AARTI INDUSTRIES LIMITED
(APPLE ORGANICS DIVISION)

Regd. Office & Factory :
Plot No. 609/610, 100 Shed Area
GIDC, VAPI - 396 195.
Dist. Valsad. Gujarat.
Tel.: (0260) 2451981
Fax : (0260) 2431322

Date: 16th March, 2017

To,
Member Secretary,
Industrial Projects Committee-2,
Ministry of Environment, Forests and Climate Change
Agni Block,Indira Paryavaran Bhavan,
Jor Bagh road
New Delhi-110 003.
File no. J- 11011/384/2016-IA.II (I)

Kind Attention: Shri Yogendra Pal Singh,

Subject: Submission of revised Form 1, Prefeasibility report and other relevant documents to obtain TORs for proposed expansion project for manufacturing of synthetic organic chemicals of M/s. Aarti Industries Limited (Apple Organics Division).

Respected Sir,

We had presented details of Form-I and PFR for getting TOR in 18th Expert Appraisal Committee (Industry-2) meeting held on 24th January, 2017 having agenda no. 18.7.5.

At the end of presentation committee suggested to submit revised existing and proposed product list and ZLD plan to be submitted. Here with we are submitting the revised Form-I and PFR incorporating your suggestions but request you to give us exemption from ZLD and let us discharge wastewater into CETP. As this is a pilot plant unit and wastewater is 18.5 KLD.

We request you to call us for presentation for terms of reference.

Thanking you,

For M/s. Aarti Industries Limited (Apple Organics Division)

Authorized signatory

ALCHEMIE

Admin Office :
Udyog Kshetra, 2nd Floor, Mulund, Goregaon Link Road, L.B.S. Marg, MULUND (W), MUMBAI - 400 080.
Tel. :(022) 67976666, 69976697, 25918195, Fax : (022) 25904806, 25653234.

BASIC INFORMATION

Sr. No.	Item	Details
1.	**Name of the Project**	M/s. Aarti Industries Limited (Apple Organics Division)
2.	**S. No in the schedule**	5(f)
3.	**Proposed capacity/ area/length/tonnage to be handled/command area/ lease area / numbers of wells to be drilled**	a) Proposed production Capacity: 20 MT/Month b) Total plot area: 1752 sq. m.
4.	**New/ Expansion/ Modernization**	Expansion
5.	**Existing Capacity / Area etc.**	As per CCA Production capacity: 20 MT/Month or 18 MT/Month. CCA copy is attached as annexure-X. /Total plot area : 1752 sq. m.
6.	**Category of the project i.e. 'A' or 'B'**	Category A
7.	**Does it attract the general condition? If yes, please specify**	Yes (Union Territory Boundary)
8.	**Does it attract the specific condition? If yes, please specify**	No
9.	♦ **Location** ♦ **Plot/ Survey/Khasra No. Village** ♦ **Tehsil** ♦ **District** ♦ **State**	Vapi GIDC Plot No.609/610, 100 Shed Area GIDC Estate, Pardi, Valsad, Gujarat,
10.	**Nearest Railway station / Airport along with distance in Kms.**	Railway Station – Vapi approx. 4.14 km away Airport – Surat approx.87.07 km away
11.	**Nearest Town, City, District Headquarters along with**	Town: Vapi approx. 4.41 Km away City: Valsad approx. 27.7 Km away District Headquarter: Valsad approx. 27.7

Sr. No.	Item	Details
	distance in Kms.	Km away
12.	**Village Panchayat, ZillaParishad, Municipal Corporation, Local Body (complete postal addresses with telephone numbers to be given).**	Notified Area GIDC Estate, Dist.: Valsad, Vapi.
13.	**Name of the Applicant**	Mr. Anil R. Shah
14.	**Registered Address**	Plot No. 609/610, 100 Shed area, GIDC Estate, Vapi.396 195
15.	**Address for Correspondence:** **Name:** **Designation (Owner/Partner/CEO):** **Address:** **Pin Code:** **E- mail:** **Mobile No.** **Telephone No.:** **Fax No. :**	M/s. Aarti Industries Limited (Apple Organics Division) Plot No.609/610, 100 Shed Area GIDC Estate, Vapi , 396 195 Mr. Anil R. Shah Sr. Manager M/s. Apple Organics Plot No.609/610, 100 Shed Area, Phase II, GIDC, Vapi. 396 195 anil.shah@aartigroup.com 9727782120 0260-2451981 0260-2431322
16.	**Details of alternative sites examined, if any. Location of these sites should be known on the topo Sheet.**	It is expansion project at existing plot.
17.	**Interlinked Projects**	No
18.	**Whether separate application of the interlinked project has been submitted?**	Not Applicable

Sr. No.	Item	Details
19.	**If yes, Date of submission**	Not Applicable
20.	**If no, Reason**	Not Applicable
21.	**Whether the proposal involves approval/clearance under: if yes, details of the same and their status to be given.** **The Forest (Conservation) Act, 1980?** **The Wildlife (Protection) Act, 1972?** **The C.R.Z Notification, 1991?**	No
22.	**Whether there is any Government Order/ Policy relevant/ relating to the site?**	No
23.	**Forest Land involved (Hectares)**	No
24.	**Whether there is any litigation pending against the project and/ or land in which the project is proposed to be set up?** **Name of the Court** **Case No.** **Orders/ Directions of the Court, if any and its relevance to the proposed project**	No

Sr. No.	Information / checklist conformation.	Yes / No.	Details thereof (with approximate quantities/ rates, wherever possible) with source of information data.
Form-I			
(I) ACTIVITY			
1. Construction, operation or decommissioning of the Project involving actions, which will cause physical changes in the locality (topography, land use, changes in water bodies, etc)			
1.1	Permanent or temporary change in land use, land cover or topography including increase in intensity of land use (with respect to local land use plan.)	Yes	The site is located plot no. 609/610, 100 shed area, in Vapi, GIDC Estate, Dist.: Valsad.
1.2	Clearance of existing land, vegetation and buildings?	Yes	Plot is already marked by the GIDC estate, Vapi.
1.3	Creation of new land uses.	Yes	Plot of GIDC Estate is already allotted to Apple Organics for establishing the organic manufacturing unit.
1.4	Pre-construction investigations e.g. bore house, soil testing?	No	Plot is already marked by the GIDC estate, Vapi.
1.5	Construction works?	Yes	There will be construction work related to proposed expansion.
1.6	Demolition works?	No	No such work will be involved.
1.7	Temporary sites used for construction works or housing of construction workers?	No	Local workers will be employed for construction work.
1.8	Above ground buildings, structures or earthworks including linear structures, cut and fill or excavations.	Yes	Plant layout is attached as annexure II.
1.9	Underground works including mining or tunneling?	No	No such underground activity is involved.
1.10	Reclamation works?	No	Not Required.
1.11	Dredging?	No	Not Required.
1.12	Offshore structures?	No	Not Required.
1.13	Production and manufacturing processes?	Yes	Production capacity is attached as annexure IV and manufacturing process is attached as annexure V.
1.14	Facilities for storage of goods or materials?	Yes	Separate storage area for raw material and finished goods kept.
1.15	Facilities for treatment or disposal of solid waste or liquid effluents?	Yes	Effluent treatment plant is attached as annexure VII. Hazardous waste details attached as annexure IX.

Sr. No.	Information / checklist conformation.	Yes / No.	Details thereof (with approximate quantities/ rates, wherever possible) with source of information data.
1.16	Facilities for long term housing of operational workers?	No	This is an industrial area.
1.17	New road, rail or sea traffic during construction or operation?	No	The G.I.D.C, Vapi has well developed road facility.
1.18	New road, rail, air waterborne or other transport infrastructure including new or altered routes and stations, ports, airports etc?	No	The G.I.D.C, Vapi has well developed road facility.
1.19	Closure or diversion of existing transport routes or infrastructure leading to changes in traffic movements?	No	Proposed expansion will be in present plot only.
1.20	New or diverted transmission lines or pipelines?	No	Proposed expansion will be in present plot only.
1.21	Impoundment, damming, culverting, realignment or other changes to the hydrology of watercourses or aquifers?	No	Proposed expansion will be in present plot only.
1.22	Stream crossing?	No	Proposed expansion will be in present plot only.
1.23	Abstraction or transfers of water form ground or surface waters?	No	Water will be sourced from the GIDC water supply.
1.24	Changes in water bodies or the land surface affecting drainage or run-off?	No	Proposed expansion will be in present plot only.
1.25	Transport of personnel or materials for construction, operation or decommissioning?	Yes	Raw materials and finished products will be transported though roads.
1.26	Long-term dismantling or decommissioning or restoration works?	No	No such activity is involved in the proposed expansion.
1.27	Ongoing activity during decommissioning which could have an impact on the environment?	No	There will be no decommissioning activity for the proposed project.
1.28	Influx of people to an area in either Temporarily or permanently?	No	Local man power will be employed.

Sr. No.	Information / checklist conformation.	Yes / No.	Details thereof (with approximate quantities/ rates, wherever possible) with source of information data.
1.29	Introduction of alien species?	No	No such activity is associated with the proposed expansion.
1.30	Loss of native species or genetic diversity?	No	No such activity is involved which can leads to loss of native species or genetic diversity.
1.31	Any other actions?	No	Not Required.
2. Use of Natural resources for construction or operation of the Project (such as land, water, materials or energy, especially any resources which are non-renewable or in short supply)			
2.1	Land especially undeveloped or agricultural land (ha)	No	Proposed expansion will be in present plot only.
2.2	Water (expected source & competing users) unit: KL/Day	Yes	Water consumption and waste water generation detail is attached as annexure VI.
2.3	Minerals (MT)	Yes	Attached as annexure IV.
2.4	Construction material – stone, aggregates, sand / soil (expected source – MT)	Yes	--
2.5	Forests and timber (source - MT)	No	No forest and timber products are used.
2.6	Energy including electricity and fuels (source, competing users) Unit: fuel (MT),energy (MW)	Yes	Fuel and Energy consumption detail is attached as annexure VIII.
2.7	Any other natural resources (use appropriate standard units)	No	No other natural resources will be used.
3. Use, storage, transport, handling or production of substances or materials, which could be harmful to human health or the environment or raise concerns about actual or perceived risks to human health.			
3.1	Use of substances or materials, which are hazardous (as per MSIHC rules) to human health or the environment (flora, fauna, and water supplies)	Yes	Adequate measures will be taken to prevent any adverse health impact.
3.2	Changes in occurrence of disease or affect disease vectors (e.g. insect or water borne diseases)	No	No change in occurrence of disease due to the proposed project.
3.3	Affect the welfare of people e.g. by changing living conditions?	No	May be new employment will be created in the area.
3.4	Vulnerable groups of people who could be affected by the project e.g. hospital patients, children, the	No	There will be no such effects due to the proposed project.

Sr. No.	Information / checklist conformation.	Yes / No.	Details thereof (with approximate quantities/ rates, wherever possible) with source of information data.
	elderly etc.,		
3.5	Any other causes.	No	No other cause.
4. Production of solid wastes during construction or operation or decommissioning (MT/Month).			
4.1	Spoil, overburden or mine waste.	No	No such waste will be generated from the proposed project activity.
4.2	Municipal waste (domestic and or commercial wastes)	Yes	Office waste will be generated like paper, wood, plastic etc. in a very small quantity.
4.3	Hazardous wastes (as per Hazardous Waste Management Rules)	Yes	Detail of Hazardous waste management attached as annexure IX.
4.4	Other industrial process wastes	Yes	Details are attached as annexure IX.
4.5	Surplus product	No	No such waste will be generated.
4.6	Sewage sludge or other sludge from effluent treatment.	Yes	Details attached as annexure IX.
4.7	Construction or demolition wastes	Yes	Any waste will be utilized in road construction.
4.8	Redundant machinery or equipment.	No	No such waste will be generated.
4.9	Contaminated soils or other materials.	No	No such waste will be generated.
4.10	Agricultural waste.	No	No agriculture waste will be generated.
4.11	Other solid wastes.	No	No other solid waste will be generated.
5.Release of pollutants or any hazardous, toxic or noxious substances to air (Kg/Hr)			
5.1	Emissions from combustion of fossil fuels from stationary or mobile sources	Yes	Flue gas emission is attached as annexure VIII.
5.2	Emissions from production processes.	Yes	Process emission is attached as annexure VIII.
5.3	Emissions from materials handling including storage or transport.	No	Adequate measures will be taken to control emissions from material handling including storage or transport.
5.4	Emissions from construction activities including plant and equipment	No	Adequate measures will be taken to control emissions from construction activities including plant and equipment.
5.5	Dust or odors from handling of materials including construction materials, sewage and waste.	No	Adequate measures will be taken to control emissions of dust.

Sr. No.	Information / checklist conformation.	Yes / No.	Details thereof (with approximate quantities/ rates, wherever possible) with source of information data.
5.6	Emissions from incineration of waste.	No	No such activity will be carried out by the unit.
5.7	Emissions from burning of waste in open air (e.g. slash materials, construction debris)	No	No burning activity will be done in the unit.
5.8	Emission from any other sources.	No	No other emissions from any other source.
6.Generation of Noise and Vibration, and Emissions of Light and Heat:			
6.1	From operation of equipment e.g. engines, Ventilation plant, crushers.	No	There will be no additional such noise generation sources.
6.2	From industrial or similar processes.	Yes	Adequate measures will be taken by the unit.
6.3	From construction or demolition.	No	Adequate measures will be taken by the unit.
6.4	From blasting or piling.	No	No such activity is involved.
6.5	From construction or operational traffic.	No	Adequate measures will be taken by the unit.
6.6	From lighting or cooling systems.	No	Adequate measures will be taken by the unit.
6.7	From any other sources.	No	No emission from any other sources.
7.Risks of contamination of land or water from releases of pollutants into the ground or into sewers, surface waters, groundwater, coastal waters or the sea:			
7.1	From handling, storage, use or spillage of hazardous materials.	No	Proper storage facility for hazardous chemicals & waste will be provided in the unit.
7.2	From discharge of sewage or other effluents to water or the land (expected mode and place of discharge)	Yes	As per consent, treated industrial effluent & sewage are sent to CETP. As per proposed scenario, treated industrial effluent and domestic effluent will be subjected to CETP.
7.3	By deposition of pollutants emitted to air into the land or into water	No	Proper air pollution control measures will be taken.
7.4	From any other sources.	No	No other sources will be there.
7.5	Is there a risk of long term buildup of pollutants in the environment from these sources?	No	There will not be any long term buildup of pollutants in the environment from these sources.

Sr. No.	Information / checklist conformation.	Yes / No.	Details thereof (with approximate quantities/ rates, wherever possible) with source of information data.
8.	**Risk of accidents during construction or operation of the Project, which could affect human health or the environment.**		
8.1	From explosions, spillages, fires etc. from storage, handling, use or production of hazardous substances.	Yes	There will be chances of risk of accident from the proposed activity. Proper on site and off site emergency plans will be prepared.
8.2	From any other causes	No	No risk of accident from any other causes. Adequate precautionary measure will be taken by the unit.
8.3	Could the project be affected by natural disasters causing environmental damage (e.g. floods, earthquakes, landslides, cloudburst etc)?	Yes	Earth quake proof structure will be provided.
9.	**Factors which should be considered (such as consequential development) which could lead to environmental effects or the potential for cumulative impacts with other existing or planned activities in the locality.**		
9.1	Lead to development of supporting localities, ancillary development or development stimulated by the project which could have impact on the environment e.g.: • Supporting infrastructure (roads, power supply, waste or waste water treatment, etc.) • housing development • extractive industries • supply industries • other	Yes	New employment will be created.
9.2	Lead to after – use of the site, which could have an impact on the environment.	No	There will be no significant impact on environment.
9.3	Set a precedent for later developments.	No	The Notified area is already well developed.
9.4	Have a cumulative effect due to	No	There will be no cumulative effect from the

Sr. No.	Information / checklist conformation.	Yes / No.	Details thereof (with approximate quantities/ rates, wherever possible) with source of information data.
	proximity to other existing or planned projects with similar effects.		proposed project.
(II)	**ENVIRONMENTAL SENSITIVITY.**		
1.	Areas protected under international conventions, national or local legislation for their ecological, landscape, cultural or other related value.	No	No such protected areas.
2.	Areas which are important or sensitive for ecological reasons - Wetlands, watercourses or other water bodies, coastal zone, biospheres, mountains, forests.	No	Forest – around 7 Km aerial distance from project site.
3.	Areas used by protected, important or sensitive species of flora or fauna for breeding, nesting, foraging, resting, over wintering, migration.	No	No such area nearby.
4.	Inland, coastal, marine or underground waters	No	Arabian sea approx 20 Km from project site.
5.	State, National boundaries.	No	Union Territory Daman approx. 5 Km away from project site.
6.	Routes or facilities used by the public for access to recreation or other tourist, pilgrim areas.	No	-----
7.	Defense installations.	No	-----
8.	Densely populated or built – up area.	Yes	Vapi town around 4.4 Km away from project site.
9.	Areas occupied by sensitive man-made land uses (hospitals, schools, places of worship, community facilities)	Yes	Outside the Industrial Estate at around 4 Km distance
10.	Areas containing important, high quality or scare resources (ground	Yes	Arabian Sea 20 Km away and Daman ganga river is approx. 2.5 Km away from project

Sr. No.	**Information / checklist conformation.**	**Yes / No.**	**Details thereof (with approximate quantities/ rates, wherever possible) with source of information data.**
	water, surface resources, forestry, agriculture, fisheries, tourism, minerals)		site.
11.	Areas already subjected to pollution or Environmental damage. (those where existing legal environmental standards are exceeded)	No	----
12.	Areas susceptible to natural hazard which could cause the project to present environmental problems (earthquakes, subsidence, landslides, erosion, flooding or extreme or adverse climatic conditions)	No	----

"I **hereby given undertaking that the data and information given in the application and enclosures are true to my best knowledge and belief and I am aware that if any part of the data and information submitted is found to false or misleading at any stage, the project will be rejected and clearance give, if any to the project will be revoked at our risk and cost".**

Date:

Place:

Signature of the Applicant
With full Name and Full address
(Project Proponent/ Authorized Signatory)

NOTE:

1. **The projects involving clearance under Coastal Regulation Zone Notification, 1991 shall submit with the application a C.R.Z map duly demarcated by one of the authorized agencies, showing the project activities, w.r.t. C.R.Z (at the stage of TOR) and the recommendations of the State Coastal Zone Management Authority (at the stage of EC). Simultaneous action shall also be taken to obtain the requisite clearance under the provisions of the C.R.Z Notification, 1991 for the activities to be located in the CRZ.**

2. **The projects to be located within 10 km of the National Parks, Sanctuaries, Biosphere Reserves, Migratory Corridors of Wild Animals, the project proponent shall submit the map duly authenticated by Chief Wildlife Warden showing these features vis-à-vis the project location and there commendations or comments of the Chief Wildlife Warden thereon (at the stage of EC).**

3. **All correspondence with the Ministry of Environment & Forest including submission of application for TOR/Environmental Clearance, subsequent clarifications, as may be required from time to time, participation in the EAC Meeting on behalf of the project proponent shall be made by the authorized signatory for the specific project**

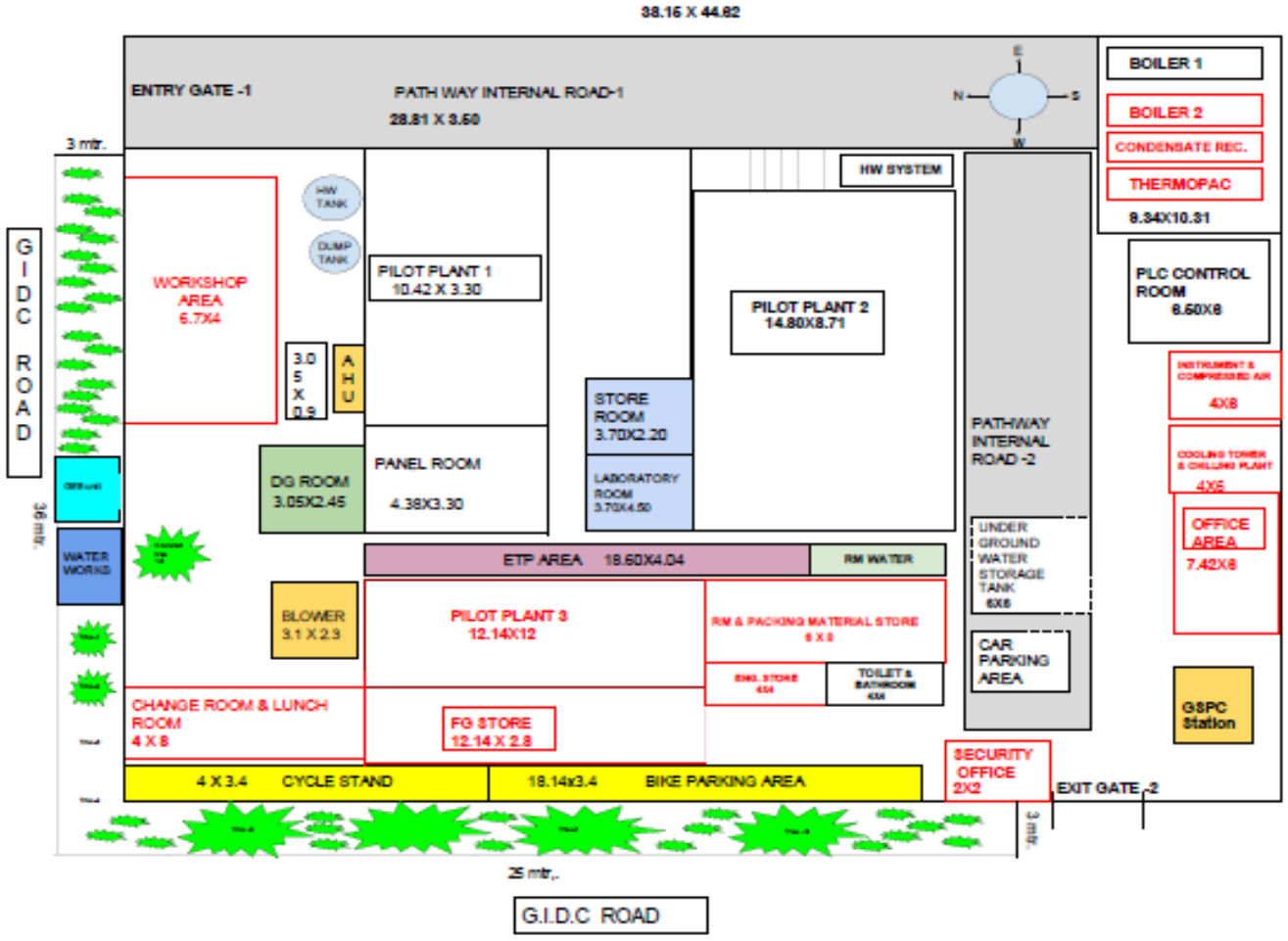
ANNEXURE I

PROPOSED TERMS OF REFERENCE

As per standard ToR of organic manufacturing sector issued by MoEF&CC.

ANNEXURE II

SITE PLAN AND PLANT LAYOUT



AREA NAME	AREA OCCUPY IN (M2)
PATH WAY	100.83 M2
SECURITY OFFICE +CHANGE ROOM	4 M2
CHANGE & LUNCH ROOM	32 M2
PILOT PLANT -1	34.38 M2
PILOT PLANT -2	128.91 M2
PILOT PLANT -3	145.68 M2
PANEL ROOM	14.45 M2
AHU AREA	2.74 M2
DG ROOM	7.47 M2
FG STORE	33.99 M2
RM & PACKING MATERIAL STORE	48 M2
STORE ROOM	8.14 M2
LABORATORY ROOM	16.65 M2
ENG. STORE	16 M2
ETP AREA	75.14 M2
TOILET & BATHROOM	16 M2
BLOWER	7.13 M2
WORK SHOP AREA	26.8 M2
BIKE PARKING AREA	61.67 M2
CYCLE STAND	13.6 M2
FIRE WATER STORAGE TANK	36 M2
UTILITY AREA	96.29 M2
OFFICE ROOM	44.52 M2
COOLING TOWER CHILLING PLANT	24 M2
INSTRUMENT & COMPRESSED AIR	24 M2
NORTH SIDE -GARDEN	108 M2
WEST SIDE GARDEN	75 M2

ANNEXURE III

LIST OF DIRECTORS WITH ADDRESS

SR. NO.	NAME OF DIRECTOR	DESIGNATION	ADDRESS	TELEPHONE NO.
1.	Shri. Rajendra V Gogri	Chairman & Managing Director	1401, Antriksh, Murar Road, Mulund (West), Mumbai - 400080	022-67976666
2.	Shri. Rashesh C Gogri	ViceChairman Managing Director	601, Antriksh, Murar Road, Mulund (West), Mumbai - 400080	022-67976666
3.	Shri. Parimal H Desai	Whole -time Director	A-1403, 14th floor, Runwal heights, LBS marg, Mulund (West), Mumbai-400080	022-67976666
4.	Shri. Manoj M Chheda	Whole -time Director	Dunhill Villa Co. Op. Hsg-Soc.Ltd, esant Road, Santracruz (West), Mumbai - 400054	022-67976666
5.	Shri. Kirit R Mehta	Whole -time Director	10, Pushpendra Mansion, Phirojshah Mehta Road, Santracruz (West), Mumbai-400054	0260-2400366
6.	Smt. Hetal Gogri Gala	Whole -time Director	558-B, Gopal Sadan, Block No.801, 8th floor, Jamshed Road, Matunga (East)Mumbai 400019	022-67976666
7.	Shri. Renil R Gogri	Whole -time Director	1401, Antriksh, Murar Road, Mulund (West), Mumbai - 400080	022-67976666

ANNEXURE IV

LIST OF PRODUCTS AND THEIR PRODUCTION CAPACITY

Existing Products as Per CCA No. AWH-73091

Sr. No.	Name of Product	Quantity in MT per Month
1.	Para Chloro Aniline **OR**	20
2.	3,4 Di Chloro Aniline **OR**	18
3.	2,5 Di Chloro Aniline **OR**	18
4.	Mix of 3,4 DCA & 2,3 DCA **OR**	18
5.	Ortho Anisidine **OR**	20
6.	Para Toludene **OR**	20

List of Proposed Products

Sr. No.	List of Process	Quantity (MT/Month)
1.	**CHLORINATED PROCESS AND/OR**	
1.1	Mono Chloro Benzene, Ortho Di Chloro Benzene, Para Di Chloro Benzene A**ND/OR**	
1.2	123,124 Tri Chloro Benzene-(Benzene) A**ND/OR**	
1.3	Para Nitro Toluene (2chloro 4 Nitro toluene) A**ND/OR**	
1.4	Mono Dichloro Benzene A**ND/OR**	
1.5	Ortho chloro toluene / Para chloro toluene A**ND/OR**	
1.6	6-Chloro 2-Nitro Toluene 4-Chloro 2-Nitro Toluene A**ND/OR**	**5**
1.7	Pivalyl Chloride A**ND/OR**	
1.8	2-Ethyl Hexanyl Chloride A**ND/OR**	
1.9	Iso Nonyl Chloride A**ND/OR**	
1.10	2,4,6 Trichloro Aniline (TCAN) A**ND/OR**	
1.11	2, 6 – Dichloro para nitro aniline (2,6 DCPNA) A**ND/OR**	
2.	**HYDROGENATION/REDUCTION PROCESS AND/OR**	
2.1	Ortho Toludene A**ND/OR**	**5**
2.2	M- O &Para Chloro Aniline A**ND/OR**	
2.3	3,4-2,3-2,5 dichloro Aniline A**ND/OR**	

2.4	3,4 & 4,4Diamino Diphenyl Ether A**ND/OR**	
2.5	Di Floro Benzene (1-3) A**ND/OR**	
2.6	Mixing of 2, 4 / 2, 5 DCA A**ND/OR**	
2.7	Mixing of 2, 5 / 2, 6 DCA A**ND/OR**	
2.8	Mixing of 2, 4 / 2, 5 / 2, 6 DCA A**ND/OR**	
2.9	2,4 Dichloro Aniline / 2,6 DiChloro Aniline / 3,5 DiChloro Aniline A**ND/OR**	
2.10	2,4,5 Trichloro Aniline A**ND/OR**	
2.11	Meta / Ortho / Para Phenylene Di Amine A**ND/OR**	
2.12	3,4 Diamino Diphenyl Ether / 4,4 Diamino Diphenyl A**ND/OR**	
2.13	Ether A**ND/OR**	
2.14	Ortho / Para / Meta Anisidine A**ND/OR**	
2.15	Chloro Fluoro Aniline A**ND/OR**	
2.16	Ortho / Para /Meta Cumidine A**ND/OR**	
2.17	Para /Meta Amino Phenol A**ND/OR**	
2.18	Toludines A**ND/OR**	
2.19	Aniline A**ND/OR**	
2.20	Para / Meta / Ortho Floro Aniline A**ND/OR**	
2.21	Di Floro Aniline (1:3) A**ND/OR**	
2.22	4-Floro-N-Isopropyl Aniline A**ND/OR**	
2.23	4-Chloro-NIsopropyl Aniline A**ND/OR**	
2.24	2 Methoxy 4 Nitro Aniline (Scarlet R - from partial hydrogenation of 24 Dinitro Anisole) A**ND/OR**	
2.25	2,4 Di Amino Anisole A**ND/OR**	
2.26	N-N Disec Butyl PPDA A**ND/OR**	
2.27	Meta Xilidine A**ND/OR**	
2.28	4 Chloro 2,5 Dimethoxy Aniline A**ND/OR**	
2.29	N,N Di Sec terteary butyl para phenylene Diamine A**ND/OR**	
2.30	DCBH (Di Chloro Benzene Hydro chloride) A**ND/OR**	
2.31	3,5/2,6 DFA (Di Flouro Aniline) A**ND/OR**	
2.32	Di Anisidine A**ND/OR**	
2.33	OT Base A**ND/OR**	
3.	**NITRATION PROCESS AND/OR**	**5**
3.1	3-4,2-3,2-5,2,4 Dichloro N Benzene A**ND/OR**	
3.2	Di Chloro Di Fluoro Nitro Benzene A**ND/OR**	

3.3	Ortho Nitro Chloro Benzene/ Para Nitro Chloro Benzene/ Meta Nitro Chloro Benzene A**ND/OR**	
3.4	2,4 Di Nitro Chloro Benzene A**ND/OR**	
3.5	2,4,5 Tri Chloro Nitro Benzene/ 2,3,4 Tri Chloro Nitro Benzene A**ND/OR**	
3.6	4-Nitro N-methyl Phthalimide A**ND/OR**	
3.7	2 EHN (Ethyl Hexanol Nitration) A**ND/OR**	
4.	**NITRO ANISOLE PROCESS AND/OR**	**5**
4.1	Ortho Nitro Anisole **AND/OR**	
4.2	Para Nitro Anisole **AND/OR**	
4.3	2,4-Di Nitro Anisole **AND/OR**	
4.4	2 Methoxy 5 Chloro Nitro Benzene (from 25 DCNB) **AND/OR**	
5.	**FLUORINATION PROCESS AND/OR**	**5**
5.1	Para Fluoro Nitro Benzene **AND/OR**	
5.2	Di Fluoro Nitro Benzene **AND/OR**	
6.	**DE-NITRO CHLORINATION PROCESS AND/OR**	**5**
6.1	2,6Di Chloro Fluoro Benzene **AND/OR**	
6.2	2,6 Di Chloro-benzonitrile **AND/OR**	
6.3	Di Chloro Di Fluoro Benzene **AND/OR**	
6.4	Meta Dichloro Benzene **AND/OR**	
6.5	2,4 Diflouro Chloro Benzene **AND/OR**	
6.6	2,4 Dichloro Fluoro Benzene **AND/OR**	
6.7	1,3 Dichloro 4,6 Diflouro Benzene **AND/OR**	
6.8	Para Fluoro Chloro Benzene **AND/OR**	
6.9	Ortho Fluoro Chloro Benzene **AND/OR**	
7.	**AMMONIATION PROCESS AND/OR**	**5**
7.1	Di Chloro Ortho Nitro Aniline **AND/OR**	
7.2	Ortho Nitro Aniline-Para Nitro Aniline **AND/OR**	
8.	**BROMINATION&DEAMINATION PROCESS AND/OR**	**5**
8.1	345Tri Fluoro Bromine Benzene	
8.2	2 Bromo 4 Flouro Acetanilide **AND/OR**	
8.3	Di Chloro Bromo Benzene **AND/OR**	
9.	**SULPHANATION PROCESS AND/OR**	**5**
9.1	4B Acid **AND/OR**	
10.	**ALKYLATION PROCESS AND/OR**	**5**
10.1	Methyl Ethyl Aniline **AND/OR**	
11.	**DEHALGENATION PROCESS AND/OR**	**5**
11.1	1,3 Di Fluoro Benzene **AND/OR**	

12.	**CONDENSATION PROCESS AND/OR**	**5**
12.1	Di Nitro Di Phenyl Ether **AND/OR**	
13.	**CYCLIZATION PROCESS AND/OR**	**5**
13.1	Di Amino Phenyl Benzimidazole **AND/OR**	
13.2	Para flouro Anisol **AND/OR**	
13.3	Quinalphose (TECH) (Diethyl 2-Hydroxy Thiophosphoryl Chloride)**AND/OR**	
14.	**ESTERFICATION AND/OR**	**5**
14.1	Ester **AND/OR**	
15.	**DIAZOTISATION PROCESS AND/OR**	**5**
15.1	25&23Di Chloro Phenol **AND/OR**	
15.2	-3,5 Di Chloro Nitro Benzene **AND/OR**	
15.3	Para Flouro Phenol (PFP)**AND/OR**	
16.	**ACETYLATION & HYDROLYSIS PROCESS AND/OR**	**5**
16.1	Meta Nitro Para Anisidine **AND/OR**	
16.2	Meta Nitro Para Toludiene **AND/OR**	
	Total	**20 MT/Month**
17.	**BY PRODUCTS**	
17.1	30% Hydrochloric Acid	202
17.2	Spent Acid	327
17.3	Aluminum Oxide (Al2O3)	4
17.4	Sodium Chloride (NaCl)	44.5
17.5	Ortho Nitro Phenol (ONP)	3.5
17.6	Calcium Chloride (Cacl2) solution	149
17.7	Potassium Chloride (KCL)	187.5
17.8	Acetic Acid (CH3COOH)	10
	Total	**927.5**

LIST OF RAW MATERIALS

Sr. No.	**List of Product**	**Qty in MT/ Month**	**Name of Raw Materials**	**Qty in kgs**	**Qty in ton/ton**	**Qty in ton/month**
1. 1.1	**Chlorinated Process and/or** MCB,ODCB,PDCB	5	Fresh benzene	46.40	0.59	2.97
			Chlorine	65.47	0.84	4.19
			Total	111.87	1.43	7.16
1.2	123,124 TCB-(		benzene	42.90	0.43	2.15

Sr. No.	List of Product	Qty in MT/ Month	Name of Raw Materials	Qty in kgs	Qty in ton/ton	Qty in ton/month
	Benzene)		Chlorine	117.15	1.18	5.88
			Total	160.05	1.61	8.04
1.3	PNT(2chloro 4 Nitro toluene)		Fresh PNT	79.46	0.82	4.08
			Chlorine	41.18	0.42	2.11
			Total	**664.48**	**7.32**	**36.58**
2.	**Hydrogenation/Reduction Process and/or**	5				
2.1	Ortho Toludene		Ortho Nitro Toluene	130.00	1.29	6.43
			Hydrogne	6.00	0.06	0.30
			Total	**136.00**	**1.34**	**6.72**
2.2	M- O &Para Chlo Anili		Meta Chloro Nitrobenzene	124.03	1.24	6.22
			Hydrogen	4.74	0.05	0.24
			Solvent	3.06	0.03	0.15
			Total	**403.83**	**4.01**	**20.06**
2.3	3,4-2,3-2,5 dichloro Aniline		3,4 Di Chloro Nitro Benzene	118.42	1.20	6.00
			Hydrogen	3.72	0.04	0.19
			Fresh Solvent	0.84	0.01	0.04
			Total	**122.98**	**1.25**	**6.23**
2.4	3,4 & 4,4Diamino Diphenyl Ether		Fresh 3,4DNDPE	130.00	1.30	6.50
			Hydrogen	6.06	0.06	0.30
			Fresh solvent	3.36	0.03	0.17
			Total	**139.42**	**1.39**	**6.97**
3.	**Nitration Process and/or**	**5**	pDCB	76.44	0.76	3.82
3.1	3-4,2-3,2-5 Dichlor N Benzene		Conc. Nitic Acid	33.83	0.34	1.69
			Sulphuric Acid	28.33	0.28	1.42
			Total	**138.60**	**1.39**	**6.93**
3.2	DCDFNB		DCDFB	81.73	0.82	4.09
			Conc. Nitic Acid	35.65	0.36	1.78
			Sulphuric Acid	68.61	0.69	3.43
			Oleum	168.96	1.69	8.45
			Total	**354.95**	**3.55**	**17.75**
4.	**Nitro Anisole Process and/or**	**5**				
4.1	O- Nitro Anisole		ONCB/ PNCB	115.20	1.15	5.76
			Anhydrous	12.70	0.13	0.64

Sr. No.	List of Product	Qty in MT/ Month	Name of Raw Materials	Qty in kgs	Qty in ton/ton	Qty in ton/month
			Ammonia			
			Lime(purity 80%)	37.00	0.37	1.85
			Total	**164.90**	**1.65**	**8.25**
5.	**Flourination Process and/or**	**5**				
5.1	PFNB		pCNB	124.63	1.25	6.23
			KF	55.18	0.55	2.76
			Sulfolane	19.64	0.20	0.98
			PEG-400	1.61	0.02	0.08
			MCB	2.84	0.03	0.14
			Total	**203.90**	**2.04**	**10.20**
5.2	DFNB		2,4-DCNB	155.03	1.55	7.75
			KF	115.09	1.15	5.75
			PEG-400	0.95	0.01	0.05
			Fresh Sulfolane	41.73	0.42	2.09
			Total	**312.80**	**3.13**	**15.64**
6.	**De nitro Chlorination Process and/or**	**5**	2,3,FCNB	125.71	1.26	6.29
6.1	2,6DCFB		Chlorine	28.50	0.29	1.43
			25%Soda	1.80	0.02	0.09
			Sulphuric acid	90.68	0.91	4.53
			Total	**246.69**	**2.47**	**12.33**
6.2	2,6 DC-benzonitrile		2,6-CNBn	130.68	1.30	6.48
			Chlorine gas	44.97	0.45	2.23
			MCB	16.08	0.16	0.80
			Ammonia 25%	1.35	0.01	0.07
			Sulphuric acid	157.00	1.56	7.79
			Total	**350.08**	**3.47**	**17.37**
6.3	DCDFB		DFCNB asis	147.62	1.48	7.38
			Chlorine	27.00	0.27	1.35
			Caustic lye	2.08	0.02	0.10
			Sulphuric acid	101.20	1.01	5.06
			Total	**277.90**	**2.78**	**13.90**

Sr. No.	List of Product	Qty in MT/ Month	Name of Raw Materials	Qty in kgs	Qty in ton/ton	Qty in ton/month
7.	**Ammoniation Process and/or**	**5**				
7.1	DCONA		2,3,4 Tri Chloro Nitro Benzene	111.60	1.12	5.58
			Anhydrous Ammonia	16.70	0.17	0.84
			MCB	5.80	0.06	0.29
			Lime(purity 80%)	25.00	0.25	1.25
			Total	**159.10**	**1.59**	**7.96**
7.2	ONA-PNA		ONCB/ PNCB	115.20	1.15	5.76
			Anhydrous Ammonia	12.70	0.13	0.64
			Lime(purity 80%)	37.00	0.37	1.85
			Total	**164.90**	**1.65**	**8.25**
8.	**Bromination & De Amination Process and/or**	**5**				
8.1	345TFBrB		2,3,4 - TFA	70.15	0.70	3.51
			BROMINE	41.04	0.41	2.05
			H2O2 50%	29.10	0.29	1.46
			NaHSO3 20%	5.97	0.06	0.30
			HCl - 30%	145.52	1.46	7.28
			MDC	70.15	0.70	3.51
			50% H3PO2	69.40	0.69	3.47
			NaNO2	38.06	0.38	1.90
			10% soda solution	7.46	0.07	0.37
			Total	**476.85**	**4.77**	**23.84**
9.	**Sulphanation Process and/or**	**5**				
9.1	4B Acid		Para Toludine	60.50	0.61	3.03
			Sulphuric Acid	59.30	0.59	2.97
			ODCB	441.30	4.41	22.07
			Total	**561.10**	**5.61**	**28.06**
10.	**Alkylation Process and/or**	**5**				

Sr. No.	List of Product	Qty in MT/ Month	Name of Raw Materials	Qty in kgs	Qty in ton/ton	Qty in ton/month
10.1	MEA		Fresh OT	80.92	0.81	4.05
			Al	1.65	0.02	0.08
			AlCl3	2.06	0.02	0.10
			CH2=CH2	21.82	0.22	1.09
			MeOH fresh	3.45	0.03	0.17
			Total	**109.90**	**1.10**	**5.50**
11.	**Dehalgenation Process and/or**	**5**				
11.1	1,3 DFB		Di Flouro Chloro Benzene	135.00	1.35	6.75
			Triethyl amine	5.00	0.05	0.25
			Catalyst	0.18	0.00	0.01
			Hydrogen	2.70	0.03	0.14
			HCl 30 %	22.00	0.22	1.10
			Caustic flakes	45.00	0.45	2.25
			Total	**209.88**	**2.10**	**10.49**
12.	**Condensation Process and/or**	**5**				
12.1	DNDPE		PNCB	67.30	0.67	3.37
			PNP Na	84.40	0.84	4.22
			Solvent	55.70	0.56	2.79
			Rec Solvent	273.20	2.73	13.66
			Catalyst	4.20	0.04	0.21
			Total	**484.80**	**4.85**	**24.24**
13.	**Cyclization Process and/or**	**5**				
13.1	DAPBI		TABA	154.00	0.68	3.42
			98 % H2SO4	66.00	0.29	1.47
			Total	**220.00**	**0.98**	**4.89**
14.	**Esterfication and/or**	**5**				
14.1	Ester		Methanol	12.00	0.18	0.88
			PTBBA	63.45	0.93	4.67
			98 % H2SO4	3.00	0.04	0.22
			Rec.Methanol	25.00	0.37	1.84

Sr. No.	List of Product	Qty in MT/ Month	Name of Raw Materials	Qty in kgs	Qty in ton/ton	Qty in ton/month
			Total	**103.45**	**1.52**	**7.61**
15.	**Diazotisation Process and/or**	**5**				
15.1	25&23DCP		25DCA	101.52	1.02	5.08
			NSA	229.27	2.29	11.46
			H2SO4	268.18	2.68	13.41
			Spent acid	134.52	1.35	6.73
			10% NaHCO3 solution	7.62	0.08	0.38
			Total	**741.11**	**7.41**	**37.06**
16.	**Acetylation & Hydrolysis Process and/or**	**5**				
16.1	MNPA		Ortho Anisidine	90.00	0.90	4.50
			Acetic Anhydride	81.00	0.81	4.05
			Hydro	0.18	0.00	0.01
			MDC	22.50	0.23	1.13
			Rec. MDC	427.50	4.28	21.38
			Nitric Acid	162.00	1.62	8.10
			Sodium Nitrate	0.18	0.00	0.01
			Caustic	36.00	0.36	1.80
			Total	**819.36**	**8.19**	**40.97**
16.2	MNPT		Para Toludine	86.96	0.87	4.35
			Acetic Anhydride	82.78	0.83	4.14
			Hydro	0.17	0.00	0.01
			MDC	21.75	0.22	1.09
			Rec.MDC	413.25	4.13	20.66
			Nitric Acid	113.00	1.13	5.65
			Sodium Nitrate	0.17	0.00	0.01
			Caustic	34.80	0.35	1.74
			Total	**752.88**	**7.53**	**37.64**

ANNEXURE V

BRIEF PROCESS DESCRIPTION

CHLORINATED PROCESS

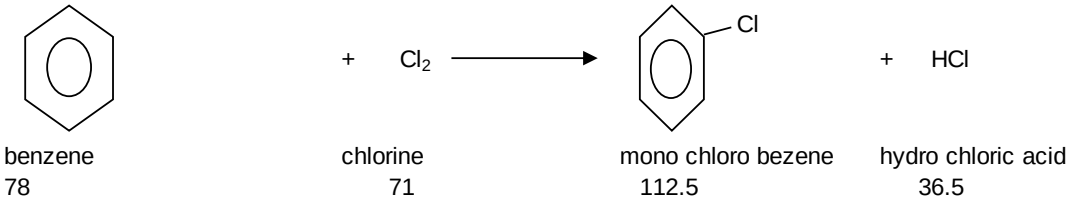
MCB, ODCB, PDCB:

1. **MONO CHLORO BENZENE**

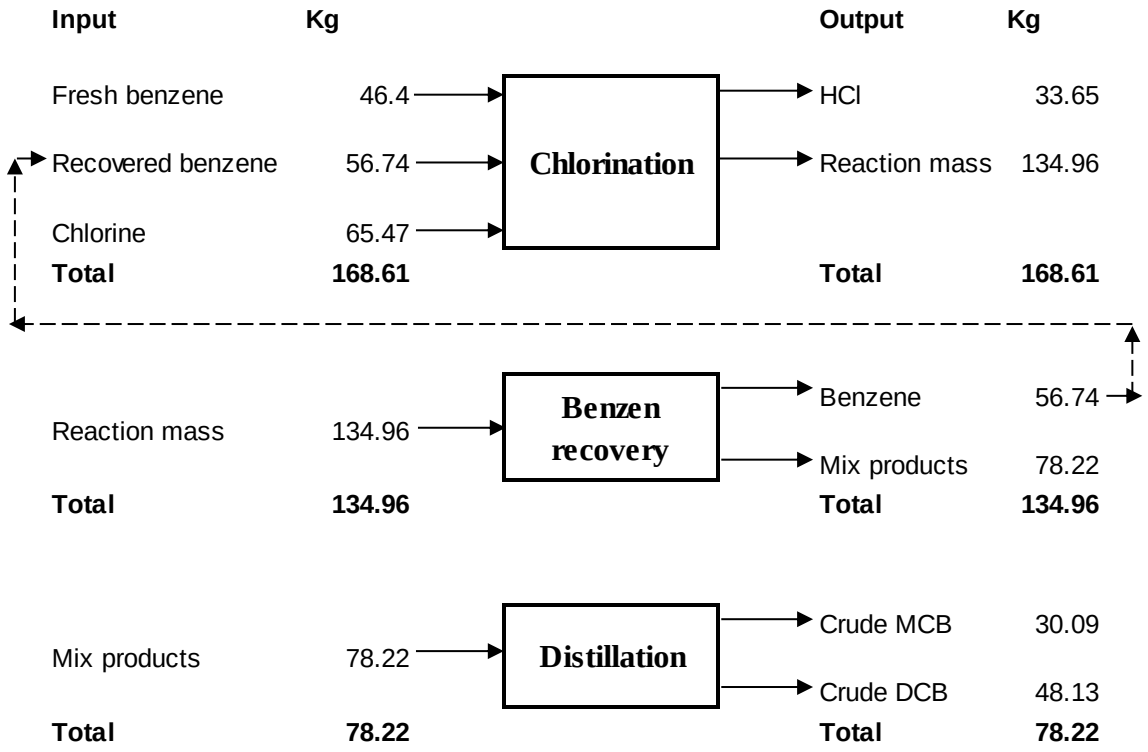
Manufacturing Process:

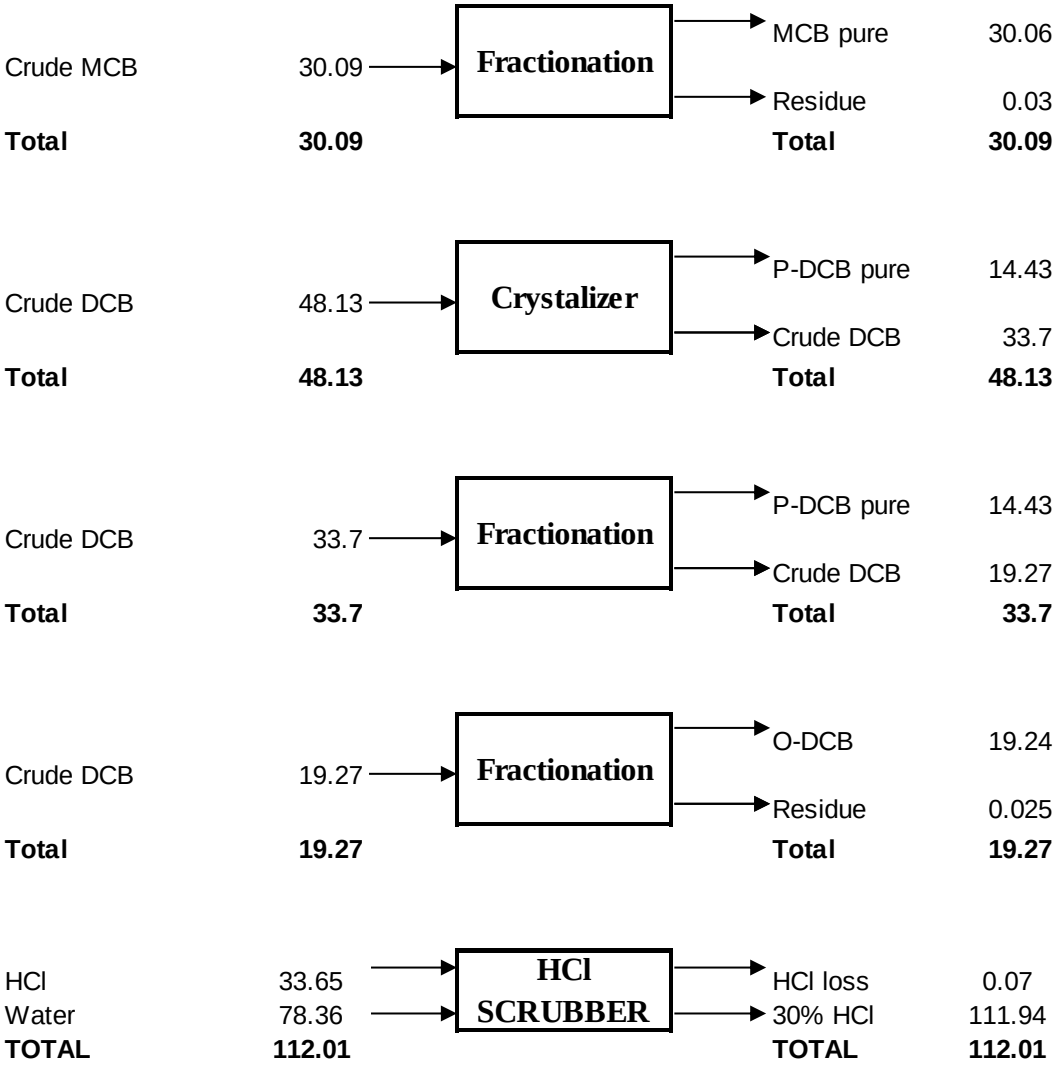
The chlorine in the gaseous form is reacted with benzene to form mono Chloro benzene in the chlorinator reactor, reaction is followed by benzene recovery.

Chemical Reaction:



Material Balance:



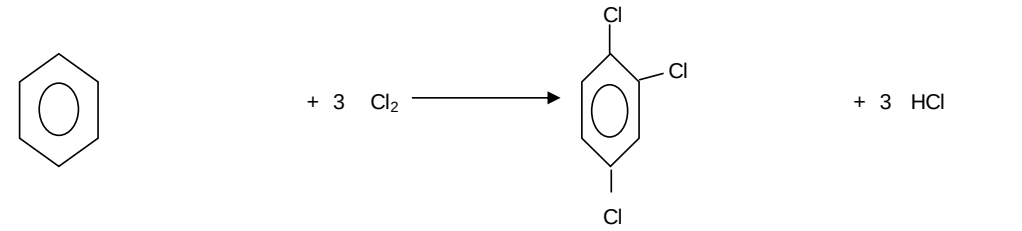


123,124 TRICHLORO BENZENE:

Manufacturing Process:

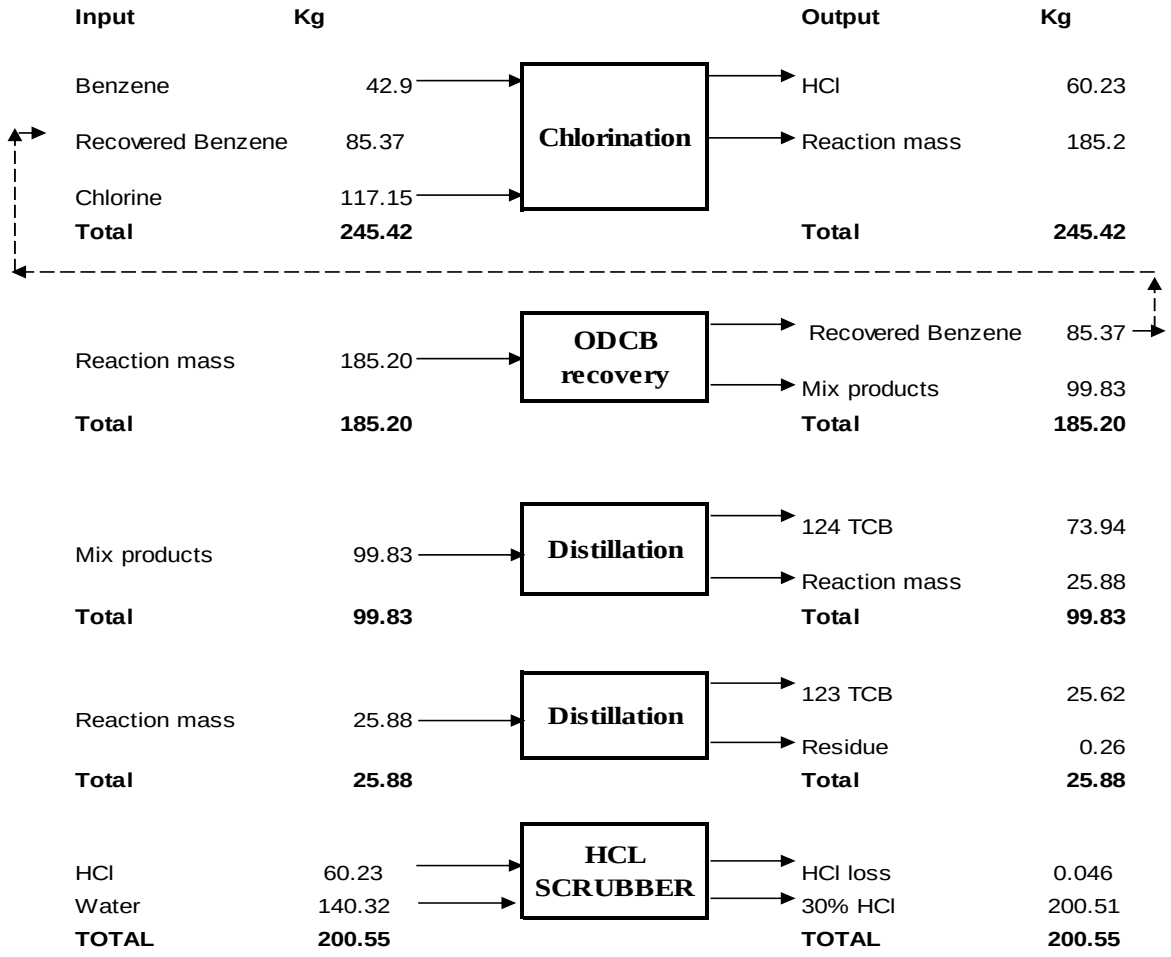
The chlorine in the gaseous form is reacted with either benzene or ortho di chloro benzene in the chlorinator; Reaction is followed by benzene or Ortho di chloro benzene recovery then separation of crude tri chloro benzene. Crude product is then subjected to Flash Distillation to get pure product.

Chemical Reaction:



benzene	chlorine	Tri chloro bezene	hydro chloric acid
78	213	181.5	109.5

Mass Balance:

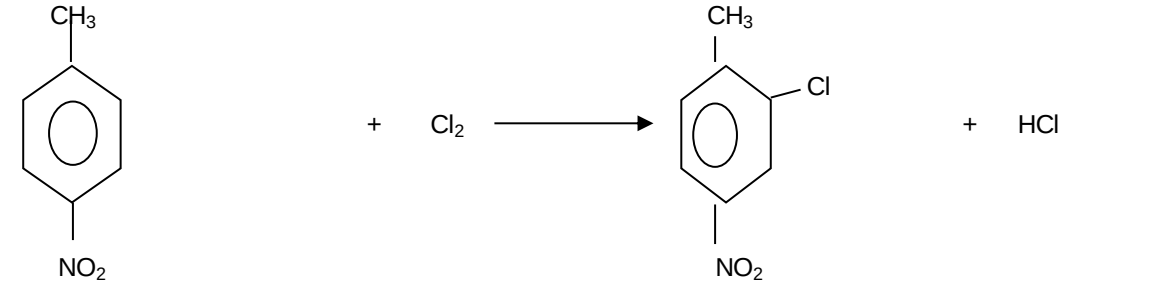


2-CHLORO 4-NITRO TOLUENE

Manufacturing Process:

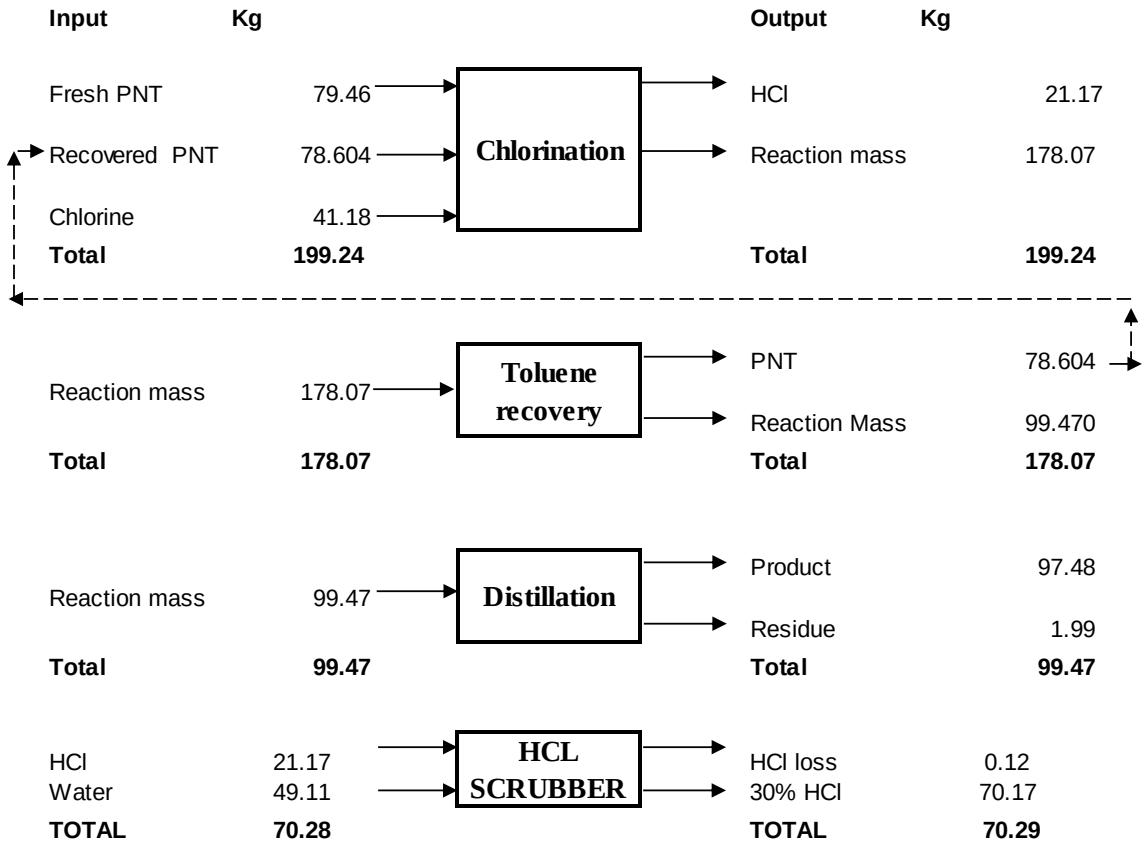
The chlorine in the gaseous form is reacted with Para nitro toluene in the chlorinator, Reaction is followed by Para nitro toluene recovery then separation of crude chloro nitro toluene. Crude product is then subjected to Flash Distillation to get pure products.

Chemical Reaction:



Para Nitro Toluene	chlorine	2Chlror4Nitro toluene	hydro chloric acid
137	71	171.5	36.5

Mass Balance:



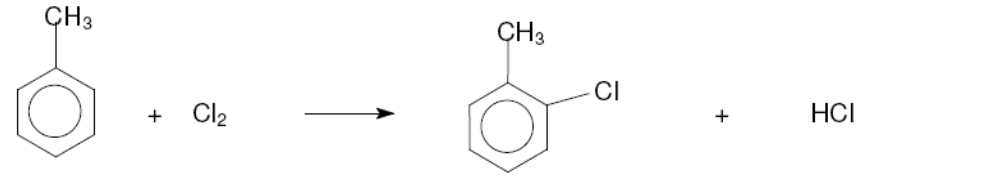
HYDROGENATION/REDUCTION PROCESS

ORTHO TOLUDENE

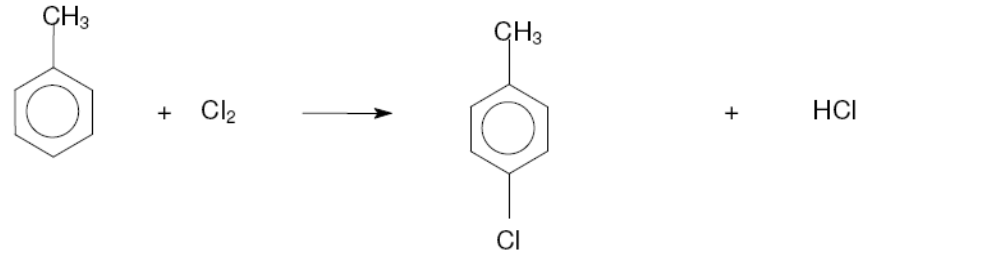
Manufacturing Process:

Here ortho nitro toluene is reacted in an Autoclave reactor with the Hydrogen gas in the presence of a metal powder catalyst. The reaction mixture contains solvent. The reaction is followed by Catalyst Filtration, Solvent Recovery, Layer Separation and Drying. Crude product is than subjected to Flash Distillation to get the pure product.

Chemical Reaction:



Toluene	Chlorine	Ortho chloro Toluene	Hydro chloric acid
92	71	126.5	36.5



Toluene	Chlorine	Para chloro Toluene	Hydro chloric acid
92	71	126.5	36.5

Mass Balance:

Input	Kg		Input	Kg
Ortho nitrotoluene	130	Hydrogenation	Hydrogen (Vent)	0.29
Hydrogen	6		Cr. Ortho toludene	135.72
TOTAL	**136.00**		**TOTAL**	**136.00**
Cr. Ortho toludene	135.715	Vac. Drying	Reaction water	34.16
			Cr. Ortho toludene	101.55
TOTAL	**135.72**		**TOTAL**	**135.72**
Cr. Ortho toludene	101.551	Fractionation	Ortho toluedene	101.14
			Residue	0.41
TOTAL	**101.55**		**TOTAL**	**101.55**

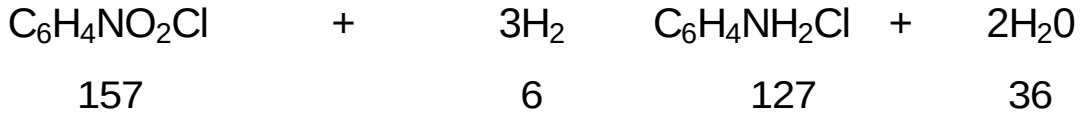
META CHLORO ANILINE / PARA CHLORO ANILINE / ORTHO CHLORO ANILINE

Manufacturing Process:

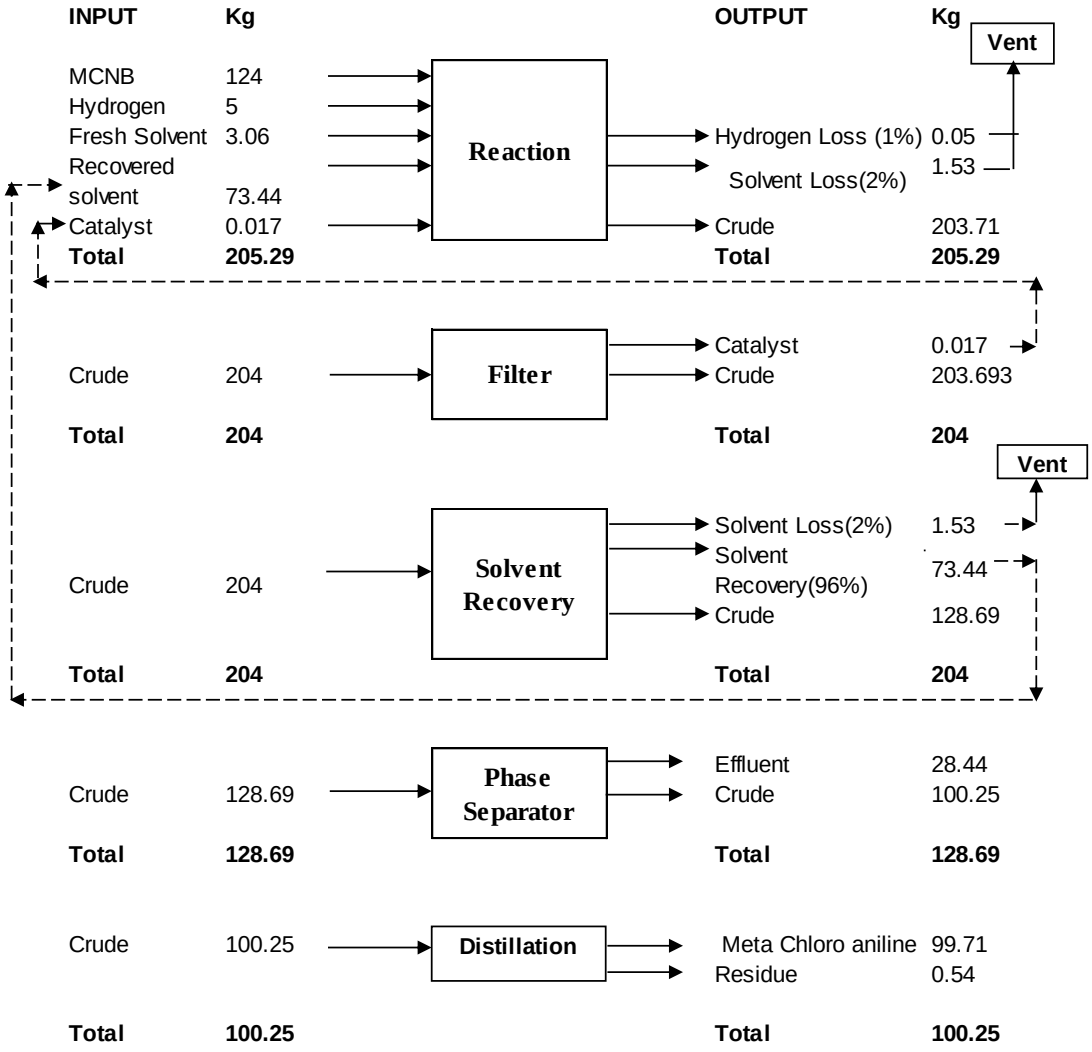
Here Meta Nitrobenzene is reacted in an autoclave reactor with hydrogen gas in presence of metal powder catalyst to produce Meta chloro aniline. The reaction mixture contains solvent. The reaction is followed by catalyst filtration, solvent recovery, layer separation and drying. Crude product is then subjected to flash distillation to get the pure product. Product is either sold as liquid or flakes depending on the market requirement.

For production of Para Chloro aniline and Ortho Chloro aniline, same above manufacturing process is applied by taking Para Chloro nitrobenzene and Ortho Chloro Nitrobenzene respectively instead of Meta Chloro nitro benzene. Reference material balance is given for one product.

Chemical Reaction:



Mass Balance:



3, 4/2, 3/2, 5 DICHLORO ANILINE

Manufacturing Process:

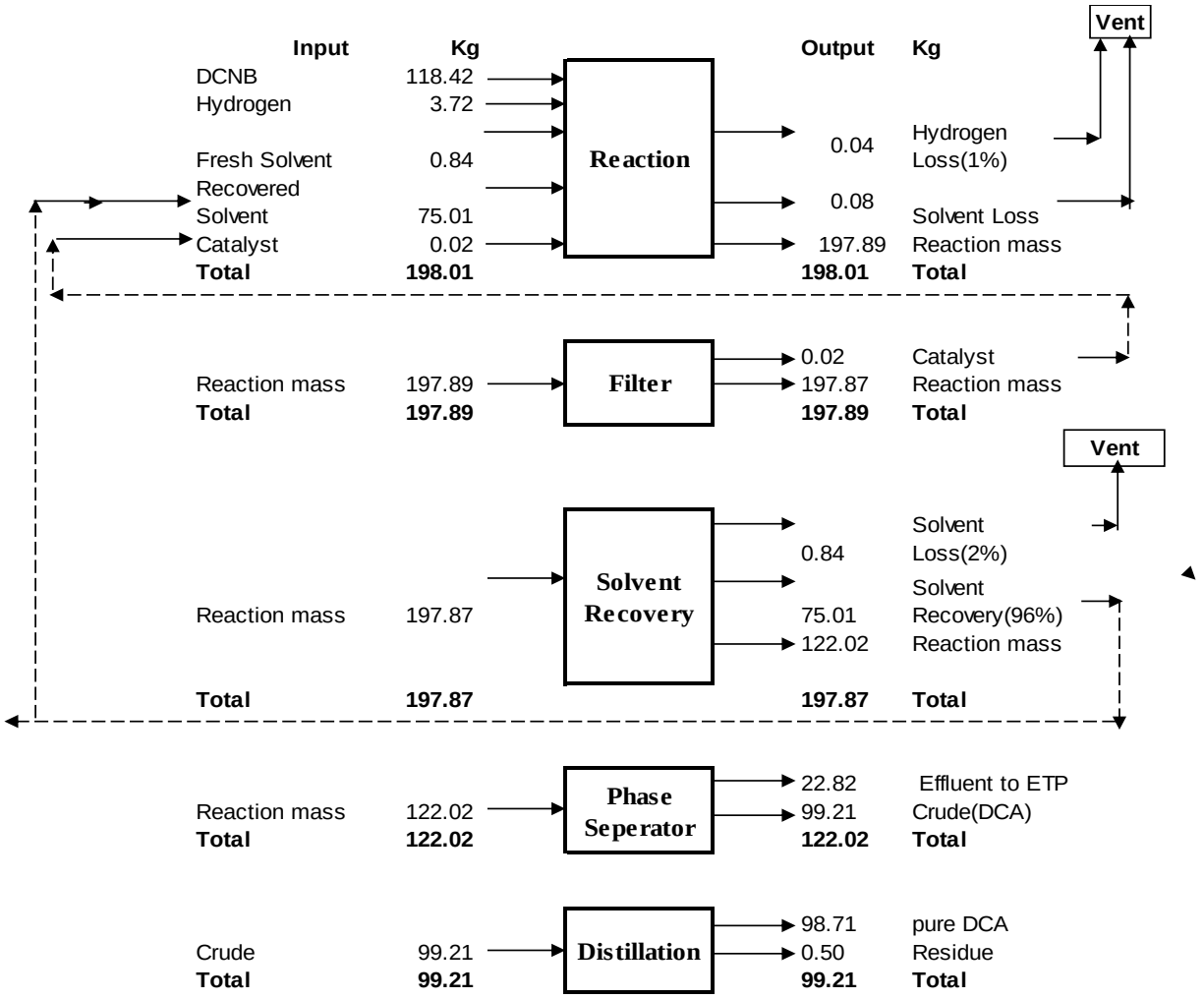
Here 3, 4 dichloro nitrobenzene is reacted in an autoclave reactor with hydrogen gas in presence of metal powder catalyst to produce 3, 4 dichloro aniline. The reaction mixture contains solvent. The reaction is followed by catalyst filtration, solvent recovery, and layer separation and drying. Crude product is then subjected to flash distillation to get the pure product. Product is either sold as liquid or flakes depending on the market requirement.

For production of 2, 3 chlro aniline and 2, 5 dichloro aniline, same above manufacturing process is applied by taking 2, 3 dichloro nitrobenzene and 2, 5 dichloro benzene instead of 3, 4 dichloronitro benzene. Reference material balance is given for one product.

Chemical Reaction:

	$C_6H_3NO_2Cl_2$	+	$3H_2$	$C_6H_3NH_2Cl_2$	+	$2H_20$
	0.62		0.62	0.62		0.62
Mol. Wt.(kg/kmol)	191		6	161		36.00
Feed (kg/hr)	118		4	100		22.32

Material Balance:



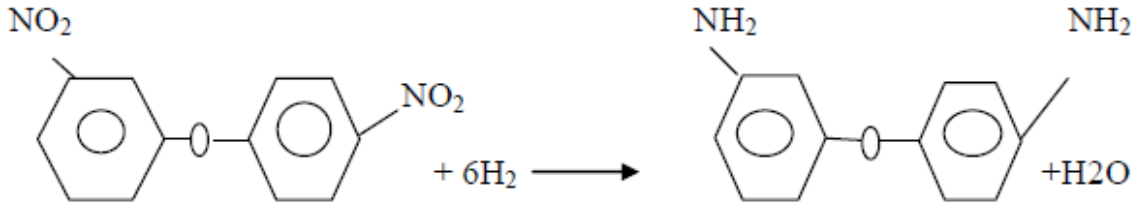
3, 4 DIAMINO DIPHENYL ETHER / 4, 4 DIAMINO DIPHENYL ETHER

Manufacturing Process:

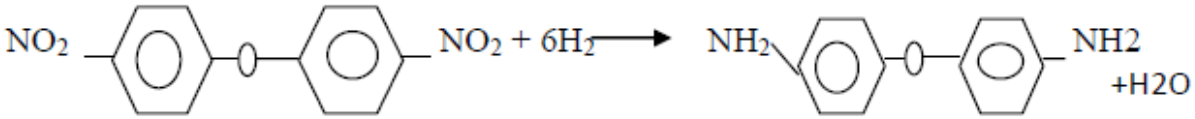
3, 4-Di nitro biphenyl ether is reacted in an Autoclave reactor with Hydrogen gas in presence of metal powder catalyst. The reaction mixture contains solvent. The reaction followed by Catalyst Filtration, Crystallization, solvent recovery and drying.

For production of 4, 4 Di Amino Diphenyl Ether same above manufacturing process is applied by taking 4, 4-Di nitro biphenyl ether.

Chemical Reaction:

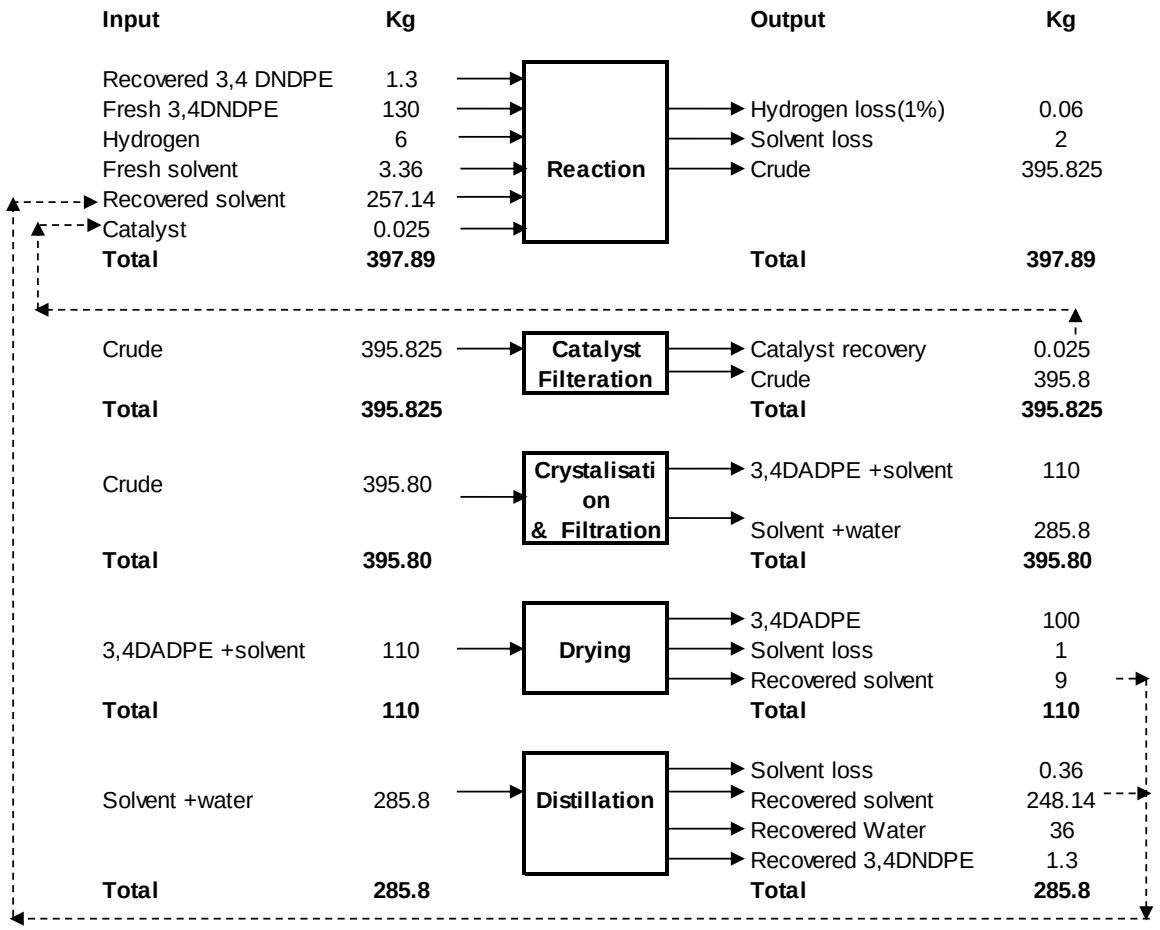


3,4-Di nitro diphenyl ether	Hydrogen	4,4 Di amino diphenyl ether	Water
(260)	(12)	(200)	(72)



4,4-Di nitro di phenyl ether	Hydrogen	4,4 Di amino di phenyl ether	Water
(260)	(12)	(200)	(72)

Material Balance:



NITRATION PROCESS

2, 5 / 3, 4 / 2, 3 DICHLORO NITRO BENZENE

Manufacturing Process:

Mixed acid containing concentrated nitric acid and concentrated sulphuric acid is reacted with 2, 5 Di Chloro benzene to produce 2, 5 Di Chloro nitro benzene. The reaction gets completed in series of nitrators with cooling coils and jackets. Reaction is followed by spent acid separation, washing by water and soda ash, drying to get a 2, 5 Di Chloro nitro benzene and unreacted 2, 5 Di Chloro benzene. Unreacted 2, 5 Di Chloro Benzene is recovered by steam distillation and recycled.

For 3, 4 Di Chloro Nitro benzene and 2, 3 Di Chloro Nitro Benzene same above process is used. Used 3, 4 Di Chloro Benzene and 2, 3 Di Chloro Benzene instead of 2,5 Di Chloro Benzene. Reference Material balance is given for one product.

Chemical Reaction:

$C_6H_4Cl_2$	+	HNO_3	=	$C_6H_3Cl_2NO_2$	+	H_2O
147		63		192		18

Material Balance:

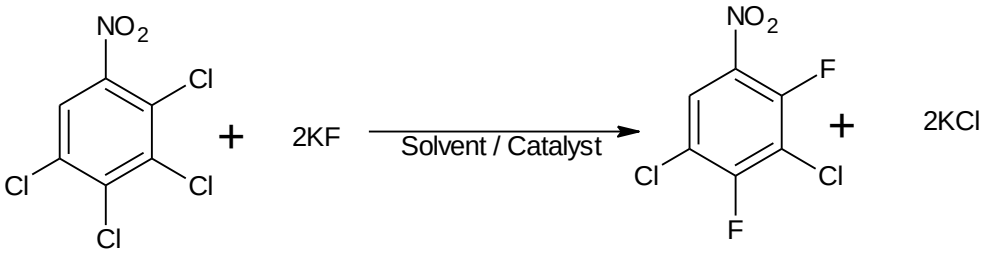
Input	Kg		Kg	Output
pDCB	76.44	→ **Nitration**		
Conc. Nitic Acid	33.83	→		
Sulphuric Acid	28.33	→	263.60	Reaction Mass
Spent Acid	125	→		
Total	**263.60**		**263.60**	**Total**
Reaction Mass	263.60	→ **Seperation**	100	Crude 2,5 DCNB
		→	125	Spent Acid
		→	38.6	Spent Acid
Total	**263.60**		**263.60**	**Total**
Reaction Mass	100	→ **Washing**		
Water	25	→	125	Reaction Mass
Total	**125**		**125**	**Total**
Reaction Mass	125	→ **Seperation**	23.33	Water to ETP
		→	101.66	2,5 DCNB Crude
Total	**125**		**125**	**Total**
2,5 DCNB Crude	101.66	→ **Drying**	1.66	Water
		→	100	2,5 DCNB Crude
Total	**101.66**		**101.66**	**Total**

DCDFNB :

Manufacturing Process:

DCDFB reacts with sulphuric acid,nitic acid and oleum to give Reaction mass. Separation and Washing of reaction mass gives DCDFNB.

Chemical Reaction:



1,2,3,4-tetrachloro-5-nitrobenzene

1,3-dichloro-2,4-difluoro-5-nitrobenzene

Manufacturing Process:

Input	Kg		Kg	Output
DCDFB	81.73	→ Nitration		
Conc.		→ Nitration		
Nitic Acid	35.65	→ Nitration		
Sulphuric Acid	68.61	→ Nitration		
Water	241.3	→ Nitration		
Oleum	168.96	→ Nitration		
Total	**596.25**		**596.25**	**Total**
		Nitration →	596.25	Reaction Mass
Reaction Mass	596.25	→ Seperation		
		Seperation →	118.22	Reaction Mass
		Seperation →	478.03	Spent Acid
Total	**596.25**		**596.25**	**Total**
Reaction Mass	118.22	→ Washing		
Water	244.96	→ Washing		
Total	**363.18**		**363.18**	**Total**
		Washing →	100	DCDFNB
		Washing →	263.18	Aq Layer

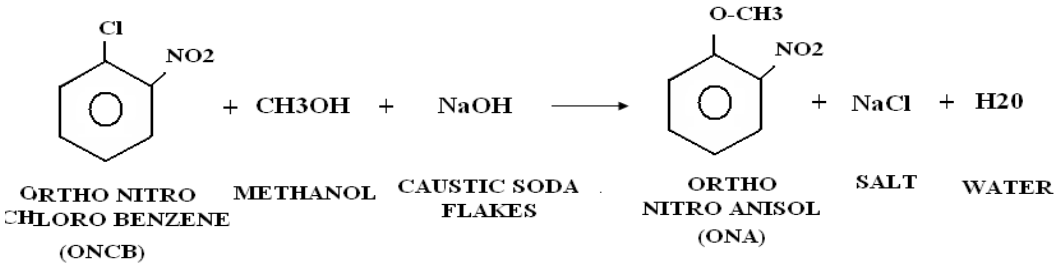
NITRO ANISOLE PROCESS

ORTHO NITRO ANISOLES

Manufacturing Process:

Here we are adding ortho nitro chloro benzene, methanol and Caustic soda flakes in the methoxylation type reactor. From that we will get reaction mass and its transfer to filter for filtration. After that we will get reaction mass sodium chloride. Again reaction mass passed through distillation columns and here we are adding require quantity of water. After finishing distillation procedure we will get crude ONA, ONP, water. Here methanol is also recovered and some methanol will be loss. Crude ONA with water adding in evaporation than finally we get ONP & NaCl salt. Evaporated water will be used in cooling tower make-up. Reference material balance is given for one product.

Chemical Reaction:



157.5 32 49 153 67.5 18

Material Balance:

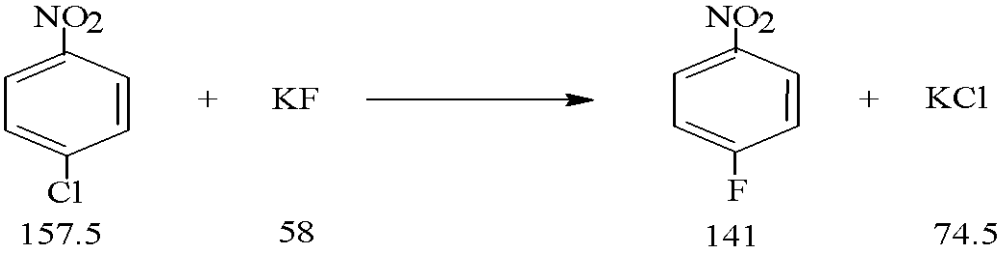
Input	Kg		Output	Kg
ONCB	111.1	Methoxylation	Reaction mass	302.79
Methanol	25.31			
Recovered methanol	133			
Caustic Flakes	33.33			
Total	**302.8**		**Total**	**302.8**
Reaction mass	302.8	Filteration	Reaction mass	261.52
			Sodium Chloride	41.27
Total	**302.8**		**Total**	**302.79**
Reaction mass	261.5	Distillation	Crude ONA	102.34
			Recovered Methanol	133.04
Recycled Water	22.92		Crude ONP+Water	41.15
			Methanol Loss	7.91
Total	**284.4**		**Total**	**284.44**
Crude ONA	102.3	Washing	ONA	100
Water	20.58		Water for Recycle	22.92
Total	**122.9**		**Total**	**122.92**
Crude ONP+Water	41.15	By product Recovery through Evoporation	ONP	3.41
Sulphuric Acid	0.82		Salt for disposal	2.96
			Evaporated Water will be used for Cooling tower make up	35.6
Total	**41.97**		**Total**	**41.97**

FLOURINATION PROCESS

PFNB

Manufacturing Process:
PCNB reacts with KF in the presence of sulfolane and catalyst to give PFNB and KCL.

Chemical Reaction:



Material Balance:

Input			**Output**	
pCNB	124.63	Fluorination	0.54	Loss
Rec pCNB	36.4			
KF	55.18		19.87	Recovered sulfolane
Sulfolane	19.64		460.4	Reaction mass
Rec Sulfolane	243.35			
PEG-400	1.61			
Total	**480.81**	**Total**	**480.81**	

Reaction mass	460.400	Filtration	372.32	Reaction mass
MCB	2.84		47.93	ML for MCB recovery
Rec MCB	40.1		83.09	Salted cake
Total	**503.34**	**Total**	**503.34**	

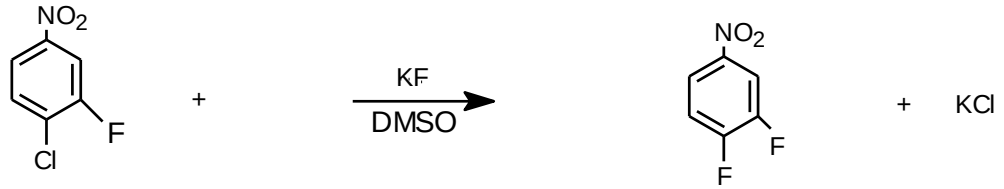
		Distillation	100	PFNB
			10.9	Loss
Reaction mass	372.32		36.4	PCNB Recycle
			223.51	Sulfolane Recycle
			1.51	Residue
Total	**372.32**	**Total**	**372.32**	

ML for MCB r	47.93	Distillation	40.1	Rec MDC
			6.63	Residue
			1.2	Loss
Total	**47.93**	**Total**	**47.93**	

DFNB

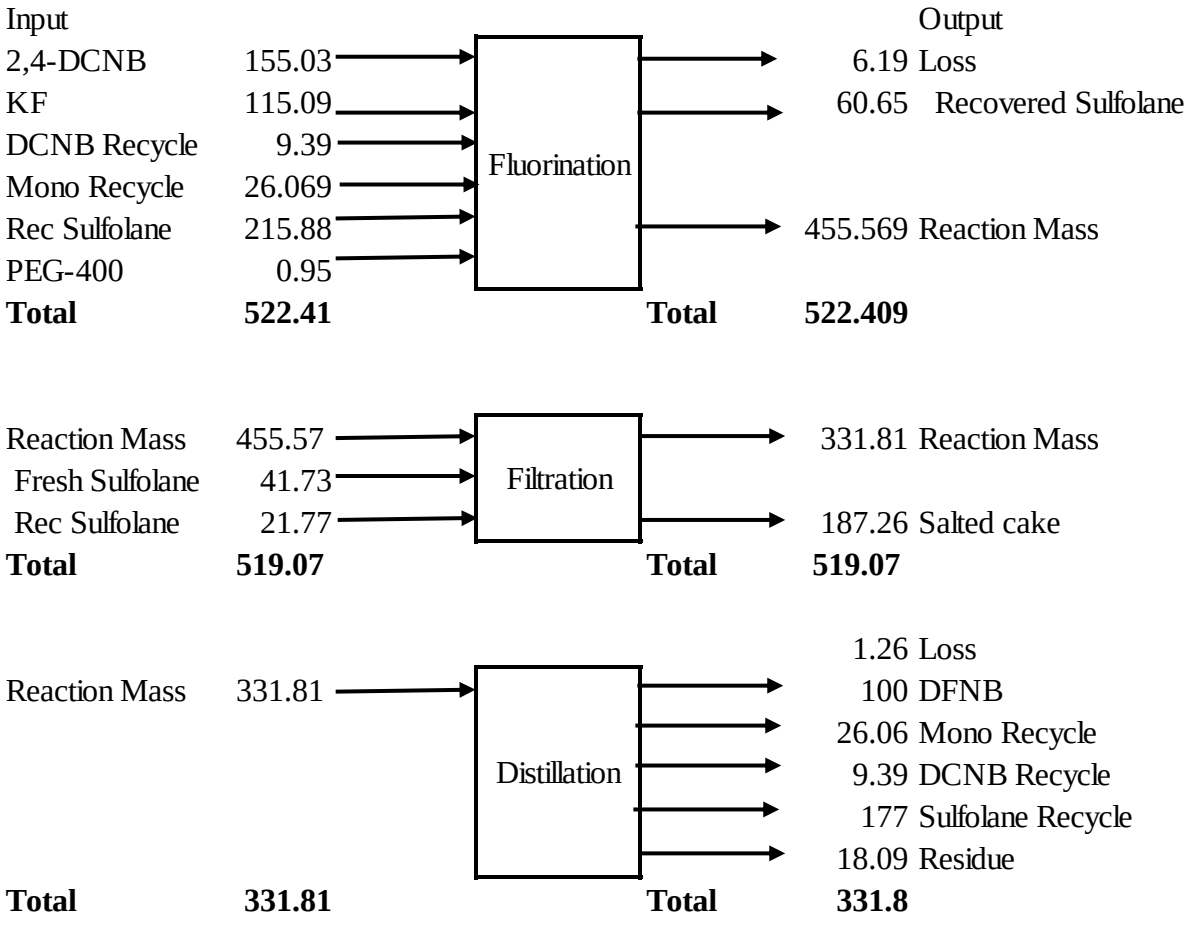
Charge DMSO followed by dried KF and Chloro Fluoro Nitrobenzene in the reactor to form DFNB and by product KCl.

Chemical Reaction:



175.5 58 159 74.5

Material Balance:



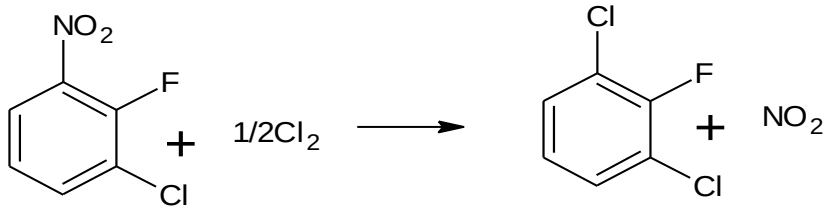
NITRO CHLORINATION PROCESs

2,6 DI CHLORO FLORO BENZENE

Manufacturing Process:

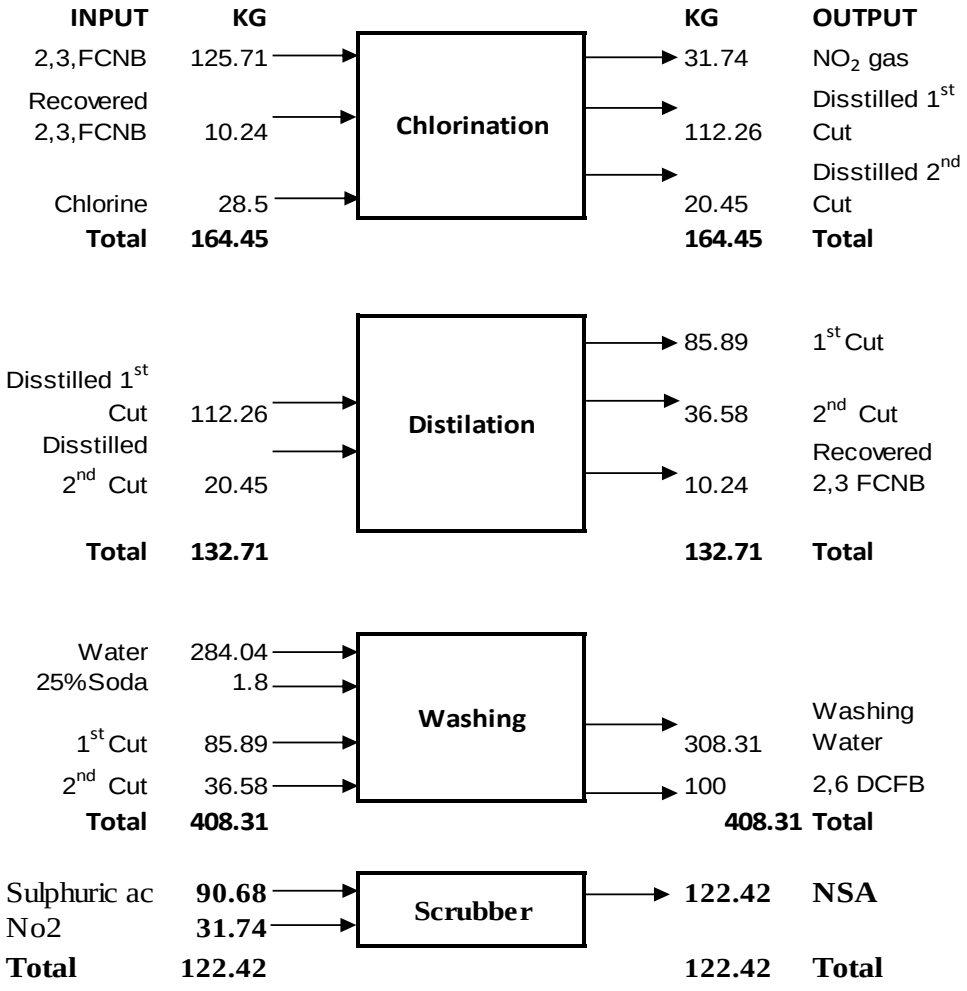
Chlorination of 2, 6 floro chloro benzene give us 2, 6 dichloro floro benzene and No_2 is also generated.

Chemical Reaction:



175.5 35.5 165 46

Material Balance:

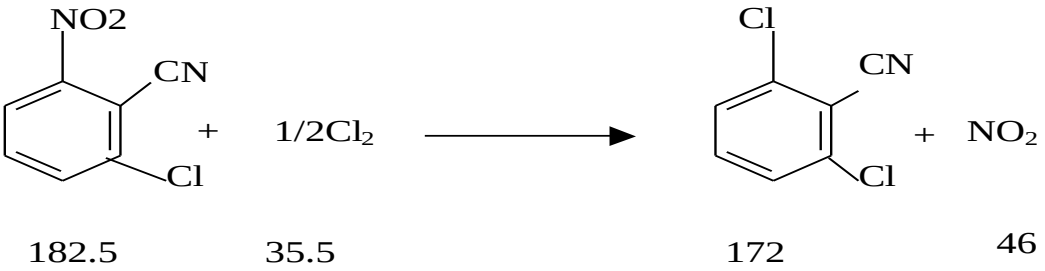


2, 6 DC BENZO NITRILE

Manufacturing Process:

Chlorination of 2 Chloro, 6 Nitro Benzo Nitrile give us 2, 3 Di chloro Benzo Nitrile and No_2 is also generated.

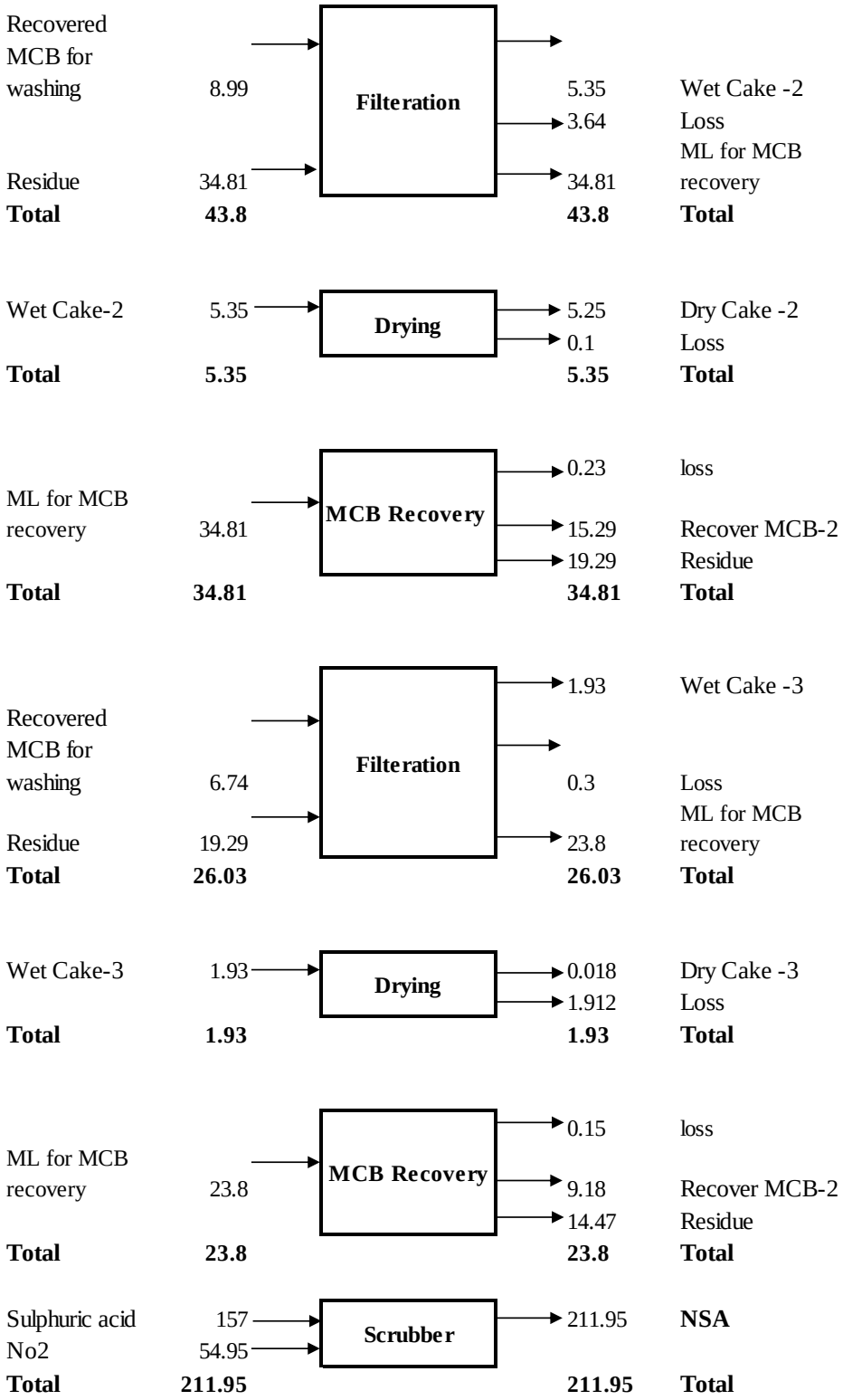
Chemical Reaction:



182.5 35.5 172 46

Material Balance:

INPUT	KG		KG	OUTPUT
2,6-CNBn	130.68	**Chlorination**	54.95	NO_2 gas
Chlorine gas	44.97		120.7	Reaction mass
Total	**175.65**		**175.65**	**Total**
Fresh MCB	16.08	**Dumping**	170.17	Reaction Mass
Recovered MCB	33.39			
Ammonia 25%	1.35		1.35	loss
Reaction mass	120.7			
Total	**171.52**		**171.52**	**Total**
Recovered MCB for washing	35.97	**Filter**	104.6	Wet Cake-1
Reaction Mass	170.17		95.61	ML for MCB recovery
			5.93	Loss
Total	**206.14**		**206.14**	**Total**
Wet Cake-1	104.6	**Drying**	95.52	Dry Cake -1
			9.08	Loss
Total	**104.6**		**104.6**	**Total**
ML for MCB recovery	95.61	**MCB Recovery**	0.18	Loss
			60.62	Recover MCB-1
			34.81	Residue
Total	**95.61**		**95.61**	**Total**

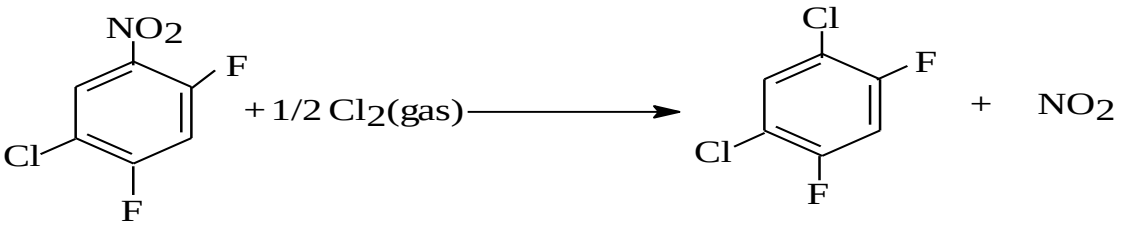

Recovered MCB for washing
8.99
Residue
34.81
Total
43.8
Filteration
5.35
Wet Cake -2
3.64
Loss
34.81
ML for MCB recovery
Total
43.8
Wet Cake-2
5.35
Total
5.35
Drying
5.25
Dry Cake -2
0.1
Loss
Total
5.35
ML for MCB recovery
34.81
Total
34.81
MCB Recovery
0.23
loss
15.29
Recover MCB-2
19.29
Residue
Total
34.81
Recovered MCB for washing
6.74
Residue
19.29
Total
26.03
Filteration
1.93
Wet Cake -3
0.3
Loss
23.8
ML for MCB recovery
Total
26.03
Wet Cake-3
1.93
Total
1.93
Drying
0.018
Dry Cake -3
1.912
Loss
Total
1.93
ML for MCB recovery
23.8
Total
23.8
MCB Recovery
0.15
loss
9.18
Recover MCB-2
14.47
Residue
Total
23.8
Sulphuric acid
157
No2
54.95
Total
211.95
Scrubber
211.95
NSA
Total
211.95

DI CHLORO DI FLORO BENZENE

Manufacturing Process:

Chlorination of Di floro Chloro nitrobenzene gives Di Chloro, Di floro Benzene.

Chemical Reaction:



193.5 35.5 183 46

Material Balance:

INPUT	KG		KG	OUTPUT
		Chlorination	35.42	NO_2 gas
				Distilled aqueous spent
DFCNB asis	147.62		2.94	to ETP
				Distilled
Chlorine	27.00		119.6	organic layer
			16.66	Residue
Total	**174.62**		**174.62**	**Total**
Water for washing	222.15	Washing	241.39	Effluent to ETP
Caustic lye	2.08		102.44	Organic layer
Distilled organic layer	119.6			
Total	**343.83**		**343.83**	**Total**
		Distilation	0.92	loss
				Distilled pure
Organic layer	102.44		100	DFDCB
			1.52	Residue
Total	**102.44**		**102.44**	**Total**
Sulphuric acid	**101.2**	Scrubber	136.62	NSA
No2	**35.42**			
Total	**136.62**		**136.62**	**Total**

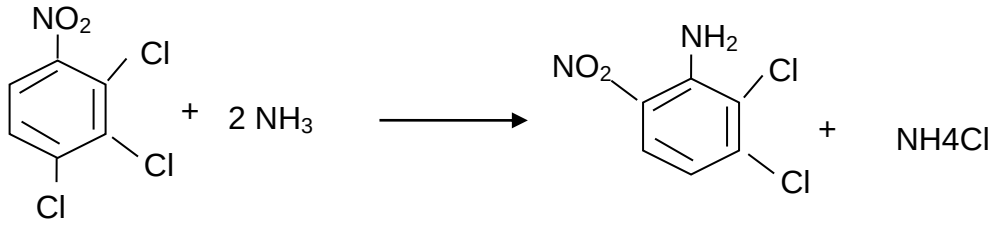
AMMONIATION PROCESS

DCONA

Manufacturing Process:

Trichloro Nitro Chloro Benzene, recycled liquor Ammonia & anhydrous Ammonia are taken together in an autoclave for manufacturing of DiChloro Ortho Nitro Aniline. Desired temperature and pressure maintain are 15 to 16 hours to complete then reaction. When reaction is over &excess of Ammonia is blown off through vent valve and scrubber in water to from 32% w/w Ammonia solution.

Chemical Reaction:



2, 3, 4 Tri Chloro Nitro Benzene **(TCNB)** M. W. 226.5

2,3 Di Chloro Ortho Nitro Aniline(DCONA) M.W.207

Material Balance:

Input	Kg		Output	Kg
2,3,4 Tri Chloro Nitro Ben	111.6	→ AUTOCLAVE	→ **OCPNA -product**	100
Anhydrous Ammonia	16.7	→	→ MCB Recovery	254.2
MCB Recovery	254.2	→	→ MCB Loss	5.8
MCB	5.8	→		
Water	73	→	→ **Aqueous Layer**	101.3
Total	**461.3**		**Total**	**461.3**

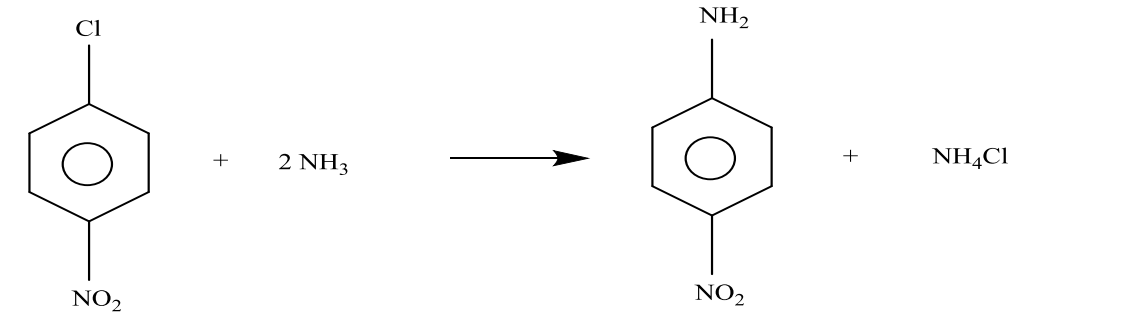
		→ Treatment and FILTRATION	→ **Solid waste(To TSDF**	11.5
			→ Calcium Chloride soln(23-25%)(Sales By Product)	114.3
Aqueous Layer	101.3 →		→ Ammonia connected to scrubber	0.5
Lime(purity 80%)	25 →			
Total	**126.3**		**Total**	**126.3**

ORTHO NITRO ANILINE /PARA NITRO ANILINE

Manufacturing Process:

Para Nitro Chloro Benzene, recycled liquor Ammonia & anhydrous Ammonia are taken together in an autoclave for manufacturing of Para Nitro Aniline. Desired temperature and pressure maintain are 15 to 16 hours to complete then reaction. When reaction is over &excess of Ammonia is blown off through vent valve and scrubber in water to from 32% w/w Ammonia solution.

Chemical Reaction:



p-Nitro Chloro Benzene | Ammonia | p-Nitro Aniline | Ammonium Chloride

Material Balance:

Input	Kg		Output	Kg
ONCB/ PNCB	115.2	AUTOCLAVE	**ONA/PNA -product**	100
Anhydrous Ammonia	12.7		Ammonia solution	141.4
32% Ammonia Solution	257.3		**Aqueous Layer**	143.8
Total	**385.2**		**Total**	**385.2**

Ammonia solution	141.4	**Autoclave**	Ammonia	5
		Scrubber	32% Ammonia solution (reuse in next batch)	
14% Ammonia solution	120.9			257.3
Total	**262.3**		**Total**	**262.3**

		Treatment and FILTRATION	**Solid waste(To TSDF**	19.9
			Calcium Chloride soln(23-25%)(Sales	
Aqueous Layer	143.8		By Product)	148.6
Lime(purity 80%)	37		**Ammonia**	12.3
Total	**180.8**		**Total**	**180.8**

Ammonia	12.3	**Scrubber**		
2-5% Ammonia solution	108.6		14% Ammonia solution (reuse in autoclave scrubber)	120.9
Total	**120.9**		**Total**	**120.9**

Ammonia	5	**Secondary**		
Water	103.6	**Scrubber**	2-5% Ammonia solution (reuse in scrubber)	108.6
Total	**108.6**		**Total**	**108.6**

BROMINATION&DEAMINATION PROCESS

3, 4, 5 TRI FLOURO BROMO BENZENE

Manufacturing Process:

1) Tri Flouro aniline reacts with Sulphuric acid to form Tri Flouro aniline sulphate.

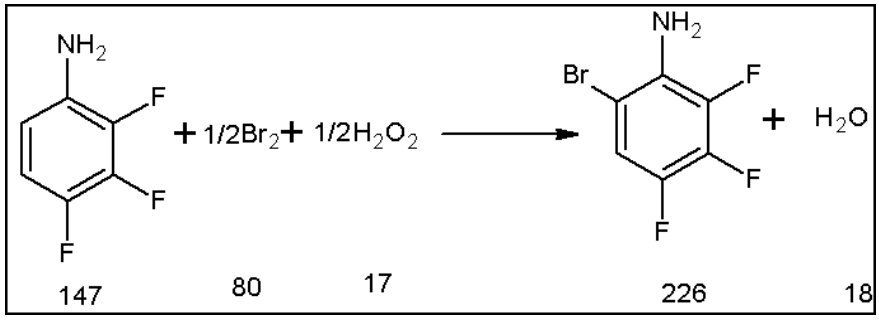
2) Tri Flouro aniline sulphate reacts with sodium nitrate to form dizo mass.

3) These dizo mass reacts with hydrogen bromide solution & cuprous bromide to form crude triflouro bromo benzene & dilute sulphuric acid.

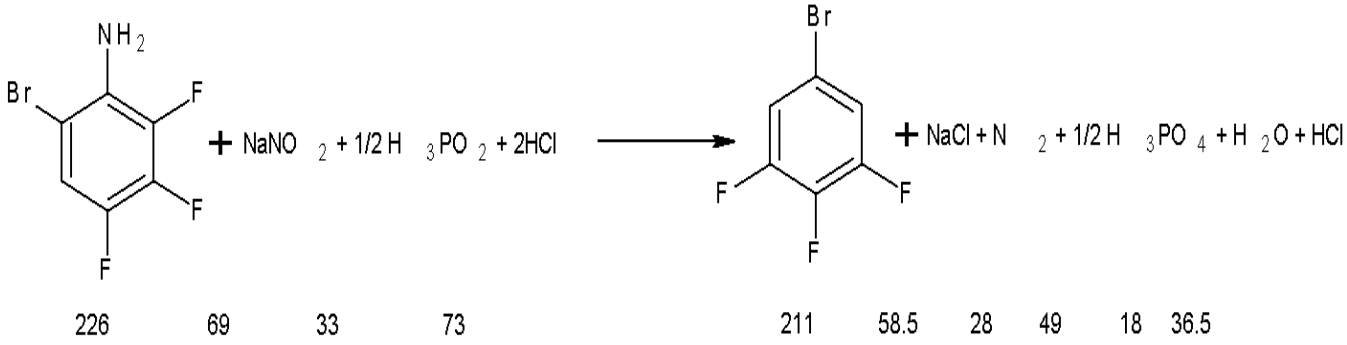
4) After separation & distillation get pure Tri Flouro Bromo benzene.

Chemical Reaction:

Step-1 (Bromination):



Step-2 (Deamination):



Material Balance:

Input	Qty.		Output	Qty.
2,3,4 - TFA	70.15	**Bromination**		
BROMINE	41.04			
H2O2 50%	18.00		Reaction mass	199.05
water	70.15		BROMINE	1.49
NaHSO3 20%	1.20			
Total	**200.54**		**Total**	**200.54**
Reaction mass	199.05	**Deamination**		
HCl - 30%	115.00		Spent acid to ETP	326.99
water	57.46		Org. layer	182.83
MDC	70.15			
50% H3PO2	30.10			
NaNO2	38.06			
Total	**509.82**		**Total**	**509.82**
Org. layer	182.83	**Washing**	aq layer	144.02
Water	130.58		org. layer	176.85
10% soda solution	7.46			
Total	**320.87**		**Total**	**320.87**
org. layer	176.85	**Distillation**	Loss	6.72
			Recovered MDC	66.41
			3,4,5TFBrB	100
			Residue	3.72
Total	**176.85**		**Total**	**176.85**

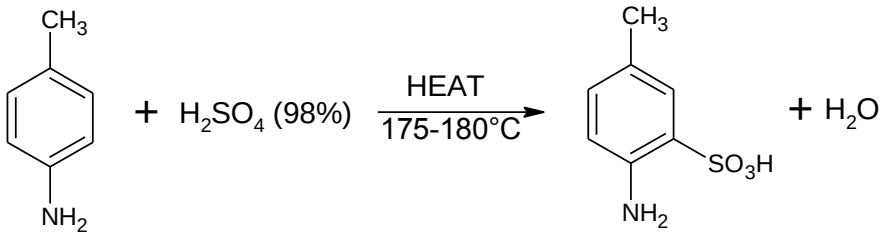
SULPHANATION PROCESS

4B Acid

Manufacturing Process:

ODCB , PT is reacted with H_2SO_4 to form reaction mass. From reaction mass separate ODCB and Water. Recycle back ODCB into the reaction mass. After completion of Reaction; no more water will be observed. Then cool and filtered. Dry the wet cake to get 4B Acid.

Chemical Reaction:



p-Toluidine

4-aminotoluene-3-sulphonic acid

(4B acid)

107 98 187

Material Balance:

Input	Kg		Output	Kg
ParaToludiene	60.5	Sulphanation	Reaction mass	594.02
Sulphuric Acid	59.3			
ODCB	43.1			
Rec.ODCB	441.3		Rec Water	10.18
Total	**604.20**		**Total**	**604.20**
Reaction mass	594.02	Filteration	ODCB	441.25
Rec Water	10.18		ML to ETP	111.65
Water	60.5		Wet Cake	111.8
Total	**664.7**		**Total**	**664.7**
Wet Cake	111.8	Drying	Loss	11.8
			4B Acid	100
Total	**111.8**		**Total**	**111.8**

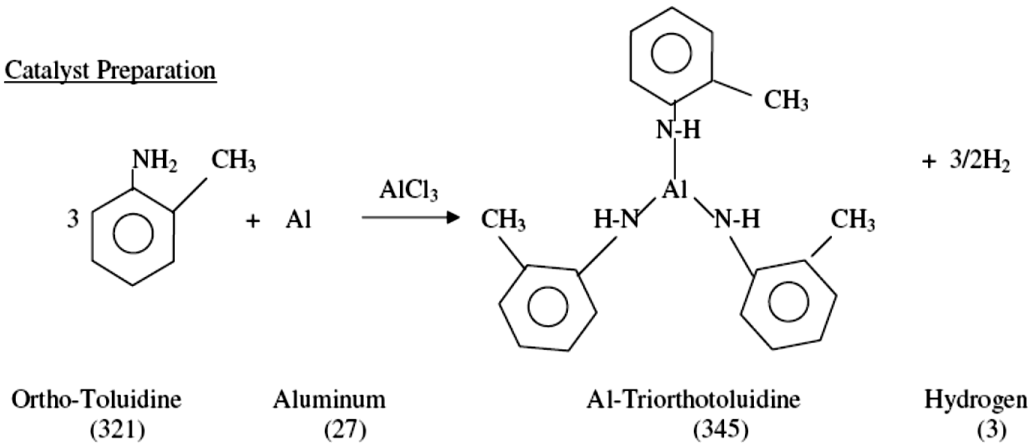
ALKYLATION PROCESS

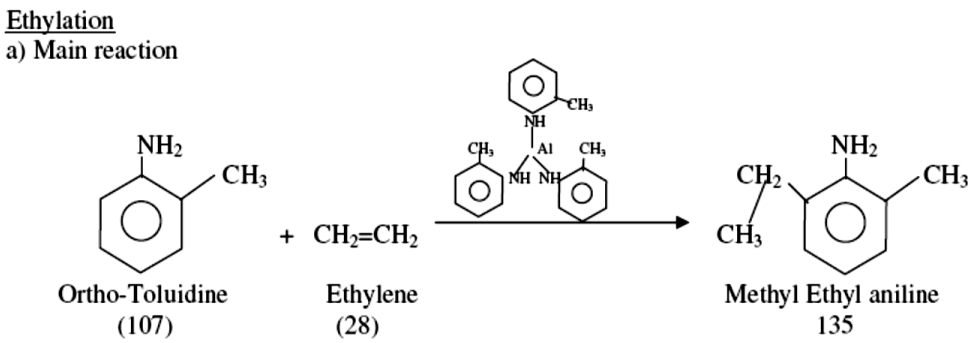
METHYL ETHYL ANILINE

Manufacturing Process:

The ortho toluidine is reacted with ethylene in the presence of aluminum and aluminum chloride. Reaction is followed by catalyst filtration, distillation of excess toluidine. Crude product is than subjected to Flash Distillation to get the pure product.

Chemical Reaction:





$$AlCl_3 + 3H_2O \longrightarrow Al(OH)_3 + 3HCl$$

(133.5) (54) (78) (109.5)

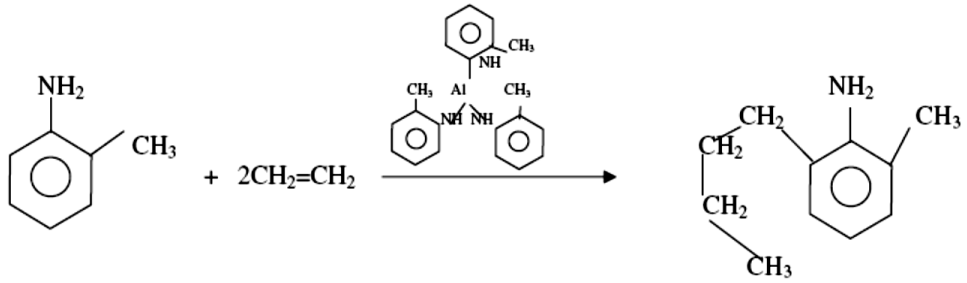
$$Al + 3H_2O \longrightarrow Al(OH)_3 + 3/2H_2$$

27) (54) (78) (3)

$$2Al(OH)_3 \longrightarrow Al_2O_3 + 3H_2O$$

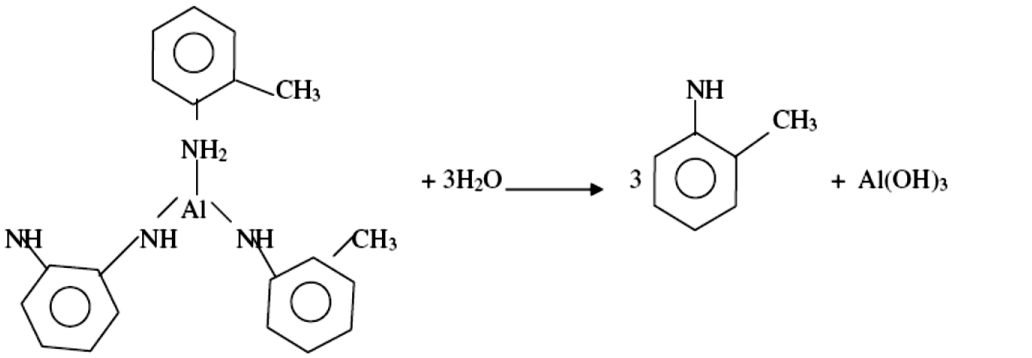
(156) (102) (54)

b) Side reaction



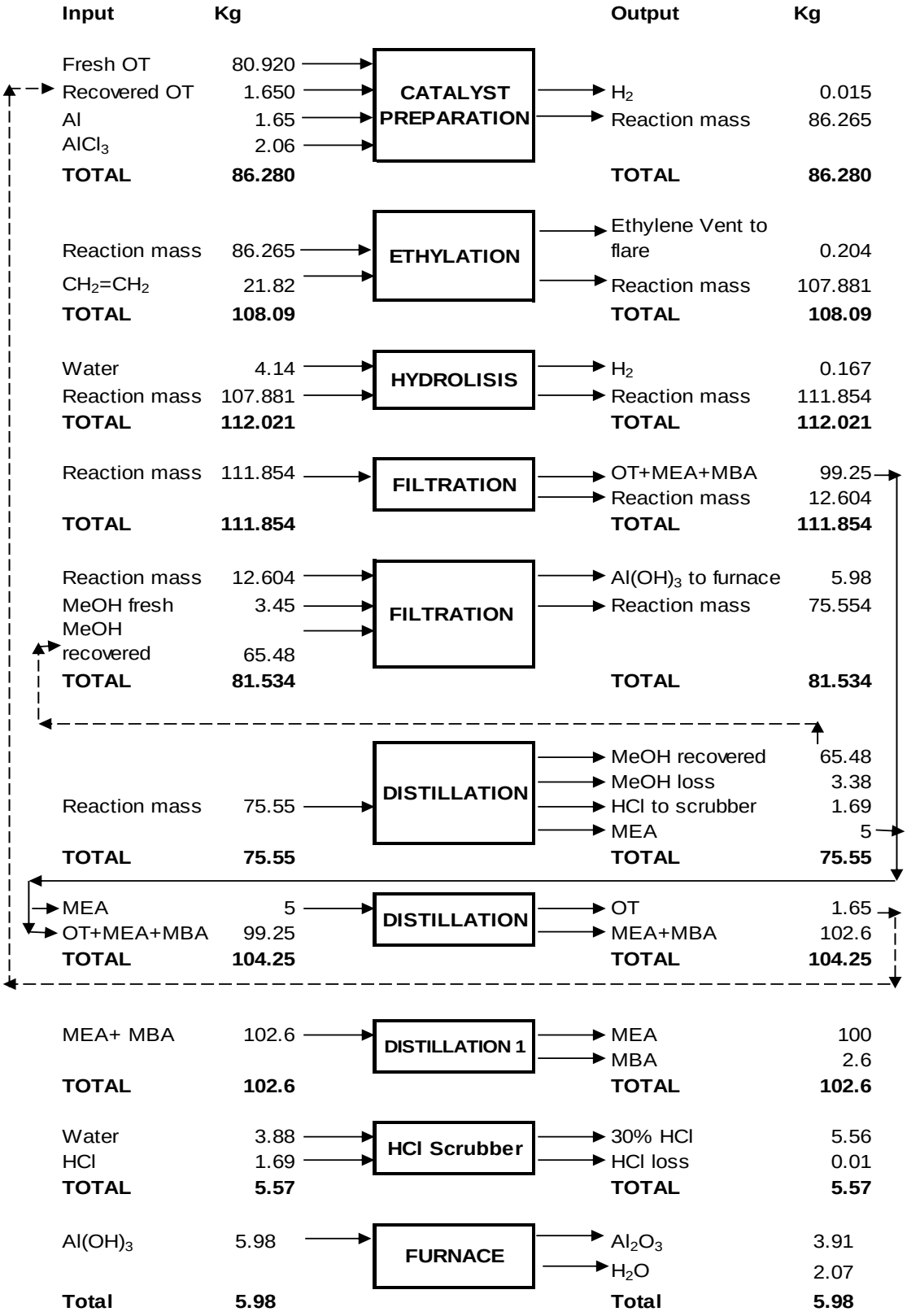
Ortho-Toluidine (107) | Ethylene (56) | Methyl butyl aniline (163)

Hydrolysis



Al-Triorthotoluidine (345) | Water (54) | Ortho-Toluidine (321) | Aluminum hydroxide (78)

Material Balance:



DEHALGENATION PROCESS

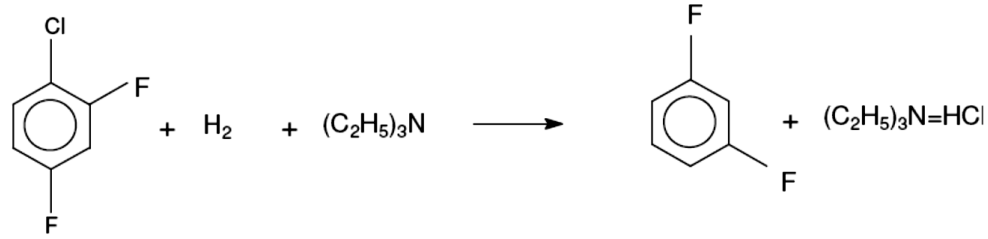
1, 3 DIFLORO BENZENE (1, 3 DFB)

Manufacturing Process:

Here Di Fluoro Chloro benzene is reacted in an autoclave reactor with hydrogen gas in presence of metal powder catalyst to produce di fluoro benzene. The reaction mixture contains solvent. The reaction is followed by catalyst filtration, solvent recovery, and layer separation and drying. Crude product is then subjected to flash distillation to get the pure product. Product is either sold as liquid or flakes depending on the market requirement.

Chemical Reaction:

1,3 DFB

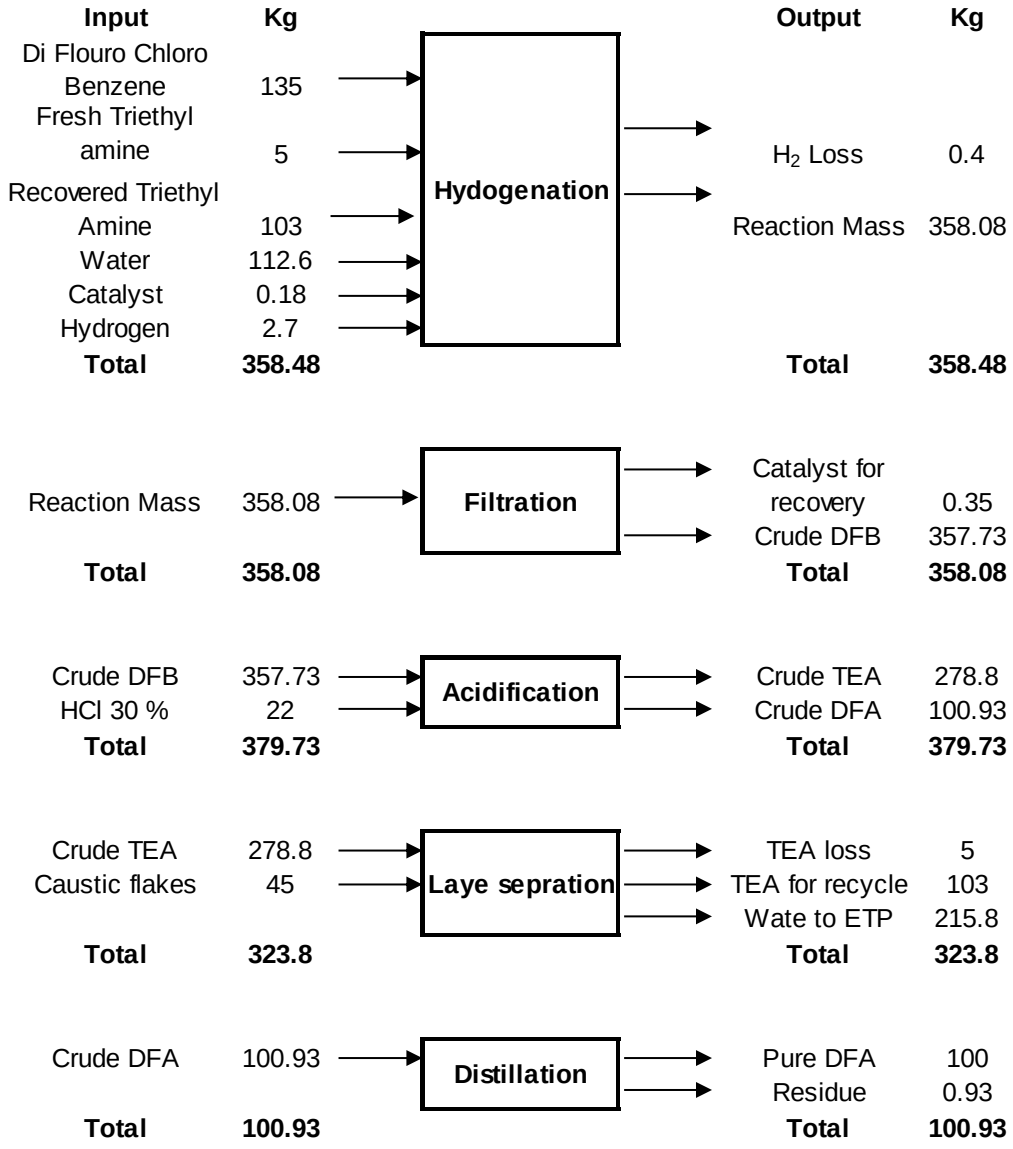
1) 

DFCB 148.5 | 2 | TEA 101 | 114 | 137

2) $(C_2H_5)_3N{=}HCl + NaOH \longrightarrow (C_2H_5)_3N + NaCl + H_2O$

TEA Hydrochloride 137.5 | Caustic 40 | 101 | 58.5 | 18

Material Balance:



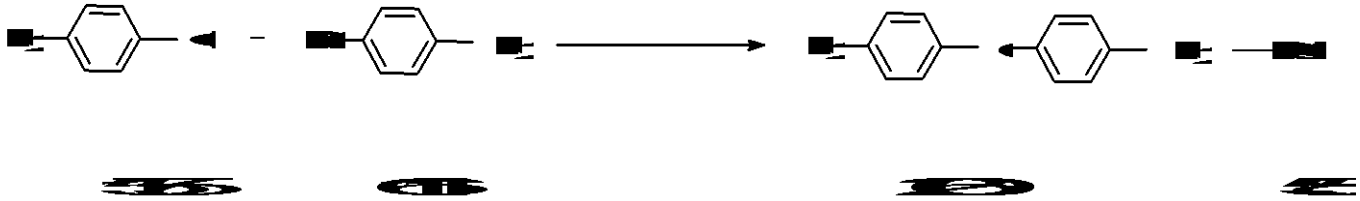
CONDENSATION PROCESS

DNDPE

Manufacturing Process:

PNCB and PNA react in the presence of catalyst to form Reaction Mass. After filtration and Distillation of Reaction mass we can get DNDPE.

Chemical Reaction:



Material Balance:

Input	Kg		Output	Kg
PNCB	67.3	Condensation	Reaction mass	312.29
PNP Na	84.4		Water layer	33.71
Solvent	14.7			
Rec Solvent	273.2		Rec Solvent	97.8
Catalyst	4.2			
Total	**443.80**		**Total**	**443.80**
Reaction mass	312.29	Filteration	SALT	28.48
Solvent	41		Organic layer	324.81
Total	**353.29**		**Total**	**353.29**
Organic layer	324.81	Distillation	Rec Solvent	175.43
			Reaction Mass	149.38
Total	**324.81**		**Total**	**324.81**
Reaction Mass	149.38	Filteration	ML	69.88
Water	20.5		DNDPE	100
Total	**169.88**		**Total**	**169.88**

Cyclization Process

DAPBI

Manufacturing Process:

Charge water 98% H2SO4 and TABA (Triamino benzamide) in reactor. Heat the reaction mass up to 95-100^{0}C and maintain for 2 hrs. Cool the reaction reaction mass up to RT. Filter the reaction mass in centrifuge and send to drying to get final DAPBI (Di amino phenyl benzimidazole)

Chemical Reaction:

$$C_{13}H_{14}N_4O+H_2SO_4+H_2O \longrightarrow C_{13}H_{18}N_4SO_6+H_2O+H_2SO_4$$

Material Balance:

Input	Kg		Output	Kg
TABA	154	CYCLIZATION	Reaction Mass	445
98 % H2SO4	66			
Water	225			
Total	445		**Total**	445

Reaction Mass	445	Centrifugation	Spent acid	210
			DAPBI Wet Cake	235
Total	**445**		Total	445

			Water loss	10
DAPBI Wet Cake	235	Drying		
			DAPBI Dry	225
Total	235		**Total**	235

ESTERFICATION

Ester

Manufacturing Process:

Charge Methanol 36.55 kg, PTBBA 63.45 kg and 98 % H2SO4 3 kg. Heat the reaction mass up to 50-55^{0}C and maintain for 1 Hrs. Then cool the reaction mass at RT and separate out H2SO4 from bottom.

Chemical Reaction:

$$C_{11}H_{14}O_2+CH_3OH+H_2O \xrightarrow{H_2SO_4} C_{12}H_{16}N_4SO_6+H_2O+H_2SO_4$$

Material Balance:

Input	Kg		Output	Kg
Rec.Methanol	25	Esterification	Reaction Mass	103.45
Methanol	12			
PTBBA	63.45			
98 % H2SO4	3			
Total	**103.45**		**Total**	**103.45**
Reaction Mass	103.45	Separation	Reaction Mass	93.85
			Spent acid	9.6
Total	**103.45**		**Total**	**103.45**

DIAZOTISATION PROCESS

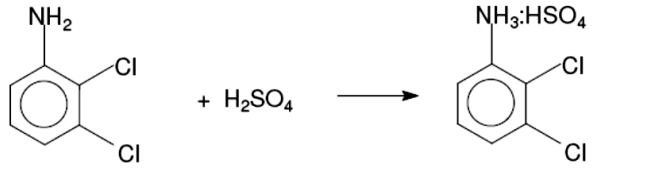
2,3/2,5 DCP (DI CHLORO PHENOL)

Manufacturing Process:

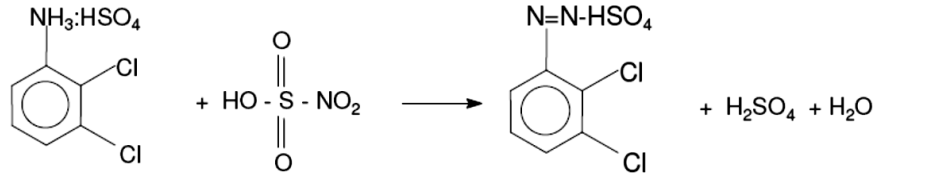
1) Di Chloro aniline reacts with sulphuric acid to for Di chloro aniline sulphate.
2) Di Chloro aniline sulphate reacts with mix acid to for dizo mass.
3) Dizo mass reacts with dilute sulphuric acid to form crude Di Chloro phenol. In
4) This reaction N_2 gas evolved & spent acid generate.
5) Crude Di Chloro phenol separate out & distilled to get pure di chloro phenol.

Chemical Reaction:

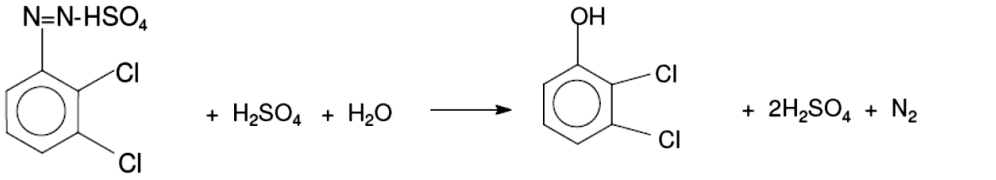
Di Chloro Phenol



DCA 162 | Sulphuric Acid 98 | DCA Sulphate 260

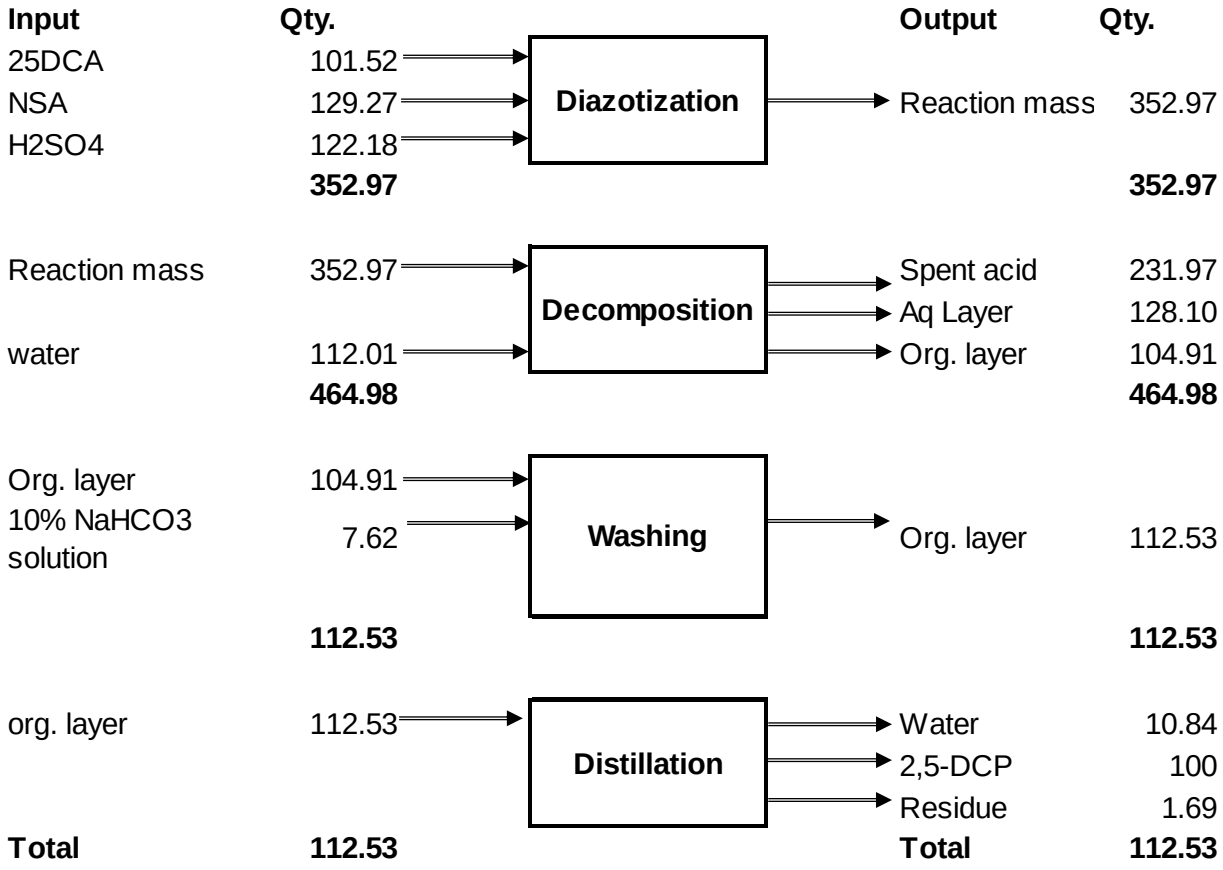


DCA Sulphate 260 | Mix Acid 127 | Di_2O 271 | 98 | 18



Di2O 271 | 98 | 18 | 163 | 2x98 | 28

Material Balance:



ACETYLATION & HYDROLYSIS PROCESS
META NITRO PARA ANISIDINE:

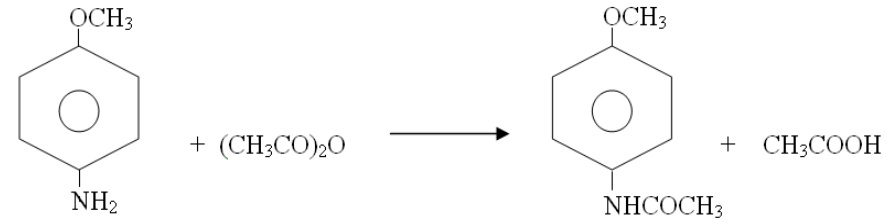
Manufacturing Process:

Conversion of Para Anisidine to Meta Nitro Para Anisidine is carried out in unit process namely Acetylation, Nitration, Hydrolysis.

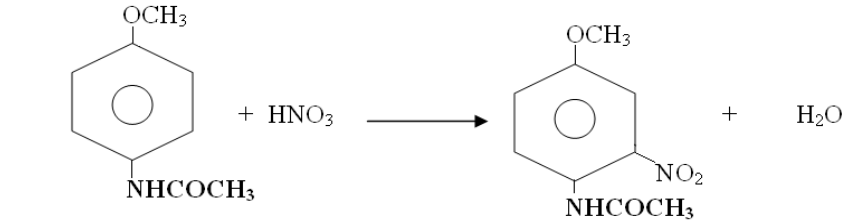
In Acetylation Para Anisidine is acetylated with Acetic acid + Acetic Anhydride to obtain acetylated Para Anisidine. Acetic acid is recovered after reaction completion. The Nitration of acetylated Para Anisidine is done with Nitric acid & Sodium bi sulphite as catalyst. The nitro body thus obtained is hydrolyzed with caustic soda to get the hydro body. Which contains Meta nitro Para Anisidine. This hydro body is filtrate in nutch filter & caustic spent is taken out as a filtrate &filtrate is taken for further treatment. The wet cake Meta nitro Para Anisidine is then dried, blended, pulverized and packed in drums and bags for dispatch.

The caustic spent taken out from filter of hydro body as a filtrate taken for neutralization. It is neutralized with recovered Acetic acid from acetylation. Then carbon treatment is given to this and then followed evaporation in another vessel. After completion of evaporation the liquid mass called as liquid sodium acetate can be dispatch able or make cool and centrifuge it. This solid sodium acetate is a by product.

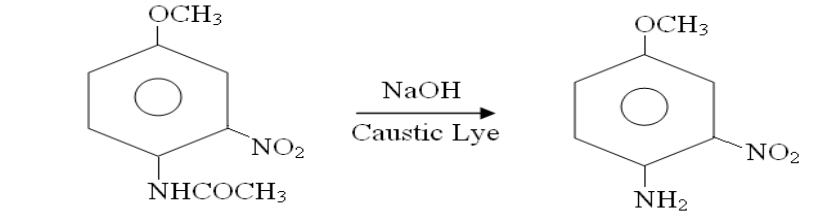
Chemical Reaction:



123 Para Anisidine | 102 Acetic Anhydride | 165 Acetylated Para Anisidine | 60



165 Acetylated Para Anisidine | 63 Nitric acid | 210 Nitrated compound | 18 water



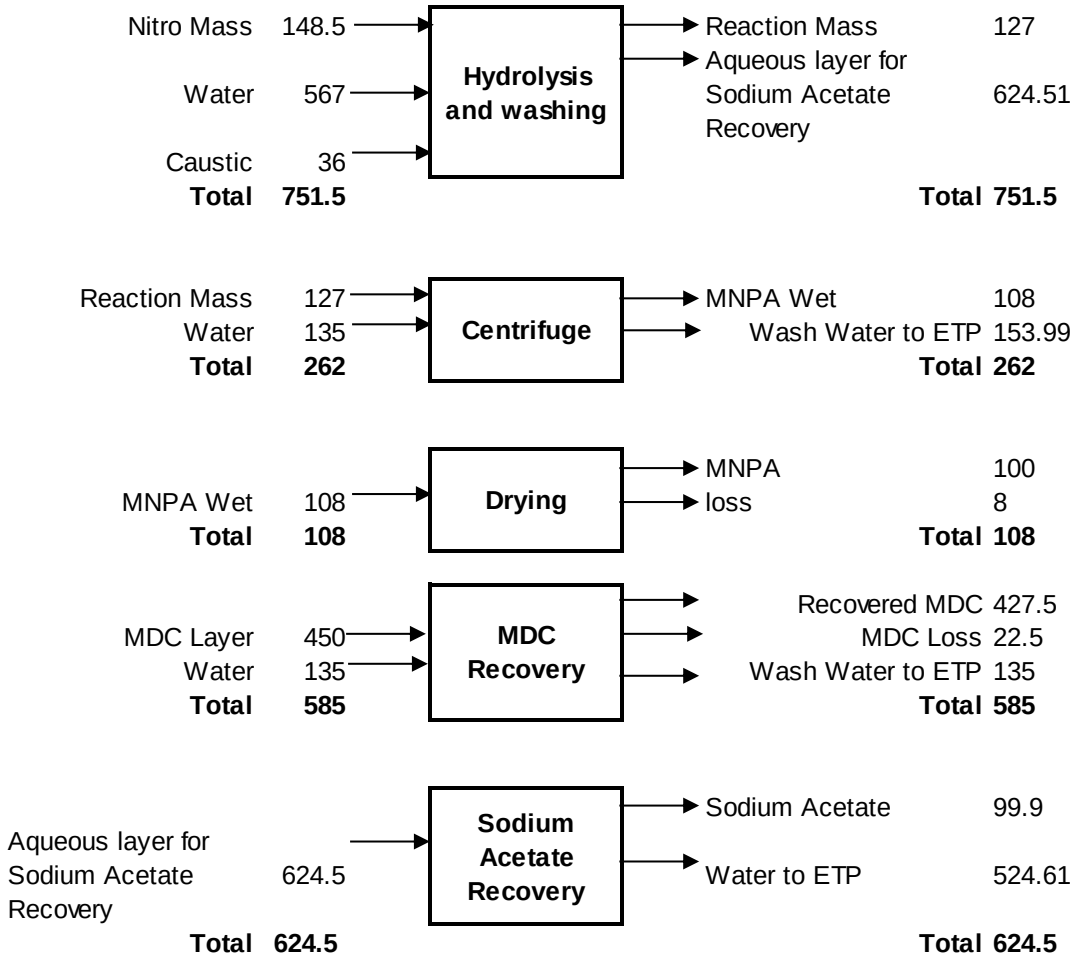
210 Nitrated compound

168 Meta nitro Para Anisidine (Fast Bourdeaux GP Base)

Caustic Lye | Acetic Acid | Sodium Acetate | Water

Material Balance:

Input	Kg		Output	Kg
Para Anisidine	90	**Acetylation**	Reaction mass	235.35
Acetic Anhydride	81		Acetic Acid	43.85
Hydrogen	0.18			
MDC	22.5			
Rec MDC	85.5			
Total	**279.2**		**Total**	**279.2**
Reaction mass	235.4	**Nitration**	Reaction mass	739.5
Nitric Acid	162			
Rec MDC	342			
Sodium Nitrate	0.18			
Total	**739.5**		**Total**	**739.5**
Reaction mass	739.5	**Layer Seperation**	Nitro Mass	289.53
			MDC Layer	450
Total	**739.5**		**Total**	**739.53**
Nitro Mass	289.5	**Washing**	Nitro Mass	148.5
Water	810		Water for ETP	951.03
Total	**1100**		**Total**	**1100**



META NITRO PARA TOLUDIENE:

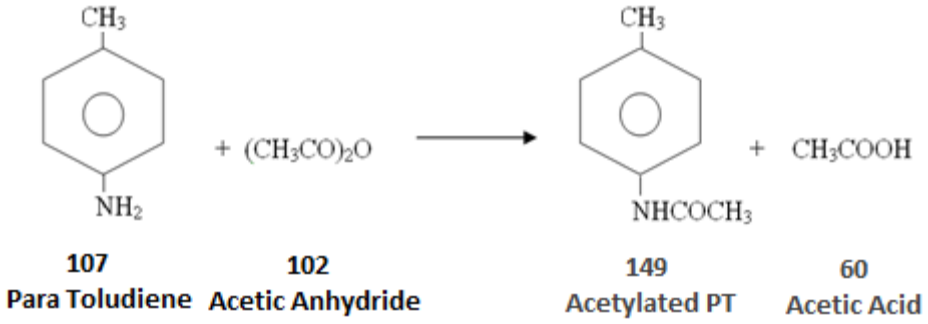
Process Description:

Conversion of Para Toludiene to Meta Nitro Para Toludiene is carried out in unit process namely Acetylation, Nitration, Hydrolysis.

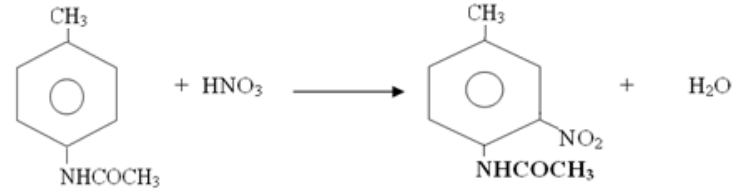
In Acetylation Para Toludiene is acetylated with Acetic acid + Acetic Anhydride to obtain acetylated Para Toludiene. Acetic acid is recovered after reaction completion. The Nitration of acetylated Para Toludiene is done with Nitric acid & Sodium bi sulphite as catalyst. The nitro body thus obtained is hydrolyzed with caustic soda to get the hydrobody. Which contains Meta nitro Para Toludiene, This hydrobody is filtrate in nutch filter &caustic spent is taken out as a filtrate & filtrate is taken for further treatment. The wet cake Meta nitro Para Toludiene is then dried, blended, pulverized and packed in drums and bags for dispatch.

The caustic spent taken out from filter of hydrobody as a filtrate taken for neutralization. It is neutralized with recovered Acetic acid from acetylation. Then carbon treatment is given to this and then followed evaporation in another vessel. After completion of evaporation the liquid mass called as liquid sodium acetate can be despatchable or make cool and centrifuge it. This solid sodium acetate is a by product.

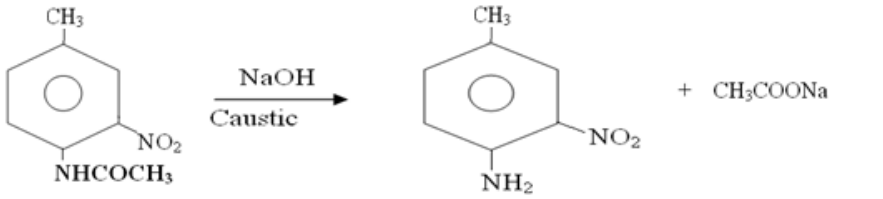
Chemical Reaction:



107 Para Toludiene | **102** Acetic Anhydride | **149** Acetylated PT | **60** Acetic Acid

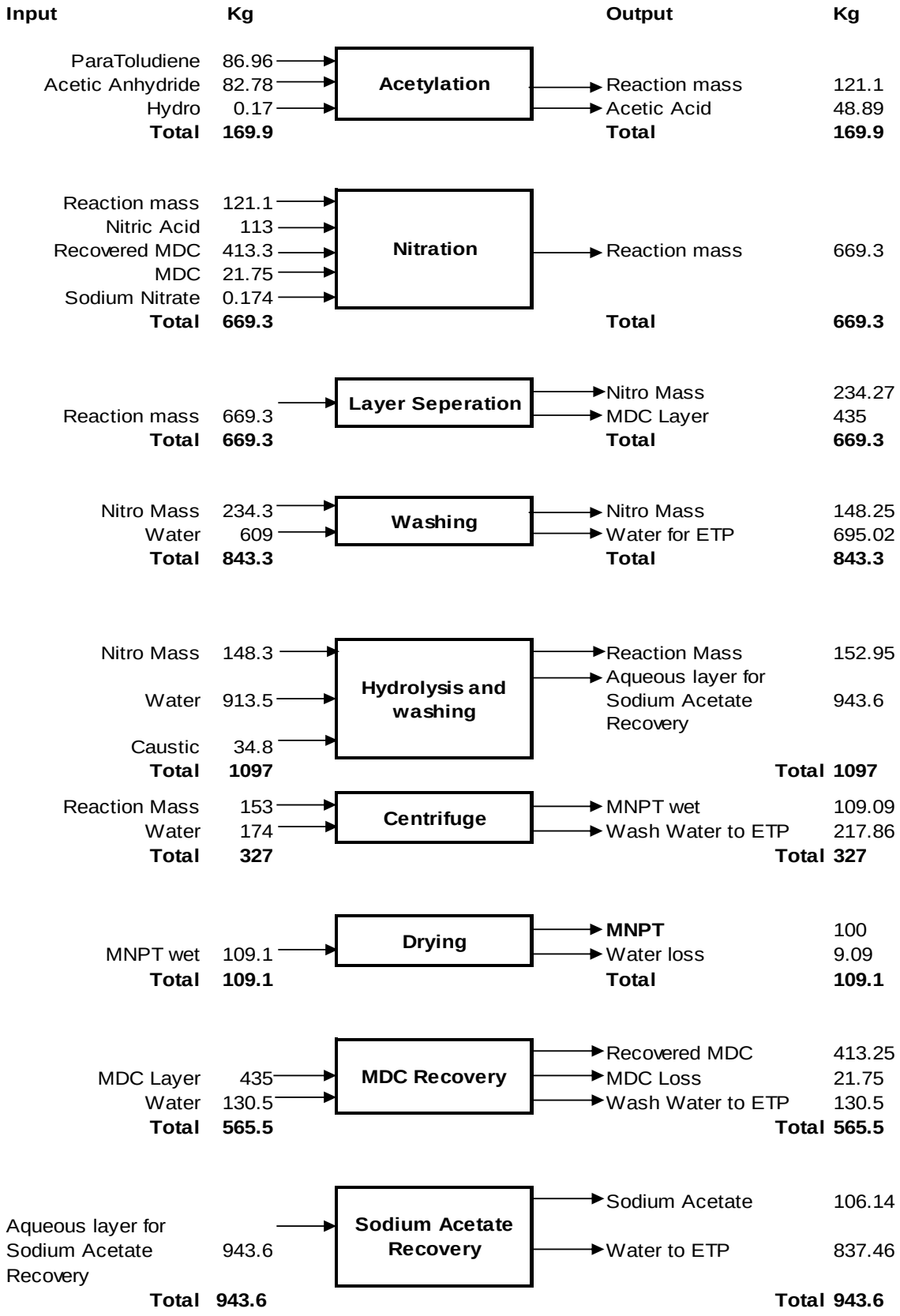


149 Acetylated PT | 63 Nitric acid | **194** Nitro PT | **18** Water



194 Nitro PT | **152** Meta Nitro Para Toludiene | **82** Sodium Acetate

Material Balance:



ANNEXURE VI

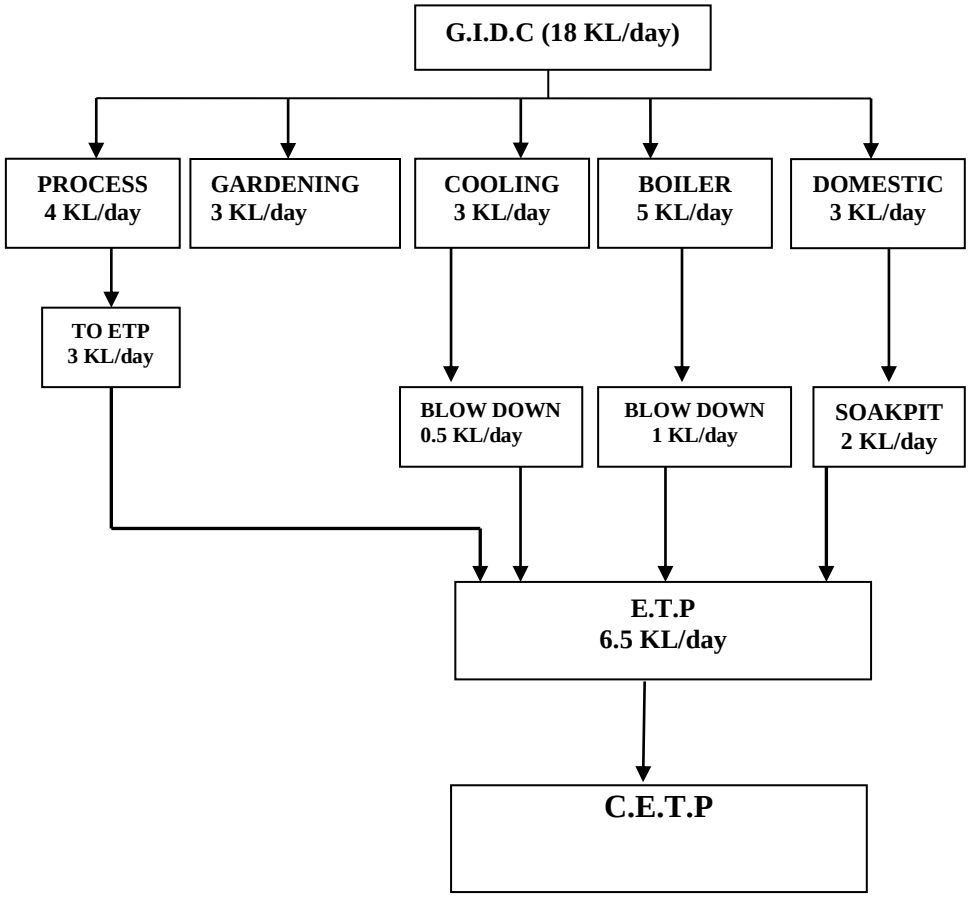
DETAILS OF WATER CONSUMPTION

Sr. No.	Section	Water Consumption KL/Day		
		Existing	**Proposed**	**Total after Expansion**
1	Domestic	3	2	5
2	Industrial			
	Process	4	5	9
	Washing	0	3	3
	Boiler	5	10	15
	Cooling	3	3	6
	Gardening	3	2	5
	Total (Industrial)	**15**	**23**	**38**
	Total(Industrial + Domestic)	**18**	**25**	**43**

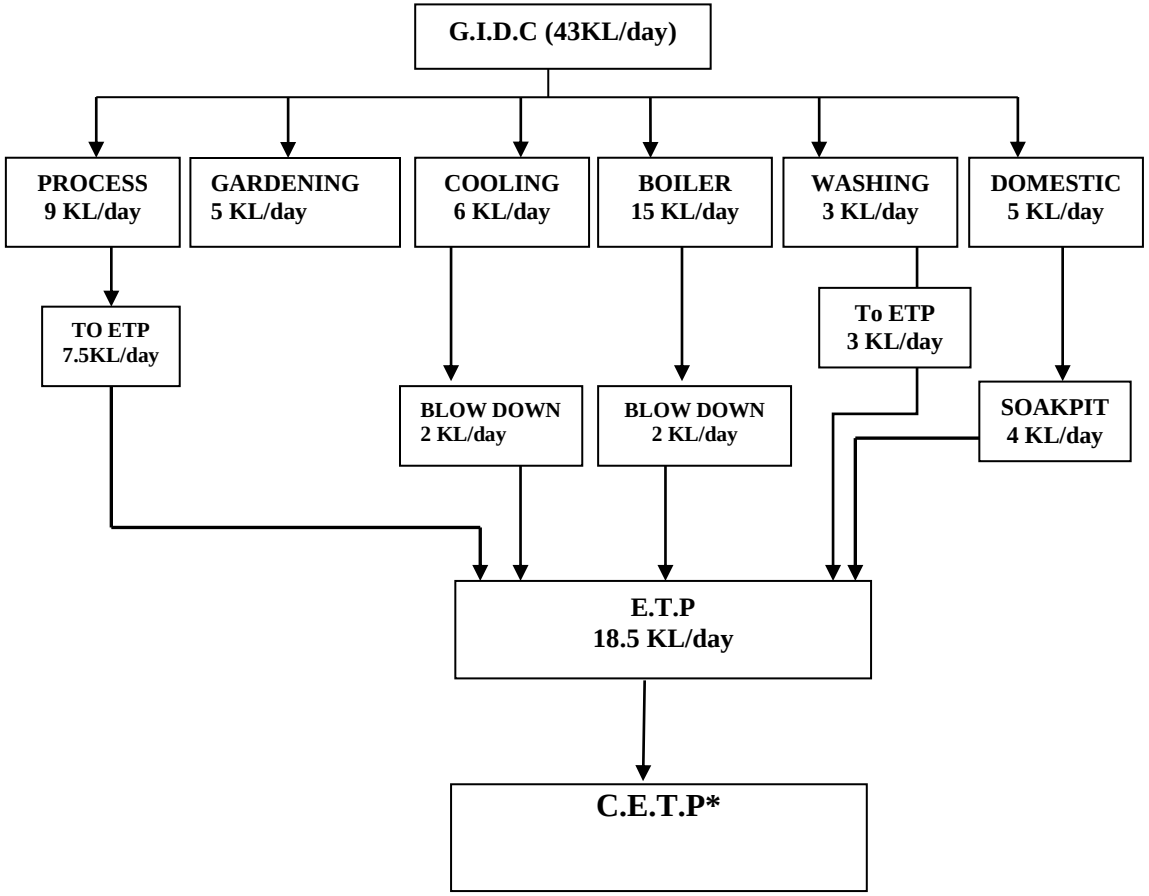
DETAILS OF WASTE WATER GENERATION

Sr. No.	Section	Waste Water Generation KL/Day		
		Existing	**Proposed**	**Total after expansion**
1	**Domestic**	**2**	**2**	**4**
2	**Industrial**			
	Process	3	4.5	7.5
	Washing	0	3	3
	Boiler	1	1	2
	Cooling	0.5	1.5	2
	Total (Industrial)	**4.5**	**10**	**14.5**
	Total(Industrial + Domestic)	**6.5**	**12**	**18.5**

WATER BALANCE DIAGRAM (EXISTING)



WATER BALANCE DIAGRAM (AFTER EXPANSION)

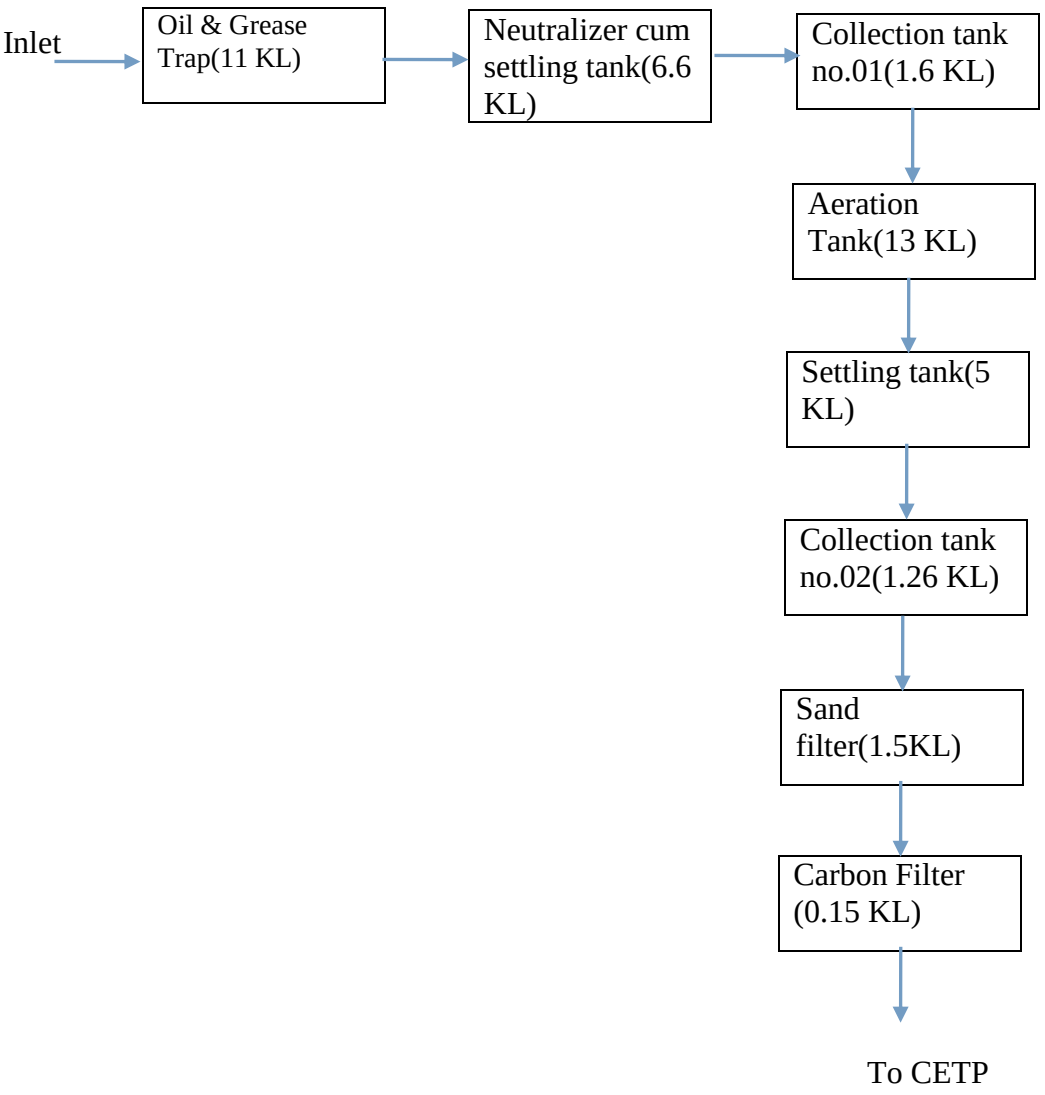


**NOTE: If CETP membership is not obtained/ allotted, the extra quantity will be recycled back by RO and MEE.*

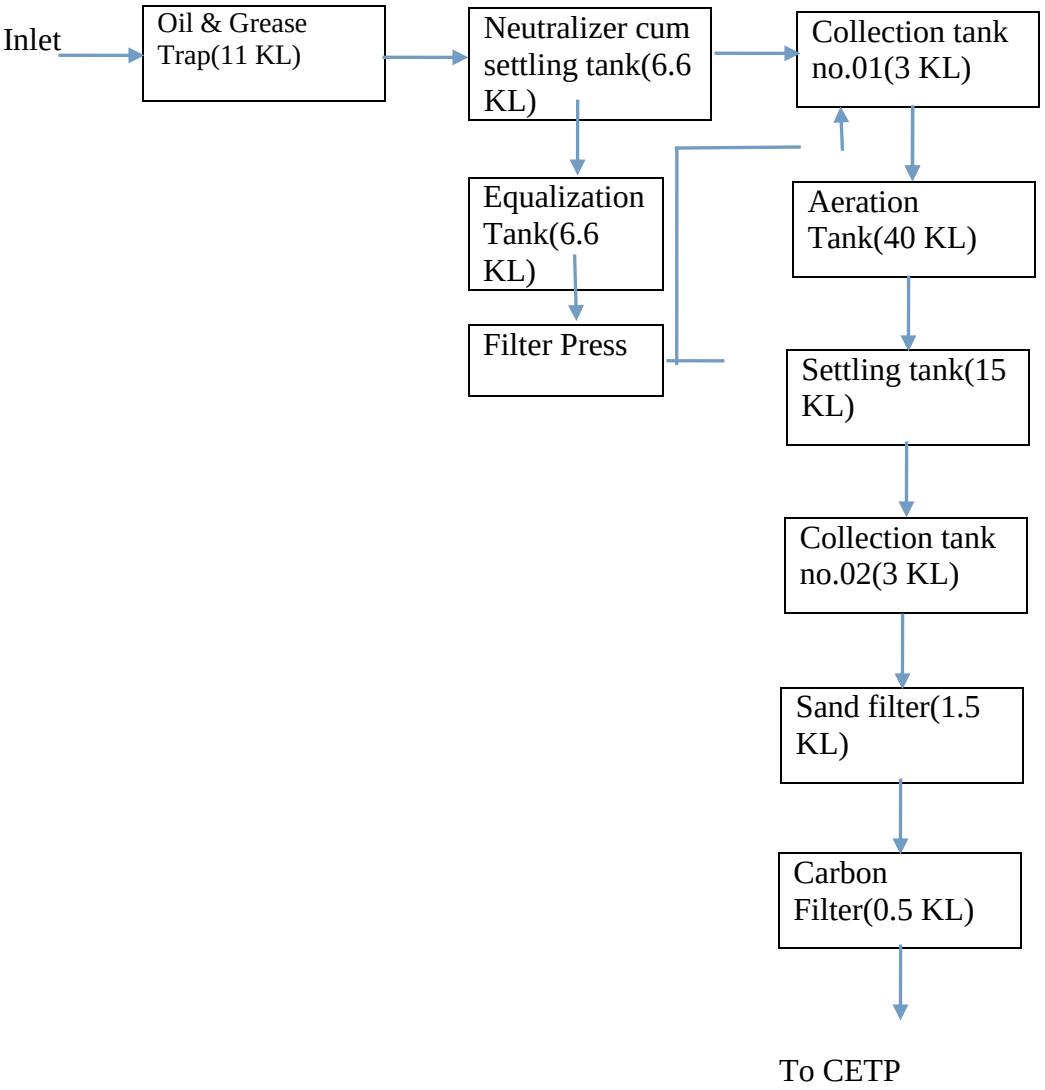
ANNEXURE-VII

DETAILS OF TREATMENT SCHEME AND DISPOSAL

ETP Flow Diagram (Existing)



ETP Flow Diagram (Proposed)



ETP Process Description:

The waste water from process, washing, cooling, steam condensates, floor washing, etc. is coming through drain line from plant to the oil and grease traps. Here oil and grease is trapped floating on the water, which is to be removed manually. Through this trap, water flows to neutralization cum primary settling tank. Here all different quality water pH is adjusted to 7.5. in this tanks an agitation is provided by stirrer. In this primary treatment chemicals used are sulphuric acid, caustic lye, hydrated lime, alum and polyelectrolyte.

Neutral water from this tank is settled out and clear effluent overflow to collection tank. The settled sludge from bottom of the settling tank will be taken in sludge drying bed where dry the sludge. The dry sludge is packed in plastic bags and stored in storage area. Collected effluent of collection tank is continuously feeded to the aeration tank. Aeration tank contains huge qty. of biomass and a diffuser system to provide sufficient oxygen required for bio-degradation of the organic matters. Water treated in this aeration tank then continuously flows to secondary setting tank, where the bio sludge settles at the bottom. Thick slurry of this bio-sludge from the bottom tank is pump backed to aeration tank to maintain "MLSS". If it is an excess then it is transferred to sludge drying beds.

Overflow of effluent from the secondary settling tank to collection tank by gravity. Collected effluent of collection tank is taken to high pressure sand filter where filter the effluent after that effluent is taken to carbon column. Where reduce the colour and decrease the COD value. The final treated effluent will be discharged to GIDC under ground drainage system, which will be ultimately disposed to CETP for further treatment.

Details of ETP

Sr. No.	**Particular**	**Existing Capacity in M^3**	**Proposed Capacity in M^3**
1.	Oil & Grease Trap	11	--
2.	Neutralization cum settling tank	6.6	--
3.	Equalization Tank	--	6.6
4.	Filter press	--	2
3.	Collection Tank	1.6	3
4.	Aeration Tank	13	40
5.	Secondary Settling Tank	5	15
6.	Collection Tank 2	1.26	3
7.	Sand Filter	1.5	-
8.	Carbon Column 2	0.15	0.5
9.	Lime Preparation Tank	0.98	--
10.	Sludge Drying Bed	1.69	--

ANNEXURE VIII

DETAILS OF ELECTRICITY AND FUEL CONSUMPTION

Sr. No.	Name	Requirement			Source
		Existing	Proposed	Total	
1	Diesel	0	75 Lit/hr.	75 Lit/hr.	DG set
2	Energy - Electricity	125 KVA	125 KVA	250 KVA	GEB
3	Natural Gas	--	894 SCM/hr.	894 SCM/hr.	GSPC
4	Furnace Oil	1 MT/Day	0	1 MT/day	--

DETAILS OF FLUE GAS EMISSIONS

Sr. No	Stack attached to	Stack Height in meter	APCM	Fuel	Probable Pollutants	Permissible Limit
Existing						
1.	Boiler (2TPH)	11	-	Natural Gas: 894 SCM /hr	**SPM SOx, NOx**	150mg/Nm3 100 PPM 50 PPM
Proposed						
1.	DG Set(250KVA)	11	-	LDO (75 Lit/hr.)		

DETAILS OF PROCESS EMISSION

Sr No.	Stack attached to	Stack Height in meter	APCM	Probable Pollutants	Permissible Limit
Proposed					
1	Plant-1	11 m	Water Scrubber followed by Alkali Scrubber	HCl NO_x Br_2 HB_r NO_2 Cl_2	20 mg/Nm^3 25 mg/Nm^3 09 mg/Nm^3 20 mg/Nm^3 25 mg/Nm^3 09 mg/Nm^3
2	Plant-2	11 m	Water Scrubber followed by Alkali Scrubber	HCl NO_x Br_2 HB_r NO_2 Cl_2	20 mg/Nm^3 25 mg/Nm^3 09 mg/Nm^3 20 mg/Nm^3 25 mg/Nm^3 09 mg/Nm^3
3	Plant-3	11 m	Water Scrubber followed by Acidic Scrubber	NH_3	175 mg/Nm^3

ANNEXURE IX

DETAILS OF HAZARDOUS WASTE GENERATION & DISPOSAL

Sr. No.	Type of hazardous waste	Category no.	Quantity		Treatment and disposal
			Existing MT/Y	Proposed MT/Y	
1.	ETP Waste	35.3 (formerly-26.2)	1	200	Collection, Storage, transportation, disposal at TSDF, Vapi.
2.	Distillation residue (Formerly-Process Waste)	28.1 (formerly-26.2)	2.4	30	Collection, Storage, transportation, disposal at TSDF, Vapi.
3.	Discarded containers/bags	33.1	1000	1000	Collection, Storage, transportation, Reuse for captive use.
4.	Used oil	5.1	10 Lit / Year	50 Lit / Year	Collection, Storage, transportation, Reuse
5.	Spent Carbon	28.3	0	0.5 MT/Day	Collection, Storage, transportation, sent for co-processing
6.	Spent catalyst	28.2	0	5	Collection, Storage, transportation, sent for co-processing
7.	Insulation Waste	-	-	What so ever	Collection, Storage, transportation, disposal at TSDF Site.

ANNEXURE X

COPY OF OLD CCA

GUJARAT POLLUTION CONTROL BOARD
Paryavaran Bhavan
Sector - 10-A, Gandhinagar - 382 010
Phone : 3222756, 3222095, 3222096
Gram: CLEANWATER. Fax: (079) 3232156
Website : www.gpcb.gov.in

By R.P.A.D.

In exercise of the power conferred under section-25 of the Water (Prevention and Control of Pollution) Act-1974, under section-21 of the Air (Prevention and Control of Pollution)-1981 and Authorisation under rule 3(c) & 5(5) of the Hazardous Waste (Management and Handling) Rules'1989 & as amended up to year 2003 framed under the Environmental (Protection) Act-1986.

And whereas Board has received CCA letter No.Nil dated 23/02/2004 for the Consolidated Consent and Authorization (CC & A) of this Board under the provisions / rules of the aforesaid Acts. Consents & Authorization are hereby granted as under:

CONSENTS AND AUTHORISATION:
(Under the provisions /rules of the aforesaid environmental acts)

To;
M/S.APPLE ORGANICS
PLOT NO.610, 100 SHED AREA,
G.I.D.C.ESTATE
VAPI-396 195,
DIST.VALSAD

1. **Consent Order No.: 3431 Date of issue:** 16.08.2004
2. The consents shall be valid up to 26.02.2009 for use of outlet for the discharge of trade effluent & emission due to operation of industrial plant for manufacture of the following items/products:

Sr.No.	Product	Quantity in MT/Month
	Para Chloro Aniline	20.00 MT/Month
	OR	
	3:4 Di Chloro Aniline	18.00 MT/Month
	OR	
	2:5 Di Chloro Aniline	18.00 MT/Month
	OR	
	Mix of 3:4 DCA & 2:3 DCA	18.00 MT/Month
	OR	
	Ortho Anisidine	20.00 MT/Month
	Para Toludene	20.00 MT/Month

3 CONDITIONS UNDER THE WATER ACT:

3.1 The quantity of trade effluent from the industry shall not exceed 4500 lits/day.
3.2 The quantity of Sewage effluent from the industry shall not exceed 2000 lits/day

GUJARAT POLLUTION CONTROL BOARD
Paryavaran Bhavan
Sector - 10-A, Gandhinagar - 382 010
Phone : 3222756, 3222095, 3222096
Gram: CLEANWATER, Fax: (079) 3232156
Website : www.gpcb.gov.in

3.3 TRADE EFFLUENT

3.3.1 The effluent from the industrial unit shall conform to the CETP inlet norms mentioned in column No.1 below (in case of CETP member). The final discharge from CETP shall adhere to the prescribed standards for CETP.

3.3.3 In the event, if the effluent from industrial unit not routed through CETP, the applicant shall provide adequate effluent treatment system in order to achieve the quality of the treated effluent as per GPCB norms mentioned in column No.2.

PARAMETERS	CETP INLET NORMS	GPCB NORMS
PH	6.5 TO 8.5	6.5 TO 8.5
Temperature	40^0 C	40^0 C
Colour (pt.co.scale) in units	*	100 units
Suspended Solids	300 mg/l	100 mg/l
Oil and Grease	10 mg/l	10 mg/l
Phenolic Compounds	1 mg/l	1 mg/l
Iron	3 mg/l	3 mg/l
BOD (5 days at 20^0C)	400 mg/l	30 mg/l
COD	1000 mg/l	250 mg/l
Chlorides	600 mg/l	600 mg/l
Sulphates	1000 mg/l	1000 mg/l
Total dissolved Solids	2100 mg/l	2100 mg/l
Bio-assay test	------	90% Survival of fish after 96 hour in 100% effluent.

- All efforts shall be made to remove colour & unpleasant odour as far as practicable.

3.1.4 The final treated effluent confirming to the above standards shall be discharged into GIDC underground drainage system & shall ultimately be conveyed into tidal zone of river Damanganga through CETP.

3.1.5 Domestic effluent shall be disposed off through septic tank/soak pit system and shall discharged into GIDC under ground drainage system.

GUJARAT POLLUTION CONTROL BOARD
Paryavaran Bhavan
Sector - 10-A, Gandhinagar - 382 010
Phone : 3222756, 3222095, 3222096
Gram: CLEANWATER, Fax: (079) 3232156
Website : www.gpcb.gov.in

4. CONDITIONS UNDER THE AIR ACT:

4.1 The following shall be used as fuel in boiler.

Sr.No.	Fuel	Quantity/Day
	Furnace Oil	40 Lit/hr (1Mt/day)

4.2 The applicant shall install & operate air pollution control system in order to achieve norms prescribed below.

4.2.1 The flue gas emission through stack attached to boiler shall conform to the following standards:

Stack No.	Stack attached to	Stack height in Meter	Parameter	Permissible Limit
1.	Horizantal Package type Shell & Tube Oil fired Solier		Particulate matter SO_2 NO_x	150 mg/NM^3 100 ppm 50 ppm

4.2.2 There shall be no any process emission

4.2.3 The concentration of the following substances in the ambient air within the premises of the industry and at a distance of 10 meters from the source (other than the stack / vent with height of more than 9 meters from the ground level) shall not exceed the following levels :

PARAMETER	PERMISSIBLE LIMIT
Suspended Particulate matter	500 Microgram Per cubic meter
Oxides of Sulphur	120 Microgram Per cubic meter
Oxides of Nitrogen	120 Microgram Per cubic meter

4.2.4 The applicant shall provide portholes, ladder, platform etc at chimney(s) for monitoring the air emissions and the same shall be open for inspection to/and for use of Board's staff. The chimney(s) vents attached to various sources of emission shall be designed by numbers such as S-1, S-2, etc. and these shall be painted/displayed to facilitate identification.

4.2.5 The industry shall take adequate measures for control of noise levels from its own sources within the premises so as to maintain ambient air quality standards in respect of noise to less than 75dB(a) during day time and70 dB (A)during night time. Daytime is reckoned in between 6a.m. and10 p.m. and nighttime is reckoned between 10 p.m. and 6 a.m.

GUJARAT POLLUTION CONTROL BOARD
Paryavaran Bhavan
Sector - 10-A, Gandhinagar - 382 010
Phone : 3222756, 3222095, 3222096
Gram: CLEANWATER, Fax: (079) 3232156
Website : www.gpcb.gov.in

5. GENERAL CONDITIONS: -

5.1 Any change in personnel, equipment or working conditions as mentioned in the consents form/order should immediately be intimated to this Board.

5.2 Applicant shall also comply with the general conditions given in annexure I

6. AUTHORISATION FOR THE MANAGEMENT & HANDLING OF HAZARDOUS WASTES Form-2 (See rule 3 1 & 5 (5))

Form for grant of authorisation for occupier or operator handling hazardous waste

6.1. Number of authorisation: 3431 Date of issue: 16.05.2006

6.1.1 M/s. Apple Organics is hereby granted an authorisation to operate facility for following hazardous wastes on the premises situated at PLOT NO.610, PHASE-G.I.D.C.ESTATE,VAPI-396 195, DIST.VALSAD.

Sr. No.	Waste	Quantity	Schedule-I	Facility
1	ETP Waste Sludge	202 MT/Month	Process no. 26.1	Collection,Storage, Transportation, Disposal at TSDF.
2	Process Waste	200 kg/Month	26.2	Collection,Storage, Transportation, Disposal at TSDF.

6.1.2 The authorisation is granted to operate a facility for collection, storage incineration, treatment within factory premises transportation and ultimate disposal of Hazardous wastes at TSDF developed by the Vapi Waste & Effluent Management Co.Ltd –Vapi.

6.1.3 The authorisation shall be in force for a period of 26/2/2009.

6.1.4 The authorisation is subject to the conditions stated below and such other conditions as may be specified in the rules from time to time under the Environment (Protection) Act-1986.

6.1.5 TERMS AND CONDITIONS OF AUTHORISATION

a) The applicant shall comply with the provisions of the Environment (Protection) Act – 1986 and the rules made there under.

b) The authorisation shall be produced for inspection at the request of an officer authorized by the Gujarat Pollution Control Board.

c) The persons authorized shall not rent, lend, sell, transfer of otherwise transport the hazardous wastes without obtaining prior permission of the Gujarat Pollution Control Board.

d) Any unauthorized change in personnel, equipment or working conditions as mentioned in the authorisation order by the persons authorized shall constitute a breach of this authorisation.

e) It is the duty of the authorized person to take prior permission of the Gujarat Pollution Control Board to close down the facility.

GUJARAT POLLUTION CONTROL BOARD
Paryavaran Bhavan
Sector - 10-A, Gandhinagar - 382 010
Phone : 3222756, 3222095, 3222096
Gram: CLEANWATER, Fax: (079) 3232156
Website : www.gpcb.gov.in

f) An application for the renewal of an authorisation shall be made as laid down in rule 5 (6) (ii).

6.1.6 In addition to above terms and conditions Industry shall also comply following directives issued by the Supreme Court of India dated.14.10.2003.

a) Industry shall have to display the relevant information with regard to hazardous waste as indicated in the Court's order in W.P. No.657 of 1995 dated 14th October 2003

b) Industry shall have to display on-line data outside the main factory gate with regard to quantity and nature of hazardous chemicals being handled in the plant, including wastewater and air emissions and solid hazardous wastes generated within the factory premises.

For and on behalf of
Gujarat Pollution Control Board

(S.H.VEGDA)
Environmental Engineer

NO: PC/VSD/CCA-508/ 25170
Issued to:
M/S.APPLE ORGANICS
PLOT NO.610, 100 SHED AREA,
G.I.D.C.ESTATE
VAPI-396 195,
DIST.VALSAD

16 AUG 2004

5

ANNEXURE XI

COPY OF MEMBERSHIP LETTER OF VAPI WASTE & EFFLUENT MANAGEMENT CO. LIMITED

Vapi Waste & Effluent Management Co. Ltd.

Registered Office : VIA House, Plot No.135, GIDC, VAPI 396 195, Gujarat. INDIA
Tel.: (0260) 2428950 ● Telefax : (0260) 2429950 ● WEBSITE : www.cetpvapi.org
E-mail : vwemcl_ad1@sancharnet.in

Ref. No.CETP_Memb.Certi/1234/13493

October 26, 2009

CETP Membership No. 642

TO WHOMSOVER IT MAY CONCERN

MEMBERSHIP CONFIRMATION CERTIFICATE

This is to certify that M/s. Apple Organics, Plot No. 610, 100 Shed, GIDC, Vapi 396 195, is a member of VWEMCL for Common Effluent Treatment Plant. Their Membership No. is 642

This certificate is issued at the specific request of the above party for submission to GPCB.

For Vapi Waste & Effluent Management Co. Ltd.

A. K. Shah
I/c. Managing Director

D:Certy-CETP Certy
VD/JGT/VC

COMMON EFFLUENT TREATMENT PLANT :
"CETP", N. H. No.8, Near Damanganga Bridge, GIDC, VAPI 396 195. Tel.: (0260) 2432950 Telefax : 2434929
COMMON SOLID WASTE PLANT :
"CSWP", Plot 4807 etc. Phase IV, GIDC, VAPI 396 195. Tel.: (0260) 2427950, 2435186

Registered Office : VIA House, Plot No.135, GIDC, VAPI 396 195, Gujarat. INDIA
Tel.: (0260) 2428950 ● Telefax : (0260) 2429950 ● WEBSITE : www.vapicetp.org
E-mail : vwemcl_ad1@sancharnet.in

Ref. No.CSWP_Memb.Certi/1281/13890

December 29, 2009

CSWP Membership No. 274

TO WHOMSOVER IT MAY CONCERN

MEMBERSHIP CONFIRMATION CERTIFICATE

This is to certify that M/s. Apple Organics, Plot No. 610, 100 Shed Area, GIDC, Vapi, is a member of Common Solid Waste Project Site. Their Membership No. is 274.

This certificate is issued at the specific request of the above party for submission to GPCB.

For Vapi Waste & Effluent Management Co. Ltd.
(CSWP-Site)

A. K. Shah
Vice Chairman

PRE-FEASIBILITY REPORT

ON

PROPOSED PROJECT

OF

MANUFACTURING OF

ORGANIC CHEMICALS

OF

AARTI INDUSTRIES LIMITED
(APPLE ORGANICS DIVISION)

LOCATED AT

Plot No. 609/610, 100

Shed area, GIDC Estate,

Vapi.396 195

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1.0 EXECUTIVE SUMMARY

M/s. Aarti Industries Limited (Apple Organics Division) first obtained CCA order 3431, issued on 16/08/2004. Further it was extended by CCA order no. AWH-73091 dated 14/09/2015 for manufacturing of Synthetic Organic products mentioned in below table no.1. Now the unit wants to go for proposed expansion in same plant at Plot No. 609/610, 100 shed area, GIDC Estate, Vapi, Valsad, Gujarat 396 195. The proposed products are mentioned in Table no. 2.

List of proposed products is mentioned in table no.1 As per EIA notification 2006, the proposed expansion is falling under category 5(f).

TABLE NO 1:

LIST OF PRODUCTS AS PER CCA AWH-73091

Sr. No.	Name of Product	Quantity in MT per Month
1.	Para Chloro Aniline **OR**	20
2.	3,4 Di Chloro Aniline **OR**	18
3.	2,5 Di Chloro Aniline **OR**	18
4.	Mix of 3,4 DCA & 2,3 DCA **OR**	18
5.	Ortho Anisidine **OR**	20
6.	Para Toludene **OR**	20

TABLE NO 2:

LIST OF PROPOSED PRODUCTS

Sr. No.	List of Process	Quantity (MT/Month)
1.	**CHLORINATED PROCESS AND/OR**	**5**
1.1	Mono Chloro Benzene, Ortho Di Chloro Benzene, Para Di Chloro Benzene A**ND/OR**	
1.2	123,124 Tri Chloro Benzene-(Benzene) A**ND/OR**	
1.3	Para Nitro Toluene (2chloro 4 Nitro toluene) A**ND/OR**	
1.4	Mono Dichloro Benzene A**ND/OR**	
1.5	Ortho chloro toluene / Para chloro toluene A**ND/OR**	
1.6	6-Chloro 2-Nitro Toluene 4-Chloro 2-Nitro Toluene A**ND/OR**	
1.7	Pivalyl Chloride A**ND/OR**	
1.8	2-Ethyl Hexanyl Chloride A**ND/OR**	
1.9	Iso Nonyl Chloride A**ND/OR**	

1.10	2,4,6 Trichloro Aniline (TCAN) A**ND/OR**	
1.11	2, 6 – Dichloro para nitro aniline (2,6 DCPNA) A**ND/OR**	
2.	**HYDROGENATION/REDUCTION PROCESS AND/OR**	
2.1	Ortho Toludene A**ND/OR**	
2.2	M- O &Para Chloro Aniline A**ND/OR**	
2.3	3,4-2,3-2,5 dichloro Aniline A**ND/OR**	
2.4	3,4 & 4,4Diamino Diphenyl Ether A**ND/OR**	
2.5	Di Floro Benzene (1-3) A**ND/OR**	
2.6	Mixing of 2, 4 / 2, 5 DCA A**ND/OR**	
2.7	Mixing of 2, 5 / 2, 6 DCA A**ND/OR**	
2.8	Mixing of 2, 4 / 2, 5 / 2, 6 DCA A**ND/OR**	
2.9	2,4 Dichloro Aniline / 2,6 DiChloro Aniline / 3,5 DiChloro Aniline A**ND/OR**	
2.10	2,4,5 Trichloro Aniline A**ND/OR**	
2.11	Meta / Ortho / Para Phenylene Di Amine A**ND/OR**	
2.12	3,4 Diamino Diphenyl Ether / 4,4 Diamino Diphenyl A**ND/OR**	
2.13	Ether A**ND/OR**	
2.14	Ortho / Para / Meta Anisidine A**ND/OR**	
2.15	Chloro Fluoro Aniline A**ND/OR**	
2.16	Ortho / Para /Meta Cumidine A**ND/OR**	
2.17	Para /Meta Amino Phenol A**ND/OR**	**5**
2.18	Toludines A**ND/OR**	
2.19	Aniline A**ND/OR**	
2.20	Para / Meta / Ortho Floro Aniline A**ND/OR**	
2.21	Di Floro Aniline (1:3) A**ND/OR**	
2.22	4-Floro-N-Isopropyl Aniline A**ND/OR**	
2.23	4-Chloro-NIsopropyl Aniline A**ND/OR**	
2.24	2 Methoxy 4 Nitro Aniline (Scarlet R - from partial hydrogenation of 24 Dinitro Anisole) A**ND/OR**	
2.25	2,4 Di Amino Anisole A**ND/OR**	
2.26	N-N Disec Butyl PPDA A**ND/OR**	
2.27	Meta Xilidine A**ND/OR**	
2.28	4 Chloro 2,5 Dimethoxy Aniline A**ND/OR**	
2.29	N,N Di Sec terteary butyl para phenylene Diamine A**ND/OR**	
2.30	DCBH (Di Chloro Benzene Hydro chloride) A**ND/OR**	
2.31	3,5/2,6 DFA (Di Flouro Aniline) A**ND/OR**	
2.32	Di Anisidine A**ND/OR**	
2.33	OT Base A**ND/OR**	
3.	**NITRATION PROCESS AND/OR**	**5**

3.1	3-4,2-3,2-5,2,4 Dichloro N Benzene A**ND/OR**	
3.2	Di Chloro Di Fluoro Nitro Benzene A**ND/OR**	
3.3	Ortho Nitro Chloro Benzene/ Para Nitro Chloro Benzene/ Meta Nitro Chloro Benzene A**ND/OR**	
3.4	2,4 Di Nitro Chloro Benzene A**ND/OR**	
3.5	2,4,5 Tri Chloro Nitro Benzene/ 2,3,4 Tri Chloro Nitro Benzene A**ND/OR**	
3.6	4-Nitro N-methyl Phthalimide A**ND/OR**	
3.7	2 EHN (Ethyl Hexanol Nitration) A**ND/OR**	
4.	**NITRO ANISOLE PROCESS AND/OR**	
4.1	Ortho Nitro Anisole **AND/OR**	
4.2	Para Nitro Anisole **AND/OR**	**5**
4.3	2,4-Di Nitro Anisole **AND/OR**	
4.4	2 Methoxy 5 Chloro Nitro Benzene (from 25 DCNB) **AND/OR**	
5.	**FLUORINATION PROCESS AND/OR**	
5.1	Para Fluoro Nitro Benzene **AND/OR**	**5**
5.2	Di Fluoro Nitro Benzene **AND/OR**	
6.	**DE-NITRO CHLORINATION PROCESS AND/OR**	
6.1	2,6Di Chloro Fluoro Benzene **AND/OR**	
6.2	2,6 Di Chloro-benzonitrile **AND/OR**	
6.3	Di Chloro Di Fluoro Benzene **AND/OR**	
6.4	Meta Dichloro Benzene **AND/OR**	**5**
6.5	2,4 Diflouro Chloro Benzene **AND/OR**	
6.6	2,4 Dichloro Fluoro Benzene **AND/OR**	
6.7	1,3 Dichloro 4,6 Diflouro Benzene **AND/OR**	
6.8	Para Fluoro Chloro Benzene **AND/OR**	
6.9	Ortho Fluoro Chloro Benzene **AND/OR**	
7.	**AMMONIATION PROCESS AND/OR**	
7.1	Di Chloro Ortho Nitro Aniline **AND/OR**	**5**
7.2	Ortho Nitro Aniline-Para Nitro Aniline **AND/OR**	
8.	**BROMINATION&DEAMINATION PROCESS AND/OR**	
8.1	345Tri Fluoro Bromine Benzene	**5**
8.2	2 Bromo 4 Flouro Acetanilide **AND/OR**	
8.3	Di Chloro Bromo Benzene **AND/OR**	
9.	**SULPHANATION PROCESS AND/OR**	**5**
9.1	4B Acid **AND/OR**	
10.	**ALKYLATION PROCESS AND/OR**	**5**
10.1	Methyl Ethyl Aniline **AND/OR**	
11.	**DEHALGENATION PROCESS AND/OR**	**5**
11.1	1,3 Di Fluoro Benzene **AND/OR**	
12.	**CONDENSATION PROCESS AND/OR**	**5**
12.1	Di Nitro Di Phenyl Ether **AND/OR**	

13.	**CYCLIZATION PROCESS AND/OR**	**5**
13.1	Di Amino Phenyl Benzimidazole **AND/OR**	
13.2	Para flouro Anisol **AND/OR**	
13.3	Quinalphose (TECH) (Diethyl 2-Hydroxy Thiophosphoryl Chloride)**AND/OR**	
14.	**ESTERFICATION AND/OR**	**5**
14.1	Ester **AND/OR**	
15.	**DIAZOTISATION PROCESS AND/OR**	**5**
15.1	25&23Di Chloro Phenol **AND/OR**	
15.2	-3,5 Di Chloro Nitro Benzene **AND/OR**	
15.3	Para Flouro Phenol (PFP)**AND/OR**	
16.	**ACETYLATION & HYDROLYSIS PROCESS AND/OR**	**5**
16.1	Meta Nitro Para Anisidine **AND/OR**	
16.2	Meta Nitro Para Toludiene **AND/OR**	
	Total	**20 MT/Month**
17.	**BY PRODUCTS**	
17.1	30% Hydrochloric Acid	202
17.2	Spent Acid	327
17.3	Aluminum Oxide (Al2O3)	4
17.4	Sodium Chloride (NaCl)	44.5
17.5	Ortho Nitro Phenol (ONP)	3.5
17.6	Calcium Chloride (Cacl2) solution	149
17.7	Potassium Chloride (KCL)	187.5
17.8	Acetic Acid (CH3COOH)	10
	Total	**927.5**

COST OF PROJECT

The expansion will be carried out at existing plot located in GIDC. The expected cost of proposed expansion is Rs. 500 Lacs. The total plot area of the unit is 1752 sq. m. The existing green belt area is approx. 183 sq. m. After expansion, the green belt area will be remaining same.

FUEL & ELECTRICITY CONSUMPTION

As per consent

As per consent, the unit is using 1MT/day of furnace oil as fuel for Boiler. The existing electricity load is 125 KVA from DGVCL.

Proposed scenario

Natural gas of 894 SCM/Hr. will be used in boiler instead of furnace oil. The unit is proposing 3 stacks from reactors out of which 2 stacks will be connected to water scrubber followed by alkali scrubber and the other one stack will be connected to water scrubber followed by acid scrubber.

The existing electricity consumption is 125 KVA and electricity consumption due to proposed expansion will be 125 KVA. Total electricity requirement after proposed expansion will be 250 KVA.

WATER CONSUMPTION

As per consent

The source of water is GIDC. In the existing scenario, the unit is using 18 KLD fresh water for industrial and domestic purpose.

Proposed scenario

For proposed expansion, the unit has proposed 25 KLD of water consumption for industrial and domestic purpose. The total fresh water consumption after expansion will be 43 KLD.

WASTE WATER GENERATION, TREATMENT & DISPOSAL

As per consent

As per consent, the industrial effluent generation is 4.5 KLD and sewage generation is 2 KLD.

Existing effluent is treated in ETP having primary, secondary and tertiary treatment. Treated water is sent to CETP.

Proposed scenario

Due to proposed expansion, additional total industrial effluent generation will be 10 KLD. Hence, after expansion total industrial effluent generation will be 14.5 KLD (4.5 KLD existing + 10 KLD proposed). Due to proposed expansion, additional sewage generation will be 2 KLD. Hence, after expansion sewage generation will be 4 KLD (2 KLD + 2 KLD).

Existing and proposed effluent will be treated in unit's own ETP. In which existing waste water is treated in Effluent treatment plant and after treatment, treated water is sent to CETP - Vapi Waste & Effluent Management Co. Limited. The Membership Letter is attached as Annexure- XI. We will discharge additional quantity of effluent in CETP .

GASEOUS EMISSION

As per consent:

FLUE GAS EMISSION

As per CCA order no. AWH- 73091, the unit has one stack of boiler having 11 m height.

Now, the unit has proposed one D.G set of 250 KVA. Thus there will be proposed one D.G set stack having height 11 m.

PROCESS EMISSION

There is no process gas emission stack in existing unit.

The unit is proposing 3 stacks from reactors out of which 2 stacks will be connected to water scrubber followed by alkali scrubber and the other one stack is connected to water scrubber followed by acid scrubber.

HAZARDOUS WASTE MANAGEMENT

As per consent

As per CCA order no. AWH-73091, the hazardous waste generation are ETP waste (1 MT/Year), Used oil (10 Lit/Year), Discarded containers/Bags (1000/Year), Process waste (2.4 MT/Year).

ETP waste, Process waste containing organics complex are disposed to TSDF/CHWIF. Used oil is reused in unit itself and Discarded Container/Bags are disposed by sold to authorize recyclers.

Proposed scenario

After proposed expansion, hazardous waste generation details will be ETP waste (200 MT/Year), Distillation Residue (30 MT/Year), Used oil (50 Lit/Year), Discarded containers/Bags (1000 Nos/Year), Spent Carbon (0.5 MT/Month). Spent Catalyst (5 MT/Year) and Insulation waste (what so ever generated).

ETP waste, Distillation Residue will be disposed to TSDF. Used oil will be sold to registered reprocessor and Discarded Container/Bags will be sold to authorize recyclers. Spent catalyst and spent carbon will be sent for co-processing.

2.0 INTRODUCTION

2.1 THE PROJECT

M/s. Aarti Industries Limited (Apple Organics Division) first obtained CCA order-3431, issued on date: 16/08/2004, which was extended in CCA AWH-40083 dated 01/01/2011, which is now further extended in CCA AWH-73091 dated 14/09/2015 for manufacturing of products mentioned in Table 1.

The unit has proposed expansion for manufacturing of existing products and new products. Proposed production capacity is mentioned in Table no.2.

As per EIA notification 2006, the proposed expansion is falling under category 5(f).

2.2 PROJECT PROPONENT

The list of Directors is given in Table no.3.

TABLE NO 3:

CONTACT DETAILS OF DIRECTORS

Sr. No.	Name of Director	Designation	Address	Telephone No.
1.	Shri.Rajendra V. Gogri	Chairman& Managing Director	1401, Antriksh. Murar road, Mulund (w), Mumbai 400080	022-67976666
2.	Shri.Rashesh C. Gogri	Vice chairman& Managing Director	601,Antriksh Morar Road, Mulund (W) Mumbai 400080	022-67976666
3.	Shri. Parimal H. Desai	Whole-Time Director	A/1403 14TH Floor, Runwal Heights, L.S.B. Marg, Mulund (W) Mumbai- 400080	022-67976666
4.	Shri.Manoj M. Chheda	Whole-Time Director	Dunhill Villa CO.OP.HSG.SOC.Ltd., Besant Road, Santa Cruz (W), Mumbai- 400054	022-67976666
5.	Shri.Kirit R. Mehta	Whole-Time Director	10, Pushpendra Mension, Feroz shah Mehta Road, Santa Cruz (W), Mumbai– 400054	0260-2400059 2400366
6.	Smt. Hetal Gogri Gala	Whole - Time Director	558-B, Gopal Sadan, Block no. 801, 8TH Floor, Jamshed Road, Matunga(E), Mumbai– 400019	022 – 67976666
7.	Shri. Renil R. Gogri	Whole - Time Director	1401, Antriksh. Murar Road Mulund (W) Mumbai-400080	022 – 67976666

The directors of the company have good experience in handling the production management, financial management and all the allied areas.

2.3 NATURE OF PROJECT

Existing activities involves organic chemical manufacturing unit. The unit has proposed expansion for organic manufacturing products. Proposed productions scenario is mentioned in Table 1.

2.4 MARKET FEASIBILITY

The unit does contribute towards improving their quality of life since the end users of products are industries ranging from agrochemicals and dyes to specialty chemicals and pharmaceuticals - markets that are critical to long-term sustainability. By supplying high quality and good value products to all customers, the unit indirectly helps people to have access to better medicines, fertilizers and diverse items of daily use. In other words, greening the supply chain management plays a significant role in the unit's business strategy. The products are highly influenced by the market demand and market rates.

Various products listed in Table 1 are used in manufacturing of:

- Inks- used in manufacturing of sheet –fed offset, web offset, News Paper, UV screen, gravure and Flexo.
- Paints- used in manufacturing of Air drying enamel, stoving paints, Acrylic paints, and Automotive paints Industrial paints and Cement Paints.
- Plastics- used in manufacturing of LDPE, HDPE, PVC, Polypropylene, Poly carbonate, Polystyrene.
- Textile- used in manufacturing of Emulsion paste for Pigment printing
- Agrochemicals

The Golden corridor of Gujarat from Dahej to Vapi has presence of lots of industries manufacturing Organic chemicals. Hence, local market is already available.

AARTI has privilege of catering to its export customers in countries such as USA, UK, Germany, Spain, Italy, Switzerland, Belgium, Japan, Korea, China, Russia, etc

3. PROJECT DESCRIPTION

3.1 TYPE OF PROJECT

The proposed project is not including any interlinked and interdependent projects.

3.2 PROJECT LOCATION

M/s. Aarti Industries Limited (Apple Organics Division) is located at plot no 609/610, 100 Shed area, GIDC Estate, Vapi-396195, Dist.: Valsad, and Gujarat. It is approximately 27.64km distance from Dist.: Valsad. The approximate geographical positioning of the project site is at Latitude 20°20' 55.194" N, Longitude 72°56'16.5516" E. It has an average elevation of 5 m. The location of the project

site can be identified from the location map shown in Figure-1.The salient features of the location of the project site are presented in Table no 4.

TABLE NO 4:

SALIENT FEATURES OF THE PROJECT SITE

Particulars	**Details**
Taluka/ Tehsil	Pardi (approx. 19.42 KM)
District	Valsad (approx. 27.64 KM)
Approx. Geographical positioning	Latitude: 20°20' 55.194" N Longitude: 72°56'16.5516"
Nearest City	Valsad (approx. 27.64 KM)
Nearest Town	Vapi (approx. 4.40 KM)
Nearest Highway	NH8 (approx. 0.30 KM)
Nearest State highway	SH 185 (approx. 0.38 KM)
Nearest Railway line/ Railway station	Vapi (approx. 4.12 KM)
Nearest Airport/ Airbase	Mumbai(approx. 183.38 KM)
Protected Areas/ Sanctuaries	---------

FIGURE 1:
LOCATION OF THE PROJECT SITE

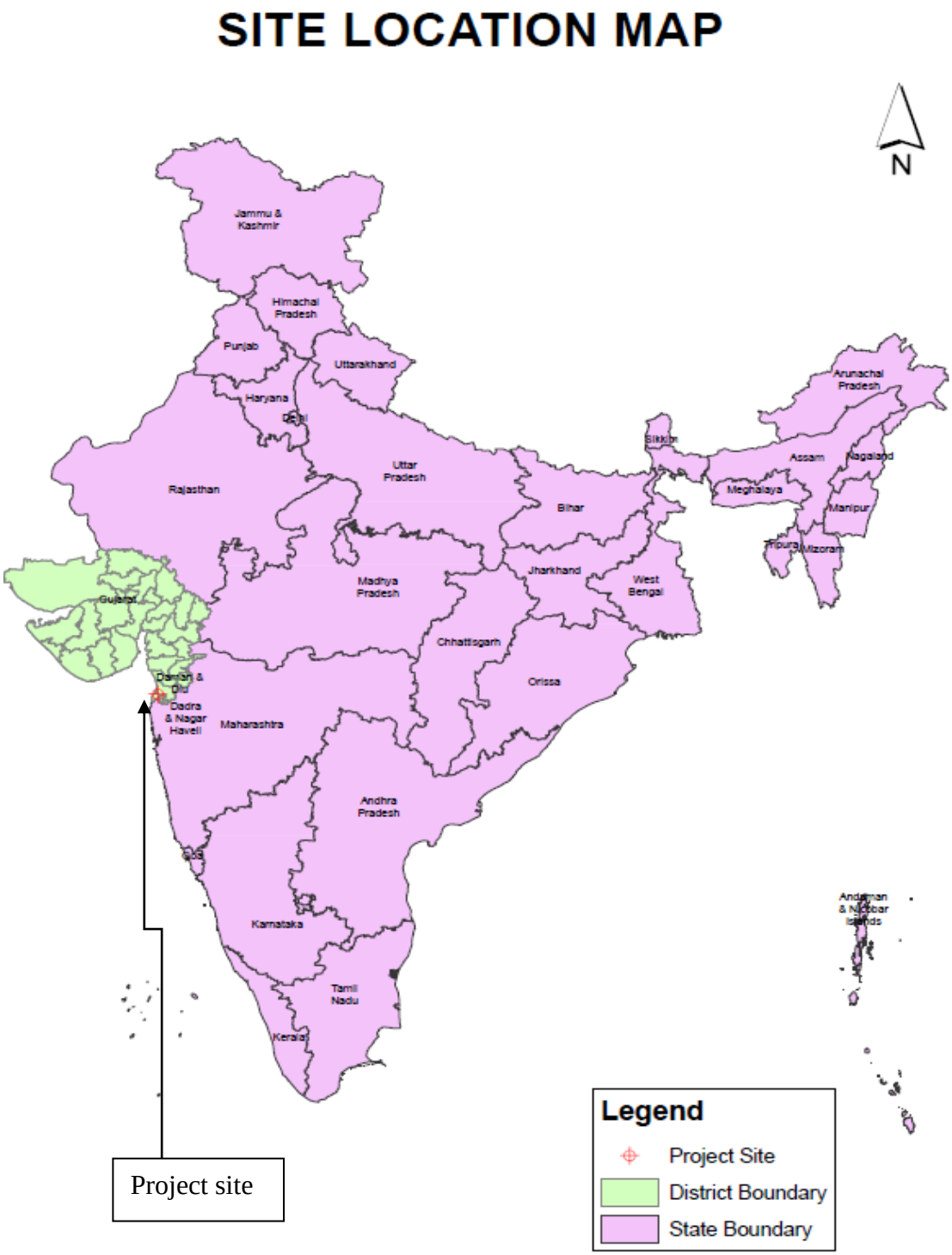
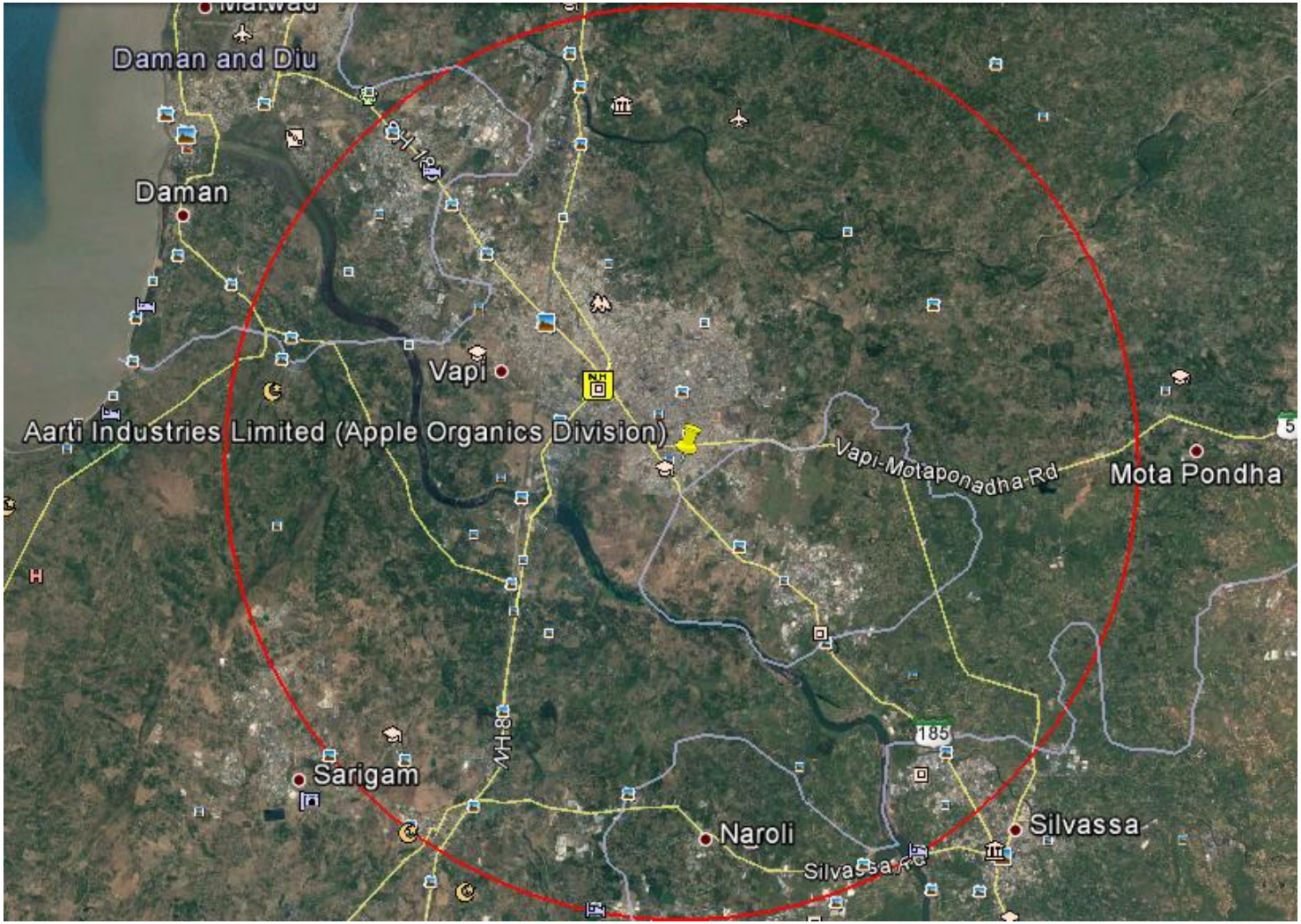


FIGURE 2:

AERIAL VIEW OF THE 10 KM RADIAL DISTANCE FROM THE PROJECT SITE



3.3 SITE SELECTION

The project proponent did not consider any other alternative site for proposed expansion.

3.4 NEIGHBORING INDUSTRIES

The industry is located in an area, which is already industrialized. The industries in the vicinity of the proposed project are given in the table no-5.

TABLE NO 5:

NEARBY INDUSTRIES IN THE VICINITY

Name of Industry	**Direction w.r.t project site**	**Address**
Hi Tech Ink Pvt Ltd	South side	Plot No. 633 to 635, 100 Shed area, G.I.D.C. Vapi - 396195
Good Cast Pvt Ltd	West side	Plot Np. 608, 100 Shed Area, G.I.D.C. Vapi - 396195
1) Varada Engineering & Consultant 2) Jhelum Roadways	East Side	Survey No. G-76, Gala No. 01, 100 Shed Area, G.I.D.C. Vapi - 396195
Supreme Transport Pvt Ltd	North Side	Plot Np. 611, 100 Shed Area, G.I.D.C. Vapi - 396195

3.5 SIZE OF PROJECT

The expected cost of proposed expansion of project is Rs.500 lacs. New Plant and machinery installations will also have to be acquired and installed.

Environment Protection and safety systems have also been considered in planning the Cost Projection. The unit will carry out maintenance and necessary modifications in proposed effluent treatment plant. The below given table no-6 shows the break-up of the proposed project cost.

TABLE NO 6:

CAPITAL COST PROJECTION

Sr. No.	**Purpose**	**Existing (Rs. In Lacs)**	**Proposed (Rs. In Lacs)**	**Total (Rs. In Lacs)**
1.	Land	90	0	90
2.	Building	100	100	200
3.	Plant and Machinery	115	300	415
4.	Env. Protection & Safety			
	a) Effluent treatment Plant	50	70	120
	b) Safety Equipment (PPE, fire extinguishers, Ventilation, etc.)	10	20	30
	C) Green belt development	10	10	20
	Total	**375**	**500**	**875**

3.6 PROCESS TECHNOLOGY

Process details like process description, chemical reactions and mass balance for each grade of products are attached as Annexure-V.

3.7 RAW-MATERIALS

The proposed raw materials are organic and inorganic chemicals and they will be purchased from the local/ Indian market. Details of raw-material consumption are attached as Annexure- IV.

3.8 RESOURCE OPTIMIZATION/RECYCLING AND REUSE

The unit will recover calcium chloride solution and sale it as a co-product.

The unit will recover sodium chloride solution and sale it as a co-product.

3.9 RESOURCE REQUIREMENTS

3.9.1 LAND

The plot has been purchased by M/s. Aarti Industries Ltd. (Apple Organics Division) from GIDC. The total plot area of the unit is 1752 sq. m. The Green belt area is 183 sq. m.

3.9.2 BUILDING

The proposed expansion will take place, and new buildings will be constructed.

3.9.3 POWER AND FUEL

TABLE NO 7:
POWER AND FUEL REQUIREMENT

Sr. No.	Name	Requirement		Total	Source
		Existing	Proposed		
1	Diesel	0	75 Lit/HR	75 Lit/Hr.	DG set
2	Energy - Electricity	125 KVA	125 KVA	250 KVA	DGVCL
3	Natural Gas	0	894 SCM /hr	894 SCM/hr.	GSPC
4	Furnace Oil	1 MT/Day	0	1 MT/Day	--

3.9.4 WATER

The category wise bifurcation of the water requirement is given in Table no 8. The source of water will be from GIDC water supply scheme.

TABLE NO 8:

CATEGORY-WISE WATER REQUIREMENT

Sr. No.	Section	Water Consumption KL/Day		
		Existing	Proposed	Total after Expansion
1	Domestic	3	2	5
2	Industrial			
	Process	4	5	9
	Washing	0	3	3
	Boiler	5	10	15
	Cooling	3	3	6
	Gardening	3	2	5
	Total (Industrial)	**15**	**23**	**38**
	Total(Industrial + Domestic)	**18**	**25**	**43**

3.9.5 MANPOWER

The manpower required for the project as well as during the construction/ commissioning activities will be employed from the local area.

TABLE NO 9:

MAN POWER REQUIREMENT

Phase of project	Type of labor	No. of workers (Existing)	No. of workers (Proposed Scenario)	No. of workers (Total)
During construction	Contractual	0	15	15
During commissioning	Contractual	0	10	10
During operations	Managerial	3	2	5
	Skilled	15	20	35
	Un-skilled	22	7	29
Total		**40**	**54**	**94**

3.10 MITIGATION MEASURES & EMP

Based on overall manufacturing & operation activities, the mitigation measures have been proposed by the company for the control of the anticipated pollution load.

3.10.1 WASTEWATER MANAGEMENT

3.10.1.1 WASTEWATER GENERATION

The category-wise bifurcation of the anticipated wastewater generation details is given in Table 10.

TABLE NO-10:

CATEGORY-WISE WASTEWATER GENERATION

Sr. No.	Section	Waste Water Generation KL/Day		
		Existing	**Proposed**	**Total after expansion**
1	**Domestic**	**2**	**2**	**4**
2	**Industrial**			
	Process	3	4.5	7.5
	Washing	0	3	3
	Boiler	1	1	2
	Cooling	0.5	1.5	2
	Total (Industrial)	**4.5**	**10**	**14.5**
	Total(Industrial + Domestic)	**6.5**	**12**	**18.5**

3.10.1.2 WASTEWATER CHARACTERISTICS

Existing & proposed effluent characteristic before treatment and after treatment in ETP is covered in Table no. 11.

TABLE NO-11:

WATEWATER CHARACTERISTICS

Sr. No	Parameters	Units	Before Treatment	After Treatment	Inlet norm of CETP
1	pH	--	5-7	6-8	5-9
2	Total Suspended Solids	mg/l	100-150	<100	600
3	Total Dissolved Solids	mg/l	9000-10000	<9000	--
4	Ammonical Nitrogen	mg/l	10-30	<10	50
5	B.O.D.3 days at 27°C	mg/l	1200-1700	<500	500
6	C.O.D.	mg/l	4000-5000	<2000	2000

3.10.1.3 WASTEWATER TREATMENT & DISPOSAL

EFFLUENT TREATMENT SCHEME (EXISTING& PROPOSED)

ETP PROCESS DESCRIPTION:

The waste water from process, washing, cooling, steam condensates, floor washing, etc. is coming through drain line from plant to the oil and grease traps. Here oil and grease is trapped floating on the water, which is to be removed manually. Through this trap, water flows to neutralization cum primary settling tank. Here all different quality water pH is adjusted to 7.5. In these tanks an agitation is provided by stirrer. In this primary treatment chemicals used are sulphuric acid, caustic lye, hydrated lime, alum and polyelectrolyte.

Neutral water from this tank is settled out and clear effluent overflow to collection tank. The settled sludge from bottom of the settling tank will be taken in sludge drying bed where dry the sludge. The dry sludge is packed in plastic bags and stored in storage area. Collected effluent of collection tank is continuously feeded to the aeration tank. Aeration tank contains huge qty. of biomass and a diffuser system to provide sufficient oxygen required for bio-degradation of the organic matters. Water treated in this aeration tank then continuously flows to secondary setting tank, where the bio sludge settles at the bottom. Thick slurry of this bio-sludge from the bottom tank is pump backed to aeration tank to maintain "MLSS". If it is an excess then it is transferred to sludge drying beds.

Overflow of effluent from the secondary settling tank to collection tank by gravity. Collected effluent of collection tank is taken to high pressure sand filter where filter the effluent after that effluent is taken to carbon column. Where reduce the colour and decrease the COD value. The final treated effluent will be discharged to GIDC under ground drainage system, which will be ultimately disposed to CETP for further treatment.

DETAILS OF ETP UNITS

TABLE NO-12:

ETP DETAILS

Sr. No.	**Particular**	**Existing Capacity in M^3**	**Proposed additional Capacity in M^3**
1.	Oil & Grease Trap	11	--
2.	Neutralization cum settling tank	6.6	--
3.	Equalization Tank	--	6.6
4.	Filter press	1.2	2
3.	Collection Tank	1.6	3
4.	Aeration Tank	13	40
5.	Secondary Settling Tank	5	15
6.	Collection Tank 2	1.26	3
7.	Sand Filter	1.5	-
8.	Carbon Column 2	0.15	0.5
9.	Lime Preparation Tank	0.98	--
10.	Sludge Drying Bed	1.69	--

FLOW DIAGRAM OF ETP (EXISTING & PROPOSED):

FIGURE 3:

EXISTING ETP FLOW DIAGRAM

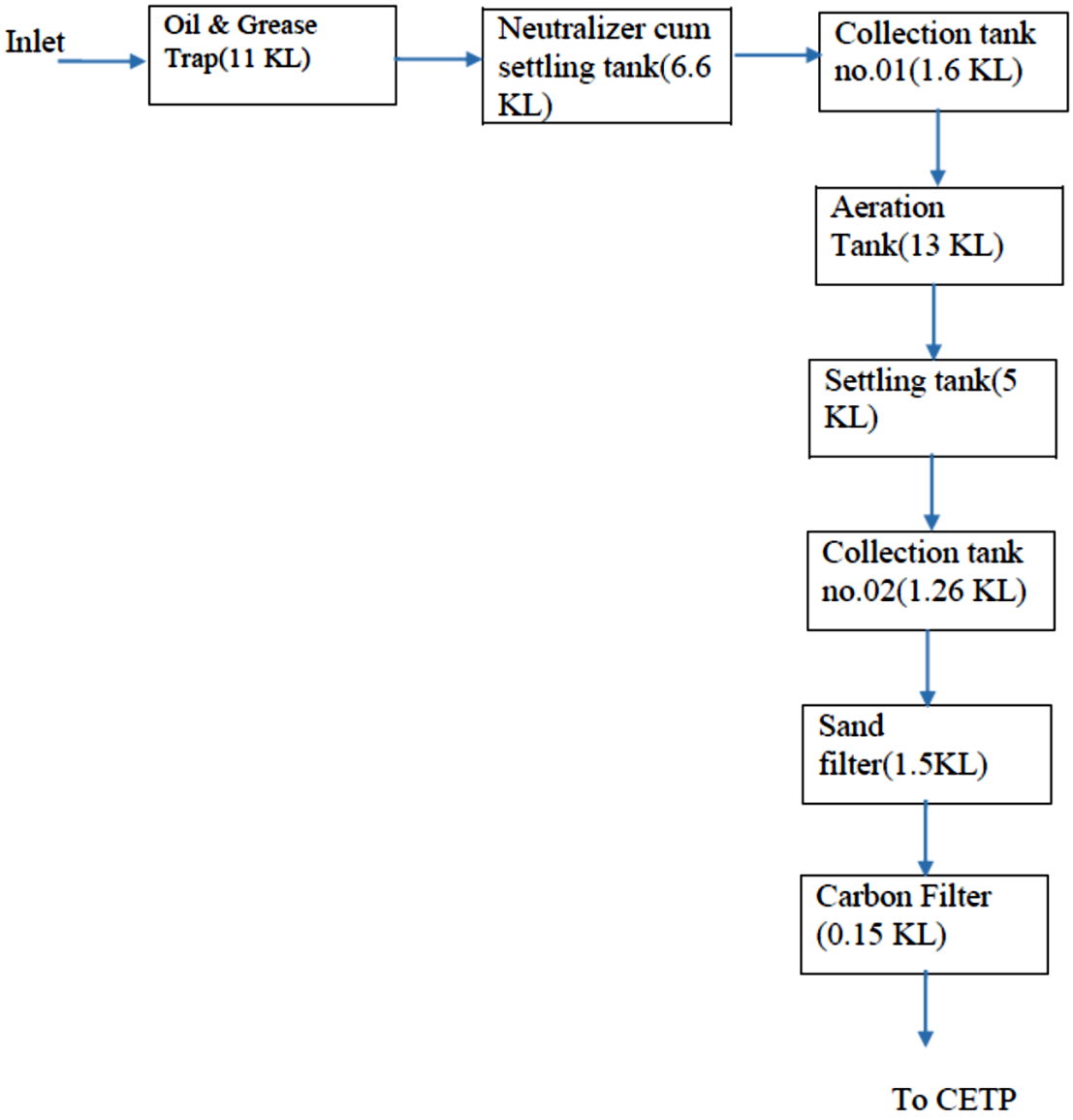
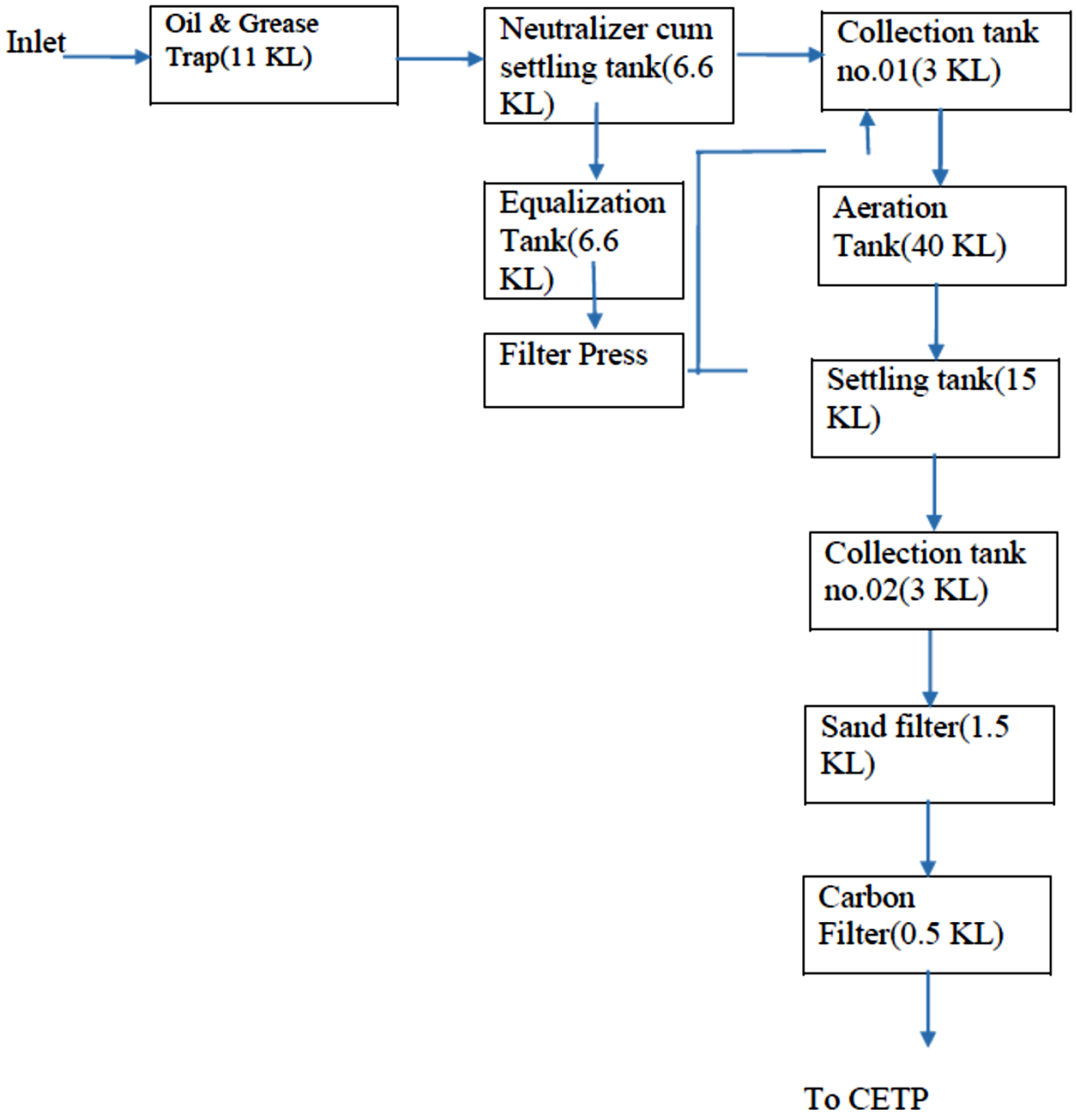


FIGURE 4:

PROPOSED ETP FLOW DIAGRAM



3.10.2 GASEOUS EMISSIONS & CONTROL

3.10.2.1 FLUE GAS EMISSIONS

As per CCA order no. AWH- 73091, the unit has one stack of Steam Boiler having 11 m height.

Now, the unit has proposed one D.G set of 250 KVA having height of 11 meters.

3.10.2.2 PROCESS EMISSION

As per Consent, there is no process stacks. There will be 3 additional stacks of process emission after proposed expansion. Details are given in table no. 13 below.

TABLE NO-13:

PROCESS GAS EMISSION

Sr No.	Stack attached to	Stack Height in meter	APCM	Probable Pollutants	Permissible Limit
Proposed					
1	Plant-1	11 m	Water Scrubber followed by Alkali Scrubber	HCl NO_x Br_2 HB_r NO_2 Cl_2	20 mg/Nm^3 25 mg/Nm^3 09 mg/Nm^3 20 mg/Nm^3 25 mg/Nm^3 09 mg/Nm^3
2	Plant-2	11 m	Water Scrubber followed by Alkali Scrubber	HCl NO_x Br_2 HB_r NO_2 Cl_2	20 mg/Nm^3 25 mg/Nm^3 09 mg/Nm^3 20 mg/Nm^3 25 mg/Nm^3 09 mg/Nm^3
3	Plant-3	11 m	Water Scrubber followed by Acidic Scrubber	NH_3	175 mg/Nm^3

3.10.2.3 FUGITIVE EMISSIONS

There will be no volatile or low boiling chemicals to be used in the process. Hence, chances of fugitive emissions are reduced to a great extent by providing proper control measures.

However, following steps will be taken to reduce chances of fugitive emissions:

- All raw-materials will be stored in drums/ bags in a well-ventilated raw material storage area.
- All reactions will be taken in closed reactor system.
- The fugitive emissions in terms of handling losses will be reduced by proper storage and handling. Raw-material feeding will be carried out by pumps.
- Regular monitoring will be done of piping and fittings for checking of any leakages.
- Good housekeeping will be maintained in the plant

3.10.3 HAZARDOUS/ NON-HAZARDOUS WASTE MANAGEMENT

The following type of hazardous waste will be generated from the operational activities. All the waste will be stored separately in a designated storage area. The details about quantity of hazardous waste generation, storage, and disposal for existing and proposed are attached as Annexure-IX.

In addition to the provision of above, we will ensure proper management for hazardous waste as below:

(A) Transportation of hazardous waste to the TSDF Site will be governed as per the guidelines and accompanied with Form-13.

(B) Annual returns of the disposal of wastes in Form-4 will be uploaded online and submitted regularly to the local office of the GPCB.

3.10.4 NOISE CONTROL & ODOUR

The major noise generation is from D.G. Set. It is installed in a closed room, acoustic enclosure is provided around it. Ear plugs are provided to the operating personnel in boiler room.

The following steps will be taken for Odour control.

(A) Raw-material feeding will be carried out by pumps.

(B) All reactions will be taken in closed reactor system.

(C) Roof top ventilation will be provided in the entire plant area.

Regular monitoring will be done of piping and fittings for checking of any leakages.

3.10.5 STORAGE, HANDLING AND TRANSPORT OF HAZARDOUS CHEMICALS

The storage and mode of transport of chemicals will be done as per detailed MSDS and Chemical hazards guide (NIOSH) for the hazardous chemicals.

Few chemical to be used in the proposed activities are listed as ‘Hazardous Chemicals’ as per the Schedule-1 of the MSIHC Rules, as amended in 2000.

3.10.6 HEALTH AND SAFETY MEASURES

Few chemical to be used in the proposed activities are listed as ‘Hazardous Chemicals’ as per the Schedule-1 of the MSIHC Rules, as amended in 2000.

Physical hazards may manifest as fires, explosions, excessive temperatures, or the release of large volumes of gas or toxic or flammable gases or vapors. According to Schedule 2 & 3 of MSIHC Rules,

Moreover transport activity will be through drums, so there will be manual loading and unloading and no unloading through pipe at the site. Hence, the risk of static charge generation during transfer of such chemicals is not significant.

4.0 SITE ANALYSIS

4.1 CONNECTIVITY

The site is located at plot no. 609/610, 100 Shed area GIDC Estate, Vapi- 396 195, Dist. Valsad. The site is 4.41 km from Vapi town and 0.30 Km from National highways. The land and Infrastructure is already available. The raw materials are easily available through the easy transport via road connectivity. The Vapi has railway station and connected to Mumbai- Amadavad rail line. The site is in the existing unit compound.

4.2 LAND USE AND LAND OWNERSHIP

The proposed project site is into the GIDC Estate, Vapi, and Gujarat which is meant for this type of industries. The land is on plot no. 609/610, 100 Shed area, GIDC Estate, Vapi- 396 195, Dist. Valsad. The total plot area of the unit is 1752 sq. m.

Land ownership is with project proponents.

4.3 EXISTING LAND USE

Proposed expansion will be in present plot only. The same land use status will be maintained.

4.4 EXISTING INFRASTRUCTURE

The plant is located in a well-developed industrial zone, which have all essential facilities such as well-connected road network with ease of transportation, arrangement for supply of water and power to industries, effluent disposal facilities etc. Infrastructure is made available through Govt. approved authorized agencies.

4.5 SOIL CLASSIFICATION

The soils of the district are derived from the Deccan trap which is main rock formation of the district. The soil of the district can be classified as light, medium and heavy according to depth, texture and location. There is sandy loam to loamy in texture, brownish black in color.

4.6 CLIMATE DATA (SECONDARY SOURCES)

The climate is characterized by oppressive summer dampness in the atmosphere nearly throughout the year, heavy south- west monsoon rainfall and a mild winter.

The year may be divided in to four seasons. From December to February is known as winter or cold season. The summer or hot season is from March to May and south- west monsoon season is from June to September, while October and November is the post monsoon season.

Valsad is the nearest meteorological observatory station to the project site. The various meteorological details of Valsad station for the year October 2016 to December 2016 are given in Table no. 14.

TABLE NO 14:

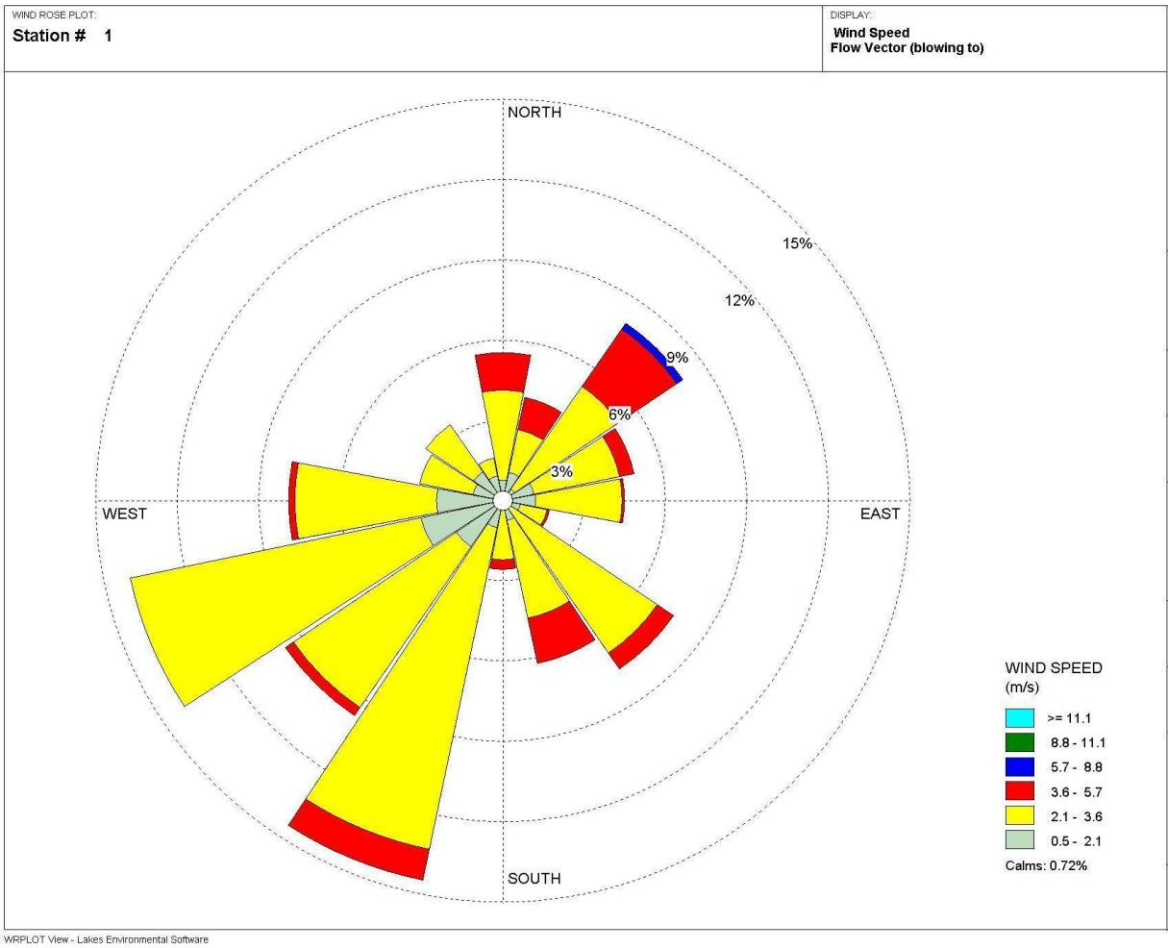
MICRO METEOROLOGICAL DATA

(Data from Indian Meteorological Department, Ahmadabad, Station:-VALSAD)

Month	**--**	**Temp. (°C)**	**Relative Humidity (%)**	**Wind Speed km/hr**
October-16	Min.	23	28	0
	Max.	35	94	13
	Average	29	61	6.5
November-16	Min.	20	24	0
	Max.	34	51	10
	Average	27	37.5	5
December-16	Min.	17	23	0
	Max.	32	52	11
	Average	24.5	37.5	5.5

FIGURE 5:

WIND ROSE DIAGRAM FOR PERIODOF OCTOBER 2016 TO DECEMBER 2016



4.7 SOCIAL INFRA STRUCTURE

The Vapi city falls at Pardi Taluka of Gujarat. It is positioned on the bank of River Daman Ganga. It is situated to east of Daman (Central Territory) and to the West of Dadra and Nagar Haveli. Vapi is largely an industrial area dominated by small scale industries, especially chemical plants.

Infrastructure like Airport is at the distance of 183.38km (Mumbai) in south direction. Nearest habitation is Vapi Town, 4.41 km away from project site in West direction. All the required infrastructure facilities are available in this town. National highway no.8 is 0.30 km away in west direction from project site.

5.0 PLANNING BRIEF

5.1 PLANNING CONCEPT

Vapi is largely an industrial area dominated by small scale industries, especially chemical plants.

Vapi in Gujarat has a largest industrial area with common effluent treatment plant and land fill site. Govt. agencies provide many basic facilities like uninterrupted water supply, power and road network.

5.2 POPULATION PROJECTION

As per provisional reports of Census India, Population of Vapi in 2011 is 1, 63,605 of which male and female are 94,338 and 69,267 respectively. The sex ratio of Vapi city is 734 per 1000 males.
In education section, total literates in Vapi city are 1, 43,706 of which 83,720 are males while 59, 986 are females. Average literacy rate of Vapi city is almost 100 Percent.

5.3 LAND USE PLANNING

The proposed project is in the established GIDC industrial area. This is not a prime agriculture land.

5.4 ASSESSMENT OF INFRASTRUCTURE DEMAND

M/s. Aarti Industries Ltd. (Apple Organics Division) shall get water from GIDC water supply scheme. So there will be no additional stress on ground water resources and there will be no adverse effect on the ground water resources available in the nearby area. The unit has 125 KVA connected load form DGVCL as per CCA. Additional requirement for proposed expansion will 125 KVA. Thus the total requirement of electricity will be 250 KVA. The transportation facilities will also expect to improve due to increase in the movement of workers and raw material and finished products.

5.5 AMENITIES

The available basic amenities are as under:

(A) Education Facilities:

Education Facilities are available and the literacy rate is about 45.67 % within 5 km periphery. All the villages have a minimum of one primary school.

(B) Medical Facilities:

The medical facilities are available in satisfactory amount in study area. These facilities are available in form of child welfare Centre, primary health sub Centre, and allopathic dispensary, maternity & child welfare centers, registered private medical practitioners and family welfare Centre within the range.

(C) Drinking water Facilities & Power Supply:

All the villages have potable water supply and in 100% area the drinking water is supplied through taps, wells and tube wells. All the villages have power supply facilities in the study region.

(D) Post, Telegraph & Telephone facilities

The information collected clearly indicates that the infrastructural facilities are provided by respective government agencies for the development of this area. For communication purpose, post office and phones are available in most of the villages. The villages having Non-availability of these facilities can get these facilities within 5-10km distance.

(E) Transport Facilities:

Bus services are available in all the villages of the study region within 5 km area and are the most preferable mode of transport in the region. Auto-rickshaw is also used as transport facility. Villages are connected with paved roads.

Source: 2011, Census.

6.0 PROPOSED INFRASTRUCTURE

6.1 PROCESSING AREA

The process area will cover Plant, Raw material storage area, Hazardous waste storage area, ETP and utilities. The process area covered by the unit at ground level will be 536.54sq. m.

6.2 NON PROCESSING AREA

The non process area will cover Admin Building, Canteen and security cabin. The non process area covered by unit at ground level will be 278.54 sq.m.

6.3 GREEN BELT

Out of the total land area of 1752sq. m. approximately 183 sq. m. is utilized for green belt development. There will be provision of budget of 10 lakh rupees for green belt development.

6.4 SOCIAL INFRASTRUCTURE

The availability of basic amenities is covered as under:

(A) Training & Education: All the employees will be trained and educated periodically about the hazardous nature of chemicals used in the process. Also, training for firefighting, work permit system, first aid, safe handling of hazardous chemicals and integrating safety, in all activities.

(B) Medical facility: Pre-employment medical checkup at the time of employment. In order to safe guard the health of the employees, all the employees undergo periodic health checkup.

(C) Drinking water: There will be provision of Aqua Guard/R.O. at different places to provide purified water for drinking purpose.

(D) Transportation: The unit will provide basic transportation facility for workers.

(E) Telegraph & Post: There will be provision of telephone, fax & internet facility.

(F) Power supply: There will be connected load of 250 KVA from DGVCL.

6.5 DRINKING WATER MANAGEMENT

The source of water is already availability from existing water works of GIDC and the same is adequate and satisfactory. The unit has proposed 5 KL/Day water for domestic purpose.

6.6 SEWERAGE SYSTEM

The sewage will be sent to soak pit /septic tank.

6.7 INDUSTRIAL WASTE MANAGEMENT

The hazardous waste like ETP waste, used oil, discarded containers/bags/liners, Process waste containing organic complex will be generated from proposed project activity. The hazardous waste management and disposal is shown in Annexure-IX.

6.8 SOLID WASTE MANAGEMENT

The record of non-hazardous solid waste like, Fibber board drum, Polyethylene bag, Rubber Hose pipe, glass, wooden waste etc. will be mentioned.

6.9 POWER REQUIREMENT & SUPPLY

At present, the unit has 125 KVA connected load. As per CCA, and additional 250 KVA connected load for proposed expansion.

7.0 REHABILITATION AND RESETTLEMENT(R &R) PLAN

The proposed project is located in Vapi Industrial Estate, Tal. Pardi, Dist.: Valsad and the project is. There will be no any human settlement affected by proposed project. So, there is no requirement of any R & R Plan.

8.0 PROJECT SCHEDULE & COST ESTIMATES

8.1 PROJECT IMPLEMENTATION SCHEDULE

TABLE 15:

PROJECT IMPLEMENTATION SCHEDULE

Project implementation schedule after getting NOC from GPCB		
Sr. No.	**Activity**	**Required Period**
1.	Civil work	Immediately after getting NOC
2.	Procurement of machinery	1 month after getting NOC
3.	Eraction& installation of machinery	Immediately after competition of activity no.2
4.	Trial of machinery & equipments	Within 1 months after competition of activity no.3
5.	Commercial activity	1 months after competition of activity no.4

8.2 ESTIMATED PROJECT COST

Details for estimated project cost is covered in table no 6.

9.0 ANALYSIS OF PROPOSAL

All the manpower is utilized from local region around Vapi. Company shall also try to provide indirect employment opportunities by availing local contract services during transportation during operational phase. The company intends to donate 5% of the profit to agencies like social welfare societies for projects carried out in nearby village for their welfare and upliftment.