಗಡಿ	592	ಗಡಿ	
131	1) ಶಾಯಪ್ಪ ತಂ/ ಹಣಮಂತ ಕೊತ್ತಪಲ್ಲಿ (2-28) 2) ಸಿದ್ಲಿಂಗಮ್ಮ ತಂ/ ನಿಂಗಪ್ಪ ಕೊತ್ತಪಲ್ಲಿ (2-28) 3) ಸಾಯಬಣ್ಣ ತಂ/ ಹಣಮಂತ ಕೊತ್ತಪಲ್ಲಿ (2-22) 4) ನಾಗಪ್ಪ ತಂ/ ನಿಂಗಪ್ಪ ಕೊತ್ತಪಲ್ಲಿ (2-22) 5) ಭೀಮಣ್ಣ ತಂ/ ಸಿದ್ದಪ್ಪ ಕೊತ್ತಪಲ್ಲಿ (2-28) 6) ಯಲ್ಲಪ್ಪ ತಂ/ ನಿಂಗಪ್ಪ ಕೊತ್ತಪಲ್ಲಿ (2-25)	ಸ್ವಂತ	594/1,2	16-08 0-15(ಖ) 15-33	15-36	ಖುಷ್ಕಿ	595	593	596	ಗಡಿ	
132	1)ವಿಠೋಬ ತಂ/ ತಿಪ್ಪಣ್ಣ ನಿಮಕಾರ (07-21) 2) ತಿಪ್ಪಣ್ಣ ತಂ/ ತುಳಜಾರಾಮ (07-20)	ಸ್ವಂತ	595/ಅ,ಆ	15-01	14-88	ಖುಷ್ಕಿ	600	594	597	ಗಡಿ	
133	1) ನರಸಪ್ಪ ತಾಯಿ/ ನರಸಮ್ಮ (03-06) 2) ಮರೆಪ್ಪ ತಂ/ ನರಸಪ್ಪ ಹರಿಜನ್ (02-20) 3) ಬುರಾನಪ್ಪ ಹರಿಜನ್(02-10) 4) ಧೇವಪ್ಪ ಹರಿಜನ್ (02-10) 5) ಮಾರೆಪ್ಪ ತಾಯಿ/ ಬೀಮಕ್ಕ (05-06) 6) ಬುಗ್ಗಪ್ಪವ ತಂ/ ತಿಮ್ಮಪ್ಪ 7) ತಿಮ್ಮಪ್ಪ ತಂ/ ಮರೆಪ್ಪ ಬೇಗಾರ (02-31)	ಸ್ವಂತ	596/1 ರಿಂದ 6	18-14 0-15(ಖ) 17-39	16-91	ಖುಷ್ಕಿ	597	591	589	594	
134	1) ಹುಸೇನಸಾಬ ಬೈರನಳ್ಳಿ (7-10) 2) ಶಾಂತಾಬಾಯಿ ಗಂ/ ಇಂದ್ರಾಜಿ ಸಾ/ಬಾಡಿಯಾ (3-00) 3) ಶಬ್ಬಿರಅಲಿ ತಂ/ಸಾಧೀಕಅಲಿ 10-00 4) ಶಮಶೀರಅಲಿ ತಂ/ಸಾಧೀಕಅಲಿ	ಸ್ವಂತ	597	20-10 0-29(ಖ) 19-21	8-18 8-52	ಖುಷ್ಕಿ	598	596	589	595	
135	1)ನಿಂಗಪ್ಪ ತಂ/ ಸಾಬಣ್ಣ ಕುರಬುರ (07-04) 2)ಜಂಪಮ್ಮ ತಂ/ ನಾರಾಯಣರಾವ 3) ದೇವೆಂದ್ರಪ್ಪ ತಂ/ ನಾರಾಯಣರಾವ 07-04	ಸ್ವಂತ	598	14-08	7-18 7-17	ಖುಷ್ಕಿ	611	597	612	599	

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							ಪೂರ್ವ	ಪಶ್ಚಿಮ	ಉತ್ತರ	ದಕ್ಷಿಣ	
1	2	3	4	5	6	7	8	9	10	11	
136	1) ಹಣ್ಮಂತಪ್ಪ ತಂ/ ಚಂದ್ರಪ್ಪ (5–18) 2) ಬೀಮಪ್ಪ ತಂ/ ಆಶಪ್ಪ ಸೊಂಡಿ (5–18) 3)ಬೀಮಪ್ಪ ತಂ/ ಆಶಪ್ಪ (3–12) 4) ಜಯಪ್ಪ ತಾಯಿ/ ಮುದ್ದಮ್ಮ (1–12) 5) ಜಯಪ್ಪ ತಾಯಿ/ ಮುದ್ದಮ್ಮ (2–08)	ಸ್ವಂತ	599	18–08	11–87 4–15 1–42 2–40	ಖುಷ್ಕಿ	605	597	598	600	
137	1)ಸಾಬಣ್ಣ ತಂ/ ತಿಮ್ಮಪ್ಪ (04–34) 2) ಕರೆಪ್ಪ ತಂ/ ಹಣಮಪ್ಪ ಬೇಗಾರಿ 3) ಭೀಮಪ್ಪ ತಂ/ ಹಣಮಪ್ಪ ಬೇಗಾರಿ 4)ತಿಮ್ಮಣ್ಣ ತಂ/ ಹಣಮಪ್ಪ ಬೇಗಾರಿ (05–00) 6) ತಿಮ್ಮಪ್ಪ ತಂ/ ಹಣಮಪ್ಪ (0–30) 7) ನರಸಪ್ಪ ತಂ/ ನರಸಪ್ಪ 8) ಹಣಮಂತ ತಂ/ ನರಸಪ್ಪ (01–27) 9) ಕಾಸಿಮಪ್ಪ ತಂ/ ಸಾಯಿಬಣ್ಣ (1–27) 10) ತಿಮ್ಮಪ್ಪಾ ತಂ/ ಹಣಮಪ್ಪ ಬಿಟಿ (02–20) 11) ಹಣಮಂತ ತಂ/ ಭೀಮಪ್ಪ 12) ತಿಮ್ಮಪ್ಪ ತಂ/ ಭೀಮಪ್ಪ 13) ಸಣ್ಣ ತಿಮ್ಮಪ್ಪ ತಂ/ ಭೀಮಪ್ಪ ಗಾಜಲಬೆ (03–14)	ಸ್ವಂತ	600	19–32	20–59	ಖುಷ್ಕಿ	601	595	599	ಗಡಿ	
138	1) ಮಹಿಬೂಬಲಿ ತಂ/ ಶೇಖಹುಸೇನ 2) ಖಾಸಿಂಅಲಿ ತಂ/ಶೇಖಹುಸೇನ 3) ಬಹದ್ದೂರಅಲಿ ತಂ/ಶೇಖಹುಸೇನ (05–05) 4) ಹಣಮಂತ ತಂ/ ತಾಯಪ್ಪ ಉಜ್ಜಿ (05–06)	ಸ್ವಂತ	601	10–11	10–80	ಖುಷ್ಕಿ	602	600	599	ಗಡಿ	
139	1) ದೊಡ್ಡಹಣ್ಮಂತ ತಂ/ಅಮಾತೆಪ್ಪ (4–35) 2) ಮಲ್ಲಮ್ಮ ತಂ/ ಮಲ್ಲಪ್ಪ ಹರಿಜನ (2–30) 3) ಭೀಮರಾಯ ತಂ/ ನರಸಪ್ಪ (5–14) 4) ಹಣ್ಮಂತ ತಂ/ ಸಾಯಿಬಣ್ಣ ವಾಕ್ಕಿ (2–10) 5) ಹಂಪಮ್ಮ ಗಂ/ ನರಸಪ್ಪ ಕೋಳಿ 6) ಮಾಳಮ್ಮ ತಂ/ ನರಸಪ್ಪ ಕೋಳಿ 04–20	ಸ್ವಂತ	602	19–29	5–00 16–50	ಖುಷ್ಕಿ	603	601	604	ಗಡಿ	
140	ಮಹ್ಮದ್ ಹುಸೇನ ತಂ/ ಹಸನಬಾಯಿ	ಸ್ವಂತ	603	06–05 0–05(ಖ) 06–00	5–34	ಖುಷ್ಕಿ	657	602	607	ಗಡಿ	

ಅ. ಸಂ.	ಖಾತೆದಾರರ ಹೆಸರು	ಅನುಭವದಾರರ ಹೆಸರು	ರಿ.ಸ.ನಂ.	ಸ್ವಾಧೀನಪಡಿಸುವ ಅಂದಾಜು ವಿಸ್ತೀರ್ಣ ಎ-ಗುಂ	ಆಕಾರ ರೂ-ಪೈ	ಜಮೀನಿನ ತರಹೆ	ಚಕಬಂದಿ (ಚತುಃಸೀಮೆ)				ಷರಾ
							ಪೂರ್ವ	ಪಶ್ಚಿಮ	ಉತ್ತರ	ದಕ್ಷಿಣ	
1	2	3	4	5	6	7	8	9	10	11	
141	ಹಣಮಂತಪ್ಪ ತಂ/ ಮಾರೆಪ್ಪ ಬೇಗಾರ	ಸ್ವಂತ	604	9–26	08–54	ಖುಷ್ಕಿ	603	601	605	602	
142	1)ಸೈಯದ್ ಅಲಿಹಸನ ತಂ/ಸೈಯದ್ ದಾದೆನಾಯ್ಕ, } 2–00 2) ಸೈಯದ್ ಶಬ್ಬೀರ್ ತಂ/ ಸೈಯದ್ ದಾದೆನಾಯ್ಕ } 3) ಸೈಯದ ಜಫರ ಮುಜೀನ ತಂ/ಸೈಯದ ಆಲಿ ಹಸನ (2–00) 4) ಸೈಯದ ಆಜಹರಮತೀನ ತಂ/ಸೈಯದ ಆಲಿ ಹಸನ (2–00) 5) ಸೈಯದ ದಾದುಲಹಸನ ತಂ/ ಸೈಯದ ಅಲಿ ಹಸನ (2–00) 6) ಜೀನತಾ ಫಾತಿಮಾ ತಂ/ ಸೈಯದ ಆಲಿ ಹಸನ (2–00) 7) ಸೈಯದ ಅರ್ಬಾಜ ಹುಸೇನ ತಂ/ ಸೈಯದ ಶಬ್ಬಿರ (2–00) 8) ಜೈನಬ ಪ್ರವೀನ ಗಂ/ ಸೈಯದ ಶಬ್ಬಿರ (3–18) 9) ರಾಬಿಯಾ ಬೇಗಂ ತಂ/ ಸೈಯದ ದಾದ ನಾಯಕ (2–00)	ಸ್ವಂತ	605	17–18	18–33	ಖುಷ್ಕಿ	607	599	606	604	
143	ಸಾಯಬಣ್ಣ ತಂ/ನರಸಪ್ಪ ಕುರುಬರು	ಸ್ವಂತ	606	14–26	14–80	ಖುಷ್ಕಿ	607	599	611	605	
144	1)ಸಣ್ಣ ನಾಗಪ್ಪ ತಂ/ ಶಿಪ್ಪಣ್ಣ ಅನಪೂರ (08–22) 2) ನರಸಮ್ಮ ಗಂ/ ಲಕ್ಷ್ಮಣ ಅನಪುರ (08–22)	ಸ್ವಂತ	607	**17–04** **0–08(ಖ)** **16–36**	17–75	ಖುಷ್ಕಿ	608	605	610	603	
145	ಸಂಗಾರೆಡ್ಡಿ ತಂ/ ಸಿದ್ದಲಿಂಗಪ್ಪ	ಸ್ವಂತ	608	15–22 1–07(ಖ) 14–15	14–13	ಖುಷ್ಕಿ	654	607	609	607	ಸದರಿ ಸರ್ವೆ ನಂಬರಿನ ಒಳಗೆವಿಸ್ತೀರ್ಣ 1–17 ಎಕರೆ ಜಮೀನಿನಲ್ಲಿ ರಾಜ್ಯ ಹೆದ್ದಾರಿ ಹಾಯ್ದು ಹೋಗಿರುತ್ತದೆ.
146	ಶರಣಗೌಡ ತಂ/ ಭೀಮನಗೌಡ ಪೋ.ಪ	ಸ್ವಂತ	609	10–24	9–44	ಖುಷ್ಕಿ	649	610	648	608	ಸದರಿ ಸರ್ವೆ ನಂಬರಿನ ಒಳಗೆವಿಸ್ತೀರ್ಣ 0–15 ಗುಂಟೆ ಜಮೀನಿನಲ್ಲಿ ರಾಜ್ಯ ಹೆದ್ದಾರಿ ಹಾಯ್ದು ಹೋಗಿರುತ್ತದೆ.

ಅ. ನಂ.	ಖಾತೆದಾರರ ಹೆಸರು	ಅನುಭವದಾರರ ಹೆಸರು	ರಿ.ಸ.ನಂ.	ಸ್ವಾಧೀನಪಡಿಸುವ ಅಂದಾಜು ವಿಸ್ತೀರ್ಣ ಎ-ಗುಂ	ಆಕಾರ ರೂ-ಪೈ	ಜಮೀನಿನ ತರಹೆ	ಚಕಬಂದಿ (ಚತು:ಸೀಮೆ)				ಷರಾ
							ಪೂರ್ವ	ಪಶ್ಚಿಮ	ಉತ್ತರ	ದಕ್ಷಿಣ	
1	2	3	4	5	6	7	8	9	10	11	
147	ಚಂದ್ರಕಲಾ ತಂ/ಸಂಗಾರೆಡ್ಡಿ ಯು/ಜಿ ಸಂಗಾರೆಡ್ಡಿ ತಂ/ ಸಿದ್ದಲಿಂಗಪ್ಪ	ಸ್ವಂತ	610	12–27 0–39(ಖ) 11–28	10–89	ಖುಷ್ಕಿ	609	611	ದಾರಿ	607	ಸದರಿ ಸರ್ವೆ ನಂಬರಿನ ಒಳಗೆ ವಿಸ್ತೀರ್ಣ 0–39 ಗುಂಟೆ ಜಮೀನಿನಲ್ಲಿ ರಾಜ್ಯ ಹೆದ್ದಾರಿ ಹಾಯ್ದು ಹೋಗಿರುತ್ತದೆ.
148	1) ಭಿಮಪ್ಪಾ ತಂ/ ಸಾಬಣ್ಣ (06–00) 2) ಸೋಮಪ್ಪ ತಂ/ ನಿಂಗಪ್ಪ (06–00) 3) ಭಿಮಪ್ಪಾ ತಂ/ ಸೋಮಣ್ಣ (06–01)	ಸ್ವಂತ	611	18–02	17–51	ಖುಷ್ಕಿ	610	612	615	606	ಸದರಿ ಸರ್ವೆ ನಂಬರಿನ ಒಳಗೆ ವಿಸ್ತೀರ್ಣ 1–20 ಎಕರೆ ಜಮೀನಿನಲ್ಲಿ ರಾಜ್ಯ ಹೆದ್ದಾರಿ ಹಾಯ್ದು ಹೋಗಿರುತ್ತದೆ.
149	1)ಶಾಯಪ್ಪ ತಂ/ ಸಾಯಬಣ್ಣ ಕುರುಬರು (05–05) 2)ಶಾಯಪ್ಪ ತಂ/ಸಾಯಬಣ್ಣ ಕಾಮಕನೂರು (04–26)	ಸ್ವಂತ	612	09–31	0–09	ಖುಷ್ಕಿ	611	613	615	698	ಸದರಿ ಸರ್ವೆ ನಂಬರಿನ ಒಳಗೆ ವಿಸ್ತೀರ್ಣ 1–24 ಎಕರೆ ಜಮೀನಿನಲ್ಲಿ ರಾಜ್ಯ ಹೆದ್ದಾರಿ ಹಾಯ್ದು ಹೋಗಿರುತ್ತದೆ.
150	ಸಾಯಬಣ್ಣ ತಂ/ ಬುಡ್ಡಪ್ಪ ಯು/ಜಿ ಬುಡ್ಡಪ್ಪ ಸಾಯಬಣ್ಣ	ಸ್ವಂತ	613	10–02	11–26	ಖುಷ್ಕಿ	612	597	614	598	ಸದರಿ ಸರ್ವೆ ನಂಬರಿನ ಒಳಗೆ ವಿಸ್ತೀರ್ಣ 0–23 ಗುಂಟೆ ಜಮೀನಿನಲ್ಲಿ ರಾಜ್ಯ ಹೆದ್ದಾರಿ ಹಾಯ್ದು ಹೋಗಿರುತ್ತದೆ.

ಅ. ಸಂ.	ಖಾತೆದಾರರ ಹೆಸರು	ಅನುಭವದಾರರ ಹೆಸರು	ರಿ.ಸ.ನಂ.	ಸ್ವಾಧೀನಪಡಿಸುವ ಅಂದಾಜು ವಿಸ್ತೀರ್ಣ ಎ-ಗುಂ	ಆಕಾರ ರೂ-ಪೈ	ಜಮೀನಿನ ತರಹೆ	ಚಕಬಂದಿ (ಚತುಃಸೀಮೆ)				ಷರಾ
							ಪೂರ್ವ	ಪಶ್ಚಿಮ	ಉತ್ತರ	ದಕ್ಷಿಣ	
1	2	3	4	5	6	7	8	9	10	11	
151	1) ಶಬ್ಬೀರ್ ಅಲಿ ತಂ/ ಮಹ್ಮದ್ ಸಾಧಿಖ ಅಲಿ 2) ಶಮಶೀರ್‌ಅಲಿ ತಂ/ ಮಹ್ಮದ್ ಸಾಧಿಖ ಅಲಿ } 8–01	ಸ್ವಂತ	614	08–01	08–12	ಖುಷ್ಕಿ	615	589	616	613	
152	ಮಹ್ಮದ್ ಸುಲ್ತಾನ ಅಲಿ ತಂ/ ಶೇಖ ಇಮಾಮ	ಸ್ವಂತ	615	**13–36** **0–17(ಖ)** **13–19**	12–54	ಖುಷ್ಕಿ	623	616	617	612	
153	ಖಾರಿಜ ಖಾತಾ	–	616	16–23 0–19(ಖ) 16–04	13–69	ಖುಷ್ಕಿ	615	588	617	614	ಸದರಿ ಸರ್ವೆ ನಂಬರಿನ ಒಳಗೆ ವಿಸ್ತೀರ್ಣ 1–36 ಎಕರೆ ಜಮೀನಿನಲ್ಲಿ ರಾಜ್ಯ ಹೆದ್ದಾರಿ ಹಾಯ್ದು ಹೋಗಿರುತ್ತದೆ.
154	ರಾವಿ ಉದಯಶ್ರೀನಿವಾಸ ತಂ/ ಲಕ್ಷ್ಮಣರಾವ	ಸ್ವಂತ	617	15–27 02–07(ಖ) 13–20	07–29	ಖುಷ್ಕಿ	623	688	619	615	ಸದರಿ ಸರ್ವೆ ನಂಬರಿನ ಒಳಗೆ ವಿಸ್ತೀರ್ಣ 0–30 ಗುಂಟೆ ಜಮೀನಿನಲ್ಲಿ ರಾಜ್ಯ ಹೆದ್ದಾರಿ ಹಾಯ್ದು ಹೋಗಿರುತ್ತದೆ.
155	ಸರಕಾರಿ	–	618	0–22	–	ಖುಷ್ಕಿ	619	619	619	617	
156	1) ಅಬ್ದುಲ್ ಹಮೀದ್ ತಂ/ ಖಾಜಾಹುಸೇನ 2) ಸೈ. ಗುಲಾಂಯಜ್ದಾನಿ ತಂ/ ಖಾಜಾಹುಸೇನ } 15–34	ಸ್ವಂತ	619	15–34 0–14(ಖ) 15–20	12–09	ಖುಷ್ಕಿ	620	568	564	618	ಸದರಿ ಸರ್ವೆ ನಂಬರಿನ ಒಳಗೆ ವಿಸ್ತೀರ್ಣ 1–00 ಎಕರೆ ಜಮೀನಿನಲ್ಲಿ ರಾಜ್ಯ ಹೆದ್ದಾರಿ ಹಾಯ್ದು ಹೋಗಿರುತ್ತದೆ.
157	1)ಸೋಮಪ್ಪ ಖಾಶಾಲಪ್ಪ (00–22) 2)ಬುಡ್ಡಪ್ಪ ತಂ/ ಕರೆಪ್ಪ (01–02) 3)ಬುರಾನಪ್ಪ ತಂ/ ಕರೆಪ್ಪ(00–32)	ಸ್ವಂತ	621/1, 2,3	02–16	2–53	ಖುಷ್ಕಿ	626	620	627	620	

ಅ. ನಂ.	ಖಾತೆದಾರರ ಹೆಸರು	ಅನು[illegible]	ರಿ.ಸ.ನಂ.	ಸ್ವಾಧೀನಪಡಿಸುವ ಅಂದಾಜು ವಿಸ್ತೀರ್ಣ ಎ-ಗುಂ	ಆಕಾರ ರೂ-ಪೈ	ಜಮೀನಿನ ತರಹೆ	ಚಕಬಂದಿ (ಚತುಃಸೀಮೆ)				ಷರಾ
							ಪೂರ್ವ	ಪಶ್ಚಿಮ	ಉತ್ತರ	ದಕ್ಷಿಣ	
1	2	3	4	5	6	7	8	9	10	11	
158	ಸರಕಾರಿ	–	622	02–15 02–15(ಖ) 00	–	ಖುಷ್ಕಿ	620	620	620	620	
159	1) ಮಹ್ಮದ ಜಾಹೀದ ಹುಸೇನ ಬಾದಲ ತಂ/ ಅಬ್ದುಲ ಹಸನ ಬಾದಲ ಯಾದಗಿರಿ (09–29) 2) ಮಹ್ಮದ ಜಾಹೀದ ಹುಸೇನ ಬಾದಲ ತಂ/ ಅಬ್ದುಲ ಹಸನ ಬಾದಲ ಯಾದಗಿರ (09–30)	ಸ್ವಂತ	623	19–19 1–21(ಖ) 17–38	15–26	ಖುಷ್ಕಿ	624	617	620	648	
160	1)ಸೋಮಪ್ಪ ತಂ/ ಬಾಲಪ್ಪ (01–34) 2)ಬುರಾನಪ್ಪ ತಂ/ ಸಾಬಣ್ಣ(01–25) 3)ಬುಡ್ಡಪ್ಪ ತಂ/ ಕರೆಪ್ಪ (01–36) 4)ಬುರಾನಪ್ಪ ತಂ/ ಕರೆಪ್ಪ (1–22) 5)ಹಣಮಯ್ಯ ಹರಿಜನ (02–04)	ಸ್ವಂತ	624/ 100ರ 5	09–18 0–27(ಖ) 08–31	6–15	ಖುಷ್ಕಿ	633	620	226	647	
161	ಸರಕಾರಿ	–	625	1–19 1–19(ಖ) 00	–	ಖುಷ್ಕಿ	626	620	626	626	
162	ಗೈರಾಣ	–	626	04–33 1–29(ಖ) 03–04	1–93	ಖುಷ್ಕಿ	635	672	630	624	
163	ಎಸ್.ಪಿ. ನಾಗರಾಜ ತಂ/ ಎಂಆರ್‌ಎಸ್ ಪರಶುರಾಮನ್	ಸ್ವಂತ	627	10–29	06–65	ಖುಷ್ಕಿ	626	628	630	620	
164	1) ಸಿದ್ಧಲಿಂಗಮ್ಮ ತಂ/ ಅಮಾತೆಪ್ಪ 02–00 2) ಸಿದ್ಧಲಿಂಗಮ್ಮ ತಂ/ ಅಮಾತೆಪ್ಪ 01–38 3) ಸಿದ್ದಪ್ಪ ತಂ/ ನರಸಪ್ಪ ತೋರಣತಿಪ್ಪ 02–12 4) ಸಿದ್ದಪ್ಪ ತಂ/ ನರಸಪ್ಪ ತೋರಣತಿಪ್ಪ 05–00	ಸ್ವಂತ	628	11–10 0–07(ಖ) 11–03	1–86 1–86 2–11 4–53	ಖುಷ್ಕಿ	627	564	629	620	
165	ಹಾಜರಾಬಿ ಗಂ/ ಶೇಖಹುಸೇನ	ಸ್ವಂತ	629	20–02 0–11(ಖ) 19–31	21–56	ಖುಷ್ಕಿ	627	564	629	620	
166	1) ಅಬ್ದುಲ್‌ಹಸನ ತಂ/ ಅಬ್ದುಲ್‌ಸತ್ತಾರ್ (05–39) 2) ಮಹಬೂಬ್‌ಅಲಿ ತಂ/ ಅಬ್ದುಲ್‌ಸತ್ತಾರ್ (04–00) 3) ಬಾಬ ತಂ/ ಅಬ್ದುಲ್‌ಸತ್ತಾರ್ (04–00) 4) ಚಾಂದಬಿ ಗಂ/ ಅಬ್ದುಲ್ ಹಮೀದ(04–00)	ಸ್ವಂತ	630	17–39 0–01(ಖ) 17–38	21–56	ಖುಷ್ಕಿ	631	629	543	627	

ಅ. ಸಂ.	ಖಾತೆದಾರರ ಹೆಸರು	ಅನುಭವದಾರರ ಹೆಸರು	ರಿ.ಸ.ನಂ.	ಸ್ವಾಧೀನಪಡಿಸುವ ಅಂದಾಜು ವಿಸ್ತೀರ್ಣ ಎ-ಗುಂ	ಆಕಾರ ರೂ-ಪೈ	ಜಮೀನಿನ ತರಹ	ಚಕಬಂದಿ (ಚತುಃಸೀಮೆ) ಪೂರ್ವ	ಪಶ್ಚಿಮ	ಉತ್ತರ	ದಕ್ಷಿಣ	ಷರಾ
1	2	3	4	5	6	7	8	9	10	11	
167	1)ಶೇಖ ಹುಸೇನ ತಂ/ ಹಸನಸಾಬ (01-16) 2)ಖಾಜಾಹುಸೇನ್ ತಂ/ ಅಬ್ದುಲ್‌ಖಾದಾರ್(5-19) 3)ಖಾಜಾಹುಸೇನ್ ತಂ/ ಅಬ್ದುಲ್‌ಖಾದಾರ್ (01-32) 4)ಅಬ್ದುಲ್‌ಖಾದಾರ್ ತಂ/ ಖಾಜಾಹುಸೇನ್ ಕೋನಂಪಲ್ಲಿ(01-18) 5)ಹುಸೇನಸಾಬ ತಂ/ ಬುರಣಸಾಬ (00-12) 6)ಹುಸೇನ್‌ಸಾಬ ತಂ/ ಹುಸೇನಸಾಬ 0-27 7) ಅಲ್ಲಾಭಕ್ಷ ತಂ/ ಗುಲಾಮ್ ಮಹ್ಮದ್ ಸಾಬ (00-12) 8) ಖಾಜಾಹುಸೇನ ತಂ/ ಭಾಶಾ (00-12) 9)ಬಾಬು ಮಿಯಾ ತಂ/ ಹುಸೇನಸಾಬ (01-22) 10)ಹಮ್ಮುಸಾಬ ತಂ/ ಹುಸೇನಸಾಬ (0-04) 11)ಹುಸೇನಸಾಬ ತಂ/ ಹುಸೇನಸಾಬ (1-22) 12)ಹುಸೇನ್ನಸಾಬ ತಂ/ ಹುಸೇನಸಾಬ (0-11) 13)ಲಾಡ್ಲೆಸಾಬ ತಂ/ ಹುಸೇನಸಾಬ (0-06) 14)ಹುಸೇನಸಾಬ ತಂ/ ಅಬ್ದುಲ್‌ಖಾದರ (0-08) 15)ಖಾಜಾಹುಸೇನ ತಂ/ ಅಬ್ದುಲ್‌ಖಾದರ (0-12) 16)ಹುಸೇನಸಾಬ ತಂ/ಹಸನಸಾಬ (1-04) 17)ಹುಸೇನಸಾಬ ತಂ/ಉಸ್ಮಾನಸಾಬ (0-16) 18)ಹುಸೇನಸಾಬ ತಂ/ಹಸನಸಾಬ (0-08) 19)ಖಾಜಾಹುಸೇನ ತಂ/ ಹುಸೇನಸಾಬ (0-12) 20)ಹುಸೇನಸಾಬ ತಂ/ ಹಸನಸಾಬ (1-02) 21)ಬಡೇಸಾಬ ತಂ/ ಹುಸೇನಸಾಬ (0-20) 22) ಸಿರಾಜಲ್ ಹಸನ್ ತಂ/ ಖಾಸಿಂಸಾಬ (0-12) 23) ಸೈಯದ್‌ಹಸನ್ ತಂ/ ಖಾಸಿಂಸಾಬ 24)ಬಡೇಸಾಬ ತಂ/ ಹುಸೇನಸಾಬ (0-16) 25)ಬಾವಿ (0-06) 26)ಹಮ್ಮುಸಾಬ ತಂ/ ಹುಸೇನಸಾಬ (0-22)	ಸ್ವಂತ	631	19-15 0-04(ಖ) 19-11	01-40 01-13 00-24 00-52 00-47 1-20 0-08 1-20	ಖುಷ್ಕಿ	ದಾರಿ	630	542	632	
168	1)ಅಬ್ದುಲ್‌ಖಾದರ ತಂ/ ಖಾಜಾಹುಸೇನ ಕೊನಂಪಲ್ಲಿ 0-22 2)ಹುಸೇನಸಾಬ ತಂ/ ಹುಸೇನಸಾಬ 0-24 3)ಹುಸೇನಸಾ ತಂ/ ಹುಸೇನಸಾ 0-16 4)ಹುಸೇನಸಾಬ ತಂ/ ಹಸನಸಾಬ 0-05	ಸ್ವಂತ	632	1-27 0-11(ಖ) 1-16	0-33 0-37 0-24 0-10	ಖುಷ್ಕಿ	631	631	631	ದಾರಿ	

ಕ್ರ. ನಂ.	ಖಾತೆದಾರರ ಹೆಸರು	ಅನುಭವದಾರರ ಹೆಸರು	ರಿ.ಸ.ನಂ.	ಸ್ವಾಧೀನಪಡಿಸುವ ಅಂದಾಜು ವಿಸ್ತೀರ್ಣ ಎ-ಗುಂ	ಆಕಾರ ರೂ-ಪೈ	ಜಮೀನಿನ ತರಹೆ	ಚಕಬಂದಿ (ಚತುಃಸೀಮೆ)				ಷರಾ
							ಪೂರ್ವ	ಪಶ್ಚಿಮ	ಉತ್ತರ	ದಕ್ಷಿಣ	
		3	4	5	6	7	8	9	10	11	
1	2										
169	1) ಶೇಖಹುಸೇನ ತಂ/ ಮೊಹಿಹಸನ (01-02) 2) ಚಾಂದಪಾಶಾ ತಂ/ ಮಹ್ಮದ್ ಅಲಿ (01-02)	ಸ್ವಂತ	633	02-04 0-05(ಖ) 1-39	3-42	ಖುಷ್ಕಿ	635	635	638	635	
170	1) ಶೇಖಹುಸೇನ ತಂ/ ಮೋದಿ ಹಸನ (0-18) 2) ಚಾಂದಪಾಶಾ ತಂ/ ಮಹ್ಮದ್ ಅಲಿ (0-17)	ಸ್ವಂತ	634	0-35 0-03(ಖ) 0-32	01-38	ಖುಷ್ಕಿ	635	620	626	ದಾರಿ	
171	1) ಶೇಖಹುಸೇನ ತಂ/ ಮೋದಿ ಹಸನ (04-25) 2) ಚಾಂದಪಾಶಾ ತಂ/ ಮಹ್ಮದ್ ಅಲಿ (04-25)	ಸ್ವಂತ	635	09-10 0-10(ಖ) 09-00	08-37	ಖುಷ್ಕಿ	643	638	636	646	
172	1) ಶೇಖಹುಸೇನ ತಂ/ ಮೋದಿ ಹಸನ (0-32) 2) ಚಾಂದಪಾಶಾ ತಂ/ ಮಹ್ಮದ್ ಅಲಿ (0-31)	ಸ್ವಂತ	636	01-23	02-57	ಖುಷ್ಕಿ	637	635	ದಾರಿ	635	
173	1) ಮೌಲಾಲಿ ತಂ/ ಹುಸೇನಸಾಬ 2) ಖಾಜಾಹುಸೇನ ತಂ/ ಹುಸೇನಸಾಬ ಗೊಂಪ (0-26) 3)ಮೌಲಾಲಿ ತಂ/ ಹುಸೇನಸಾಬ ಗೊಂಪನೋರ (0-04) 4)ಬಾವಿ ಸಾಮೂಹಿಕ (0-05) 5)ಮೌಲಾಲಿ ತಂ/ ಹುಸೇನಸಾಬ ಗೊಂಪನೋರ (0-08) 6)ಶೇಖ ಉಸ್ಮಾನ ಅಲಿ ತಂ/ ಖಾಜಾಹುಸೇನ (0-13)	ಸ್ವಂತ	637	1-16 0-04(ಖ) 01-12	0-36 0-07 0-02 0-13 0-20	ಖುಷ್ಕಿ	638	637	ದಾರಿ	643	
174	1)ಮೌಲಾಲಿ ತಂ/ ಹುಸೇನಸಾಬ ಗೊಂಪನೋರ 01-05 2)ಶೇಖ ಉಸ್ಮಾನ ಅಲಿ ತಂ/ ಖಾಜಾಹುಸೇನ ಗೊಂಪನೋರ 0-38 3)ಶರಣಮ್ಮ ತಂ/ ಬುರಾನಪ್ಪ ಉಜ್ಜಿ 01-20 4)ಹಣಮಂತ ತಂ/ ತಾಯಪ್ಪ ಉಜ್ಜಿ 01-08 5)ಹಣಮಂತ ತಂ/ ತಾಯಪ್ಪ ಉಜ್ಜಿ 02-17 6) ಮೌಲಾಲಿ ತಂ/ ಹುಸೇನಸಾಬ 7) ಖಾಜಾಹುಸೇನ ತಂ/ ಹುಸೇನಸಾಬ 1-37	ಸ್ವಂತ	638	09-05	0-74 0-63 0-98 0-80 1-61 1-27	ಖುಷ್ಕಿ	639	637	ದಾರಿ	643	
175	1) ಸೋಮಣ್ಣ ತಂ/ ಲಿಂಗಪ್ಪ ಜಾಗಟ (03-13) 2) ಬಸಣ್ಣ ತಂ/ ಲಿಂಗಪ್ಪ ಜಾಗಟ (03-13) 3) ನಿಂಗಪ್ಪ ತಂ/ ಸೋಮಪ್ಪ (03-12) 4) ಸೋಮಣ್ಣ ತಂ/ ಬಸಣ್ಣ ಜಾಗಟ (03-12) 5)ಬಾಗಣ್ಣ ತಂ/ ನಿಂಗಪ್ಪ ಜಾಗಟ 3-33	ಸ್ವಂತ	639	17-03 0-04(ಖ) 16-39	5-19 5-15 2-91	ಖುಷ್ಕಿ	-	638	ದಾರಿ	643	

ಕ್ರ. ಸಂ.	ಖಾತೆದಾರರ ಹೆಸರು	ಅನುಭವದಾರರ ಹೆಸರು	ರಿ.ಸ.ನಂ.	ಸ್ವಾಧೀನಪಡಿಸುವ ಅಂದಾಜು ವಿಸ್ತೀರ್ಣ ಎ-ಗುಂ	ಆಕಾರ ರೂ-ಪೈ	ಜಮೀನಿನ ತರಹೆ	ಚೆಕ್ಕುಬಂದಿ (ಚತುಃಸೀಮೆ) ಪೂರ್ವ	ಪಶ್ಚಿಮ	ಉತ್ತರ	ದಕ್ಷಿಣ	ಷರಾ
1	2	3	4	5	6	7	8	9	10	11	
176	ಸರಕಾರಿ ಪರಂಪೋಕ	–	640	0–10 0–10(ಖ) 0–00	–	ಖುಷ್ಕಿ	–	643	639	641	
177	ಸಣ್ಣ ಹಣಮಂತ್ರಾವ ತಂ/ ತುಳಜಾರಾಮ	ಸ್ವಂತ	641	2–01	1–26	ಖುಷ್ಕಿ	–	640	643	680	
178	ಸರಕಾರಿ	–	642	2–29 0–05(ಖ) 2–24	1–23	ಖುಷ್ಕಿ	641	643	643	643	
179	ಸರಕಾರಿ	–	643	14–27 00–11(ಖ) 14–16	8–93	ಖುಷ್ಕಿ	642	635	638	645	
180	1)ಜಾವೀದ ರಹಮಾನ ತಂ/ ಎಸ್‌ಎಂಎಫ್ ರಹಮಾನ 4–16 2)ಜಾವೀದ ರೆಹಮಾನ ತಂ/ ಎಸ್‌ಎಂಎಫ್ ರಹಮಾನ 4–06 3) ಚಂದ್ರಕಾಂತ ತಂ/ಸೋಮಶೇಖರ (04–16) 4) ಮಹಿಬೂಬಿ ಗಂ/ ಲಾಡ್ಲೇಸಾಬ (07–29)	ಸ್ವಂತ	644/ 1,2,3	20–11	4–80 4–52 12–79	ಖುಷ್ಕಿ	673	645	643	678	
181	ಜಾವೀದ್ ರೆಹಮಾನ ತಂ/ ಎಸ್‌ಎಂಎಫ್ ರಹಮಾನ	ಸ್ವಂತ	645	08–12 0–13(ಖ) 07–39	07–10	ಖುಷ್ಕಿ	644	646	643	650	
182	ಮಹ್ಮದ ಶಾಹೀದ ಹುಸೇನ ಬಾದಲ ತಂ/ ಅಬ್ದುಲ ಹಸನ ಬಾದಲ ಯಾದಗಿರಿ (13–18)	ಸ್ವಂತ	646	13–38 0–12(ಖ) 13–26	9–56	ಖುಷ್ಕಿ	645	647	635	650	
183	ಜಾವೀದ್ ರೆಹಮಾನ ತಂ/ ಎಸ್‌ಎಂಎಫ್ ರಹಮಾನ	ಸ್ವಂತ	647	07–04 0–27(ಖ) 6–17	3–99	ಖುಷ್ಕಿ	646	648	ದಾರಿ	650/2	
184	ಮಹ್ಮದ ಶಾಹಿದ ಹುಸೇನ ಬಾದಲ ತಂ/ ಅಬ್ದುಲ ಹಸನ ಬಾದಲ ಯಾದಗಿರಿ (16–14)	ಸ್ವಂತ	648	16–14 0–10(ಖ) 16–04	13–05	ಖುಷ್ಕಿ	647	ಹಳ್ಳ	ಹಳ್ಳ	609	
185	ಎಸ.ಪಿ. ನಾಗರಾಜನ್ ತಂ/ಎಮ್.ಆರ್. ಎಸ್ ಪರಶುರಮನ್	ಸ್ವಂತ	649	09–09 0–08(ಖ) 09–01	05–96	ಖುಷ್ಕಿ	651	609	650/2	ಹಳ್ಳ	

ಅ. ನಂ.	[illegible]	[illegible]	ರಿ.ಸ.ನಂ.	ಸ್ವಾಧೀನಪಡಿಸುವ ಅಂದಾಜು ವಿಸ್ತೀರ್ಣ ಎ-ಗುಂ	ಆಕಾರ ರೂ-ಪೈ	ಜಮೀನಿನ ತರಹೆ	ಚಕಬಂದಿ (ಚತುಃಸೀಮೆ) ಪೂರ್ವ	ಪಶ್ಚಿಮ	ಉತ್ತರ	ದಕ್ಷಿಣ	[illegible]
1	2	3	4	5.	6	7	8	9	10	11	
186	ಎಸ.ಪಿ. ನಾಗರಾಜ ತಂ/ಎಮ್.ಆರ್. ಎಸ್ ಪರಶುರಾಮನ್ 5-39	ಸ್ವಂತ	650/1	5-39 0-01(ಖ) 05-38	5-54	ಖುಷ್ಕಿ	678	648	646	651	
187	ಗೈರಾಣ	-	650/2	10-17	4-90	ಖುಷ್ಕಿ	678	648	646	651	
188	ನಿಂಗಪ್ಪ ತಂ/ ನಿಂಗಪ್ಪ ಕೋರಿ ಕುರುಬರು (04-33)	ಸ್ವಂತ	651/ 652/ಅ	38-27 0-02(ಖ) 38-25	04-50	ಖುಷ್ಕಿ	677	649	650/1	652	ಸದರಿ ಸರ್ವೆ ನಂಬರಿನ ಒಳಗೆ ವಿಸ್ತೀರ್ಣ 0-08 ಗುಂಟೆ ಜಮೀನಿನಲ್ಲಿ ರಾಜ್ಯ ಹೆದ್ದಾರಿ ಹಾಯ್ದು ಹೋಗಿರುತ್ತದೆ.
189	ಸಾಯಿಬಣ್ಣ ತಂ/ ಶಿವಪ್ಪ ಮಲ್ಲಾರ (04-33)	ಸ್ವಂತ	651/ 652/ಆ		04-50	ಖುಷ್ಕಿ	677	649	650/1	652	
190	ನರಸಮ್ಮ ಗಂ/ ಮಾರೆಪ್ಪ ಹರಿಜನ (03-34)	ಸ್ವಂತ	651/ 652/ಆ		04-50	ಖುಷ್ಕಿ	677	649	650/1	652	
191	ಮಾಳಪ್ಪ ತಂ/ ಮಾಳಪ್ಪ ಯು/ಜಿ ಯಲ್ಲಮ್ಮ ಗಂ/ ಮಾಳಪ್ಪ ಪುತಗಲ್ (04-33)	ಸ್ವಂತ	651/ 652/ಇ		04-50	ಖುಷ್ಕಿ	677	649	650/1	652	
192	ಮಹ್ಮದ್ ಹುಸೇನಿ ತಂ/ ಖಿತಾಲಸಾಬ (04-34)	ಸ್ವಂತ	651/ 652/ಈ		04-50	ಖುಷ್ಕಿ	677	649	650/1	652	
193	ಚೌಡಪ್ಪ ತಂ/ ರಾಮಪ್ಪ ಕವಲಿ (03-13)	ಸ್ವಂತ	651/ 652/ಉ		03-39	ಖುಷ್ಕಿ	677	649	650/1	652	
194	ಮಲ್ಲಪ್ಪ ತಂ/ ತಾಯಪ್ಪ ಕಾಮಕನೂರ (03-05)	ಸ್ವಂತ	651/ 652/ಊ		03-00	ಖುಷ್ಕಿ	677	649	650/1	652	
195	1) ಸೈದಪ್ಪ ತಂ/ ನರಸಪ್ಪ 2) ಸೋಮಪ್ಪ ತಂ/ ನರಸಪ್ಪ 3) ಯಲ್ಲಪ್ಪ ತಂ/ ನರಸಪ್ಪ (06-18)	ಸ್ವಂತ	651/ 652/ಊ		06-39	ಖುಷ್ಕಿ	677	649	650/1	652	
196	ಭೀಮವ್ವ ಗಂ/ ನರಸಿಂಗಪ್ಪ ಜಕಲೋಡಿ (06-17)	ಸ್ವಂತ	651/ 652/ಎ		06-38	ಖುಷ್ಕಿ	677	649	650/1	652	

ಕ್ರ. ಸಂ.	ಖಾತೆದಾರರ ಹೆಸರು	ಅನುಭವದಾರರ ಹೆಸರು	ರಿ.ಸ.ನಂ.	ಸ್ವಾಧೀನಪಡಿಸುವ ಅಂದಾಜು ವಿಸ್ತೀರ್ಣ ಎ-ಗುಂ	ಆಕಾರ ರೂ-ಪೈ	ಜಮೀನಿನ ತರಹೆ	ಚಕಬಂದಿ (ಚತುಃಸೀಮೆ) ಪೂರ್ವ	ಪಶ್ಚಿಮ	ಉತ್ತರ	ದಕ್ಷಿಣ	ಷರಾ
1	2	3	4	5	6	7	8	9	10	11	
197	ಸಾಯಿಬಣ್ಣ ತಂ/ ಶಿವಪ್ಪ ಮಲ್ಲಾರ (04–33) ನರಸಮ್ಮ ತಂ/ ಮಾರೆಪ್ಪ ಹರಿಜನ (03–34)	ಸ್ವಂತ	652		04–50 04–50	ಖುಷ್ಕಿ	662	661	649	653	
198	1) ಬುರಾನಪ್ಪ ಬೇಗಾರ (12–27) 2) ಹಣಮಂತು ತಂ/ ಸಾಬಣ್ಣ ಭಸಲಾ (03–07)	ಸ್ವಂತ	653/1	15–34 0–17(ಖ) 15–17	14–57	ಖುಷ್ಕಿ	661	ನಾಲಾ	652	654	ಸದರಿ ಸರ್ವೆ ನಂಬರಿನ ಒಳಗೆ ವಿಸ್ತೀರ್ಣ 2–25 ಎಕರೆ ಜಮೀನಿನಲ್ಲಿ ರಾಜ್ಯ ಹೆದ್ದಾರಿ ಹಾಯ್ದು ಹೋಗಿರುತ್ತದೆ.
199	ಮಾರೆಪ್ಪ ತಂ/ ಹಣ್ಮಪ್ಪ ಹರಿಜನ್ (11–32)	ಸ್ವಂತ	654–655–656–657/ಅ		09–07	ಖುಷ್ಕಿ	654	653	ನಾಲಾ	655	
200	ಹಣಮಯ್ಯ ತಂ/ ಮ್ಯಾತ್ರಿ ಹರಿಜನ್ (11–32)	ಸ್ವಂತ	654–655–656–657/ಆ		09–06	ಖುಷ್ಕಿ	654	653	ನಾಲಾ	655	
201	ಕುರುಮಯ್ಯ ತಂ/ ರಾಯಚೂರು (04–28)	ಸ್ವಂತ	654–655–656–657/ಇ		03–63	ಖುಷ್ಕಿ	654	653	ನಾಲಾ	655	
202	ಶೇಖಮೌಲಾನಸಾಬ ತಂ/ ಖಾಸಿಂಸಾಬ (4–29)	ಸ್ವಂತ	654–655–656–657/ಈ	47–08 00–06(ಖ) 47–02	03–63	ಖುಷ್ಕಿ	654	653	ನಾಲಾ	655	
203	ಲಚ್ಚಪ್ಪ ತಂ/ ಹಣ್ಮಪ್ಪ ಅಗ್ರಾ ಹರಿಜನ್ (4–29)	ಸ್ವಂತ	654–655–656–657/ಉ		03–62	ಖುಷ್ಕಿ	654	653	ನಾಲಾ	655	
204	1) ಕಾಶಪ್ಪ ತಂ/ ಬುರಾನಪ್ಪ 2) ಹಣ್ಮಪ್ಪ ತಂ/ ಬುರಾನಪ್ಪ (04–29)	ಸ್ವಂತ	654–655–656–657/ಊ		03–62	ಖುಷ್ಕಿ	654	653	ನಾಲಾ	655	
205	1) ರಾಮಪ್ಪ ತಂ/ ಬುರಾನಪ್ಪ (01–07) 2) ರಾಮಪ್ಪ ತಂ/ ಬುರಾನಪ್ಪ (01–08) 3) ಸಾಯಿಬಣ್ಣ ಹತ್ತಿಕುಣಿ (02–14)	ಸ್ವಂತ	654–655–656–657/ಎ		00–62	ಖುಷ್ಕಿ	654	653	ನಾಲಾ	655	
206	1) ಖತಲ ಅಹ್ಮದ ತಂ/ ಹುಸೇನಸಾಬ ಚೌದ್ರಿ (03–07) 2) ಅಲಿಚಾಂದ ತಂ/ ಹುಸೇನಸಾಬ ಚೌದ್ರಿ (03–07) 3) ಬುರಾನ ತಂ/ ಮಹ್ಮದ್ ಸಾಬ ಚೌದ್ರಿ (02–26)	ಸ್ವಂತ	658	14–29	13–11	ಖುಷ್ಕಿ	668	667	659	ಗಡಿ	

ಅ. ನಂ.	ಖಾತೆದಾರರ ಹೆಸರು	ಅನುಭವದಾರರ ಹೆಸರು	ಸ.ಸಂ.	ಸ್ವಾಧೀನಪಡಿಸುವ ಅಂದಾಜು ವಿಸ್ತೀರ್ಣ ಎ-ಗುಂ	ಆಕಾರ ರೂ-ಪೈ	ಜಮೀನಿನ ತರಹೆ	ಚಕಬಂದಿ (ಚತುಃಸೀಮೆ) ಪೂರ್ವ	ಪಶ್ಚಿಮ	ಉತ್ತರ	ದಕ್ಷಿಣ	ಷರಾ
							8	9	10	11	
1	2	3	4	5	6	7					
	4) ರಹಿಮಾನ ತಂ/ ಮಹ್ಮದ್ ಸಾಬ ಚೌದ್ರಿ (02-26) 5) ಬಾಬು ತಂ/ ಮಹ್ಮದ್ ಸಾಬ ಚೌದ್ರಿ (03-03)										
207	1) ನಾಗರಾಜ ತಂ/ ಮಾರೆಪ್ಪ ಹರಿಜನ (01-06) 2) ಮಾರುತಿ ತಂ/ ದೊಡ್ಡಮರೆಪ್ಪ(05-00) 3) ಶರಣಬಸಪ್ಪ ತಂ/ಮರೆಪ್ಪ ಯಾ/ಜಿ ದೊಡ್ಡಮಾರೆಪ್ಪ ಸಾಬಣ್ಣ ಆರ್ಗಾ (05-04)	ಸ್ವಂತ	659	11-10	05-63	ಖುಷ್ಕಿ	668	656	660	658	
208	1) ಚನ್ನಮ್ಮ ಗಂ/ಶರಣಪ್ಪ ಪಾಟೀಲ (11-38) ಪೈಕಿ11-00 2) ಸಾಬಣ್ಣ ತಂ/ ಬಸಣ್ಣ (07-07)	ಸ್ವಂತ	660	18-17	14-34	ಖುಷ್ಕಿ	663	655	661	659	ಸದರಿ ಸರ್ವೆ ನಂಬರಿನ ಒಳಗೆ ವಿಸ್ತೀರ್ಣ 1-37 ಎಕರೆ ಜಮೀನಿನಲ್ಲಿ ರಾಜ್ಯ ಹೆದ್ದಾರಿ ಹಾಯ್ದು ಹೋಗಿರುತ್ತದೆ.
209	ಶ್ರೀ. ಷ. ಬ್ರ. ಗುರುಮೂರ್ತಿ ಶಿವಾಚಾರ್ಯರು	ಸ್ವಂತ	661	16-18 0-07(ಖ) 16-11	17-75	ಖುಷ್ಕಿ	663	653	662	660	ಸದರಿ ಸರ್ವೆ ನಂಬರಿನ ಒಳಗೆ ವಿಸ್ತೀರ್ಣ 0-04 ಗುಂಟೆ ಜಮೀನಿನಲ್ಲಿ ರಾಜ್ಯ ಹೆದ್ದಾರಿ ಹಾಯ್ದು ಹೋಗಿರುತ್ತದೆ.
210	ಶ್ರೀ. ಷ. ಬ್ರ. ಗುರುಮೂರ್ತಿ ಶಿವಾಚಾರ್ಯರು	ಸ್ವಂತ	662	17-32	19-41	ಖುಷ್ಕಿ	663	653	662	660	
211	1) ಅಜೀಜುಲ್ಲಾ ತಂ/ ಇಸ್ಮಾಯಿಲ್ ಸಾಬ 2) ಮಹ್ಮದ್‌ಗೌಸ ತಂ/ ಇಸ್ಮಾಯಿಲಸಾಬ 3) ಅಹ್ಮದ್‌ಹುಸೇನ ತಂ/ ಇಸ್ಮಾಯಿಲಸಾಬ 4) ಅನ್ವರ ತಂ/ ಇಸ್ಮಾಯಿಲಸಾಬ 5) ಮುಖಿಬೂಲ ತಂ/ ಇಸ್ಮಾಯಿಲಸಾಬ 6) ವಾಹೇದ ತಂ/ ಇಸ್ಮಾಯಿಲಸಾಬ 7)ಮಹಿಮೂದ್ ತಂ/ ಇಸ್ಮಾಯಿಲಸಾಬ	ಸ್ವಂತ	663	12-09	12-25	ಖುಷ್ಕಿ	672	661	661	668	ಸದರಿ ಸರ್ವೆ ನಂಬರಿನ ಒಳಗೆ ವಿಸ್ತೀರ್ಣ 0-18 ಗುಂಟೆ ಜಮೀನಿನಲ್ಲಿ ರಾಜ್ಯ ಹೆದ್ದಾರಿ ಹಾಯ್ದು ಹೋಗಿರುತ್ತದೆ.
212	1)ಖಾಜಲಸಾಬ ತಂ/ ಖಾಸಿಂಸಾಬ ಬಿಂಗಿ (03-33) 2) ಖತಾಲಸಾಬ ತಂ/ ಕಾಸಿಂಸಾಬ (03-16) 3) ನಬೀಸಾಬ ತಂ/ ಕಾಸಿಂಸಾಬ ಚೌದ್ರಿ (04-00)	ಸ್ವಂತ	664	21-11	03-77 07-17 04-88 04-87	ಖುಷ್ಕಿ	665	658	663	ಗಡಿ	ಸದರಿ ಸರ್ವೆ ನಂಬರಿನ ಒಳಗೆ ವಿಸ್ತೀರ್ಣ 1-08 ಎಕರೆ

ಅ. ನಂ.	ಖಾತೆದಾರರ ಹೆಸರು	ಅನುಭವದಾರರ ಹೆಸರು	ರಿ.ಸ.ನಂ.	ಸ್ವಾಧೀನಪಡಿಸುವ ಅಂದಾಜು ವಿಸ್ತೀರ್ಣ ಎ-ಗುಂ	ಆಕಾರ ರೂ-ಪೈ	ಜಮೀನಿನ ತರಹೆ	ಚಕಬಂದಿ (ಚತು:ಸೀಮೆ)				ಷರಾ
							ಪೂರ್ವ	ಪಶ್ಚಿಮ	ಉತ್ತರ	ದಕ್ಷಿಣ	
1	2	3	4	5	6	7	8	9	10	11	
	4)ಮಹ್ಮದ್ ಇಬ್ರಾಂ ತಂ/ ಅಬ್ದುಲ್ ರಹಿಮಾನ್ ಕಟ್ (05-01) 5) ಕಾಸಿಂಅಲಿ ತಂ/ ಖಾಸಿಂಸಾಬ (05-01) 6)ಬಶಿರಹ್ಮದ ತಂ/ ಖಾಸಿಂಸಾಬ									-	ಜಮೀನಿನಲ್ಲಿ ರಾಜ್ಯ ಹೆದ್ದಾರಿ ಹಾಯ್ದು ಹೋಗಿರುತ್ತದೆ.
213	ಗುರುರಾಜರಾವ ತಂ/ ಕಿಶನ್‌ರಾವ ಕುಲಕರ್ಣಿ	ಸ್ವಂತ	665	15-27	15-84	ಖುಷ್ಕಿ	666	664	668	ಗಡಿ	ಸದರಿ ಸರ್ವೆ ನಂಬರಿನ ಒಳಗೆ ವಿಸ್ತೀರ್ಣ 1-23 ಎಕರೆ ಜಮೀನಿನಲ್ಲಿ ರಾಜ್ಯ ಹೆದ್ದಾರಿ ಹಾಯ್ದು ಹೋಗಿರುತ್ತದೆ.
214	ರಾಘವೇಂದ್ರರಾವ ತಂ/ ಕಿಶನ್‌ರಾವ ಕುಲಕರ್ಣಿ	ಸ್ವಂತ	666	16-02	17-50	ಖುಷ್ಕಿ	667	665	668	ಗಡಿ	ಸದರಿ ಸರ್ವೆ ನಂಬರಿನ ಒಳಗೆ ವಿಸ್ತೀರ್ಣ 1-32 ಎಕರೆ ಜಮೀನಿನಲ್ಲಿ ರಾಜ್ಯ ಹೆದ್ದಾರಿ ಹಾಯ್ದು ಹೋಗಿರುತ್ತದೆ.
215	ಸತ್ಯವತಿಬಾಯಿ ಗಂ/ ಕಿಶನ್‌ರಾವ ಕುಲಕರ್ಣಿ	ಸ್ವಂತ	667	16-38	18-48	ಖುಷ್ಕಿ	ಗಡಿ	666	668	ಗಡಿ	ಸದರಿ ಸರ್ವೆ ನಂಬರಿನ ಒಳಗೆ ವಿಸ್ತೀರ್ಣ 0-08 ಗುಂಟೆ ಜಮೀನಿನಲ್ಲಿ ರಾಜ್ಯ ಹೆದ್ದಾರಿ ಹಾಯ್ದು ಹೋಗಿರುತ್ತದೆ.
216	1) ಶರಣಪ್ಪ ತಂ ಸೋಮಪ್ಪ ಹೂಗಾರ (04-22) 2)ರಾಮಸ್ವಾಮಿ ತಂ/ ಭೀಮಣ್ಣ ಮಾವಿನಲ್ಲಿ (04-05)	ಸ್ವಂತ	668/ಅ	17-14	10-27	ಖುಷ್ಕಿ	ಗಡಿ	664	669	666	
217	1) ನರಸಪ್ಪ ತಂ/ ಚಂದಪ್ಪ ಮಾವಿನಳ್ಳಿ (04-04) 2) ಮಹಾನಂದಪ್ಪ ತಂ/ ಚನ್ನಪ್ಪ (04-02) 3) ನೀಲಕಂಠಪ್ಪ ತಂ/ ಈರಪ್ಪ (00-21)	ಸ್ವಂತ	668/ಆ		10-72	ಖುಷ್ಕಿ	ಗಡಿ	664	669	666	

ಅ. ಸಂ.	ಖಾತೆದಾರರ ಹೆಸರು	ಅನುಭವದಾರರ ಹೆಸರು	ರಿ.ಸ.ನಂ.	ಸ್ವಾಧೀನಪಡಿಸುವ ಅಂದಾಜು ವಿಸ್ತೀರ್ಣ ಎ-ಗುಂ	ಆಕಾರ ರೂ-ಪೈ	ಜಮೀನಿನ ತರಹೆ	ಚಕಬಂದಿ (ಚತುಃಸೀಮೆ) ಪೂರ್ವ	ಪಶ್ಚಿಮ	ಉತ್ತರ	ದಕ್ಷಿಣ	ಷರಾ
							8	9	10	11	
1	2	3	4	5	6	7					
218	ಬಸಮ್ಮ ಗಂ/ ಶಿಪ್ಪಣ್ಣ ಅಗಸರ್ (03-04)	ಸ್ವಂತ	669/ಅ	12-08	03-46	ಖುಷ್ಕಿ	670	663	671	662	
219	ಮಲ್ಲಣ್ಣ ತಂ/ ಈರಪ್ಪ (02-36)	ಸ್ವಂತ	669/ಆ		03-95	ಖುಷ್ಕಿ	670	663	671	662	
220	1) ಮಾಳಮ್ಮ ಗಂ/ ಬಸವರಾಜ (02-00) 2) ಹಣಮಂತ ಪ್ಪ ತಂ/ ಮಲ್ಲಪ್ಪ ಅಗಸರ (04-08)		669/ಇ		06-94		670	663	671	662	
221	ಸಣ್ಣಮಾರೆಪ್ಪ ತಂ/ ಸಾಬಣ್ಣ ಅಗಸ್	ಸ್ವಂತ	670	18-26	19-59	ಖುಷ್ಕಿ	ಗಡಿ	671	673	668	
222	1)ತಮ್ಮಣ್ಣ ತಂ/ ಯಲ್ಲಪ್ಪ ಹರಿಜನ (02-28) 2)ತಮ್ಮಣ್ಣ ತಂ/ ಈರಪ್ಪ (01-17) 3)ಹಣ್ಮಂತ ತಂ/ ಈರಪ್ಪ (01-17) 4) ನಾಗಪ್ಪ ತಂ/ ಸಾಬಣ್ಣ (02-05) 5) ಶಿವಪ್ಪ ತಂ./ ಸಾಯಬಣ್ಣ (02-05) 6) ಬುಡ್ಡಪ್ಪ ತಂ/ ಸಾಯಬಣ್ಣ (02-06)	ಸ್ವಂತ	671	11-38	03-02 01-61 01-61 07-05	ಖುಷ್ಕಿ ಖುಷ್ಕಿ ಖುಷ್ಕಿ ಖುಷ್ಕಿ	670	672	673	669	
223	ಸಣ್ಣ ಹಣ್ಮಂತ ತಂ/ ಯಲ್ಲಪ್ಪ ಅಗಸ್ 03-01 ತಮ್ಮಣ್ಣ ತಂ/ ಕರೆಪ್ಪ 01-14 ಹಣ್ಮಂತ ತಂ/ ಕರೆಪ್ಪ 01-16 ಮಾರೆಪ್ಪ ತಂ/ ಬುಗ್ಗಪ್ಪ ಅಗಸ್ 06-08	ಸ್ವಂತ	672	11-39	03-39 01-52 01-57 06-94	ಖುಷ್ಕಿ	671	663	673	669	
224	1) ಸೈಯದ್ ಹುಸೇನ ತಂ/ ಡೊಂಗ್ರಿಸಾಬ (09-22) 2)ಮೌಲಾಲಿ ತಂ/ ಡೊಂಗ್ರಿಸಾಬವ (09-22)	ಸ್ವಂತ	673	19-04 0-12(ಖ) 18-32	17-49	ಖುಷ್ಕಿ	ಗಡಿ	662	674	672	
225	1)ಮಾಳಪ್ಪ ತಂ/ ಮೋಲಪ್ಪ ಕುರುಬರು 02-36 2)ಮಾಳಪ್ಪ ತಂ/ಮಾಳಪ್ಪ ಅ.ವಾ.ಕ.ತಾಯಿ ಮಹಾಲಕ್ಷ್ಮಮ್ಮ(03-10) 3)ಮಾಳಪ್ಪ ತಂ/ ಮೋಲಪ್ಪ ಕುರುಬರು(03-10) 4)ಮಾಳಪ್ಪ ತಂ/ ಮೋಲಪ್ಪ ಕುರುಬರು 03-32	ಸ್ವಂತ	674	13-08	02-70 06-04 03-54	ಖುಷ್ಕಿ	ಗಡಿ	676	675	673	
226	1) ಸವರಪ್ಪ ತಂ/ ತಿಪ್ಪಯ್ಯ ಕೋರಿ (01-38) 2) ಸವರಪ್ಪ ತಂ/ ತಿಪ್ಪಯ್ಯ ಕೋರಿ (01-35) 3)ಚಂದ್ರಪ್ಪ ತಂ/ ಕಾಶಪ್ಪ (05-17)	ಸ್ವಂತ	675	09-15 0-02(ಖ) 09-13	03-31 04-61	ಖುಷ್ಕಿ	ಗಡಿ	676	ಗಡಿ	674	
227	ಹಸನಬಾಯಿ ತಂ/ ನನ್ನೆಸಾಬ ಕೋನಂಪಲ್ಲಿ	ಸ್ವಂತ	676	11-13 0-24(ಖ) 10-29	11-70	ಖುಷ್ಕಿ	675	677	668	679	
228	ಹಣಮವ್ವ ಗಂ/ ದೊಡ್ಡಮಾರೆಪ್ಪ ಅಗಸ್	ಸ್ವಂತ	678	13-23	15-54	ಖುಷ್ಕಿ	679	650/1	644	677	

ಕ್ರ. ಸಂ.	ಖಾತೆದಾರರ ಹೆಸರು	ಅನುಭವದಾರರ ಹೆಸರು	ರಿ.ಸ.ನಂ.	ಸ್ವಾಧೀನಪಡಿಸುವ ಅಂದಾಜು ವಿಸ್ತೀರ್ಣ ಎ-ಗುಂ	ಆಕಾರ ರೂ-ಪೈ	ಜಮೀನಿನ ತರಹೆ	ಚಕಬಂದಿ (ಚತು:ಸೀಮೆ) ಪೂರ್ವ	ಪಶ್ಚಿಮ	ಉತ್ತರ	ದಕ್ಷಿಣ	ಷರಾ
1	2	3	4	5	6	7	8	9	10	11	
229	1) ಚಂದ್ರಪ್ಪ ತಂ/ ನರಸಪ್ಪ ದುಪ್ಪಲ್ಲಿ (02-07) 2) ಸೋಮಪ್ಪ ತಂ/ ನರಸಪ್ಪ ದುಪ್ಪಲ್ಲಿ 3)ಭೀಮಪ್ಪ ತಂ/ ಯಲ್ಲಪ್ಪ (02-08) 4) ಹನಮಂತ ತಂ/ ಯಲ್ಲಪ್ಪ (01-06) 5)ಸೋಮಪ್ಪ 2-14 6)ಚಂದ್ರಪ್ಪ ತಂ/ ನರಸಪ್ಪ ದುಪ್ಪಲ್ಲಿ 2-21 7) ಸೋಮಪ್ಪ ತಂ/ ನರಸಪ್ಪ ದುಪ್ಪಲ್ಲಿ 8)ಜಾವಿದ್ ರೆಹಮಾನ್ ತಂ/ ಎಸ್ಎಂಎಫ್ರಹೆಮಾನ 05-07	ಸ್ವಂತ	679	15-25	10-56 05-23	ಖುಷ್ಕಿ ಖುಷ್ಕಿ	ಬಂಡಿ ದಾರಿ	678	680	676	
230	1) ಹಣ್ಮಂತ ತಂ/ ಭೀಮಪ್ಪ 2-00 2)ಆರ್.ಉದಯ ಶ್ರೀನಿವಾಸ ತಂದೆ ಲಕ್ಷ್ಮಣರಾವ ಶಕ್ತಿನಗರ 11-20	ಸ್ವಂತ	680	13-20 0-24(ಖ) 12-36	12-52	ಖುಷ್ಕಿ	691	644	-	679	
231	ಸರಕಾರಿ	-	681	01-34 01-34ಖ 00	-	ಖುಷ್ಕಿ	-	642	640	680	
232	ಸಣ್ಣ ಹಣ್ಮಂತರಾಯ ತಂ/ ತುಳಜಾರಾಂ ನೀಂ	ಸ್ವಂತ	682	02-18 0-09(ಖ) 02-09	02-26	ಖುಷ್ಕಿ	641	643	643	643	
233	ಸಣ್ಣ ಹಣ್ಮಂತರಾಯ ತಂ/ ತುಳಜಾರಾಂ ನೀಂ	ಸ್ವಂತ	683	00-31	00-76	ಖುಷ್ಕಿ	642	635	638/1	645	
234	ಸಣ್ಣ ಹಣ್ಮಂತರಾಯ ತಂ/ ತುಳಜಾರಾಮ (1-23)	ಸ್ವಂತ	684	1-23 0-03(ಖ) 1-20	1-64	ಖುಷ್ಕಿ	685	683	-	687	
235	ಶ್ರೀ.ಷ.ಬ್ರ. ಗುರುಮೂರ್ತಿ ಶಿವಾಚಾರ್ಯರು (2-04)	ಸ್ವಂತ	685	2-04 0-15(ಖ) 1-29	1-89	ಖುಷ್ಕಿ	794	684	-	686	
236	ಶ್ರೀ.ಷ.ಬ್ರ. ಗುರುಮೂರ್ತಿ ಶಿವಾಚಾರ್ಯರು (1-36)	ಸ್ವಂತ	686	1-36 0-07(ಖ) 1-29	2-01	ಖುಷ್ಕಿ	791	685	790	685	
237	ಹಣ್ಮಂತರಾಯ ತಂ/ ತುಳಜಾರಾಮ ನಿಮಕರ (1-26)	ಸ್ವಂತ	687	1-26 0-04(ಖ) 1-22	1-74	ಖುಷ್ಕಿ	686	681	684	688	

ಅ. ಸಂ.	ಖಾತೆದಾರರ ಹೆಸರು	ಅನುಭೋಗದಾರರ ಹೆಸರು	ರಿ.ಸ.ನಂ.	ಸ್ವಾಧೀನಪಡಿಸುವ ಅಂದಾಜು ವಿಸ್ತೀರ್ಣ ಎ-ಗುಂ	ಆಕಾರ ರೂ-ಪೈ	ಜಮೀನಿನ ತರಹೆ	ಚಕಬಂದಿ (ಚತುಃಸೀಮೆ)				ಷರಾ
							ಪೂರ್ವ	ಪಶ್ಚಿಮ	ಉತ್ತರ	ದಕ್ಷಿಣ	
1	2	3	4	5	6	7	8	9	10	11	
238	ಸರಕಾರಿ ಖಾರಿಜಖಾತಾ	–	688	2–31 0–07(ಖ) 2–24	2–92	ಖುಷ್ಕಿ	689	680	687	690	
239	ಮರೆಪ್ಪ ತಂ/ ಬುರಾನಪ್ಪ (1–14)	ಸ್ವಂತ	689	1–14 0–03(ಖ) 1–11	1–44	ಖುಷ್ಕಿ	690	688	790	691	
240	ನರಸಪ್ಪ ತಂ/ ಲಚ್ಚಪ್ಪ ಉಪ್ಪಾರ (1–14)	ಸ್ವಂತ	690	2–08 00–34(ಖ) 1–14	1–00	ಖುಷ್ಕಿ	689	680	688	691	
241	ಸರಕಾರಿ (12–01)	–	691	12–01	5–18	ಖುಷ್ಕಿ	692	680	690	–	
242	1) ವಿಮಲಾಬಾಯಿ ಗಂ/ ಅಂಬಾಜಿರಾವ (5–10) 2) ಸಾವಿತ್ರಿಬಾಯಿ ಗಂ/ ಹಣ್ಮಂತರಾವ ನಿಮಕಾರ (5–11)	ಸ್ವಂತ	692	10–21 1–08(ಖ) 9–13	7–28	ಖುಷ್ಕಿ	695	691	690	693	
243	1) ಗುಲಮಹ್ಮದ ತಂ/ ಶೇಖಚಾಂದ (1–13) 2) ಮಾರೆಮ್ಮ ಗಂ/ ರಾಮಪ್ಪ ಹತ್ತಿಗುಡಿ (5–12) 3) ಮಾರೆಮ್ಮ ಗಂ/ ರಾಮಪ್ಪ ಹತ್ತಿಗುಡಿ (5–13)	ಸ್ವಂತ	693/ಅ.ಆ	11–38 0–03(ಖ) 11–35	1–28 9–27	ಖುಷ್ಕಿ	694	691	692	ಮಾವಿನ ಹಳ್ಳ ಗಡಿ	
244	ಮೌಲಾನಬಿ ಗಂ/ ಶೇಖಚಾಂದ (7–29)	ಸ್ವಂತ	694	7–29	4–18	ಖುಷ್ಕಿ	702/2	695/1	695	ಮಾವಿನ ಹಳ್ಳ ಗಡಿ	
245	1) ಅಬ್ದುಲ ರಹಿಮಾನ ತಂ/ ಲಾಡ್ಲೇಸಾಬ ಮನ್ನಾಜಿ (5–34) 2) ಮಹ್ಮದ ಮುಖರ ರಬನಲಿ ತಂ/ ಮಹ್ಮದ ಅಬ್ದುಲ ರವೋಫ (2–37) 3) ನಬೀಚಾಂದ ತಂ/ ಮಹ್ಮದ ಮೌಲಾನ (5–34) 4) ಮಹ್ಮದ ವಿಸಭಾನಬಿ ತಂ/ ಮಹ್ಮದ ಅಬ್ದುಲ ರವೋಫ(2–37)	ಸ್ವಂತ	695	17–22	18–43	ಖುಷ್ಕಿ	702/1	692	696	694	
246	ಅಲಿಹಸನ್ ತಂ/ ಲಾಡ್ಲೇಸಾಬ ಮನ್ನಾಜಿ (3–31)	ಸ್ವಂತ	696	3–31 0–16(ಖ) 3–15	4–06	ಖುಷ್ಕಿ	702	692	–	695	
247	1) ಖಾಜಿ ಅಬ್ದುಲ ಖಾಯಂ ತಂ/ ಅಬ್ದುಲ ಗನಿ 2) ಜುಲ್ಫೆಕಾರ ಅಲಿ ತಂ/ ಅಲಿಸಾಬ 3) ಸಾಹೆಅಲಿ ತಂ/ ಅಲಿಸಾಬ 11–33	ಸ್ವಂತ	697	11–33. 0–11(ಖ) 11–22	12–13	ಖುಷ್ಕಿ	700	695	698	702	

ಅ. ನಂ.	ಖಾತೆದಾರರ ಹೆಸರು	ಅನುಭವದಾರರ ಹೆಸರು	ರಿ.ಸ.ನಂ.	ಸ್ವಾಧೀನಪಡಿಸುವ ಅಂದಾಜು ವಿಸ್ತೀರ್ಣ ಎ-ಗುಂ	ಆಕಾರ ರೂ-ಪೈ	ಜಮೀನಿನ ತರಹೆ	ಚಕಬಂದಿ (ಚತುಃಸೀಮೆ)				ಷರಾ
							ಪೂರ್ವ	ಪಶ್ಚಿಮ	ಉತ್ತರ	ದಕ್ಷಿಣ	
1	2	3	4	5	6	7	8	9	10	11	
248	ಮಹ್ಮದ ಯುಸೂಫ ಅಲಿ ತಂ/ ಬುರಾನೊದಿ ಗೊಂದಡಗಿ (1-15)	ಸ್ವಂತ	698/1	1-15 0-13(ಖ) 1-02	0-66	ಖುಷ್ಕಿ	699	702	702	697	
249	1) ಖಾಜಿ ಅಬ್ದುಲ ಖಯಂ ತಂ/ ಅಬ್ದುಲ ಗನಿ 2) ಜುಲ್ಪೆಖಾರ ಅಲಿ ತಂ/ ಅಲಿಸಾಬ 3) ಶಾಹಅಲಿ ತಂ/ ಅಲಿಸಾಬ (02-29)	ಸ್ವಂತ	698/2	2-29	2-87	ಖುಷ್ಕಿ	699	702	702	697	
250	ಪರಂಪೋಕ (0-33)	–	699	0-33 0-33(ಖ) 00	1-00	ಖುಷ್ಕಿ	700	698	700	700	
251	ಖಾಜಾಬಿ ಗಂ/ ಮಹಿಬೂಬಲಿ ಗೊಂದಡಗಿ (3-35)	ಸ್ವಂತ	700	3-35 1-21(ಖ) 2-14	1-27	ಖುಷ್ಕಿ	ತರಿ	ಬಂಡಿ ದಾರಿ	–	701	
252	ಸರಕಾರಿ	–	701	15-03 1-13(ಖ) 13-30	16-50	ಖುಷ್ಕಿ	741	702/1	700	704	
253	1) ಲಾಡ್ಲೇಸಾಬ ತಂ/ ಅಲಿಸಾಬ ಮುನ್ನಾಜಿ 2) ಚಾಂದಪಾಶಾ ತಂ/ ಅಲಿಸಾಬ ಮುನ್ನಾಜಿ (1-24) 3) ಲಾಡ್ಲೇಸಾಬ ತಂ/ ಹುಸೇನಸಾಬ (1-23) 4)ನದೀಚಾಂದ ತಂ/ ಶೇಖಲಾಡ್ಲೇಸಾಬ (2-17) 5) ಗುಲಮಹ್ಮದ ತಂ/ ಶೇಖಚಾಂದ (4-01)	ಸ್ವಂತ	702/1.ಅ.ಆ.ಇ	9-25 0-05(ಖ) 9-20	0-80	ಖುಷ್ಕಿ	701	695	697	703	
254	1) ಸೈಯದಹುಸೇನ ತಂ/ ಶರೀಫಸಾಭ ತೊರ್ರಿ (6-18) 2) ಸೈಯದ ಮಹೇಬೂಬಅಲಿ ತಂ/ ಶರೀಫಸಾಭ ತೊರ್ರಿ (5-36)	ಸ್ವಂತ	702/2	12-14 0-37(ಖ) 11-17	10-63	ಖುಷ್ಕಿ	701	695	695	703	
255	1) ಸೈಯದಹುಸೇನ ತಂ/ ಶರೀಫಸಾಭ ತೊರ್ರಿ (10-05) 2) ಸೈಯದ ಮಹೇಬೂಬಅಲಿ ತಂ/ ಶರೀಫಸಾಭ ತೊರ್ರಿ (9-17)	ಸ್ವಂತ	703	19-22 0-19(ಖ) 19-03	21-27	ಖುಷ್ಕಿ	709	ಮಾವಿನ ಹಳ್ಳಿ ಗಡಿ	702/2	ಮಾವಿನ ಹಳ್ಳಿ ಗಡಿ	
256	1) ಸೈಯದಹುಸೇನ ತಂ/ ಶರೀಫಸಾಭ ತೊರ್ರಿ (11-23) 2) ಸೈಯದ ಮಹೇಬೂಬಅಲಿ ತಂ/ ಶರೀಫಸಾಭ ತೊರ್ರಿ (6-30)	ಸ್ವಂತ	704	18-13 1-25(ಖ) 16-28	13-13	ಖುಷ್ಕಿ	705	703	701	ಮಾವಿನ ಹಳ್ಳಿ ಗಡಿ	

ಕ್ರ. ಸಂ.	ಖಾತೆದಾರರ ಹೆಸರು	ಅನುಭವದಾರರ ಹೆಸರು	ರಿ.ಸ.ನಂ.	ಸ್ವಾಧೀನಪಡಿಸುವ ಅಂದಾಜು ವಿಸ್ತೀರ್ಣ ಎ-ಗುಂ	ಆಕಾರ ರೂ-ಪೈ	ಜಮೀನಿನ ತರಹ	ಚಕಬಂದಿ (ಚತುಃಸೀಮೆ)				ಷರಾ
							ಪೂರ್ವ	ಪಶ್ಚಿಮ	ಉತ್ತರ	ದಕ್ಷಿಣ	
1	2	3	4	5	6	7	8	9	10	11	
257	1) ಸೈ ಸಾಲಾರ ಹುಸೇನ ತಂ/ ಅಬೀಬಸಾಬ (3-34) 2) ಹುಸೇನಬಿ ಗಂ/ ಸೈಯದ ಹುಸೇನ (4-00)	ಸ್ವಂತ	705	7-34	3-69	ಖುಷ್ಕಿ	735	704	739	ಮಾವಿನ ಹಳ್ಳಿ ಗಡಿ	
258	1) ಸೈಯದ ಲಾಯಕ ಹುಸೇನಿ ತಂ/ ಸೈಯದ ಅಬ್ದುಲಗನಿ ನದ್ದಿ	ಸ್ವಂತ	706	3-12	2-35	ಖುಷ್ಕಿ	738	707	705	708	
259	ಸೈ ಪೈಮಲ ಹಸನ ತಂ/ ಸೈ ಅಬ್ದುಲ ಹಸನ (3-13)	ಸ್ವಂತ	707	3-33 0-20 (ಖ) 3-13	1-30	ಖುಷ್ಕಿ	706	704	705	ಮಾವಿನ ಹಳ್ಳಿ ಗಡಿ	
260	ಸೈಯದ ಮುಖ್ತಾರ ಅಹ್ಮದ ತಂ/ ಸೈ ನಬಿಚಾಂದಸಾಬ ನದ್ದಿ	ಸ್ವಂತ	708	1-37	–	ಖುಷ್ಕಿ	733	707	706	709	
261	ಸೈಯದ ಮುಖ್ತಾರ ಅಹ್ಮದ ತಂ/ ಸೈ ನಬಿಚಾಂದಸಾಬ ನದ್ದಿ	ಸ್ವಂತ	709	1-29	–	ಖುಷ್ಕಿ	733	707	708	710	
262	1) ಶರೀಫಾಬೀ ಗಂ/ ನಬಿಸಬ ನದ್ದಿ (5-04) 2) ಸೈಯದ ಅಸದುಲ್ಲ ತಂ/ ಸೈಯದನಬಿಚಾಂದಸಾಬ ನದ್ದಿ(2-29) 3)ಸೈ ಅಬ್ದುಲ ರಹಿಂ ತಂ/ ಸೈ ಮೌಲಾನ (2-07)	ಸ್ವಂತ	710/1.2.3	10-00 0-13(ಖ) 9-27	5-40 3-01 2-00	ಖುಷ್ಕಿ	712	ಮಾವಿನ ಹಳ್ಳಿ ಗಡಿ	709	714	
263	ಸೈ ಜಾಕೀರ ಹುಸೇನ ತಂ/ ಸೈ ಖಾಸಿಂ ಅಲಿ (1-22)	ಸ್ವಂತ	711	1-22	2-36	ಖುಷ್ಕಿ	712	710	713	715	
264	ಸೈ ಜಾಕೀರ ಹುಸೇನ ತಂ/ ಸೈ ಖಾಸಿಂ ಅಲಿ (3-05)	ಸ್ವಂತ	712	3-05	1-50	ಖುಷ್ಕಿ	727	711	731	714	
265	ಶೇಖ ಹಸದುಲ್ಲಾ ತಂ/ ಬಾವಾಸಾಬ ಮರ್ಚೆಡ (2-06)	ಸ್ವಂತ	713	2-06 00-06(ಖ) 2-00	2-05	ಖುಷ್ಕಿ	714	ಮಾವಿನ ಹಳ್ಳಿ ಗಡಿ	710	714	
266	1)ಹಸನಸಾಬ ತಂ/ ಮುಕ್ತುಮ ಸಾಬ (0-13) 2) ಜಮೀರ ಹುಸೇನ ದಾದೇನಾಯಕ (0-12) 3) ಡೊಂಗ್ರಿಸಾಬ ತಂ/ ಸೈ ಮೌಲಾನಸಾಬ ತೊರಿ (0-24) 4) ನರಸಪ್ಪ ತಂ/ ಮಾಳಪ್ಪ ಕುರುಬುರ ಸಾ/ ಮಾವಿನಹಳ್ಳಿ (1-01) 5) ತಾಯಪ್ಪ ತಂ/ ಮಾಳಪ್ಪ ಕುರುಬುರ ಮಾವಿನಹಳ್ಳಿ (4-09) 6) ನಬಿಚಾಂದ ತಂ/ ಬುರಾನೋದ್ದೀನ (03-06) 7)ನಿಜಾಮುದ್ದಿನ್ ತಂ/ ಬುರಾನೋದ್ದೀನ 8) ಮಹೆಬೂಬ ಹುಸೇನ ತಂ/ ಬುರಾನೋದ್ದೀನ 9) ಡೊಂಗ್ರಿಸಾಬ ತಂ/ ಸೈ ಮೌಲಾನಸಾಬ ತೊರಿ (2-30) 10) ಸೈ ಸಲಾರ ಹುಸೇನ ತಂ/ ಹಬೀಬಸಾಬ } 11) ಸೈ ಹುಸೇನ ತಂ/ ಹಬೀಬಸಾಬ } (1-24) 12) ಖಾತೂನಬಿ ಗಂ/ ಸೈಯದ ಮಹಿಬೂಬ ಹುಸೇನ ತೋರಿ (1-04) 13) ಸೈ ನಜೀರ ಅಹ್ಮದ ತಂ/ ಸೈ ಕಾಶಿಂ ಅಲಿ (0-25) 14) ಸೈ ಅಲಿ ತಂ/ ಸೈ ಕಾಶಿಂ ಅಲಿ (0-26)	ಸ್ವಂತ	714/1 ರಿಂದ 10 ರ ವರೆಗೆ	17-28 0-10(ಖ) 17-18	16-93	ಖುಷ್ಕಿ	724	ಮಾವಿನ ಹಳ್ಳಿ ಗಡಿ	710	714	

ಅ. ನಂ.	ಖಾತೆದಾರರ ಹೆಸರು	ಅನುಭವದಾರರ ಹೆಸರು	ರಿ.ಸ.ನಂ.	ಸ್ವಾಧೀನಪಡಿಸುವ ಅಂದಾಜು ವಿಸ್ತೀರ್ಣ ಎ-ಗುಂ	ಆಕಾರ ರೂ-ಪೈ	ಜಮೀನಿನ ತರಹೆ	ಚೆಕ್ಕುಬಂದಿ (ಚತುಃಸೀಮೆ)				ಷರಾ
							ಪೂರ್ವ	ಪಶ್ಚಿಮ	ಉತ್ತರ	ದಕ್ಷಿಣ	
1	2	3	4	5	6	7	8	9	10	11	
	15) ಸೈ ಜಾಕೀರ ತಂ/ ಸೈ ಕಾಶಿಂ ಅಲಿ (0-26) 16) ಸೈ ಮಹಿಬೂಬ ಹುಸೇನ ತಂ/ ಸೈ ಕಾಶಿಂ ಅಲಿ (0-26)	ಸ್ವಂತ				ಖುಷ್ಕಿ					
267	1) ಅಬ್ದುಲ ಖಯುಮ ತಂ/ ಅಬ್ದುಲ ಗನಿ ಖಾಜಿ (9-35) 2) ಅಬ್ದುಲ ಖಯೆಂ ತಂ/ ಅಬ್ದುಲ ಗನಿ -ಎ (0-01) ಆ (3-34) 3) ನಸೀರೊದ್ದಿನ ತಂ/ ಅನ್ವರೊದ್ದೀನ ಖಾದೆ. ಎ(6-00) 4) ಖಾಜಿ ಬಿಲಖಿಸ್ ಫಾತಿಮಾ ಗಂ/ ಮಹಿಬೂಬ ಹುಸೇನ (3-00) 5) ಸೈ ಮಹಿಮುದ ಹುಸೇನ ತಂ/ ಜಾಫರ (4-16) 6) ಮಹ್ಮದ ನಸೀರೊದ್ದಿನ ತಂ/ ಮ. ಅನ್ವರ (3-00) 7) ಅನ್ವರುದ್ದಿನ ತಂ/ ಗುಲಾಮ ಮಹ್ಮದ ಖಾಜಿ (4-07) 8) ಅನ್ವರೋದ್ದೀನ ತಂ/ ಗುಲಾಮ ಮಹ್ಮದ ಖಾಜಿ (6-07) 9) ಅಬ್ದುಲ ರವೊಫ್ ತಂ/ ಅಬ್ದುಲ ರಹೀಮಸಾಬ (11-24) 10) ಮಹ್ಮದ ನಸೀರೊದ್ದಿನ ತಂ/ ಅನ್ವರೋದ್ದೀನ ಖಾಜಿ (6-00) 11) ಖಾಜಿ ಅಬ್ದುಲ ಗನಿ ತಂ/ ಖಾಜಿ ಅಬ್ದುಲ ಖಯ್ಯುಮ (6-00) 12) ಖಾಜಿ ಮ. ಅನ್ವರುದ್ದೀನ ತಂ/ ಗು ಮಹ್ಮದ (6-00) 13) ಅಬ್ದುಲ ಖಯ್ಯುಮ ತಂ/ ಅಬ್ದುಲ ಗನಿ ಖಾಜಿ (3-35, 14) ಹನುಮಂತ ತಂ/ ರಾಮಪ್ಪ ಉಪ್ಪಾರ (3-00) 15) ನರಸಿಂಗಪ್ಪ ತಂ/ ಹಣಮಂತ ಉಪ್ಪಾರ (3-00) 16) ಅಬ್ದುಲ ಖಯ್ಯುಂ ತಂ/ ಅಬ್ದುಲ ಗನಿ (3-34) 17) ನಶೀರೋದ್ದಿನ ತಂ/ ಅನ್ವರೋದ್ದಿನ (2-18) 18) ಮಹ್ಮದ ನಶಿರೋದ್ದಿನ ತಂ. ಮಹ್ಮದ ಅನ್ವರುದ್ದಿನ (6-00) 19) ಮಹಿನೋದ್ದಿನ ತಂ/ ಅಬ್ದುಲ ಗಪೂರ ಖಾಜಿ (3-00) 20)ಮಹ್ಮದ ನಸಿರೋದ್ದೀನ ತಂ/ ಮ. ಅನ್ವರೋದ್ದೀನ (4-16) 21) ವಾರಫ ಬೇದರ ಆಸ್ತ ಖಾಜಿತಸಾಬ (29-24)	ಸ್ವಂತ	715,715/ 716, 717, 718, 719	89-12	25-06 11-49 12-52. 22-89 22-80	ಖುಷ್ಕಿ	723	ಮಾವಿನ ಹಳ್ಳಿ ಗಡಿ	724	ಮಾವಿನ ಹಳ್ಳಿ ಗಡಿ	
			ಒಟ್ಟು	2735-28 67-37(ಖ) 2671-31							

ಅ. ನಂ.	ಖಾತೆದಾರರ ಹೆಸರು	ಅನುಭವ ದಾರರ ಹೆಸರು	ರಿ.ಸ.ನಂ.	ಸ್ವಾಧೀನಪಡಿಸುವ ಅಂದಾಜು ವಿಸ್ತೀರ್ಣ ಎ-ಗುಂ	ಆಕಾರ ರೂ-ಪೈ	ಜಮೀನಿನ ತರಹೆ	ಚಕಬಂದಿ (ಚತುಃಸೀಮೆ)				ಷರಾ
							ಪೂರ್ವ	ಪಶ್ಚಿಮ	ಉತ್ತರ	ದಕ್ಷಿಣ	
1	2	3	4	5	6	7	8	9	10	11	
	ಜಿಲ್ಲೆ: ಯಾದಗಿರ ತಾ: ಯಾದಗಿರ	ಹೋಬಳಿ: ಸೈದಾಪೂರ							ಗ್ರಾಮ: ಬಾಡಿಯಾಳ		
1.	1) ಹಣಮಂತ್ರಾಯ ತಂ. ಹಣಮಂತ ಉಪ್ಪಾರ ಸಾ॥ ಶೆಟ್ಟಿಹಳ್ಳಿ (5-34) 2) ಮಹಾದೇವಪ್ಪ ತಂ. ನಾಗಪ್ಪ ಶೆಟ್ಟಿಹಳ್ಳಿ (6-34) 3) ಮಲ್ಲಪ್ಪ ತಂ. ಮರೆಪ್ಪ ಉಪ್ಪಾರ (5-31)	ಸ್ವಂತ	35/ಅ,ಆ,ಇ	18-23 0-19(ಖ) 8-04	14-00	ಖುಷ್ಕಿ	38	ರೆಲ್ವೇ ಲೈನ	ಶೆಟ್ಟಿಹಳ್ಳಿ ಗಡಿ	3.6	
2.	1) ಶಾಯಮ್ಮಾ ಗಂ. ಹಣಮಂತ ಉಪ್ಪಾರ (2-39) 2) ಯಂಕಪ್ಪ ತಂ. ರಾಮಣ್ಣ ಅಗಸರ (2-00) 3) ಅಂಜನೇಯ ತಂ. ಶಿವಪ್ಪ ಹೊಸಮನಿ (4-39) 4) ಶಿವರಾಜ ತಂ. ಯಂಕಣ್ಣ ಉಪ್ಪಾರ (9-39)	ಸ್ವಂತ	36/ಅ, ಆ	19-37 0-06ಖ 19-31	20-27	ಖುಷ್ಕಿ	37	ರೆಲ್ವೇ ಲೈನ	35	48	
3.	1) ಸಿದ್ದಮ್ಮ ಗಂ. ಶಿವಪ್ಪ ಮಂತ್ರಿ (7-00_ 2) ಶಂಕ್ರಮ್ಮ ಗಂ. ಹಣಮಂತ್ರಾಯ ಮಂತ್ರಿ ಶೆಟ್ಟಿಹಳ್ಳಿ (7-10)	ಸ್ವಂತ	37	14-10	22-23	ಖುಷ್ಕಿ	39	36	38	47	
4.	1) ಚಂದಪ್ಪ ತಂ/ ರಾಮಣ್ಣ (2-20) 2) ಹಣಮಂ ತ ತಂ/ ಲಿಂಗಪ್ಪ (1-08) 3) ಶಿವಪ್ಪ ತಂ/ ಲಿಂಗಪ್ಪ 4) ನಾಗಪ್ಪ ತಂ/ ಚಂದಪ್ಪ (1-08) 5)ನಾಗಪ್ಪ ತಂ/ ಮಲ್ಲಯ್ಯ ಉಪ್ಪಾರ ಶೆಟ್ಟಿಹಳ್ಳಿ (1-08)	ಸ್ವಂತ	38	7-12	5-00 2-00 2-00 2-00	ಖುಷ್ಕಿ	39	35	ಶೆಟ್ಟಿಹಳ್ಳಿ ಗಡಿ	37	
5.	1) ಹಣಮಂತ ತಂ. ನಾಗಪ್ಪ ಶೆಟ್ಟಿಹಳ್ಳಿ (3-00) 2) ಬಸವರಾಜ ತಂ. ನಾಗಪ್ಪ ಶೆಟ್ಟಿಹಳ್ಳಿ (3-00) 3) ಮಹಾದೇವ ತಂ. ಹಣಮಂತ (3-00) 4) ದೊ. ಶರಣಪ್ಪ ತಂ. ಹಣಮಂತ ಹೊನಗೇರಿ ಎಸ್.ಸಿ (3-00)	ಸ್ವಂತ	39/ಅ, ಆ	12-00	6-90	ಖುಷ್ಕಿ	40	37	ಶೆಟ್ಟಿಹಳ್ಳಿ ಗಡಿ	42	
6.	1) ಮಲ್ಲಯ್ಯ ತಂ. ಮರೇಪ್ಪ (6-00) 2) ಮಹಾದೇವಪ್ಪ ತಂ. ಚಂದಪ್ಪ ಎಸ್.ಸಿ. (8-10)	ಸ್ವಂತ	40	14-10 00-22 (ಖ) 13-28	22-47	ಖುಷ್ಕಿ	42	39	ಶೆಟ್ಟಿಹಳ್ಳಿ ಗಡಿ	46	

ಅ. ನಂ.	ಖಾತೆದಾರರ ಹೆಸರು	ಅನುಭವದಾರರ ಹೆಸರು	ರಿ.ಸ.ನಂ.	ಸ್ವಾಧೀನಪಡಿಸುವ ಅಂದಾಜು ವಿಸ್ತೀರ್ಣ ಎ-ಗುಂ	ಆಕಾರ ರೂ-ಪೈ	ಜಮೀನಿನ ತರಹೆ	ಚಕಬಂದಿ (ಚತು:ಸೀಮೆ)				ಷರಾ
							ಪೂರ್ವ	ಪಶ್ಚಿಮ	ಉತ್ತರ	ದಕ್ಷಿಣ	
1	2	3	4	5	6	7	8	9	10	11	
7.	1) ಭೀಮರಾಯ ತಂ. ಹಣಮಂತ (1-39) 2) ಬನ್ನಪ್ಪ ಚಂದಪ್ಪ (1-39) 3) ಮಹಾದೇವಪ್ಪ ಚಂದಪ್ಪ (1-39) 4) ಭೀಮಶೆಪ್ಪ ಚಂದಪ್ಪ (1-39) 5) ಸುನೀಲ ತಂ. ಆಶಪ್ಪ ಮಂತ್ರಿ (1-39) 6) ಇಂದುಬಾಯಿ ಗಂ. ನರಸಿಂಗಪ್ಪ ಮಂತ್ರಿ (1-39)	ಸ್ವಂತ	41	11-34 01-00 (ಖ) 10-34	22-25	ಖುಷ್ಕಿ	ಕಡೇಚೂರು ಗ್ರಾಮದ ಗಡಿ	40	ಶೆಟ್ಟಿಹಳ್ಳಿ ಗಡಿ	42	
8.	1) ಬನ್ನಪ್ಪ ತಂ. ಚಂದಪ್ಪ (3-23) 2) ಭೀಮಶಪ್ಪ ತಂ. ಚಂದಪ್ಪ (3-23) 3) ಮಹಾದೇವಪ್ಪ ತಂ. ಚಂದಪ್ಪ (3-23)	ಸ್ವಂತ	42	10-29	2017	ಖುಷ್ಕಿ	ಕಡೇಚೂರು ಗ್ರಾಮದ ಗಡಿ	40	41	44	
9.	1) ಹಣಮಂತ ತಂ. ಬಾಲಪ್ಪ (3-32) 2) ಆಂಜನೇಯ ತಂ. ಬಾಲಪ್ಪ (3-32) 3) ಭೀಮಶೆಪ್ಪ ಹಣಮಂತರಾಯ ತಿಮ್ಮಜಿ (3-29) 4) ಹುಸನಪ್ಪ ತಂ. ಬಸಣ್ಣ ಗುಡ್ಲೇ ಬಲ್ಲೂರ (4-00)	ಸ್ವಂತ	43/ಅ, ಆ	15-08	18-02 18-02	ಖುಷ್ಕಿ	ಕಡೇಚೂರು ಗ್ರಾಮದ ಗಡಿ	45	42	58	
10.	ಶರಣಪ್ಪ ತಂ. ಮಹಾದೇವಪ್ಪ ಅಂಗಡಿ	ಸ್ವಂತ	44	7-21	11-75	ಖುಷ್ಕಿ	43	40	42	45	
11.	ಮಹಾದೇವ ತಂ. ಮಲ್ಲಪ್ಪ ಸಾವೂರ	ಸ್ವಂತ	45	10-30	20-21	ಖುಷ್ಕಿ	43	46	44	57	
12.	1) ದೊ.ಹಣಮಂತಾ ತಿಮ್ಮಣ್ಣ (3-08) 2) ಮಲ್ಲಪ್ಪ ತಂ. ತಿಮ್ಮಣ್ಣ (3-08) 3) ಸಣ್ಣ ಹಣಮಂತಾ ತಿಮ್ಮಣ್ಣ (3-09) 4) ಮಾರೆಪ್ಪಾ ತಂ. ತಿಮ್ಮಣ್ಣ ದುಗನೂರ (3-08)	ಸ್ವಂತ	46	12-33 00-17 (ಖ) 12-16	25-42	ಖುಷ್ಕಿ	45	47	40	57	
13.	1) ಸಣ್ಣಮರೆಪ್ಪ ತಂ. ಮಲ್ಲಯ್ಯಾ 2) ಯಮನಪ್ಪ ತಂ. ಹಣಮಂತ ಸಾವೂರ (13-04)	ಸ್ವಂತ	47	13-04	21-49	ಖುಷ್ಕಿ	46	48	37	52/1	
14.	1) ಸಣ್ಣ ಮರೆಪ್ಪ ತಂ. ಮಲ್ಲಯ್ಯ ಸಾವೂರ (3-11) 2) ಸಣ್ಣಪಿಟ್ಟಪ್ಪ ತಂ. ನಿಂಗಪ್ಪ ಕುಂಬಾರ (3-16) 3) ಲಕ್ಷ್ಮಿ ಗಂ. ಸಣ್ಣಮರೆಪ್ಪ ಸಾವೂರ (0-22)	ಸ್ವಂತ	48/ಅ, ಆ, ಇ, ಈ	9-39 0-04(ಖ) 09-35	6-49 6-49	ಖುಷ್ಕಿ	47	ರೈಲ್ವೇ ಲೈನ	36	ರೈಲ್ವೇ ಲೈನ	

ಅ. ಸಂ.	ಖಾತೆದಾರರ ಹೆಸರು	ಅನುಭವದಾರರ ಹೆಸರು	ರಿ.ಸ.ನಂ.	ಸ್ವಾಧೀನಪಡಿಸುವ ಅಂದಾಜು ವಿಸ್ತೀರ್ಣ ಎ-ಗುಂ	ಆಕಾರ ರೂ-ಪೈ	ಜಮೀನಿನ ತರಹೆ	ಚಕಬಂದಿ (ಚತುಃಸೀಮೆ) ಪೂರ್ವ	ಪಶ್ಚಿಮ	ಉತ್ತರ	ದಕ್ಷಿಣ	ಷರಾ
1	2	3	4	5	6	7	8	9	10	11	
	4) ಲಕ್ಷ್ಮಿ ಗಂ. ಸಣ್ಣಮರೆಪ್ಪ ಸಾವೂರ (0-22) 5) ಸಣ್ಣ ಮರೆಪ್ಪ ತಂ. ಮಲ್ಲಯ್ಯಾ ಸಾವೂರ (1-04) 6) ಲಕ್ಷ್ಮಿ ಗಂ. ಸಣ್ಣ ಮರೆಪ್ಪ ಸಾವೂರ (0-22) 7) ಲಕ್ಷ್ಮಿ ಗಂ. ಸಣ್ಣ ಮರೆಪ್ಪ ಸಾವೂರ (0-22)										
15)	1) ಮಹಾದೇವಪ್ಪ ತಂ. ನರಸಪ್ಪ ಗುಡೇಬಲ್ಲೂರ (04-20)	ಸ್ವಂತ	52/1	4-20 0-06 (ಖ) 4-14	9-62	ಖುಷ್ಕಿ	53	ರೆಲ್ವೇ ಲೈನ	47	ರೆಲ್ವೇ ಲೈನ	
16)	ನಾಗಮ್ಮ ಗಂ. ತಿಪ್ಪಣ್ಣ ಗೂಡೂರ (00-34)	ಸ್ವಂತ	52/2	00-34 0-06 (ಖ) 0-28	1-55	ಖುಷ್ಕಿ	53	ರೆಲ್ವೇ ಲೈನ	47	ರೆಲ್ವೇ ಲೈನ	
17)	1) ನರಸಪ್ಪ ತಂ. ಭೀಮಣ್ಣ (03-19) 2) ಮಹಾದೇವಪ್ಪ ತಂ. ಭೀಮಣ್ಣ (03-19) 3) ಮಲ್ಲಪ್ಪ ತಂ. ಭೀಮಾನಾಯ್ಕ ಗೋಳಾಪೂರ (03-20)	ಸ್ವಂತ	53	10-18 00-17 (ಖ) 10-01	22-26	ಖುಷ್ಕಿ	55	52	54	ರೆಲ್ವೇ ಲೈನ	
18)	ಹಣಮಂತ ತಂ. ತಿಪ್ಪಣ್ಣ ದುಗನೂರ (04-09)	ಸ್ವಂತ	54	4-09	7-95	ಖುಷ್ಕಿ	46	47	47	53	
19)	1) ಶಿವಪ್ಪ ತಂ. ಭೀಮಣ್ಣ ಕಾವಲಿ (04-26)	ಸ್ವಂತ	55	4-26 00-05 (ಖ) 04-21	10-73	ಖುಷ್ಕಿ	56	53	54	ರೆಲ್ವೇ ಲೈನ	
20	1) ದೇವಪ್ಪ ತಂ. ತಾಯಪ್ಪ ಗಟಬಿ (04-11) 2) ಆಂಜನೇಯ ತಂ. ತಾಯಪ್ಪ ಗಟಬಿ	ಸ್ವಂತ	56	8-28 0-29 (ಖ) 7-39		ಖುಷ್ಕಿ	57	55	46	65	
21	1) ಭೀಮನಾಯಕ ತಂ. ನಾಗಣ್ಣ (5-11) 2) ಗಂಗಪ್ಪ ತಂ. ಲಚಮಣ್ಣ ಭೀಮನಾಯ್ಕ (5-11) 3) ದೇವಿಂದ್ರಪ್ಪ ತಂ. ಹಣಮಂತ ಸೇತಸಿಂದಿ (2-00)	ಸ್ವಂತ	57/ಅ, ಆ, ಇ	12-22	11-90 11-90 05-95	ಖುಷ್ಕಿ	58	56	45	61	

ಅ.ಸಂ.	ಖಾತೆದಾರರ ಹೆಸರು	ಅನುಭವದಾರರ ಹೆಸರು	ರಿ.ಸ.ಸಂ.	ಸ್ವಾಧೀನಪಡಿಸುವ ಅಂದಾಜು ವಿಸ್ತೀರ್ಣ ಎ-ಗುಂ	ಆಕಾರ ರೂ-ಪೈ	ಜಮೀನಿನ ತರಹೆ	ಚೆಕಬಂದಿ (ಚಕು:ಮೀ) ಪೂರ್ವ	ಪಶ್ಚಿಮ	ಉತ್ತರ	ದಕ್ಷಿಣ	ಶರಾ
1	2	3	4	5	6	7	8	9	10	11	
22	1) ಶಾಯಪ್ಪ ಹಣಮಂತ ತಿಮ್ಮಾಜಿ (06–13) 2) ವೆಂಕಟೇಶ ತಂ. ಹಣಮಂತ ತಿಮ್ಮಾಜಿ (6–08) 3) ರವೀಂದ್ರ ತಂ. ಸಾಬಣ್ಣಾ ಭೀಮನಾಯ್ಕ (1–30) 4) ಮರೆಪ್ಪ ತಂ. ತಿಪ್ಪಣ್ಣ ತಿಮ್ಮಾಜಿ (1–30) 5) ಬಾಲಪ್ಪ ತಂ. ತಿಮ್ಮಣ್ಣ 6) ಮರೆಪ್ಪ ತಂ. ತಿಮ್ಮಣ್ಣ 7) ಹಣಮಂತ ತಂ. ತಿಮ್ಮಣ್ಣ } 1–30 8) ರಾಮಣ್ಣ ತಂ. ತಿಮ್ಮಣ್ಣ	ಸ್ವಂತ	58/ಅ ದಿಂದ ಉ ದವರೆಗೆ	17–36	9–58 9–58 2–63 2–63	ಖುಷ್ಕಿ	ಕಡೇಚೂರು ಗ್ರಾಮದ ಗಡಿ	57	43	60	
23	1) ಲಕ್ಷ್ಮಣ್ಣ ತಂ. ತಿಪ್ಪಣ್ಣ ರಾಮಣ್ಣೂರ (08–21)	ಸ್ವಂತ	59	8–21	20–98	ಖುಷ್ಕಿ	ಕಡೇಚೂರು ಗ್ರಾಮದ ಗಡಿ	60	58	63	
24	1) ಭೀಮಶೆಪ್ಪ ತಂ. ಲಕ್ಷ್ಮಣ್ಣ ಅಂಗಡಿ (05–35) 2) ಬನ್ನಪ್ಪ ತಂ. ಲಕ್ಷ್ಮಣ ಅಂಗಡಿ (02–37) 3) ತಮ್ಮಣ್ಣ ತಂ. ಬನ್ನಪ್ಪ (02–37)	ಸ್ವಂತ	60/ಅ, ಆ	11–29	14–43 14–42	ಖುಷ್ಕಿ	59	61	58	62	
25	1) ದೇವೆಂದ್ರಪ್ಪ ತಂ. ಹಣಮಂತ ಸೇತಸಿಂದಿ (02–00) 2) ಮಲ್ಲಮ್ಮ ಗಂ. ಸಾಯಬಣ್ಣ ಸೇತಸಿಂದಿ (02–35) 3) ಮಲ್ಲಮ್ಮ ಗಂ. ಸಾಯಬಣ್ಣ ಸೇತಸಿಂದಿ (00–15) 4) ಭೀಮಶಪ್ಪ ತಂ. ಹಣಮಂತ ಸೇತಸಿಂದಿ (02–27) 5) ಮಲ್ಲಮ್ಮ ಗಂ. ಸಾಯಬಣ್ಣ ಸೇತಸಿಂದಿ (00–30) 6) ಭೀಮಶಪ್ಪ ತಂ. ಹಣಮಂತ ಸೀತಸಿಂದಿ (01–13) 7) ಸೈದಪ್ಪ ತಂ. ಹಣಮಂತ ಸೇತಸಿಂದಿ (05–17)	ಸ್ವಂತ	61/ಅ,ಆ	16–37	20–06	ಖುಷ್ಕಿ	60	56	57	65	
26	1) ಬಲರಾಮ ನಬಿಸಾ ಕಟಗರ 2) ಬಲರಾಮ ಶೇಷಾರಾಮ ಕಟಗರ } 06–18 3) ನರಸೋಜಿ ನಾಗೋಜಿ ಕಟಗರ 4) ಯಲ್ಲಾರಿ ತಂ. ಹಣಮಂತ ಕಟಗರ (01–23) 5) ಕಮಲಕಾಂತ ಕೃಷ್ಣಾಜಿ (01–22)	ಸ್ವಂತ	62	12–27	15–59 03–90 03–90 03–90 03–90	ಖುಷ್ಕಿ	63	65	60	64	

ಅ. ಸಂ.	ಖಾತೆದಾರರ ಹೆಸರು	ಅನುಭವದಾರರ ಹೆಸರು	ರಿ.ಸ.ನಂ.	ಸ್ವಾಧೀನಪಡಿಸುವ ಅಂದಾಜು ವಿಸ್ತೀರ್ಣ ಎ.-ಗುಂ.	ಆಕಾರ ರೂ-ಪೈ	ಜಮೀನಿನ ತರಹೆ	ಚಕಬಂದಿ (ಚತುಃಸೀಮೆ)				ಷರಾ
							ಪೂರ್ವ	ಪಶ್ಚಿಮ	ಉತ್ತರ	ದಕ್ಷಿಣ	
1	2	3	4	5	6	7	8	9	10	11	
	6) ಕೃಷ್ಣಾಜಿ ಕಾಶಿಂಸಾಬ ಕಟಿಗರ (01-22) 7) ನರಸಮ್ಮ ಗಂ. ಲಕ್ಷ್ಮಣ ಕಟಿಗರ (01-22)										
27	ಸ. ಗಂಗಪ್ಪ ತಂ. ಸೂಗಪ್ಪ	ಸ್ವಂತ	63	12-38 3-09 (ಖ) 9-29	23-05	ಖುಷ್ಕಿ	ಕಡೇಚೂರು ಗ್ರಾಮದ ಗಡಿ	62	59	64	
28	1) ದೊ. ಗಂಗಪ್ಪ ತಂ. ಮಲ್ಲಪ್ಪ (04-00) 2) ಸೂಗಪ್ಪ ತಂ. ಸಾಯಬಣ್ಣ (07-00) 3) ಸಾಬಮ್ಮ ಗಂ. ಹುಸೇನಪ್ಪ ರಾಮಣ್ಣ ನೋರ (4-00)	ಸ್ವಂತ	64	15-00 01-14 (ಖ) 13-26	-	ಖುಷ್ಕಿ	ಕಡೇಚೂರು ಗ್ರಾಮದ ಗಡಿ	65	62	67	
29	1) ಮಲ್ಲಿಕಾರ್ಜುನ ತಂ. ನಾಗಪ್ಪ (06-07) 2) ಈಶಪ್ಪ ತಂ. ಭೀರಪ್ಪ ಕೋದಂಡಿ (05-31)	ಸ್ವಂತ	65	12-15 00-24 (ಖ) 11-31	26-91	ಖುಷ್ಕಿ	62	ರೆಲ್ವೇ ಲೈನ	61	ರೆಲ್ವೇ ಲೈನ	
30	ಲಕ್ಷ್ಮಮ್ಮ ಗಂ. ಹಣಮಂತ ಟೋಗ್ರಿ (07-28)	ಸ್ವಂತ	66	07-28 0-06 (ಖ) 7-22	26-91	ಖುಷ್ಕಿ	68	ರೆಲ್ವೇ ಲೈನ	67	71	
31	ಲಕ್ಷ್ಮಮ್ಮ ಗಂ. ಹಣಮಂತ ಟೋಗ್ರಿ (03-15)	ಸ್ವಂತ	67	03-15 00-28 (ಖ) 02-27	06-13	ಖುಷ್ಕಿ	69	66	67	66	
32	ಭೀಮರಾಯ ತಂ. ನರಸಪ್ಪ ಕುಂಬಾರ (12-04)	ಸ್ವಂತ	68	12-04 00-34 (ಖ) 11-10	8-33	ಖುಷ್ಕಿ	69	71	766	70	
33	ಪರಂಪೋಕ ಸರಕಾರಿ	-	69	06-22 06-22 (ಖ) 00-00		ಖುಷ್ಕಿ	ಕಡೇಚೂರ ಗಡಿ	68	64	70	
34	1) ಮೌಲಾನಾ ತಂ. ಪೀರಸಾ ಮುಜಮದಾ (03-23) 2) ಸವರಪ್ಪ ತಂ. ದೇಸಾಯಿ ತಿಮ್ಮಾಜಿ (03-27)	ಸ್ವಂತ	70/ಅ ದಿಂದ ಈ ದ ವರೆಗೆ	14-19	05-11 05-12	ಖುಷ್ಕಿ	-ಅದೇ-	71	69	75	

ಅ. ನಂ.	ಖಾತೆದಾರರ ಹೆಸರು	ಅನುಭವದಾರರ ಹೆಸರು	ರಿ.ಸ.ನಂ.	ಸ್ವಾಧೀನಪಡಿಸುವ ಅಂದಾಜು ವಿಸ್ತೀರ್ಣ ಎ-ಗುಂ	ಆಕಾರ ರೂ-ಪೈ	ಜಮೀನಿನ ತರಹೆ	ಚಕಬಂದಿ (ಚತುಃಸೀಮೆ)				ಷರಾ
							ಪೂರ್ವ	ಪಶ್ಚಿಮ	ಉತ್ತರ	ದಕ್ಷಿಣ	
1	2	3	4	5	6	7	8	9	10	11	
	3) ಗಿರೆಪ್ಪ ತಂ. ಭೀಮಣ್ಣ ತಿಮ್ಮಾಜಿ (03-32) 4) ಗಿರೆಪ್ಪ ತಂ. ಭೀಮಣ್ಣ ತಿಮ್ಮಾಜಿ (03-32)				05-12 03-84					–	
35	ಮಹಾದೇವಪ್ಪ ತಂ. ತಿಮ್ಮಣ್ಣ ಕಾಕಲವಾರ (15-00)	ಸ್ವಂತ	71	15-00 01-11 (ಖ) 13-29	14-56'	ಖುಷ್ಕಿ	68	ರೆಲ್ವೇ ಲೈನ	66	27	
36	1) ಮಲ್ಲಪ್ಪ ತಂ. ಸೋಗಣ್ಣ } (09-14) 2) ಆಂಜನೇಯ ತಂ. ಸಾಬಣ್ಣ 3) ಹಣಮಂತ ತಂ. ನರಸಪ್ಪ (01-07) 4) ಮಲ್ಲಪ್ಪ ತಂ. ಸೋಗಪ್ಪ 5) ಮಲ್ಲಪ್ಪ ತಂ. ಸೂಗಣ್ಣಾ ಬೋಯಿನ್ (00-10) 6)ಬಸವರಾಜ ತಂ. ನರಸಿಂಗಪ್ಪ ಬೋಯಿನ್ (02-10)	ಸ್ವಂತ	72	07-08 00-12 (ಖ) 6-36	2-44 02-44 02-44	ಖುಷ್ಕಿ	74	ಕಡೇಚೂರ ಗಡಿ	71	73	
37	1) ಈಶ್ವರಪ್ಪ ತಂ. ಮಹಾದೇವಪ್ಪ (02-31) 2) ಕ್ರಿಷ್ಣಪ್ಪ ತಂ. ಮಹಾದೇವಪ್ಪ ಗುಡೇಬಲ್ಲೂರ (02-31	ಸ್ವಂತ	73	05-22 0-13 (ಖ) 05-09	7-35	ಖುಷ್ಕಿ	74	ಕಡೇಚೂರ ಗಡಿ	72	78	
38	1) ಮಲ್ಲಪ್ಪ ತಂ. ಸೂಗಣ್ಣ ಭೋಯಿನ್ (02-00) 2) ಸೂಗಪ್ಪ ತಂ. ನರಸಪ್ಪ (01-25) 3) ಸಂಗಪ್ಪ ತಂ. ನರಸಪ್ಪ } 01-24 4) ಮಹಾದೇವಪ್ಪ ತಂ. ಶಿವಯೋಗಿ 5) ಆಂಜನೇಯ ತಂ. ಸಾಯಬಣ್ಣ (02-00)	ಸ್ವಂತ	74	07-09	250 1-79 3-83	ಖುಷ್ಕಿ	75	72	70	77	
39	1) ಬಸಪ್ಪ ತಂ. ನರಸಪ್ಪ ಹಡಪದ (00-33) 2) ಮಹಾದೇವಪ್ಪ ತಂ. ಶಿವಪ್ಪ ಸಜ್ಜನ (06-05) 3) ಸಾಬಣ್ಣ ತಂ. ನರಸಪ್ಪ ಹಜಾಮ (00-33) 4) ಶರಣಪ್ಪ ತಂ. ನರಸಪ್ಪ ಹಡಪದ್ಲ (05-09)	ಸ್ವಂತ	75	8-25	0-85 06-60 0-85 0-85	ಖುಷ್ಕಿ	ಕಡೇಚೂರ ಗ್ರಾಮದ ಗಡಿ	74	70	76	
40	1) ಸಕ್ರೆಪ್ಪ ತಂ. ಭೀಮಣ್ಣ ಕೊತ್ತಾಪಲ್ಲಿ (05-09)	ಸ್ವಂತ	76	05-09	04-71	ಖುಷ್ಕಿ	ಕಡೇಚೂರ ಗ್ರಾಮದ ಗಡಿ	78	75	79	

ಅ. ನಂ.	ಖಾತೆದಾರರ ಹೆಸರು	ಅನುಭವದಾರರ ಹೆಸರು	ರಿ.ಸ.ನಂ.	ಸ್ವಾಧೀನಪಡಿಸುವ ಅಂದಾಜು ವಿಸ್ತೀರ್ಣ ಎ-ಗುಂ	ಆಕಾರ ರೂ-ಪೈ	ಜಮೀನಿನ ತರಹೆ	ಚಕಬಂದಿ (ಚತುಃಸೀಮೆ)				[illegible]
							ಪೂರ್ವ	ಪಶ್ಚಿಮ	ಉತ್ತರ	ದಕ್ಷಿಣ	
1	2	3	4	5	6	7	8	9	10	11	
41	1) ನಾಗಮ್ಮ ಗಂ. ಬಸ್ಸಪ್ಪ ಗುಡೇಬಲ್ಲೂರು (01–16) 2) ನಾಗಮ್ಮ ಗಂ. ಬಸ್ಸಪ್ಪ ಗುಡೇಬಲ್ಲೂರು (01–15)	ಸ್ವಂತ	77/1	2–31	1–47 1–48	ಖುಷ್ಕಿ	76	78	74	79	
42	1) ಯಲ್ಲಪ್ಪ ತಂ. ಮಲ್ಲೇಶಪ್ಪ ಹಿರಿಜನ (02–31)	ಸ್ವಂತ	77/2	2–31	3–65	ಖುಷ್ಕಿ	76	78	74	79	
43	1) ಕ್ರಿಷ್ಣಪ್ಪ ತಂ. ಮಹಾದೇವಪ್ಪ (00–16) 2) ಈಶ್ವರಪ್ಪ ತಂ. ಮಹಾದೇವಪ್ಪ (00–16) 3)ದೇವೆಂದ್ರಪ್ಪ ತಂ.ಮಹಾದೇವಪ್ಪ ಗುಡೇಬಲ್ಲೂರು(00–32) 4)ಮಹಾದೇವಮ್ಮ ತಂ.ಶರಣಪ್ಪ ಗುಡೇಬಲ್ಲೂರು (00–32)	ಸ್ವಂತ	78/1.	03–09 00–04(ಖ) 03–05	2–49	ಖುಷ್ಕಿ	77	ರೆಲ್ವೇ ಲೈನ	73	81	
44	1) ಕ್ರಿಷ್ಣಪ್ಪ ತಂ. ಮಹಾದೇವಪ್ಪ (00–29) 2) ಈಶ್ವರಪ್ಪ ತಂ. ಮಹಾದೇವಪ್ಪ (00–29) 3) ದೇವೆಂದ್ರಪ್ಪ ತಂ/ ಮಹಾದೇವಪ್ಪ (1–18) 4) ಮಹಾದೇವಮ್ಮ ತಂ. ಶರಣಪ್ಪ (1–18) 5) ಗೌರಮ್ಮ ಗಂ/ ಹಣ್ಮಂತ ಮುಂಡರಗಿ (1–18)	ಸ್ವಂತ	78/2	5–32	1–67 1–67 1–66	ಖುಷ್ಕಿ	77	ರೆಲ್ವೇ ಲೈನ	73	81	
45	1) ಕ್ರಿಷ್ಣಪ್ಪ ತಂ/ ಮಲ್ಲಪ್ಪ ಜೇರಕಲ್ (3–33) 2) ಈರಮ್ಮ ಗಂ/ ಸಿದ್ದಪ್ಪ ಚಂದಾಪುರ (1–36) 3) ಈರಮ್ಮ ಗಂ/ ಸಿದ್ದಪ್ಪ ಚಂದಾಪುರ (1–36)	ಸ್ವಂತ	79	7–25	4–39	ಖುಷ್ಕಿ	ಕಡೇಚೂರು ಗ್ರಾಮದ ಗಡಿ	77	76	89	
46	1) ಆಂಜನೇಯ ತಂ. ನರಸಪ್ಪ ಮಕ್ತಲ (2–03) 2) ಆಂಜಮ್ಮ ತಂ. ನರಸಪ್ಪ (2–00)	ಸ್ವಂತ	80/1	4–03	7–35	ಖುಷ್ಕಿ	ಕಡೇಚೂರು ಗ್ರಾಮದ ಗಡಿ	81	82	79	
47	1) ಮಹಾದೇವಪ್ಪ ತಂ. ಮಲ್ಲಿಕಾರ್ಜುನ (1–13) 2) ದೇವೆಂದ್ರಪ್ಪ ತಂ/ ಮಲ್ಲಿಕಾರ್ಜುನ (1–13)	ಸ್ವಂತ	80/2	2–26	3–48	ಖುಷ್ಕಿ	ಕಡೇಚೂರು ಗ್ರಾಮದ ಗಡಿ	81	82	79	
48	1) ನರ್ಸೋಜಿ ತಂ/ ಇಲಾಪತಿ (1–21) 2) ಹಣಮಂತ ತಂ/ ಲಕ್ಷ್ಮನ } (1–21) 3) ಕೃಷ್ಣಾಜಿ ತಂ/ ರೋಷನ 4) ಹುಸೇನಜಿ ತಂ/ ಸುಬ್ಬಾಜಿ ಮರಾಠ (1–20)	ಸ್ವಂತ	81	4–21 0–07(ಖ) 4–14	1–54 1–54 1–54	ಖುಷ್ಕಿ	80	ರೆಲ್ವೇ ಲೈನ	78	82	

ಅ. ನಂ.	ಖಾತೆದಾರರ ಹೆಸರು	ಅನುಭವದಾರರ ಹೆಸರು	ರಿ.ಸ.ನಂ.	ಸ್ವಾಧೀನಪಡಿಸುವ ಅಂದಾಜು ವಿಸ್ತೀರ್ಣ ಎ-ಗುಂ	ಆಕಾರ ರೂ-ಪೈ	ಜಮೀನಿನ ತರಹೆ	ಚಕಬಂದಿ (ಚತು:ಸೀಮೆ)				ಷರಾ
							ಪೂರ್ವ	ಪಶ್ಚಿಮ	ಉತ್ತರ	ದಕ್ಷಿಣ	
1	2	3	4	5	6	7	8	9	10	11	
49	1) ಲಚಮಣ್ಣ ತಂ/ ಸಾಬಣ್ಣ 2) ಮಲ್ಲಪ್ಪ ತಂ/ ಸಾಬಣ್ಣ ಉಳ್ಳೇಸೂಗೂರು } (7–11)	ಸ್ವಂತ	82	7–11 0–04(ಖ) 7–07	11–70	ಖುಷ್ಕಿ	ಕಡೇಚೂರು ಗ್ರಾಮದ ಗಡಿ	ರೈಲ್ವೇ ಲೈನ	80/2	83	
50	1) ದೊ. ಲಕ್ಷ್ಮಣ ತಂ. ರಾಮಣ್ಣ (2–17) 2) ಸ. ಲಚಮಣ್ಣ ತಂ. ರಾಮಣ್ಣ (2–17) 3) ಮಹಾದೇವಪ್ಪ ತಂ. ಲಕ್ಷ್ಮಣ (4–36) 4) ನರಸಪ್ಪ ತಂ. ಪ್ರಭುರಾಯ (4–36)	ಸ್ವಂತ	83	14–24 00–12(ಖ) 14–12	6–62 6–64	ಖುಷ್ಕಿ	ಕಡೇಚೂರು ಗ್ರಾಮದ ಗಡಿ	ರೈಲ್ವೇ ಲೈನ	82	84	
51	1) ಮೌಲನಬಿ ಗಂ. ಮಹ್ಮದಸಾ ಪಿಂಜಾರ (3–14) 2) ಮಹಿಬೂಬಬಿ ಗಂ. ರಾಜಾಸಾಬ (3–15) 3) ಖಾಜಾ ಹುಸೇನ ತಂ. ಮಹ್ಮದ ಸಾಬ ಪಿಂಜಾರ (6–00)	ಸ್ವಂತ	84	12–29 00–16(ಖ) 12–13	8–16 8–00	ಖುಷ್ಕಿ	ಕಡೇಚೂರು ಗ್ರಾಮದ ಗಡಿ	ರೈಲ್ವೇ ಲೈನ	83	85	
52	1) ಶಿವನಾಗಮ್ಮ ಗಂ. ಮಹಾದೇವಪ್ಪ 2) ಬಸಲಿಂಗಮ್ಮ ಗಂ. ರಾಮಚಂದ್ರಪ್ಪ 3) ಹಣಮಂತ ತಂ. ತಿಪ್ಪಣ್ಣ } (1–12) 4) ಲಕ್ಷ್ಮಮ್ಮ ಗಂ ತಿಪ್ಪಣ್ಣ ತೊಗರಿ (1–12) 5) ಮರೆಮ್ಮ ಗಂ. ನಾಗಪ್ಪ ಶೇಷಗಿರಿ (00–26) 6) ಮರೆಮ್ಮ ಗಂ. ನಾಗಪ್ಪ ಶೇಷಗಿರಿ (00–26) 7) ಶಿದ್ಲಿಂಗಪ್ಪ ತಂ. ಶಿವಪ್ಪ ಸಜ್ಜನಶೆಟ್ಟಿ (00–29)	ಸ್ವಂತ	85/1 85/1/1 85/2 85/3	3–21	1–38 1–71 1–22	ಖುಷ್ಕಿ	ಕಡೇಚೂರು ಗ್ರಾಮದ ಗಡಿ	ರೈಲ್ವೇ ಲೈನ	84	ಹದ್ದಾರಿ	
			ಒಟ್ಟು	496–34 20–27 (ಖ) 476–07							

ಘೋಷ್ವಾರೆ

ಅ.ಸಂ.	ಗ್ರಾಮದ ಹೆಸರು	ಒಟ್ಟು ಕ್ಷೇತ್ರ	ಖರಾಬು ಕ್ಷೇತ್ರ	ನಿವ್ವಳ ಕ್ಷೇತ್ರ
01	02	03	04	05
1.	ಕಡೇಚೂರು	2735–28	63–37	2671–31
2.	ಬಾಡಿಯಾಳ	496–34	20–27	476–07
	ಒಟ್ಟು	**3232–22**	**84–24**	**3147–38**

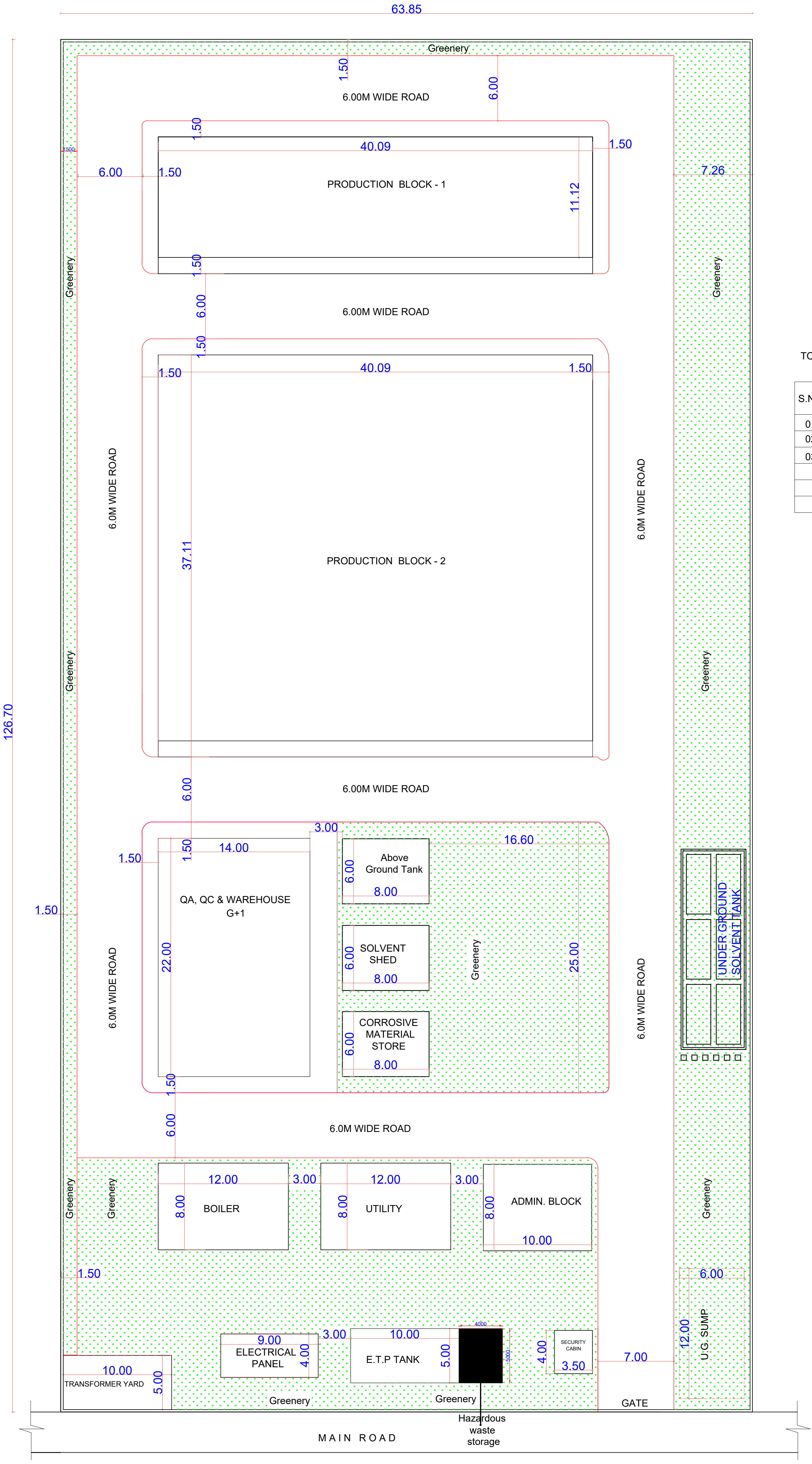
ಕರ್ನಾಟಕ ರಾಜ್ಯಪಾಲರ ಆದೇಶಾನುಸಾರ ಮತ್ತು ಅವರ ಹೆಸರಿನಲ್ಲಿ,

ಎ.ಪಿ. ರಾಮಕೃಷ್ಣ
ಸರ್ಕಾರದ ಅಧೀನ ಕಾರ್ಯದರ್ಶಿ (ಕೈ.ಅ.)
ವಾಣಿಜ್ಯ ಮತ್ತು ಕೈಗಾರಿಕೆ ಇಲಾಖೆ

ಸರ್ಕಾರಿ ಮುದ್ರಣಾಲಯ, ವಿಕಾಸ ಸೌಧ ಘಟಕ, ಬೆಂಗಳೂರು. (ಪಿ3) (600 ಪ್ರತಿಗಳು)
100

ANNEXURE-10

LAYOUT PLAN



AREA STATEMENT.

S.No	DESCRIPTION	DIMENSIONS (mts.) L	B	AREA Sq. M
01	PRODUCTION BLOCK-1 (Ground Floor) PRODUCTION BLOCK-1 (First Floor) PRODUCTION BLOCK-1 (Second Floor)	40.09 40.09 40.09	11.12 11.12 11.12	445.80 445.80 445.80 1337.40
02	PRODUCTION BLOCK - 2 (Ground Floor) PRODUCTION BLOCK - 2 (First Floor)	40.09 40.09	37.11 37.11	1487.74 1487.74 2975.48
03	WARE HOUSE, Q.A & Q.C. (Ground Floor) WARE HOUSE, Q.A & Q.C. (First Floor)	14.00 14.00	22.00 22.00	308.00 308.00 616.00
04	BOILER	12.00	8.00	96.00
05	UTILITY	12.00	8.00	96.00
06	ABOVE STORAGE TANKS	6.00	8.00	48.00
07	SOLVENT SHED	6.00	8.00	48.00
08	E.T.P TANKS	10.00	5.00	50.00
09	ADMIN BLOCK	10.00	8.00	80.00
10	ELECTRICAL ROOM	04.00	9.00	36.00
11	H T YARD	10.00	5.00	50.00
12	HAZARDOUS WASTE STORAGE	04.00	5.00	20.00
13	SECURITY ROOM	04.00	3.50	14.00
	TOTAL BUILT UP AREA			5466.88

TOTAL SITE AREA 63.85M X 126.70M = 8089.80 SQ.M

S.No	DESCRIPTION	AREA IN SQ.M	AREA IN PERCENTAGE (%)
01	GROUND COVERAGE AREA	2725.5	33.7 %
02	GREENERY AREA	2694.3	33.3 %
03	ROADS AREA	2670.0	33.0 %
	TOTAL SITE AREA	8089.80	100.00 %

SPECIFICATION'S

- FOUNDATION → R.C.C
- BASEMENT → C.R.S IN C:M
- SUPER STRUCTURE → BRICK WORK
- STRUCTURE → R.C.C
- FLOORING → FLOORING AS PER DETAIL
- PLASTERING → CEMENT MORTOR
- ROOFING → R.C.C
- ELECTRICAL → AS PER I.S.I STANDARDS

REFERENCE

PROPOSED

EXISTING

GENERAL NOTES:

(UNLESS OTHERWISE MENTIONED)
ALL DIMENSIONS ARE IIN METERS.

OWNER`S SIGNATURE

CONSULTANT`S SIGNATURE

CLIENT:

PROPOSED FACTORY BELONG TO
M/s. LAUREATZ TECHNOCHEM PVT LTD
PLOT NO.62, KIADB, KADECHUR INDUSTRIAL AREA
YADGIR, KARNATAKA.

STRUCTURAL CONSULTANT:

SRI HARSHA CONSULTING ENGINEERS(P) LTD.
SHPL
Plot no: 13, Vishnu Acharya Nivas,
Road No -3,Journalist Colony,
Banjarahills,Hyderabad-500 034
Ph: 040-23350500/23351600
Mob- 9440350500
Email: shpl.hyd@gmail.com

DRAWING TITLE:

LAY OUT PLAN

DRAWING NO	SHPL/MPPL/LY/SUB/001	REV	R0
		APPROVED	V.S REDDY
SCALE	1:100	DRAWN BY	VENKAT
DATE	12-03-2021	CHECKED BY	V.S REDDY

ANNEXURE-11

NABET CERTIFICATE

Quality Council of India

National Accreditation Board for Education & Training

CERTIFICATE OF ACCREDITATION

AM Enviro Engineers

No.14/1, Harikrupa, Patalamma Temple Street, Basavanagudi, Bangalore, Karnataka-560004

Accredited as Category - A organization under the QCI-NABET Scheme for Accreditation of EIA Consultant Organizations: Version 3 for preparing EIA/EMP reports in the following sectors:

Sl. No	Sector Description	Sector (as per) NABET	Sector (as per) MoEFCC	Cat.
1.	Mining of minerals - opencast mining only	1	1 (a) (i)	B
2.	Metallurgical industries (secondary – ferrous only)	8	3 (a)	B
3.	Pesticides industry and pesticide specific intermediates (excluding formulations)	17	5 (b)	A
4.	**Synthetic organic chemicals industry** (dyes & dye intermediates; bulk drugs and intermediates **excluding** drug formulations; synthetic rubbers; basic organic chemicals, other synthetic organic chemicals and chemical intermediates)	21	5 (f)	A
5.	Building and construction projects	38	8 (a)	B
6.	Townships and Area development projects	39	8 (b)	B

Note: Names of approved EIA Coordinators and Functional Area Experts are mentioned in IA AC Minutes dated February 21, 2020 on QCI-NABET website.

The Accreditation shall remain in force subject to continued compliance to the terms and conditions mentioned in NABET's letter of accreditation bearing no. QCI/NABET/ENV/ACO/20/1271 dated March 12, 2020. The accreditation needs to be renewed before the expiry date by AM Enviro Engineers, Bangalore following due process of assessment.

Sr. Director, NABET
Dated: March 12, 2020

Certificate No.
NABET/EIA/1922/IA0056

Valid till
Dec 30, 2022

For the updated List of Accredited EIA Consultant Organizations with approved Sectors please refer to QCI-NABET website.

KIADB
Land of Opportunities
(A Government of Karnataka Undertaking)

Acknowledgement of Online Application for Water Supply Connection

Application Date	16-Jun-2021	
Application No.	KIADB2021WS0183	
Name	Srihari	
Industrial Area	Kadechur I A	
Plot No.	62	
Mobile No.	9494407373	
Water Supply Details	Quantum of Water Supply Approved	136000.00
	Quantum of Water Supply Requested	84000.00
	Connections Requested Per Day	84000.00

This is an acknowledgement of your online application for Water Supply Connection. Please note and refer the Application Number in further communications.

Please contact the Development Officer/Secretary, KIADB for further processing of the application. The contact details are mentioned below:

Officer, KIADB

T.H Prakash

8150848022

dokalaburagi@kiadb.in

KALABURAGI,YADGIRI,BIDAR - KIADB
Zonal office, Kapnur Industrial Area,
Humnabad Road, Kalaburagi-585102

Applicant Details

Name And Address

Applicant First Name	Srihari	Mobile No	9494407373
Applicant Middle Name		Email ID	laureatz4ec@gmail.com
Applicant Last Name	T V	Name of the	M/s. Laureatz Technochem Pvt. Ltd

Communication Address		Local Address	
Address Line1	Plot No. 147, Sri Sai Nilayam	Address Line1	Plot No. 62,
Address Line2	Pragathi Nagar, Kukatpalli, (Near JNTU),	Address Line2	Kadechur Industrial area
City	Hyderabad'	City	Yadagir
State	Telangana	State	Karnataka
Pin Code	500090	Pin Code	585221

Details of Water supply connection to the Unit

District	Yadgir	Industrial Area	Kadechur I A
Plot No.	62	Extent In Acre(Sq.	8089.80

Laureatz
TECHNOCHEM

Laureatz Technochem Pvt Ltd.

Date:16.06.2021

To,

Member Secretary, Industry - II,
Ministry of Environment, Forest & Climate Change,
Vayu Wing, Indira Paryavaran Bhavan,
Jor Bagh Road, Jor Bagh, New Delhi – 110003.

Sir,

Sub: **Declaration letter regarding usage of boiler & Thermic fluid heater primary fuel as Biomass Briquettes.**

Ref: **J-11011/143/2021-IA.II(I)**

With reference to the above subject and reference we have proposed the project "Establishment of Active Pharmaceutical Ingredients (API's)" at Plot No 62, Kadechur Industrial area, Yadagir Taluk & District, Karnataka-585221. In the application submitted, we have mentioned that the primary fuel for boiler & Thermic fluid heater will be biomass briquettes and coal will be used only as alternative. In this regard, here with we are declaring & submitting that, we will use biomass briquettes as primary fuel for boiler & thermic fluid heater. During scarcity of biomass briquettes, coal will be used as alternative fuel.

Kindly consider and issue us the environmental clearance at the earliest.
Thanking You,

Yours Faithfully,
For **M/s. Laureatz Technochem Pvt. Ltd**

LAUREATZ TECHNOCHEM PVT. LTD. ★ HYD.

Authorized Signatory