PRE FEASIBILITY REPORT

Of

PROPOSED SYNTHETIC ORGANIC CHEMICAL INDUSTRY

BY

"M/s. MASCOT FINOCHEM"

PLOT NO. C – 3/4, MIDC PAITHAN, TALUKA-PAITHAN, DISTRICT-AURANGABAD, MAHARASHTRA.

MASCOT FINOCHEM

December 2018

Environmental Consultant:

Building Environment (India) Pvt. Ltd.

NABET/EIA/1518/SA 048

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1. EXECUTIVE SUMMARY

M/s. MASCOT Finochem is a registered company under the Indian Partnership Act, 1932. The partners of **M/s. Mascot Finochem** have proposed to establish synthetic organic chemical manufacturing unit at Plot No. C -3/4, MIDC Paithan, Taluka-Paithan, District-Aurangabad. Total plot area of the project is 7781 Sq.M. & Total built up area would be 2500 Sq.M.

In accordance with EIA Notification 14th September 2006 and amendment thereof the proposed project falls under 5(f) project activity i.e. 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). The project would require Environmental Clearance (EC) from the Expert Appraisal Committee (EAC- Industry 2), MoEFCC, New Delhi. As the proposed project falls under category "A" project, Environmental Impact Assessment needs to be carried out for the project.

Client intends to produce chemicals that will be used as food preservatives, perfumery, drug intermediate etc. These products have local demand as per end user requirement. The project will run on Zero Effluent Discharge (ZLD) scheme. Generated effluent will be treated in ETP of capacity 20 KLD followed by RO system & finally Multi-Effect Evaporator system. Solid waste will be categorized as hazardous & non-hazardous on the basis of its characteristics. Hazardous waste will be sent to CHWTSDF and non-hazardous to authorized vendor for its disposal.

Proposed project will generate 80-100 nos. employment to local youth in construction phase and 35 nos. of operational phase. The approximate capital investment of the project is **Rs. 365.32** Lakhs.

2. IDENTIFICATION OF THE PROJECT / BACKGROUND INFORMATION

2.1 Identification of project & project proponent:

The proposed synthetic organic chemical industry will produce chemicals that will be used as food preservatives, drug intermediates, etc. Mr. Osmanuddin Aminuddin Khaja is one of the directors of the company. He is in infrastructure business from last 10 years.

Mr. Raziuddin Shaikh is the technical advisor of the company. He has served as a Professor in chemical engineering in Marathwada University. He has about 20 years of experience in chemical industrial projects.

2.2 Brief description & nature of the project:

Proposed chemical industry will produce chemical intermediate products for food preservative, perfumery, drug intermediates, etc. as per local market demand. Details of the products are presented in the table below.

Table No. 1:- Product details

Sr. No	Name of Chemical	Quantity (Tonnes/year)
1.	N-Phenyl Piperazine	200
2.	Benzhydrol	500
3.	Sachcharin	250
4.	Methyl Hexanoic Acid	100
5.	2-Amino-4-Chlorophenol	400
6.	Methyl Anthranilate	600
7.	Calcium Propionate	200
8.	Cetyl Lactate	120
9.	Sodium-2-Ethyl Hexonate	200
10.	Benzhydryl piperazine	50
11.	4-methoxy propiophenone	150

12.	Anethole	100
13.	3-chloro-4-fluoro aniline	150
14.	5-amino-2-chlorobenzo trifluoride	150
15.	Methyl iso valerate	150
16.	Meta chloro anisol	200
17.	Meta bromo anisol	200
18.	Furfurylamine	500
19.	4-chloro-2trifluoro acotyl amiline Hcl	200
20.	Sodium Ascorbic Phosphate	200
21.	N-Acetyl Cysteine	120
22.	L-Carnitine Fumarate	120
23.	L-Carnitine-L Tartarate	120
24.	N-Acetyl – L Carnitine HCl	120
	TOTAL	**5100**

2.3 Need for the project and its importance to the country and or region

The demand for specialty chemicals in India and across the world is increasing steadily. Till the '60s, medicines were imported in the country and the pharma industry was dominated by foreign companies. In the wake of this scenario, there was an initiative by a small group of visionary entrepreneurs from India for forming Indian Drug Manufacturers' Association (IDMA) in Mumbai, the commercial capital of India, in 1961. Now, 50 years down the road, the complexion of the Industry is distinctly Indian and India has acquired a dominant position in the pharmaceutical sector, with Maharashtra leading the way as the torch-bearer of Indian pharmaceutical industry.

Many pharma companies enjoy success largely because their major operations are based in Maharashtra. The government support received by the industry has been substantial and the presence of a pragmatic and stable state government has been one of the major reasons the state has managed to remain a principal destination for all

pharma companies whether Indian or MNC. Maharashtra has been a hub for the pharma industry, both in terms of manufacturing as well as supply of materials.

Aurangabad industrial belt occupies 40% of chemical producing industries for pharma and other industries. In view of future market demand, it is the best opportunity to set up a business in Aurangabad which may lead to employment generation to local youth and economical upliftment of Paithan region.

2.4 Demand – Supply gap

The Indian pharmaceutical industry is the world's second-largest by volume and is likely to lead the manufacturing sector of India. Several Government and private sector projects with huge amount of investments have been initiated but could not attend the speed of development for the need of good quality material. Over the last decade, there has been a sizeable growth in Pharmaceutical sector both in small, medium and large-scale units. This has given rise to many small and medium scale units to manufacture pharmaceutical intermediate. The ever-growing requirements of India due to higher population and various diseases indicated the need for the growth of this industry. Thus, there is a gap in demand and supply. Our efforts of generating products, by-products, downstream products and recycling - reprocessing are indeed needed. With multinational pharmaceutical companies enhancing their presence in India, the long-term prospects of the pharmaceutical industry seem fairly bright.

Also, demand of pesticides in Indian agro sector is increasing day by day to improve productivity and to deal with attack of various types of pests etc. The proposed products will serve as raw materials to the pesticide manufacturing industry which will help decrease the rate of import of these raw materials which will effectively minimize the cost as well as narrow the demand supply gap.

In the food industry, the demand for preservative is increasing as multi-national companies are shifting their manufacturing base in India. The proposed products will

serve as raw materials to the preservative manufacturing industry, thus supporting these multi-national companies and decrease the demand supply gap.

The fate of industrialization depends on the proper and effective conjugation of large and medium/small scale industries each supporting each other in their requirement to bridge the gap between demand and supply. In order to be competitive in the global market this synergy between large & medium/small scale industries is a prerogative. Therefore, considering the above, large companies do require the help of small units to support them by giving them quality products at lesser price.

2.5 Import vs Indigenous Production

Today, many Indian products especially food products are being exported. Hence the demand of food preservatives is increasing rapidly. Sometimes food preservatives are imported from other countries. Thus, proposed chemical production may reduce the demand of imported chemicals.

Nowadays Aurangabad MIDC area i.e. Waluj, Paithan is recognized as pharma area. Most of the required raw materials are sourced outside the Aurangabad. The proposed industry will produce intermediates which will be helpful to reduce raw materials requirement of bulk drugs for Aurangabad region.

Also, Aurangabad MIDC area i.e. Waluj and Paithan consists of many perfumery industries. These industries require large quantity of raw materials which are either imported or sourced from outside Maharashtra. The proposed products by Mascot Finochem will serve as intermediates for perfumery industry which will help reduce import of raw materials and increase indigenous production.

2.6 Export possibility

Proposed industry is a small-scale industry so whatever product produced will be sold to local market only.

2.7 Employment Generation (Direct & Indirect) due to the project

Proposed project will generate 80-100 nos. of temporary jobs in construction phase & 35 nos. of permanent jobs in operational phase. In addition to this, small ancillary business which are directly or indirectly dependent will develop.

3. PROJECT DESCRIPTION

3.1 Type of project

Proposed project is an intermediate synthetic organic chemical manufacturing industrial project.

3.2 Location of the project

Proposed project site is situated in well-developed Paithan MIDC, which falls under jurisdiction of Paithan Taluka, Aurangabad district of Maharashtra. Location Map of the Project site is shown in **Figure No. 1. & 2**. Project site is located at 36 km in South direction from Aurangabad city & at 7 km in North direction from Paithan town. Geographical location of industry is 19°33'1.92"N, 75°23'2.91"E with elevation of 476 m from mean sea level. Project site is spread in to 7781 Sq. M area within MIDC –Paithan. Project site marked on Paithan MIDC layout plan is shown in **Figure No.5**. Also, the existing site photographs have been shown in **Figure No. 3 & 4.** The proximity to the highway will be an advantage, since the company's raw materials and finished products will be transported by road. Project location is shown in **Figure No. 1.**

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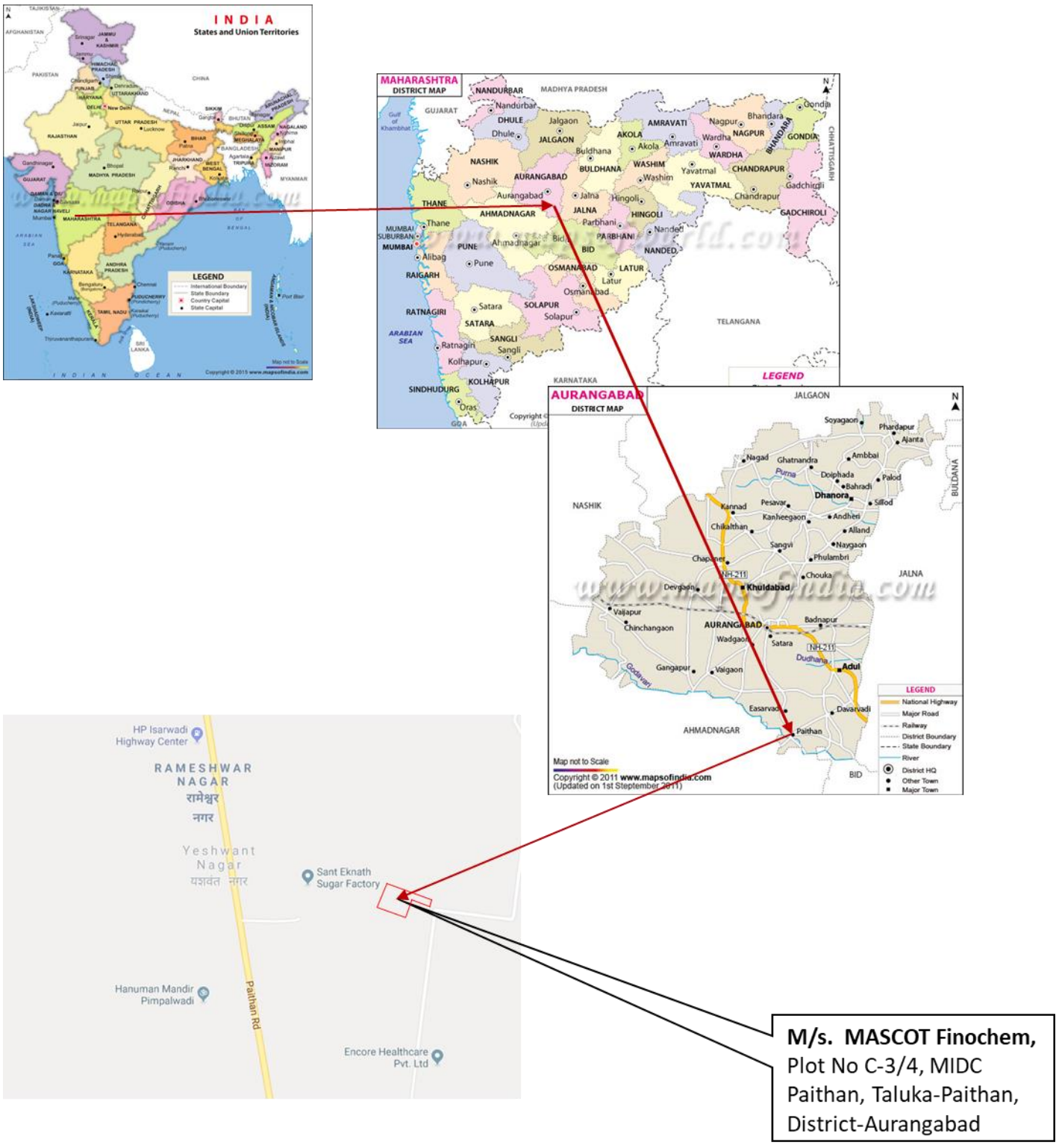


Figure No. 1 : Project Location

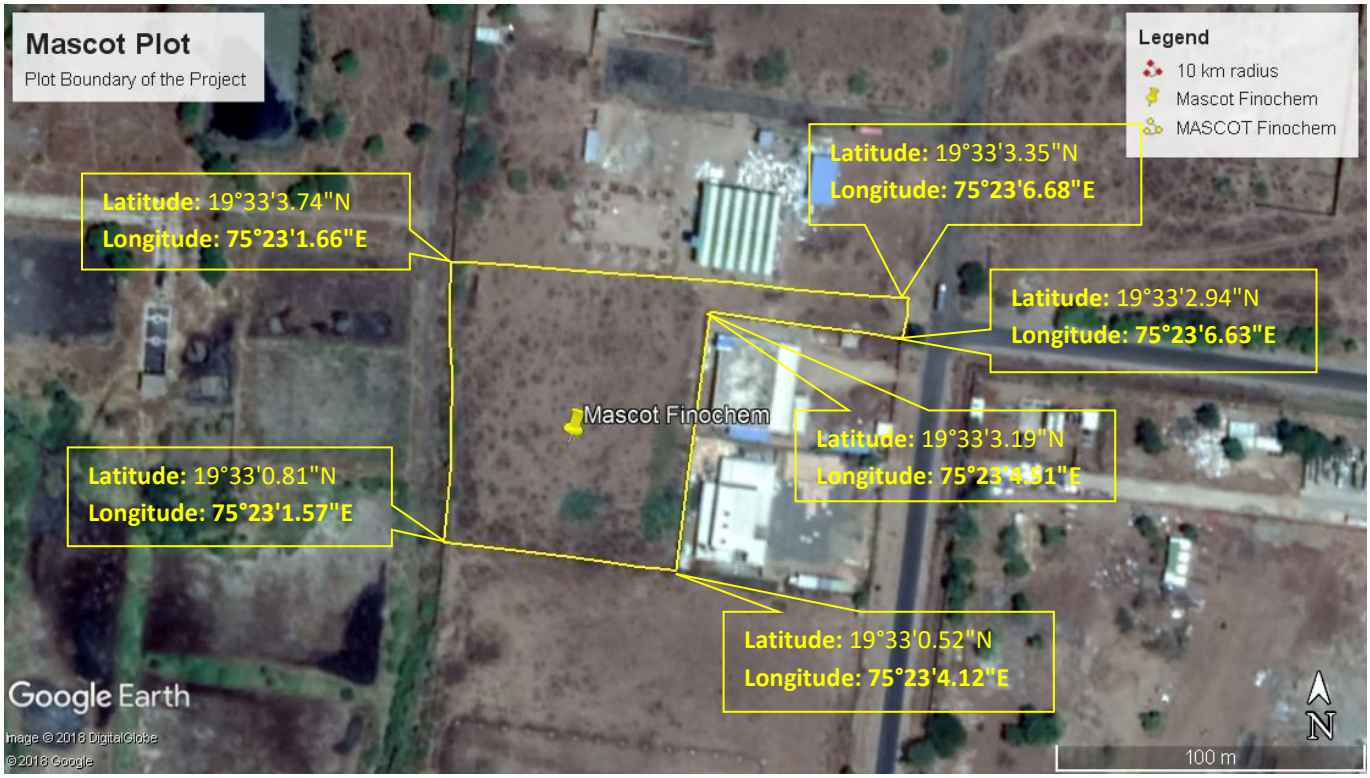


Figure No. 2: Google Imagery of the project site

Surrounding area of the proposed industry includes Sant Eknath Sugar Factory – 0.3 km (W), Pepsico India Ltd.- 1.0 km (S), Apex Medichem – 0.88 km (S), Hindustan Composites Ltd. – 1.33 km (SE), Paithan MIDC- 0 km, Ajanta Pharma – 1.2 km (S), Vaibhav Industries – 1.3 km (S), Satellite Pharma – 1.3 km (S) etc.

Figure No. 3 : Existing Site Photograph taken from North corner of the plot

Figure No. 4 : Existing Site Photograph taken from West corner of the plot

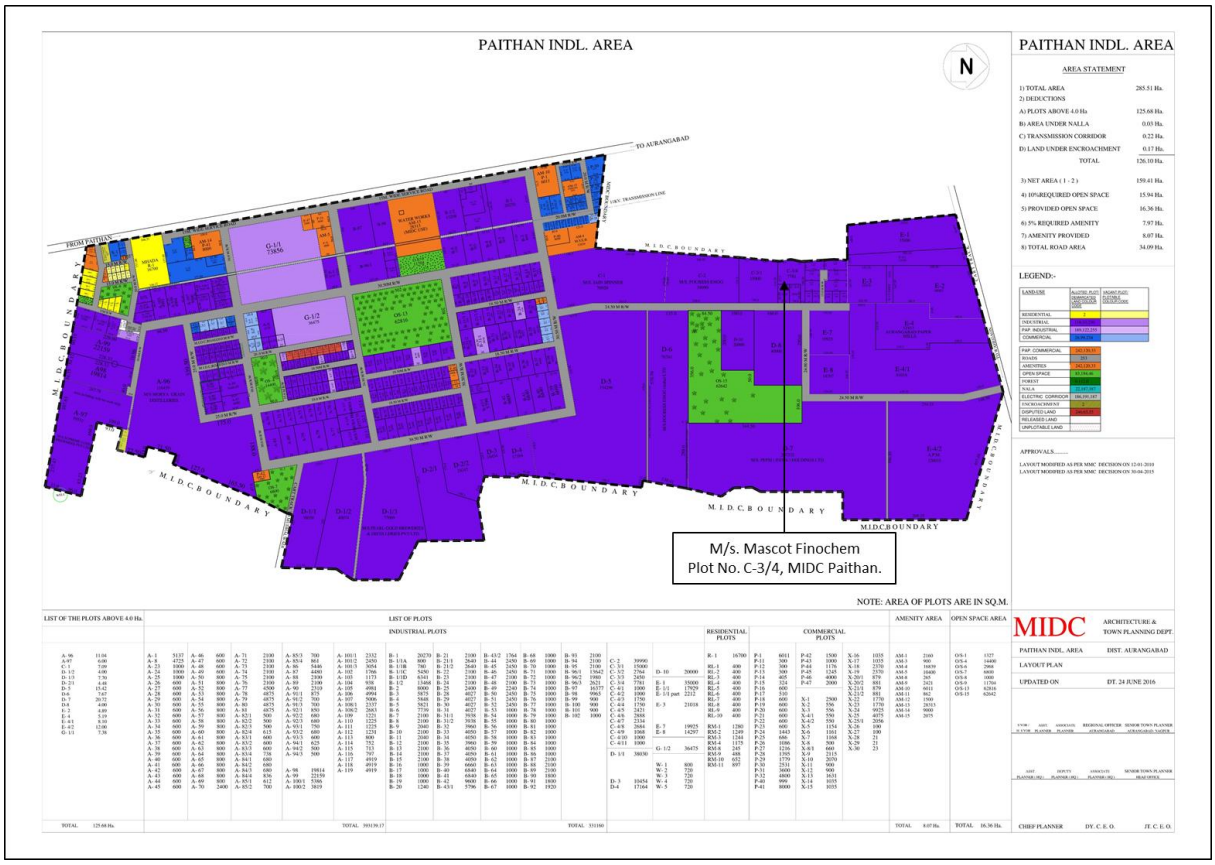


Figure No. 5: Paithan MIDC Layout Plan

3.3 Details of alternative sites

Economic and social factors are recognized and assessed while siting an industry. Environmental factors must be taken into consideration in industrial siting. Proximity of water sources, highway, major settlements, markets for products and raw material resources is desired for economy of production, but all the above listed systems must be away for environmental protection. Industries are, therefore, required to be sited, striking a balance between economic and environmental considerations. In selecting such a site, the following factors must be recognized. -

- The Site should be located in a well-developed industrial area.
- The land use pattern of the area should remain unchanged.
- Surrounding land use compatibility should be industrial.
- Topography of the site should be mostly flat.

- Should be atleast 500 m away from Human Settlement.
- No notified critically polluted area in the radius of 5 km.
- No Archeological Monument within the radius of 7 km.
- Availability of Approach Road.
- Availability of infrastructure such as water, roads, electricity, local manpower, etc.
- Availability of market for the finished products.
- No forest land should be converted into non-forest activity for the sustenance of the industry.

The proposed site located at plot no C-3/4, MIDC Paithan takes into consideration all the factors depicted in the site selection criteria by MoEFCC. Hence analysis of alternatives for the above said project is not considered.

3.4 Size or magnitude of operations

Following table will revels that size & magnitude of operations:

Table No. 5: Production Details

Sr. No	Name of Chemical	Quantity (Tonnes/year)
1.	N-Phenyl Piperazine	200
2.	Benzhydrol	500
3.	Sachcharin	250
4.	Methyl Hexanoic Acid	100
5.	2-Amino-4-Chlorophenol	400
6.	Methyl Anthranilate	600
7.	Calcium Propionate	200
8.	Cetyl Lactate	120
9.	Sodium-2-Ethyl Hexonate	200
10.	Benzhydryl piperazine	50
11.	4-methoxy propiophenone	150
12.	Anethole	100
13.	3-chloro-4-fluoro aniline	150

14.	5-amino-2-chlorobenzo trifluoride	150
15.	Methyl iso valerate	150
16.	Meta chloro anisol	200
17.	Meta bromo anisol	200
18.	Furfurylamine	500
19.	4-chloro-2trifluoro acotyl amiline Hcl	200
20.	Sodium Ascorbic Phosphate	200
21.	N-Acetyl Cysteine	120
22.	L-Carnitine Fumarate	120
23.	L-Carnitine-L Tartarate	120
24.	N-Acetyl – L Carnitine HCl	120
	TOTAL	**5100**

3.5 Project Description with process details

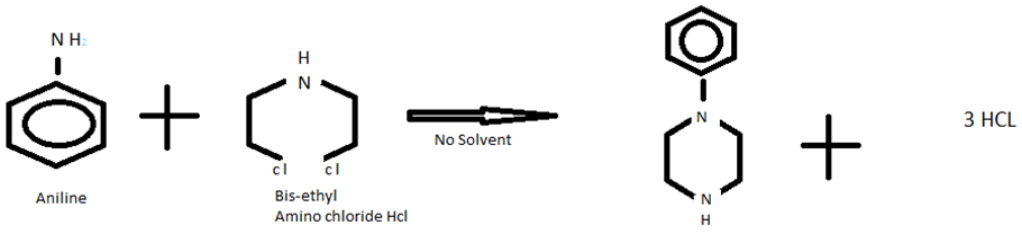
I. N-PHENYL PIPERAZINE

Product Profile: - N-Phenyl Piperazine, having chemical formula $C_{10}H_{14}N_2$, is used as an intermediate in the manufacturing of bulk drug Oxypertine.

Brief Process: - N-Phenyl Piperazine is manufactured from Aniline.

Aniline is reacted with Bis -2-Chloro-Ethyl-amine hydrochloride to obtain N-Phenyl piperazine. During the reaction HCL gas is evolved which is absorbed in water in an Absorber/ Scrubber. Product is purified with Trichloromethane/ Toluene.

Chemical Reaction

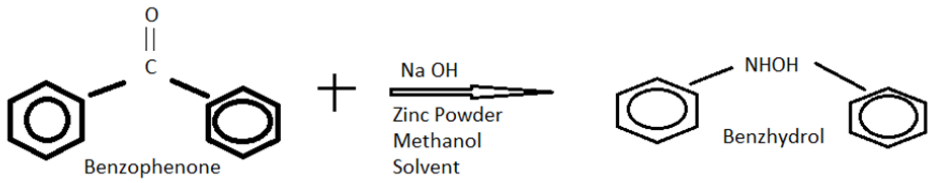


II. BENZHYDROL

Product Profile: - Benzhydrol, also known as Diphenyl methanol, its chemical formula is C_{13} H_{12} O and is synthesized from the benzophenone. It is used as an intermediate of pharmaceuticals, agrochemical and other organic compounds. It has got major application in perfumery industries.

Brief Process: - Benzophenone is reacted with methanol in the presence of sodium hydroxide and zinc powder at reflux temperature to form Benzhydrol (Diphenyl Methanol)

Chemical Reaction

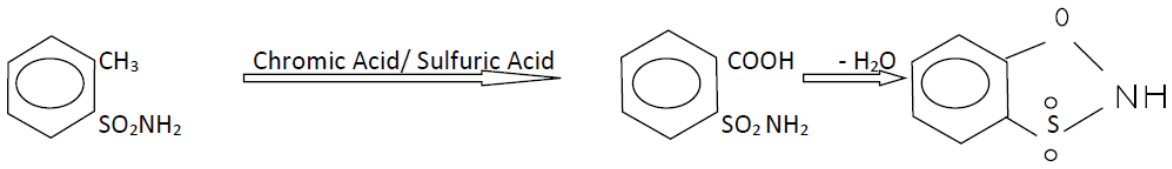


III. SACCHARIN

Product Profile: Saccharin is an artificial sweetener, having chemical formula $C_7H_5NO_3S$, having a chemical name Benzoic sulfimide. Saccharin an intermediate is used primarily in the food industry as Saccharin sodium.

Brief Process: Benzoic Sulfimide (Saccharin) is produced from ortho Toluene Sulfonamide in the presence of chromic acid and Sulfuric acid at about 50° C to obtain the sulfonamide benzoic acid which is a solid cake, this cake is given a water/sodium carbonate solution wash to obtain the Saccharin.

Chemical Reaction



(Yield = 87%)

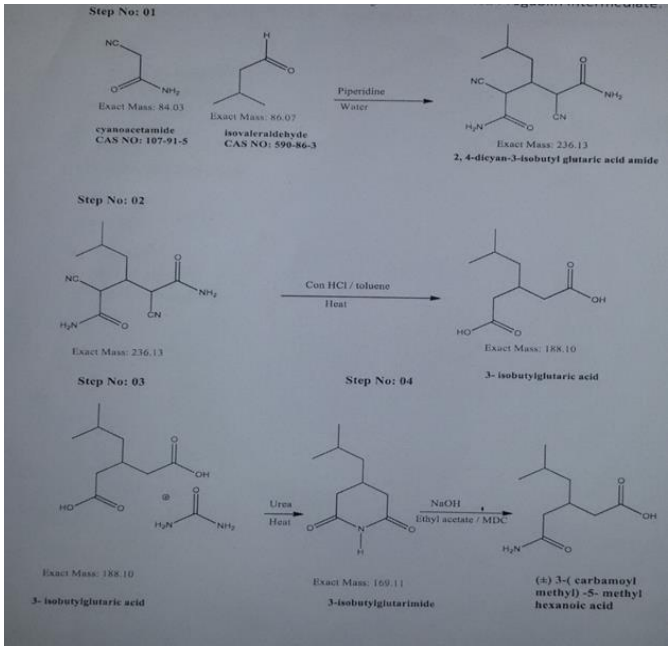
IV. METHYL HEXANOIC ACID

Product Profile: Methyl hexanoic acid is an intermediate of the drug Pregabalin which is used in the treatment of pain due to nerve damage in diabetes.

Brief Process:

Step 1: Charge required qty of water in S S reactor, then add piperidine under stirring.
Step 2: Add gradually cyano acetamide under stirring, until clear solution obtained.
Step 3: Add gradually iso valeraldehyde, start heating and maintain at reflux temp for 4-5 hrs. then Recover water and take the crude residue for next reaction.
Step 4: To the above product add toluene and con HCL gradually under stirring in glass line reactor Start heating and maintain at reflux for 2-3 hrs. after reaction is over add soda ash and stir. Two Layers are formed, water and organic layer. All organic impurities go in toluene layer and Product will be in water layer. take water layer and neutralize with acid to get pure 3-isobutyl glutaric acid.
Step 5: Take above product in S S reactor and add urea, heat to about 70 to 75^{o} C for 5 hrs. The product obtain 3-isobutyl glutarimide is hydrolyzed with NaOH in ethyl acetate to get (±) {3- (carbamoyl methyl) – 5 – methyl hexanoic acid}. (two layers are formed, separate the organic layer and water layer, water layer is sent to MEE, organic layer given water wash then Ethyl acetate is recovered, residue containing product is centrifuge given ethyl acetate wash, dried and packed)

Chemical Reaction

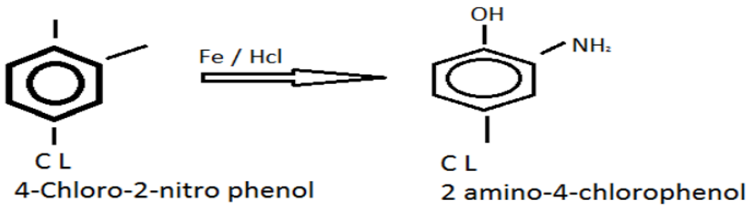


V. 2-AMINO-4-CHLOROPHENOL

Product Profile: - 2-Amino-4-Chlorophenol, having molecular formula C6 H6 CLNO, has major application as an intermediate for the manufacture of Chlorzoxazone which is a muscle relaxant.

Brief Process: - 4-chloro-2-nitro phenol is reduced by Hydrogen produced from the reaction of Iron with Hydrochloric Acid to give 2-amino-4 chlorophenol.

Chemical Reaction

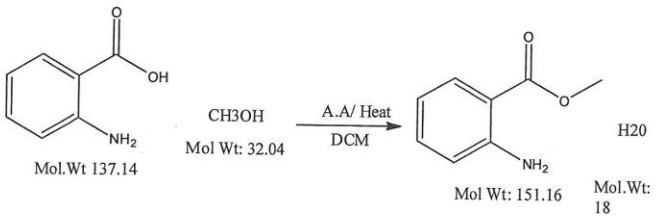


VI. METHYL ANTHRANILATE

Product Profile: Methyl anthranilate, also known as MA, methyl 2-aminobenzoate or carbomethoxyaniline, is an ester of anthranilic acid. Methyl anthranilate act as a bird repellent. It is food-grade and can be used to protect corn, sunflowers, rice, fruit and golf courses, Dimethyl anthranilate (DMA) has a similar effect. It is also used for the flavor of grape Kool-Aid. It is sued for flavoring of candy, soft drinks eg. Grape soda, chewing gum, drugs.

Brief Process: Anthranilic acid react with methanol in presence of acetic acid at reflux temperature to form Methyl 2-aminobenzonate

Chemical Reaction



VII. CALCIUM PROPIONATE

Product Profile: Calcium Propionate, having molecular formula C6 H10 O4 Ca, has major application as a food preservative.

Brief Process: Calcium propionate is produced by the reaction of calcium Hydroxide and Propionic acid. It is a simple acid base reaction, after the reaction is over, filtration is done to obtain a clear filtrate. The excess water is distilled off and after cooling, white crystalline solid of calcium propionate is obtained.

Chemical Reaction

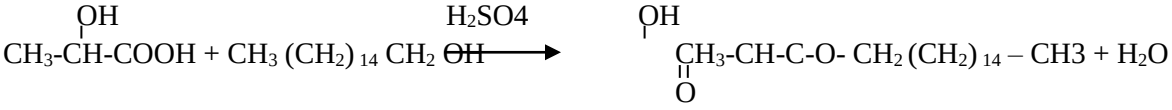
VIII. CETYL LACTATE.

Product Profile: Cetyl lactate is used in creams which are applied on skin for acne treatment, as after shave, anti-ageing and in sun screens.

Brief Process:

Step 1: Charge Toluene and then lactic acid in glass line reactor.
Step 2: Add cetyl alcohol gradually, followed by conc. Sulfuric acid with stirring.
Step 3: Start heating and maintain at 130°C; collect water by azeotropic distillation (Dean and Stark App. Required). Water collected should be 8 kg if lactic acid is 28 kg.
Step 4: Add sod. Carbonate solution to neutralize sulfuric acid; remove toluene by distilling.
Step 5: Above mixture is given water washing.
Step 6: Filter the material, dry under vacuum and pack.

Chemical Reaction

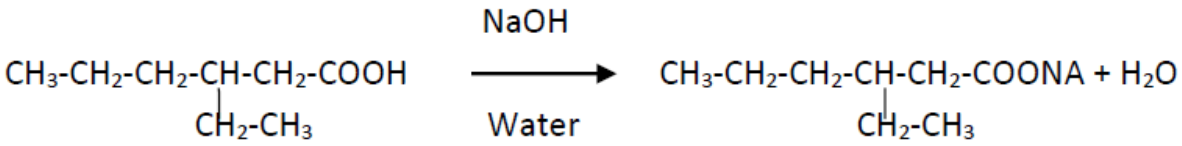


IX. SODIUM-2-ETHYL HEXONATE

Product Profile: Sodium-2-Ethyl Hexonate, having molecular formula C8 H15 O2 Na, has got major application in all Anti-biotics to make the pure sodium salt of the particular antibiotic. It is also used in other high molecular weight drugs to make their sodium salt.

Brief Process: - Sodium-2-Ethyl Hexonate is made from 2-Ethyl Hexonoic acid. Sodium hydroxide solution is charged into a S.S reactor, then 2-Ethyl Hexonoic acid is added slowly. The temperature is maintained at 70° C for 5 Hrs. After reaction is over, it is cooled to 40° C, given carbon treatment and filtered. Excess water is distilled off, to the remaining thick syrupy liquid is added suitable solvent (Ethyl acetate) to make a clear solution which is then packed.

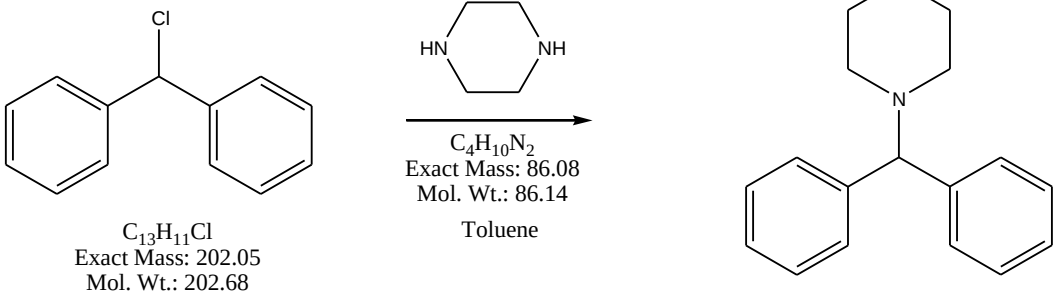
Chemical Reaction



X. BENZHYDRYL PIPERAZINE

Chemical Reaction:

Product: Benzhydryl piperazine



$C_{13}H_{11}Cl$
Exact Mass: 202.05
Mol. Wt.: 202.68

Benzhydryl chloride

$C_4H_{10}N_2$
Exact Mass: 86.08
Mol. Wt.: 86.14

Toluene

$C_{17}H_{20}N_2$
Exact Mass: 252.16
Mol. Wt.: 252.35

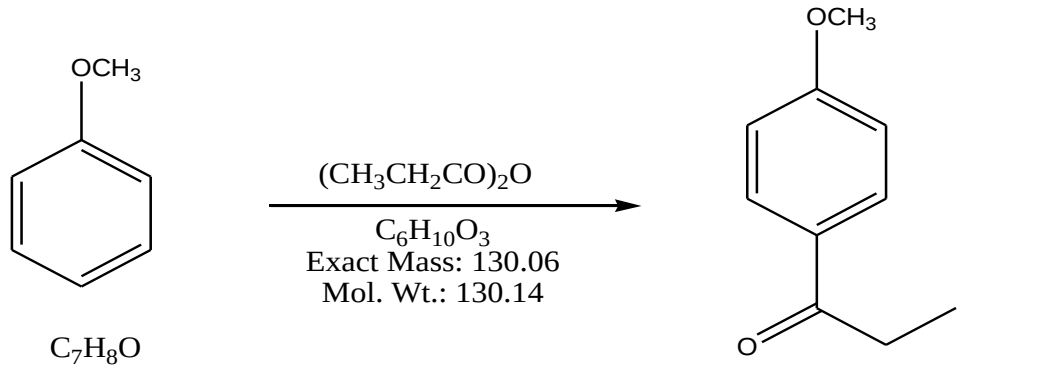
Benzhydryl piperazine

Process Description:

- Benzhydryl chloride is dissolved in calculated amount of toluene at room temperature.
- To this, calculated amount of piperazine is added and solution is heated till reaction is over.
- Water is added and stirred. Aqueous layer is removed. To the organic layer, dilute hydrochloric acid is added.
- The acid layer is basified with dilute sodium hydroxide solution to precipitate the desired product which is then centrifuged and dried.

XI. 4-METHOXY PROPIOPHENONE

Chemical Reaction:



C_7H_8O
Exact Mass: 108.06
Mol. Wt.: 108.14

Anisole

$C_{10}H_{12}O_2$
Exact Mass: 164.08
Mol. Wt.: 164.2

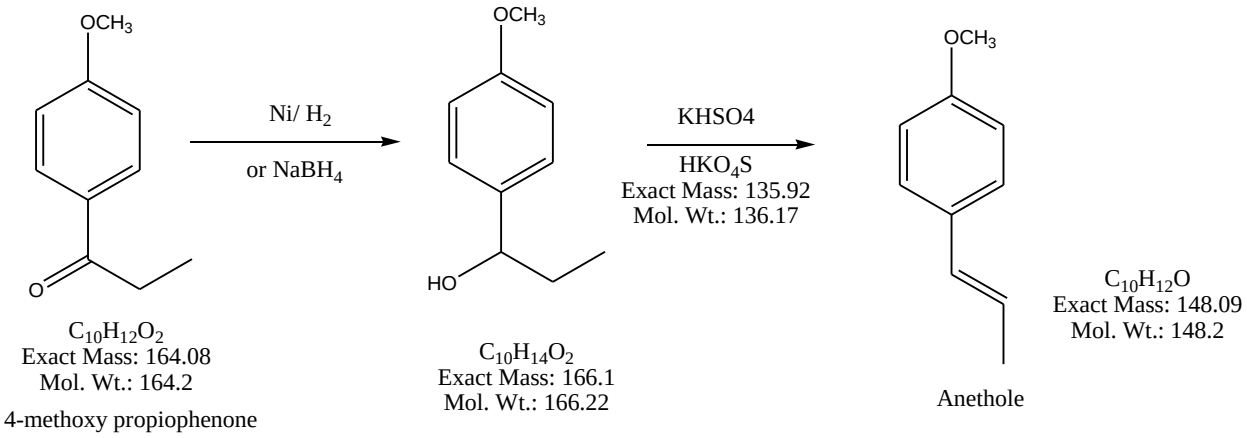
4-methoxy propiophenone

Process description:

- Calculated amount of anisole and propionic anhydride is taken.
- Then calculated amount of zeolite catalyst is added slowly.
- Then reaction is refluxed till reaction is over
- The excess anisole and propionic acid formed is distilled and anisole is reused in next batch.
- Then 4-methoxy propiophenone is distilled under vacuum.

XII. ANETHOLE

Chemical Reaction:



$C_{10}H_{12}O_2$
Exact Mass: 164.08
Mol. Wt.: 164.2
4-methoxy propiophenone

$C_{10}H_{14}O_2$
Exact Mass: 166.1
Mol. Wt.: 166.22

Anethole

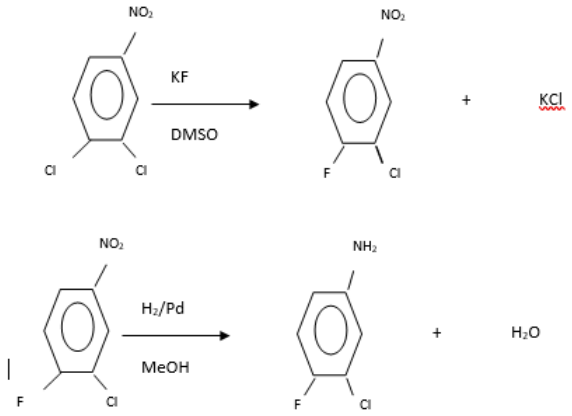
$C_{10}H_{12}O$
Exact Mass: 148.09
Mol. Wt.: 148.2

Process Description:

- Calculated amount of 4-mehoxy propiophenone is taken in methanol.
- Then the reaction mass is hydrogenated using hydrogen and raney nickel as catalyst or using sodium borohydride
- After reaction is over, the catalyst is filtered and solvent is removed to obtain the reduced product.
- This reduced product is treated with potassium hydrogen sulfate and mineral oil.
- The reaction is refluxed and distilled to obtain anethole as clear liquid**.**

XIII. 3-CHLORO-4-FLUORO ANILINE

Chemical Reaction:



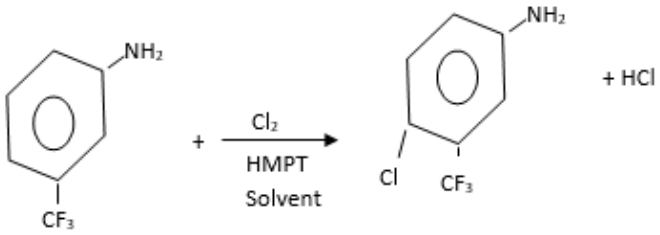
Process Description:

3- Chloro -4-Fluoro Aniline is manufactured in 2 stages

- 3,4-dichloro nitrobenzene is reacted with potassium fluoride (KF) in presence of DMSO, reaction is carried out for 5 hours at reflux temperature; After TLC test, the reaction mixture is filtered off to separate the KCl salt & the filtrate is steam distilled & cooled to give pale, yellow crystals of chloro fluoro nitro benzene (CFNB).
- Reaction of CFNB with hydrogen gas in presence of methanol & using palladium charcoal catalyst, gives crude 3- Chloro -4-Fluoro Aniline which is first filtered to recover the catalyst, the solvent is recovered & lastly vac. Distillation carried out at 116-120 deg C; upon cooling white crystals of 3- Chloro -4-Fluoro Aniline are obtained.

XIV. 5-AMINO-2-CHLORO-BENZO TRIFLUORIDE

Chemical Reaction:

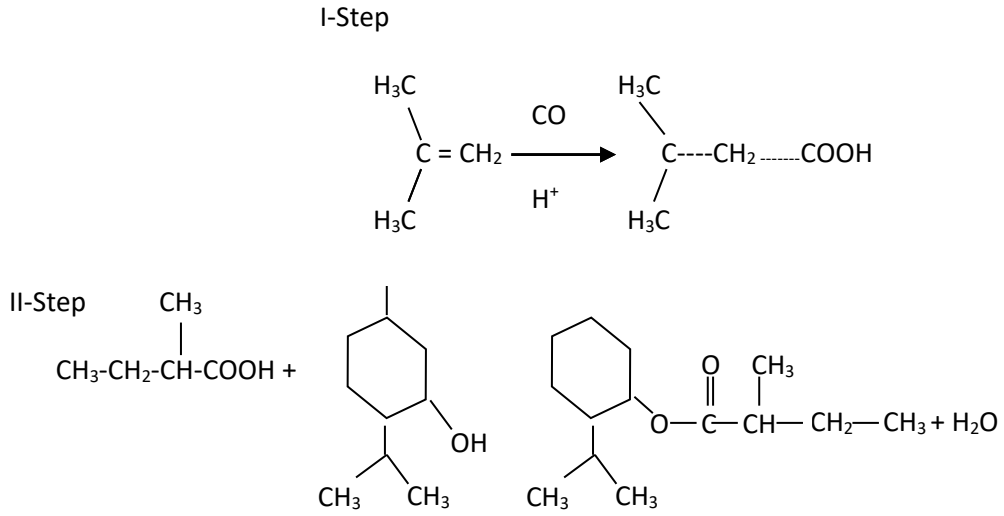


Process Description:

- Charge solvent hexa methyl phosphoric triamide in GLR
- Add gradually 5-Amino benzotrifluoride at RT
- Add Catalyst cuprous chloride
- Start addition of chlorine gas
- During reaction Hcl gas is evolved which is absorbed in water in scrubber.
- After reaction is over,the solvent is recovered & product obtained.

XV. MENTHYL ISO VALERATE

Chemical Reaction:



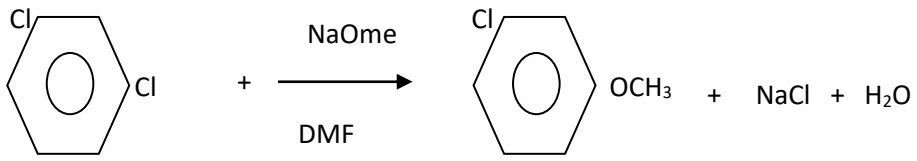
Process Description:

L-menthyl isovalerate is prepared from reaction of isobutyene with L-menthol ,using palladium complex of tri phenyl phosphate catalyst in the presence of P-toluene sulfonic acid. Reaction is carried out at 100 deg C for 4 hours. The reaction mixture is filtered & fractionated at 123 deg C to get L-menthyl isovalerate.

To obtain validol, menthol is added to L-menthyl isovalerate in the ratio 30:70 by weight.

XVI. META CHLORO ANISOLE

Chemical Reaction:

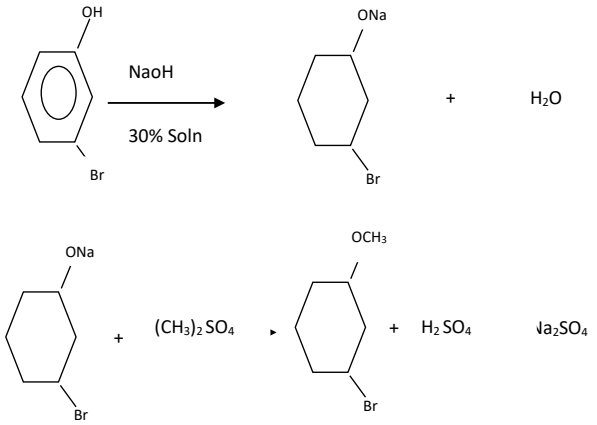


Process Description:

M-chloro anisole is produced from the reaction of dichloro benzene & sodium methoxide (sod. Methoxide in methanol soln) in presence of dimethyl formamide & cuprous bromide catalyst. As temperature is increased methanol is distilled off & then reaction mass refluxed for 18 hours after reaction is complete DMF is distilled off, water is added & two layers, organic & aqueous layers separated. The organic layer is distilled to get pure m-chloro anisole.

XVII. META BROMO ANISOLE

Chemical Reaction:

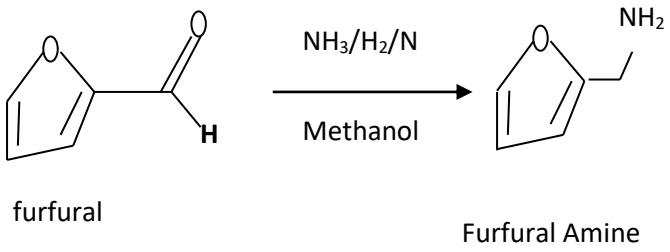


Process Description:

Meta bromo anisole is produced from the reaction of M-bromo phenol and dimethyl sulphate in presence of caustic soda solution 30%. Reaction temperature is 80-100 deg C & time required is 6-8 hours. After reaction is over two layers are formed. The organic layer is given water washing & distilled at 210-211 deg C to collect pure Meta Bromo Anisole.

XVIII. FURFURYLAMINE

Chemical Reaction:



furfural

Furfural Amine

Process Description:

Furfural reacts with ammonia in presence of methanol at low temperature followed by reduction with hydrogen (Raney nickel catalyst) to form Furfuralamine

1. Charge furfural & methanol in SS reactor
2. Stir & cool to 5 deg C, Start addition of ammonia gas for 12 hrs. at 5 deg C.
3. Add R.N. catalyst & start addition of H_2 gas at 50-55 deg C
4. Check for TLC, Filter & collect catalyst
5. Distill out methanol, add water & dichloromethane to the conc mass, stir, two layers are formed
6. Org layer taken for distillation & dichloromethane recovered. Residue (Product) cooled & packed.

XIX. 4-CHLORO-2TRIFLUORO ACETYL ANILINE HCL

Chemical Reaction:

Reaction scheme:- Step-I

Para Chloro Aniline + Trimethyl Acetyl Chloride $\xrightarrow[\text{Water}]{\text{NaOH}}$ P-Chloro-trimethyl acetanilide+Sod. Chloride+water

$C_6H_6NCl + C_5H_9OCl \xrightarrow[H_2O]{NaOH} C_{11}H_{14}NClO + NaCl + H_2O$

Step-II

P-Chloro-trimethyl acetanilide + Trifluoro ethylacetate $\xrightarrow[\text{Water}]{\text{Al. chloride}}$ 3-Trifluoro Acetyl-4-chloro-trimethyl acetanilide + Al. hyd. + hydrochloric acid

$C_{11}H_{14}NClO + {}_4H_3O_2F_3 \xrightarrow[3H_2O]{AlCl_3} C_{13}H_{11}F_3O_2N + Al(OH)_3 + C_2H_5OH + 3HCl$

Step-III

3-Trifluoro Acetyl-4-chloro-trimethyl acetanilide + water $\xrightarrow[HCl]{\text{Acetic acid}}$ 4-chloro-2trifluoro acetyl aniline Hydrochloride+trimethyl acetic acid

$C_{13}H_{11}F_3O_2NCl + H_2O \xrightarrow[HCL]{CH_3COOH} C_8H_6F_3ONCl + C_5H_7O_2$

Process Description:

Step-I

1. Charge toluene, sodium hydroxide solution (30%), P-choloro aniline, & pivoloyl chloride (trimethyl acetyl chloride).
2. Maintain at 15 ^{0} c & check for completion by TLC.

3. Stop stirring & allow to settle, two layers are formed.
4. The organic layer is separated & cooled to 5^{o} c when solid formation takes place.
5. Filter the solid & take it for second step.

Step-II

1. Charge n-hexane, aluminum chloride, trifluoro Ethyl acetate & solid from step-I into Glass lined reactor.
2. Maintain at -5^{0} C & check for completion of reaction by TLC.
3. Dump the reaction mixture into chilled water in HDPE reactor.
4. Two layers are formed, product comes in organic layer.
5. The solvent is recovered from Organic layer & product is thick oily liquid.

Step-III

1. Charge water, acetic acid , hydrochloric acid & step-II product in glass lined reactor.
2. Maintain for four hours at 50 ^{o} C, check for completion by TLC.
3. Cool & chill to 0^{o} C, crystals of product are formed. Filter & dry the product

XX. SODIUM ASCORBIC PHOSPHATE

Chemical Reaction:

L-Ascorbate phosphate —(Resin/Water, Sod. Hydroxide)→ 2. Ascorbate phosphate

$C_{12}H_{12}Ca_3O_{18}P + 3Ca \xrightarrow[NaOH]{Resin/H_2O} 2.C_6H_6Na_3O_9P + 3H_2O$

Process Description:

1. Charge sodium hydroxide solution & resin from previous batch (R-H) in SS reactor under slow stirring, filter this, resin obtained is R-Na.
2. Charge known quantities of water, resin (R-Na), & L-Ascorbic-phosphate in SS reactor
3. Filter, give water washing & carbon treatment to the filtrate.
4. Filter through sparkler filter, & filtrate taken for water recovery by distillation of known quantity of water.
5. Give methanol treatment to the concentrated mass of water & centrifuge.
6. Dry the solid cake & pack.

XXI. N-ACETYL CYSTEINE

Chemical Reaction:

Acetyl Chloride + 2-Amino-3-Sulfanyl propanoic acid → 2-acetamido-3-sulfanyl propanoic acid + HCl

C_2H_3ClO	$C_3H_7NO_2S$	$C_5H_9NO_3S$	HCl
78.5	121.16	163.19	36.5

Process Description:

N-acetyl cysteine is produced by the reaction of Acetyl chloride with L-cysteine in the presence of THF (91%) solvent. The reaction is initially carried out at R. T (27-28 ^{0}C) for 12 hrs; Then heated upto 70 ^{0}C where it is maintained for 3-4 hrs. Cool to R. T & then chill upto 5 ^{0}C then filter at 5 ^{0}C. Filtrate is taken for recovery & the solid (product) taken up for drying.

Note: During reaction, Hydrochloric acid gas is evolved which is absorbed in water in a scrubber & stored separately or solid as by product.

XXII. L-CARNITINE FUMARATE

Chemical Reaction:

L-Carnitine + Fumaric acid $\xrightarrow{\text{IPA}}$ L-Carnitine Fumarate

$C_7H_{15}NO_3$	$C_4H_4O_4$	$\longrightarrow$	$C_{11}H_{19}NO_7$	
161.2	116.07		277.27	(Yield =87%)

Process Description:

L-Carnitine Fumarate is prepared by the reaction of L-Carnitine with fumaric acid in the presence of Iso propyl alcohol at about 70 ^{0}C the reaction mass is stirred for 2 hrs at 70 ^{0}C then the solvent is recovered to the extent of 85%. The reaction mass is then cooled to R.T. gradually, filtered & given IPA wash to obtain the pure product. The filtrate containing organic residue with IPA is set aside & recycled in subsequent batches.

XXIII. L-CARNITINE-L-TARTARATE

Chemical Reaction:

L-Carnitine + L-Tartaric acid $\xrightarrow{\text{Methanol}}$ L-Carnitine-L-Tartarate

(2) $C_7H_{15}NO_3$ $C_4H_6O_6$ $\xrightarrow{\text{Methanol}}$ $C_{18}H_{36}N_2O_{12}$

2 x 161.2 150.09 472.49 (Yield=77.77%)

Process Description:

L-Carnitine-L-Tartarate is prepared by the reaction of L-Tartaric acid with L-Carnitinein the presence of methanol at about 60-65 ^{0}C for 3-5 hours. After reaction is over, the methanol solvent is recovered to extent of 85%. The reaction mass is cooled slowly to R.T & filtered, the cake is given chilled methanol wash. Suck dry in the filter & then dry the cake under vacuum.

XXIV. N-ACETYL – L-CARNITINE HCL

Chemical Reaction:

L-Carnitine + Acetyl chloride $\xrightarrow{\text{IPA,Acetic acid , DMAP}}$ N-Acetyl – L-Carnitine HCl

$C_7H_{15}NO_3$ C_2H_3ClO $C_9H_{17}NO_4$. HCl

161.2 78.5 239.7

Process Description:

N-Acetyl – L-Carnitine HCl is prepared by the reaction of Acetyl chloride with L-Carnitine in the presence of Acetic acid & Dimethyl amino pyridine, the solvent being IPA; reaction temperature is about 40 ^{0}C, charging of acetyl chloride has to be done drop wise. After the reaction is over (about 2 hrs), cool to 2 ^{0}C & maintain at 2 ^{0}C for another 2 hrs. Filter the product, give chilled IPA wash & spin dry the material. Dry the cake under vacuum.

3.6 Raw Material Requirement & Its Source

Product wise raw material requirement & its source are presented in below table

Table No. 6: Product wise raw material details

Sr. No.	Name of Product (Chemical)	Quantity (MT/ Month)	Raw Material			Source	Mode of Transportation
			Name of Material	Quantity (MT/ Month)	One Time Storage		
1.	N-Phenyl Piperazine	16	Aniline	5	1.8	Local / Mumbai	By road in HDPE Drums
			Bis ethyl Amino Chloride Hydrochloride	9	3	Local / Mumbai	By road in pp bags
			Toluene	4	1.5	Local / Mumbai	By road in HDPE Drums
2.	Benzhydrol	42	Benzophenone	22	7	Local / Mumbai	By road in HDPE Drums
			Sodium hydroxide	17	6	Local / Mumbai	By roads P.E. Bags or HDPE Drums
			Zinc powder	0.5	0.5	Local / Mumbai	By road in HDPE Drums
3.	Saccharin	21	O-Toluene Sulfonamide	15	5	Local / Mumbai	By road in pp bags in HDPE drums
			Sulfuric Acid	6	2	Local / Mumbai	By road in HDPE carbuoys
			Chromic Acid	8	3	Local/ Mumbai	By road in pp bags inside HDPE drums
			Sodium Carbonate	1.5	0.5	Local/ Mumbai	By road in pp bags
4.	Methyl Hexanoic Acid	8	Cyanoacetamide	11	3.5	Local / Mumbai	By road in PP/HDPE bags
			Isovaleraldehyde	2	0.7	Local / Mumbai	By road in HDEP drum

			Piperidine	6	6	Local / Mumbai	By road in HDEP drum
			Con HCL	5	1.75	Local / Mumbai	By road in 50 lit HDPE carbuoys
			Urea	1.3	0.5	Local / Mumbai	By road in PP bags
			Sodium Hydroxide	0.9	285 kg	Local / Mumbai	By road in PP bags
5.	2-Amino-4-Chlorophenol	33	4 Chloro-2-Nitro Phenol	27	9	Local / Mumbai	By road in PP bags in drums
			Iron Powder	26	5	Local / Mumbai	By road in PP bags in drums
			HCL	35	3.5	Local / Mumbai	By road in 50 lit HDPE carbuoys
			Sodium Hydroxide	2	0.5	Local / Mumbai	By road in PP bags in drums
6.	Methyl Anthranilate	50	Anthranilic Acid	19	6	Local / Mumbai	By road in HDPE drum
			Acetic Acid	360 kg	360 kg	Local / Mumbai	By road in HDPE drum
			Sodium Bi Carbonate	500 kg	200 kg	Local / Mumbai	By road in PP bags
			Methanol	10	3.5	Local / Mumbai	By road in HDPE drum
			Dichloromethane	3	1	Local / Mumbai	By road in HDPE drum
7.	Calcium Propionate	16	Calcium Hydroxide	4.5	1.5	Local / Mumbai	By road in PP bags
			Propionic acid	8.2	3	Local / Mumbai	By road in 50 lit HDEE drum
8.	Cetyl Lactate	10	Lactic acid	3	1	Local / Mumbai	By road in PP bags/HDPE drum
			Cetyl alcohol	8	2.7	Local / Mumbai	By road in HDPE drum
			Sulfuric acid	50 kg	50 kg	Local / Mumbai	By road in 50 lit HDEE drum
			Sod. Carbonate	50 kg	50 kg	Local / Mumbai	By road in PP bags
			Toluene	1	0.3	Local / Mumbai	By road in HDPE drum

9.	Sodium-2-Ethyl Hexonate	16	2-Ethyl Hexanoic acid	9	3	Local / Mumbai	By road in HDPE drum
			NaOH	2.5	0.8	Local / Mumbai	By road in PP bags
			Carbon	210 kg	210 kg	Local / Mumbai	By road in PP bags
10.	Benzhydryl piperazine	4	Benzhydryl chloride	8.5	3	Local / Mumbai	By road HDPE carbuoys
			Piperazine anhydrous	0.5	3	Local / Mumbai	By road HDPE carbuoys
			Toluene	1 M^3/ Month	1	Local / Mumbai	By road in HDPE drum
			Hydrochloric acid	2 M^3/ Month	0.6	Local / Mumbai	By road in PP bags
			Sodium hydroxide	0.5	1.6	Local / Mumbai	By road HDPE carbuoys
11.	4-methoxy propiophenone	12.5	Anisole	3.5	1.2	Local / Mumbai	By road HDPE carbuoys
			Propionic anhydride	4	1.2	Local/ Mumbai	By road HDPE carbuoys
			Acidic Zeolite	60 kg	60 kg	Local/ Mumbai	By road in PP bags
12.	Anethole	8	4-methoxy propiophenone	11.5	4	Local / Mumbai	By road HDPE carbuoys
			Sodium borohydride	6.2	2	Local/ Mumbai	By road HDPE carbuoys
			Methanol	20	7	Local / Mumbai	By road in HDPE drum
			Paraffin oil	2	1.7	Local / Mumbai	By road in HDPE drum
13	3-chloro-4-Fluoro Aniline	12.5	Dichloro nitro benzene	17	6	Local / Mumbai	By road in PP bags in drum
			Pottasium fluoride	4.2	1.4	Local / Mumbai	By road in PP bags in drum
			Dimethyl Sulfoxide	3	1	Local / Mumbai	By road in HDPE drum
			Hydrogen gas	480 kg	160 kg	Local / Mumbai	By road in cylinders
			Palladium catalyst	15 kg	15 kg	Local / Mumbai	By road in PP bags in drum

			Methanol	3	1	Local / Mumbai	By road in HDPE drum
14	5-Amino-2-chlorobenzo trifluoride	12.5	1- 5 Amino benzo trifluoride	9	3	Local / Mumbai	By road HDPE carbuoys
			2-chlorine gas	4	1.3	Local / Mumbai	By road in cylinders
			3-Copper chloride	10 kg	10 kg	Local / Mumbai	By road in PP bags in drum
			4-Hexa methyl phosphoric triamide	2.4	0.8	Local / Mumbai	By road in HDPE drum
			5-Amonia soln	400 kg	200 kg	Local / Mumbai	By road HDPE carbuoys
15	Methyl iso valerate	12.5	1-Isobutylene	2.9	1	Local / Mumbai	By road in cylinders
			2-carbon monoxide	1.4	0.5	Local / Mumbai	By road in cylinders
			3-Palladium	5 kg	5 kg	Local / Mumbai	By road in PP bags in drum
			4-P-toluene sulfuric acid	5 kg	5 kg	Local / Mumbai	By road in PP bags in drum
			5-Menthol	4.5	1.5	Local / Mumbai	By road in PP bags in drum
16	Meta chloro anisol	16	Dichloro benzene	11	4	Local / Mumbai	By road in HDPE drum
			Sod. methoxide	4	1.3	Local / Mumbai	By road in PP bags in drum
			Dimethyl formamide	2	0.7	Local / Mumbai	By road in HDPE drum
			cuprouo bromide	60 kg	60 kg	Local / Mumbai	By road in PP bags in drum
17	Meta bromo anisol	16	meta bromo phenol	11	3.6	Local / Mumbai	By road in HDPE drum
			Dimethyl sulfate	3.8	1.3	Local / Mumbai	By road in HDPE drum
			Sod. Hydinide	2.5	0.8	Local / Mumbai	By road in PP bags in drum
18	Furfurylamine	42	Furfural	20	7	Local / Mumbai	By road in HDPE drum

			Ammonia	3.5	1.5	Local / Mumbai	By road in cylinders
			Hydrogen	0.5	0.2	Local / Mumbai	By road in cylinders
			Raney nickel catalyst	105 kg	105 kg	Local / Mumbai	By road in PP bags in drum
			Methanol	5	2	Local / Mumbai	By road in HDPE drum
19	4-chloro-2trifluoro acotyl amiline Hcl	16	p-chloro-aniline	6.5	2	Local / Mumbai	By road HDPE drum /carbuoys
			pivalyl chloride	6	2	Local / Mumbai	By road HDPE drum /carbuoys
			Sod. hydroxide	2	0.7	Local / Mumbai	By road in PP bags in drum
			Aluminium chloride	7	2	Local / Mumbai	By road in PP bags in drum
			Hexane	3	1	Local / Mumbai	By road in HDPE drum
			Acetic acid	6	2	Local / Mumbai	By road HDPE drum /carbuoys
			Hydrochloric acid	1.7	0.6	Local / Mumbai	By road HDPE drum /carbuoys
20	Sodium Ascorbic Phosphate	16	L-Ascorbate-2-phosphete	6	2	Local / Mumbai	By road HDPE drum /carbuoys
			Resin - one time			Local / Mumbai	By road in PP bags in drum
			Sod. hydroxide	1.2	0.4	Local / Mumbai	By road in PP bags in drum
			methanol	4	1.5	Local / Mumbai	By road in HDPE drum
			carbon	200 kg	100 kg	Local / Mumbai	By road HDPE carbuoys
21	N-Acetyl Cysteine	10	L-cysteine	8	0.3	Local / Mumbai	By road HDPE carbuoys
			Acetyl chloride	5	0.2	Local / Mumbai	By road HDPE carbuoys
			Tetra HydroFuran	43	1.5	Local / Mumbai	By road HDPE carbuoys
22	L-Carnitine Fumarate	10	L-Carnitine	7	0.3	Local / Mumbai	By road HDPE carbuoys

			Fumaric acid	4.2	0.2	Local / Mumbai	By road HDPE carbuoys
			Iso propyl alcohol	92	3.2	Local / Mumbai	By road HDPE carbuoys
23	L-Carnitine-L-Tartarate	10	L-Carnitine	8.5	0.3	Local / Mumbai	By road HDPE carbuoys
			L-Tartarate	5.7	0.2	Local / Mumbai	By road HDPE carbuoys
			Methanol	52	1.8	Local / Mumbai	By road HDPE carbuoys
24	N-Acetyl – L-Carnitine HCl	10	L-Carnitine	7.2	0.25	Local / Mumbai	By road HDPE carbuoys
			Acetyl Chloride	4.3	0.15	Local / Mumbai	By road HDPE carbuoys
			IPA	50	1.75	Local / Mumbai	By road HDPE carbuoys
			Acetic Acid	1.8	62 kg	Local / Mumbai	By road HDPE carbuoys
			Dimethyl Amino pyridine	18 kg	0.62 kg	Local / Mumbai	By road HDPE carbuoys

3.7 List of Plant Machineries

1. SS 316 Reactor, Complete Assembly with column, Condenser, Receiver.
   Capacity: 2 KL Two numbers.

2. SS 316 Reactor, Complete Assembly.
   Capacity: 3 KL Two numbers.

3. SS 316 Reactor, Complete Assembly.
   Capacity: 5 KL Two numbers.

4. Glass lined Reactor, Complete Assembly.
   Capacity: 3 KL Two number.

5. SS 316 Centrifuge 36 inches, 48 inches, Two numbers each.

6. SS Tray Dryer, 48 trays, Two numbers.

7. Oil Ring Vacuum pump. One number.
8. Water Jet Ejector. One number.
9. Multi-mill, SS. One number. 50 kg/hr.
10. Sifter. One number. Later as required.
11. ML Collection tanks, SS. Two numbers, 500 liters.
12. Transfer pumps, SS. PP.
13. Complete Distillation Assembly.
14. Miscellaneous.

Utilities

1. Steam Boiler, 1 Ton/hr. Furnace Oil/ LDO fired. One number.
2. Cooling Tower 100 TR, for process cooling. Two numbers (1 Working + 1 Standby).
3. Chilling Plant 20 TR @ -10°c, with attached cooling tower.
4. Air Compressor.
5. Miscellaneous.
6. Effluent Treatment Plant followed by RO & Multiple Effect Evaporator

3.8 Resource optimization/recycling and reuse

It is a new project. Required infrastructure will be commissioned as per product requirement. Hence there will be no chance of resource optimization. While in operation phase of the unit efforts should be taken to resource optimization/ recycling and reuse.

3.9 Availability of water its source, Energy/ power requirement

Water

In the operation of proposed project 33 KLD of water will be required for industrial & domestic purpose. It will be supplied by MIDC pipeline. Detailed water budget is presented in below table

Table No. 7: Detailed water Budget

Sr.No.	Particular	Requirement (KLD)	Loss (KLD)	Waste Water (KLD)
1.	Domestic	3	0.5	2.5
2.	Industrial Process	16	2	14
3.	Cooling tower makeup	5	4.4	0.6
4.	Boiler makeup	3	2.6	0.4
5.	Gardening	3	3	0
6.	Scrubber	2	1	1
7.	Washing	1	0	1
Total		33	13.5	19.5

Power

The total power requirement for industry would be 250 kW. It is supplied by MSEDCL. In case of Emergency, 100 kVA DG set will be installed on the site which will be of temporary purpose just in case of power failure.

3.10 Waste Generation & Management

Construction Phase: Average solid waste generation over the period of construction would be 45 MT viz. metal pieces, cardboard, rags etc. that will be segregated as per characteristics & disposed of through authorized vendor.

Operation Phase: In operation phase generated solid waste will be categorized as hazardous & non-hazardous. Details of hazardous & non-hazardous are presented in Table No. 8 & Table No.9, respectively.

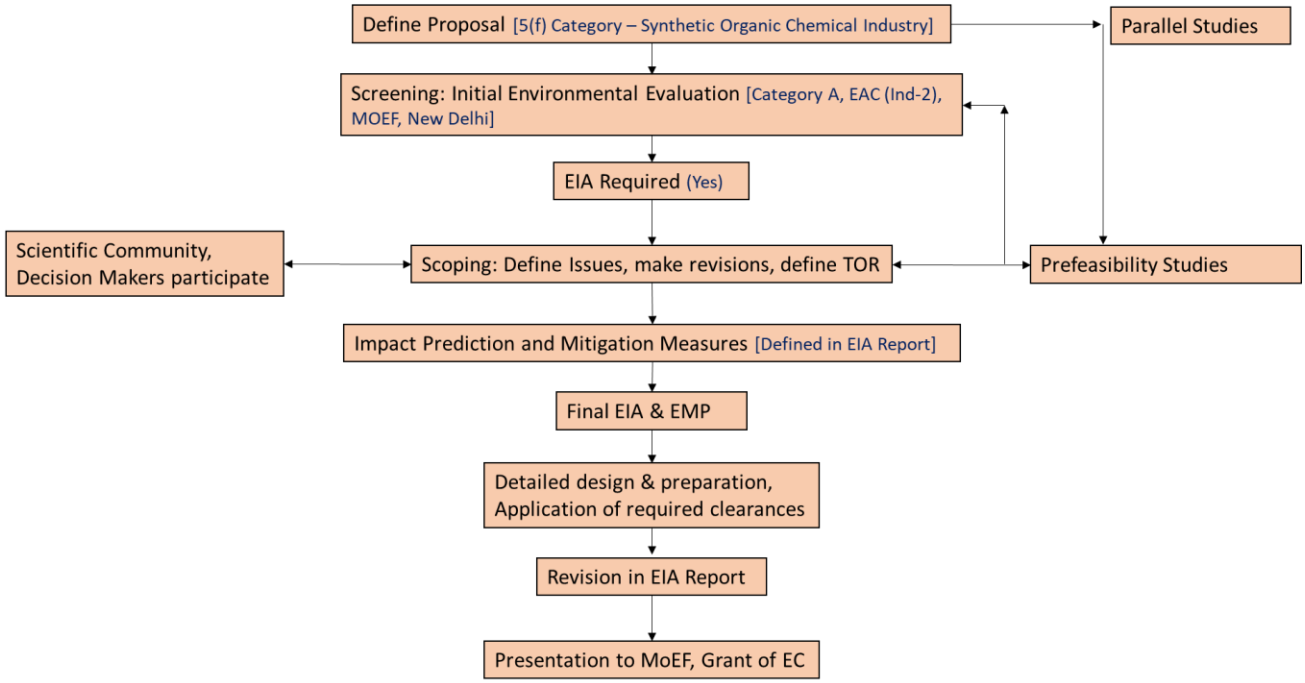
Table No. 8: Details of Hazardous Waste

Hazardous Waste Generation Details					
Sr. No.	**Description**	**Cat**	**UOM**	**Proposed**	**Method of Disposal**
1.	Discarded containers / barrels / liner	33.3	no/month	50	Send to CHWTSDF, MEPL, Ranjangaon
2.	Chemical Sludge from waste water treatment	34.3	Kg/m	15	Send to CHWTSDF, MEPL, Ranjangaon
3.	Spent Solvent	20.2	Kg/m	150	Send to CHWTSDF, MEPL, Ranjangaon
4.	Distillation residue	20.3	Kg/m	200	Send to CHWTSDF, MEPL, Ranjangaon
5.	Used /Spent Oil	5.1	Ltr/m	20	Sale to Authorized Recycler
6.	Other Hazardous Waste		Kg/m	10	Send to CHWTSDF, MEPL, Ranjangaon

Table No. 9: Details of Non-Hazardous Waste

Sr. No.	**Description**	**UOM**	**Total**	**Treatment**
1	Wooden Material	Kg/M	100	Sale to Authorized recycler
2	Glass scrap	Kg/M	20	Sale to Authorized recycler
3	Waste Drum (Not carrying any Hazardous Chemical)	Nos/M	50	Sale to Authorized recycler
4	Paper waste	Kg/M	25	Sale to Authorized recycler
5	e-Waste	Kg/A	50	Sale to Authorized recycler

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



4. SITE ANALYSIS

4.1 Connectivity

The project site is in MIDC-Paithan, well connected through road, railway, and airport. Nearest highway is SH-30 i.e. Aurangabad to Paithan which is about 0.7km from the project site. Nearest Railway station & Airport is in Aurangabad which is at 36km (Aerial) from project site.

4.2 Land form, Land use & Land ownership.

Land is already developed for industrial purpose. Total plot area of M/s. Mascot Finochem is 7781 Sqm. Site is located in well-developed Paithan MIDC area. Surrounding area is already developed for industrial purpose.

4.3 Topography

Topography of land is flat

4.4 Environmental Infrastructure Around the project Site

Project site is having existing MIDC's infrastructure such as road, water supply, electricity etc., other societal infrastructure around proximity of project site is presented in Table No. 5.

Table No. 7.: Societal infrastructure

Particular	Name	Distance from project site (Km)	Direction from project site
Ecologically Sensitive area	Jaikwadi Bird Sanctuary	2.2 km	W
Airport	Aurangabad	36	N
Railway Station	Aurangabad	36	N
Highway	Aurangabad-Paithan (SH-30)	0.7	W
Industrial area	Paithan MIDC	0.0	within
Fire Station	Paithan MIDC Fire station	0.9	SW
	Waluj MIDC Fire station	35	NW
Hospital	Bhujbal Hospital	0.8	W
	Dhanwantari Hospital	0.9	SW
Police station	Paithan Police Station	8.0	S

Tourist Places	Paithan	6.0	S
Settlement	Mudhalwadi	1.3	SE

i.) Geology & Soil Classification

The region is peculiarly occupied by the Deccan Traps. The Deccan traps are of the age upper cretaceous to lower Eocene. The thickness of each lava flow varies from few meters to 40-45 meters. The basalts are of vesicular, zeolitic, jointed, columnar weathered in nature. At places the alluvial patches are found near the bank of the river.

Deccan Trap basalts are heterogeneous known to be monotonously uniform volcanic rocks covering 90% part of Aurangabad District. The lava responsible for their formation issued through long narrow fissures or cracks in the earth's crust. The lavas spread out far and wide as nearly horizontal sheets forming piles of different types of basaltic flows.

The most dominant type of soil found in the district is the black clay soil interspersed with occasional stretches of shallow soils on ridges. In the north, the depth and quality of soil is shallow and poor whereas in the south it is deep and fertile. A good depth and fertile soil is particularly found in the Godavari valley. They are all derived from Deccan trap. The soil can be classified as light, medium and heavy according to the depth, texture and location.

ii.) Climatic Conditions

Aurangabad has a semiarid climate. Annual mean temperatures in Aurangabad range from 17 to 33 °C, with the most comfortable time to visit in the winter – October to February. The highest maximum temperature ever recorded was 46 °C (114 °F) on 25 May 1905. The lowest recorded temperature was 2 °C (36 °F) on 2 February 1911. In the cold season, the district is sometimes affected by cold waves in association with the eastward passage of western disturbances across north India, when the minimum temperature may drop down to about 2 °C to 4 °C (35.6 °F to 39.2 °F).

Most of the rainfall occurs in the monsoon season from June to September. Thunderstorms occur between November to April. Average annual rainfall is 710 mm. The city is often cloudy during the monsoon season and the cloud cover may remain together for days. The daily maximum temperature in the city often drops to around 22 °C due to the cloud cover and heavy rains

iii.) Social Infrastructure

M/s. Mascot Finochem Pvt. Ltd. is aware of the obligations towards the society and to fulfill the social obligations, semi-skilled and unskilled labors from the nearby villagers will be employed for the proposed project as far as possible. The proposed industry will also try to generate maximum indirect employment in the vicinity of the project by appointing local construction personnel during the construction phase. After successful operation of the proposed project, the unit will also make provision of fund every year towards CSR activities in nearby villages. The various CSR activities identified and planned at present are decribed below:

- Education and Skill development
- Health Camps
- Infrastructure development in nearby government and Zilla Parishad school
- Blood and Organ Donation Camps
- Other social welfare activities as per Felt Need Study

In addition to that industry will spend 2% of the total capital cost under Corporate Environment Responsibility (CER) Rules, 2018 during construction phase.

5. PLANNING BRIEF

i.) Planning Concept

It is small scale synthetic organic chemical manufacturing industry which will be developed as per MIDC planning rules.

ii.) Population Projection

Site is located at developed Paithan MIDC area. Local manpower will be employed in both construction and operation phase. Hence no growth in the population of the region will be envisaged.

iii.) Land use

Plot Area	**:**	7781.00 Sq.M.
Proposed Built-Up Area	**:**	2500.00 Sq.M
Open Area	**:**	1000.00 Sq.M.
Green Belt Area	**:**	1200.00 Sq.M

iv.) Assessment of Infrastructure Demand

Road, educational facilities & employment are the basic demand of the area. In addition to this overall development is the demand of the area.

v.) Amenities & Facilities

The project is located in well-developed Paithan MIDC. Hence all the amenities have been provided by Paithan MIDC. For sewage treatment septic tank followed by soak pit will be provided. 20 KLD of effluent treatment plant i.e. primary treatment + Secondary Treatment + Tertiary Treatment + RO with multi-effect evaporator system will be provided to achieve Zero Liquid Discharge scheme.

6. PROPOSED INFRASTRUCTURE

Plot Area	:	7781.00 Sq.M.
Proposed Built-Up Area	:	2500.00 Sq.M
Open Area	:	1000.00 Sq.M.
Green Belt Area	:	1200.00 Sq.M
Social Infrastructure	:	No any additional infrastructure proposed as project is in MIDC
Connectivity	:	MSH 148 Road (Paithan – Aurangabad Road) is already developed. There is no connectivity of rail
Drinking water management	:	In Paithan MIDC, drinking water will be supplied from Jaikwadi Dam located nearby. At plant site packed filtered drinking water will be supplied to Labour force.
Sewerage System	:	During construction phase all sewerage network will be connected to septic tank followed by soak pit
Industrial waste	:	Industrial hazardous waste will be sent to CHWTSDF facility while non-hazardous waste will be disposed off through authorized vendor.
Solid waste management	:	Generated domestic solid waste segregated as dry waste & wet west and will be disposed off at Paithan Municipal Council management system.
Power Requirement & Supply		Total power demand of the project would be 250 kW and it will be supplied by MSEDCL.

7. REHABILITATION & RESETTLEMENT (R & R) PLAN

As a project site is located in Paithan MIDC area which is demarcated for industrial use, there is no applicability of R & R. for the said project.

8. PROJECT SCHEDULE & COST ESTIMATE

i.) **Likely date of start of construction and likely date of completion [time schedule for the project to be given]**

Proposed industry can be established after obtaining Environment Clearance from MOEFCC, Govt. of India and Consent to Establish from Maharashtra Pollution Control Board. The total time required for completion of construction will be 12 months from the date of start of construction.

ii.) **Estimated project cost along with analysis Break-up Cost**

Sr. No.	Particulars	Capital Cost (INR in Lakhs)
1.	Building	70
2.	Plant Machinery	225
3.	Working Capital	70
	Total	**365**

9. ANALYSIS OF PROPOSAL [FINAL RECOMMENDATION]

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

MASCOT Finochem is proposed to establish synthetic organic industry having capital investment of Rs. 365.32 Lakhs. Industry intend to manufacture 24 type of synthetic organic chemicals which will be used in in manufacturing food preservative, perfumery industries, drug intermediate etc. Proposed development will helpful for increasing availability of raw materials in local market which ultimately effect cost of production of finished product.

The proposed project is likely to provide employment generation for 80 – 100 people in construction phase and 35 nos. in Operation phase. The preference will be given to local population for employment in the semi – skilled and unskilled category. Also, as a part of CER, Mascot Finochem will spend 2% of Total Capital Cost for infrastructure development in Paithan region in construction phase as well as will pay tax in operation phase which will generate extra revenue to the government.