M/s. AARTI INDUSTRIES LIMITED
(ANUSHAKTI DIVISION)

Pre-feasibility Report for Proposed Expansion of Synthetic Organic Chemical Industry at Plot No. 1430/1, NH No. 8A, Taluka Bhachau, District Kachchh, State Gujarat

APRIL 2022

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M/S. AARTI INDUSTRIES LIMITED (ANUSHAKTI DIVISION)

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QUALITY CONTROL							
Name of Publication	Pre-feasibility Report for Proposed Expansion of Synthetic Organic Chemical Industry at Plot No. 1430/1, NH No. 8A, Taluka Bhachau, District Kachchh, State Gujarat						
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DISCLAIMER							
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Description of images on the front page:

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2. Storage Yard
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1 EXECUTIVE SUMMARY

Introduction

Aarti Industries Limited ('AIL') is a leading Indian manufacturer of Speciality Chemicals and Pharmaceuticals with a global footprint. Chemicals manufactured by Aarti are used in the downstream manufacture of pharmaceuticals, polymers, additives, surfactants, pigments, dyes, etc.

Aarti Industries has 16 manufacturing units, mostly located in close proximity to the large ports of western India. Aarti's Head Office is located in the largest city of the region, and India's commercial capital, Mumbai.

Aarti Industries Limited (Anushakti Division) is proposing to expand its manufacturing facility located at Plot No. 1430/1, N.H No. 8A, Bhachau, District Kachchh.

Production capacity of existing and after expansion

The production group capacity of existing and after expansion is given in ***Table 1-1***. Details of products name with CAS numbers are given in subsequent chapters.

Table 1-1: Existing and After Expansion – Production Capacity

Sr. No.	Name of Product	Production Quantity			CAS No.	Category
		Existing as per CCA, MT/Year	Proposed, MT/Year	Total After Proposed EC, MT/Year		
A	**Co-generation Power plant**	**4 MW**	**4 MW**	**4 MW x 2**	**-**	**1(d)**
B	**Chlorination of Benzene, Toluene (Other derivatives)**	**43200**	**+28000**	**71200**		**5(f)**
1	Mono Chloro Benzene and/or Crude Mono Chloro Benzene (MCB)	36000	+28000	64000	108-90-7	**5(f)**
2	Ortho/Meta/Para Di Chloro Benzene and/or Crude Di Chloro Benzene and/or Crude Tri chloro benzene				95-50-1 / 541-73-1/ 106-46-7	**5(f)**
3	1 2 4 Tri Chloro Benzene and/1 2 3 Tri Chloro Benzene /Crude Tri Chloro Benzene	3600	0	3600	120-82-1/ 87-61-6	**5(f)**
4	Di Chloro Toluene Mixture and/or Crude DCT	1200	0	1200	118-69-4	
5	Ortho/Meta/Para Chloro Toluene and/or Crude Ortho/Meta/Para Chloro Toluene	1200	0	1200	95-49-8/ 108-41-8/ 106-43-4	
6	Di Chloro Para Nitro Aniline and/or Crude Di Chloro Para Nitro Aniline	1200	0	1200	121-86-8	
C	**Mono Nitro Derivatives (Other derivatives)**	**24000**	**+10000**	**34000**		

Sr. No.	Name of Product	Production Quantity			CAS No.	Category
		Existing as per CCA, MT/Year	Proposed, MT/Year	Total After Proposed EC, MT/Year		
7	Nitrobenzene and/or Crude Nitrobenzene	6000	0	24000	98-95-3	
8	Ortho/Meta/Para-Nitro Chloro Benzene and/or Crude Ortho/Meta/Para-Nitro Chloro Benzene				88-73-3/ 121-73-3/ 100-00-5	
9	Nitro Toluene Mixture (MNT/PNT/ONT)				88-72-2	
10	Nitro Xylene mixture				83-41-0	
11	Nitro Cumene mixture				6526-72-3	
12	2 5 Di Chloro nitro benzene and/or Crude 2 5 Di Chloro nitro benzene	18000	0		89-61-2	
13	3 4 Di Chloro nitro benzene and/or Crude 3 4 Di Chloro nitro benzene				99-54-7	
14	2 6 Di Chloro nitro benzene and/or Crude 2 6 Di Chloro nitro benzene				601-88-7	
15	2 4 Di Chloro nitro benzene and/or Crude 2 4 Di Chloro nitro benzene				611-06-3	
16	2 4 5 Tri Chloro nitro benzene and/or Crude 2 4 5 Tri Chloro nitro benzene/234 Tri Chloro nitro benzene and/or Crude 234 Tri Chloro nitro benzene				89-69-0/ 17700-09-03	

Sr. No.	Name of Product	Production Quantity			CAS No.	Category
		Existing as per CCA, MT/Year	Proposed, MT/Year	Total After Proposed EC, MT/Year		
17	4-nitro-N-methyl phthalimide and/or Crude 4-nitro-N-methyl phthalimide	0	+10000	10000		
18	2,4-dichloro-3- fluoro nitro benzene /3,5-dichloro-4-fluoro nitro benzene and/or Crude 2,4-dichloro-3- fluoro nitro benzene/Crude 3,5-dichloro-4- fluoro nitro benzene				393-79-3/ 3107-19-5	
19	3-nitro benzotrifluoride (MNBTF) and/or Crude 3-nitro benzotrifluoride (MNBTF)				121-17-5	
20	3-nitro-4-chloro benzotrifluoride (CNBTF) and/or Crude 3-nitro-4-chloro benzotrifluoride (CNBTF)				121-17-5	
21	3,5-dinitro-4-chloro benzotrifluoride (CDNBTF) and/or Crude 3,5-dinitro-4-chloro benzotrifluoride (CDNBTF)				393-75-9	
22	1-(3-nitrophenyl) ethanone (3-NAP) and/or Crude 1-(3-nitrophenyl) ethanone (3-NAP)				121-89-1	

Sr. No.	Name of Product	Production Quantity			CAS No.	Category
		Existing as per CCA, MT/Year	Proposed, MT/Year	Total After Proposed EC, MT/Year		
23	2,4-dichloro-3,5-dinitro benzotrifluoride (DCDNBTF) and/or Crude 2,4-dichloro-3,5-dinitro benzotrifluoride (DCDNBTF)				29091-09-6	
24	2,4-Dichloro-5-fluoronitrobenzene or Crude 2,4-Dichloro-5-fluoronitrobenzene				2105-59-1	
25	2-Chloro-5-nitro-benzonitrile and/or Crude 2-Chloro-5-nitro-benzonitrile				873-32-5	
26	2,6-dichloro-3,5-difluoronitrobenzene				1977-85-1	
27	2-chloro-4-fluoro-5-nitrobenzoic acid				114776-15-7	
D	**Dinitro Derivatives (Other derivatives)**	**12000**	**0**	**12000**		
28	Di nitro benzene and/or Crude Di nitro benzene	12000	0	12000	99-65-0	
29	Di nitro Chloro benzene and/or Crude Di nitro Chloro benzene				611-06-3	
E	**Mix Nitro Derivatives (Other derivatives)**	**12000**	**0**	**12000**		
30	Mixture of Nitro Chloro Benzene and/or Crude Nitro Chloro Benzene	12000	0	12000	88-73-3	

Sr. No.	Name of Product	Production Quantity			CAS No.	Category
		Existing as per CCA, MT/Year	Proposed, MT/Year	Total After Proposed EC, MT/Year		
31	Mixture of Di Chloro Nitro Benzene and/or Crude Di Chloro Nitro Benzene				611-06-3	
32	Mixture of Nitro Toluene and/or Crude Nitro Toluene				99-99-0	
F	**Hydrogenated/Reduction (Other derivatives)**	**84000**	**+72000**	**156000**		
33	Aniline and/or Crude Aniline	2400	2400	4800	62-53-3	
34	Monomethyl Aniline and/or Crude Monomethyl Aniline	78000	+66000	144000	100-61-8	
35	Dimethyl Aniline and/or Crude Dimethyl Aniline	3600	3600	7200	121-69-7	
G	**Phthalate Derivatives (Other derivatives)**	**24000**	**+36000**	**60000**		
36	Di Methyl Phthalate (DMP) and/or Crude Crude Di Methyl Phthalate (DMP)	**24000**	**+36000**	**60000**	131-11-3	
37	Di Iso Nonyl Phthalate (DINP) and/or Crude Di Iso Nonyl Phthalate (DINP)				68515-48-0	
38	Di Iso Decyl Phthalate (DIDP) and/or Crude Di Iso Decyl Phthalate (DIDP)				26761-40-0	
39	Di Methyl Adipate (DMA)				627-93-0	
40	Di Octyl Adipate (DOA)				103-23-1	
41	Di Octyl Phthalate (DOP)				117-81-7	
42	Dibasic ester				106-65-0	

Sr. No.	Name of Product	Production Quantity			CAS No.	Category
		Existing as per CCA, MT/Year	Proposed, MT/Year	Total After Proposed EC, MT/Year		
43	Dioctyl Terephthalate				6422-86-2	
44	Dicyclohexyl phthalate				84-61-7	
45	Di isononyl Adipate				33703-08-1	
46	Calcium Chloride (Solid)	36000	23520	59520	10043-52-4	
Total (MT/year)		**2,35,200**	**1,69,520**	**4,04,720**		
	By-Product					
47	Calcium Chloride solution (MT/Year)	**8,400**	**1,61,657**	**1,70,057**		

Plant Location and Surrounding Environment

The plant is located at plot no. 1430/1, village Bhachau, Taluka Bhachau, District Kachchh in the state of Gujarat. The site is located close to NH No. 8A and is about 2 km from Bhachau City which is also connected through SH no. 42 at approx. 3.9 km in NNE direction. Bhachau railway junction is located at approx. 4.4 Km in NNE direction whereas Gandhidham railway junction is located at approx. 28.8 Km in SW direction.

Project Land

Total plot area is 94898.77 m^2. Out of total land area, approx. 12609.86 m^2 (~13.29%) is developed as Greenbelt. In addition to this, 20,133 m^2 (~21.21%) area will be developed as Greenbelt area located at approx. 200 m from project site boundary in NorthEast direction. Also about 10117.1 m^2 (10.66%) will be developed as greenbelt along the median and island region of Samakhiali Gandhidham highway (NH-41) considering 2500 saplings will be planted and maintained. Hence, the total greenbelt area will be (12609.86 m^2 + 20,133 m^2 + 10117.1 m^2) 42859.96 m^2 which will be approximately 45.16 % of total plot area.

Expansion Plan

M/s. Aarti Industries Limited (Anushakti Division) has proposed for expansion in manufacturing of Synthetic organic chemicals Industry- 5(f) (dyes & dye intermediates; bulk drugs and intermediates excluding drug formulations; synthetic rubbers; basic organic chemicals, other synthetic organic chemicals and chemical intermediates) which will be supplied to global multinational company for their growing demand for a supply term of 20 years. Global Customer had evaluated many suppliers across different countries and has finally decided to partner with Aarti Industries Limited based on Aarti's strong HSE and Operational practices. The existing cost is 55.81 Crore and the cost of the proposed expansion will be INR 73.45 Crore. The total cost after proposed expansion will be INR 129.26 Crore.

Employment Generation

During proposed Construction total workers: 150 nos.

During Operation phase the existing total employment is given to 926 nos. in which 426 nos. are permanent and 500 nos. are contractual.

After proposed expansion total employment will be 1176 nos. in which 526 nos. will be permanent and 650 nos. will be contractual.

Power and fuel requirement

During Operation Phase:

Source of Supply - In-house co-generation power plant (4 MW x 2) and Paschim Gujarat Vij Company Ltd (PGVCL).

Existing power requirement – 3 MW

Proposed power requirement - 7 MW

Total after proposed expansion, power requirement – 10 MW

Although, 8MW will be taken from an in-house co-generation power plant. Additional 2 MW will be taken from Paschim Gujarat Vij Company Limited (PGVCL).

In case of emergency, power will be sourced from Grid of Paschim Gujarat Vij Company Limited (PGVCL).

2 DG sets of 2000 KVA (Each) and 2 DG sets of 1000 KVA (Each) will be used during emergencies.

Fuel Type & Consumption:

Existing: Coal – 296.8 MT/day; Diesel - 650 litres/hr

Proposed: Coal/ Coal + Biomass – 442.6 MT/day; LSHS- 6.25 MT/day; Diesel- 1300 litres/hr for DG set & 0.15 MT/day for 0.5 Lack Kcal/hr TFH;

Total after expansion: Coal/ Coal + Biomass- 739.4 MT/day; LSHS- 6.25 MT/day; Diesel- 1950 litres/hr for DG set & 0.15 MT/day for 0.5 Lack Kcal/hr TFH;

Water requirement

Water is supplied by Gujarat Water Infrastructure Limited (GWIL). The same source will be utilized for proposed water demand.

Total Water Consumption:

Existing: 1075 KLD [949 KLD (Fresh)+126 KLD (Recycled)];

Proposed: 3119 KLD [1954 KLD (Fresh) +1165 KLD (Recycled)];

After proposed expansion: 4194 KLD [2903 KLD (Fresh) +1291 KLD (Recycled)]

Existing water supply permission letter of 1000 KLD from GWIL is as ***Figure 9-5*** attached in ***Annexure 6***. An assurance letter for total 3000 KLD water supply for proposed requirement also attached under ***Figure 9-6*** in ***Annexure 6***.

Waste water generation

Wastewater generation:
Existing: 159.01 KLD; Proposed: 1049.99 KLD; Total: 1209 KLD
There is ZLD facility as described below;
1. 68 KLD domestic effluent will be treated in STP
2. 447 KLD of process effluent will be segregated in 2 streams.
    a) 328 KLD effluent treated in MEE/ATFD
    b) 119 KLD treated in ETP followed by RO & MEE

3. 20 KLD effluent from Washing and 6 KLD effluent from scrubber will be treated MEE/ATFD.
4. 668 KLD effluent generated from Utilities will be treated in RO followed by MEE/ATFD.

Pollution Generation and Mitigation Measures

Air Emissions and Mitigation Measures

Point source

Likely air pollutants from existing as well as proposed flue gas stacks will be PM, SO_2, NOx, etc. PM, NO_X, HCl, Cl_2, VOC are expected emissions from process stacks

For control of flue gas emissions, ESP, Dry scrubbers (Lime dosing along with coal), Selective Catalytic Reduction (SCR) are installed as air pollution control systems. In addition to these, Multi cyclone with dust collector, Bag filters with dry scrubber will be provided. Process emission are controlled with the APC Systems like two stages water scrubbers, alkali scrubber, Chlorine shed scrubber, caustic scrubber, etc.

Line Source

There will be increase of 10-12 trucks after proposed expansion

Effluent Treatment Plant

Total effluent generation from proposed expansion will be 1209 KLD.

A total of 447 KLD of effluent will be generated during the process. Out of 447 KLD, the effluent will be segregated based on its characteristics

1. Stream 1 (328KLD): Effluent from stream 1 will undergo treatment in MEE/ATFD. Condensate from MEE will be recycled back and salt will be send to landfill site

2. Stream 2 (119 KLD): Effluent from stream 2 will undergo treatment in ETP followed by RO & MEE/ATFD. RO permeate and MEE condensate recycled back and salt will be send to landfill site

20 KLD effluent from Washing and 6 KLD effluent from scrubber will be treated in MEE/ATFD.

668 KLD effluent generated from Utilities will be treated in RO followed by MEE/ATFD, RO permeate and MEE condensate recycled back and salt will be send to landfill site.

Solid & Hazardous Waste Generation & Management

ETP Sludge, MEE/ATFD Salt, Sludge from Calcium Chloride Plant, spent carbon, spent resin and, RO membrane, Non-recyclable plastic waste & PPE's and Ceramic saddles etc. will be properly collected, Stored, Transported and Disposed to Common TSDF site. Process waste (organic layer from after HCL purification, from flash vessel, Storage tank contaminated residue during tank cleaning), Non-specified products and process residue will be collected, Stored, Transported and Disposed to Common Incineration site or pre/co-processing. Discarded Containers, Barrels, Drums from Packaging Material & used/spent oil, spent catalyst will be sold to recycler / re-processors. HCl reuse in manufacturing of $CaCl_2$ in-house or Will be sold to market as per Rule 9 of Hazardous and Other wastes (Management & Transboundary Movement) Rules 2016 & Sulphuric Acid & Sodium Hypochlorite (NaOCl) will be sold to market as per Rule 9 of Hazardous and Other wastes (Management & Transboundary Movement) Rules 2016. Other solid wastes will be collected, stored, and disposed as per their respective Rules, 2016.

Project Benefits

The project will improve the socio-economic status of the society in the region by generating direct and indirect employment opportunities. The project will contribute additional revenue to the State & Country in the form of taxes, cess etc. The existing cost is 55.81 Crore and the cost of the proposed expansion will be INR 73.45 Crore. Total cost after expansion will be 129.26 Cr.

Submission

In the light of the above, we would like to state that the proposed expansion would have in place systems, procedures and hardware to ensure that all guidelines for protecting the environmental emission norms are followed and its operation has no adverse impact on the environment.

2 INTRODUCTION

2.1 Identification of project and project proponent

Aarti Industries Limited ('AIL') is a leading Indian manufacturer of Speciality Chemicals and Pharmaceuticals with a global footprint. Chemicals manufactured by Aarti are used in the downstream manufacture of pharmaceuticals, polymers, additives, surfactants, pigments, dyes, etc.

Aarti Industries has 16 manufacturing units, mostly located in close proximity to the large ports of western India. Aarti's Head Office is located in the largest city of the region, and India's commercial capital, Mumbai.

SITES: Vapi, Tarapur, Jhagadia, Dahej, **Bhachau**

HEAD OFFICE: Mumbai

Over the past 3 decades, Aarti Industries Limited has emerged as a partner of choice for over 150 global and 500 local customers across the Chemicals Industry. Among these are market leaders in agrochemicals, pharmaceuticals, polymers, home and personal care products, pigments, and other chemicals industries.

AIL is proposing to expand in manufacturing facility located at Plot No. 1430/1, N.H No. 8A, Bhachau, District Kachchh

2.2 Brief description of nature of the project

M/s. Aarti Industries Limited (Anushakti Division) has proposed for expansion in manufacturing of Synthetic organic chemicals Industry 5(f) (Dyes & Dye Intermediates, Bulk Drugs and intermediates excluding drug formulation, synthetic rubbers, basic organic chemicals, other synthetic organic chemicals and chemical intermediates) located at Plot No. 1430/1, N.H No. 8A, Bhachau -370140, Dist : Kachchh. Total existing Production Capacity is 2,35,200 TPA and Proposed production capacity will be 1,69,520 TPA. After proposed expansion, total production capacity will be 4,04,720 TPA. The existing cost is 55.81 Crore and the cost of the proposed expansion will be INR 73.45 Crore. Total cost after expansion will be 129.26 Cr.

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

M/s. Aarti Industries Limited (Anushakti Division) has proposed for expansion in manufacturing of Synthetic organic chemicals - (Dyes & Dye Intermediates, Bulk Drugs and intermediates excluding drug formulation, synthetic rubbers, basic organic chemicals, other synthetic organic chemicals and chemical intermediates) at located at Plot No. 1430/1, N.H No. 8A, Bhachau -370140, Dist.: Kachchh. The product will be supplied to global multinational companies for their growing demand for a supply term of 20 years. Global Customer has evaluated many suppliers across different countries and has finally decided to partner with Aarti Industries Limited based on Aarti's strong HSE and Operational practices. This is the first step in building a long term relationship with a Global customer which will set a base for future long term projects. Any investment decision is done based on techno economic viability of the project. The project has to be technically feasible and financially viable in nature. They have a range of products from various units and catering to the needs of industries. The quality of their product is the edge in the international market.

2.4 Demand-Supply Gap

Need for the proposed project is based on the demand and supply gap in the current market. With increasing utilization of the current products, in future, to cater the requirement of all the products, it is essential to have the proposed manufacturing unit.

2.5 Import vs. Indigenous Production

Need for the proposed project is based on the demand and supply gap in the current market. With increasing utilization of the current products, in future, to cater the requirement of all the products, it is essential to have the proposed manufacturing unit.

2.6 Domestic / Export Markets

Considering the demand for specialty chemicals for the domestic and international market the production capacity is being increased.

2.7 Export Possibility

Company may export the products as per requirements. The product will be supplied to global multinational company for their growing demand for a supply term of 20 years.

2.8 Employment Generation (Direct and Indirect) due to the project.

The existing direct employment to 426 nos. whereas indirect job opportunities are given to approx. 500 nos.

After expansion, the additional permanent employment will be given to 100 nos. and additional contract employment will be given to 150 nos. Thus, total permanent employment will be 526 and contract will be 650 nos. The details are as ***Table 2-1***.

Table 2-1: Employment Generation

Particular	Permanent (Nos.)	Contractor(Nos.)	Total (Nos.)
Existing	426	500	**926**
Additional	100	150	**250**
Total after expansion	**526**	**650**	**1176**

3 PROJECT DESCRIPTION

3.1 Type of Project including interlinked and interdependent projects, if any.

The proposed project is Expansion in Synthetic Organic Chemicals Industry (dyes & dye intermediates; bulk drugs and intermediates excluding drug formulations; synthetic rubbers; basic organic chemicals, other synthetic organic chemicals and chemical intermediates) that is covered under Category – 5 (f). As the project is not located within Notified Industrial Area it will be considered as "A" category project as per new EIA notification vide gazette no. S.O. 1533 dated 14th September 2006.

3.2 Location (map showing general location, specific location and project boundary & project lay out) with coordinates.

The project facility is located at plot no. 1430/1, village Bhachau, Taluka Bhachau, District Kachchh in the state of Gujarat. The General location of the project is shown in ***Map 3-1.*** The coordinates for the project site boundary is given in ***Map 3-2***. ***Map 3-4*** shows location of plant and 10 km study area on open series map (OSM).

Map 3-5 shows the study area of 10 Km radius around the project site on Google Earth downloaded image.

Photograph 3-1 shows project site existing condition.

Photograph 3-1: Project Site & Plant Facilities

Main Entry Gate

Tank Farm area

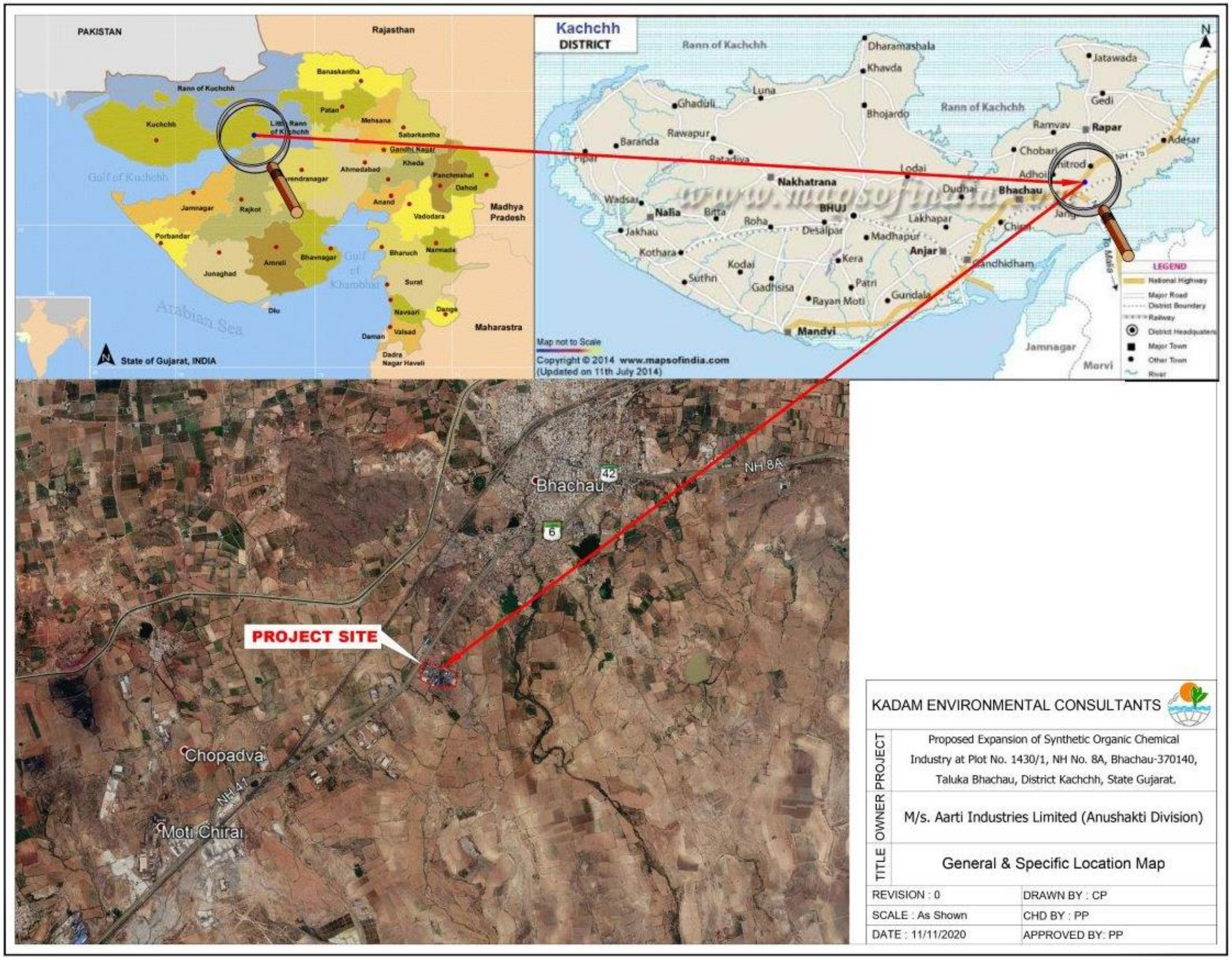
Captive Power Plant- ESP and Stack

Effluent Treatment Plant (ETP)

MCB Plant

Multiple Effective Evaporator (MEE)

Map 3-1: Project General Location Map



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PROJECT	Proposed Expansion of Synthetic Organic Chemical Industry at Plot No. 1430/1, NH No. 8A, Bhachau-370140, Taluka Bhachau, District Kachchh, State Gujarat.
OWNER	M/s. Aarti Industries Limited (Anushakti Division)
TITLE	General & Specific Location Map
REVISION : 0	DRAWN BY : CP
SCALE : As Shown	CHD BY : PP
DATE : 11/11/2020	APPROVED BY: PP

Map 3-2: Project Site boundary Coordinates

No	Latitude	Longitude
1	23°16'19.25"N	70°19'30.19"E
2	23°16'18.27"N	70°19'31.35"E
3	23°16'18.38"N	70°19'31.42"E
4	23°16'18.14"N	70°19'31.76"E
5	23°16'18.41"N	70°19'31.96"E
6	23°16'16.35"N	70°19'36.60"E
7	23°16'16.54"N	70°19'38.50"E
8	23°16'14.82"N	70°19'43.33"E
9	23°16'12.90"N	70°19'43.84"E
10	23°16'11.66"N	70°19'44.43"E
11	23°16'8.30"N	70°19'43.76"E
12	23°16'8.60"N	70°19'42.19"E
13	23°16'8.30"N	70°19'40.24"E
14	23°16'8.31"N	70°19'38.52"E
15	23°16'8.72"N	70°19'36.39"E
16	23°16'8.25"N	70°19'33.43"E
17	23°16'8.55"N	70°19'32.45"E
18	23°16'9.65"N	70°19'31.03"E
19	23°16'11.03"N	70°19'28.05"E
20	23°16'12.61"N	70°19'28.08"E
21	23°16'15.03"N	70°19'27.28"E
22	23°16'16.33"N	70°19'27.70"E
23	23°16'16.01"N	70°19'28.17"E
24	23°16'16.31"N	70°19'28.57"E
25	23°16'16.52"N	70°19'28.31"E
26	23°16'16.88"N	70°19'28.54"E
27	23°16'17.08"N	70°19'28.17"E

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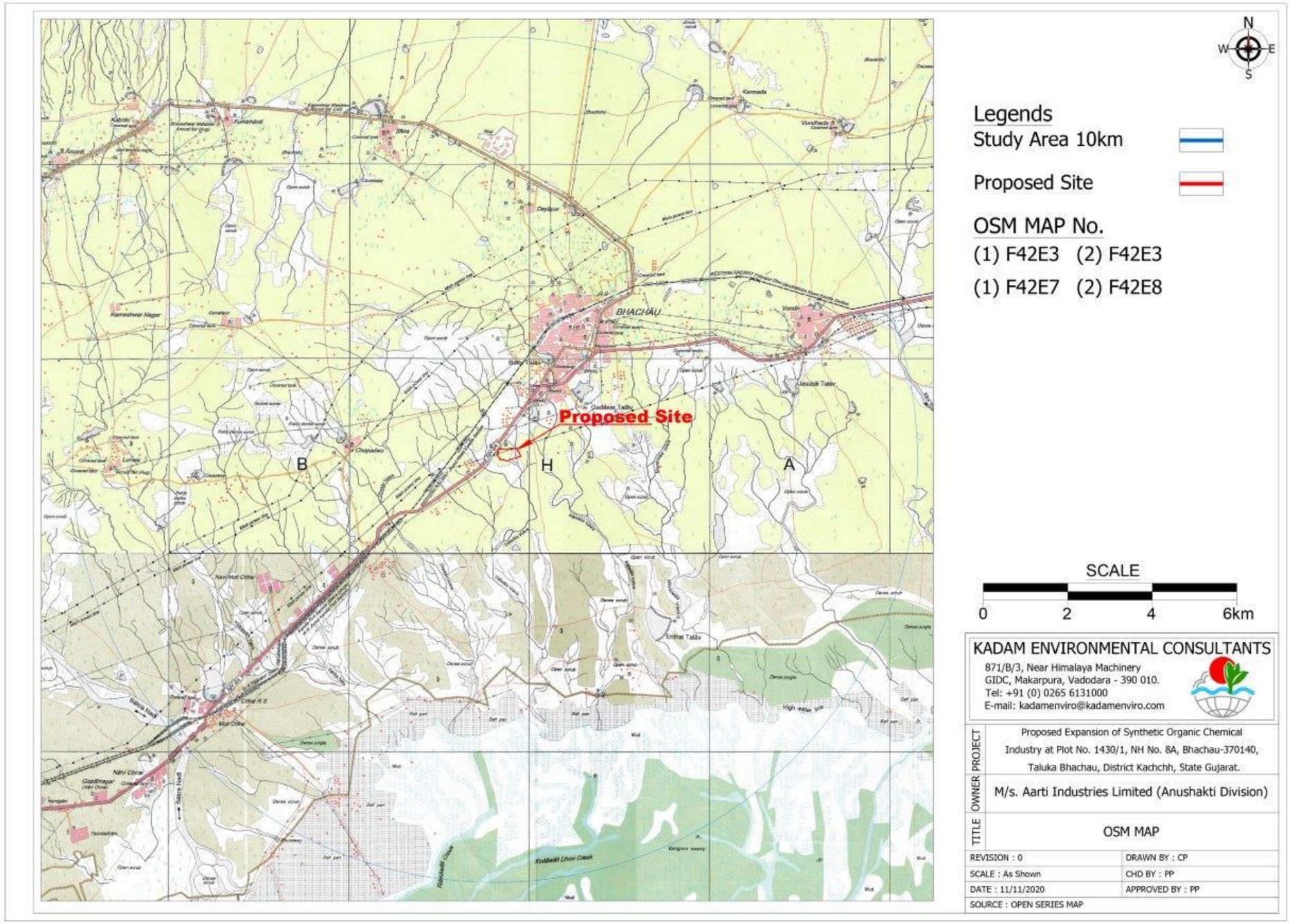
PROJECT	Proposed Expansion of Synthetic Organic Chemical Industry at Plot No. 1430/1, NH No. 8A, Bhachau-370140, Taluka Bhachau, District Kachchh, State Gujarat.
OWNER	M/s. Aarti Industries Limited (Anushakti Division)
TITLE	PROJECT BOUNDARY MAP

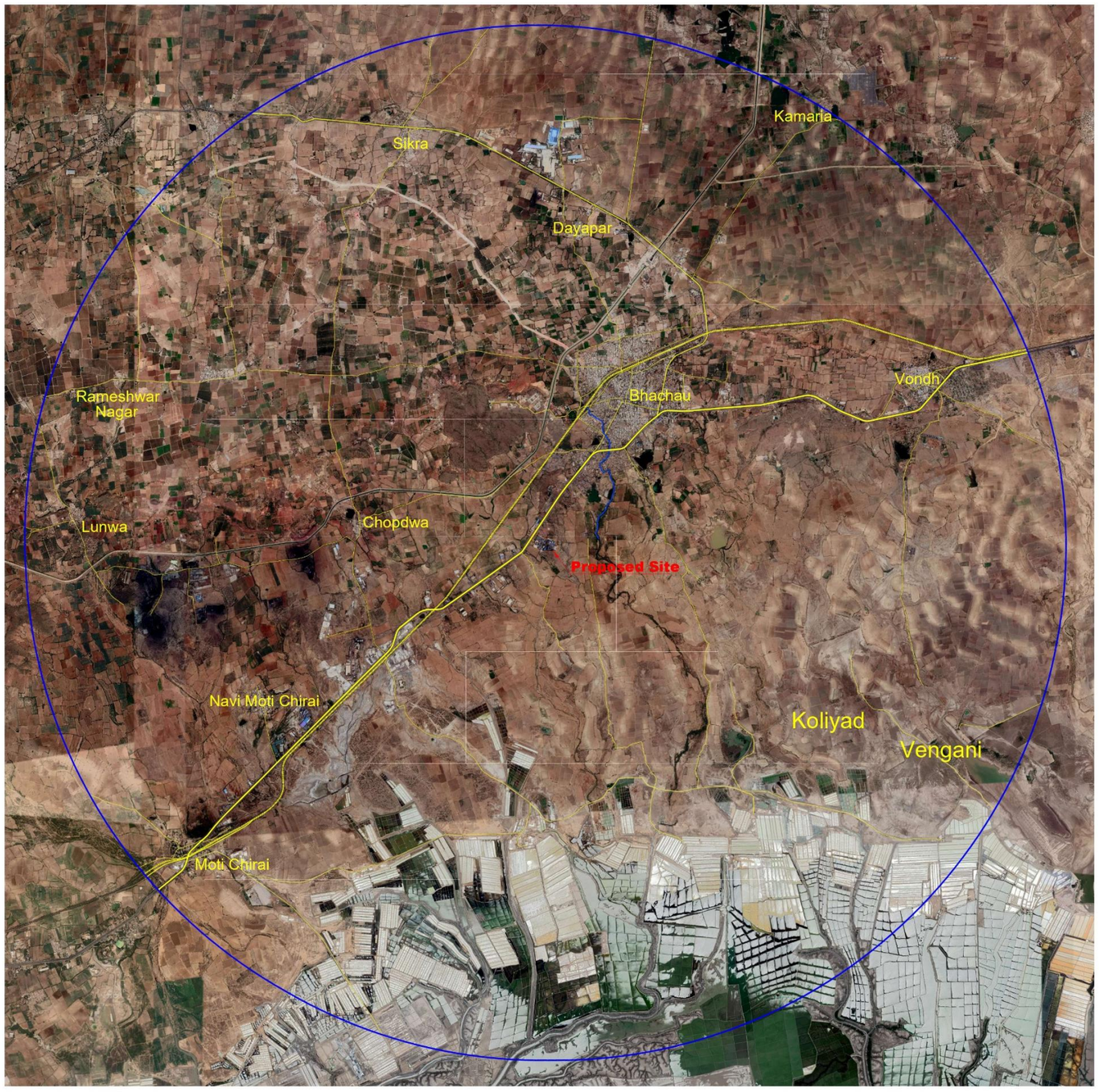
REVISION : 0	DRAWN BY : CP
SCALE : As Shown	CHD BY : PP
DATE : 11/11/2020	APPROVED BY : PP

Map 3-3: Tree plantation proposed on NH-41 at road side and at median

Map 3-4: Project Location on Open Series Map (OSM)



Map 3-5: Project site and Study Area of 10 Km radius on Google Earth Downloaded Images



N
W E
S

LEGEND

Name	Symbol / Colour
Study Area	
Project Boundary	
Road	
Railway	

SCALE

0 2 4 6Km

KADAM ENVIRONMENTAL CONSULTANTS
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PROJECT	Proposed Expantion of Synthetic Organic Chemical Industry at Plot No. 1430/1, NH No. 8A, Bhachau-370140 Taluka Bhachau, District Kachchh, State Gujarat.
OWNER	M/s. Aarti Industries Limited (Anushakti Divison)
TITLE	Study Map

REVISION : 0	DRAWN BY : CP	
SCALE : As Shown	CHD BY : PP	
DATE : 11/11/2020	APPROVED BY : PP	

SOURCE : Enhance Version Google Earth Pro 2020

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

Since the proposed project is for production capacity expansion within the existing plant facility, therefore an alternate site option is not explored.

3.4 Size or Magnitude of Operation

The production capacity of existing & after proposed expansion are given in ***Table 1-1 of Executive Summary*** and also presented in ***Table 9-1 & Table 9-2*** of ***Annexure 1***.

3.5 Project description with process details (a schematic Diagram / flow chart showing project layout, components of the project etc. should be given)

Process description along with flow diagram, material balance and chemical reaction are as follows:

A. Co-Generation Power Plant

M/s. Aarti Industries Limited (Anushakti Division) has Boiler based co-generation power plant at site to meet the power and process steam requirement for their process plant located at Bhachau.

The power generated in the Co-Generation power plant will be used for the in-house Power requirements.

Cost benefit analysis sheet also has been carried out in order to take final decision on the cycle parameters of 67 ATA or 88 ATA steam parameters. The Boiler plant equipment shall be designed taking into consideration all possible operating conditions and assuring a continuous, stable and reliable operation for 8500 hrs. In the year. Safety and reliability shall be the two paramount considerations in the design of the power plant equipment.

BASIC CONSIDERATIONS/ASSUMPTIONS

- Boiler Capacity-36 TPH x 2
- Boiler Pressure Temp Cycle: 67 Ata/ 485 ± 5 Deg C
- Fuel for Boiler- Coal / Coal + Biomass
- Generation Voltage- 11 KV
- Present Power Tariff for Feasibility -8 Rs/KW
- Condensate Return: 50% @ 70 deg C
- Power generation output: 4.0 MW x 2

B. Chlorination of Benzene, Toluene

1. Mono Chloro Benzene and/or Crude MCB

Process Description

Mono Chlorobenzene plant is continuous plant. Benzene and Chlorine continuously feed in reactor from bottom. From overflow we are getting product Mono Chlorobenzene. During the reaction we are getting Hydrochloric Acid vapor. This vapor is passed through the water to produce 30% Hydrochloric Acid. MCB and unreacted benzene are separated in distillation column, where recovered benzene is feedback in reactor. Un-absorbed HCl passed through the alkali scrubber to prevent air pollution. Effluent water generated through Scrubber will be sent to ETP.

Chemical Reaction

C_6H_6 + Cl_2 ---> C_6H_5Cl + HCl

(Benzene) + (Chlorine) ---> (MCB)+ Hydrochloric Acid

Figure 3-1: Process Block Diagram of Mono Chloro Benzene and/or Crude MCB

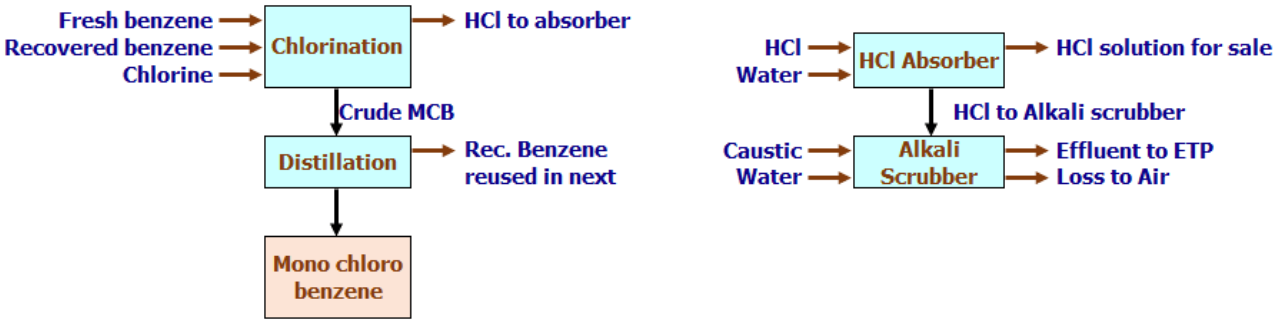


Table 3-1: Material Balance of Mono Chloro Benzene and/or Crude MCB

S. No	Input /MT of Product	
	Raw Material	**Quantity (MT/MT)**
1	Fresh Benzene	0.693
2	Recovered Benzene	1.040
3	Chlorine	0.631
4	Water for HCl Absorber	0.755
5	Caustic for Alkali Scrubber	0.001
6	Water Alkali Scrubber	0.010
Total		**3.130**

S. No	Output / MT of Product					Remark
	Product	**Liquid Effluent**	**Air emission**	**Recovery/ Product**	**Solid Waste**	
1	Mono Chloro Benzene and/or Crude MCB			1.0		Product
2	Recovered Benzene			1.040		Reused in the next batch
3	HCl Solution	1.078				For Sale
4	Effluent	0.012				To ETP for treatment
5	Loss		0.000001			Loss
Total		**1.090**	**0.000001**	**2.040**	**0.000**	
		3.130				

2. Ortho/Meta/Para Di Chloro Benzene and/or Crude DCB (ODCB, PDCB, MDCB)

Chlorination takes place in Reactor in presence of $FeCl_3$ (catalyst) where benzene & chlorine is continuously fed as per predetermined rates to get required quality/quantity of the product.

From chlorinator product goes to the crude tank and from the top of the chlorinator benzene & HCl vapor passes through the condenser where benzene is separated and again fed to Chlorinator. The non-condensate vapor passes through the absorber and further goes to the tail gas tower. In absorber 30% HCl liquid is generated. Un-absorbed

HCl passed through the alkali scrubber to prevent air pollution. Effluent water generated through Scrubber would be sent to ETP.

Product from Reactor outlet goes to distillation section and crystallizer where Pure ODCB/PDCB/MDCB are obtained as products. Residue generated from distillation is sent for landfilling.

Chemical Reaction

C_6H_6	+	$2Cl_2$	$FeCl_3$ -------->	$C_6H_4Cl_2$	+	2 HCl		
Benzene		Chlorine	Ferric chloride	Ortho/Meta/Para Di Chloro Benzene (DCB)		Hydrochloric acid		

Figure 3-2: Process Block Diagram of ODCB, PDCB, MDCB

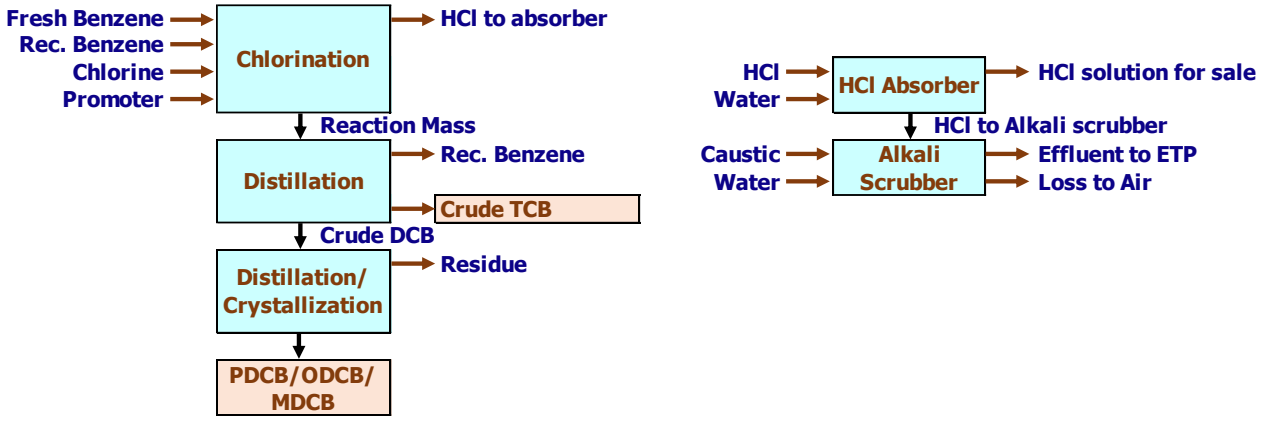


Table 3-2: Material Balance of Crude DCB or Crude TCB

S. No	Input /MT of Product	
	Raw Material	Quantity (MT/MT)
1	Fresh Benzene	0.528
2	Recovered Benzene	0.443
3	Chlorine	0.973
4	Promoter	0.000
5	Water for HCl Absorber	1.167
6	Caustic for HCl Scrubber	0.002
7	Water Alkali Scrubber	0.014
Total		3.126

S. No	Output / MT of Product					Remark
	Product	Liquid Effluent	Air emission	Recovery/ Product	Solid Waste	
1	PDCB/ODCB/MDCB			1.0		Product
2	Recovered Benzene			0.443		Reused in the next batch
3	HCl Solution	1.665				For Sale
4	Effluent	0.017				To ETP for treatment
5	Loss		0.000002			Loss
6	Residue				0.000	To TSDF/CHWIF for disposal

Total	**1.683**	**0.000**	**1.443**	**0.000**	
	3.126				

Table 3-3: Material Balance of ODCB, PDCB, MDCB

S. No	**Input /MT of Product**					
	Raw Material			**Quantity (MT/MT)**		
1	Crude DCB			1.001		
Total				**1.001**		
S. No	**Output / MT of Product**					**Remark**
	Product	**Liquid Effluent**	**Air emission**	**Recovery/ Product**	**Solid Waste**	
1	PDCB/ODCB/MDCB			1.0		Product
2	Residue				0.001	To TSDF/CHWIF for disposal
Total		**0**	**0**	**1.0**	**0.001**	
		1.001				

3. 1 2 4 Tri Chloro Benzene and/1 2 3 Tri Chloro Benzene /Crude TCB (1 2 4 TCB/1 2 3 TCB)

The chlorine in the gaseous form is reacted with Ortho/Para di chloro benzene in the chlorinator; Reaction is followed by Ortho/Para di chloro benzene recovery and separation of tri chloro benzene. The non-condensate vapor passes through the absorber and further goes to the tail gas tower. In absorber 30% HCl liquid is generated. Un-absorbed HCl passed through the alkali scrubber to prevent air pollution. Effluent water generated through scrubber would be sent to ETP. Residue generated from distillation is sent for landfilling.

Chemical Reaction

$C_6H_4Cl_2$ + Cl_2 -----> $C_6H_2Cl_3$ + HCl

(ODCB/PDCB) + (Chlorine) 1 2 4 TCB/1 2 3 TCB + Hydrochloric Acid

Figure 3-3: Process Block Diagram of 1 2 4 TCB/1 2 3 TCB

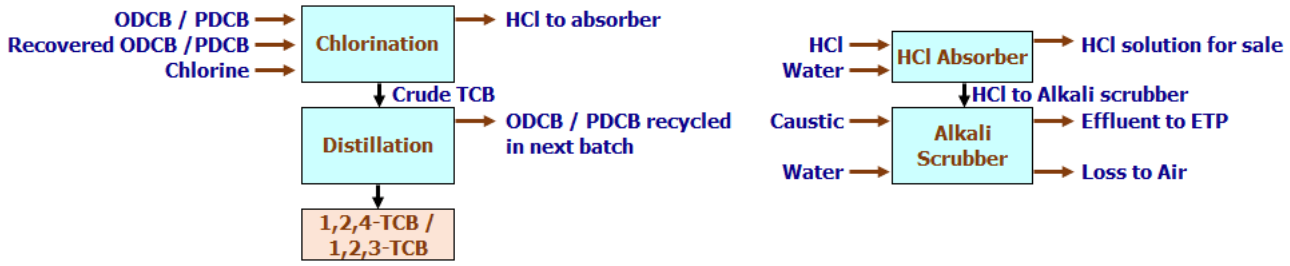


Table 3-4: Material Balance of Crude 1 2 4 TCB/1 2 3 TCB or Crude 1 2 4 TCB/1 2 3 TCB

S. No	**Input /MT of Product**	
	Raw Material	**Quantity (MT/MT)**
1	Ortho Di Chloro Benzene/Para di chloro Benzene	0.783
2	Recovered Ortho Di Chloro Benzene/Para Di Chloro Benzene	1.857
3	Chlorine	0.446
4	Water for HCl Absorber	0.534

5	Caustic for HCl Scrubber			0.001		
6	Water Alkali Scrubber			0.007		
Total				**3.628**		
S. No	**Output / MT of Product**					**Remark**
	Product	**Liquid Effluent**	**Air emission**	**Recovery/ Product**	**Solid Waste**	
1	1,2,4-tri chloro benzene/1,2,3-tri chloro benzene or Crude 1 2 4 TCB/1 2 3 TCB			1.0		Product
2	Recovered Ortho Dichlorobenzene / Para Dichlorobenzene			1.857		Reused in the next batch
3	HCl Solution	0.762				For Sale
4	Effluent	0.008				To ETP for treatment
5	Loss		0.000001			Loss
Total		**0.771**	**0.000001**	2.857	0.000	
		3.628				

4. Di Chloro Toluene Mixture and/or Crude DCT

Chlorination takes place in Reactor in presence of $FeCl_3$ (catalyst) where chloro toluene mixture & chlorine is continuously feed as per predetermined rates to get required quality/quantity of the product.
The vapor passes through the absorber and further goes to the alkali scrubber. In absorber 30% HCl liquid is generated. Un-absorbed HCl passed through the alkali scrubber to prevent air pollution. Effluent water generated would be sent to ETP.

Chemical Reaction

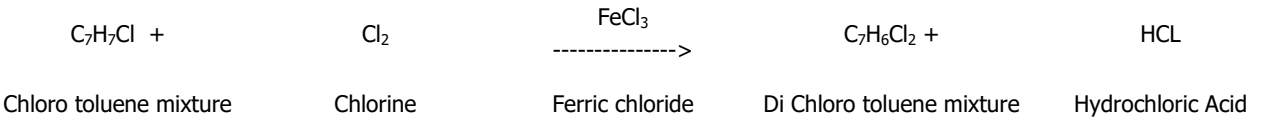


Figure 3-4: Process Block Diagram of DCT

Table 3-5: Material Balance of DCT / Crude DCT

S. No	**Input /MT of Product**	
	Raw Material	**Quantity (MT/MT)**
1	Chloro Toluene Mixture	0.807
2	Chlorine gas	0.569
3	Water for HCl Absorber	0.874
4	Caustic for HCl Scrubber	0.001
5	Water Alkali Scrubber	0.011
Total		**2.262**

S. No	Output / MT of Product					Remark
	Product	Liquid Effluent	Air emission	Recovery/ Product	Solid Waste	
1	Di Chloro toluene mixture or Crude DCT			1.0		Product
2	HCl Solution	1.249				For Sale
3	Effluent	0.014				To ETP for treatment
4	Loss		0.000001			Loss
Total		**1.262**	**0.000001**	**1.000**	**0.000**	
		2.262				

5. Ortho/Meta/Para Chloro Toluene and/or Crude Ortho/Meta/Para Chloro Toluene

Toluene and Chlorine continuously feed in reactor from bottom. From overflow we are getting product Chloro Toluene Mixture. During the reaction we are getting Hydrochloric Acid vapor. The vapor passes through the absorber and further goes to the alkali scrubber. In absorber 30% HCl liquid is generated. Un-absorbed HCl passed through the alkali scrubber to prevent air pollution. Effluent water generated would be sent to ETP.

Chemical Reaction

C_7H_8	+	Cl_2	------->	C_7H_7Cl	+	HCl
Toluene		Chlorine		Ortho/Meta/Para Chloro Toluene		Hydrochloric Acid

Figure 3-5: Process Block Diagram of Ortho/Meta/Para Chloro Toluene and/or Crude Ortho/Meta/Para Chloro Toluene

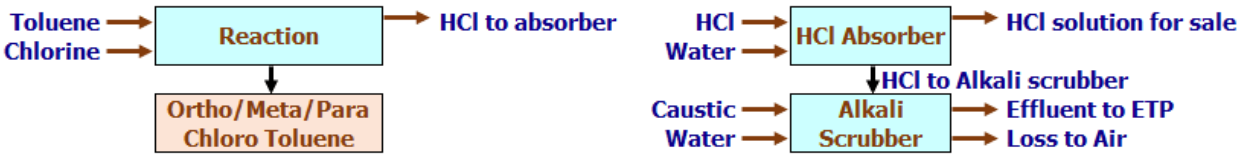


Table 3-6: Material Balance of Ortho/Meta/Para Chloro Toluene and/or Crude Ortho/Meta/Para Chloro Toluene

S. No	Input /MT of Product	
	Raw Material	Quantity (MT/MT)
1	Toluene	0.727
2	Chlorine	0.561
3	Water for HCl Absorber	0.670
4	Caustic for HCl Scrubber	0.001
5	Water Alkali Scrubber	0.010
Total		**1.969**

S. No	Output / MT of Product					Remark
	Product	Liquid Effluent	Air emission	Recovery/ Product	Solid Waste	
1	Ortho/Meta/Para Chloro Toluene and/or Crude			1.0		Product

	Ortho/Meta/Para Chloro Toluenee					
2	HCl Solution	0.958				For Sale
3	Effluent	0.011				To ETP for treatment
4	Loss		0.000001			Loss
Total		**0.969**	**0.000001**	**1.000**	**0.000**	
		1.969				

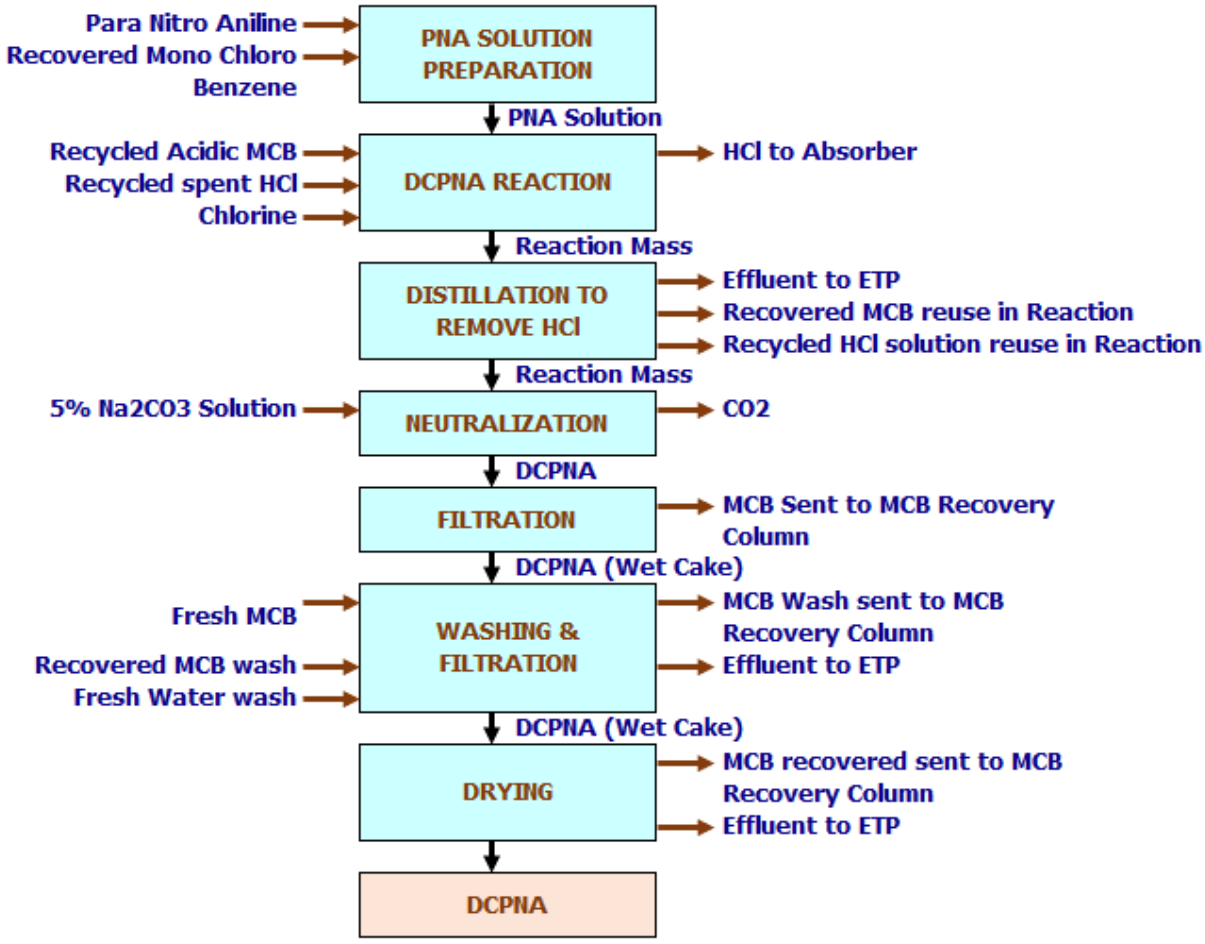
6. Di Chloro Para Nitro Aniline and/or Crude Di Chloro Para Nitro Aniline (DCPNA)

2, 6-Dichloroparanitroaniline (2,6-DCPNA) is synthesized by reacting Paranitroaniline (PNA) with free chlorine gas in MCB solvent with evolution of hydrochloric acid (HCl) gas. Crude is than neutralized, washed filtered and dried to get the Powdered 2, 6 DCPNA. The fumes generated is passed through HCl absorber where 30 % HCL liquid is generated. Un-absorbed HCl passed through the alkali scrubber to prevent air pollution. Effluent water generated would be sent to ETP. Residue generation during MCB recovery is sent for incineration.

Chemical Reaction

$C_6H_6N_2O_2$	+	$2Cl_2$	-------->	$C_6H_4Cl_2N_2O_2$	+	HCl
Para Nitro Aniline		Chlorine		Di-Chloro para nitro aniline		Hydrochloric acid

Figure 3-6: Process Block Diagram of DCPNA/Crude DCPNA



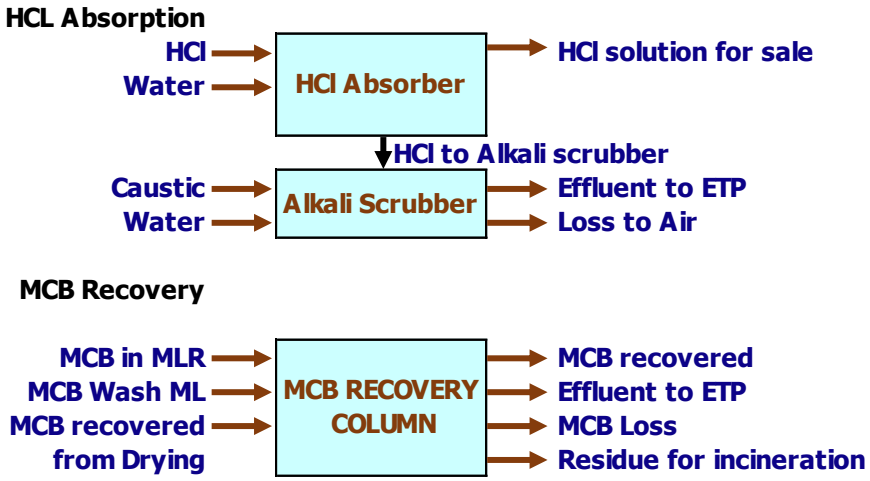


Table 3-7: Material Balance of Crude DCPNA

S. No	Input /MT of Product	
	Raw Material	**Quantity (MT/MT)**
1	Para Nitro Aniline	0.738
2	Recovered Mono Chloro Benzene	2.645
3	Recycled ACIDIC MCB	1.123
4	Recycled spent HCl	0.066
5	Chlorine	0.746
6	5% Na_2CO_3 Solution	0.606
7	Fresh MCB	0.09
8	Recovered MCB for Cake Washing	1.021
9	Water for Cake Washing	0.813
10	Water for HCl Absorber	0.973
11	Caustic for HCl Scrubber	0.002
12	Water Alkali Scrubber	0.014
Total		**8.837**

S. No	Output / MT of Product					Remark
	Product	**Liquid Effluent**	**Air emission**	**Recovery/ Product**	**Solid Waste**	
1	Crude DCPNA			1.0		Product
2	Recovered MCB			4.790		Reused in the next batch
3	Recycled HCl solution			0.066		Reused in the next batch
4	MCB Loss		0.064			Loss
5	HCl Solution	1.390				For Sale
6	Effluent	1.514				To ETP for treatment
7	CO_2		0.013			To atmosphere
Total		**2.904**	**0.076**	**5.857**	**0.133**	
		8.969				

Table 3-8: Material Balance of DCPNA

S. No	Input /MT of Product					
	Raw Material			Quantity (MT/MT)		
1	Crude DCPNA			1.133		
Total				**1.133**		
S. No	**Output / MT of Product**					**Remark**
	Product	**Liquid Effluent**	**Air emission**	**Recovery/ Product**	**Solid Waste**	
1	DCPNA			1.0		Product
2	Residue				0.133	To CHWIF for disposal
Total		**0**	**0**	**1.0**	**0.133**	
		1.133				

C. Mono Nitro Derivatives

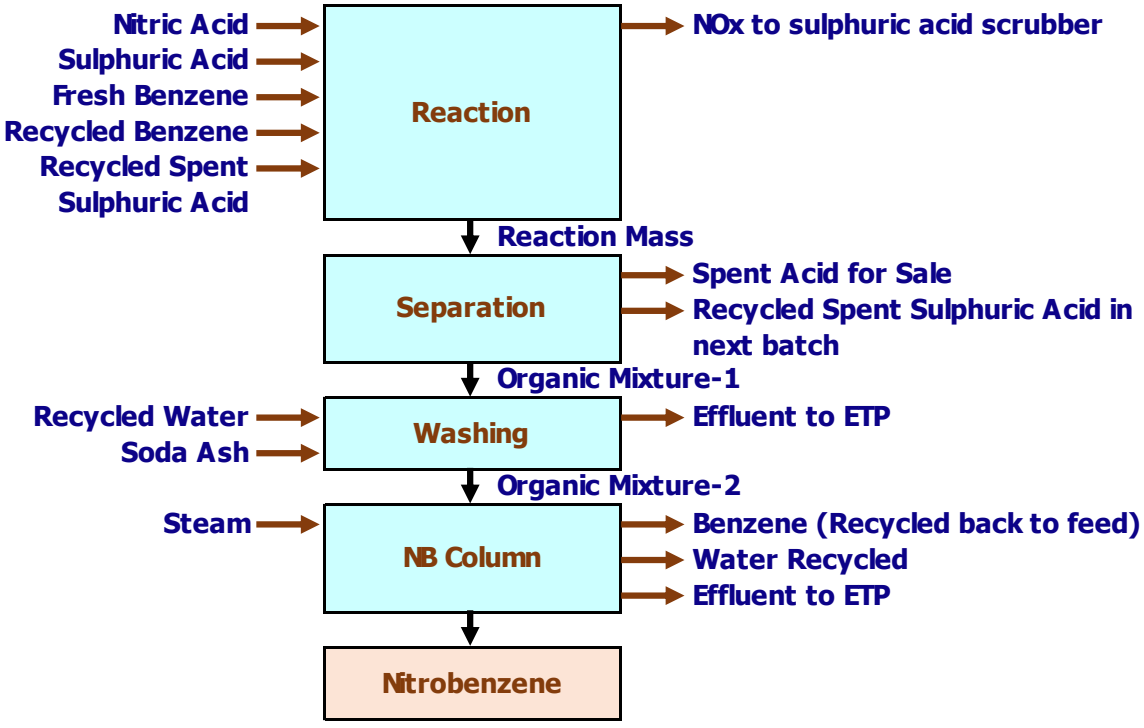
7. Nitrobenzene and/or Crude Nitrobenzene

Mixed acid containing concentrated nitric acid and concentrated sulphuric acid is reacted with benzene to produce 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 nitro benzene and un reacted benzene. Un reacted benzene is recovered by steam distillation and recycled. The NOx generated during the process is passed through sulphuric scrubber followed by alkali scrubber. Effluent water generated would be sent to ETP.

Chemical Reaction

C_6H_6	+	HNO_3	+	H_2SO_4	------->	$C_6H_5NO_2$	+	H_2O	+	H_2SO_4
Benzene		Nitric Acid		Sulphuric Acid		Nitro Benzene		Water		Sulphuric Acid

Figure 3-7: Process Block Diagram of Nitrobenzene



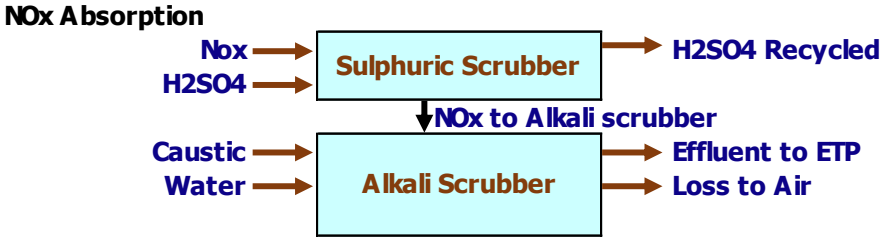


Table 3-9: Material Balance of Nitrobenzene/ Crude Nitrobenzene

S. No	Input /MT of Product	
	Raw Material	**Quantity (MT/MT)**
1	Nitric Acid	0.527
2	Sulphuric Acid	0.423
3	Fresh Benzene	0.635
4	Recycled Benzene	0.949
5	Recycled Spent Sulphuric Acid	2.122
6	Recycled Water	0.265
7	Soda Ash	0.024
8	Steam	0.337
9	H_2SO_4 for Acid Scrubber	0.004
10	Caustic for Alkali Scrubber	0.001
11	Water for Alkali Scrubber	0.010
Total		**5.297**

S. No	Output / MT of Product					Remark
	Product	**Liquid Effluent**	**Air emission**	**Recovery/ Product**	**Solid Waste**	
1	Nitro Benzene / Crude Nitrobenzene			1.0		Product
2	Spent Sulphuric Acid	0.591				Reused in the next batch
3	Recycled Spent Sulphuric Acid			2.116		Reused in the next batch
4	Recovered Benzene			0.949		Recycled back to feed
5	Waste Water	0.265				Recycled in next Batch
6	H_2SO_4	0.006				Recycled in next Batch
7	Effluent	0.371				To ETP for treatment
Total		**1.232**	**0.000**	**4.065**	**0.000**	
		5.297				

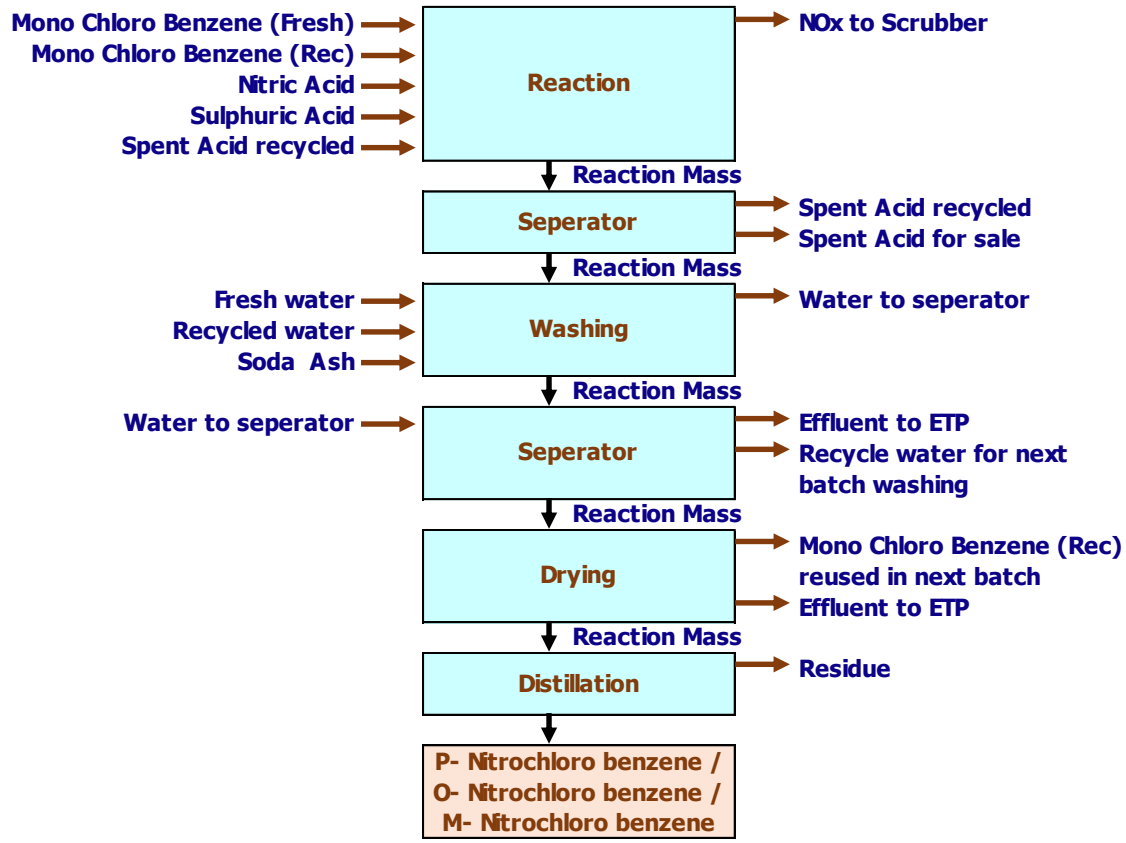
8. O/M/P-Nitro Chloro Benzene and/or Crude O-Nitro Chloro Benzene (ONCB/MNCB/PNCB)

Mixed acid containing concentrated nitric acid and concentrated sulphuric acid is reacted with chloro benzene to produce mixture of para nitro chlorobenzene, ortho nitro chlorobenzene and meta nitro chlorobenzene. 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 mixture of o/m/p nitro chlorobenzene and un reacted chlorobenzene. Un reacted chlorobenzene is recovered by steam distillation and recycled. The NOx generated during the process is passed through sulphuric scrubber followed by alkali scrubber. Effluent water generated would be sent to ETP.

Chemical Reaction

C_6H_5Cl	+	HNO_3	+	H_2SO_4	------>	$C_6H_4NO_2Cl$	+	H_2O	+	H_2SO_4
Mono Chloro Benzene		Nitric acid		Sulphuric Acid		Ortho, Meta, Para-Nitro Chloro benzene		Water		Sulphuric Acid

Figure 3-8: Process Block Diagram of ONCB/MNCB/PNCB



NOx Absorption

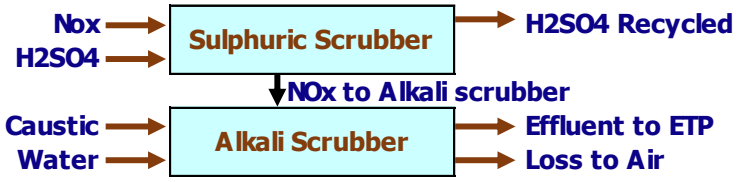


Table 3-10: Material Balance of Crude ONCB/MNCB/PNCB

S. No	Input /MT of Product	
	Raw Material	Quantity (MT/MT)
1	Mono Chloro Benzene (Fresh)	0.723
2	Mono Chloro Benzene (Rec)	0.010
3	Nitric Acid	0.409
4	Sulphuric Acid	0.307
5	Spent Acid recycled	1.526
6	Fresh Water	0.162
7	Recycled Water	0.233

8	Soda Ash	0.001
9	H_2SO_4 for Acid Scrubber	0.003
10	Caustic for Alkali Scrubber	0.001
11	Water for Alkali Scrubber	0.008
Total		**3.383**

S. No	Output / MT of Product					Remark
	Product	Liquid Effluent	Air emission	Recovery/ Product	Solid Waste	
1	Crude P- Nitro Chloro benzene/ Crude O- Nitro Chloro benzene/ Crude M- Nitro Chloro benzene			1.0		Product
2	Spent Sulphuric Acid Recycled			1.522		Reused in the next batch
3	Spent Acid for Sale	0.437				For Sale
4	Mono Chloro Benzene (Rec)			0.010		Recycled back to feed
5	Waste Water	0.233				Recycled in next Batch
6	H_2SO_4			0.004		Recycled in next Batch
7	Effluent	0.177				To ETP for treatment
Total		**0.847**	**0.000**	**2.536**	**0**	
		3.383				

Table 3-11: Material Balance of Crude ONCB/MNCB/PNCB

S. No	Input /MT of Product	
	Raw Material	Quantity (MT/MT)
1	Crude P- Nitro Chloro benzene/ Crude O- Nitro Chloro benzene/ Crude M- Nitro Chloro benzene	1.006
Total		**3.383**

S. No	Output / MT of Product					Remark
	Product	Liquid Effluent	Air emission	Recovery/ Product	Solid Waste	
1	P- Nitro Chloro benzene/ O- Nitro Chloro benzene/ M- Nitro Chloro benzene			1.0		Product
2	Residue				0.006	To CHWIF for incineration
Total		**0**	**0.000**	**1.0**	**0.006**	
		3.383				

9. Nitro Toluene Mixture (MNT/PNT/ONT)

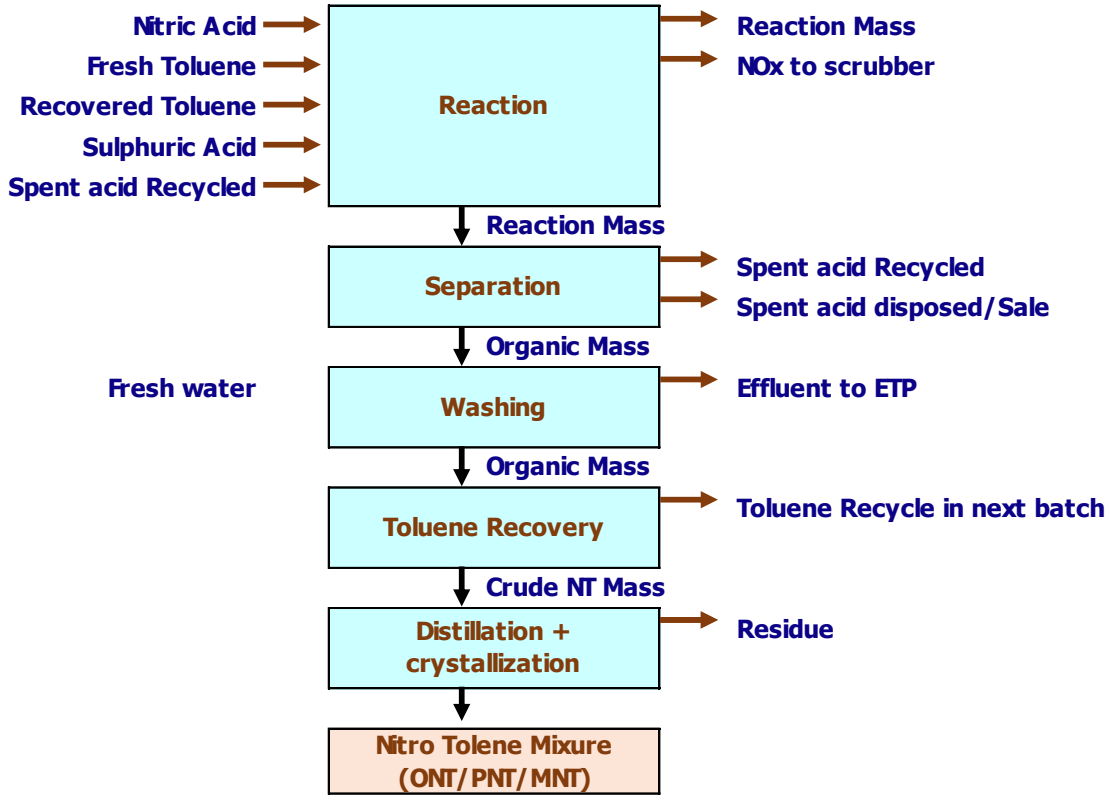
Mixed acid containing concentrated nitric acid and concentrated sulphuric acid is reacted with toluene to produce mixture of ortho/meta/para nitro toluene. The reaction gets completed in series of Nitrators with cooling coils and jackets. Reaction is followed by spent acid separation, washing by water, drying to get a mixture of ortho/para/meta nitro toluene and unreacted toluene. Unreacted toluene is recovered by steam distillation and recycled. The generated NOx from reaction pass through Sulfuric acid and Alkali Scrubber. Generated effluent from scrubber send to ETP. Residue generated during distillation is sent for landfilling.

Chemical Reaction

$C_6H_5CH_3$ + HNO_3 + H_2SO_4 -----> $C_7H_7NO_2$ + H_2O + H_2SO_4

Toluene + Nitric acid + Sulphuric acid -----> Nitro Toluene Mixture + Water + Sulphuric acid

Figure 3-9: Process Block Diagram of MNT/PNT/ONT



NOx Absorption

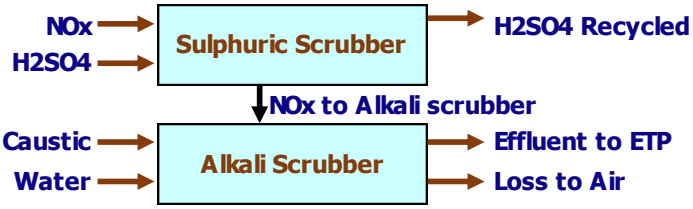


Table 3-12: Material Balance of MNT/PNT/ONT

S. No	Input /MT of Product	
	Raw Material	Quantity (MT/MT)
1	Nitric Acid	0.460
2	Fresh Toluene	0.560
3	Recovered Toluene	0.112
4	Sulphuric Acid	0.375
5	Spent acid Recycled	0.805
6	Water	1.114
7	H_2SO_4 for Acid Scrubber	0.004
8	Caustic for Alkali Scrubber	0.001
9	Water for Alkali Scrubber	0.005

Total				3.436		
S. No	Output / MT of Product					Remark
	Product	Liquid Effluent	Air emission	Recovery/ Product	Solid Waste	
1	Nitro Toluene Mixture (MNT/PNT/ONT)			1.0		Product
2	Spent Acid Recycled	0.800				Reused in the next batch
3	Spent Sulphuric Acid	0.395				For Sale
4	Recovered Toluene			0.112		Recycled back to feed
5	H_2SO_4			0.005		Recycled in next Batch
6	Effluent	1.121				To ETP for treatment
7	Residue				0.002	To CHWIF for disposal
Total		**2.316**	**0.000**	**1.117**	**0.002**	
		3.436				

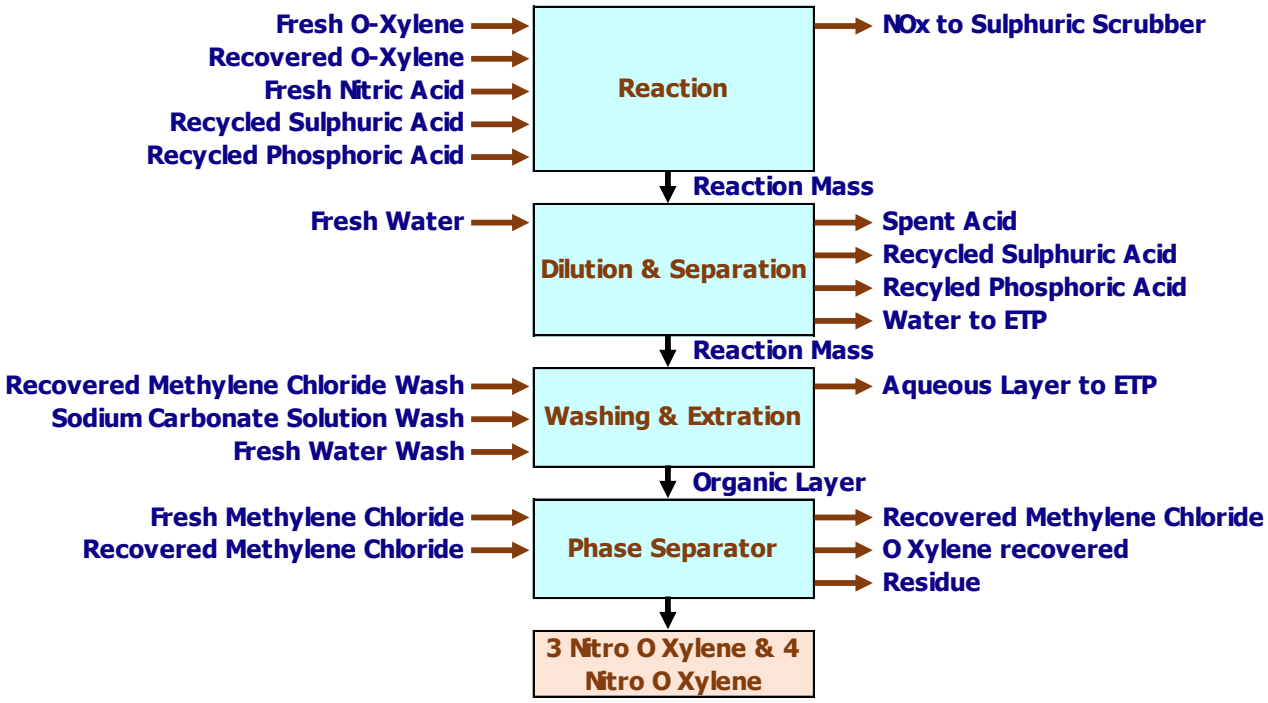
10. Nitro Xylene Mixture

The process involves nitration of o-xylene with nitrating mixture in presence of Poly phosphoric acid and sulphuric acid. Reaction is followed by spent acid separation, washing by water and extraction with methylene chloride followed by separation. Unit will procure crude as raw material and same will be purified and sold. MDC will recover in recover column. The generated NOx from reaction pass through sulfuric acid and Alkali Scrubber. Generated effluent from scrubber send to ETP. Residue generated during distillation is sent for landfilling.

Chemical Reaction

C_8H_{10}	+	HNO_3	------>	$C_8H_9NO_2$	+	H_2O
o-Xylene		Nitric Acid	H3PO4	3/4-Nitro Xylene		Water

Figure 3-10: Process Block Diagram of Nitro Xylene Mixture



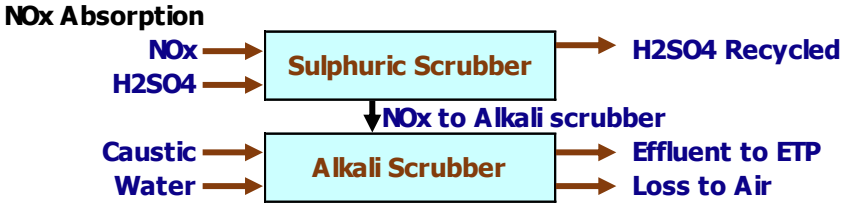


Table 3-13: Material Balance of Nitro Xylene Mixture

S. No	Input /MT of Product	
	Raw Material	**Quantity (MT/MT)**
1	Fresh O-Xylene	0.836
2	Recovered O-Xylene	0.067
3	Fresh Nitric Acid	0.599
4	Recycled Sulphuric Acid	0.440
5	Recycled Phosphoric Acid	2.390
6	Fresh Water	1.135
7	Recovered Methylene Chloride for Wash	2.837
8	Sodium Carbonate Solution for Wash	1.241
9	Fresh Water for Wash	0.248
10	Fresh Methylene Chloride	0.035
11	Recovered Methylene Chloride	0.674
12	H2SO4 for Acid Scrubber	0.005
13	Caustic for Alkali Scrubber	0.001
14	Water for Alkali Scrubber	0.007
Total		**10.516**

S. No	Output / MT of Product					Remark
	Product	**Liquid Effluent**	**Air emission**	**Recovery/ Product**	**Solid Waste**	
1	3 Nitro O Xylene			0.4		Product
2	4 Nitro O Xylene			0.6		
3	Recycled Sulphuric Acid			0.433		Reused in the next batch
4	Spent Sulphuric Acid for Sale	0.177				For Sale
5	Recyled Phosphoric Acid			2.390		Recycled back to feed
6	Recovered Methylene Chloride			3.511		Recycled in next Batch
7	O Xylene recovered			0.067		Recycled in next Batch
8	H2SO4			0.007		Recycled in next Batch
9	Effluent	2.789				To ETP for treatment
10	Residue				0.142	To CHWIF for disposal
Total		**2.966**	**0.000**	**7.408**	**0.142**	
		10.516				

11. Nitro Cumene Mixture

Mixed acid containing concentrated nitric acid and concentrated sulphuric acid is reacted with cumene to produce mixture of para nitro cumene, ortho nitro cumene and meta nitro cumene. The reaction gets completed in series of nitrators with cooling coils and jackets. Reaction is followed by spent acid separation, washing by water, drying to get a mixture of o/m/p nitro cumene and unreacted cumene. Unreacted cumene is recovered by steam distillation and recycled. The generated NOx from reaction is passed through sulfuric acid and Alkali Scrubber. Generated effluent from scrubber send to ETP.

Chemical Reaction

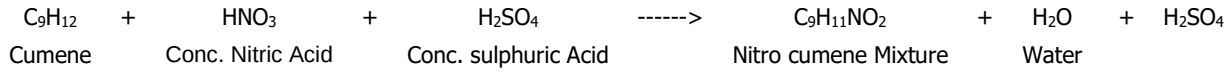
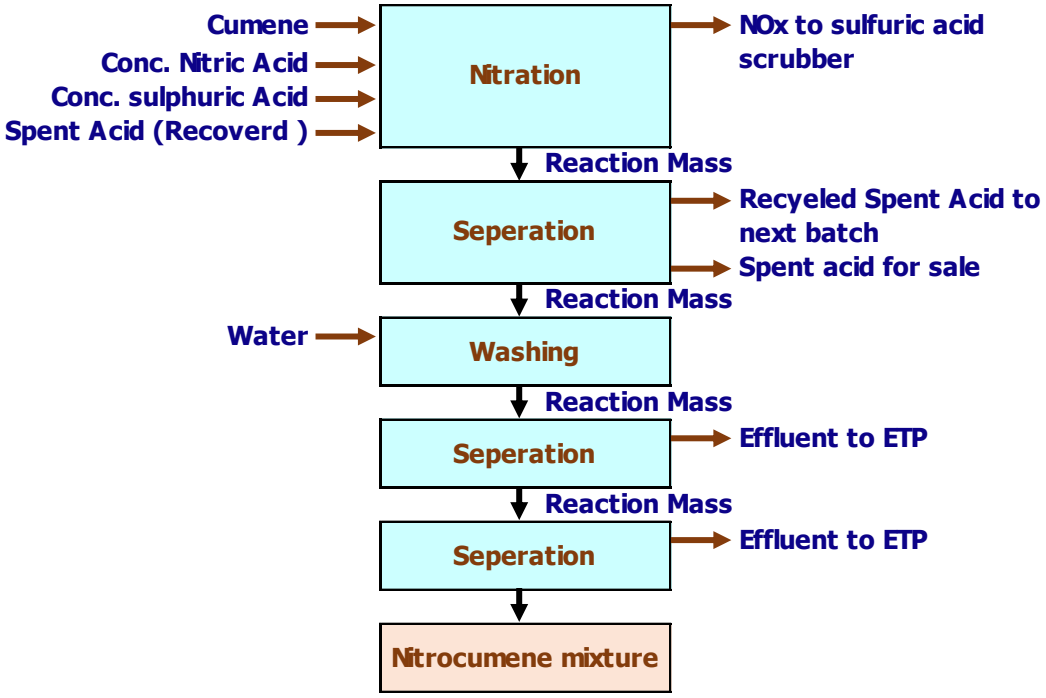


Figure 3-11: Process Block Diagram of Nitro Cumene Mixture



NOx Absorption

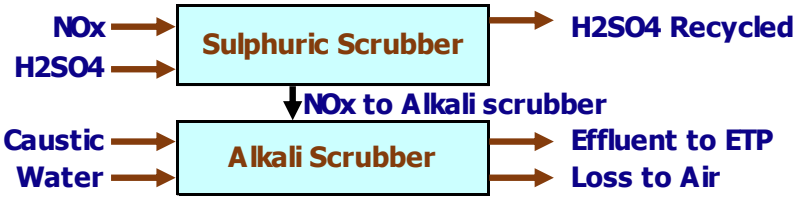


Table 3-14: Material Balance of Nitro Cumene Mixture

S. No	Input /MT of Product	
	Raw Material	**Quantity (MT/MT)**
1	Cumene	0.727
2	Conc. Nitric Acid	0.390
3	Conc. Sulphuric Acid	0.316
4	Spent Acid (Recovered)	1.156
5	Water for Washing	0.184

6	H_2SO_4 for Acid Scrubber	0.003
7	Caustic for Alkali Scrubber	0.000
8	Water for Alkali Scrubber	0.004
Total		**2.781**

S. No	Output / MT of Product					Remark
	Product	Liquid Effluent	Air emission	Recovery/ Product	Solid Waste	
1	Nitro Cumene Mixture			1.0		Product
2	Recycled Spent Acid			1.2		Reused in the next batch
3	Spent Sulphuric acid	0.435				For Sale
4	H_2SO_4	0.004				Recycled in next Batch
5	Waste Water	0.190				To ETP for treatment
Total		**0.629**	**0.000**	**2.152**	**0.000**	
		2.781				

12. 2, 5 Di Chloro nitro benzene and/or Crude 2 5 Di Chloro nitro benzene (2,5-DCNB)

2,5-DCNB/3,4-DCNB/2,6 -DCNB/ 2,4-DCNB is produced by nitration of PDCB/ODCB/MDCB with nitric and sulphuric acid.

PDCB/ODCB/MDCB, 98% sulphuric acid & dilute sulphuric acid in desired quantity charged to reactor. Required temperature maintained by using cooling water in cooling coil / condenser during nitric acid feeding. After that mass is transferred to other reactor and required temperature is maintained until the reaction is completed. The separation of spent acid is done after reaction. Then mass is washed with soda solution to achieve neutral pH once pH is achieved the material is transferred to storage tank. The NOx generated during the process is passed through sulphuric scrubber followed by alkali scrubber. The generated residue from process would be sent for incineration.

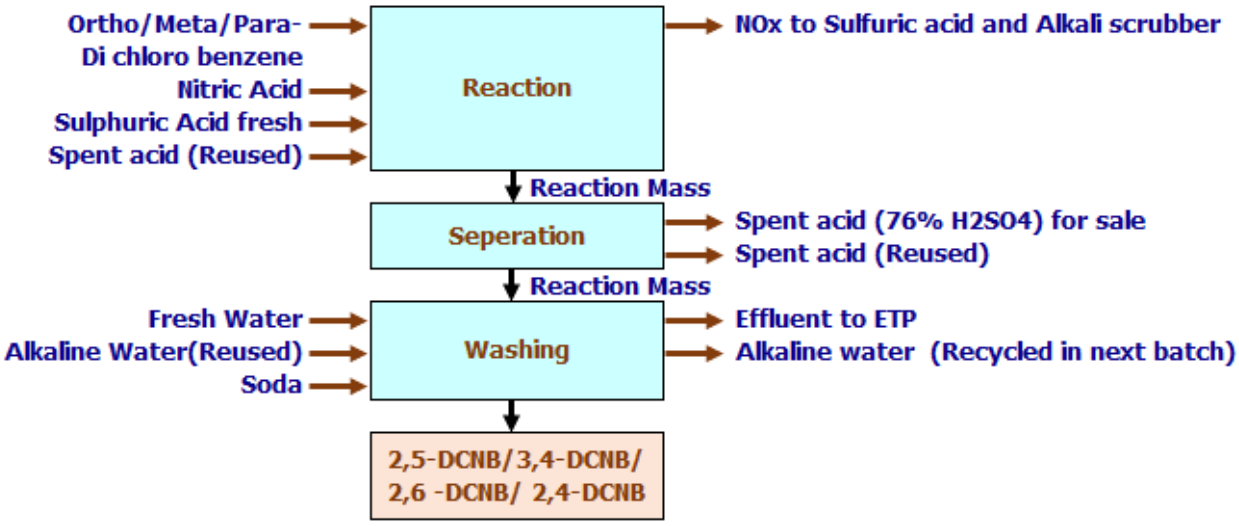
Effluent generated from Process and scrubber is sent to ETP for Treatment.

Chemical Reaction

$C_6H_4Cl_2$ + HNO_3 ---> $C_6H_3Cl_2NO_2$ + H_2O

(PDCB) + (Nitric) ---> (2,5/3,4/2,6/2,4-Dichloronitrobenzene)+ Water

Figure 3-12: Process Block Diagram of 2,5-DCNB/3,4-DCNB/2,6 -DCNB/ 2,4-DCNB



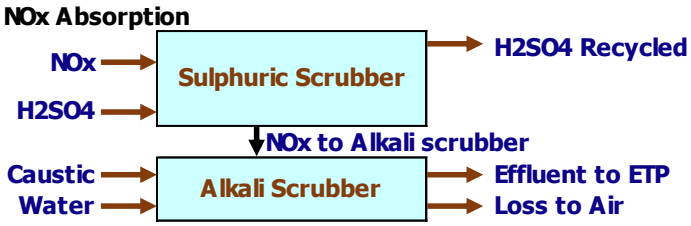


Table 3-15: Material Balance of 2,5-DCNB/3,4-DCNB/2,6 -DCNB/ 2,4-DCNB

S. No.	Input /MT of Product	
	Raw Material	**Quantity (MT/MT)**
1	Ortho/Meta/Para- Di chloro benzene	0.783
2	Nitric Acid	0.342
3	Sulphuric Acid fresh	0.379
4	Spent acid (Reused)	0.734
5	Water	0.099
6	Alkaline Water (Reused)	0.052
7	Soda	0.005
8	H_2SO_4 for Acid Scrubber	0.003
9	Caustic for Alkali Scrubber	0.001
10	Water for Alkali Scrubber	0.006
Total		**2.404**

S. No	Output / MT of Product					Remark
	Product	**Liquid Effluent**	**Air emission**	**Recovery/ Product**	**Solid Waste**	
1	2,5 DNCB/ 3,4 DNCB / 2,6 DNCB / 2,4 DNCB			1.0		Product
2	Spent acid (76% H_2SO_4)	0.506				For Sale
3	Spent acid (Reused)			0.734		Reused in the next batch
4	Alkaline water	0.052				Recycled in next batch
5	Waste Water	0.112				To ETP for treatment
Total		**0.670**	**0.000**	**1.734**	**0.000**	
		2.404				

13. 3, 4 Di Chloro nitro benzene and/or Crude 3 4 Di Chloro nitro benzene (3,4-DCNB)

As per above S.No. 12: 2, 5 Di Chloro nitro benzene and/or Crude 2 5 Di Chloro nitro benzene (2,5-DCNB)

14. 2,6 Di Chloro nitro benzene and/or Crude 2 6 Di Chloro nitro benzene (2,6 -DCNB)

As per above S.No. 12: 2, 5 Di Chloro nitro benzene and/or Crude 2 5 Di Chloro nitro benzene (2,5-DCNB)

15. 2, 4 Di Chloro nitro benzene and/or Crude 2 4 Di Chloro nitro benzene (2,4 –DCNB)

As per above S.No. 12: 2, 5 Di Chloro nitro benzene and/or Crude 2 5 Di Chloro nitro benzene (2,5-DCNB)

16. 2 4 5 Tri Chloro nitro benzene and/or Crude 2 4 5 Tri Chloro nitro benzene /234 Tri Chloro nitro benzene and/or Crude 234 Tri Chloro nitro benzene (2 4 5 TCNB/234 TCNB)

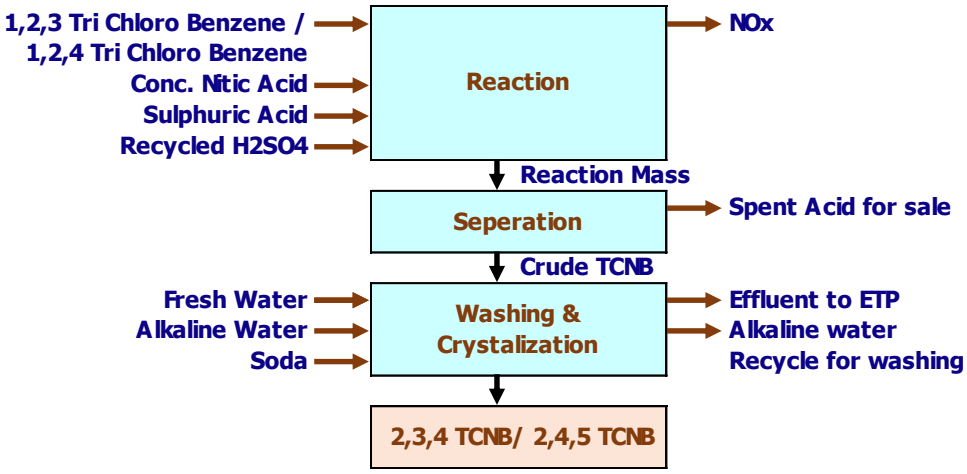
1,2,3/1,2,4 Tri Chloro Benzene is subjected to nitration reaction using nitric acid along with sulphuric acid as dehydrating agent to yield 2,3,4/2,4,5 TRI CHLORO NITRO BENZENE CRUDE 2 3 4/2 4 5 TCNB. Then mass is washed with soda solution and water to achieve neutral pH, once pH is achieved the material is transferred to storage tank. The generated NOx from reaction pass through Sulphuric acid and Alkali Scrubber. Generated effluent from process and scrubber is sent to ETP, while the H_2SO_4 will be reacted back into the process.

Chemical Reaction

C_6H_3Cl + HNO_3 -----> $C_6H_2Cl_3NO_2$ + H_2O

Tri Chloro Benzene | Nitric Acid | Tri Chloro Nitro Benzene | Water

Figure 3-13: Process Block Diagram of 2 4 5 TCNB/234 TCNB or Crude 2 4 5 TCNB/234 TCNB



NOx Absorption

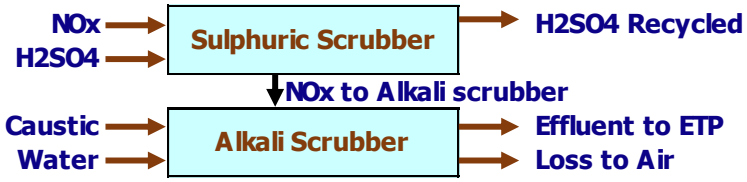


Table 3-16: Material Balance of 2 4 5 TCNB/234 TCNB or Crude 2 4 5 TCNB/234 TCNB

S. No	Input /MT of Product	
	Raw Material	**Quantity (MT/MT)**
1	1,2,3 Tri Chloro Benzene/1,2,4 Tri Chloro Benzene	0.813
2	Conc. Nitric Acid	0.300
3	Sulphuric Acid	0.559
4	Recycled H_2SO_4	0.004
5	Water for Washing	0.255
6	Soda	0.002
7	H_2SO_4 for Acid Scrubber	0.003
8	Caustic for Alkali Scrubber	0.000
9	Water for Alkali Scrubber	0.004
Total		**1.940**

S. No	Output / MT of Product					Remark
	Product	**Liquid Effluent**	**Air emission**	**Recovery/ Product**	**Solid Waste**	

1	2 4 5 TCNB/234 TCNB or Crude 2 4 5 TCNB/234 TCNB			1.0		Product
2	Spent Sulphuric Acid	0.673				For Sale
3	H_2SO_4 Recycled			0.004		Recycled in next Batch
4	Waste Water	0.262				To ETP for treatment
Total		**0.936**	**0.000**	**1.004**	**0.000**	
		1.940				

17. 4-nitro-N-methyl phthalimide and/or Crude 4 NPI (4 NPI)

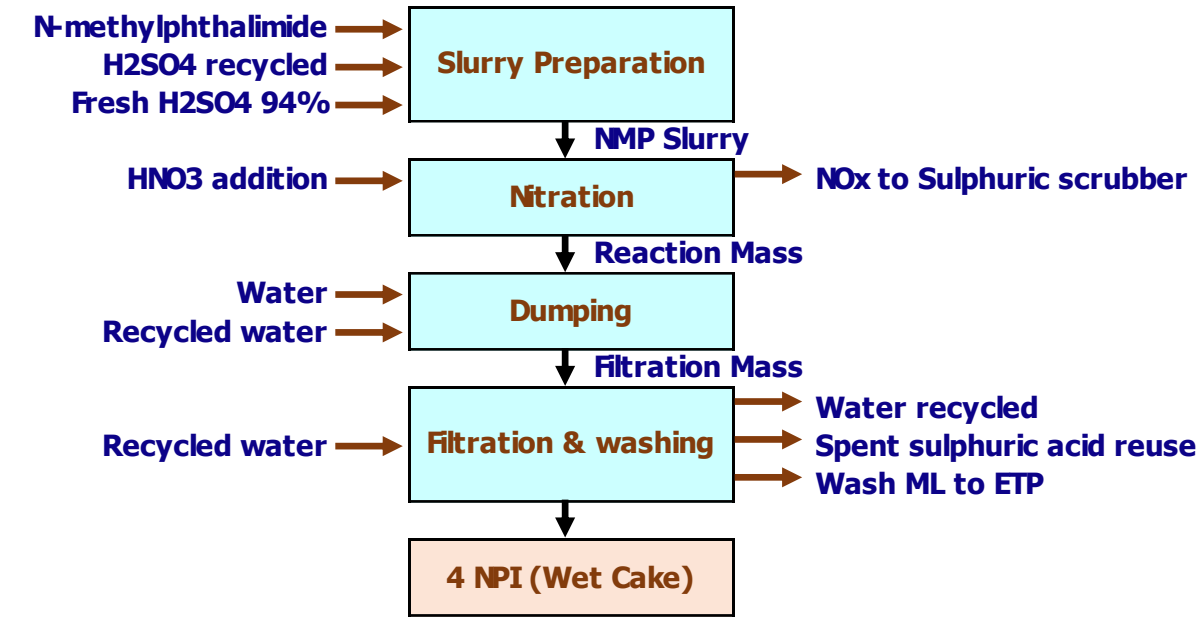
Process involves nitration of N-methyl phthalimide along with 94% H_2SO_4 and HNO_3 in nitrating mixture. The reaction mass is washed and then filtered to obtain 4-nitro-N-methyl phthalimide and is sold as wet cake. The generated NOx from reaction pass through Sulphuric acid and Alkali Scrubber. Generated effluent from process and scrubber is sent to ETP, while the H_2SO_4 will be reacted back into the process.

Chemical Reaction

$C_9H_7NO_2$ + HNO_3 -----> $C_9H_6N_2O_4$ + H_2O

N-methylphthalimide Nitric acid 4-nitro-N-methyl phthalimide Water

Figure 3-14: Process Block Diagram of 4 NPI



NOx Absorption

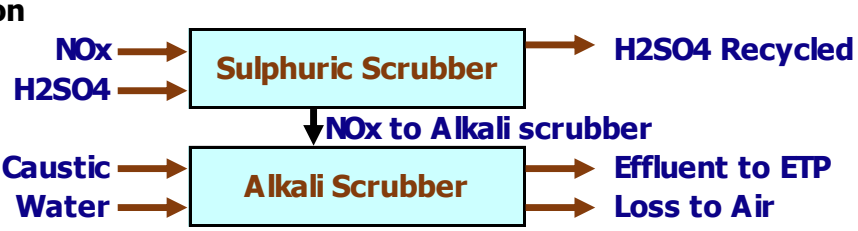


Table 3-17: Material Balance of 4 NPI

S. No	Input /MT of Product	
	Raw Material	**Quantity (MT/MT)**
1	N-methylphthalimide	0.840
2	Fresh H_2SO_4 94%	0.476
3	H_2SO_4 recycled	2.614
4	Water	6.540
5	Recycled water	7.880
6	H_2SO_4 for Acid Scrubber	0.003
7	Caustic for Alkali Scrubber	0.000
8	Water for Alkali Scrubber	0.004
Total		**18.357**

S. No	Output / MT of Product					Remark
	Product	**Liquid Effluent**	**Air emission**	**Recovery/ Product**	**Solid Waste**	
1	4 NPI or Crude 4 NPI			1.0		Product
2	Recovered Water			7.880		Recycled in next Batch
3	Spent sulphuric acid	2.614				Recycled in next Batch
4	Waste Water	0.005				To ETP for treatment
5	Wash ML	6.858				To ETP for treatment
Total		**9.478**	**0.000**	**8.880**	**0.000**	
		18.357				

18. 2,4-dichloro-3- fluoro nitro benzene (243 DCFNB)/3,5-dichloro-4- fluoro nitro benzene (354 DCFNB)

"The process involves denitrochlorination of 2-Fluoro 3-chloro nitrobenzene with chlorine gas. The reaction mass on distillation gives 2,4-dichloro-3-fluoro nitro benzene and 3,5-dichloro-4- fluoro nitro benzene as products. Residue from distillation is sent for landfilling. The generated NOx from reaction pass through Sulphuric acid and Alkali Scrubber. Generated effluent from process and scrubber is sent to ETP, while the H_2SO_4 will be recycled back into the process. Residue from distillation is sent for landfilling.

Chemical Reaction

$C_6H_3Cl_2F$ + HNO_3 ----> $C_6H_2Cl_2FNO_2$ + H_2O

2,6-dichloro Fluoro benzene Nitric Acid 2,4-dichloro-3- fluoro nitro benzene Water

Figure 3-15: Process Block Diagram of 243 DCFNB / 354 DCFNB

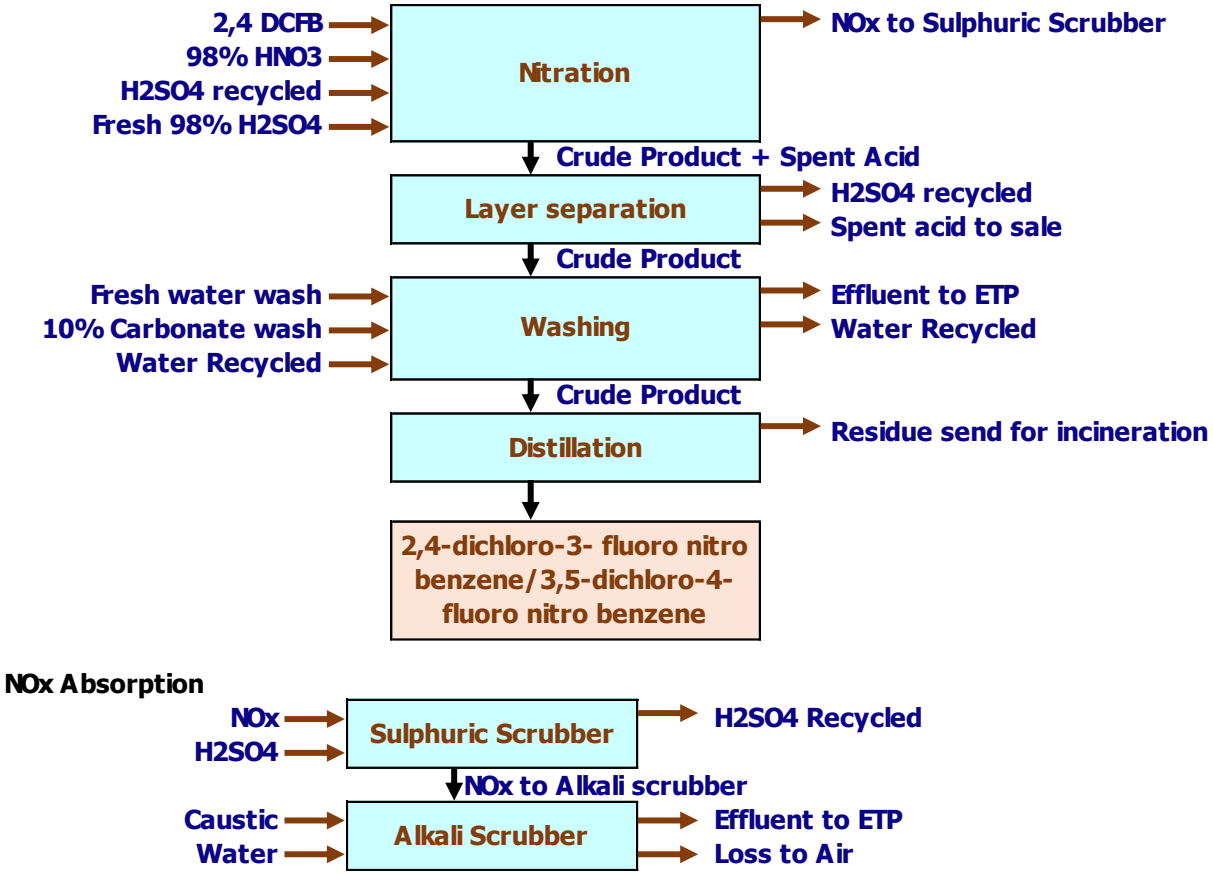


Table 3-18: Material Balance of Crude 243 DCFNB / 354 DCFNB

S. No	Input /MT of Product	
	Raw Material	**Quantity (MT/MT)**
1	2,6 DCFB	0.783
2	98% HNO_3	0.320
3	H_2SO_4 recycled	0.341
4	Fresh 98% H_2SO_4	0.105
5	Water	0.318
6	Recycled Water	0.323
7	10% Carbonate wash	0.365
8	H_2SO_4 for Acid Scrubber	0.003
9	Caustic for Alkali Scrubber	0.000
10	Water for Alkali Scrubber	0.004
Total		**2.561**

S. No	Output / MT of Product					Remark
	Product	**Liquid Effluent**	**Air emission**	**Recovery/ Product**	**Solid Waste**	
1	Crude 2,4-dichloro-3- fluoro nitro benzene / Crude 3,5-dichloro-4-fluoro nitro benzene			1.0		Product
2	H_2SO_4 recycled			0.341		Recycled in next Batch

3	Spent Sulphuric acid	0.223				For Sale
4	Waste Water	0.675				To ETP for treatment
5	Water Recycled			0.323		Recycled in next Batch
Total		**0.897**	**0.000**	**1.664**	**0**	
		2.561				

Table 3-19: Material Balance of 243 DCFNB / 354 DCFNB

S. No	**Input /MT of Product**					
	Raw Material			**Quantity (MT/MT)**		
1	Crude 2,4-dichloro-3- fluoro nitro benzene / Crude 3,5-dichloro-4- fluoro nitro benzene			1.009		
Total				**1.009**		
S. No	**Output / MT of Product**					**Remark**
	Product	**Liquid Effluent**	**Air emission**	**Recovery/ Product**	**Solid Waste**	
1	2,4-dichloro-3- fluoro nitro benzene / 3,5-dichloro-4- fluoro nitro benzene			1.0		Product
2	Residue				0.009	To CHWIF for disposal
Total		**0**	**0.000**	**1.0**	**0.009**	
		1.009				

19. 3-nitro benzotrifluoride and/or Crude MNBTF (MNBTF)

This process involve nitration of benzotrifluoride in the presence of 90% H_2SO_4 & 98% HNO_3. The reaction mass on distillation gives 3-nitro benzotrifluoride as product. Residue from distillation is sent for landfilling. The generated NOx from reaction pass through Sulphuric acid and Alkali Scrubber. Generated effluent from process and scrubber is sent to ETP, while the H_2SO_4 will be recycled back into the process. Residue from distillation is sent for landfilling.

Chemical Reaction

$C_7H_5F_3$ + HNO_3 -----> $O_2NC_6H_4CF_3$ + H_2O

Benzotrifluoride Nitric acid 3-nitroBenzotrifluoride Water

Figure 3-16: Process Block Diagram of MNBTF

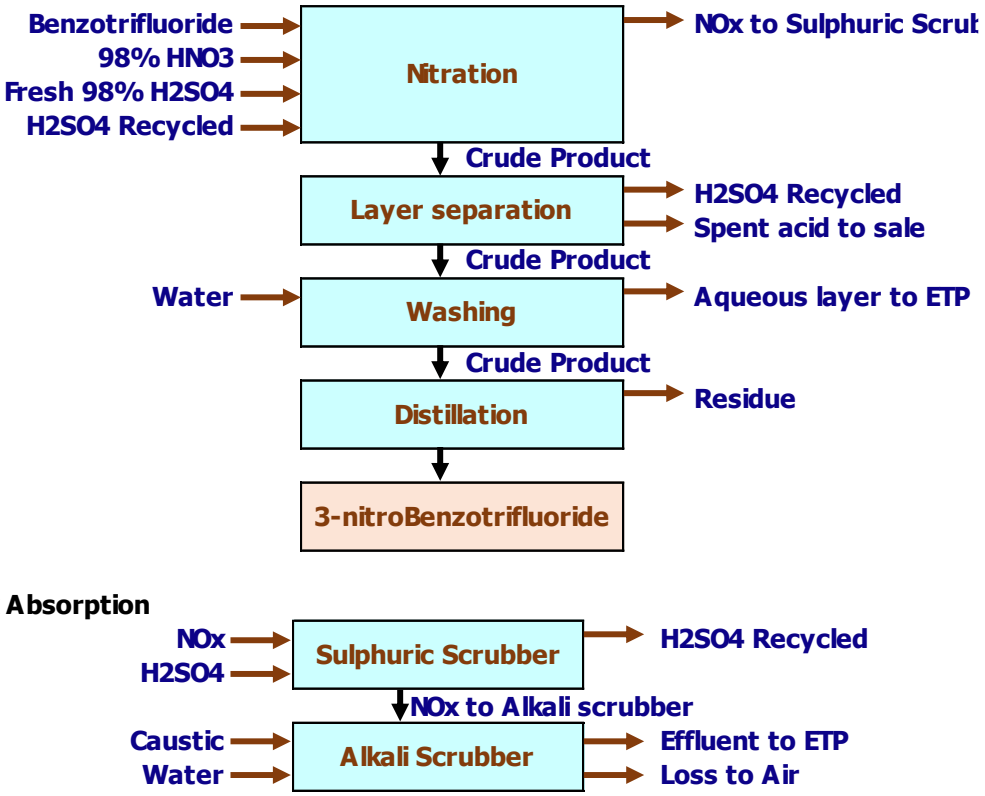


Table 3-20: Material Balance of Crude MNBTF

S. No	Input /MT of Product	
	Raw Material	**Quantity (MT/MT)**
1	Benzotrifluoride	0.820
2	98% HNO3	0.421
3	Fresh 98% H2SO4	0.234
4	H2SO4 Recycled	0.523
5	Water	2.520
6	H2SO4 for Acid Scrubber	0.004
7	Caustic for Alkali Scrubber	0.001
8	Water for Alkali Scrubber	0.005
Total		**4.527**

S. No	Output / MT of Product					Remark
	Product	**Liquid Effluent**	**Air emission**	**Recovery/ Product**	**Solid Waste**	
1	Crude 3-nitroBenzotrifluoride (MNBTF)			1.0		Product
2	Recycled H2SO4			0.523		Recycled in next Batch
3	Spent Sulphuric Acid	0.343				For Sale
4	Waste Water	2.526				To ETP for treatment
5	Losses		0.000			Loss
6	Residue				0.134	To CHWIF for disposal
Total		**2.869**	**0.000**	**1.523**	**0.134**	

	4.527	

Table 3-21: Material Balance of MNBTF

S. No	**Input /MT of Product**					
	Raw Material			**Quantity (MT/MT)**		
1	Crude 3-nitroBenzotrifluoride (MNBTF)			1.134		
Total				1.134		
S. No	**Output / MT of Product**					**Remark**
	Product	**Liquid Effluent**	**Air emission**	**Recovery/ Product**	**Solid Waste**	
1	3-nitroBenzotrifluoride (MNBTF)			1.0		Product
2	Residue				0.134	To CHWIF for disposal
Total		**0**	**0**	**1.0**	**0.134**	
		1.134				

20. 3-nitro-4-chloro benzotrifluoride (CNBTF) and/or Crude CNBTF

This process involve nitration of 4-Chlorobenzotrifluoride in the presence of 90% H_2SO_4& 98% HNO_3. The reaction mass on distillation gives 3-nitro-4-chloro benzotrifluoride. Residue from distillation is sent for landfilling. The generated NOx from reaction pass through Sulphuric acid and Alkali Scrubber. Generated effluent from process and scrubber is sent to ETP, while the H_2SO_4 will be recycled back into the process. Residue generated in distillation will be sent for landfilling.

Chemical Reaction

$C_7H_4ClF_3$ + HNO_3 -----> $C_7H_3ClF_3NO_2$ + H_2O

4-Chlorobenzotrifluoride Nitric Acid 3-nitro-4-chloroBenzotrifluoride Water

Figure 3-17: Process Block Diagram of CNBTF

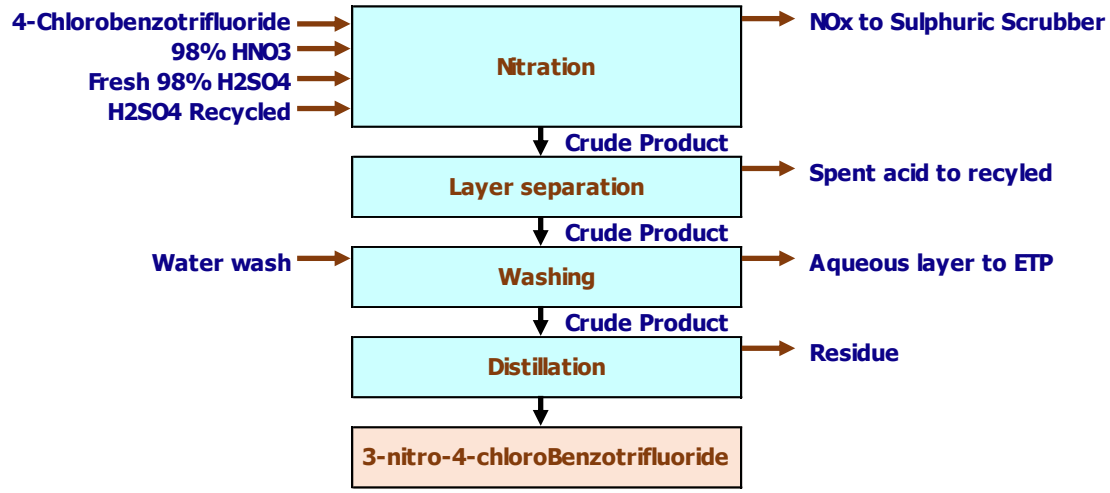


Table 3-22: Material Balance of Crude CNBTF

S. No	Input /MT of Product	
	Raw Material	**Quantity (MT/MT)**
1	4-Chlorobenzotrifluoride	0.880
2	98% HNO3	0.357
3	Fresh 98% H2SO4	0.171
4	H2SO4 Recycled	0.471
5	Water	2.520
6	H2SO4 for Acid Scrubber	0.003
7	Caustic for Alkali Scrubber	0.001
8	Water for Alkali Scrubber	0.007
Total		**4.408**

S. No	Output / MT of Product					Remark
	Product	**Liquid Effluent**	**Air emission**	**Recovery/ Product**	**Solid Waste**	
1	Crude 3-nitro-4-chloroBenzotrifluoride (CNBTF)			1.0		Product
2	Spent Sulphuric Acid	0.467				Reused in the next batch
3	Waste Water	2.528				To ETP for treatment
4	H2SO4 Recycled			0.004		Reused in the next batch
5	Losses		0.000			Loss
6	Residue				0.410	To CHWIF for disposal
Total		**2.995**	**0.000**	**1.004**	**0.410**	

	4.408	

Table 3-23: Material Balance of CNBTF

S. No	**Input /MT of Product**					
	Raw Material			**Quantity (MT/MT)**		
1	Crude 3-nitro-4-chloroBenzotrifluoride (CNBTF)			1.410		
Total				**1.410**		
S. No	**Output / MT of Product**					**Remark**
	Product	**Liquid Effluent**	**Air emission**	**Recovery/ Product**	**Solid Waste**	
1	3-nitro-4-chloroBenzotrifluoride (CNBTF)			1.0		Product
6	Residue				0.410	To CHWIF for disposal
Total		**0**	**0.000**	**1.0**	**0.410**	
		1.410				

21. 3,5-dinitro-4-chloro benzotrifluoride (CDNBTF) and/or Crude CDNBTF

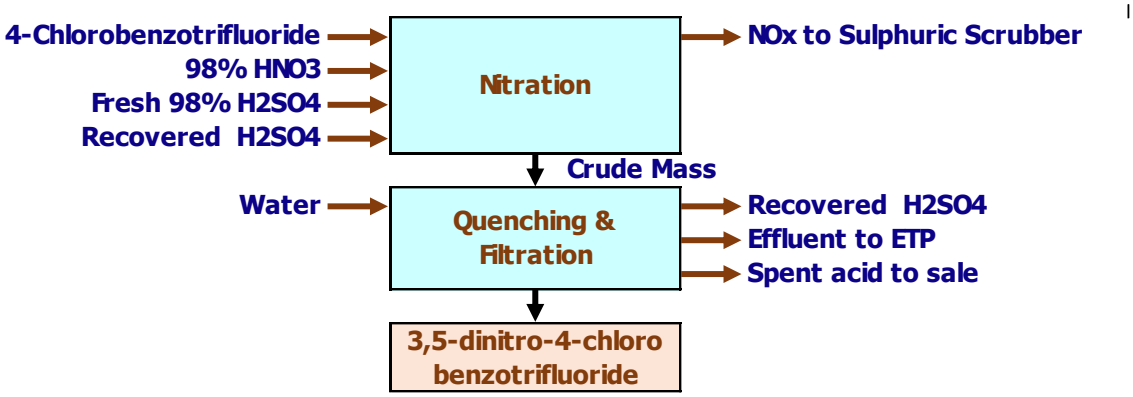
"The process involves nitration of commercially available 4-Chloro benzotrifluoride in presence of oleum and nitric acid to obtain 3,5 Dinitro 4, Chloro benzotrifluoride. The generated NOx from reaction pass through Sulphuric acid and Alkali Scrubber. Generated effluent from process and scrubber is sent to ETP, while the H_2SO_4 will be recycled back into the process.

Chemical Reaction

$C_7H_4ClF_3$ + $2HNO_3$ -----> $C_7H_2ClF_3N_2O_4$ + $2H_2O$

4-Chlorobenzotrifluoride Nitric Acid 4-Chloro Dinitro benzotrifluoride Water

Figure 3-18: Process Block Diagram of CDNBTF



NOx Absorption

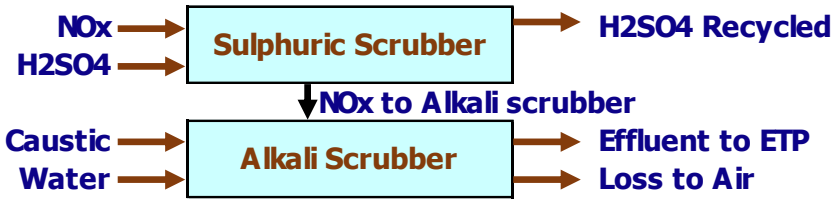


Table 3-24: Material Balance of CDNBTF

S. No	Input /MT of Product	
	Raw Material	**Quantity (MT/MT)**
1	4-Chlorobenzotrifluoride	0.740
2	98% HNO3	0.550
3	Fresh 98% H2SO4	0.821
4	H2SO4 Recycled	1.683
5	Water	3.318
6	H2SO4 for Acid Scrubber	0.005
7	Caustic for Alkali Scrubber	0.001
8	Water for Alkali Scrubber	0.006
Total		**7.124**

S. No	Output / MT of Product					Remark
	Product	**Liquid Effluent**	**Air emission**	**Recovery/ Product**	**Solid Waste**	
1	3,5-di nitro-4-chloroBenzotrifluoride (CDNBTF)			1.0		Product
2	Recovered H2SO4			1.683		Reused in the next batch
3	Waste Water	3.318				To ETP for treatment
4	Spent Sulphuric Acid	1.115				For Sale
5	Waste Water from Scrubber	0.008				To ETP for treatment
6	Losses		0.000			Loss
Total		**4.441**	**0.000**	**2.683**	**0.000**	
		7.124				

22. 1-(3-nitrophenyl) ethanone (3-NAP) and/or Crude 3-NAP

The process involves the nitration of acetophenone by using nitration mixture (HNO_3/H_2SO_4) to obtain 1-(3-nitrophenyl) ethanone as product. The generated NOx from reaction pass through Sulphuric acid and Alkali Scrubber. Generated effluent from process and scrubber is sent to ETP, while the H_2SO_4 will be recycled back into the process.

Chemical Reaction

C_8H_8O + HNO_3 -----> $C_8H_7NO_3$ + H_2O

Acetophenone Nitric Acid 1-(3-nitrophenyl) ethanone Water

Figure 3-19: Process Block Diagram of 3-NAP

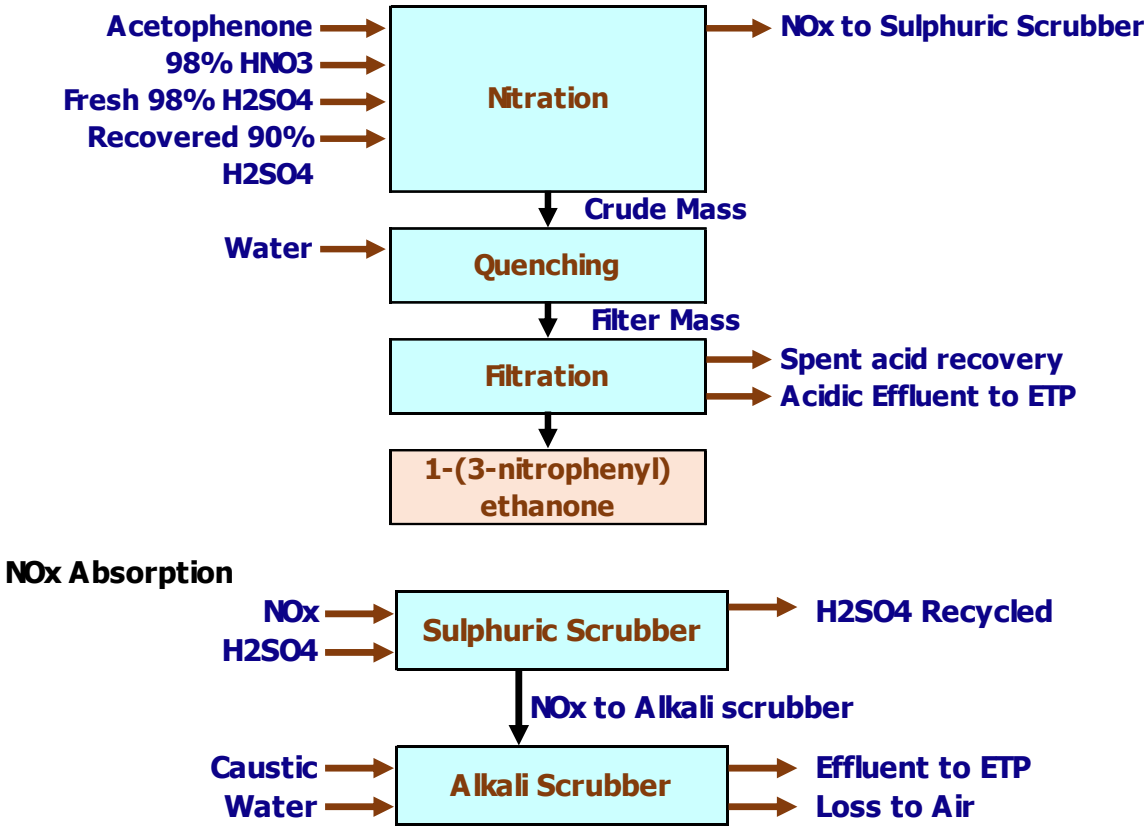


Table 3-25: Material Balance of 3-NAP

S. No	Input /MT of Product	
	Raw Material	**Quantity (MT/MT)**
1	Acetophenone	0.926
2	98% HNO3	1.030
3	H2SO4 Recycled	0.337
4	Water	2.220
5	H2SO4 for Acid Scrubber	0.009
6	Caustic for Alkali Scrubber	0.002
7	Water for Alkali Scrubber	0.020
Total		**4.544**

S. No	Output / MT of Product					Remark
	Product	**Liquid Effluent**	**Air emission**	**Recovery/ Product**	**Solid Waste**	
1	1-(3-nitrophenyl) ethanone (3NAP)			1.0		Product
2	Recovered Spent Acid			0.327		Recycled in next Batch
3	H2SO4 Recycled			0.011		Recycled in next Batch
4	Waste Water	3.207				To ETP for treatment
Total		**3.207**	**0.000**	**1.337**	**0.000**	
		4.544				

23. 2,4-dichloro-3,5-dinitro benzotrifluoride (DCDNBTF)

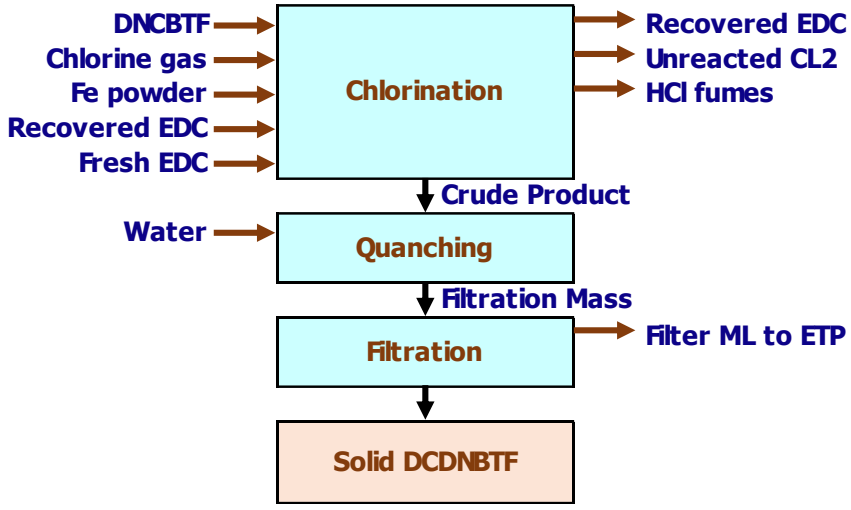
The process involves Chlorination of 3,5 dintro4-chloro benzotrifluoride in presence of chlorine and Fe as catalyst to obtain 2,4-dichloro-3,5-dinitro benzotrifluoride. HCl and Chlorine fumes generated during the reaction are scrubbed through two stage scrubber system. HCl & NaOCl solution are generated as byproducts from scrubber.

Chemical Reaction

$C_7H_2ClF_3N_2O_4$ + Cl_2 -----> $C_7HCl_2F_3N_2O_4$ + HCl

4-Chloro Dinitro benzotrifluoride | Chlorine | 2,4-dichloro-3,5-dinitro benzotrifluoride | Hydrochloric Acid

Figure 3-20: Process Block Diagram of DCDNBTF



HCl & Cl2 Scrubbing

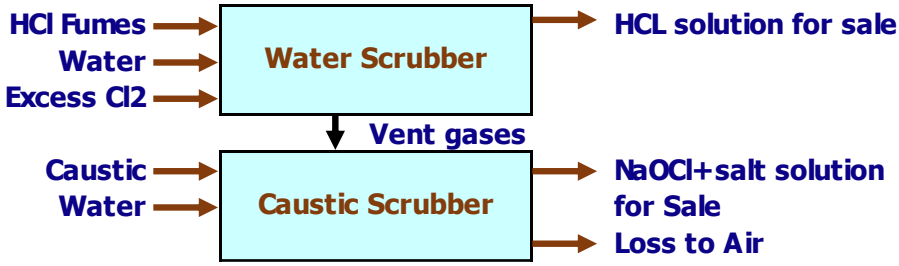


Table 3-26: Material Balance of DCDNBTF

S. No	Input /MT of Product	
	Raw Material	Quantity (MT/MT)
1	DNCBTF	0.740
2	Chlorine gas	2.300
3	Fe powder	0.300
4	Recovered EDC	5.500
5	Fresh EDC	0.200
6	Water	2.880
7	Water for Scrubber	0.233
8	Caustic for Alkali Scrubber	0.237
9	Water for Alkali Scrubber	2.135

Total				14.525		
S. No	Output / MT of Product					Remark
	Product	Liquid Effluent	Air emission	Recovery/ Product	Solid Waste	
1	Solid DCDNBTF			1.0		Product
2	Recovered EDC			5.500		
3	HCl Solution	0.333				For Sale
4	NaOCl+salt solution	4.476				For Sale
5	Waste Water	3.214				To ETP for treatment
6	Loss		0.002			Loss
Total		**8.023**	**0.002**	**6.500**	**0.000**	
		14.525				

24. 2,4-Dichloro-5-Fluoro nitro benzene

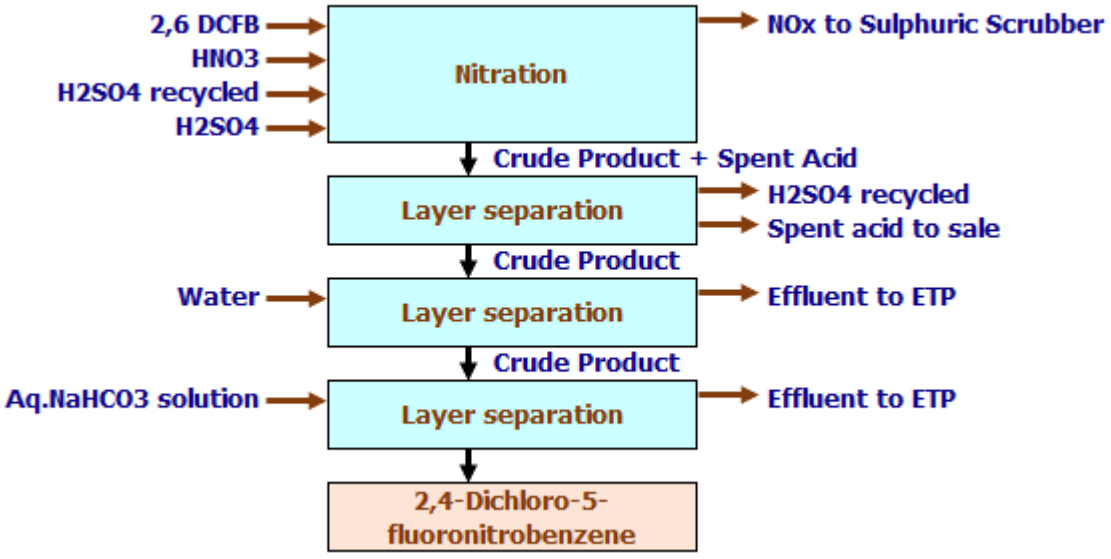
The process involves the nitration of 2,4-DCFB by using nitric acid in sulphuric acid. In layer separation product is separated along with acid and effluent generated is sent to ETP for treatment. The generated NOx from reaction pass through Sulphuric acid and Alkali Scrubber. Generated effluent from is sent to ETP, while the H_2SO_4 will be recycled back into the process.

Chemical Reaction

$C_6H_3FCl_2$ + HNO_3 -----> $C_6H_2FCl_2NO_2$ + H_2O

2,4-Di Chloro Fluoro Benzene Nitric Acid 2,4-Dichloro-5-fluoronitrobenzene Water

Figure 3-21: Process Block Diagram of 2,4-Dichloro-5-Fluoro nitro benzene



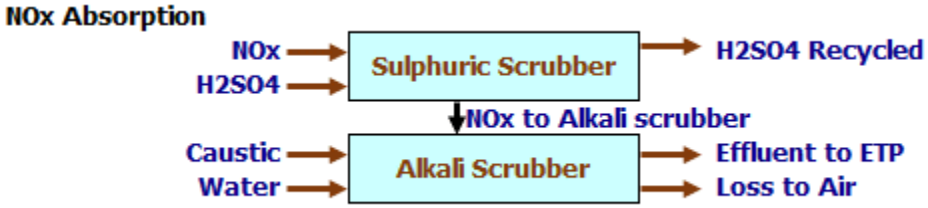


Table 3-27: Material Balance of 2,4-Dichloro-5-Fluoro nitro benzene

S. No	Input /MT of Product	
	Raw Material	**Quantity (MT/MT)**
1	2,4-Di Chloro Fluoro Benzene	0.854
2	98% HNO_3	0.348
3	H_2SO_4 recycled	0.004
4	Fresh 98% H_2SO_4	1.357
5	Water	0.853
6	Aq.$NaHCO_3$ solution	0.855
7	H_2SO_4 for Acid Scrubber	0.003
8	Caustic for Alkali Scrubber	0.000
9	Water for Alkali Scrubber	0.004
Total		**4.277**

S. No	Output / MT of Product					Remark
	Product	**Liquid Effluent**	**Air emission**	**Recovery/ Product**	**Solid Waste**	
1	2,4-Dichloro-5-fluoronitrobenzene			1.0		Product
2	H_2SO_4 recycled			0.005		Recycled in next Batch
3	Spent Sulphuric acid	1.555				For Sale
4	Waste Water	1.716				To ETP for treatment
5	Water Recycled					Recycled in next Batch
Total		**3.271**	**0.000**	**1.005**	**0.000**	
		4.277				

25. 2-Chloro-5-nitro-benzonitrile and/or Crude 2-Chloro-5-nitro-benzonitrile

The process involves nitration of ortho chloro benzo nitrile using mix acid. Spent Sulphuric acid is separated in layer separation and crude mass is washed with water. The reaction mass on distillation gives 2-Chloro-5-nitro-benzonitrile as product. Residue from distillation is sent for landfilling. The generated NOx from reaction pass through Sulphuric acid and Alkali Scrubber. Generated effluent from process and scrubber is sent to ETP, while the H_2SO_4 will be recycled back into the process. Residue generated during distillation will be sent for landfilling.

Chemical Reaction

C_6H_4CNCl + HNO_3 -----> $C_6H_3CNClNO_2$ + H_2O

ortho chloro benzo nitrile Nitric Acid 2-Chloro-5-nitro-benzonitrile Water

Figure 3-22: Process Block Diagram of 2-Chloro-5-nitro-benzonitrile

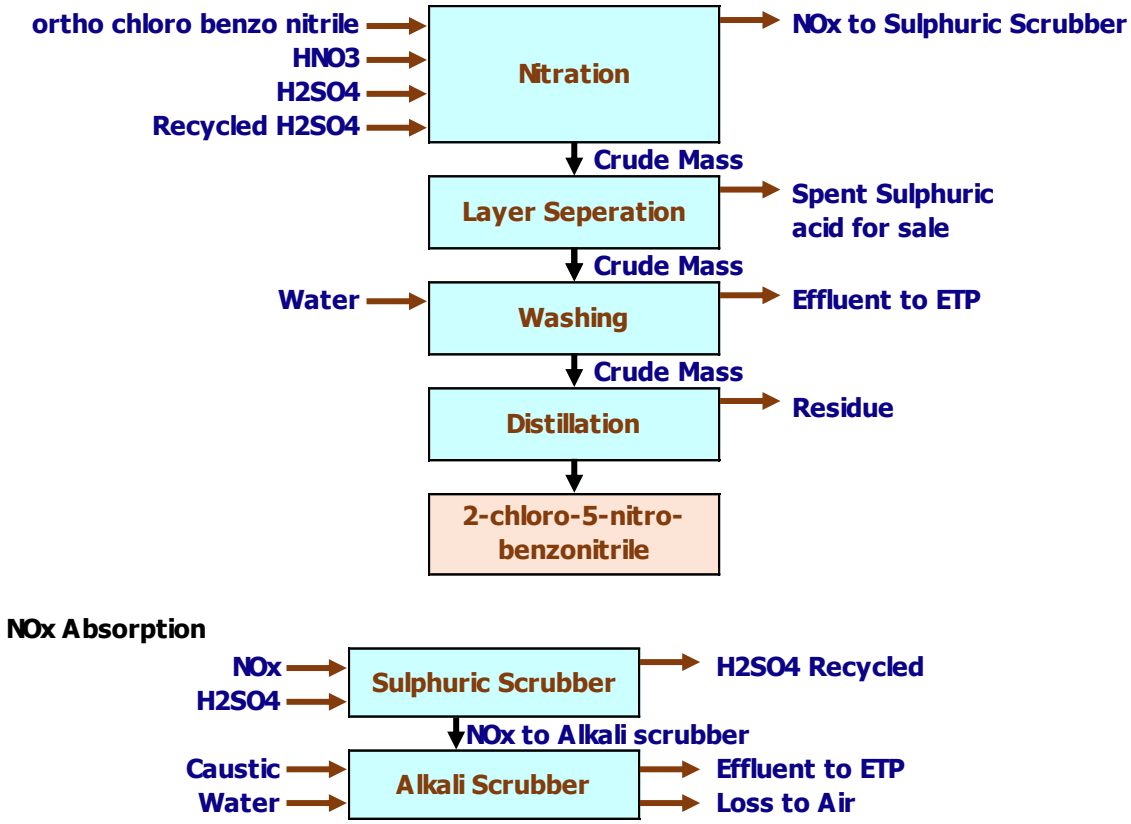


Table 3-28: Material Balance of Crude 2-Chloro-5-nitro-benzonitrile

S. No	Input /MT of Product	
	Raw Material	**Quantity (MT/MT)**
1	O-chloro benzo nitrile	0.834
2	HNO3	0.390
3	H2SO4	0.606
4	Recycled H2SO4	0.101
5	Water	2.300
6	H2SO4 for Acid Scrubber	0.100
7	Caustic for Alkali Scrubber	0.0005
8	Water for Alkali Scrubber	0.0047
Total		**4.337**

S. No	Output / MT of Product					Remark
	Product	**Liquid Effluent**	**Air emission**	**Recovery/ Product**	**Solid Waste**	
1	2-chloro-5-nitro-benzonitrile			1.0		Product
2	Spent Sulphuric acid	0.857				For Sale
3	H2SO4 Recycled			0.101		Recycled in next Batch
4	Waste Water	2.306				To ETP for treatment
5	Residue				0.072	To CHWIF for disposal
Total		**3.163**	**0.000**	**1.101**	**0.072**	
		4.337				

Table 3-29: Material Balance of 2-Chloro-5-nitro-benzonitrile

S. No	Input /MT of Product					
	Raw Material			Quantity (MT/MT)		
1	Crude 2-chloro-5-nitro-benzonitrile			1.072		
Total				**1.072**		
S. No	**Output / MT of Product**					**Remark**
	Product	**Liquid Effluent**	**Air emission**	**Recovery/ Product**	**Solid Waste**	
1	2-chloro-5-nitro-benzonitrile			1.0		Product
2	Residue				0.072	To CHWIF for disposal
Total		**0**	**0.000**	**1.0**	**0.072**	
		1.072				

26. 2,6-dichloro-3,5-difluoronitrobenzene

The process involves nitration of Dichloro difluoro benzene in presence of Nitric acid, sulfuric acid and 20% Oleum gives Dichloro difluoro nitro benzene.

Chemical Reaction:

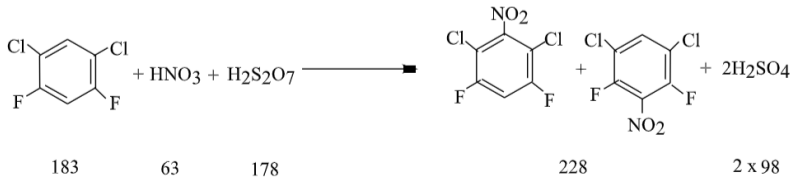


Figure 3-23: Process Block Diagram for 2,6-dichloro-3,5-difluoronitrobenzene

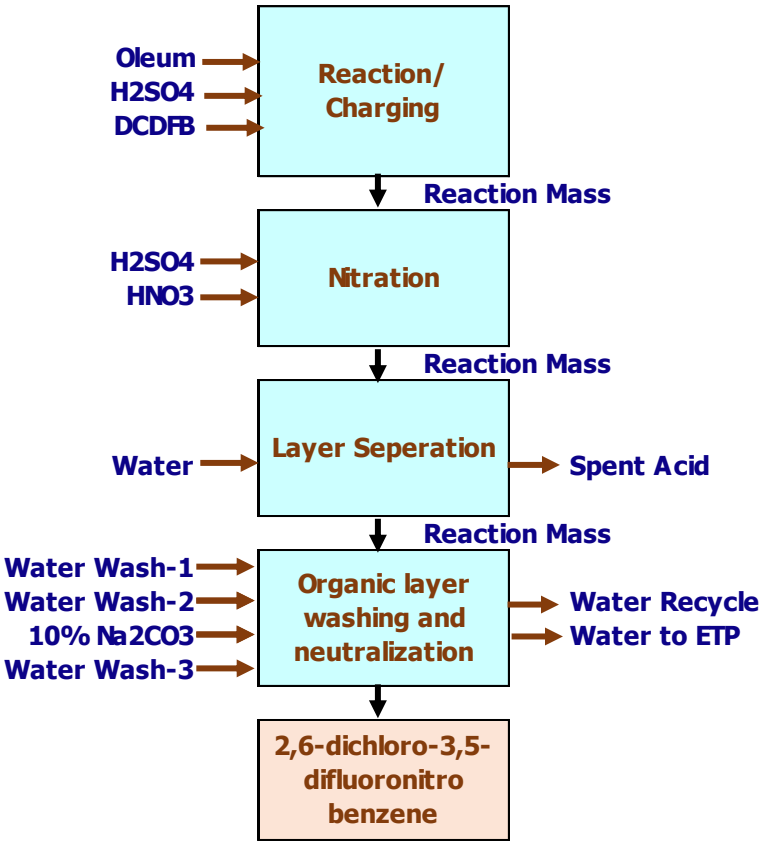


Table 3-30: Material Balance for 2,6-dichloro-3,5-difluoronitrobenzene

S. No	Input /MT of Product	
	Raw Material	**Quantity (MT/MT)**
1	Oleum	0.357
2	H2SO4	1.065
3	DCDFB	0.809
4	HNO3	0.279
5	Water for Wash	0.117
6	10 % Na2 CO3	0.039
Total		**2.666**

S. No	Output / MT of Product					Remark
	Product	**Liquid Effluent**	**Air emission**	**Recovery/ Product**	**Solid Waste**	
1	**2,6-dichloro-3,5-difluoronitrobenzene**			1.000		Product
2	Spent Acid				1.558	To be sold to Rule 9 Registered Vendor
3	Waste Water	0.108				To ETP for treatment
Total		**0.108**	**0.000**	**1.000**	**1.558**	
		2.666				

27. 2-chloro-4-fluoro-5-nitrobenzoic acid

This process involve Nitration of CFBA at 15-40°C.

Chemical Reaction:

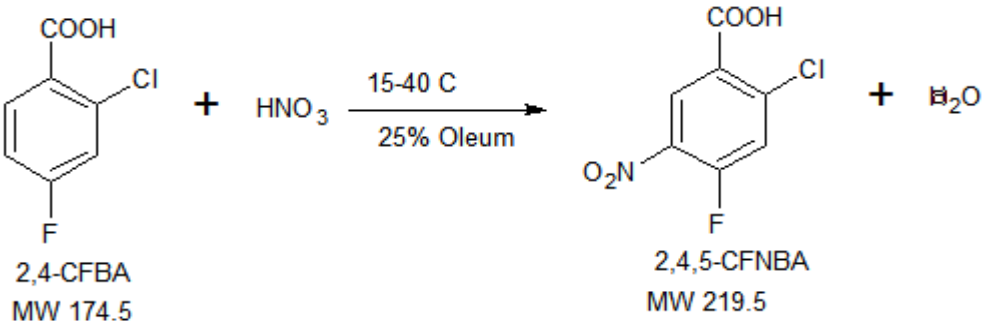


Figure 3-24: Process Block Diagram for 2-chloro-4-fluoro-5-nitrobenzoic acid

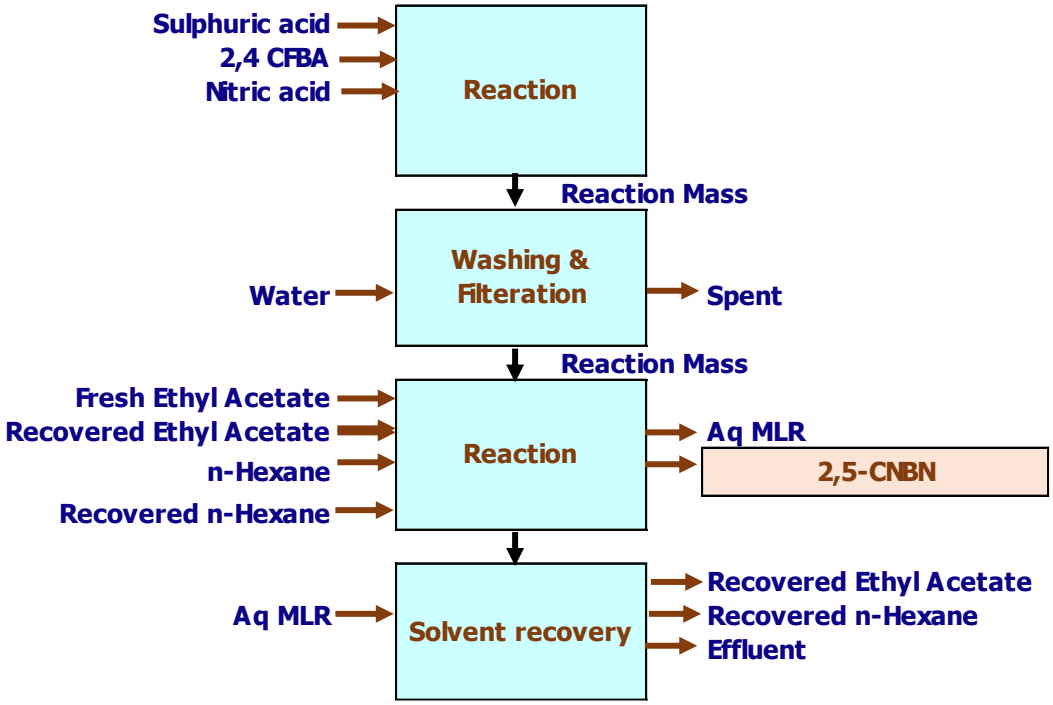


Table 3-31: Material Balance for 2-chloro-4-fluoro-5-nitrobenzoic acid

S. No	Input /MT of Product	
	Raw Material	**Quantity (MT/MT)**
1	Sulphuric acid	8.593
2	2-chloro-4-fluoro benzoic acid	1.093
3	Nitric acid	0.552
4	Water	10.926
5	Fresh Ethyl Acetate	0.085
6	Recovered Ethyl Acetate	4.164
7	n-Hexane	0.056
8	Recovered n-Hexane	2.727
Total		**28.196**

S. No	Output / MT of Product					Remark
	Product	Liquid Effluent	Air emission	Recovery/ Product	Solid Waste	
1	**2-chloro-4-fluoro-5-nitrobenzoic acid**			1.000		Product
2	Spent Acid				19.986	To be sold to Rule 9 Registered Vendor
3	Recovered Ethyl Acetate			4.2		Recycled in next Batch
4	Recovered n-Hexane			2.7		Recycled in next Batch
5	Waste Water	0.319				To ETP for treatment
Total		**0.319**	**0.000**	**7.891**	**19.986**	
		28.196				

D. Dinitro Derivatives

28. Di nitro benzene (DNB) and/or Crude Di nitro benzene

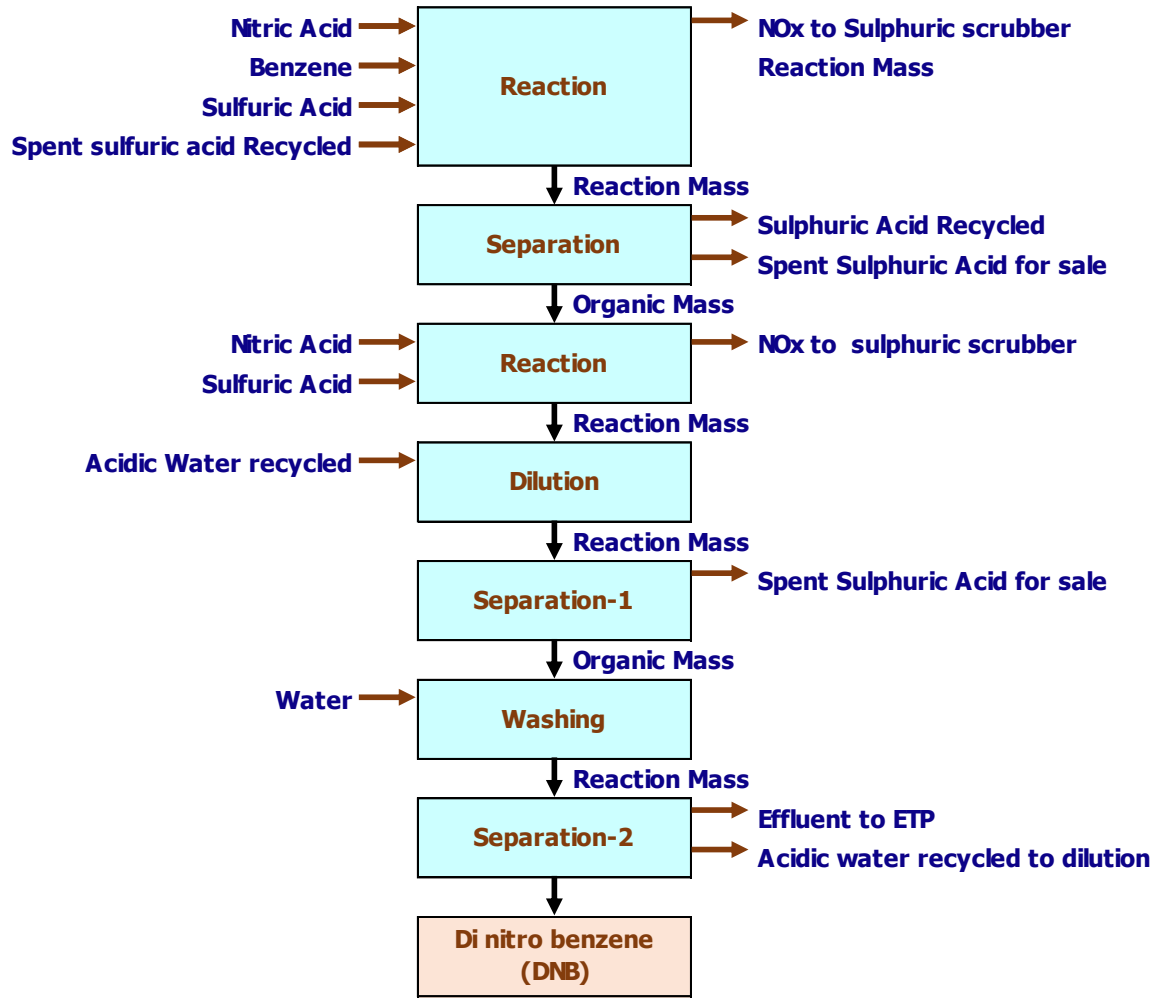
Mixed acid containing concentrated nitric acid and concentrated sulphuric acid is reacted with nitro benzene to produce mixture of ortho/meta/para dinitro benzene. The reaction gets completed in series of nitrators with cooling coils and jackets. Reaction is followed by spent acid separation, washing by water and soda ash, drying to get a mixture of ortho/meta/para dinitro benzene and un reacted nitro benzene. Un reacted nitro benzene is recovered by steam distillation and recycled. The NOx generated during the process is passed through sulphuric scrubber followed by alkali scrubber. Effluent water generated would be sent to ETP.

Chemical Reaction

$C_6H_5NO_2 + HNO_3 + H_2SO_4 \longrightarrow C_6H_4N_2O_4 + H_2O$

Nitro benzene + Nitric acid + Sulphuric Acid ----> Di nitro benzene + water

Figure 3-25: Process Block Diagram of DNB



NOx Absorption

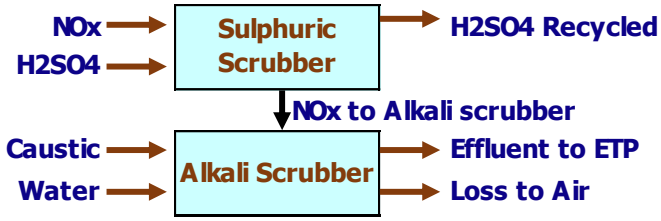


Table 3-32: Material Balance of DNB

S. No	Input /MT of Product	
	Raw Material	**Quantity (MT/MT)**
1	Nitric Acid	0.925
2	Benzene	0.512
3	Sulfuric Acid	1.451
4	Spent sulfuric acid Recycled	0.847
5	Acidic Water recycled	0.180
6	Water for Washing	0.420
7	H_2SO_4 for Acid Scrubber	0.008

8	Caustic for Alkali Scrubber	0.001
9	Water for Alkali Scrubber	0.011
Total		**4.355**

S. No	Output / MT of Product					Remark
	Product	Liquid Effluent	Air emission	Recovery/ Product	Solid Waste	
1	Di nitro benzene (DNB) or Crude DNB			1.0		Product
2	Recovered Sulphuric Acid			0.891		Reused in the next batch
3	Spent Sulfuric acid	2.030				For Sale
4	Acidic water			0.180		Recycled back to dilution
5	Waste Water	0.254				To ETP for treatment
Total		**2.284**	**0.000**	**2.071**	**0.000**	
		4.355				

29. Di nitro Chloro benzene and/or Crude Di nitro Chloro benzene (DNCB)

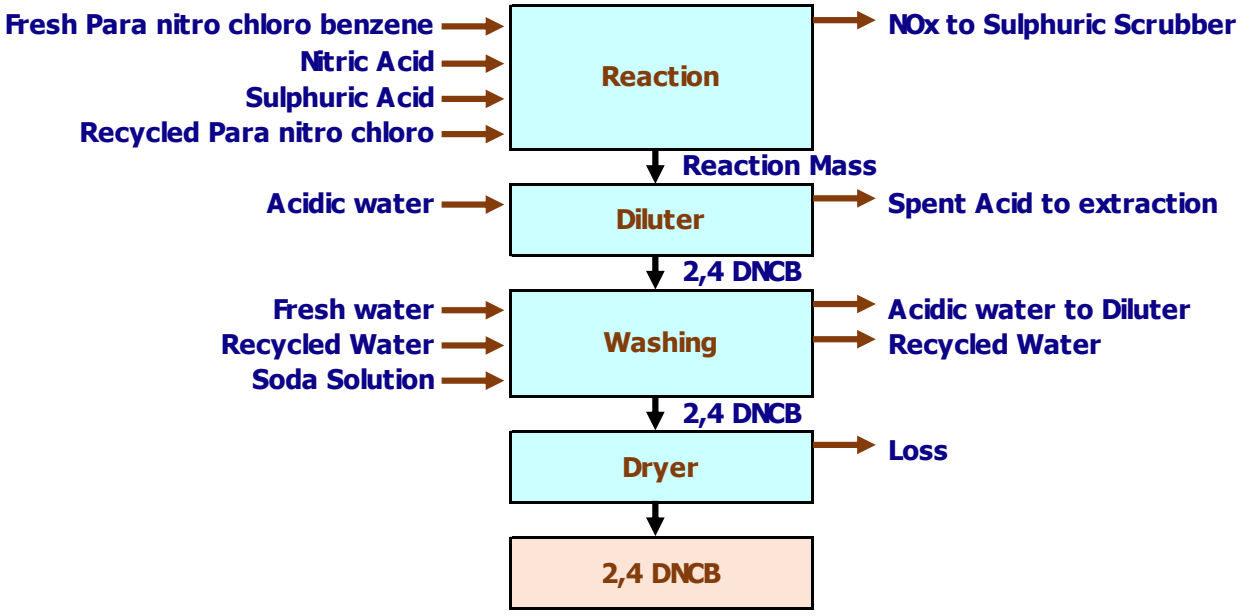
Mixed acid containing concentrated nitric acid and concentrated sulphuric acid is reacted with para nitro chloro benzene to produce dinitro chlorobenzene. The reaction gets completed in series of nitrators with cooling coils and jackets. Reaction is followed by spent acid separation, washing by water and soda ash, drying to get a dinitro chlorobenzene. Spent acid separation is done in extractor and para nitro chloro benzene is recycled. The NOx generated during the process is passed through sulphuric scrubber followed by alkali scrubber. Effluent water generated would be sent to ETP.

Chemical Reaction

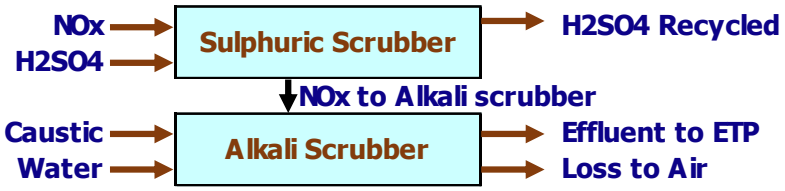
$C_6H_4NO_2Cl + HNO_3 + H_2SO4 \text{ ----> } C_6H_3N_2O_4Cl + 2H_2O$

PNCB + Niric Acid + Sulphuric acid ----> DNCB + Water

Figure 3-26: Process Block Diagram of DNCB



NOx Absorption



PNCB Extraction

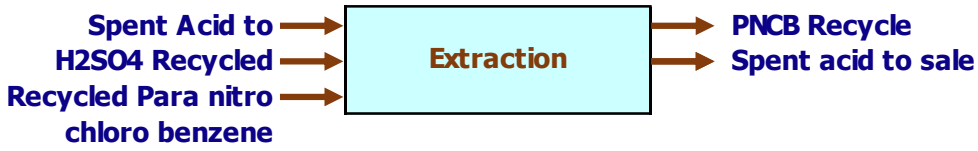


Table 3-33: Material Balance of DNCB

S. No	Input /MT of Product	
	Raw Material	**Quantity (MT/MT)**
1	Fresh Para nitro chloro benzene	0.721
2	Recycled Para nitro chloro benzene	0.847
3	Nitric Acid	0.396
4	Sulphuric Acid	0.711
5	Acidic water	0.279
6	Recycled Water for Washing	1.155
7	Soda Solution	0.227
8	Water	0.052
9	H_2SO_4 for Acid Scrubber	0.003
10	Caustic for Alkali Scrubber	0.001
11	Water for Alkali Scrubber	0.005
Total		**4.396**

S. No	Output / MT of Product					Remark
	Product	**Liquid Effluent**	**Air emission**	**Recovery/ Product**	**Solid Waste**	
1	Di nitro chloro benzene (DNCB) or Crude DNCB			1.0		Product
2	Spent Sulphuric Acid	1.109				For Sale
3	PNCB Recycle			0.847		Recycled in next Batch
4	Recycled Water			1.155		Recycled in next Batch
5	Acidic water	0.279				Recycled in next Batch to Diluter
6	Loss		0.001			Loss
7	Waste Water	0.006				To ETP for treatment
Total		**1.394**	**0.001**	**3.002**	**0.000**	
		4.396				

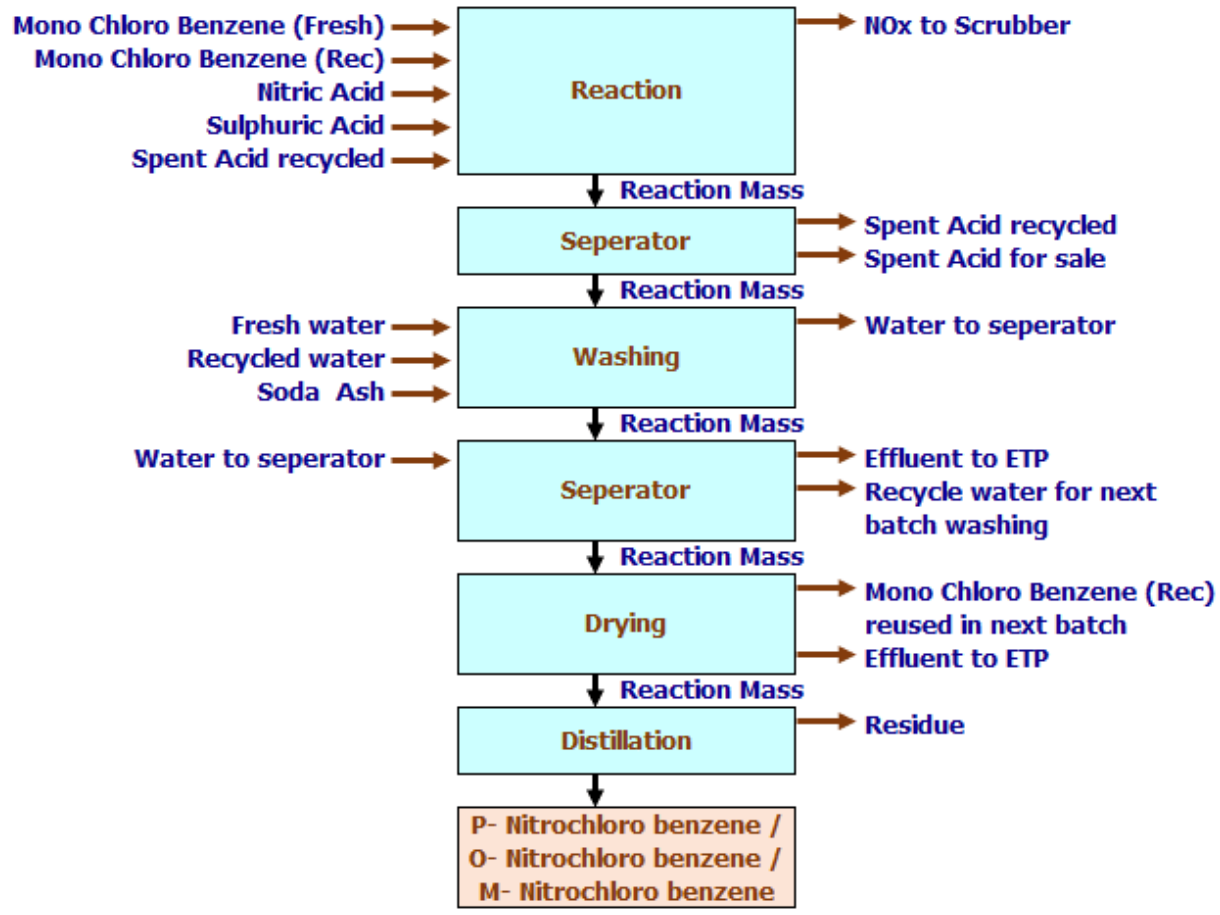
E. Mix Nitro Derivatives

30. Mixture of Nitro Chloro Benzene and/or Crude Nitro Chloro Benzene

Mixed acid containing concentrated nitric acid and concentrated sulphuric acid is reacted with chloro benzene to produce mixture of para nitro chlorobenzene, ortho nitro chlorobenzene and meta nitro chlorobenzene. 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 mixture of o/m/p nitro chlorobenzene and un reacted chlorobenzene. Un reacted chlorobenzene is recovered by steam distillation and recycled. The NOx generated during the process is passed through sulphuric scrubber followed by alkali scrubber. Effluent water generated would be sent to ETP.

C_6H_5Cl	+ HNO_3	----->	$C_6H_4ClNO_2$	+ H_2O
(Mono-chloro benzene)	+ Nitric Acid	----->	PNCB/ONCB/MNCB	+ water

Figure 3-27: Process Block Diagram of Mixture of NCB



NOx Absorption

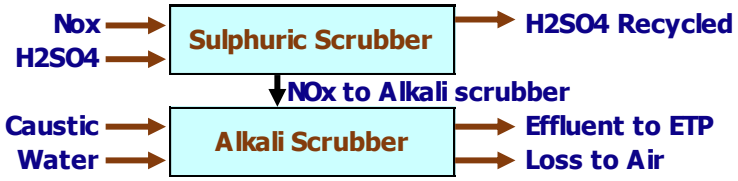


Table 3-34: Material Balance of Crude Mixture of NCB

S. No	Input /MT of Product	
	Raw Material	**Quantity (MT/MT)**
1	Mono Chloro Benzene (Fresh)	0.724
2	Mono Chloro Benzene (Rec)	0.010
3	Nitric Acid	0.405
4	Sulphuric Acid	0.309
5	Spent Acid recycled	1.526
6	Fresh Water	0.162
7	Recycled Water	0.233
8	Soda Ash	0.001
9	H_2SO_4 for Acid Scrubber	0.003
10	Caustic for Alkali Scrubber	0.001
11	Water for Alkali Scrubber	0.008
Total		**3.383**

S. No	Output / MT of Product					Remark
	Product	**Liquid Effluent**	**Air emission**	**Recovery/ Product**	**Solid Waste**	
1	Crude Mixture of NCB			1.0		Product
2	Spent Sulphuric Acid			1.522		Reused in the next batch
3	Spent Acid for Sale	0.437				For Sale
4	Mono Chloro Benzene			0.010		Recycled back to feed
5	Waste Water	0.233				Recycled in next Batch
6	H_2SO_4			0.004		Recycled in next Batch
7	Effluent	0.177				To ETP for treatment
Total		**0.847**	**0.000**	**2.536**	**0.006**	
		3.383				

Table 3-35: Material Balance of Mixture of NCB

S. No	Input /MT of Product	
	Raw Material	**Quantity (MT/MT)**
1	Crude Mixture of NCB	1.006
Total		**1.006**

S. No	Output / MT of Product					Remark
	Product	**Liquid Effluent**	**Air emission**	**Recovery/ Product**	**Solid Waste**	
1	Mixture of NCB			1.0		Product
2	Residue				0.006	To CHWIF for disposal
Total		**0**	**0**	**1.0**	**0.006**	
		1.006				

31. Mixture of Di Chloro Nitro Benzene and/or Crude Di Chloro Nitro Benzene

2,5-DCNB/3,4-DCNB/3,5 -DCNB/ 2,6-DCNB is produced by nitration of PDCB/ODCB/MDCB with nitric and sulphuric acid.

PDCB/ODCB/MDCB, 98% sulphuric acid & dilute sulphuric acid in desired quantity charged to reactor. Required temperature maintained by using cooling water in cooling coil / condenser during nitric acid feeding. After that mass is transferred to other reactor and required temperature is maintained until the reaction is completed. The separation of spent acid is done after reaction. Then mass is washed with

Caustic solution to achieve neutral pH. once pH is achieved the material is transferred to storage tank. The NOx generated during the process is passed through sulphuric scrubber followed by alkali scrubber. The generated residue from process would be sent for incineration.

Effluent generated from Process and scrubber is sent to ETP for Treatment.

Chemical Reaction

$C_6H_4Cl_2$ + HNO_3 ---> $C_6H_3Cl_2NO_2$ + H_2O

(PDCB) + (Nitric) ---> (2,5 DCNB)+ Water

Figure 3-28: Process Block Diagram for Mixture of Di Chloro Nitro Benzene

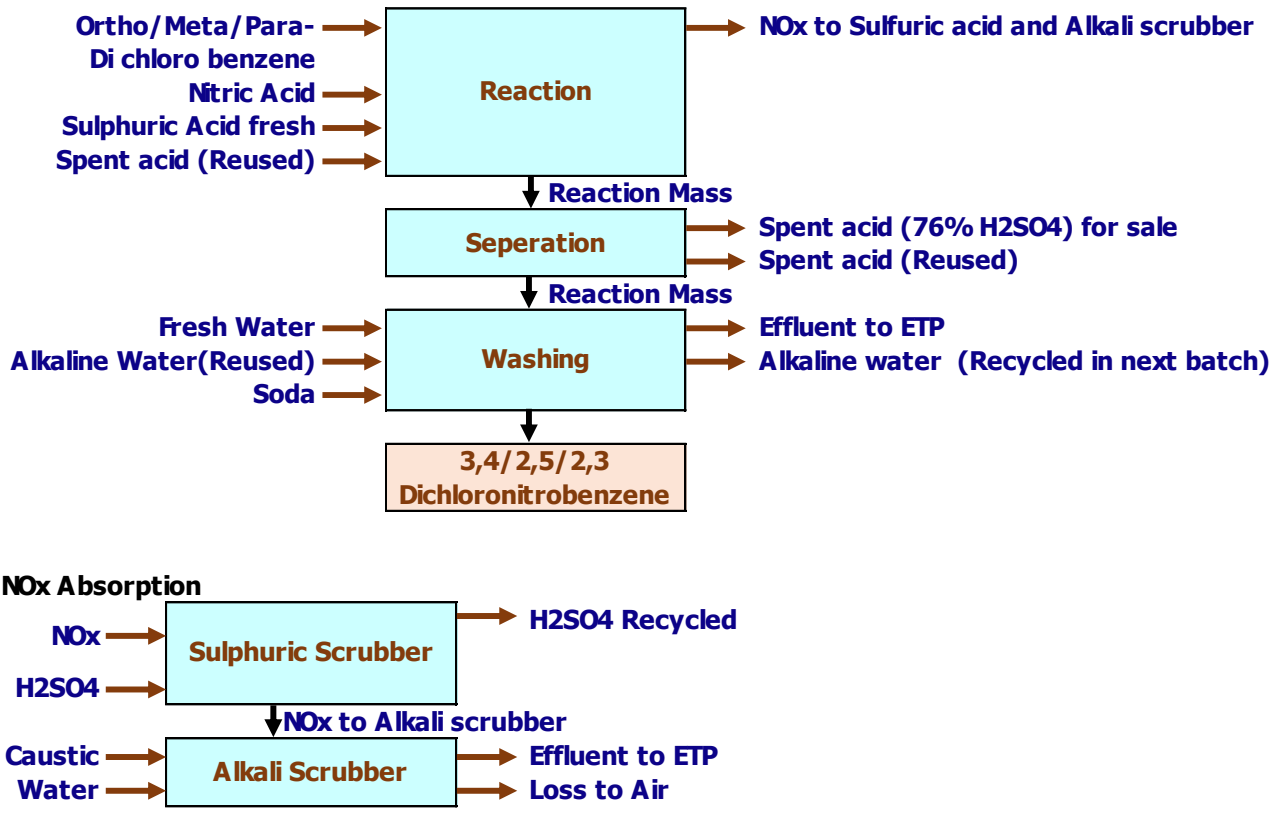


Table 3-36: Material Balance for Mixture of Di Chloro Nitro Benzene

S. No	Input /MT of Product	
	Raw Material	Quantity (MT/MT)
1	Ortho/Meta/Para- Di chloro benzene	0.783

2	Nitric Acid	0.342
3	Sulphuric Acid fresh	0.379
4	Spent acid (Reused)	0.734
5	Water	0.099
6	Alkaline Water(Reused)	0.052
7	Soda	0.005
8	H_2SO_4 for Acid Scrubber	0.003
9	Caustic for Alkali Scrubber	0.001
10	Water for Alkali Scrubber	0.006
Total		**2.404**

S. No	**Output / MT of Product**					**Remark**
	Product	**Liquid Effluent**	**Air emission**	**Recovery/ Product**	**Solid Waste**	
1	2,5 DNCB/ 3,4 DNCB / 3,5 DNCB / 2,4 DNCB or Crude 2,5 DNCB/ 3,4 DNCB / 3,5 DNCB / 2,4 DNCB			1.0		Product
2	Spent acid (76% H_2SO_4)	0.506				For Sale
3	Spent acid (Reused)			0.734		Reused in the next batch
4	Alkaline water	0.052				Recycled in next batch
5	Waste Water	0.112				To ETP for treatment
Total		**0.670**	**0.000**	**1.734**	**0.000**	
		2.404				

32. Mixture of Nitro Toluene and/or Crude Nitro Toluene

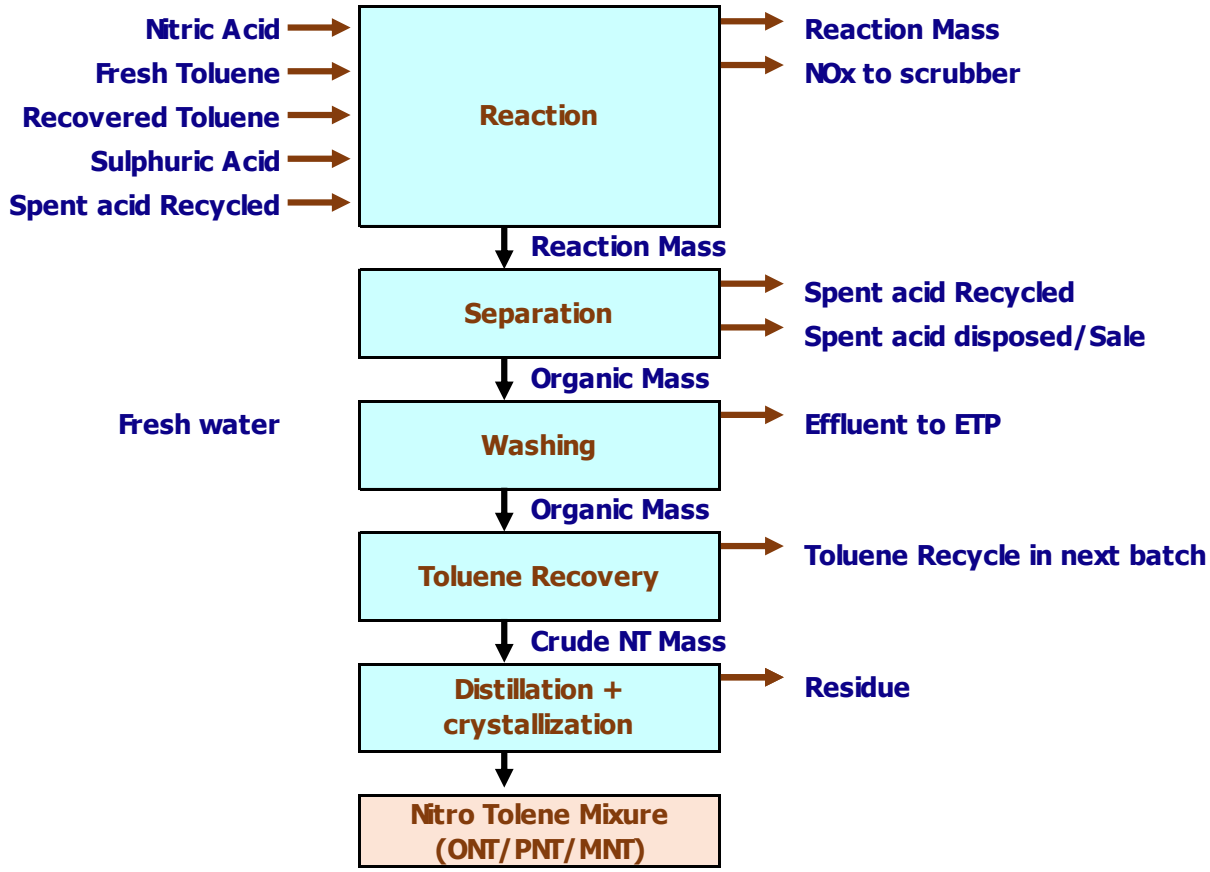
Mixed acid containing concentrated nitric acid and concentrated sulphuric acid is reacted with toluene to produce mixture of para nitro toluene, ortho nitro toluene and meta nitro toluene. Reaction is followed by spent acid separation, washing by water, and un reacted toluene is recovered and recycled. Product from Reaction mass goes to distillation section and crystallizer where toluene mixture is obtained as product and residue is send to landfill. The NOx generated during the process is passed through sulphuric scrubber followed by alkali scrubber. Effluent water generated would be sent to ETP.

Chemical Reaction:

C_7H_8 + HNO_3 ----> $C_7H_7NO_2$ + H_2O

Toluene Nitric acid Nitro toluene Water

Figure 3-29: Process Block Diagram for Mixture of Nitro Toluene



NOx Absorption

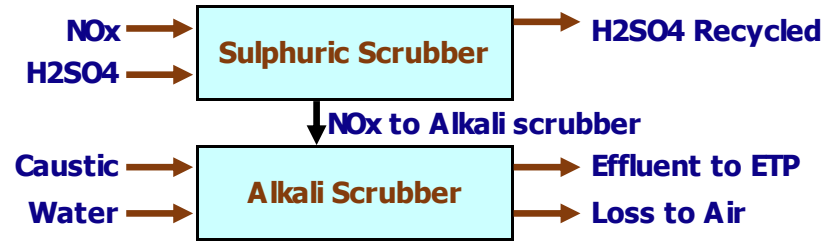


Table 3-37: Material Balance for Mixture of Nitro Toluene

S. No	Input /MT of Product	
	Raw Material	**Quantity (MT/MT)**
1	Nitric Acid	0.458
2	Fresh Toluene	0.560
3	Recovered Toluene	0.112
4	Sulphuric Acid	0.375
5	Spent acid Recycled	0.805
6	Water	1.114
7	H_2SO_4 for Acid Scrubber	0.004
8	Caustic for Alkali Scrubber	0.001
9	Water for Alkali Scrubber	0.005

Total				3.434		
S. No	Output / MT of Product					Remark
	Product	Liquid Effluent	Air e mission	Recovery/ Product	Solid Waste	
1	Crude Nitro Toluene Mixture (MNT/PNT/ONT)			1.0		Product
2	Spent Acid Recycled			0.800		Reused in the next batch
3	Spent Sulphuric Acid	0.395				For Sale
4	Recovered Toluene			0.112		Recycled back to feed
5	H_2SO_4			0.005		Recycled in next Batch
6	Effluent	1.121				To ETP for treatment
Total		**1.516**	**0.000**	**1.917**	**0.00**	
		3.434				

Table 3-38: Material Balance for Mixture of Nitro Toluene

S. No	Input /MT of Product	
	Raw Material	Quantity (MT/MT)
1	Crude Nitro Toluene Mixture (MNT/PNT/ONT)	1.002
Total		**3.436**

S. No	Output / MT of Product					Remark
	Product	Liquid Effluent	Air e mission	Recovery/ Product	Solid Waste	
1	Nitro Toluene Mixture (MNT/PNT/ONT)			1.0		Product
2	Residue				0.002	To CHWIF for disposal
Total		**0**	**0**	**1.0**	**0.002**	
		1.002				

F. Hydrogenated/Reduction (Other derivatives)

33. Aniline and/or Crude Aniline & Monomethyl Aniline and/or Crude Monomethyl Aniline & Dimethyl Aniline and/or Crude Dimethyl Aniline

Chemical Reaction

$C_6H_5NH_2$	+	CH_3OH	----->	$C_6H_5NHCH_3$	+	H_2O
Aniline		Methanol		Mono methyl aniline		Water

Figure 3-30: Process Block Diagram for Aniline, MMA & DMA

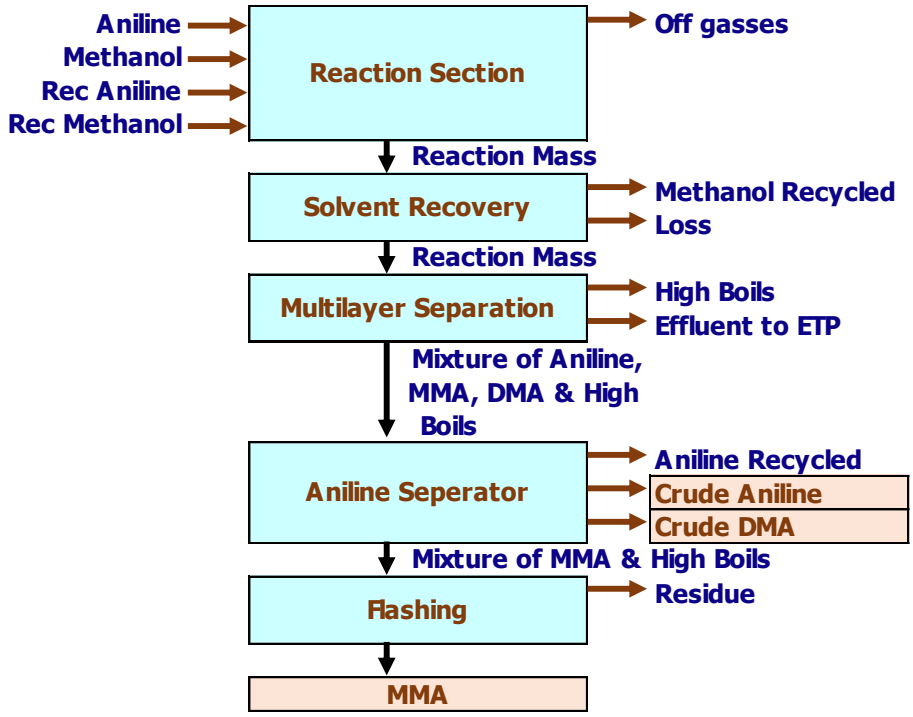


Table 3-39: Material Balance for Aniline, MMA & DMA

S. No	Input /MT of Product					
	Raw Material			Quantity (MT/MT)		
1	Aniline			0.908		
2	Methanol			0.467		
3	Recovered Aniline			0.263		
4	Recovered Methanol			0.014		
Total				**1.652**		
S. No	**Output / MT of Product**					**Remark**
	Product	**Liquid Effluent**	**Air emission**	**Recovery/ Product**	**Solid Waste**	
1	Crude MMA			1.0		Product
2	Crude DMA			0.025		Product
3	Crude Aniline			0.017		Product
4	Recovered Methanol			0.014		Reused in the next batch
5	Recovered Aniline			0.263		Reused in the next batch
6	Off Gases		0.155			To Thermal Oxidiser used as fuel
7	Loss		0.0005			Loss
8	Waste Water	0.178				To ETP for treatment
Total		**0.178**	**0.156**	**1.319**	**0.0**	
		1.652				

Table 3-40: Material Balance for MMA

S. No	Input /MT of Product					
	Raw Material			**Quantity (MT/MT)**		
1	Crude MMA			1.011		
Total				**1.011**		
S. No	**Output / MT of Product**					**Remark**
	Product	**Liquid Effluent**	**Air emission**	**Recovery/ Product**	**Solid Waste**	
1	MMA			1.0		Product
2	Residue				0.011	To CHWIF for disposal
Total		**0**	**0**	**1.0**	**0.011**	
		1.011				

34. Monomethyl Aniline and/or Crude Monomethyl Aniline

As per above S. No. 34: Aniline and/or Crude Aniline

35. Dimethyl Aniline and/or Crude Dimethyl Aniline

As per above S. No. 34: Aniline and/or Crude Aniline

G. Phthalate Derivatives

36. Di Methyl Phthalate (DMP) and/or Crude DMP

Methanol and Phthalic anhydride are mixed with an esterification catalyst in the reactor with heating. Methanol is fed to the reactor continuously till the phthalic acid gets converted to DMP. At the same time unreacted Methanol and water generated in the reaction is directed to the distillation column attached with reactor for 2Ethyl hexanol - water separation. 2Ethyl hexanol from the top of column will be transferred to the storage vessel. The crude DMP is neutralized by NaOH and washed by water. Traces of water are vaporized by applying vacuum. The Dried DMP is then fed to Filter for the Filtration process. Residue generated during drying will be sent for landfilling. Pure DMP from Filter will be transferred to a pure DMP storage vessel.

Chemical Reaction

$C_6H_4(CO)_2O + 2CH_3OH \rightarrow C_6H_4(C_2H_3O_2)_2 + 2H_2O$

(PA) + (Methanol) ---> (DMP) + Water

Figure 3-31: Process Block Diagram of DMP

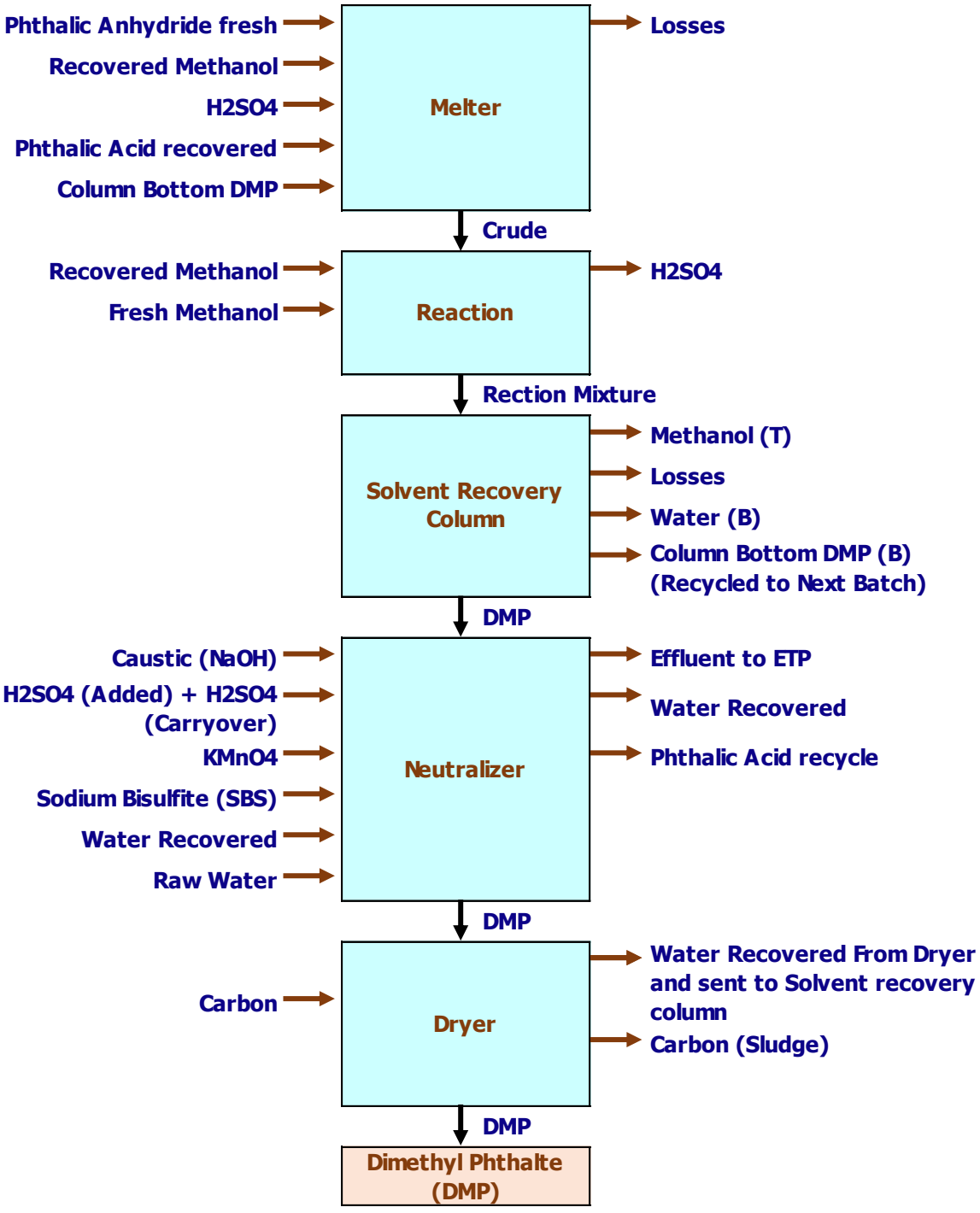


Table 3-41: Material Balance of DMP

S. No	Input /MT of Product	
	Raw Material	**Quantity (MT/MT)**
1	Phthalic Anhydride fresh	0.792
2	Fresh Methanol	0.346
3	Recovered Methanol	0.630

S. No	Input /MT of Product	
	Raw Material	**Quantity (MT/MT)**
4	H_2SO_4	0.008
5	Recovered Phthalic Acid	0.006
6	Column Bottom DMP	0.030
7	Caustic for Neutraliser	0.007
8	KMnO4	0.001
9	Sodium Bisulfite (SBS)	0.001
10	Water	0.104
11	Recovered Water	0.208
12	Carbon	0.000
Total		**2.132**

S. No	Output / MT of Product					Remark
	Product	**Liquid Effluent**	**Air emission**	**Recovery/ Product**	**Solid Waste**	
1	Dimethyl Phthalet (DMP) / Crude DMP			1.0		Product
2	Recovered Methanol			0.630		Reused in the next batch
3	H_2SO_4	0.003				Reused in the next batch
4	Column Bottom DMP	0.030				Reused in the next batch
5	Phthalic Acid			0.006		Reused in the next batch
6	Loss		0.014			Loss
7	Waste Water	0.241				To ETP for treatment
8	Recovered Water			0.208		Recycled in next Batch
9	Carbon Sludge				0.0001	To CHWIF for disposal
Total		**0.274**	**0.014**	**1.844**	**0.0001**	
		2.132				

37. Di Iso Nonyl Phthalate (DINP) and/or Crude DINP

"Phthalic anhydride is reacted with iso nonyl alcohol in reactor for production of Di iso nonyl phthalate. In this reaction phthalic anhydride is converted in Di iso nonyl phthalate. Water produced is separated from and sent to ETP.

Chemical Reaction

$C_6H_4(CO)_2O$ + $2C_9H_{19}OH$ ---------> $C_{26}H_{42}O_4$ + H_2O

Phthalic Anhydride Iso nonyl alcohol Di-iso nonyl phthalate water

Figure 3-32: Process Block Diagram DINP

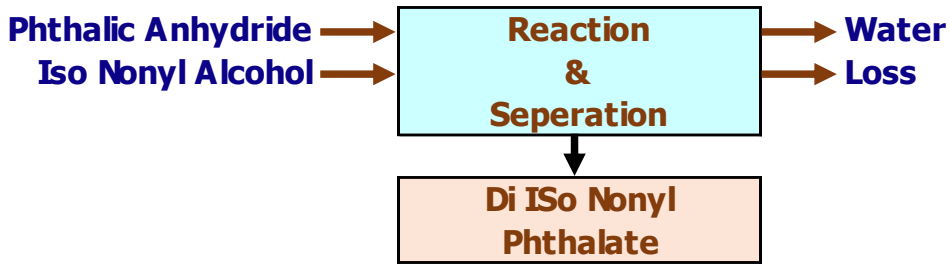


Table 3-42: Material Balance DINP

S. No	Input /MT of Product					
	Raw Material			Quantity (MT/MT)		
1	Phthalic Anhydride			0.357		
2	Iso Nonyl Alcohol			0.695		
Total				**1.052**		
S. No	**Output / MT of Product**					**Remark**
	Product	**Liquid Effluent**	**Air emission**	**Recovery/ Product**	**Solid Waste**	
1	Di Iso Nonyl Phthalate or Crude DINP			1.0		Product
2	Waste Water	0.049				To ETP for treatment
3	Loss		0.003			Loss
Total		**0.049**	**0.003**	**1.000**	**0.000**	
		1.052				

38. Di Iso Decyl Phthalate (DIDP)

Phthalic anhydride is reacted with iso decyl alcohol in reactor for production of Di iso decyl phthalate. In this reaction phthalic anhydride is converted in Di iso decyl phthalate. Water produced is separated from and sent to ETP.

Chemical Reaction

$C_6H_4(CO)_2O$ + $2C_{10}H_{22}O$ --------> $C_{28}H_{46}O$ + H_2O

Phthalic Anhydride iso decyl alcohol Di Iso Decyl Phthalate water

Figure 3-33: Process Block Diagram DIDP

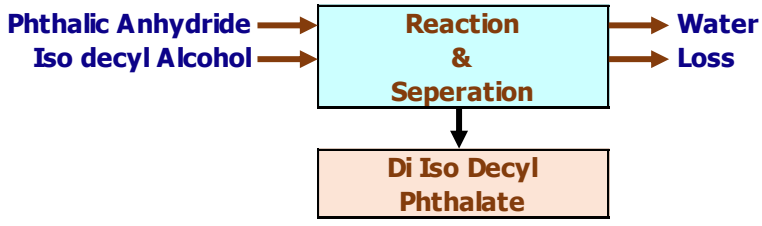


Table 3-43: Material Balance DIDP

S. No	Input /MT of Product					
	Raw Material			Quantity (MT/MT)		
1	Phthalaic Anhydride			0.335		
2	Iso decyl Alcohol			0.715		
Total				**1.050**		
S. No	**Output / MT of Product**					**Remark**
	Product	**Liquid Effluent**	**Air emission**	**Recovery/ Product**	**Solid Waste**	
1	**Di Iso Decyl Phthalate**			1.0		Product
2	Waste Water	0.048				To ETP for treatment
3	Loss			0.002		Loss
Total		**0.048**	**0.000**	**1.002**	**0.000**	
		1.050				

39. Di Methyl Adipate

Adipic acid reacts with methanol in reaction vessel which gives Di Methyl Adipate as Product. Water is generated during the reaction which is sent to ETP for treatment.

Chemical Reaction

$(CH_2)_4(COOH)_2$ + $2CH_3OH$ --------> $C_8H_{14}O_4$ + $2H_2O$

Adipic acid Methanol Di-methyl adipate water

Figure 3-34: Process Block Diagram of Di Methyl Adipate

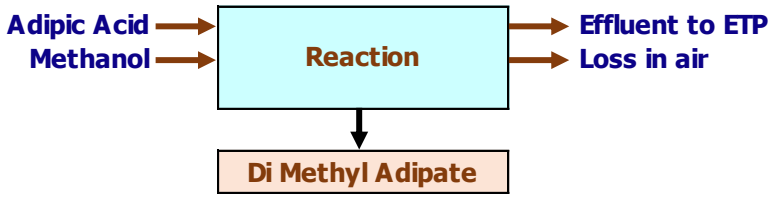


Table 3-44: Material Balance of Di Methyl Adipate

S. No	Input /MT of Product					
	Raw Material			Quantity (MT/MT)		
1	Adipic Acid			0.847		
2	Methanol			0.371		
Total				**1.218**		
S. No	**Output / MT of Product**					**Remark**
	Product	**Liquid Effluent**	**Air emission**	**Recovery/ Product**	**Solid Waste**	
1	**Di Methyl Adipate**			1.0		Product
2	Waste Water	0.096				To ETP for treatment
3	Loss		0.122			Loss
Total		**0.096**	**0.122**	**1.000**	**0.000**	

	1.218	

40. Di Octyl Adipate

2Ethyl hexanol and Adipic Acid are mixed with an esterification catalyst in the reactor with heating. 2Ethyl hexanol is fed to the reactor continuously till the Adipic Acid gets converted to DOA. At the same time unreacted 2Ethyl hexanol and water generated in the reaction is directed to the distillation column attached with reactor for 2-Ethyl Hexanol -water separation. 2-Ethyl Hexanol from top of column will be transferred to the storage vessel. The crude DOA is neutralized by NaOH and washed by water. Pure DOA from Filter will be transferred to pure DOA storage vessels. Residue obtained during the filtration step will be sent to landfilling

Chemical Reaction

$C_6H_{10}O_4$ + $2C_8H_{18}O$ ---> $C_{22}H_{42}O_4$ + $2H_2O$

(Adipic Acid) + Octanol ---> Di octyl adipate + Water

Figure 3-35: Process Block Diagram of DOA

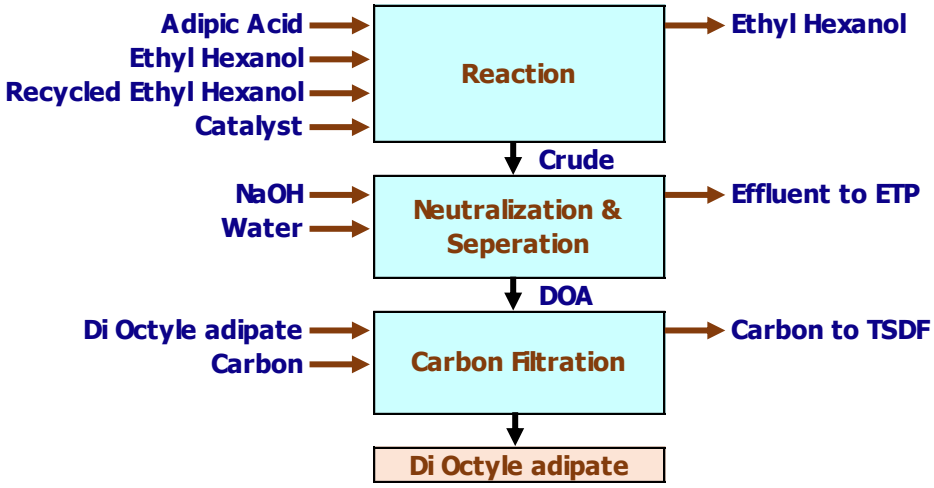


Table 3-45: Material Balance of DOA

S. No	Input /MT of Product	
	Raw Material	**Quantity (MT/MT)**
1	Adipic Acid	0.394
2	Ethyl Hexanol	0.703
3	Recycled Ethyl Hexanol	0.135
4	Catalyst	0.004
5	NaOH	0.003
6	Water	0.089
7	Carbon	0.002
Total		**1.330**

S. No	Output / MT of Product					Remark
	Product	**Liquid Effluent**	**Air emission**	**Recovery/ Product**	**Solid Waste**	
1	Di Octyle adipate			1.0		Product

S. No	Input /MT of Product					
	Raw Material			Quantity (MT/MT)		
2	Recovered Ethyl Hexanol			0.135		Reused in the next batch
3	Waste Water	0.189				To ETP for treatment
4	Spent Carbon				0.006	To TSDF for Disposal
Total		**0.189**	**0.000**	**1.135**	**0.006**	
		1.330				

41. Di Octyl Phthalate (DOP)

2Ethyl hexanol and Phthalic anhydride are mixed with an esterification catalyst in the reactor with heating. 2Ethyl hexanol is fed to the reactor continuously till the phthalic acid gets converted to DOP. At the same time unreacted 2Ethyl hexanol and water generated in the reaction is directed to the distillation column attached with reactor for 2-Ethyl Hexanol -water separation. 2-Ethyl Hexanol from top of column will be transferred to the storage vessel. The crude DOP is neutralized by NaOH and washed by water. DOP products are sent for the drying process. DOP is then fed to Filter for Filtration process. Residue obtained during the filtration step will be sent to landfilling. Pure DOP from Filter will be transferred to a pure DOP storage vessel.

Chemical Reaction

$C_6H_4(CO)_2O + 2C_8H_{18}O \rightarrow C_6H_4(CO_2C_8H_{17})_2 + 2H_2O$

(PA) + (2 E-OH) ---> (Di Octyl Phthalate) + Water

Figure 3-36: Process Block Diagram of DOP

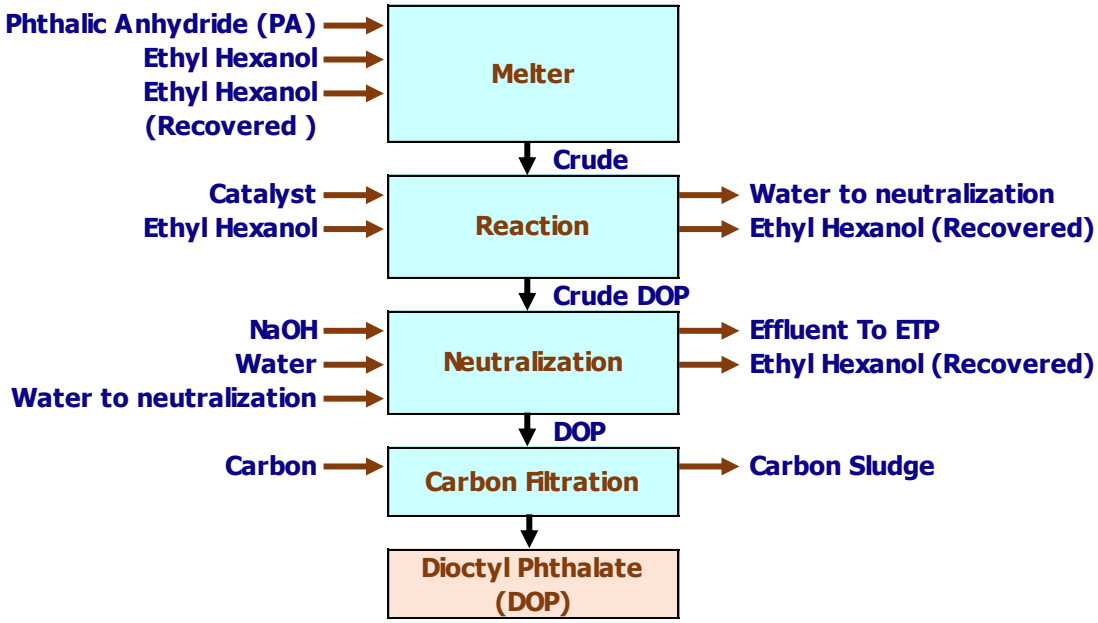


Table 3-46: Material Balance of DOP

S. No	Input /MT of Product	
	Raw Material	Quantity (MT/MT)
1	Phthalic Anhydride (PA)	0.381
2	Ethyl Hexanol	0.667

3	Ethyl Hexanol (Recovered)			0.169		
4	Catalyst			0.000		
5	NaOH			0.001		
6	Water				0.095	
7	Carbon			0.002		
Total				**1.315**		

S. No	**Output / MT of Product**					**Remark**
	Product	**Liquid Effluent**	**Air emission**	**Recovery/ Product**	**Solid Waste**	
1	**Dioctyl Phthalate (DOP)**			1.0		Product
2	**Ethyl Hexanol (Recovered)**			0.169		Reused in the next batch
3	Waste Water	0.144				To ETP for treatment
4	Spent Carbon Sludge				0.002	ToTSDF for Disposal
Total		**0.144**	**0.000**	**1.169**	**0.002**	
		1.315				

42. Dibasic ester

The process involves esterification of succinic anhdride with methanol in presence of zinc oxide catalyst gives dimethyl succinate

Chemical Reaction

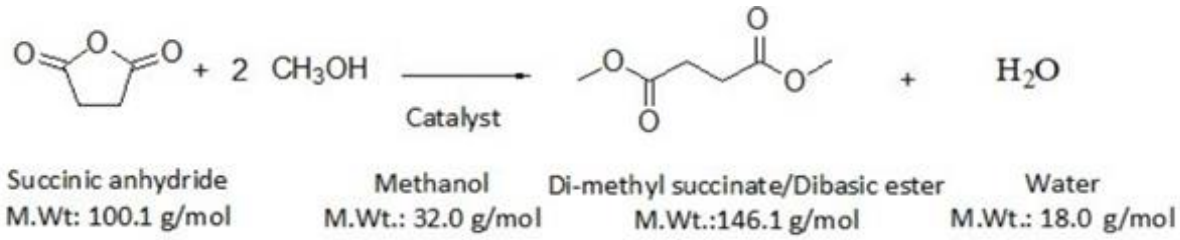


Figure 3-37: Process Block Diagram of Dibasic ester

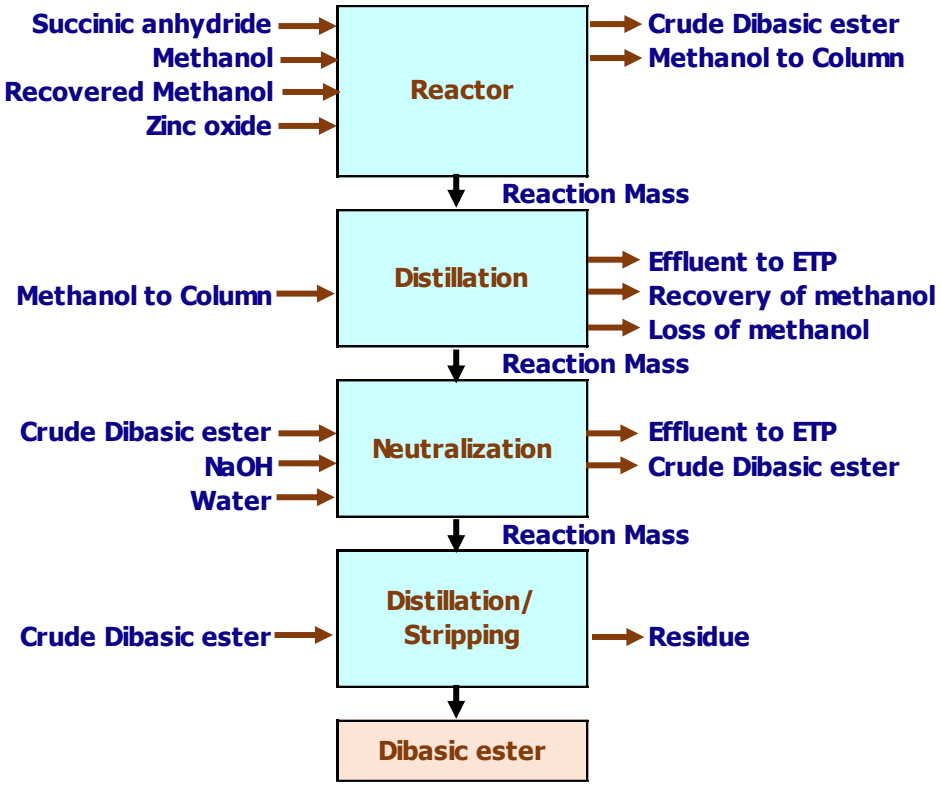


Table 3-47: Material Balance of Dibasic ester

S. No.	Input /MT of Product	
	Raw Material	**Quantity (MT/MT)**
1	Succinic anhydride	0.687
2	Methanol	0.451
3	Recovered Methanol	0.210
4	Zinc oxide	0.001
5	NaOH	0.012
6	Water	0.167
Total		**1.528**

S. No.	Output / MT of Product					Remark
	Product	**Liquid Effluent**	**Air emission**	**Recovery/ Product**	**Solid Waste**	
1	Dibasic Ester			1.0		Product
2	Recovery of methanol			0.210		Reused in the next batch
3	Waste Water	0.304				To ETP for treatment
4	Loss of Methanol		0.011			Loss
5	Residue				0.003	ToTSDF for Disposal
Total		**0.304**	**0.011**	**1.210**	**0.003**	
		1.528				

43. Dioctyl Terephthalate

The process involves esterification of terephthalic acid with 2-ethyl hexanol in presence of titanate catalyst gives Diisononyl phthalate.

Chemical Reaction

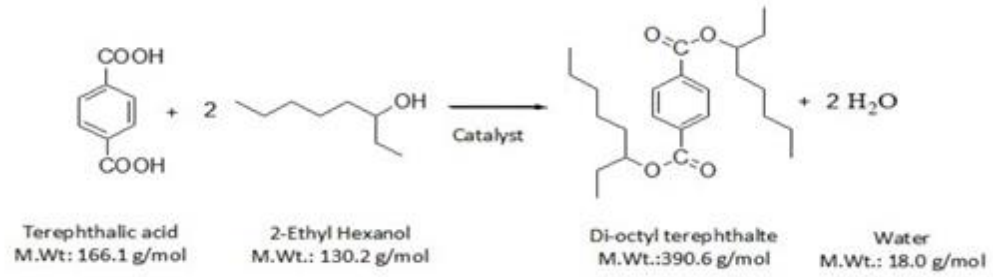


Figure 3-38: Process Block Diagram of Dioctyl Terephthalate

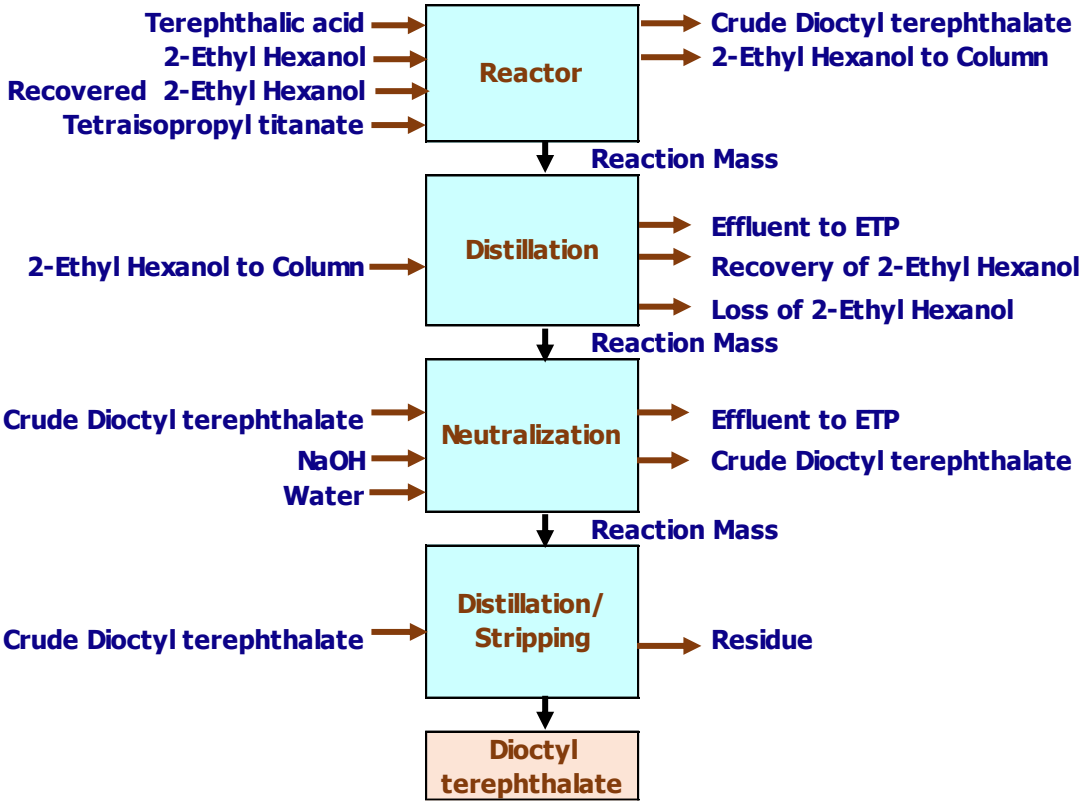


Table 3-48: Material Balance of Dioctyl Terephthalate

S. No	Input /MT of Product	
	Raw Material	**Quantity (MT/MT)**
1	Terephthalic acid	0.427
2	2-Ethyl Hexanol	0.673
3	Recovered 2-Ethyl Hexanol	0.164

4	Tetraisopropyl titanate	0.004
5	NaOH	0.007
6	Water	0.105
Total		**1.380**

S. No	Output / MT of Product					Remark
	Product	Liquid Effluent	Air emission	Recovery/ Product	Solid Waste	
1	**Dioctyl Terephthalate**			1.0		Product
2	**Recovery of 2-Ethyl Hexanol**			0.164		Reused in the next batch
3	Waste Water	0.204				To ETP for treatment
4	Loss of 2-Ethyl Hexanol		0.008			Loss
5	Residue				0.004	ToTSDF for Disposal
Total		**0.204**	**0.008**	**1.164**	**0.004**	
		1.380				

44. Dicyclohexyl phthalate

The process involves esterification of pthalic anhdride with cyclohexanol in presence of sulphuric acid catalyst gives Dicyclohexyl phthalate.

Chemical Reaction

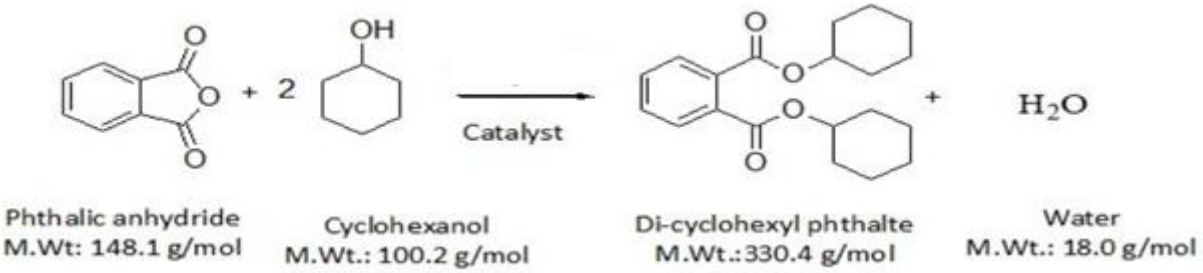


Figure 3-39: Process Block Diagram of Dicyclohexyl phthalate

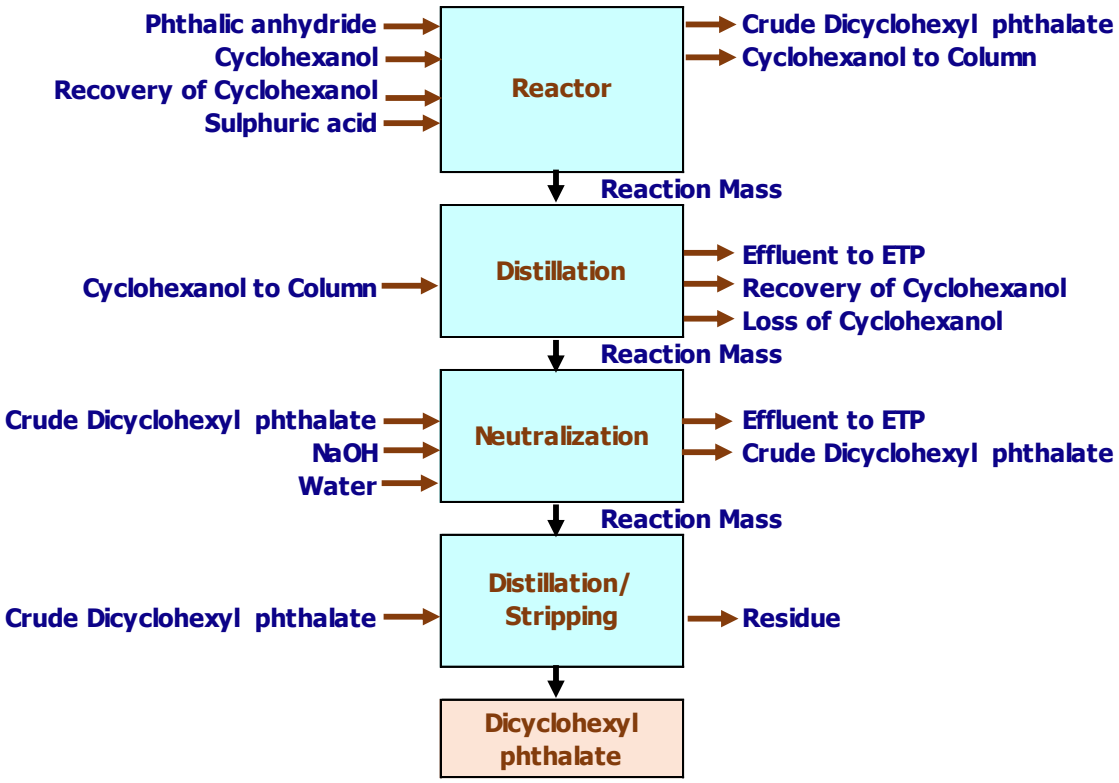


Table 3-49: Material Balance of Dicyclohexyl phthalate

S. No	Input /MT of Product	
	Raw Material	**Quantity (MT/MT)**
1	Phthalic anhydride	0.450
2	Cyclohexanol	0.611
3	Recovered Cyclohexanol	0.144
4	Sulphuric acid	0.005
5	NaOH	0.007
6	Water	0.108
Total		1.325

S. No	Output / MT of Product					Remark
	Product	**Liquid Effluent**	**Air emission**	**Recovery/ Product**	**Solid Waste**	
1	Dicyclohexyl phthalate			1.0		Product
2	Recovered Cyclohexanol			0.144		Reused in the next batch
3	Waste Water	0.170				To ETP for treatment
4	Loss of Cyclohexanol		0.008			Loss
5	Residue				0.003	ToTSDF for Disposal
Total		0.170	0.008	1.144	0.003	
		1.325				

45. Di isononyl Adipate

The process involves esterification of adipic acid with isononyl alcohol and presence of titanate catalyst gives **Diisononyl Adipate**.

Chemical Reaction

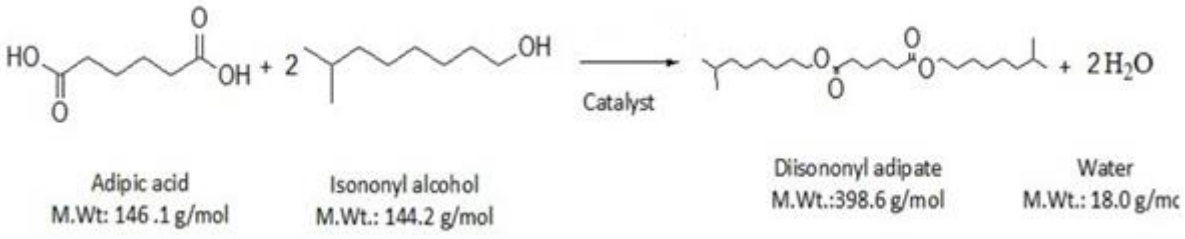


Figure 3-40: Process Block Diagram of Di isononyl Adipate

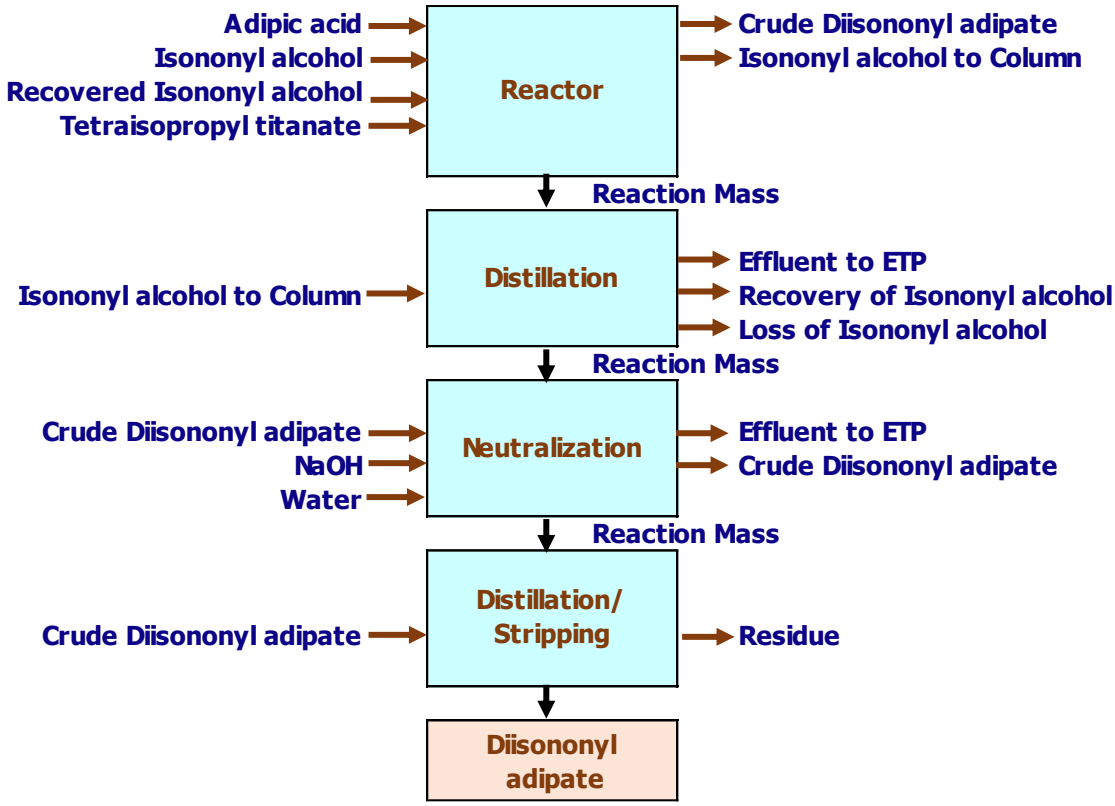


Table 3-50: Material Balance of Di isononyl Adipate

S. No	Input /MT of Product	
	Raw Material	**Quantity (MT/MT)**
1	Adipic acid	0.368
2	Isononyl alcohol	0.743
3	Recovered Isononyl alcohol	0.347
4	Tetraisopropyl titanate	0.001
5	NaOH	0.009
6	Water	0.091
Total		**1.559**

S. No	Output / MT of Product					Remark
	Product	Liquid Effluent	Air emission	Recovery/ Product	Solid Waste	
1	**Di isononyl Adipate**			1.0		Product
2	**Recovered Isononyl alcohol**			0.347		Reused in the next batch
3	Waste Water	0.190				To ETP for treatment
4	Loss of Isononyl alcohol		0.019			Loss
5	Residue				0.003	ToTSDF for Disposal
Total		**0.190**	**0.019**	**1.347**	**0.003**	
		1.559				

46. Calcium chloride ($CaCl_2$)

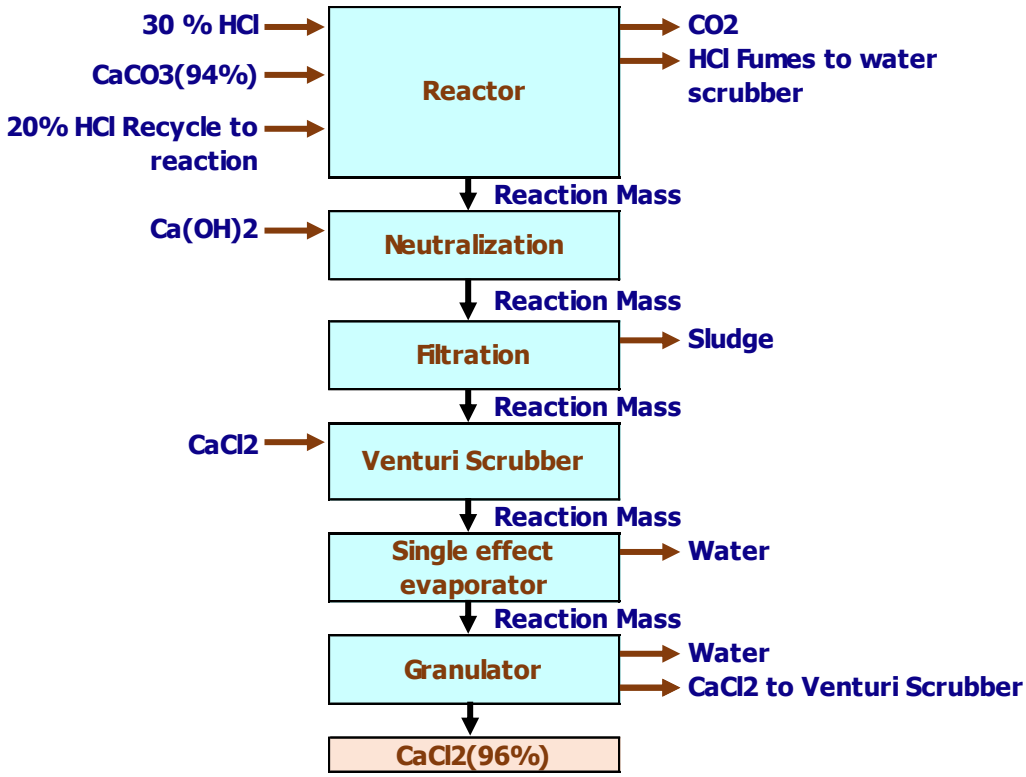
Charge the limestone in reaction tanks. Take 30 % HCL to reaction tanks & after completion of reaction maintain the pH 8-9 by using hydrated lime solution. The solution formed is Brine. Carbon dioxide is produced during this reaction. Then filter this Brine solution in filter press and filtered solution is transferred to storage tank and Brine is transferred to Evaporator to concentrate Brine. Concentrated Brine is fed to granulator in granulator the moisture is evaporated by hot air to produce 94 % granules.

Chemical Reaction

$CaCO_3$ + 2HCl ---> $CaCl_2$ + H_2O + CO_2

(Limestone) +(HCl) ---> (Calcium Chloride) + (Water) + (Carbon Dioxide)

Figure 3-41: Process Block Diagram of $CaCl_2$



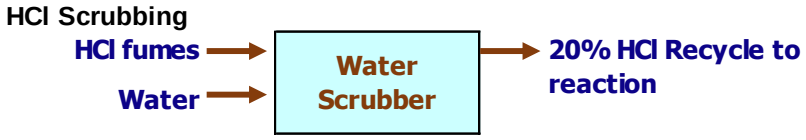


Table 3-51: Material Balance of $CaCl_2$

S. No	Input /MT of Product					
	Raw Material			Quantity (MT/MT)		
1	30% HCl			1.967		
2	$CaCO_3$ (94%)			1.021		
3	20% HCl from Scrubber			0.177		
4	Water for Scrubber			0.148		
5	$Ca(OH)_2$			0.054		
Total				**3.367**		
S. No	**Output / MT of Product**					**Remark**
	Product	**Liquid Effluent**	**Air emission**	**Recovery/ Product**	**Solid Waste**	
1	$CaCl_2$ (96%)			1.0		Product
2	20% HCl	0.177				Recycle to reaction
3	CO_2		0.356			To atmosphere
4	Sludge				0.221	To TSDF for Disposal
5	Water	0.754				Sent to cooling tower
6	Evaporation Loss		0.859			Loss
Total		**0.931**	**1.215**	**1.000**	**0.221**	
		3.367				

3.6 Raw material required along with estimated quantity, likely source, marketing area of final products, mode of transport of raw material and finished product.

Raw material quantity and transportation details are given in ***Annexure 5***.

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

The following measure will be followed:

- Steam generation from waste heat recovery
- Co-generation captive power plant of 4 MW x 2 capacity.
- Steam condensation recycled in the boiler.
- Unit has implemented ZLD & generated condensate & effluent will be reused
- Effluent will be treated and recycled in the process, greenbelt area and non-potable purposes.
- Off gases generated during the manufacturing processes will be used as a fuel in thermal oxidizer.
- HCl generated during the manufacturing processes will be reused for production of Calcium chloride granules.
- Maximum solvent recovery of 98% by introducing nitrogen blanketing on process vessels and vent condenser with secondary utility for entire plant (as per ***Table 3-52***)

Table 3-52: Solvent recovery

Name of Product/ Group	Name of the solvent	Quantity MT/M	Recovered MT/M	% Recovery
2-chloro-4-fluoro-5-nitrobenzoic acid	Ethyl Acetate	3540.97	3469.93	97.99%
	n-Hexane	2318.98	2272.53	98.00%

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

3.8.1 Water consumption

Water is supplied by Gujarat Water Infrastructure Limited (**GWIL).** Existing water supply permission is of 1000 KLD KLD. The same source will be utilized for proposed water demand. An assurance letter for 3000 KLD water supply also attached under ***Figure 9-6*** in ***Annexure 6***. Water consumption and wastewater generation are given in ***Annexure 6***.

3.8.2 Fuel

Please refer ***Annexure 8*** for fuel consumption details.

3.8.3 Power

Existing power requirement – 3 MW

Proposed power requirement - 7 MW

Total power requirement after proposed expansion – 10 MW

Source of Supply - In-house co-generation power plant (4MW x 2) and Paschim Gujarat Vij Company Ltd (PGVCL).

Although, 8MW will be taken from an in-house co-generation power plant. Additional 2 MW will be taken from Paschim Gujarat Vij Company Limited (PGVCL).

3.9 Quantity of waste to be generated (liquid and solid) and scheme for their management /disposal

The quantity of Liquid waste (Wastewater) to be generated and scheme for their management are given ***Annexure 6.*** The Solid & hazardous waste generation quantity and their management details are given in ***Annexure 9***.

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

A drawing (i.e. Site Layout Plan) explaining the salient project features with an index giving area break up is attached as ***Annexure 4***.

4 SITE ANALYSIS

4.1 Connectivity

Project site is located at Bhachau, Kachchh, which is connected with Gandhidham, Kandla, Bhuj.

By Road

The project site is accessible through National Highway no. 8A adjacent to the project site in West direction. NH - 8A is further connected with State Highway no.6 at an aerial distance of ~ 2.4 km in NE direction.

By Rail

The nearest railway station from the project site is at Bhachau. Bhachau railway station is located at approx. 4.4 Km in NNE direction whereas Gandhidham junction is located at approx. 28.8 Km in SW direction.

By Air

Kandla airport is at approx. 28.9 km in SW direction, whereas Bhuj airport is at an aerial distance of approx. 67.2 km in West direction.

By Water

The nearest jetty of Kandla Port is sited at approx. 28.9 Km in SSW direction.

4.2 Land Form, Land Use and Land ownership

The total plot area of the project is 94,898.77 m^2. The land is already an industrial area. Please refer ***Annexure 4*** for land area breakup and Plant Layout.

4.3 Topography (along with map)

As per District Planning Map of Kachchh-Key Statistics of Kachchh district (1991) by National Atlas and Thematic Mapping Organization, the area has a distinguished rock formations made of Sandstone and Limestone with relief of 150 meters (Elevation in meters) and Land slope of 20 to 83 meters per km. The area has fertile land with Red loamy soil type. The hydrological character of the area shows suitable zone for shallow tube-well. The average rain fall received by the area is within range of 300 to 400 mm (Source: NATMO). According to the present zoning map, Zone 5 expects the highest level of seismicity. The project area falls in Zone V. This is referred to as a very severe damage risk zone.

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

- Existing Land use pattern: Industrial Area
- No Forest land is involved in the Project
- No clearance under Forest, CRZ and agriculture and Non- agriculture and water bodies are required

Distance of Project site from Water Bodies are given in following table.

Table 4-1: Distance of Project Site from Sensitive Areas

Area	Distance in km	Direction
Coastal Area	~ 7.0	South
Winter migratory birds movement mud flats area	~ 5.5	South
Forests		
Dense Jungle	~7.4	South
Dense Jungle	~8	SE
Dense Jungle	~9	SE

Table 4-2: Distance of Project site from Water Bodies

Water body	Distance in km	Direction
Dalwala Vokra	0.17	W
Katwala Vokra	0.95	E
Mayanwala Vokra	5.72	E
Dhokav Vokra	2.73	SW
Vanka Nala	4.78	SW
Kharawala Vonka	6.77	SW
Moti Chirai Pond	8.58	sw
Vondh Near Pond	7.13	E

4.5 Existing Infrastructure

The plant is located in a region with all essential facilities such as internal roads, arrangement for supply of water and power to industries etc.

4.6 Soil classification

Soil of the area is mostly calcareous Loamy soil with moderate salinity.

***Source**: District Resource Map, Kutch (now 'Kachchh') Gujarat @GOI 2002*

4.7 Climatic data from secondary sources

Secondary data for weather conditions in the region is available from Long-term Climatological Tables attached as ***Annexure 10***.

for 30 years i.e. from 1981-2010, published by Indian Meteorological Department. New Kandla_42729 is the nearest IMD Station from the proposed project site located at an aerial distance of~33 Km in SSW direction.

The seasons[1] are post monsoon (includes October, November and December months), winter (includes January and February months) and summer (includes March, April and May months).

Long-term climatological data was analysed / reviewed for important parameters like temperature, humidity, wind speed, wind direction, cloud cover and rainfall. The findings are provided in subsequent paragraphs.

[1] Climate Profile of India, 2010, Govt. of India, Ministry of Earth Science, Indian Meteorological Department, New Delhi Chapter –I: Climate Profile, *pp 1-5*.

Temperature

In winter season, mean daily maximum temperature was recorded between 26.1 – 28.6 °C. The extreme highest 38.8°C was recorded on 28th February 1953. Mean daily minimum temperature was recorded between 14.5 – 16.7 °C. The extreme lowest 4.4°C was recorded on 10th January 1954.

In summer season, mean daily maximum temperature was recorded between 32.4 –35.5°C. The extreme highest 45.9°C was recorded on 4th May 2002. Mean daily minimum temperature was recorded between 20.7 – 26.7°C. The extreme lowest 12.8°C was recorded on 1st March, 1971.

During monsoon season, mean daily maximum temperature was recorded between 31.8 –35.2°C. The extreme highest 47.1°C was recorded on 18th June, 1978. Mean daily minimum temperature was recorded between 25.9 – 28.1°C. The extreme lowest 20.3°C was recorded on 8th September, 1966.

In the post monsoon, mean daily maximum temperature was recorded between 27.6 – 34.9°C. The extreme highest 41.4°C was recorded on 9th October, 2002. Mean daily minimum temperature was recorded between 16.0 – 24.6°C. The extreme lowest 7.2°C was recorded on 27th December, 1989.

Relative Humidity

In winter season, humidity in morning hours' ranges between 62 – 63 % while in evening hours it was between 36 – 40 %.

During summer, humidity in morning hours ranges between 68 – 78 % while in evening hours it was between 40 – 58 %. Summer is hot and humid.

In post monsoon season, humidity in morning hours ranges between 62 – 70 % while in evening hours it was between 41 – 46 %.

Highest humidity levels observed during June – Sept. months which is period of active monsoon season. Humidity in morning hours remains between 78 – 83 % and in evening hours it was remains between 60 – 69 %.

Wind Speed

Throughout the year, most of the days, wind speed remains between 1-19 Kmph whereas during monsoon period wind speed raises up to 20 kmph also.

Wind Direction

Table 4-3: Wind regime as per IMD long-term Data – New Kandla Station

Season	Month	Hours	Wind blow from		
			1st Predominant	2nd Predominant	3rd Predominant
Winter	January	I	N	NW	NE
		II	N	NE	NW, SW
	February	I	N	NW	NE, W
		II	N, SW	S	NE
Summer	March	I	W	NW	N, SW
		II	SW	S	N
	April	I	SW	W	NW
		II	SW	S	W
	May	I	SW	W	S
		II	SW	W	S
Monsoon	June	I	SW	W	S
		II	SW	W	S
	July	I	SW	W	S

Season	Month	Hours	Wind blow from		
			1st Predominant	2nd Predominant	3rd Predominant
		II	SW	W	S
	August	I	SW	W	S
		II	SW	W	S
	September	I	W	SW	NW
		II	SW	W	S
Post Monsoon	October	I	N	NW	W
		II	N	NW	W
	November	I	SW	S	N
		II	N	NW	NE
	December	I	N	NW	NE
		II	N	NW	NE
Annual		I	SW	W	N
		II	SW	W	S
I	Morning hours				
II	Evening hours				

Cloud Cover

Cloud cover variation was observed in each season. In winter season, cloud cover ranges between 0.1 – 1.0 Oktas, which indicates very low cloud cover.

In summer, cloud cover was ranges between 0.2 – 1.4 Oktas, in monsoon it was 1.2 – 5.4 Oktas which is maximum cloud cover due to monsoon period.

In post monsoon season, cloud cover range were between 0.2 – 1.0 Oktas, which was observed almost similar to winter and summer seasons.

Rainfall

Annual total rainfall of was recorded 407.4 mm. Season wise distribution include, 0.2 mm in winter, while 4.0 mm in summer, 384.4 mm in monsoon and 18.7 mm in post monsoon. It was observed that, ~ 94 % rainfall was in monsoon season.

Average Long Term Meteorological Condition

Average meteorological condition at IMD station New Kandla is as given in ***Table 4-4***.

Table 4-4: Average Meteorological Condition based on Long Term Data at New Kandla

Month	Mean Daily Temperature		Rainfall (mm) Monthly Total	No. of Rainy days	Relative Humidity (%) (Morning)	Relative Humidity (%) (Evening)
	Max.	Min.				
C1	C2	C3	C4	C5	C6	C7
January	26.1	14.5	0.2	0.0	62	40
February	28.6	16.7	0.0	0.1	63	36
March	32.4	20.7	0.8	0.1	68	40
April	34.7	23.9	0.1	0.0	73	48
May	35.5	26.7	3.1	0.2	76	56
June	35.2	28.1	64.7	1.9	78	61
July	32.9	27.3	175.7	6.5	82	68
August	31.8	26.3	99.1	5.4	83	69

Month	Mean Daily Temperature		Rainfall (mm) Monthly Total	No. of Rainy days	Relative Humidity (%) (Morning)	Relative Humidity (%) (Evening)
	Max.	Min.				
C1	C2	C3	C4	C5	C6	C7
September	33.3	25.9	44.9	2.1	80	60
October	34.9	24.6	14	0.6	70	46
November	31.9	20.4	3.3	0.4	64	41
December	27.6	16	1.4	0.1	62	42
Total	**-**	**-**	**407.4**	**17.3**	**-**	**-**
Average	**32.1**	**22.6**	**-**	**-**	**72**	**51**

4.8 Social infrastructure available

Provision of additional social infrastructure such as schools, health centres, drinking water facilities etc. is not envisaged, these facilities are adequately available in the Region. However, where feasible and required, such infrastructure will be augmented.

5 PLANNING BRIEF

5.1 Planning concept (type of industries, facilities, transportation, etc.) Town and Country Planning / Development Authority Classification

The Project site is located in non-notified industrial area.

5.2 Population Projection

The existing direct employment to 426 nos. whereas indirect job opportunities are given to approx. 500 nos.

After expansion, the additional permanent employment will be given to 100 nos. and additional contract employment will be given to 150 nos. Thus, total permanent employment will be 526 and contract will be 650 nos. The details on Employment Generation are as follows:

Particular	Permanent (Nos.)	Contractor(Nos.)	Total (Nos.)
Existing	426	500	**926**
Additional	100	150	**250**
Total after expansion	**526**	**650**	**1176**

5.3 Landuse planning (breakup alongwith greenbelt, etc.)

The project facility is located at Plot No. 1430/1, N.H No. 8A, Bhachau -370140, District Kachchh. The total plot area of the proposed unit is 94,898.77 m^2. The Land use breakup at site is given in ***Annexure 4*** along with Plant Layout.

5.4 Assessment of infrastructure demand (Physical & Social)

Physical Demand:

Water: GWIL water supply

Existing: 949 KLD

Proposed: 1954 KLD

Total: 2903 KLD

Electricity:

Source of Supply: In-house co-generation power plant (4MW x 2) and Paschim Gujarat Vij Company Ltd (PGVCL)

Existing power requirement – 3 MW

Proposed power requirement – 7 MW

Total power requirement after proposed expansion – 10 MW

Although, 8MW will be taken from an in-house co-generation power plant. Additional 2 MW will be taken from Paschim Gujarat Vij Company Limited (PGVCL).

5.5 Amenities / Facilities

Following facilities will be made available at site:

- First Aid Facility
- Hygienic Drinking Water Facility
- Green Area
- Regular Worker Medical Checkup Facility
- Public transport
- All the surrounding area is covered with 108 emergency facilities.

6 PROPOSED INFRASTRUCTURE

6.1 Industrial Area (processing area)

The project facility is located at Plot No. 1430/1, N.H No. 8A, Bhachau -370140, District Kachchh, State Gujarat. The total plot area of the proposed unit is 94,898.77 m^2. Appropriate infrastructures are already in place including approach roads, drainages etc.

6.2 Residential Area (non-processing area)

No residential facility will be provided.

6.3 Green belt

Out of total land area of 94898.77 m^2, approx. 12609.86m^2 (~13.29%) is developed as Greenbelt. In addition to this, 20,133 m^2 (21.21%) area will be acquired and developed as Greenbelt area located at approx. 200 m distance in NorthEast direction. Total plot area is presented at ***Annexure 4***. Also about 10117.1 m^2 (10.66%) is developed as greenbelt along the median and island region of Samakhiali Gandhidham highway (NH-41) considering 2500 saplings will be planted and maintained.

Table 6-1: Area of Greenbelt Development

S. No.	Location of GB area	Area, m^2	Area, %
1	Greenbelt at project site	12609.86	13.29
2	Greenbelt adjacent to AIL	20133	21.21
3	Greenbelt at NH-41, in front of project site	10117.1	10.66
	Total Greenbelt	**42859.96**	**45.16**
	Total Plot Area	**94898.77**	

Hence, the total greenbelt area will be (12609.86 m^2 + 20,133 m^2 + 10117.1 m^2) 42859.96 m^2 which will be approximately 45.16 % of total plot area.

6.4 Social Infrastructure

Canteen, Rest shelter / room, Recreation Room shall be provided.

6.5 Connectivity (Traffic and transportation road/ rail/metro/water ways etc.)

Already covered in ***Section 4.1***.

6.6 Drinking water management (source & supply of water)

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

6.7 Sewage system

Sewage water is treated in the STP of 80 KLD capacity. Treated sewage will be used for gardening and cooling tower.

6.8 Industrial waste management

Industrial wastewater will be treated and reused as make-up water in cooling tower.

Solid and hazardous waste generation quantity along with their management details are given in ***Annexure 9***.

6.9 Solid waste management

Refer ***section 3.9*** of ***chapter 3***.

6.10 Power requirement & supply/ source

Source of Supply - In-house co-generation power plant (4 MW x 2) and Paschim Gujarat Vij Company Ltd (PGVCL)

Existing power requirement – 3 MW

Proposed power requirement - 7 MW

Total power requirement after proposed expansion – 10 MW

Although, 8MW will be taken from an in-house co-generation power plant. Additional 2 MW will be taken from Paschim Gujarat Vij Company Limited (PGVCL).

7 REHABILITATION AND RESETTLEMENTS (R& R) PLAN

7.1 Policy to be adopted (central/state) in respect of the project affected persons including home oustees, land oustees and landless labourers (a brief outline to be given)

Not applicable as rehabilitation and resettlement will not be required.

8 PROJECT SCHEDULE AND COST ESTIMATE

8.1 Likely date of start of construction and likely data of completion (time schedule for the project to be given)

Table 8-1: Project implementation schedule

Sr. No.	Activity	Required Period
1	Civil work	Immediately after getting EC & NOC
2	Procurement of machinery	1 month after getting EC & NOC
3	Erection & installation of machinery	Immediately after competition of activity no.2
4	Trial of machinery & equipment	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 along with analysis in terms of economic viability of the project.

The cost of the proposed expansion will be INR 73.45 Crore. Total project cost after the expansion will be 129.258 Cr.

Table 8-2: Details of Capital cost & recurring cost

Sr. No.	Purpose	Existing cost	Proposed Cost	Total (Rs. in Cr.)
1	Land	0.1	0	0.1
2	Building	12.1	2	14.1
3	Plant & Machinery with DCS system	26.808	41.09	67.898
4	Environment Protection Cost Measures	16.8	30.36	47.16
i.	Water Pollution Management i.e. ETP/RO/MEE/STP., Environment Laboratory and its equipment etc.	8	10.98	18.98
ii.	Solid and HW management (like Storage facility, TSDF Membership, E-waste/BMW/Fly ash/Batteries rule & disposal cost	0.6	1.67	2.27
iii.	Air pollution Management (Scrubber/Cyclone/ESP/Bag Filter/Dust Collector/Stack, Online CEMS, etc.), Ambient Air Monitoring Equipments/Weather Station etc.	5.5	3.46	8.96
iv.	Safety Equipment (Fire water system, PPE, Fire extinguishers, ventilation, Occupational Health, First Aid etc.	2.5	13	15.5
v	Green Belt/Tree plantation, saplings, maintenance	0.2	1	1.2
vi.	Rain Water Harvesting/ Recharging if any	0	0.25	0.25
	Total	**55.81**	**73.45**	**129.258**
	CER Cost (1%)	**0.7345 Cr**		

9 ANALYSIS OF PROPOSAL

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

The project will improve the socio-economic status of the society in the region by generating direct and indirect employment opportunities. The project will contribute additional revenue to the State & Country in the form of taxes, cess etc.

The financial and social benefits of the project are explained below:

- The project related construction activities will benefit the local populace in a number of ways such as supply of construction labourers – skilled, semi-skilled and un-skilled, tertiary sector employment and provision of goods and services for daily needs including transport.
- The proposed project will provide employment to the skilled as well as un-skilled persons.
- The local population will be given preference depending upon their suitability to the job requirement.
- Besides direct employment, indirect employment opportunities will also open up.
- Social investment in the form of CSR/CER would help improve the healthcare, education, sanitation, infrastructure and other areas wherein the project proponent would be actively involved as part of its CSR/CER commitments.

ANNEXURE

Annexure 1: Production Details

Table 9-1: Existing Production Capacity as per CTO

S. No.	Product Name Given in Consent	As per Consent	
		MT/Month	MT/Annum
A	**Co-generation Power Plant**	**4 MW**	**--**
B	**Chloro products of Benzene, Toluene**	**3600**	**43200**
1	Mono Chloro Benzene	3000	36000
2	Di Chloro Benzene (PDCB, ODCB & MDCB)		
3	1 2 4 Tri Chloro Benzene	300	3600
4	Di Chloro Toluene Mixture	100	1200
5	Chloro Toluene Mixture	100	1200
6	Di Chloro Para Nitro Aniline	100	1200
C	**Mono Nitro Derivatives of Benzene, Chlorobenzene or Toluene or Xylene or Cumene)**	**2000**	**24000**
1	Nitrobenzene	500	6000
2	P-Nitro Chloro Benzene		
3	O-Nitro Chloro Benzene		
4	Nitro Toluene Mixture (MNT/PNT/ONT)		
5	Nitro Xylene mixture		
6	Nitro Cumene mixture		
7	2 5 Di Chloro Nitro Benzene (2,5- DCNB)	1500	18000
8	3 4 Di Chloro nitro benzene (3,4- DCNB)		
9	3 5 Di Chloro nitro benzene (3,5-DCNB)		
10	2 4 Di Chloro nitro benzene (2,4- DCNB)		
11	2 4 5 Tri Chloro nitro benzene (2,4,5- TCNB)		
D	**Dinitro Derivatives (Other derivatives and same pollution load)**	**1000**	**12000**
1	Di nitro benzene (DNB)	1000	12000
2	Di nitro Chloro benzene (DNCB)		
E	**Mix Nitro Derivatives (Other derivatives and same pollution load)**	**1000**	**12000**
1	Mixture of Nitro Chloro Benzene	1000	12000
2	Mixture of Di Chloro Nitro Benzene		
3	Mixture of Nitro Toluene		
F	**Hydrogenated/Reduction**	**7000**	**84000**
1	Aniline	200	2400
2	Monomethyl Aniline	6500	78000
3	Dimethyl Aniline	300	3600
G	**Phthalate Derivatives(Other derivatives and same pollution load)**	**2000**	**24000**
1	Di Methyl Phthalate (DMP)	2000	24000
2	Di Iso Nonyl Phthalate (DINP)		
3	Di Iso Decyl Phthalate (DIDP)		
4	Di Methyl Adipate		
5	Di Octyl Adipate		
6	Di Octyl Phthalate		
H	**Calcium Chloride**	**3000**	**36000**
TOTAL (MT/year)		**19600**	**235200**
I	**By Product**		

S. No.	Product Name Given in Consent	As per Consent	
		MT/Month	MT/Annum
	Calcium Chloride	700	8400

We propose addition in product name and also to increase production quantities. Hence, we proposed following product List.

Table 9-2: Proposed Production Details

Sr. No.	Name of Product	Production Quantity		
		Existing as per CCA, MT/Year	Proposed, MT/Year	Total After Proposed EC, MT/Year
A	**Co-generation Power plant**	**4 MW**	**4 MW**	**4 MW X 2**
B	**Chlorination of Benzene, Toluene (Other derivatives)**	**43200**	**+28000**	**71200**
1	Mono Chloro Benzene and/or Crude Mono Chloro Benzene (MCB)	36000	+28000	64000
2	Ortho/Meta/Para Di Chloro Benzene and/or Crude Di Chloro Benzene and/or Crude Tri chloro benzene			
3	1 2 4 Tri Chloro Benzene and/1 2 3 Tri Chloro Benzene /Crude Tri Chloro Benzene	3600	0	3600
4	Di Chloro Toluene Mixture and/or Crude DCT	1200	0	1200
5	Ortho/Meta/Para Chloro Toluene and/or Crude Ortho/Meta/Para Chloro Toluene	1200	0	1200
6	Di Chloro Para Nitro Aniline and/or Crude Di Chloro Para Nitro Aniline	1200	0	1200
C	**Mono Nitro Derivatives (Other derivatives)**	**24000**	**+10000**	**34000**
7	Nitrobenzene and/or Crude Nitrobenzene	6000	0	24000
8	Ortho/Meta/Para-Nitro Chloro Benzene and/or Crude Ortho/Meta/Para-Nitro Chloro Benzene			
9	Nitro Toluene Mixture (MNT/PNT/ONT)			
10	Nitro Xylene mixture			
11	Nitro Cumene mixture			
12	2 5 Di Chloro nitro benzene and/or Crude 2 5 Di Chloro nitro benzene	18000	0	
13	3 4 Di Chloro nitro benzene and/or Crude 3 4 Di Chloro nitro benzene			
14	2 6 Di Chloro nitro benzene and/or Crude 2 6 Di Chloro nitro benzene			
15	2 4 Di Chloro nitro benzene and/or Crude 2 4 Di Chloro nitro benzene			
16	2 4 5 Tri Chloro nitro benzene and/or Crude 2 4 5 Tri Chloro nitro benzene/234 Tri Chloro nitro benzene and/or Crude 234 Tri Chloro nitro benzene			
17	4-nitro-N-methyl phthalimide and/or Crude 4-nitro-N-methyl phthalimide	0	+10000	10000
18	2,4-dichloro-3- fluoro nitro benzene /3,5-dichloro-4- fluoro nitro benzene and/or			

Sr. No.	Name of Product	Production Quantity		
		Existing as per CCA, MT/Year	Proposed, MT/Year	Total After Proposed EC, MT/Year
	Crude 2,4-dichloro-3- fluoro nitro benzene/Crude 3,5-dichloro-4- fluoro nitro benzene			
19	3-nitro benzotrifluoride (MNBTF) and/or Crude 3-nitro benzotrifluoride (MNBTF)			
20	3-nitro-4-chloro benzotrifluoride (CNBTF) and/or Crude 3-nitro-4-chloro benzotrifluoride (CNBTF)			
21	3,5-dinitro-4-chloro benzotrifluoride (CDNBTF) and/or Crude 3,5-dinitro-4-chloro benzotrifluoride (CDNBTF)			
22	1-(3-nitrophenyl) ethanone (3-NAP) and/or Crude 1-(3-nitrophenyl) ethanone (3-NAP)			
23	2,4-dichloro-3,5-dinitro benzotrifluoride (DCDNBTF) and/or Crude 2,4-dichloro-3,5-dinitro benzotrifluoride (DCDNBTF)			
24	2,4-Dichloro-5-fluoronitrobenzene or Crude 2,4-Dichloro-5-fluoronitrobenzene			
25	2-Chloro-5-nitro-benzonitrile and/or Crude 2-Chloro-5-nitro-benzonitrile			
26	2,6-dichloro-3,5-difluoronitrobenzene			
27	2-chloro-4-fluoro-5-nitrobenzoic acid			
D	**Dinitro Derivatives (Other derivatives)**	**12000**	**0**	**12000**
28	Di nitro benzene and/or Crude Di nitro benzene	12000	0	12000
29	Di nitro Chloro benzene and/or Crude Di nitro Chloro benzene			
E	**Mix Nitro Derivatives (Other derivatives)**	**12000**	**0**	**12000**
30	Mixture of Nitro Chloro Benzene and/or Crude Nitro Chloro Benzene	12000	0	12000
31	Mixture of Di Chloro Nitro Benzene and/or Crude Di Chloro Nitro Benzene			
32	Mixture of Nitro Toluene and/or Crude Nitro Toluene			
F	**Hydrogenated/Reduction (Other derivatives)**	**84000**	**+72000**	**156000**
33	Aniline and/or Crude Aniline	2400	2400	4800
34	Monomethyl Aniline and/or Crude Monomethyl Aniline	78000	+66000	144000
35	Dimethyl Aniline and/or Crude Dimethyl Aniline	3600	3600	7200
G	**Phthalate Derivatives (Other derivatives)**	**24000**	**+36000**	**60000**
36	Di Methyl Phthalate (DMP) and/or Crude Crude Di Methyl Phthalate (DMP)	24000	+36000	60000

Sr. No.	Name of Product	Production Quantity		
		Existing as per CCA, MT/Year	Proposed, MT/Year	Total After Proposed EC, MT/Year
37	Di Iso Nonyl Phthalate (DINP) and/or Crude Di Iso Nonyl Phthalate (DINP)			
38	Di Iso Decyl Phthalate (DIDP) and/or Crude Di Iso Decyl Phthalate (DIDP)			
39	Di Methyl Adipate (DMA)			
40	Di Octyl Adipate (DOA)			
41	Di Octyl Phthalate (DOP)			
42	Dibasic ester			
43	Dioctyl Terephthalate			
44	Dicyclohexyl phthalate			
45	Di isononyl Adipate			
46	Calcium Chloride (Solid)	36000	23520	59520
Total (MT/year)		**235200**	**169520**	**404720**
	By-Product			
47	Calcium Chloride solution (MT/Year)	**8400**	**161657**	**170057**

Annexure 2: Copy of Valid Consent to Operate

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GUJARAT POLLUTION CONTROL BOARD

PARYAVARAN BHAVAN
Sector-10-A, **Gandhinagar** 382 010
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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 Authorization under rule 6(2) of the Hazardous & Other Waste (Management & Transboundary Movement) Rules-2016, framed under the Environmental (Protection) Act-1986.

And whereas Board has received application inward **No. 167490 dated 15/11/2019** for the **Renewal Cum Consolidated Consent and Authorization** (CC&A) of this Board under the provisions / rules of the aforesaid Acts. Consents & Authorization are hereby granted as under:

To,
M/s Aarti Industries Ltd. (Anushakti division),
Plot No: 1430/1, N. H. No- 8A,
Bhachau- 370140, Tal: Bhachau
Dist: Kutch.

1. **Consent Order No. AWH- 106201 Date of Issue: 16/01/2020**
2. The consent shall be valid up to **31/12/2024** for the use of outlet for the discharge of trade effluent & emission due to operation of industrial plant for storage of the following items / products:

Sr. No.	Name of Products	Quantity (MT/Month)
(A)	**Co-Generation Power Plant**	**4.0 MW**
(B)	**Chloro Products of Benzene, Toluene**	**3600**
1.	Mono chloro Benzene (MCB)	3000
2.	Dichloro Benzene (PDCB, ODCB, & MDCB)	
3.	1 2 4 TCB	300
4.	DiChloro Toluene Mixture	100
5.	Chloro Toluene Mixture	100
6.	Dichloro Para Nitro Aniline DCPNA	100
(C)	**Mono nitro Derivatives of Benzene, Chlorobenzene or Toulene or Xylene or Cumene.**	**2000**
1.	Nitrobenzene	500
2.	Para Nitro Chloro benzene(PNCB)	
3.	Ortho Nitro Chloro Benzene(ONCB)	
4.	Nitro Toluene Mixture	
5.	Nitro Xylene mixture	
6.	Nitro Cumene mixture	
7.	2,5-Di-chloro Nitro Benzene (2,5-DCNB)	1500
8.	2,5-Di-chloro Nitro Benzene (3,4-DCNB)	
9.	2,5-Di-chloro Nitro Benzene (3,5-DCNB)	
10.	2,5-Di-chloro Nitro Benzene (2,4-DCNB)	
11.	2,5-Di-chloro Nitro Benzene (2,4, 5-TCNB)	

Outward No. 106201

Clean Gujarat Green Gujarat
ISO-9001-2008 & ISO-14001 - 2004 Certified Organisation

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(D)	**Dinitro Derivatives of Benzene or Chloro Benzene**	**1000**
1.	Di-nitro Benzene	1000
2.	Di-Nitro Chloro Benzene (DNCB)	
(E)	**Mix Nitro Derivatives of Hydrocarbon**	**1000**
1.	Mixture of Nitro Chloro Benzene	1000
2.	Mixture of Dichloro Nitro Benzene	
3.	Mixture of Nitro Toluene	
(F)	**Hydrogenated/Reduction**	**7000**
1.	Aniline	200
2.	Monomethyl Aniline	6500
3.	Dimethyl Aniline	300
(G)	**Phthalate Derivatives**	**2000**
1.	Di Metyl Phthalate (DMP)	2000
2.	Di Iso Nonyl Phthalate (DINP)	
3.	Di Iso Decyl Phthalate (DIDP)	
4.	Di Methyl Adipate	
5.	Di Octyl Adipate	
6.	Di Octyl Phthalate	
	TOTAL	**16600**
(H)	**Calcium chloride**	**3000**
(I)	**By products**	
1.	**Calcium chloride**	**700**

SUBJECT TO THE FOLLOWING SPECIFIC CONDITIONS:

1. There shall be no generation of following hazardous waste.
   - Acetic Acid - 100 MT/M
   - Metal Salt (Copper/Ferrous Sulphate) - 300 MT/M
   - Metal Salt (Magnesium/Aluminum Sulphate) – 300 MT/M
   - Sodium Thiosulphate - 300 MT/M
   - Ammonium Chloride – 1000 MT/M
2. Industry shall not carry out any activities which attract provision of EIA notification 2006 and amendments made therein.
3. Industry shall provide spent acid i.e H_2So_4 & HCL, only to the actual end user industry having permission under Rule-9 of Hazardous and Other Waste (Management and Transboundary) Rules, 2016.
4. Industry shall maintain complete records of generation, storage, disposal & reuse of spent acids along with name and address of actual user industries & their permission as per

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Hazardous and Other Waste (Management And Transboundary) Rules, 2016 at regular intervals & make it available at site for inspection and also submit to the Board regularly.

5. Unit shall install dry scrubber attached with boilers within 2 months to control SO_2 emission.
6. Industry shall not withdraw groundwater without prior NOC from CGWA as per Hon. National Green Tribunal order.
7. Industry shall comply with coal handling guideline of this Board.
8. Industry shall operate MEE regularly to maintain Zero Liquid Discharge.
9. Industry shall provide dedicated storage facility for fly ash.
10. Industry shall dispose of fly ash as per fly ash notification 1999 as amended from time to time.
11. Industry shall use only coal as fuel in utilities except DG Set.
12. Unit shall submit Rule-9 permission from all end users immediately for utilization of spent H_2SO_4 & spent HCL.

3. **CONDITIONS UNDER WATER ACT 1974:**

3.1 Water Source: - Narmada line

3.2 The quantity of the fresh water consumption for industrial purpose, after change in product mix, shall be reduced from 926 KL/Day to 899 KL/Day.

3.3 The quantity of the fresh water consumption for industrial purpose shall not exceed 50 KL/Day.

3.4 The quantity of the industrial effluent to be generated from the manufacturing process and other ancillary industrial operations shall not exceed 128.01 KL/Day.

3.5 Industrial effluent shall be treated in ETP followed by RO+MEE. RO permeate and MEE condensate shall be reused back (95 KLD) in process. MEE Concentrate shall be treated in ATDF to achieve Zero Liquid Discharge.

3.6 There shall be no change in existing quantity (31 KLD) of domestic waste water generation.

3.7 Industry shall provide fixed pipeline with flow meter at inlet of RO plant, MEE & ATDF as well as on reuse line and maintain its record.

3.8 Industry shall provide separate energy meter for ETP, MEE, ATDF and maintain its record.

3.9 Disposal system for storm water shall be provided separately. In no circumstances storm water shall be mixed with the industrial effluent.

3.10 Industry shall provide Sewage Treatment Plant (STP) for treatment of domestic wastewater so that treated domestic effluent shall comply with following norms:

PARAMETERS	PERMISSIBLE LIMIT
pH	6.5 to 9.0
BOD (5 days at 200°C)	30 mg/L
Suspended Solids	100 mg/L
Fecal Coliform	<1000 MPN/100 ml

3.11 Treated sewage conforming to above standard shall be discharged on land for gardening and plantation within premises only.

3.12 Industry shall provide fixed pipeline network with flow meter for even distribution of treated domestic effluent and maintain its record.

4 CONDITIONS UNDER AIR ACT 1981:

4.1 There shall be used as fuel in the Boiler & D.G. Set respectively;

Sr. No.	Name of Fuel	Quantity
1.	Coal	220 T/ day
2.	Diesel	325 Hr

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

No.	Stack attached to	Stack height in meter	APCM	Para-meter	Permissible limit
1.	FBC Boiler (12 TPH) (STAND BY)	30	ESP + Dry Scrubber	PM SO_2 NO_x	150 mg/Nm3 100 ppm 50 ppm
2.	Boiler (15 TPH) (STAND BY)	30	Bag Filter + Dry Scrubber		
3.	Thermic Fluid Heater (20 Lac Kcal/H)	30	Multi Cyclone with Dust Collector + Dry Scrubber		
4.	Thermic Fluid Heater (20 Lac Kcal/H)	30	Bag Filter + Dry Scrubber		
5.	Hot Air Generator	10	Alkali Scrubber		
6.	D.G. Set (1000 KVA)	15	–		
7.	D.G.Set (1000 KVA)	15	–		
8.	Boiler (36 TPH)	30	ESP + Dry Scrubber		

4.3 The process gas emission through various stacks/vent of reactors, process, vessel shall conform to the following standards.

Sr. No.	Stack attached to	Stack height in meter	APCM	Para-meter	Permissible limit
1.	Incinerator	30	Scrubber	PM SO_2 NO_x	150 mg/Nm3 100 ppm 50 ppm
2.	HCL Stack	30	Two stage water & Alkali Scrubber	HCL	20 mg/Nm3
3.	Nitrator	30	Two stage water & Alkali Scrubber	NO_x	25 mg/Nm3
4.	Mixing tank of $CaCl_2$	25	Alkali Scrubber	PM HCL	150 mg/Nm3 20 mg/Nm3
5.	$CaCl_2$ Dryer Vent	20	Two stage Wet Scrubber (Venturi Scrubber)	PM	150 mg/Nm3

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4.4 The concentration of the following parameters in the ambient air within the premises of the industry and a distance of 10 meters from the source (other than the stack/vent) shall not exceed the following levels.

Sr. No.	Pollutant	Time Weighted Average	Concentration in Ambient air in µg/M³
1.	Sulphur Dioxide (SO_2)	Annual 24 Hours	50 80
2.	Nitrogen Dioxide (NO_2)	Annual 24 Hours	40 80
3.	Particulate Matter (Size less than 10 µm) OR PM_{10}	Annual 24 Hours	60 100
4.	Particulate Matter (Size less than 2.5 µm) OR $PM_{2.5}$	Annual 24 Hours	40 60

4.5 The applicant shall provide portholes, ladder, platform etc at chimney(s) for monitoring the air emissions and the same shall be open for inspection. 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.

4.6 The concentration of Noise in ambient air within the premises of industrial unit shall not exceed following levels:

Between 6 A.M. to 10 P.M.: 75 dB (A)
Between 10 P.M. to 6 A.M.: 70 dB (A)

4.7 D.G. SETS CONDITIONS

The D.G. Set shall have acoustic enclosure and shall comply sith the standards specified at Sr. no. 95 of Schedule-I of the rule-3 of E.P. Rules -1986 and Noise pollution level as per the Air Act-1981.

D.G. Sets standards:-
The flue gas emission through stack attached to D.G. Sets shall conform to the following standards.

a) The minimum height of stack to be provided with each of the generator set shall be H=h + 0.2 (KVA)$^{1/2}$, where H= Total stack height in meter, h= height of the building in meters where or by the side of which the generator set is installed.
b) Noise from DG set shall be controlled by providing an acoustic enclosure or by treating the room acoustically, at the users end.

c) The acoustic enclosure or acoustic treatment of the room shall be designed for minimum 25 dB (A) insertion loss or for meeting the ambient noise standards, whichever is on the higher side (if the actual ambient noise is on the higher side, it may not be possible to check the performance of the acoustic enclosure/ acoustic treatment. Under such circumstances the performance may be checked for noise reduction up to actual ambient noise level, preferably, in the night time). The measurement for insertion loss may be done at different points at 0.5 m from the acoustic enclosure/room, and the averaged.

d) The D.G. Set shall be provided with proper exhaust muffler with insertion loss of minimum 25 dB (A).

e) All efforts shall be made to bring down the noise level due to the D.G.Set, outside the premises, within the ambient noise requirements by proper siting and control measures.

f) Installation of a D.G. Sets must be strictly in compliance with the recommendations of the D.G. Set manufacturer.

g) A proper routine and preventive maintenance procedure for the D.G.Set should be set and followed in consultation with the DG Set manufacture which would help prevent noise levels of the DG Set from deteriorating with use.

5 **Authorization under Hazardous and Other Waste (Management & Transboundary Movement) Rules, 2016 & amended.**

5.1 **Authorization Number: AWH- 106201and shall valid up to 31/12/2024.**

5.2 **M/s. M/s Aarti Industries Ltd.** is hereby granted an authorization to operate facility for following hazardous wastes on the premises situated at **Plot No: 1430/1, N. H. No- 8A, Bhachau- 370140, Tal: Bhachau, Dist: Kutch.**

Sr. No.	Waste	Quantity per Annum	Schedule/I & Category	Facility
1.	ETP Sludge	5400 MT	35.3	Collection, storage, Transportation, Disposal to TSDF Site
2.	Used Spent Oil	0.5 MT	I-5.1	Collection, storage, Transportation & Disposal by selling to registered recycler
3.	Discarded Containers Drums and Barrels	150 MT	I-33.3	Collection, storage, Transportation & Disposal by selling to Decontaminator or selling to re-processors.
4.	Sludge from Calcium Chloride Plant	5400 MT	I-26.1	Collection, storage, Transportation, Disposal to common TSDF Site and selling to end users.
5.	Incinerator Ash	90 MT	I-26.1	Collection, storage, Transportation, Disposal to common TSDF Site.

5.3 The authorization shall be valid up to 31/12/2024.

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5.4 The authorization 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.

5.5 The authorization is granted to operate a facility for collection, storage, within factory premises, transportation, and ultimate disposal of Hazardous wastes by selling as per condition 5.2 to the industry having valid CCA of this Board.

5.6 TERMS AND CONDITIONS OF AUTHORISATION

1. The applicant shall comply with the provisions of the Environment (Protection) Act-1986 and the rules made there under.
2. The authorization or its renewal shall be produced for inspection at the request of an officer authorized by the Gujarat Pollution Control Board.
3. The persons authorized shall not rent, lend, sell, and transfer or otherwise transport the hazardous wastes without obtaining prior permission of the Gujarat Pollution Control Board.
4. Any unauthorized change in personnel, equipment or working conditions as mentioned in the authorization order by the persons authorized shall constitute a beach of this authorization.
5. The person authorized shall implement Emergency Response Procedure (ERP) for which this authorization is being granted considering all site specific possible scenarios such as spillages, leakages, fire etc. and their possible impacts and also carry out mock drill in this regard at regular interval of time;
6. The person authorized shall comply with the provisions outlined in the Central Pollution Control Board guidelines on "Implementing Liabilities for Environmental Damages due to Handling and Disposal of Hazardous Wastes and Penalty"
7. It is the duty of the authorized person to take prior permission of the Gujarat Pollution Control Board to close down the facility.
8. An application for the renewal of an authorization shall be made as laid down in rules 6(2) under Hazardous and Other Waste Rules, 2016.
9. The imported hazardous and other wastes shall be fully insured for transit as well as for any accidental occurrence and its clean-up operation.
10. The record of consumption and fate of the imported hazardous and other wastes shall be maintained.
11. The hazardous and other wastes which gets generated during recycling or reuse or recovery or pre-processing or utilization of imported hazardous or other wastes shall be treated and disposed of as per specific conditions of authorization.
12. The importer or exporter shall bear the cost of import or export and mitigation of damages if any.
13. Any other conditions for compliance as per the Guidelines issued by the Ministry of Environment, Forest and Climate Change or Central Pollution Control Board from time to time.
14. The waste generator shall be totally responsible for (i.e. collection, storage, transportation and ultimate disposal) the wastes generated.
15. Records of waste generation, its management and annual return shall be submitted to Gujarat Pollution Control Board in Form-4 by 30th day of June of every year for the preceding period April to March.
16. In case of any accident, details of the same shall be submitted on Form-11 to Gujarat Pollution Control Board.

17. As per "Public Liability Insurance Act-91" company shall get Insurance Policy, if applicable.
18. Empty drums and containers of toxic and hazard material shall be treated as per guideline published for "Management & Handling of discarded containers". Records of the same shall be maintained and forwarded to Gujarat Pollution Control Board regularly.
19. In case of transport of hazardous wastes to a facility for (i.e. treatment, storage and disposal) existing in a State other than the State where hazardous wastes are generated, the occupier shall obtain 'No Objection Certificate' from the State Pollution Control Board or Committee of the concerned State of Union Territory Administration where the facility exists.
20. Unit shall take all concrete measures to show tangible results in waste generation, reduction, avoidance, reuse and recycle. Actions taken in this regard shall be submitted within three months and also along with Form-4.
21. Industry shall have to display the relevant information with regards to hazardous waste as indicated in the Hon. Supreme Court's Order in W.P. No.657 of 1995 dated 14th October, 2003.
22. 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.

5.7 GENERAL CONDITIONS: -

1. Any change in personnel, equipment or working conditions as mentioned in the consents form/order should immediately be intimated to this Board.
2. Applicant shall also comply with the general conditions given in annexure I.
3. Whenever due to accident or other unforeseen act or ever, such emissions occur or is apprehended to occur in excess of standards laid down such information shall be forthwith reported to Board, concerned Police Station, Office of Directorate of Health Service, Department of Explosives, Inspectorate of Factories and local body.
4. In case of failure of pollution control equipments, the production process connected to it shall be stopped. Remedial actions/measures shall be implemented immediately to bring entire situation normal.
5. The Environmental Management Unit/Cell shall be setup to ensure implementation on and monitoring of environmental safeguards and other conditions stipulated by statutory authorities. The Environmental Management Cell/Unit shall directly report to the Chief Executive of the organization and shall work as a focal point for internalizing environmental issues. These cells/units also coordinate the exercise of environmental audit and preparation of environmental statements.
6. The Environmental audit shall be carried out yearly and the environmental statements pertaining to the previous year shall be submitting to this State Board latest by 30th September every year.
7. The Board reserves the right to review and/or revoke the consent and/or make variations in the conditions, which the Board deems, fit in accordance with Section 27 of the Act.
8. In case of change of ownership/management the name and address of the new owners/ partners/directors/proprietor should immediately be intimated to the Board.

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GPCB

GUJARAT POLLUTION CONTROL BOARD
PARYAVARAN BHAVAN
Sector-10-A, **Gandhinagar** 382 010
Phone : (079) 23222425
(079) 23232152
Fax : (079) 23232156
Website : www.gpcb.gov.in

9. Industry shall have todisplay the relevantinformation with regard to hazardouswaste as indicated in the Hon. Supreme order in w.p. no. 657 of 1995 dated 14th October 2003.

6 **SPECIFIC CONDITIONS:-**

6.1 The authorized actual user of hazardous and other wastes shall maintain records of hazardous and other wastes purchased in a passbook issued by the State Pollution Control Board along with the authorization.

6.2 Handling over of the hazardous and other wastes to the authorized actual user shall be only after making the entry in the passbook of the actual user.

6.3 In case of renewal of authorization, a self-certified compliance report in respect of effluent, emission standards and the conditions specified in the authorization for hazardous and other wastes shall be submitted to SPCB.

6.4 The occupier of the facility shall comply Standard operating procedure/guidelines published by MOEF&CC or CPCB or GPCB from time to time.

6.5 Unit shall comply provisions of E-Waste Management Rules-2016.

6.6 The dispoeal of Hazardous Waste shall be carried out as per the waste Management hierarchy.

6.7 The occupiers of facilities shall not store the hazardous and other wastes for a period not exceeding **ninety days**. Prior permission of the Board shall be obtained for extension of the storage period.

6.8 The occupier shall maintain the records of generation, sale, storage, transport, recycling, co processing and disposal of hazardous waste and make available during the inspection.

6.9 The transportation of the hazardous waste shall be carried out in GPS mounted dedicated vehicles.

For and on behalf of
GUJARAT POLLUTION CONTROL BOARD

(Smt U.R. Upadhyay)
Environmental Engineer

NO: PC/ CCA- KUTCH-228(8)/GPCB ID: - 17766/
ISSUED TO:
M/s Aarti Industries Ltd. (Anushakti division),
Plot No: 1430/1, N. H. No- 8A,
Bhachau- 370140, Tal: Bhachau
Dist: Kutch.

Date: -

Annexure 3: All consents since inception

S. No.	Name	CTE/CTO	Fresh/Amendment	Date of issue	Valid upto
1	Anushakti Chemicals & Drugs Pvt. Ltd.	CTE(NOC)	Fresh	18-Oct-03	-
2	Anushakti Chemicals & Drugs Pvt. Ltd.	CTO	Fresh	29-Aug-05	28-Feb-06
3	Anushakti Chemicals & Drugs Pvt. Ltd.	CTO	Amendment	–	05-Aug-07
4	Anushakti Chemicals & Drugs Pvt. Ltd.	CTO	Amendment	25-Jun-08	05-Jan-10
5	Anushakti Chemicals & Drugs Pvt. Ltd.	CTE(NOC)	Amendment	07-Jan-10	15-Nov-14
6	Anushakti Chemicals & Drugs Pvt. Ltd.	CTO	Renewal and amendment	12-May-10	12-Jan-15
7	Anushakti Chemicals & Drugs Pvt. Ltd.	CTO	Amendment	17-April-12	12-Jan-15
8	Anushakti Chemicals & Drugs Pvt. Ltd.	CTE(NOC)	Amendment	04-May-11	15-Nov-14
9	Anushakti Chemicals & Drugs Pvt. Ltd.	CTE(NOC)	Amendment	01-Jan-14	-
10	Anushakti Chemicals & Drugs Pvt. Ltd.	CTE(NOC)	Amendment	16-Jan-15	23-Dec-19
11	Anushakti Chemicals & Drugs Pvt. Ltd.	CTO	Renewal and amendment	04-Mar-15	31-Dec-19
12	Anushakti Chemicals & Drugs Pvt. Ltd.	CTO	Amendment	22-Jul-15	31-Dec-19
13	Aarti Industries Limited (Anushakti Division)	CTO	Amendment	07-Nov-15	31-Dec-19
14	Anushakti Chemicals & Drugs Pvt. Ltd.	CTE(NOC)	Amendment	10-Feb-16	31-Dec-20
15	Anushakti Chemicals & Drugs Pvt. Ltd.	CTO	Amendment	18-Sep-17	31-Dec-19
16	Aarti Industries Limited (Anushakti Division)	CTE(NOC)	Amendment	23-Jan-20	23-Sep-24
17	Aarti Industries Limited (Anushakti Division)	CTO	Renewal	16-Jan-20	31-Dec-24

1. CTE(NOC), Fresh, Date of issue: 18-10-2003

GUJARAT POLLUTION CONTROL BOARD

Paryavaran Bhavan
Sector - 10-A, Gandhinagar - 382 010
Phone : 3222756, 3222095, 3222096
Gram : CLEANWATER
Fax : (079) 3232156

NO:FT-87/ 30100 18 OCT 2003

To,
Anushakti Chemicals & Drugs Pvt Ltd,
Udyog Kshetra, 2nd Floor,
Mulund-Goregan Link Road,
LBS Marg
Mulund (W),
Mumbai 400080

SUB :- **NO OBJECTION CERTIFICATE.**
REF :- Your letter No. Nil dated

Sir,

Without prejudice to the powers of this Board under the Water (Prevention and Control of Pollution) Act-1974, the Air Act-1981 and the Environment (Protection) Act-1986 and without reducing your responsibilities under the said Acts in any way, this is to inform you that this Board **has No Objection to setting up of an industrial plant at Survey No. 1430/1 & 3, Village, Taluka. Bhachau, District Kutch,** for manufacturing of the following items: -

A) Chloro products of Benzene, Tolune – 2400 TPM
Which Includes
1. **Mono Chloro Benzene (MCB)**
2. **Chloro Tolune mixture**
3. **1,2,4 Trichlorobenzene (1,2,4 TCB)**
4. **Dichloro Benzenes (PDCB, ODCB & MDCB)**
5. **Dichloro Tolunes mixture**
6. **Dichloro Pere Nitro Aniline (DCPNA)**

B) Mononitro derivatives of Benzene, Chlorobenzenes or Tolune or Xylene or Cumene – 5000 TPM
Which includes
1. **Nitrobenzene**
2. **Notrochlorobenzene such as**
   a. **Paranitrochlorobenzene (PNCB)**
   b. **Orthochloronitrobenzene (ODCB)**
3. **Nitro Tolunes mixture**
4. **Nitro xylines mixture**
5. **Nitro cumence mixture**
6. **Dichloronitrobenzenes such as**
   a. **2,5- Dichloronitrobenzene (2,5-DNCB)**
   b. **3,4- Dichloronitrobenzene (3,4-DNCB)**
   c. **3,5- Dichloronitrobenzene (3,5-DNCB)**
   d. **2,4- Dichloronitrobenzene (2,4-DNCB)**
   e. **2,4,5- Dichloronitrobenzene (2,4,5-DNCB)**

C) Dinitro derivatives of Benzene or Chlorobenzene – 2000 TPM
Which includes
1. **Dinitrobenzene**
2. **Dinitrochlorobenzene (DNCB)**

D) Mix Nitro derivatives of Hydrocarbon – 2500 TPM
Which includes
1. **Mixture of Nitrochlorobenzenes**
2. **Mixture of Dichloro Nitrobenzenes**
3. **Mixture of Nitrotolune**

E) Hydrogeneted/Reduction products – 3000 TPM
Which includes
1. Aniline
2. Toludines
3. Meta Chloro Aniline & Hydrochloride (MCA HCL)
4. Para Chloro Aniline & Hydrochloride (PCA HCL)
5. Ortho Chloro Aniline & Hydrochloride (OCA HCL)
6. 3,5 Dichloro Aniline & Hydrochloride (3,5 DCA)
7. 2,5 Dichloro Aniline (2,5 DCA)
8. 3,4 Dichloro Aniline (3,4 DCA)
9. Ortho Anisidine (OA)
10. Para Anisidine (PA)
11. 2,4,5 Trichloro Aniline (TCA)

F) Ammonolysis Products _ 250 TPM
Which includes
1. Para Nitro Aniline (PNA)
2. Ortho Nitro Aniline (ONA)
3. Para Chloro Ortho Nitro Aniline (PCONA)
4. Ortho Chloro Para Nitro Aniline (OCPNA)
5. 2,4 Dinitro Aniline (2,4-DNA)

G) Phenylene Diamines – 300 TPM
Which includes
1. Paraphenylene Diamine (PPDA)
2. Metaphenylene Diamine (MPDA)
3. Orthophenylene Diamine (OPDA)

H) Chlorophenoles – 300TPM
Which includes
1. Orthochloro Phenols (OCP)
2. Parachloro Phenols (PCP)
3. Meta Dichloro Phenols (MDCP)
4. 2,4 Dichloro Phenols (2,4 DCP)
5. 2,6 Dichloro Phenols (2,6 DCP)
6. 2,3 Dichloro Phenols (2,3 DCP)
7. 2,5 Dichloro Phenols (2,5 DCP)

I) Chloro Sulphonic Acid – 1000 TPM
J) Acetanilide – 1000 TPM
K) Vinyl Sulphone & its derivatives (except Dyes) – 300 TPM
L) By Products
1. Spent Sulphuric Acide – 1000 TPM
2. Dilute Hydrochloric Acid (30%) – 18000 TPM
3. Acetic Acid – 100 TPM

SUBJECT TO THE FOLLOWING CONDITIONS: -

1. The quantity of the industrial effluent from the manufacturing process and other ancillary industrial operations shall be totally incinerated.
2. The quantity of the Domestic effluent shall not exceed 50000 lit/day.
4. LDO/LSHS shall be utilized as fuel in the Incinerator.
5. Lignite shall be utilized as fuel in the Boiler at a rate of 110 MT/day .
6. Flue gas emission from the stack of 30 meters attached to Boiler shall confirm to the following standards.:

PARAMETERS	PERMISSIBLE LIMIT
Particulate Matter	150 mg/NM3
Oxides of Sulphur	100 ppm
Oxides of Nitrogen	50 ppm

7. For process emission Unit shall install Recovery Scrubber / Wet Scrubbers followed by carbon adsorption tower and emission shall always confirm following standards.

PARAMETERS	PERMISSIBLE LIMIT
HCL	20 milligrams per cubic meter
Cl	9 milligrams per cubic meter
NOx	25 milligrams per cubic meter
SOx	40 milligrams per cubic meter
Br	2 milligrams per cubic meter

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HBr	30 milligrams per cubic meter
HF	25 milligrams per cubic meter
NH3	175 milligrams per cubic meter

8. Stack monitoring facilities like porthole, platform/ladder etc., shall be provided with stacks/vents chimney in order to facilitate sampling of gases being emitted into the atmosphere.
9. Ambient air quality within the premises of the industry shall conform to the following standards :-

PARAMETERS	PERMISSIBLE LIMIT
Suspended Particulate Matter	200 Microgram/M3
SO2	80 Microgram/M3
NOx	80 Micro gram/M3
Br	20 Micro gram/M3
HBr	300 Micro gram/M3
NH3	850 Micro gram/M3
HCL	200 Micro gram/M3
CL	100 Micro gram/M3

10. Ambient air monitoring station shall be installed in factory premises and shall be operated regularly. The results of the analysis shall be furnished to the board.
11. The applicant shall have to comply the order of Hon High Court of Gujarat in case No 770/95
12. All measures for the control of environmental pollution shall be provided before commencing production.
13. Hazardous waste generate from incineration shall be disposed of by secured land filling method at a TSDF site approved by the Board.
14. Hazardous waste arise in form of calcium sulphate shall be sold out to cement manufactures for reuse.
15. By products arise in form of dilute Acids shall be sold out to actual users. In no case it shall mix with wastewater.
16. Adequate plantation shall be carried out all along the periphery of the industrial premises in such a way that the density of plantation is atleast 1000 trees per acre of land and a green belt of 5.0 meters width is developed.
17. The applicant shall have to submit the returns in prescribed form regarding water consumption and shall have to make payment of water cess to the Board under the Water Cess Act-1974.
18. In case of change of ownership/management the name and address of the new owners/partners/directors/proprietor should immediately be intimated to the Board.
19. The applicant shall however, not without the prior consent of the Board bring into use any new or altered outlet for the discharge of effluent or gaseous emission or sewage waste from the proposed industrial plant. The applicant is required to make applications to this Board for this purpose in the prescribed forms under the provisions of the Water Act.1974, the Air Act-1981 and the Environment (Protection) Act-1986.

For and on behalf of
GUJARAT POLLUTION CONTROL BOARD
P.J.Vachhani
(P. J. VACHHANI)
ENVIRONMENTAL ENGINEER

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2. CTO, Fresh, Date of issue: 29-08-2005, Valid upto: 28-02-2006

GUJARAT POLLUTION CONTROL BOARD

Paryavaran Bhavan, Sector-10-A, Gandhinagar - 382 010.
Phone : 3222095, 3222096, 3222756, Fax : 079 3232156
Web : 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 Authorization under rule 3(c) & 5(5) of the Hazardous Waste (Management and Handling) Rules'1989 & as amended up to year 2003 framed under the Environment (Protection) Act-1986.

And whereas Board has received consolidated consent application letter No. NIL dated 06/01/05 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
ANUSHAKTI CHEMICALS & DRUGS PVT. LTD.,
S. NO. 1430/1, N. H. NO. 8, BHACHAU,
TAL- BHACHAU,
DIST: KUTCH.

1. **Consent Order No.: 6631 date of Issue: 29/08/05**

2. The consents shall be valid up for a period of six months from date of issue of this order 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
1	MONO CHLORO BENZENE AND DICHLORO BENZENE	2400 TON/ MONTH
2.	CALCIUM CHLORIDE	300 TON/ MONTH

Note: You shall obtain ISO 14001 & OSHAS 1800 within one year from the date of issue of this order.

3. **CONDITIONS UNDER THE WATER ACT:**

3.1 The quantity of trade effluent from the factory shall not exceed 1,02,500 lits/day.

3.2 The quantity of Sewage effluent from the factory shall not exceed 31,000 lits/day

GUJARAT POLLUTION CONTROL BOARD

Paryavaran Bhavan, Sector-10-A, Gandhinagar - 382 010.
Phone : 3222095, 3222096, 3222756, Fax : 079 3232156
Web : www.gpcb.gov.in

3.3 TRADE EFFLUENT:

3.3.3 The quality of the treated effluent as per GPCB norms mentioned in column No.2.

PARAMETERS	GPCB NORMS
PH	6.5 TO 8.5
Temperature	40° C
Colour (pt.co.scale) in units	100 units
Suspended Solids	100 mg/l
Oil and Grease	10 mg/l
BOD (5 days at 20°C)	30 mg/l
COD	250 mg/l
Chlorides	600 mg/l
Sulphates	1000 mg/l
Total dissolved Solids	2100 mg/l
Sulphides	2 mg/l
Sodium absorption ratio	26
Ammonical Nitrogen	50 mg/l
Percene sodium	60 %
Phenolic Compounds	1 mg/l
Total Chromium	2 mg/l
Hexavelent Chromium	0.1 mg/l
Copper	3 mg/l
Lead	0.1 mg/l
Mercury	0.01 mg/l
Nickel	3 mg/l
Zinc	5 mg/l
Cadmium	2 mg/l
Cyanides	0.2 mg/l
Arsenic	0.2 mg/l
Fluorides	2 mg/l
Insecticides/Pesticides	Absent

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

3.3.4. The effluent conforming to the above standards shall be incinerated.

3.3.5 Domestic effluent shall be disposed off through septic tank/soak pit system.

4. CONDITIONS UNDER THE AIR ACT:

4.1 The following shall be used as fuel in boiler/furnace/heater respectively.

Sr.No.	Fuel	Quantity
1	Coal /Lignite (Boiler)	110 MT/day
2	FO (Incinerator)	10,000 lits/day

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

GUJARAT POLLUTION CONTROL BOARD

Paryavaran Bhavan, Sector-10-A, Gandhinagar - 382 010.
Phone : 3222095, 3222096, 3222756, Fax : 079 3232156
Web : www.gpcb.gov.in

4.2.2 The flue gas emission through stack shall conform to the following standards:

Stack No.	Stack attached to	Stack height in Meter	Parameter	Permissible Limit
1.	Boiler	30 m	Particulate matter SO_2 NO_x	150 mg/NM^3 100 ppm 50 ppm

4.2.2 The Process emission through various stacks/vent of reactors, process, vessel shall conform to the following standards

Stack No.	Stack attached to	Stack height in Meter	Air Pollution Control system	Parameter	Permissible Limit
1.	Incinerator	30 m	Scrubber	Particulate Matter SO_2 NOx	150mg/NM^3 40 mg/NM^3 25mg/NM^3
2.	HCl Stack	20 m	Scrubber	HCl Cl_2	20 mg/NM^3 9 mg/NM3
3	$Cacl_2$ Plant	20 m	-	Particulate Matter SO_2 NOx	150mg/NM^3 40 mg/NM^3 25mg/NM^3

4.2.3 The concentration of the following parameters in the ambient air within the premises of the industry shall not exceed the limits specified hereunder.

PARAMETER	PERMISSIBLE LIMIT
Suspended Particulate matter	200 Microgram Per cubic meter
Oxides of Sulphur	80 Microgram Per cubic meter
Oxides of Nitrogen	80 Microgram Per cubic meter

4.3. 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.

4.4. 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 : 3222095, 3222096, 3222756, Fax : 079 3232156
Web : 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

5.3 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.

5.4 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 waste generated within the factory premises.

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

6.1. **ANUSHAKTI CHEMICALS & DRUGS PVT. LTD.**, is hereby granted an authorization to operate facility for following hazardous wastes on the premises situated at **S. NO. 1430/1, N. H. NO. 8, BHACHAU, TAL-BHACHAU, DIST: KUTCH**

Sr. No.	Waste	Quantity Per Year	Schedule	Facility
1	ETP Sludge	180 MT	26.2 / I	Collection, Storage, Transportation, Disposal at TSDF.
2	Incinerator Ash	-	36.20/ I	Collection, Storage, Transportation, Disposal at TSDF.

6.2 The authorization is granted to operate a facility for collection, storage within the factory premises and transportation and ultimate disposal of Hazardous wastes at TSDF having authorization of this Board.

6.3 Unit shall become member of common TSDF within a period of three months.

6.4 Unit shall submit clarification regarding generation of by products.

6.5 The authorization shall be in force for a period of **six months** from the date of issue.

GUJARAT POLLUTION CONTROL BOARD

Paryavaran Bhavan, Sector-10-A, Gandhinagar - 382 010.
Phone : 3222095, 3222096, 3222756, Fax : 079 3232156
Web : www.gpcb.gov.in

6.6 The authorization 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.

6.7 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 authorization 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 authorization order by the persons authorized shall constitute a breach of this authorization.
e) It is the duty of the authorized person to take prior permission of the Gujarat Pollution Control Board to close down the facility.
f) An application for the renewal of an authorization shall be made as laid down in rule 5 (6) (ii).
g) Industry shall submit annual report within 15 days and sub sequently by 31st January every year.
h) Unit shall apply for other remaining HW such as distillation residue spent solvent, spent catalyst, process waste, discarded drum/container, sludge from wet scrubber used oil etc along with remaining fees and their Handling & Management systems within 15 days.

For and on behalf of
Gujarat Pollution Control Board

(J.K.Vyas)
Environmental Engineer

NO: PC/ CCA-KUTCH-228/ 24772

Issued to:
ANUSHAKTI CHEMICALS & DRUGS PVT. LTD.,
S. NO. 1430/1, N. H. NO. 8, BHACHAU,
TAL- BHACHAU,
DIST: KUTCH.

30 AUG 2005

3. CTO Amendment, Valid upto 05-Aug-07

GUJARAT POLLUTION CONTROL BOARD
Paryavaran Bhavan
Sector-10-A, Gandhinagar - 382 010.
Phone : 23222756, 23222095, 23222096
Gram : CLEANWATER Fax : (079) 23232156
Website : www.gpcb.gov.in

To;
Anushakti Chemicals & Drugs Pvt. Ltd.
S.No. 1430/1, N.H. 8-A, Bhachau,
Dist; Kutch.

1. **Amendment to Consent Order No. 6631 date of Issue:.29/08/05.**

2. The consents shall be valid up to **05/08/2007** for use of outlet for the discharge of trade effluent & emission to operation of industrial plant for manufacture of the items/products as per Annex – A.

3. **CONDITIONS UNDER THE WATER ACT:**

3.1 The quantity of trade effluent from the factory shall be 1,02,500Lt/day, which shall be totally incinerated in a well designed incinerator as per CPCB guidelines.

3.2 You shall make fool proof & adequate arrangement for storage of effluent when incinerator is not in operation.

3.3 The quantity of Sewage effluent from the factory shall not exceed 31,000 lits/day.

3.4 You are directed once again to obtain OSHAS 18000 & ISO 14001 and inform Board about the suitable consultant engaged.

3.5 You shall comply with all conditions (unchanged) specified in **Consent Order No. 6631 date 29/08/05.**

4. **CONDITIONS UNDER THE AIR ACT:**

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

4.2 The flue gas emission through stack shall conform to the following standards:

Stack No.	Stack attached to	Stack height in meter.	Parameter	Permissible Limit
1	Boiler	30	Particulate matter SO2 NOx	150 mg/NM3 100 ppm 50 ppm

Page 1 of 1

GUJARAT POLLUTION CONTROL BOARD
Paryavaran Bhavan
Sector-10-A, Gandhinagar - 382 010.
Phone : 23222756, 23222095, 23222096
Gram : CLEANWATER Fax : (079) 23232156
Website : www.gpcb.gov.in

4.3 The process emission through various stack/ vent of reactors, process. vessel shall conform to the following standards.

Stack No.	Stack attached to	Stack height in Meter	Air Pollution Control system	Parameter	Permissible Limit
1	Chlorinator & Nitrator	30	Water & Alkali	Particulate matter SO_2 NOx Chlorine HCl	150 mg/NM^3 40 mg/NM^3 25 mg/NM^3 9 mg/NM^3 20 mg/NM^3
2.	$CaCl_2$ Plant	30	Scrubber		
3.	Incinerator	30	Scrubber		

4.4 Alkali Scrubber shall be provided within a month at the process stacks.
4.5 All process stacks should have height of 30 m from ground level within one month.
4.6 For $CaCl_2$ plant you shall provide full fledged SMF in a month.

4.7 The concentration of the following parameters in the ambient air within the premises of the industry shall not exceed the limits specified hereunder.

PARAMETER	PERMISSIBLE LIMIT
Suspended Particulate matter	200 Microgram Per cubic meter
Oxides of Sulphur	80 Microgram Per cubic meter
Oxides of Nitrogen	80 Microgram Per cubic meter
RSPM	100 Microgram Per cubic meter

4.8. 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.

4.9 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.

5.1. M/s. Anushakti Chemicals & Drugs Pvt. Ltd. is hereby granted an authorization Amendment to operate facility for following hazardous wastes on the premises situated at Anushakti Chemicals & Drugs Pvt. Ltd.

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GUJARAT POLLUTION CONTROL BOARD
Paryavaran Bhavan
Sector-10-A, Gandhinagar - 382 010.
Phone : 23222756, 23222095, 23222096
Gram : CLEANWATER Fax : (079) 23232156
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5.2 The authorization shall be in force for a period of **five years** from the date of issue.

5.3 The authorization 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.

5.4 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, and 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 authorised person to take prior permission of the Gujarat Pollution Control Board to close down the facility.
f) An application for the renewal of an authorisation shall be made as laid down in rule 5 (6) (ii).
g) Ind. Shall have to manage distillate residue, process waste, spent solvent , catalyst waste oil, discarded containers etc as per Amended Rules 2003.
h) Ind. shall submit annual report within 15 days and sub sequently by 31st January every year.

6 GENERAL CONDITIONS: -

6.1 Any change in personnel, equipment or working conditions as mentioned in the consents form/order should immediately be intimated to this Board.
6.2 Applicant shall also comply with the general conditions given in annexure I.
6.3 The waste generator shall be totally responsible for (I.E. Collection, storage, transportation and ultimate disposal) of the wastes generated.
6.4 Records of waste generation, its management and annual return shall be submitted to Gujarat Pollution Control Board in Form – 4 by 31 st January of every year.
6.5 In case of any accident, details of the same shall be submitted in Form – 5 to Gujarat Pollution Control Board.
6.6 As per " Public liability Insurance Act – 91" company shall get Insurance policy, if applicable.
6.7 Empty drums and containers of toxic and hazards material shall be treated as per guideline published for "management & handling of discarded containers". Records of the same shall be maintained and forwarded to Gujarat Pollution Control Board regularly.
6.8 In no case any kind of hazardous waste shall be imported without prior approval of appropriate authority.
6.9 In case of transport of hazardous waste to a facility for (I.E. Treatment, Storage and disposal) existing in a state other than the state where hazardous waste are generated, the occupier shall obtain "No Objection certificate" from the state pollution Control Board, the Committee of the concerned state or Union territory Administration where the facility exists.
6.10 Unit shall take all concrete measures to show tangible results in waste generation reduction, voidance, reuse and recycle. Action taken in this regards shall be submitted within three months and also along with Form – 4.
6.11 Industry shall have to display the relevant information with regard to hazardous waste as indicated in the Hon Supreme Court's order in W.P. No.657 of 1995 dated 14th October 2003.

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6.12 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 waste generated within the factory premises.

For and on behalf of
Gujarat Pollution Control Board

(J.K.Vyas)
Environmental Engineer

NO: PC/ CCA-Kutch-228 / 22150
Anushakti Chemicals & Drugs Pvt. Ltd.
S.No. 1430/1, N.H. 8-A, Bhachau,
Dist; Kutch.

Copy to:-
1. The Regional Officer, G.P.C.Board,Jamnagar.. ....-With a request to carry out monitoring sampling and inspection under the provisions of the Water Act 1974, Air Act, 1981& EP Act 1986.
2. Library.

Page 4 of 4

Annexure - A

The Details of the Quantities of Products are as under.

A) Chloro Products of Benzene, Tolune-2400 TPM

Which Includes

1. Mono Chloro Benzene (MCB) 500 TPM
2. Chloro Tolune mixture 100 TPM
3. 1,2,4 Trichlorobenene (1,2,4 TCB) 100 TPM
4. Dichloro Benzene (PDCB, ODCB & MDCB) 1500 TPM
5. Dichloro Tolunes mixture 100 TPM
6. Dichloro Pere Nitro Aniline (DCPNA) 100 TPM

The total quantity of the above products will not exceed 2400 TPM.

B) Mononitro derivatives of Benzene, Chlorobenzene or Tolune or Xylene or Cumene – 5000 TPM

Which Includes

1. Nitrobenzene 1000 TPM
2. Notrochlorobenzene such as
   a. Para nitro chloro benzene (PNCB)
   b. Ortho nitro chloro benzene(ONCB) → 1500 TPM

Nitro Tolunes mixture 400 TPM

3. Nitro Xylines mixture 300 TPM
4. Nitro Cumence mixture 300 TPM
5. Di-chloro nitro benzenes such as
   a. 2,5-Di-chloro nitro benzene (2,5-DNCB) 250 to 300 TPM
   b. 3,4-Di-chloro nitro benzene (3,4-DNCB) 250 to 300 TPM
   c. 3,5-Di-chloro nitro benzene (3,5-DNCB) 250 to 300 TPM
   d. 2,4-Di-chloro nitro benzene (2,4-DNCB) 250 to 300 TPM
   e. 2,4,5-Di-chloro nitro benzene (2,4,5-DNCB) 250 to 300 TPM

The total quantity of the above products will not exceed 5000 TPM.

C) Dinitro derivatives of Benzene or Chlorobenzene-2000 TPM

Which Includes

1. Di-nitro benzene 1000 TPM
2. Di-nitro chloro benzene (DNCB) 1000 TPM

The total quantity of the above products will not exceed 2000 TPM.

D) Mix Nitro derivatives of Hydrocarbon- 2500 TPM

Which Includes

1. Mixture of Nitro chloro benzene 1000 TPM
2. Mixture of Dichloro Nitrobenzene 1000 TPM
3. Mixture of Nitro toluene 500 TPM

The total quantity of the above products will not exceed 2500 TPM.

E) Hydrogeneted/Reduction - 3000 TPM

Which Includes

1. Aniline 500 TPM
2. Toluedines 300 TPM
3. MetachloroAniline&Hydrochloride(MCA HCL) 200 to 250 TPM
4. Para Chloro Aniline & Hydrochloride (PCA HCL) 200 to 250 TPM
5. OrthoChloroAniline& Hydrochloride (OCA HCL) 200 to 250 TPM
6. 3,5 Dichloro Aniline & Hydrochloride (3,5 DCA) 200 to 250 TPM
7. 2,5 Dichloro Aniline (2,5 DCA) 200 to 250 TPM
8. 3,4 Dichloro Aniline (3,4 DCA) 200 to 250 TPM
9. Ortho Anisidine (OA) 200 to 250 TPM
10. Para Anisidine (PA) 200 to 250 TPM
11. 2,4,5 Trichlor Aniline (TCA) 200 TPM

The total quantity of the above products will not exceed 3000 TPM.

F) Amminolysis Products – 250 TPM

Which Includes

1. Para Nitro Aniline (PNA) 50 TPM
2. Ortho Nitro Aniline (ONA) 50 TPM
3. Para Chloro Ortho Nitro Aniline (PCONA) 50 TPM
4. Ortho Chloro Para Nitro Aniline (OCPNA) 50 TPM
5. 2,4 Dinitro Aniline (2,4 DNA) 50 TPM

H) Chloro Phenols – 300 TPM
Which Includes

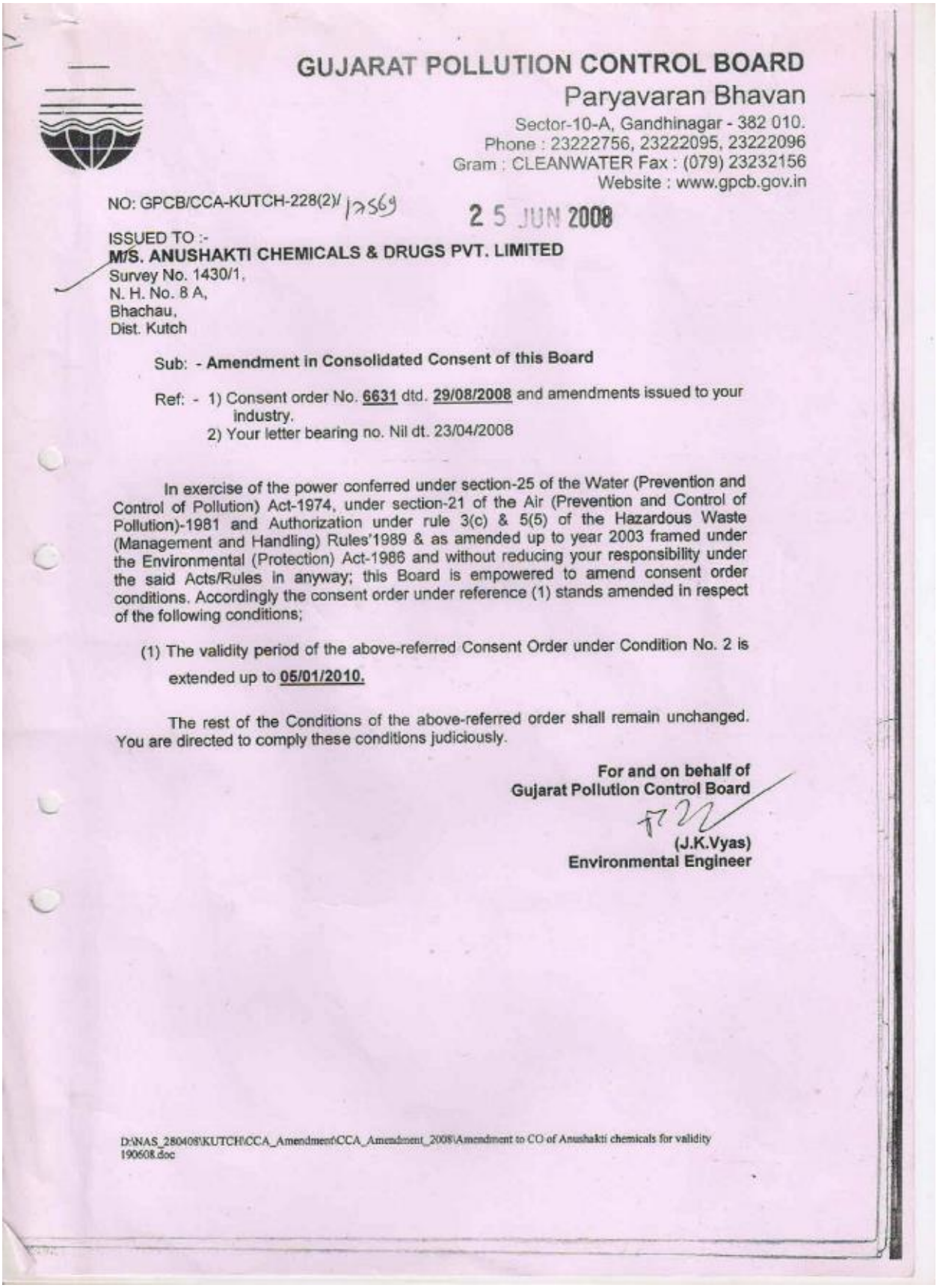
1. Orthochloro Phenols (OCP) 50 TPM
2. Parachloro Phenols (PCP) 50 TPM
3. Meta Dichloro Phenols (MDCP) 50 TPM
4. 2,4 Dichloro Phenols (2,4 DCP) 50 TPM
5. 2,6 Dichloro Phenols (2,6 DCP) 35 TPM
6. 2,3 Dichloro Phenols (2,3 DCP) 35 TPM
7. 2,5 Dichloro Phenols (2,5 DCP) 30 TPM

The total quantity of the above products will not exceed 300 TPM.

I) Chloro Sulphonic Acid – 1000 TPM
J) Acetanilide – 1000 TPM
K) Vinyl Sulphone & its derivative (except Dyes) – 300 TPM
L) By Products
1. Spent Sulphuric Acide – 1000 TPM
2. Dilute Hydrochloric Acid (30%) – 18000 TPM
3. Acetic Acid – 100 TPM

(J. K. Vyas)
28

4. CTO Amendment, issued on 25-Jun-08, valid upto 05-Jan-10



GUJARAT POLLUTION CONTROL BOARD
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Website : www.gpcb.gov.in

NO: GPCB/CCA-KUTCH-228(2)/ 12569 25 JUN 2008

ISSUED TO :-
M/S. ANUSHAKTI CHEMICALS & DRUGS PVT. LIMITED
Survey No. 1430/1,
N. H. No. 8 A,
Bhachau,
Dist. Kutch

Sub: - **Amendment in Consolidated Consent of this Board**

Ref: - 1) Consent order No. **6631** dtd. **29/08/2008** and amendments issued to your industry.
2) Your letter bearing no. Nil dt. 23/04/2008

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 Authorization 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 without reducing your responsibility under the said Acts/Rules in anyway; this Board is empowered to amend consent order conditions. Accordingly the consent order under reference (1) stands amended in respect of the following conditions;

(1) The validity period of the above-referred Consent Order under Condition No. 2 is extended up to **05/01/2010.**

The rest of the Conditions of the above-referred order shall remain unchanged. You are directed to comply these conditions judiciously.

For and on behalf of
Gujarat Pollution Control Board

(J.K.Vyas)
Environmental Engineer

D:\NAS_280408\KUTCH\CCA_Amendment\CCA_Amendment_2008\Amendment to CO of Anushakti chemicals for validity 190608.doc

5. CTE(NOC) Amendment, issued on 07-Jan-10, valid upto 15-Nov-14

GUJARAT POLLUTION CONTROL BOARD
Paryavaran Bhavan
Sector-10-A, Gandhinagar-382 010.
Phone : (079) 23226295
Fax : (079) 23232156
Website : www.gpcb.gov.in

CONSENT TO ESTABLISH [NOC]
CTE – 35993

NO: PC/NOC/CCA-Kutch- 228(2)/GPCB ID 17766/ 40240 **Date:** 7 JAN 2010

To,
M/S. ANUSHAKTI CHEMICALS & DRUGS PVT LTD.
SURVEY NO: / PLOT NO: 1430/1, N.H. – 8 A
VILLAGE – BHACHAU TA: BHACHAU
DIST: KUTCH.

SUB: Consent to Establishment (NOC) under Section 25 of Water Act – 1974 and Section 21 of Air Act 1981.
REF: Your Application INWARD ID No - 11904, dated: 16/11/2009

Sir,

Without prejudice to the powers of this Board under the Water (Prevention and Control of Pollution) Act-1974, the Air Act-1981 and the Environment (Protection) Act-1986 and without reducing your responsibilities under the said Acts in any way, this is to inform you that this Board grants Consent to Establish (NOC) for change in product mix in industrial plant at Survey no. / Plot No: 1430/1, N.H. 8 A Village – Bhachau Ta: Bhachau Dist: Kutch.

The validity period of the order will be Five years [i.e. UP TO 15/11/2014.

The list of the proposal products to be manufacture is as below:

Sr. no.	Products	Existing Capacity MT/Month	Proposed Capacity MT/Month	Total Capacity MT/Month
1.	Chloro products of Benzene, Toluene	2800	800	3600
2.	Mononitro derivatives of Benzene/ Chlorobenzene/Toluene/Xylene/Cumene	5000	(-) 3000	2000
3.	Dinitro derivatives of Benzene / Chlorobenzene	2000	(-) 1000	1000
4.	Mix Nitro derivatives of Hydrocarbon	2500	(-) 1500	1000
5.	Hydrogenated / Reduction	3000	2940	5940
6.	Amminolysis Products	250	(-) 220	30
7.	Phenylene Diamines	300	(-) 270	30
8.	Chloro Phenols	300	--	300
9.	Chloro Sulphonic Acid	1000	--	1000
10.	Acetanilide	1000	--	1000
11.	Vinyle Sulphone & its derivatives	300	--	300
12.	Phthalate Derivatives	--	2000	2000
13.	By Products: Spent sulphuric acid, HCL, Acetic acid, Metal salts, Cacl2, Sodium thiosulphate, Ammonium chloride	19100	(-) 500	18600

Note: Detail list is attached as ANNEXURE – A.

1

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1. No ground water shall be used for the project coming under Dark zone without permission of competent authority.
2. Unit shall provide metering facility at the outlet of the ETP/unit

CONDITIONS UNDER WATER ACT 1974:

1. The quantity of industrial effluent from the manufacturing process and other ancillary industrial operations shall not exceed 92 KL/Day.
2. The quantity of the domestic waste water (Sewage) shall not exceed **31 KL/Day**.
3. The sewage effluent shall be discharged in to septic tank/soak pit system.
4. The unit shall install meters for measuring category wise (Category as given in water – Cess Act-1977 schedule II) consumption of water.

TRADE EFFLUENT

1. The applicant shall provide adequate effluent treatment in order to achieve the quality of the treated effluent as per GPCB norms mentioned in column No – 2

PARAMETER	PERMISSIBLE LIMIT
pH	6.5 to 8.5
Temperature	40 °C
Colour (pt.co.scale units)	100 units
Suspended Solids	100 mg / l
Oil & Grease	10 mg / l
Phenolic Compound	01 mg / l
Amonical Nitrogen	50 mg / l
BOD (3Days at 27 oC)	30 mg / l
COD	100 mg / l
Chlorides	600 mg / l
Sulphates	1000 mg / l
Total Dissolved Solids	2100 mg / l
Sodium Absorption Ratio	26
Percent Sodium	60 %
Sulphides	02 mg / l
Total Chromium	02 mg / l
Hexavelent Chromium	0.1 mg / l
Copper	03 mg / l
Lead	0.1 mg / l
Mercury	0.01 mg / l
Nickel	03 mg / l
Zinc	05 mg / l
Cadmium	02 mg / l
Cyanides	0.2 mg / l
Arsenic	0.2 mg / l
Fluorides	02 mg / l
Insecticides / Pesticides	Absent

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

2

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2. The treated effluent conforming to the above standards shall be incinerated.

3. Domestic effluent shall be disposed off through septic tank / soak pit system.

PENALTY PROVISIONS: If the applicant fail to comply with the conditions and other directives issued by this Board as laid down in this order, the applicant is liable for prosecution U/S 43 & 44 and other penal provisions of the Acts and shall on conviction be liable for punishment and imprisonment as provided in the said Acts.

CONDITIONS UNDER AIR ACT 1974:

1. The following shall be used as fuel in the boiler/ furnace / Thermic fluid Heater / D.G Sets/ Incinerator as following rates:

Sr. no.	Equipment	Name of Fuel	Existing Quantity	Proposed Quantity	Total Quantity
1.	Boiler	Coal / Lignite	110 MT/Day	--	110 MT/Day
2.	Incinerator	F.O.	10,000 Lits / Day	--	10,000 Lits / Day

2. The applicant shall install & operate air pollution control system in order to achieve flue gas emission norms as prescribed below. (As per GPCB Norms, whichever is applicable)

Sr. no.	Stack attached to	Stack height in meters	Air Pollution Control System	Parameter	Permissible limit
1.	Boiler	30	--	P M SO_2 NOx	150 mg/NM^3 100 ppm 50 ppm

3. The process emission through various stacks / vent of reactors/ process vessels shall conform to the following standards:

Sr. no.	Stack attached to	Stack height in meters	Air Pollution Control System	Parameter	Permissible limit
1.	Incinerator	30	Scrubber	P M SO_2 NOx	150 mg/NM^3 40 mg/NM^3 25 mg/NM^3
2.	HCL Stack	20	Four stage scrubber	HCL Cl_2	20 mg/NM^3 09 mg/NM^3
3.	CaCl2 Plant	20	--	P M SO_2 NOx	150 mg/NM^3 40 mg/NM^3 25 mg/NM^3
4.	NOx Stack	30	Two stage scrubber	NOx	25 mg/NM^3

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4. Stack monitoring facilities like porthole, platform/ladder etc. shall be provided with stacks/vents chimney in order to facilitate sampling of gases being emitted into the atmosphere.

5. Ambient air quality within the premises at 3 meters from the source shall conform to the following standards: -

PARAMETERS	PERMISSIBLE LIMIT
RSPM	100 Microgram/M3
SO2	80 Microgram/M3
NOx	80 Microgram/M3

6. All measures for the control of environment pollution shall be provided before commencing production.

CONDITIONS UNDER HAZARDOUS WASTE:

1. The applicant shall provide temporary storage facilities for each type of Haz Waste as per Hazardous Waste (Management, Handling & Transboundary Movement) Rules, 2008 as amended from time to time.

2. The applicant shall be obtain membership of common TSDF site for disposal Haz. Waste as categorized in Hazardous Waste (Management, Handling & Transboundary Movement) Rules, 2008 as amended from time to time.

3. The applicant shall have to comply with the honorable Supreme Court's Order in WP No.657 of 1995 dt. 14th Oct. 2003 .Hon'ble supreme Courts monitoring committee's directives issued from time to time and Hazardous Waste (Management , Handling Transboundary Movement) Rules, 2008 as amended from time to time.

GENERAL CONDITION:

1. Unit shall develop green belt within premises as per the CPCB guidelines. However, if the adequate land is not available within premises, the unit shall tie up with local agencies like gram panchayat, school, social forestry office etc. for the plantation at suitable open land in nearby locality and submit an action plan of plantation for next three years to GPCB.
2. Plantation should be started along with constitution activity. For plantation within the premises, a spacing of at least 4m x 4m shall be kept i.e. to say 250 plants per acre shall be plantation. For plantation out side the premises a spacing of 2m x 2m will be kept i.e. to say 1000 plants per acre.
3. Adequate plantation shall be carried out all along the periphery of the industrial premises in such a way that the density of plantation is at least 1000 trees per acre of land and a green belt of **10** meters width is developed.
4. The applicant shall have to submit the returns in prescribed form regarding water consumption and shall have to make payment of water cess to the Board under the Water Cess Act- 1977.

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5. In case of change of ownership/management the name and address of the new owners/partners/directors/proprietor should immediately be intimated to the Board.
6. **The applicant shall however, not without the prior consent of the Board bring into use any new or altered outlet for the discharge of effluent or gaseous emission or sewage waste from the proposed industrial plant. The applicant is required to make applications to this Board for this purpose in the prescribed forms under the provisions of the Water Act-1974, the Air Act-1981 and the Environment (Protection) Act-1986.**
7. The applicant also comply with the General conditions as per Annexure - I attached herewith (No.1 to 38) (whichever applicable).
8. The over all noise level in and around the plant area shall be kept well within the standards by providing noise control measures including engineering control like acoustic insulation hoods, silencers, enclosures etc on all sources of noise generation. The ambient noise level shall conform to the standards prescribed under the Environment (Protection) Act, 1986 & Rules.
9. The concentration of Noise in ambient air within the premises of industrial unit shall not exceed following levels:

   Between 6 A.M. and 10 P.M.: 75 dB (A)
   Between 10 P.M. and 6 A.M.: 70 dB (A)

10. Applicant is required to comply with the manufacturing, Storage and Import of Hazardous Chemicals Rules-1989 framed under the Environment (Protection) Act-1986.
11. If it is established by any competent authority that the damage is caused due to their industrial activities to any person or his property in that case they are obliged to pay the compensation as determined by the competent authority.
12. Applicant shall have to comply with all the guidelines/Directive issued/ being issued by MoEF/CPCB/DoEF from time to time.
13. Applicant shall not use/withdraw ground water either during construction and /or operation phase.
14. Environmental cell shall be setup and shall be responsible for the total Environmental management.
15. Monitoring in respect to Air, Water, Noise level shall be carried out and results shall be submitted to this Board on quarterly basis.

For and on behalf of
GUJARAT POLLUTION CONTROL BOARD

(V.C.SHAH)
ENVIRONMENTAL ENGINEER

5

GUJARAT POLLUTION CONTROL BOARD
Paryavaran Bhavan
Sector-10-A, Gandhinagar-382 010.
Phone : (079) 23226295
Fax : (079) 23232156
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Details of Product

Annexure - (A)

Sr. No.	Product Name	Quantity of Product (Ton/Month)		
		Existing	Proposed	Total
	(A) Chloro products of Benzene, Toluene	**2800**	**800**	**3600**
1.	Mono Chloro Benzene (MCB)	2400	600	3000
2.	Dichloro Benzene (PDCB, ODCB, & MDCB)			
3.	1,2,4 Trichlorobenzene (1,2,4 TCB)	100	200	300
4.	Chloro Toluene mixture	100	-	100
5.	Dichloro Toluene mixture	100	-	100
6.	Dichloro Pera Nitro Aniline (DCPNA)	100	-	100
	(B) Mononitro derivatives of Benzene, Chlorobenzene or Toluene or Xylene or Cumene	**5000**	**(-)3000**	**2000**
1.	Nitrobenzene	1000	(-)3000	500
2.	Nitrochlorobenzene such as			
	a. Para Nitro Chlorobenzene (PNCB) b. Ortho Nitro Chloro benzene	1500		
	c. Nitro Toluene mixture	400		
3.	Nitro Xylene mixture	300		
4.	Nitro Cumene mixture	300		
5.	Di-Chloro nitro benzene such as			
	a. 2,5-Di-chloro nitro benzene (2,5-DCNB)	250-300	NIL	1500
	b. 3,4-Di-chloro nitro benzene (3,4-DCNB)	250-300		
	c. 3,5-Di-chloro nitro benzene (3,5-DCNB)	250-300		
	d. 2,4-Di-chloro nitro benzene (2,4-DCNB)	250-300		
	e. 2,4,5-Di-chloro nitro benzene (2,4,5-TCNB)	250-300		
	(C) Dinitro derivatives of Benzene or Chlorobenzene	**2000**	**(-)1000**	**1000**
1.	Di-nitro benzene	1000	(-)1000	1000
2.	Di-nitro Chloro benzene (DNCB)	1000		
	(D) Mix Nitro Derivatives of Hydrocarbon	**2500**	**(-)1500**	**1000**
1.	Mixture of Nitro Chloro benzene	1000	(-)1500	1000
2.	Mixture of Dichloro nitro benzene	1000		
3.	Mixture of Nitro toluene	500		
	(E) Hydrogenated/Reduction	**3000**	**2940**	**5940**
1.	Aniline	500	140	3140
2.	Toluedines	300		
3.	Metachloro Aniline & Hydrochloride (MCA HCL)	200-250		
4.	Para Chloro Aniline & Hydrochloride (PCA	200-250		

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Sr. No.	Product Name	Quantity of Product (Ton/Month)		
		Existing	Proposed	Total
	HCL)			
5.	Ortho Chloro Aniline & Hydrochloride (OCA HCL)	200-250		
6.	3,5 Dichloro Aniline & Hydrochloride (3,5 DCA)	200-250		
7.	2,5 Dichloro Aniline (2,5 DCA)	200-250		
8.	3,4 Dichloro Aniline (3,4 DCA)	200-250		
9.	Ortho Anisidine (OA)	200-250		
10.	Para Anisidine (PA)	200-250		
11.	2,4,5 Trichloro Aniline	200		
12.	Monomethyl Aniline	-	2500	2500
13.	Dimethyl Aniline	-	300	300
(F) Amminolysis Products		**250**	**(-)220**	**30**
1.	Para Nitro Aniline (PNA)	50	(-)44	
2.	Ortho Nitro Aniline (ONA)	50	(-)44	30
3.	Para Chloro Ortho Nitro Aniline (PCONA)	50	(-)44	
4.	Ortho Chloro Para Nitro Aniline (OCPNA)	50	(-)44	
5.	2,4 Dinitro Aniline (2,4 DNA)	50	(-)44	
(G) Phenylene Diamines		**300**	**(-)270**	**30**
1.	Paraphenylene Diamine (PPDA)	100	(-)90	30
2.	Metaphenylene Diamine (MPDA)	100	(-)90	
3.	Orthophenylene Diamine (OPDA)	100	(-)90	
(H) Chloro Phenols		**300**	**Nil**	**300**
1.	Orthochloro Phenols (OCP)	50	Nil	50
2.	Parachloro Phenols (PCP)	50	Nil	50
3.	Meta Dichloro Phenols (MDCP)	50	Nil	50
4.	2,4 Dichloro Phenols (2,4 DCP)	50	Nil	50
5.	2,6 Dichloro Phenols (2,6 DCP)	35	Nil	35
6.	2,3 Dichloro Phenols (2,3 DCP)	35	Nil	35
7.	2,5 Dichloro Phenols (2,5 DCP)	30	Nil	30
(I) Chloro Sulphonic Acid		**1000**	**Nil**	**1000**
(J) Acetanilide		**1000**	**Nil**	**1000**
(K) Vinyle Sulphone & its derivatives (Except dyes)		**300**	**Nil**	**300**
(L) Phthalate Derivatives		**Nil**	**2000**	**2000**
1.	Di Metyl Phthalate (D.M.P)	Nil	2000	2000
2.	Di Iso Nonyl Phthalate (D.I.N.P)	Nil		

GUJARAT POLLUTION CONTROL BOARD
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Sr. No.	Product Name	Quantity of Product (Ton/Month)		
		Existing	Proposed	Total
3.	Di Iso Decyl Phthalate (DIDP)	Nil		
4.	Di Metyle Adipate	Nil		
5.	Di Octyl Adipate	Nil		
6.	Di octyl Phthalate	Nil		
	TOTAL PRODUCTS (A - L)	18450	(-)250	18200
(M) By Products		19100	(-)500	18600
1.	Spent Sulphuric Acid	1000	4000	5000
2.	Dilute Hydrochloric Acid	18000	(-)7400	10600
3.	Acetic Acid	100	Nil	100
4.	Metal Salts (Copper/ Ferrous Sulphate)	Nil	300	300
5.	Metal Salts (Magnesium / Aluminium Sulphate)	Nil	300	300
6.	$CaCl_2$	Nil	1000	1000
7.	Sodium Thiosulphate	Nil	300	300
8.	Ammonium Chloride	-	1000	1000
	TOTAL	19100		18600

6. CTO Renewal and amendment, issued on 12-May-10, valid upto 12-Jan-15

GUJARAT POLLUTION CONTROL BOARD
Paryavaran Bhavan
Sector-10-A, Gandhinagar-382 010.
Phone : (079) 23226295
Fax : (079) 23232156
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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 Authorization under rule 5(4) of the Hazardous Waste (Management, Handling and Transboundry Movement) Rules'2008 & as amended from time to time framed under the Environment (Protection) Act-1986.

And whereas Board has received consolidated consent application **Inward I.D.NO.13102 dated 13/01/2010** for the Renewal of **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. ANUSHAKTI CHEMICALS & DRUGS PVT LTD.
SURVEY NO: 1430/1, N.H. – 8 A,
VILLAGE – BHACHAU ,TA: BHACHAU,
DIST: KUTCH.

1. **Consent Order No: AWH - 37483 date of Issue: 12/05/2010.**

2. The consent under Water Act -1974 for the treatment and disposal of treated effluent and the consent under Air Act-1981,and Authorization under the Hazardous Waste (Management, Handling and Transboundry Movement) Rules'2008 under Environment (Protection) Act-1986 shall be valid up to **12/01/2015** to operate industrial plant for manufacture of the following items / products at **SURVEY NO: 1430/1, N.H. – 8 A,VILLAGE – BHACHAU TA: BHACHAU, DIST: KUTCH**

Sr. no.	Products	Total Capacity MT/Month
1.	Chloro products of Benzene, Toluene	**3600**
2.	Mononitro derivatives of Benzene/ Chlorobenzene/Toluene/Xylene/Cumene	**2000**
3.	Dinitro derivatives of Benzene / Chlorobenzene	**1000**
4.	Mix Nitro derivatives of Hydrocarbon	**1000**
5.	Hydrogenated / Reduction	**5940**
6.	Amminolysis Products	**30**
7.	Phenylene Diamines	**30**
8.	Chloro Phenols	**300**
9.	Chloro Sulphonic Acid	**1000**

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GUJARAT POLLUTION CONTROL BOARD
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10.	Acetanilide	**1000**
11.	Vinyle Sulphone & its derivatives	**300**
12.	Phthalate Derivatives	**2000**
13.	By Products: Spent sulphuric acid, HCL, Acetic acid, Metal salts, $CaCl_2$, Sodium thiosulphate, Ammonium chloride	**18600**

Note: Detail list is attached as ANNEXURE – A.

3. CONDITIONS UNDER THE WATER ACT:

3.1 The generation and disposal of the industrial effluent from the manufacturing process and other ancillary industrial operations shall not exceed 92 KL/Day.

3.2 The quantity of Sewage effluent from the factory shall not exceed 31 KL/Day.

3.3 The industry shall have to incinerate total quantity of industrial wastewater

3.4 **TRADE EFFLUENT**:

3.3.1 The applicant shall provide adequate effluent treatment facilities in order to achieve the quality of the treated effluent mentioned below.

PARAMETER	PERMISSIBLE LIMIT
pH	6.5 to 8.5
Temperature	40 °C
Colour (pt.co.scale units)	100 units
Suspended Solids	100 mg / l
Oil & Grease	10 mg / l
Phenolic Compound	01 mg / l
Amonical Nitrogen	50 mg / l
BOD (3Days at 27 oC)	30 mg / l
COD	100 mg / l
Chlorides	600 mg / l
Sulphates	1000 mg / l
Total Dissolved Solids	2100 mg / l
Sodium Absorption Ratio	26
Percent Sodium	60 %
Sulphides	02 mg / l
Total Chromium	02 mg / l
Hexavelent Chromium	0.1 mg / l
Copper	03 mg / l
Lead	0.1 mg / l
Mercury	0.01 mg / l
Nickel	03 mg / l
Zinc	05 mg / l
Cadmium	02 mg / l
Cyanides	0.2 mg / l

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Arsenic	0.2 mg / l
Fluorides	02 mg / l
Insecticides / Pesticides	Absent

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

3.3.2 The final treated effluent confirming to the above standards shall be incinerated.
3.3.3 Domestic effluent shall be disposed off through septic tank / soak pit system.
3.3.4 The unit shall install meters for measuring category wise (category as given in Water Cess Act-1977 Schedule II) consumption of water.

4. CONDITIONS UNDER THE AIR ACT:

4.1 The following shall be used as flue in boiler/furnace/heater respectively.

Sr.No.	Fuel	Quantity
1.	Lignite / Coal	110 MT/Day
2.	LDO	10,000 LIT/DAY

4.2 Unit shall not use wood as fuel for the furnace or at any place.
4.3 The flue gas emission through stack attached to boiler/furnace/heater shall conform to the following standards.

Stack No.	Stack attached to	Stack height in meter	Air Pollution Control Measures	Parameter	Permissible limit
1.	BOILER	30	MULTI CYCLONE DUST COLLECTOR	P M SO2 NOx	150 mg/Nm^3 100 ppm 50 ppm

4.4 The process emission through various stacks/ vents of reactors, process vessel shall be confirmed to the following standards.

Stack No.	Stack attached to	Stack height in meter	Air Pollution Control Measures	Parameter	Permissible limit
1.	Incinerator	30	Scrubber	SPM SO_2 NO_x	150 mg/Nm^3 40 mg/Nm^3 25 mg/Nm^3
2.	HCl Stack(Chlorinator)	30	Scrubber	HCl	20 mg/Nm^3
3.	Nitrator	30	Scrubber	NO_x	25 mg/Nm^3
4	Mixing tank of $CaCl_2$ plant	25	Cyclone seperator	SPM	150 mg/Nm^3

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4.5 The concentration of the following parameters in the ambient air within the premises of the industry shall not exceed the limits specified hereunder.

PARAMETER	PERMISSIBLE LIMIT
Oxides of Sulphur	80 Microgram Per cubic meter
Oxides of Nitrogen	80 Microgram Per cubic meter
RSPM	100 Microgram Per cubic meter

4.6 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.

4.7 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.

5 Authorization For the [Management, Handling & Transboundary Movement] of Hazardous Wastes Form-2 (See rule 5 (4) Form for grant of authorization for occupier or operator handling hazardous waste rule, 2008.

5.1 **M/S. ANUSHAKTI CHEMICALS & DRUGS PVT LTD** is hereby granted an authorization to operate facility for following hazardous wastes on the premises situated at **SURVEY NO: 1430/1, N.H. – 8 A, VILLAGE – BHACHAU ,TA: BHACHAU, DIST: KUTCH**

Sr. No.	Waste	Quantity/ year	Schedule	Facility
1.	Used Oil/Spent Oil	200 Lit	Sh.-I, 5.1	Collection, storage, Transportation, Disposal by selling out to registered recyclers/ reprocessor or reuse in plant and machinery for lubricating purpose.
2.	ETP Sludge	15 MT	Sh.-I ,34.3	Collection, storage, Transportation, Disposal at common TSDF Site.
3.	Incinerator Ash	7.5 MT	Sh.-I ,36.2	Collection, storage, Transportation, Disposal at common TSDF Site .
4.	Discarded Materials(plastic bags,carboys,drums)	150 nos	Sh.-I 33.3	Collection, storage, Transportation,, Disposal at common TSDF Site or selling to reprocessors.

GUJARAT POLLUTION CONTROL BOARD
Paryavaran Bhavan
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occupier shall obtain "No Objection certificate" from the state pollution Control Board, the Committee of the concerned state or Union territory Administration where the facility exists.

6.10 Uniit shall take all concrete measures to show tangible results in waste generation reduction, voidance, reuse and recycle. Action taken in this regards shall be submitted within 03 months and also along with Form 4.

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

6.12 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 waste generated within the factory premises.

For and on behalf of
Gujarat Pollution Control Board

(V.C.SHAH)
Environmental Engineer

NO: PC/NOC/CCA-Kutch- 228(2)/GPCB ID 17766/ 51556 Date: 18 MAY 2010

ISSUED To:

M/S. ANUSHAKTI CHEMICALS & DRUGS PVT LTD.
SURVEY NO: / PLOT NO: 1430/1, N.H. – 8 A
VILLAGE – BHACHAU TA: BHACHAU
DIST: KUTCH.

GUJARAT POLLUTION CONTROL BOARD
Paryavaran Bhavan
Sector-10-A, Gandhinagar-382 010.
Phone : (079) 23226295
Fax : (079) 23232156
Website : www.gpcb.gov.in

Annexure A

Details of Product

Sr. No	Product Name	Quantity of Product (Ton/Month)
(A) Chloro products of Benzene, Toluene		**3600**
1.	Mono Chloro Benzene (MCB)	3000
2.	Dichloro Benzene (PDCB, ODCB, & MDCB)	
3.	1,2,4 Trichlorobenzene (1,2,4 TCB)	300
4.	Chloro Toluene mixture	100
5.	Dichloro Toluene mixture	100
6.	Dichloro Pera Nitro Aniline (DCPNA)	100
(B) Mononitro derivatives of Benzene, Chlorobenzene or Toluene or Xylene or Cumene		**2000**
1.	Nitrobenzene	500
2.	Nitrochlorobenzene such as	
	a. Para Nitro Chlorobenzene (PNCB)	
	b. Ortho Nitro Chloro benzene	
	c. Nitro Toluene mixture	
3.	Nitro Xylene mixture	
4.	Nitro Cumene mixture	
5.	Di–Chloro nitro benzene such as	1500
	a. 2,5-Di-chloro nitro benzene (2,5-DCNB)	
	b. 3,4-Di-chloro nitro benzene (3,4-DCNB)	
	c. 3,5-Di-chloro nitro benzene (3,5-DCNB)	
	d. 2,4-Di-chloro nitro benzene (2,4-DCNB)	
	e. 2,4,5-Di-chloro nitro benzene (2,4,5-TCNB)	
(C) Dinitro derivatives of Benzene or Chlorobenzene		**1000**
1.	Di-nitro benzene	1000
2.	Di-nitro Chloro benzene (DNCB)	
(D) Mix Nitro Derivatives of Hydrocarbon		**1000**
1.	Mixture of Nitro Chloro benzene	1000
2.	Mixture of Dichloro nitro benzene	
3.	Mixture of Nitro toluene	

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S. No.	Product Name	Quantity of Product (Ton/Month)
		5940
(E) Hydrogenated/Reduction		
1.	Aniline	3140
2.	Toluedines	
3.	Metachloro Aniline & Hydrochloride (MCA HCL)	
4.	Para Chloro Aniline & Hydrochloride (PCA HCL)	
5.	Ortho Chloro Aniline & Hydrochloride (OCA HCL)	
6.	3,5 Dichloro Aniline & Hydrochloride (3,5 DCA)	
7.	2,5 Dichloro Aniline (2,5 DCA)	
8.	3,4 Dichloro Aniline (3,4 DCA)	
9.	Ortho Anisidine (OA)	
10.	Para Anisidine (PA)	
11.	2,4,5 Trichloro Aniline	2500
12.	Monomethyl Aniline	300
13.	Dimethyl Aniline	
		30
(F) Amminolysis Products		30
1.	Para Nitro Aniline (PNA)	
2.	Ortho Nitro Aniline (ONA)	
3.	Para Chloro Ortho Nitro Aniline (PCONA)	
4.	Ortho Chloro Para Nitro Aniline (OCPNA)	
5.	2,4 Dinitro Aniline (2,4 DNA)	
		30
(G) Phenylene Diamines		30
1.	Paraphenylene Diamine (PPDA)	
2.	Metaphenylene Diamine (MPDA)	
3.	Orthophenylene Diamine (OPDA)	
		300
(H) Chloro Phenols		50
1.	Orthochloro Phenols (OCP)	50
2.	Parachloro Phenols (PCP)	50
3.	Meta Dichloro Phenols (MDCP)	50
4.	2,4 Dichloro Phenols (2,4 DCP)	35
5.	2,6 Dichloro Phenols (2,6 DCP)	35
6.	2,3 Dichloro Phenols (2,3 DCP)	30
7.	2,5 Dichloro Phenols (2,5 DCP)	
		1000
(I) Chloro Sulphonic Acid		
		1000
(J) Acetanilide		

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Sr. No.	Product Name	Quantity of Product (Ton/Month)
(K) Vinyle Sulphone & its derivatives (Except dyes)		300
		2000
(L) Phthalate Derivatives		
1.	Di Metyl Phthalate (D.M.P)	2000
2.	Di Iso Nonyl Phthalate (D.I.N.P)	
3.	Di Iso Decyl Phthalate (DIDP)	
4.	Di Metyle Adipate	
5.	Di Octyl Adipate	
6.	Di octyl Phthalate	
	TOTAL PRODUCTS (A - L)	18200
		18600
(M) By Products		5000
1.	Spent Sulphuric Acid	10600
2.	Dilute Hydrochloric Acid	100
3.	Acetic Acid	300
4.	Metal Salts (Copper/ Ferrous Sulphate)	300
5.	Metal Salts (Magnesium / Aluminium Sulphate)	1000
6.	$CaCl_2$	300
7.	Sodium Thiosulphate	1000
8.	Ammonium Chloride	18600
	TOTAL	

7. CTO Amendment, issued on 17-April-12, valid upto 12-Jan-15

GPCB

GUJARAT POLLUTION CONTROL BOARD

PARYAVARAN BHAVAN
Sector 10-A, **Gandhinagar** 382010
Phone : (079) 23226295
Fax : (079) 23232156
website : www.gpcb.gov.in

BY. R.P.A.D

Amendment in Consolidated Consent & Authorization order no AWH - 37483 dated 12/05/2010
(Under the provisions/rules of the aforesaid Environmental acts)

CONSENTS AND AUTHORISATION:
(Under the provisions /rules of the aforesaid environmental acts)
To,
M/S ANUSHAKTI CHEMICALS & DRUGS PVT LTD,
SURVEY NO: 1430/1, N.H. – 8-A,
VILLAGE: BHACHAU,
TALUKA: BHACHAU,
DIST: KUTCH – 370 140.

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 Authorization under rule 5(4) of the Hazardous Waste (Management, Handling and Transboundry Movement) Rules 2008 & as amended from time to time framed under the Environment (Protection) Act-1986 this board has granted the Consent order **AWH – 37483** vide letter No. PC/NOC/CCA-KUTCH-228(2)/GPCB ID: 17766/51556 dated 18/05/2010.

And whereas Board has received consolidated consent application Inward **I.D.NO. 51008** dated **03/12/2011** for the amendment in Consolidated Consent and Authorization (CC & A) of this Board to **INSTALL ADDITIONAL MACHINERY IN EXISTING PREMISES WITHOUT INCREASE IN PRODUCTION CAPACITY** and under the provisions/rules of the aforesaid acts Consents & Authorization no **AWH – 37483 is** hereby further amended as under:

1. **Consent Order No: AWH – 37483 is amended on dated 30/03/2012 and the validity of the order shall remain unchanged and it shall be valid up to 12/01/2015.**
2. There shall be no change in existing production capacity due to installation of new machinery.
3. There shall be no change waste water generation and disposal quantity due to installation of new machinery.
4. The following shall be used as additional fuel in boiler/furnace/heater respectively.

SR.NO.	FUEL	QUANTITY
1.	**For FBC Boiler** Coal OR Lignite	 1800.00 Kg/Hour OR 2374.00 Kg/Hour
2.	**For Thermic Fluid heater** Coal OR Lignite	 600.00 Kg/Hour OR 791.00 Kg/Hour
[illegible]	Furn[illegible]	[illegible]/Hour

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ISO - 9001 - 2008 & ISO - 14001 - 2004 Certified Organisation

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5. The following shall be installed as additional flue gas emission through stack attached to boiler / furnace / heater / D.G.Set shall conform to the following standards:

Sr No.	Stack attached to	Stack height	APCM	Parameter	Permissible limit
1.	FBC Boiler **(As stand by)**	30.00	Multi Cyclone with Dust Collector	PM	150 mg/Nm3
2.	Thermic Fluid Heater – 20 Lac Kcal/Hr	30.00	Multi Cyclone with Dust Collector	SO2 NOx	100 ppm 50 ppm
3.	D.G. Set – 1 Nos (1000 KVA) **(As Stand By)**	15.00 meter	---		

6. These FBC Boiler and D.G. Set (1000 KVA) shall be operate as standby facility.
7. The other terms and conditions of Consent Order **AWH – 37483** vide letter No PC/NOC/CCA-KUTCH-228(2)/GPCB ID: 17766/51556 dated 18/05/2010

For and on behalf of
GUJARAT POLLUTION CONTROL BOARD

16/4/12

(V.R.GHADGE)
SENIOR ENVIRONMENTAL ENGINEER

NO: PC/ CCA- KUTCH-228(4)/GPCB ID: 17766/ 109877 **Date:** - 17-04-2012

ISSUED To:

M/S ANUSHAKTI CHEMICALS & DRUGS PVT LTD,
SURVEY NO: 1430/1, N.H. – 8-A,
VILLAGE: BHACHAU,
TALUKA: BHACHAU,
DIST: KUTCH – 370 140.

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8. CTE(NOC) Amendment, issued on 04-May-11, valid upto 15-Nov-14

GUJARAT POLLUTION CONTROL BOARD

Paryavaran Bhavan
Sector-10-A, Gandhinagar-382 010.
Phone : (079) 23226295
Fax : (079) 23232156
Website : www.gpcb. gov. in

AMENDMENT OF CONSENT TO ESTABLISH

No. PC/CCA-KUTCH -228(3)/GPCB ID 17766/ 29115 Date: - By RPAD

To,

M/S. ANUSHAKTI CHEMICALS & DRUGS LTD.
SURVEY NO: / PLOT NO: 1430/1, N.H. – 8 A
VILLAGE – BHACHAU, TA: BHACHAU
DIST: KUTCH.

4 MAY 2011

Sub: - Amendment in Consent to Establish (NOC) of this Board.

Ref: - 1. NOC Order No. PC/NOC/CCA-KUTCH-228(2)/GPCB ID 17766/40740 dtd 07/01/2010.
2. Your application for CTE amendment Inward ID No: 20152 dtd.17/01/2011.

The consent to establish (NOC) issued vide letter no.. PC/NOC/CCA-KUTCH-591/28221 dtd 17/12/2008 is amended as under:

The validity period of the CTE – amendment (NOC) order is up to **15/11/2014**.
Accordingly the CTE / NOC order under reference (1) stands amended in respect of the following conditions.

- **The above referred CTE/NOC order is amended for Installation of Boiler /Thermic Fluid Heater / D.G. Set.**

1.CONDITIONS UNDER WATER ACT 1974:

1.1 No Industrial waste water generation after expansion

1.2 No Domestic waste water generation after expansion

2. CONDITIONS UNDER AIR ACT 1981

2.1 In addition to Condition No: 1 of above referred order, the following shall be used as additional fuel in Boiler/Furnace/Heater / D.G. Set respectively.

Sr. No.	Stack	Fuel	Quantity
1.	FBC Boiler	Coal OR Lignite	1800 Kg/hr OR 2374 Kg/hr
2.	Thermic Fluid Heater	Coal OR Lignite	600 Kg/hr OR 791 Kg/hr
3.	D.G. Set	LDO/Diesel	325 Ltrs/hr

2.2 In addition to condition no:2. the additional flue gases emission through Boiler /Furnace/Heater / D.G. Set shall conform to the following standards:

Sr. No.	Stack attached to	Stack height in meter	Air Pollution Control Measures	Parameter	Permissible limit
1.	FBCBoiler (cap-12 TPH) (Stand by)	30	Multy cyclone Dust collector	Particulate matter	150 mg/Nm3
2.	Thermic Fluid Heater	30	Multy cyclone Dust collector	SO2 NOx	100 ppm 50 ppm
3.	D.G. Set (1000KVA) (Stand by)	15	------		

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2.3 Stack monitoring facilities like porthole, platform/ladder etc. shall be provided with stacks/vents chimney in order to facilitate sampling of gases being emitted into the atmosphere.

2.4 The concentration of the following parameters in the ambient air within the premises of the industry shall not exceed the limits specified hereunder.

Sr. No.	Pollutant	Time Weighted Average	Concentration in Ambient air
1.	Sulphur Dioxide (SO_2), µg/M^3	Annual 24 Hours	50 80
2.	Nitrogen Dioxide (NO_2), µg/M^3.	Annual 24 Hours	40 80
3.	Particulate Matter (Size less than 10 µm) OR PM_{10} µg/M^3	Annual 24 Hours	60 100
4.	Particulate Matter (Size less than 2.5 mm) OR $PM_{2.5}$ µg/M^3	Annual 24 Hours	40 60

2.5 All measures for the control of environment pollution shall be provided before commencing production.

3. CONDITIONS UNDER HAZARDOUS WASTE:

3.1 Applicant shall have to comply with provisions of Hazardous Waste (Management, Handling & Transboundary Movement) Rules, 2008 as amended from time to time.

3.2 The applicant shall obtain membership of common TSDF site for disposal of Hazardous Waste as categorized in Hazardous Waste (Management, Handling & Transboundary Movement) Rules, 2008 as amended from time to time.

3.3 The applicant shall obtain membership of common Hazardous Waste incinerator for disposal of incinerable waste.

3.4 The applicant shall provide temporary storage facilities for each type of Hazardous Waste as per Hazardous Waste (Management, Handling & Transboundary Movement) Rules, 2008 as amended from time to time.

3.5 The applicant shall obtain registration for recycling / reprocessing any hazardous waste before procuring material / starting production from CPCB.

3.6 The applicant shall obtain authorization for recovery/ reuses of any hazardous waste material.

4. The other conditions of the consent to establish (NOC) issued vide our vide order No. Order No. PC/NOC/CCA-KUTCH-228(2)/GPCB ID 17766/40740 dtd 07/01/2010shall remain unchanged.

5. You are directed to comply these conditions judiciously.

For and on behalf of
GUJARAT POLLUTION CONTROL BOARD

(M.V.PATEL)
Environmental Engineer

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9. CTE(NOC) Amendment, issued on 01-Jan-14

GPCB

GUJARAT POLLUTION CONTROL BOARD

PARYAVARAN BHAVAN
Sector 10-A, **Gandhinagar 382010**
Phone : (079) 23226295
Fax : (079) 23232156
website : www.gpcb.gov.in

BY R.P.A.D.

Consent to Establishment (NOC)
CTE - 58897

NO: PC/ CCA- KUTCH-228(4)/ GPCB ID: 17766/ 169883 Date: - 01-01-2014

To,
M/S ANUSHAKTI CHEMICALS & DRUGS PVT LTD,
SURVEY NO: 1430/1, N.H. – 8-A,
VILLAGE: BHACHAU,
TALUKA: BHACHAU,
DIST: KUTCH – 370 140.

Sub: - Amendment in Consent to Establish/ NOC of this Board.
Ref: - Your application for CTE amendment Inward ID No: 70565 dated 02-08-2013.

Without prejudice to the powers of this Board under the Water (Prevention and Control of Pollution) Act-1974, the Air Act-1981 and the Environment (Protection) Act-1986 and without reducing your responsibilities under the said Acts in any way, this is to inform you that this Board grants the amendment in **Consent to Establish (NOC)** for setting up the additional **THERMIC FLUID HEATER HAVING CAPACITY OF 20 Lac Kcal/Hour AND D.G. SET HAVING CAPACITY OF 1000 KVA** without increasing the production capacity at existing unit located at **SURVEY NO: 1430/1, N.H. – 8-A, VILLAGE: BHACHAU, TALUKA: BHACHAU, DIST: KUTCH – 370 140.**

1. **The order shall be valid up to 05-12-2013.**
2. The following ADDITIONAL fuel shall be used as fuel in boiler/furnace/heater respectively.

Sr.No.	Fuel	Quantity
1.	For Thermic Fluid heater	
	Coal	600.00 Kg/Hour
	OR	OR
	Lignite	791.00 Kg/Hour
2.	LDO for D.G. Set	325.00 Liter/Hour

3. The following shall be installed as ADDITIONAL flue gas emission through stack attached to boiler / furnace / heater / D.G.Set shall conform to the following standards:

Sr No.	Stack attached to	Stack height in meter	APCM	Parameter	Permissible limit
1.	Thermic Fluid Heater – 20 Lac Kcal/Hr (As Stand By)	30.00	Multi Cyclone with Dust Collector	PM	150 mg/Nm3
				SO2	100 ppm
				NOx	50 ppm
2.	D.G. Set – 1 Nos (1000 KVA) (As Stand By)	15.00	---		

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4. There shall be no change in generation of industrial effluent quantity as well as sewage quantity from the plant premises after this installation.
5. There shall be no change in existing product and existing production capacity.
6. You shall have to take adequate steps to minimize the fugitive emission within plant premises.

For and on behalf of
GUJARAT POLLUTION CONTROL BOARD

1/1/19.

(V.R. GHADGE)
SENIOR ENVIRONMENTAL ENGINEER

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10. CTE(NOC) Fresh, Issued on 16-Jan-15, Valid upto 23-Dec-19

GPCB

GUJARAT POLLUTION CONTROL BOARD

PARYAVARAN BHAVAN
Sector-10-A, Gandhinagar-382 021.
Website : www.gpcb.gov.in

BY R.P.A.D.

Consent to Establishment (NOC)

CTE - 67172

NO: GPCB/CCA-KUTCH-228(5) /GPCB ID: 17766 / Date:-

To,
M/S ANUSHAKTI CHEMICALS & DRURGS LTD,
PLOT NO.1430/1,
N.H-8A, BHACHAU,
TALUKA: BHACHAU,
DIST: KUTCH.

SUB: **Consent to Establishment (NOC)** under Section 25 of Water Act 1974 and Section 21 of Air Act 1981.
REF: Your CTE Amendment **Application Inward ID No. 86807 dated 20/10/2014.**

Sir,

Without prejudice to the powers of this Board under the Water (Prevention and Control of Pollution) Act-1974, the Air Act-1981 and the Environment (Protection) Act-1986 and without reducing your responsibilities under the said Acts in any way, this is to inform you that this Board grants **Consent to Establish (NOC)** for setting up of an industrial plant/activities by enhancement in existing production capacity of $CaCl_2$ with modification at **PLOT NO.1430/1, N.H-8A, BHACHAU, TALUKA: BHACHAU, DIST: KUTCH.**

1. **The validity period of the order shall be up to 23/12/2019.**
2. **The list of the proposal products to be manufacture is as below:**

SR.NO.	PRODUCT	EXISTINIG	PROPOSED	TOTAL (MT/Month)
1.	CALCIUM CHLORIDE (by product)	1000	-300	700MT/Month
2	CALCIUM CHLORIDE (product)	300	+2700	3000MT/Month

SUBJECT TO THE FOLLOWING SPECIFIC CONDITIONS:

1. You shall not carry our any activity which may attract applicability of EC Notification 2006.
2. No ground water shall be used for the project coming under dark zone without permission of competent authority.
3. You have strictly adhere to the Adequacy certificate for manufacturing of 300 T/M of $CaCl_2$.

3. **CONDITIONS UNDER WATER ACT 1974:**

3.1 There shall be no additional w/w discharge from manufacturing process and other ancillary industrial operations and total w/w generation of should not exceed 92 KL/Day.

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3.2 The quantity of the domestic waste water (Sewage) shall not exceed 31.00 KL/Day.

3.3 Sewage shall be disposed of through septic tank/soak pit system.

3.4 The unit shall install meters for measuring category wise (Category as give in water-Cess Act-1977 schedule II) consumption of water.

4. **CONDITIONS UNDER THE AIR ACT:**

4.1 The following additional fuel shall be used in Boiler/Furnace/Heater respectively.

Sr. No.	Fuel	Quantity
1.	Coal	2 MT/Hr

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

Sr. no.	Stack attached to	Stack height in meters	Air Pollution Control System	Parameter	Permissible limit
1	Hot Air Generation	20 MT/Hr	Alkali Scrubber	P M SO_2 NOx	150 mg/NM³ 100 ppm 50 ppm

4.3 Additional process-emission details shall be installed as under:

Stack No.	Stack attached to	Stack height in meter	Air Pollution Control Measures	Parameter	Permissible limit
1.	$CaCl_2$ Dryer	20	Wet Scrubber	P M SO_2 NOx	150 mg/NM³ 40 ppm 25 ppm

4.4 Stake monitoring facilities like porthole, platform/ladder etc. shall be provided with attacks/vents chimney in order to facilitate sampling of gases being emitted into the atmosphere

4.5 The concentration of the following parameters in the ambient air within the premises of the industry shall not exceed the limits specified hereunder.

Sr. No.	Pollutant	Time Weighted Average	Concentration in Ambient air in µg/M³
1.	Sulphur Dioxide (SO_2)	Annual 24 Hours	50 80
2.	Nitrogen Dioxide (NO_2)	Annual 24 Hours	40 80
3.	Particulate Matter (Size less than 10 µm) OR PM_{10}	Annual 24 Hours	60 100
4.	Particulate Matter (Size less than 2.5 µm) OR $PM_{2.5}$	Annual 24 Hours	40 60

4.6 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.

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4.7 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.

5 **CONDITIONS UNDER HAZARDOUS WASTE:**

5.1 Applicant shall have to comply with provisions of Hazardous waste (Management, Handing & Transbounday Movement) Rules,2008 as amended from time to time.

5.2 The applicant shall provide temporary storage facilities and maintain the record for each type of Hazardous Waste as per Hazardous Waste (Management, Handling & Transboundary Movement) Rules, 2008 as amended from time to time.

5.3 The applicant shall be obtain membership of common TSDF site for disposal Hazardous Waste as categorized in Hazardous Waste (Management, Handling & Transboundary Movement) Rules, 2008 as amended thereof.

5.4 The applicant shall obtain authorization for recovery/reuses of any hazardous waste material.

6 **GENERAL CONDITION:**

6.1 Unit shall develop green belt within premises as per the CPCB guidelines. However, if the adequate land is not available within premises, the unit shall tie up with local agencies like gram panchayat, school, social forestry office etc. for the plantation at suitable open land in nearby locality and submit an action plan of plantation for next three years to GPCB.

6.2 Adequate plantation shall be carried out all along the periphery of the industrial premises in such a way that the density of plantation is at least 1000 trees per acre of land and a green belt of **10** meters width is developed.

6.3 The applicant shall have to submit the returns in prescribed form regarding water consumption and shall have to make payment of water cess to the Board under the Water Cess Act- 1977.

6.4 In case of change of ownership/management the name and address of the new owners/partners/directors/proprietor should immediately be intimated to the Board.

6.5 **The applicant shall however, not without the prior consent of the Board bring into use any new or altered outlet for the discharge of effluent or gaseous emission or sewage waste from the proposed industrial plant. The applicant is required to make applications to this Board for this purpose in the prescribed forms under the provisions of the Water Act-1974, the Air Act-1981 and the Environment (Protection) Act-1986.**

6.6 The applicant also comply with the General conditions as per Annexure - I attached herewith (No.1 to 38) (whichever applicable).

6.7 The overall noise level in and around the plant area shall be kept well within the standards by providing noise control measures including engineering control like acoustic insulation hoods, silencers, enclosures etc on all sources of noise generation. The ambient noise level shall conform to the standards prescribed under the Environment (Protection) Act, 1986 & Rules.

6.8 Applicant is required to comply with the manufacturing, Storage and Import of Hazardous Chemicals Rules-1989 framed under the Environment (Protection) Act-1986.

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6.9 If it is established by any competent authority that the damage is caused due to their industrial activities to any person or his property .in that case they are obliged to pay the compensation as determined by the competent authority.

6.10 Applicant shall have to comply with all the guidelines/Directive issued/ being issued by MoEF/CPCB/DoEF from time to time.

6.11 Applicant shall not use/withdraw ground water either during construction and /or operation phase.

6.12 Environmental cell shall be setup and shall be responsible for the total Environmental management.

6.13 Monitoring in respect to Air, Water, Noise level shall be carried out and results shall be submitted to this Board on quarterly basis.

For and on behalf of
GUJARAT POLLUTION CONTROL BOARD

(T.B.SHAH)
ENVIRONMENTAL ENGINEER

4

11. CTO Renewal and amendment, issued on 04-Mar-15, Valid upto 31-Dec-19

GPCB

GUJARAT POLLUTION CONTROL BOARD

PARYAVARAN BHAVAN
Sector-10-A, Gandhinagar-382 021.
Website : www.gpcb.gov.in

BY RPAD

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 Authorization under rule 5(4) of the Hazardous Waste (Management Handling & T.M.) –Rules-2008 & as amended, framed under the Environment (Protection) Act-1986 this board has granted the consent **No. AWH-37483** issued vide letter No: NO: PC/NOC/CCA-Kutch- 228(2)/GPCB ID 17766/51556 date 18/05/2010.

And whereas Board has received consolidated consent application **Inward I.D.NO. 88630 dated 01/01/2015** for the Renewal of 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. ANUSHAKTI CHEMICALS & DRUGS PVT LTD.
PLOT NO: 1430/1,
N.H. – 8 A, BHACHAU,
TA: BHACHAU,
DIST: KUTCH.

1 **Consent Order No: AWH – 68550 issued on dated 26/02/2015.**

2 The consents shall be valid up to **31/12/2019** for use of outlet for the disposal of treated effluent and for emission due to operation of industrial plant for manufacturing of the following products/item at, **PLOT NO: 1430/1,N.H. – 8 A, BHACHAU,TA: BHACHAU,DIST: KUTCH.**

Sr. no.	Products	Total Capacity MT/Month
1.	Chloro products of Benzene, Toluene	3600
2.	Mononitro derivatives of Benzene/ Chlorobenzene/Toluene/Xylene/Cumene	2000
3.	Dinitro derivatives of Benzene / Chlorobenzene	1000
4.	Mix Nitro derivatives of Hydrocarbon	1000
5.	Hydrogenated / Reduction	5940
6.	Amminolysis Products	30
7.	Phenylene Diamines	30
8.	Chloro Phenols	300
9.	Chloro Sulphonic Acid	1000
10.	Acetanilide	1000
11.	Vinyle Sulphone & its derivatives	300
12.	Phthalate Derivatives	2000
13.	Calcium chloride	700

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	By Products:	
1.	Spent Sulphuric Acid	18600
2.	Dilute Hydrochloric Acid	5000
3.	Acetic Acid	10600
4.	Metal Salt (Copper/Ferrous Sulphate)	100
5.	Metal Salt (Magnesium/Aluminium Sulphate)	300
6.	$CaCl_2$	700
7.	Sodium Thiosulphate	300
8.	Ammonium Chloride	1000
	TOTAL	18600

SUBJECT TO THE FOLLOWING SPECIFIC CONDITIONS:

1. No ground water shall be used for the project coming under Dark Zone without permission of the competent authority.
2. You shall not carry out any activity which may attract the applicability/provisions of the EIA Notification and strictly manufacture of granted products only.

3. CONDITIONS UNDER THE WATER ACT - 1974:

3.1 The generation and disposal of the industrial effluent from the manufacturing process and other ancillary industrial operations shall not exceed **92 KL/Day** and shall be treated in ETP, evaporated and then incinerated.

3.2 The quantity of Sewage effluent from the factory shall not exceed **31 KL/Day**.

3.3 The quality of the industrial effluent shall conform to the following standards.

3.4 The applicant shall provide adequate effluent treatment facilities in order to achieve the quality of the treated effluent mentioned below.

PARAMETER	PERMISSIBLE LIMIT
pH	6.5 to 8.5
Temperature	40 °C
Colour (pt.co.scale units)	100 units
Suspended Solids	100 mg / l
Oil & Grease	10 mg / l
Phenolic Compound	01 mg / l
Amonical Nitrogen	50 mg / l
BOD (3Days at 27 oC)	30 mg / l
COD	100 mg / l
Chlorides	600 mg / l
Sulphates	1000 mg / l
Total Dissolved Solids	2100 mg / l
Sodium Absorption Ratio	26

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Percent Sodium	60 %
Sulphides	02 mg / l
Total Chromium	02 mg / l
Hexavelent Chromium	0.1 mg / l
Copper	03 mg / l
Lead	0.1 mg / l
Mercury	0.01 mg / l
Nicke	03 mg / l
Zinc	05 mg / l
Cadmium	02 mg / l
Cyanides	0.2 mg / l
Arsenic	0.2 mg / l
Fluorides	02 mg / l
Insecticides / Pesticides	Absent

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

3.5 The final treated effluent conforming to the above standards prescribed shall be completely evaporated and incinerated and no effluent shall be discharged outside.

3.6 The quality of the sewage shall conform to the following standards.(As per Gujarat Pollution Control Board norms- whichever is applicable)

PARAMETER	PERMISSIBLE LIMIT
BOD (5 days at 20° C)	20 mg/liter
Suspended Solid	30 mg/liter
Residual Chlorine	Minimum 0.5 mg/liter

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

3.7 The unit shall install meter at inlet and out let for measuring category wise(Category as give in water-Cass Act-1977 schedule II) consumption of wter.

4. CONDITIONS UNDER THE AIR ACT-1981:

4.1 The following shall be used as flue in boiler/furnace/heater respectively.

Sr.no.	FUEL	QUANTITY
1.	**For FBC Boiler**	
	Coal	1800.00 Kg/Hour
	OR	OR
	Lignite	2374.00 Kg/Hour
2.	**For Thermic Fluid heater**	
	Coal	600.00 Kg/Hour

	OR Lignite	OR 791.00 Kg/Hour
3.	**Furnace Oil for D.G. Set**	325 Liter/Hour

4.2 The flue gas emission through various stack/vent of D.G. Sets/ boiler/furnace/heater shall conform to the following standards.

Sr No.	Stack attached to	Stack height	APCM	Parameter	Permissible limit
1.	FBC Boiler **(As stand by)**	30	Multi Cyclone with Dust Collector	PM	150 mg/Nm3
2.	Thermic Fluid Heater – 20 Lac Kcal/Hr	30	Multi Cyclone with Dust Collector	SO2	100 ppm
3.	D.G. Set – 1 Nos (1000 KVA) **(As Stand By)**	15 meter	---	NOx	50 ppm
4.	Boiler	30	Multi Cyclone with Dust Collector		

4.3 The process emission through various stacks/ vents of reactors, process vessel shall be confirmed to the following standards.

Stack No.	Stack attached to	Stack height in meter	Air Pollution Control Measures	Parameter	Permissible limit
1.	Incinerator	30	Scrubber	PM	150 mg/Nm3
2.	CaCl2 Dryer	20	Wet Scrubber	SO2	40 mg/Nm3
				NOx	25 mg/Nm3
3	HCl Stack(Chlorinator)	30	Scrubber	HCl	20 mg/Nm3
4.	Nitrator	30	Scrubber	NOx	25 mg/Nm3
5	Mixing tank of CaCl2 plant	25	Cyclone seperator	SPM	150 mg/Nm3

4.4 The concentration of the following parameters in the ambient air within the premises of the industry shall not exceed the limits specified hereunder as per national Ambient Air Quality Emission Standards issued by Ministry of Environment and Forest dated 16th November-2009.

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Sector-10-A, Gandhinagar-382 021.
Website : www.gpcb.gov.in

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Sr. No.	Pollutant	Time Weighted Average	Concentration in Ambient air in µg/M³
1.	Sulphur Dioxide (SO_2)	Annual 24 Hours	50 80
2.	Nitrogen Dioxide (NO_2)	Annual 24 Hours	40 80
3.	Particulate Matter (Size less than 10 µm) OR PM_{10}	Annual 24 Hours	60 100
4.	Particulate Matter (Size less than 2.5 mm) OR $PM_{2.5}$	Annual 24 Hours	40 60

4.5The 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.

4.6The 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.

5. Authorization For the [Management, Handling & Transboundary Movement] Of Hazardous Wastes Form-2 (See rule 3 (c) & 5 (5) Form for grant of authorization for occupier or operator handling hazardous waste rule, 2008.

5.1 Authorization Number: AWH – 68550, valid up to 31/12/2019.

5.2 M/S. ANUSHAKTI CHEMICALS & DRUGS PVT LTD.,is hereby granted an authorization to operate facility for following hazardous wastes on the premises situated at, PLOT NO: 1430/1,N.H. – 8 A, BHACHAU,TA: BHACHAU,DIST: KUTCH.

Sr. No.	Waste	Quantity/ year	Schedule	Facility
1.	Used Oil/Spent Oil	200 Lit	Sh.-I, 5.1	Collection, storage, Transportation, Disposal by selling out to registered recyclers/ reprocessor or reuse in plant and machinery for lubricating purpose.
2.	ETP Sludge	15 MT	Sh.-I ,34.3	Collection, storage, Transportation, Disposal at common TSDF Site.
3.	Incinerator Ash	7.5 MT	Sh.-I ,36.2	Collection, storage, Transportation, Disposal at common TSDF Site .

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4.	Discarded Materials(plastic bags,carboys,drums)	150 nos	Sh.-1 33.3	Collection, storage, Transportation,, Disposal at common TSDF Site or selling to reprocessors.
5.	Sludge from calcium chloride plant	450 T/M	26.1	Collection, storage, Transportation,, Disposal at common TSDF Site or selling to and users.

5.3 The authorization is granted to the operate a facility for Collection, storage within factory premises, transportation and ultimate disposal of hazardous wastes by selling out to registered recyclers and TSDF ,SEPPL.

5.4 The authorization 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.

5.5 **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, and 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 authorised person to take prior permission of the Gujarat Pollution Control Board to close down the facility.
f) An application for the renewal of an authorisation shall be made as laid down in rule 5(6) (ii).
g) Industry shall submit annual report within 15 days and sub sequent by 31st January every year.
h) Hazardous waste shall be disposed off in accordance with the Hazardous Waste (Management, Handling & Transboundary Movement) rules, 2008 and unit shall have to obtain Authorization of this Board for all applicable categories of waste.

6.0 GENERAL CONDITIONS: -

6.1 Any change in personnel, equipment or working conditions as mentioned in the consents form/order should immediately be intimated to this Board.
6.2 Applicant shall also comply with the general conditions given in annexure I.
6.3 The waste generator shall be totally responsible for (I.E. Collection, storage, transportation and ultimate disposal) of the wastes generated.
6.4 Records of waste generation, its management and annual return shall be submitted to Gujarat Pollution Control Board in Form – 4 by 31st January of every year.
6.5 In case of any accident, details of the same shall be submitted in Form – 5 to Gujarat Pollution Control Board.
6.6 As per "Public liability Insurance Act – 91" company shall get Insurance policy, if applicable.

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PARYAVARAN BHAVAN
Sector-10-A, Gandhinagar-382 021.
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6.7 Empty drums and containers of toxic and hazards material shall be treated as per guideline published for "management & handling of discarded containers". Records of the same shall be maintained and forwarded to Gujarat Pollution Control Board regularly.

6.8 In no case any kind of hazardous waste shall be imported without prior approval of appropriate authority.

6.9 In case of transport of hazardous waste to a facility for (I.E. Treatment, Storage and disposal) existing in a state other than the state where hazardous waste are generated, the occupier shall obtain "No Objection certificate" from the state pollution Control Board, the Committee of the concerned state or Union territory Administration where the facility exists.

6.10 Unit shall take all concrete measures to show tangible results in waste generation reduction, voidance, reuse and recycle. Action taken in this regards shall be submitted within 03 months and also along with Form 4.

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

6.12 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 waste generated within the factory premises.

For and on behalf of
GUJARAT POLLUTION CONTROL BOARD

(T.B.SHAH)
ENVIRONMENTAL ENGINEER

NO: PC/CCA-KUTCH-228(5)/GPCB ID: 17766/ **DATE: -**

ISSUE TO:
M/S. ANUSHAKTI CHEMICALS & DRUGS PVT LTD.
PLOT NO: 1430/1.
N.H. – 8 A, BHACHAU,
TA: BHACHAU,
DIST: KUTCH.

12. CTO Amendment, issued on 22-Jul-15, valid upto 31-Dec-19

GPCB

GUJARAT POLLUTION CONTROL BOARD

PARYAVARAN BHAVAN
Sector-10-A, Gandhinagar-382 010
Phone : (079) 23226295
Fax : (079) 23232156
Website : www.gpcb.gov.in

BY. R.P.A.D

AMENDMENT OF CONSOLIDATED CONSENT & AUTHORIZATION (CC&A)

NO: PC/CCA-KUTCH-228(5)/GPCB ID: 17766/ DATE: -

To,
M/S ANUSHAKTI CHEMICALS & DRUGS PVT. LTD.
SR. NO: 1430/1, NATIONAL HIGHWAY NO.8,
TALUKA: BHACHAU,
DIST: KUTCH.

Sub: - Amendment to Consolidated Consent & Authorization.

Ref: - 1. This board has issued CCA vide letter No: PC/CCA-KUTCH-228(5)/GPCB ID: 17766/306203 dated-04/03/2015.
2. This board has issued CTE Amendment vide letter No: PC/CCA-KUTCH-228(5)/GPCB ID: 17766/201328 dated-26/01/2015.
3. Your letter dated 05/03/2015.

Sir,

The product quantity mentioned at condition No. 2 of the said CCA order No AWH-68550 dated 26/02/2015 Hence forth shall be read as under-

Sr. no.	Products	Total Capacity in MT/Month
1.	Chloro products of Benzene, Toluene	3600
2.	Mononitro derivatives of Benzene/ Chlorobenzene/Toluene/Xylene/Cumene	2000
3.	Dinitro derivatives of Benzene / Chlorobenzene	1000
4.	Mix Nitro derivatives of Hydrocarbon	1000
5.	Hydrogenated / Reduction	5940
6.	Amminolysis Products	30
7.	Phenylene Diamines	30
8.	Chloro Phenols	300
9.	Chloro Sulphonic Acid	1000
10.	Acetanilide	1000
11.	Vinyle Sulphone & its derivatives	300
12.	Phthalate Derivatives	2000
13.	Calcium- chloride	3000

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By Products		
Sr. no.	Products	Total Capacity in MT/Month
1.	Spent Sulphuric Acid	5000
2.	Dilute Hydrochloric Acid	10600
3.	Acetic Acid	100
4.	Metal Salt (Copper/Ferrous Sulphate)	300
5.	Metal Salt (Magnesium/Aluminium Sulphate)	300
6.	CaCl2	1000
7.	Sodium Thiosulphate	300
8.	Ammonium Chloride	1000
	TOTAL	18600

- Flue gas emission mentioned in condition number 4.2 of CC&A dated 04/03/2015 shall be read as under-

Sr No.	Stack attached to	Stack height	APCM in meter	Parameter	Permissible limit
1.	FBC Boiler **(stand by) - 12 MT/Hr**	30	ESP		
2.	Thermic Fluid Heater – 20 Lac Kcal/Hr	30	Multi Cyclone with Dust Collector	PM SO2 NOx	150 mg/Nm3 100 ppm 50 ppm
3.	D.G. Set **(Stand By)**- 1000 KVA	15	—		
4.	Hot air generator	10			
5.	Thermic Fluid Heater - 20 Lac Kcal/hr	30	Bag Filter		
6.	D.G. Set- 1 Nos (stand by) -1000 KVA	15	—		
7.	Boiler	30	Bag Filter		

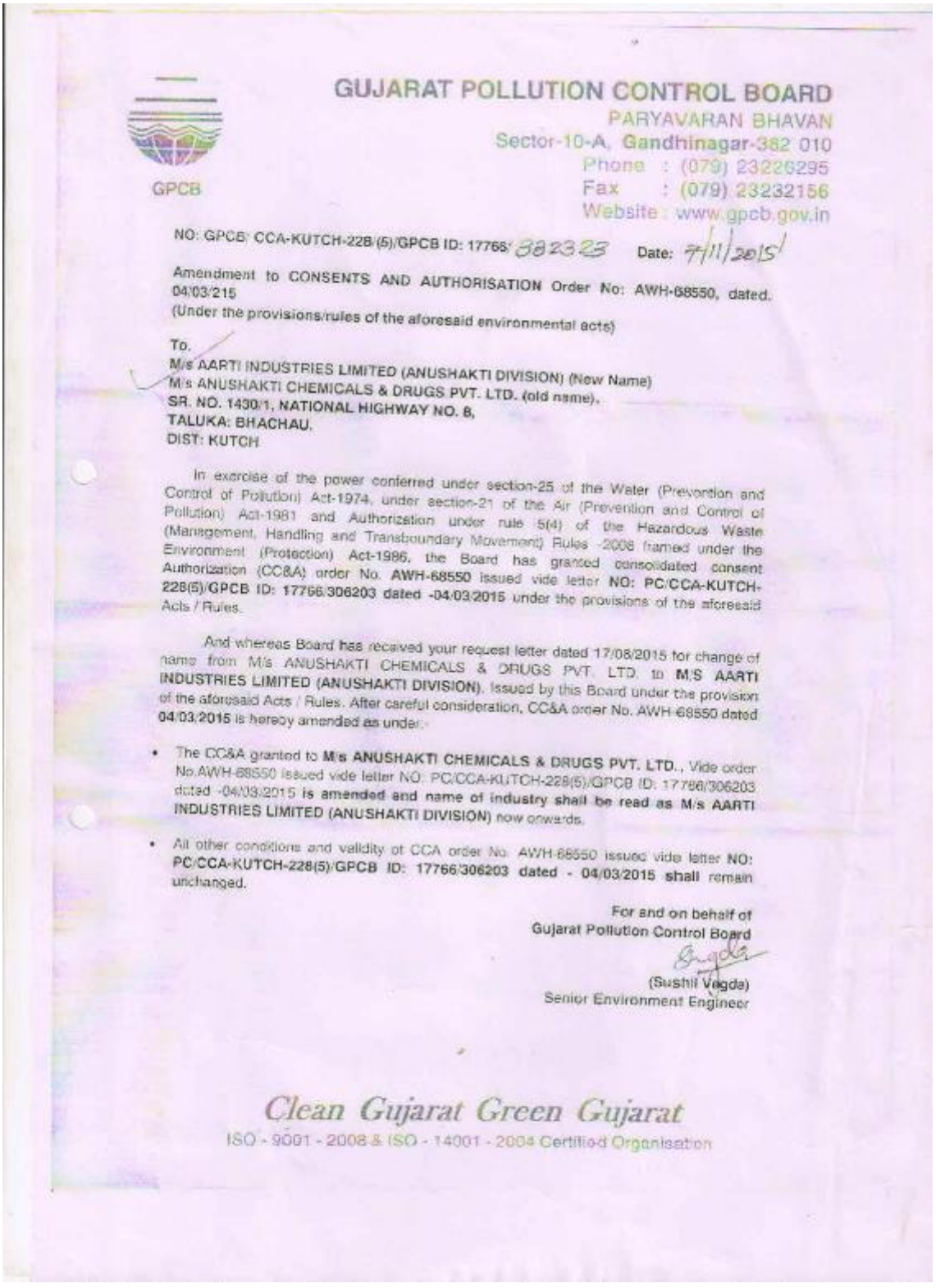
- All other terms and condition mentioned in CC&A order **AWH-68550** vide letter No. PC/CCA-KUTCH-228(5)/GPCB ID: 17766/306203 dated-04/03/2015 shall remains unchanged.

For and on behalf of
Gujarat Pollution Control Board

(Sushil Vegda)
Senior Environment Engineer

2

13. CTO Amendment, issued on 07-Nov-15, valid upto 31-Dec-19



GUJARAT POLLUTION CONTROL BOARD
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NO: GPCB/ CCA-KUTCH-228(5)/GPCB ID: 17766/ 382323 Date: 7/11/2015

Amendment to CONSENTS AND AUTHORISATION Order No: AWH-68550, dated. 04/03/215
(Under the provisions/rules of the aforesaid environmental acts)

To,
M/s AARTI INDUSTRIES LIMITED (ANUSHAKTI DIVISION) (New Name)
M/s ANUSHAKTI CHEMICALS & DRUGS PVT. LTD. (old name),
SR. NO. 1430/1, NATIONAL HIGHWAY NO. 8,
TALUKA: BHACHAU,
DIST: KUTCH

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) Act-1981 and Authorization under rule 5(4) of the Hazardous Waste (Management, Handling and Transboundary Movement) Rules -2008 framed under the Environment (Protection) Act-1986, the Board has granted consolidated consent Authorization (CC&A) order No. **AWH-68550** issued vide letter **NO: PC/CCA-KUTCH-228(5)/GPCB ID: 17766/306203 dated -04/03/2015** under the provisions of the aforesaid Acts / Rules.

And whereas Board has received your request letter dated 17/08/2015 for change of name from M/s ANUSHAKTI CHEMICALS & DRUGS PVT. LTD. to **M/S AARTI INDUSTRIES LIMITED (ANUSHAKTI DIVISION)**. Issued by this Board under the provision of the aforesaid Acts / Rules. After careful consideration, CC&A order No. AWH-68550 dated **04/03/2015** is hereby amended as under:-

- The CC&A granted to **M/s ANUSHAKTI CHEMICALS & DRUGS PVT. LTD.**, Vide order No.AWH-68550 issued vide letter NO: PC/CCA-KUTCH-228(5)/GPCB ID: 17766/306203 dated -04/03/2015 **is amended and name of industry shall be read as M/s AARTI INDUSTRIES LIMITED (ANUSHAKTI DIVISION)** now onwards.
- All other conditions and validity of CCA order No. AWH-68550 issued vide letter **NO: PC/CCA-KUTCH-228(5)/GPCB ID: 17766/306203 dated - 04/03/2015 shall** remain unchanged.

For and on behalf of
Gujarat Pollution Control Board

(Sushil Vagda)
Senior Environment Engineer

Clean Gujarat Green Gujarat
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14. CTE(NOC) Amendment, issued on 10-Feb-16, valid upto 31-Dec-20

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R.P.A.D

Consent to Establish (NOC)

CTE - 75233

NO: PC/ CCA- KUTCH-228(5)/ GPCB ID: 17766 / **Date: -**

To,
M/s ANUSHAKTI CHEMICALS & DRUGS LTD,
PLOT NO-1430/1,
NATIONAL HIGWAY NO. 8A,
TALUKA-BHACHAU
DIST-KUTCH.

Subject : **Consent to Establish (NOC)** under Section 25 of Water (Prevention and Control of Pollution) Act 1974 and Section 21 of Air (Prevention and Control of Pollution) Act1981.

Reference : Your CTE Amendment Application Inward **ID No. 99274 dated 18/10/2015.**

Sir,

Without prejudice to the powers of this Board under the Water (Prevention and Control of Pollution) Act-1974, the Air (Prevention and Control of Pollution) Act-1981 and the Environment (Protection) Act-1986 and without reducing your responsibilities under the said Acts in any way, this is to inform you that this Board grants **Consent to Establish (NOC)** for Expansion in existing industrial plant located at **Plot No-1430/1, National Higway No. 8A, Taluka-Bhachau, Dist-Kutch.**

1. **The validity period of the order shall be up to 31/12/2020.**
2. The list of the proposal product to be manufacture is as below:

Sr. No.	Product	Total Capacity in MT/Month		
		Existing	Proposed	Total
1.	Co-Generation Power Plant	---	4.0 MW	4.0 MW
2.	Chloro products of Benzene, Toluene	3600	---	3600
3.	Mononitro derivatives of Benzene/ Chlorobenzene/Toluene/Xylene/Cumene	2000	---	2000
4.	Dinitro derivatives of Benzene / Chlorobenzene	1000	---	1000
5.	Mn. Nitro derivatives of Hydrocarbon	1000	---	1000
6.	Hydrogenated / Reduction	5940	---	5940

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7.	Amminolysis Products	30	---	30
8.	Phenylene Diamines	30	---	30
9.	Chloro Phenols	300	---	300
10.	Chloro Sulphonic Acid	1000	---	1000
11.	Acetanilide	1000	---	1000
12.	Vinyle Sulphone & its derivatives	300	---	300
13.	Phthalate Derivatives	2000	---	2000
14.	Calcium Chloride	3000	---	3000
By Products:				
1.	Spent Sulphuric Acid	5,000	---	5,000
2.	Dilute Hydrochloric Acid	10,600	---	10,600
3.	Acetic Acid	100	---	100
4.	Metal Salt (Copper/Ferrous Sulphate)	300	---	300
5.	Metal Salt (Magnesium/Aluminium Sulphate)	300	---	300
6.	$CaCl_2$	700	---	700
7.	Sodium Thiosulphate	300	---	300
8.	Ammonium Chloride	1,000	---	1,000
TOTAL		**18,300**	**---**	**18,300**

SUBJECT TO THE FOLLOWING SPECIFIC CONDITIONS:

1. You shall not carry out any activity which may attract the applicability of the EIA Notification – 2006.
2. No ground water shall be withdrawal without obtaining prior permission from competent authority.
3. You shall strictly adhere to undertaking dated 10/09/2015.

3. CONDITIONS UNDER WATER ACT 1974:

3.1 Total industrial effluent generated from manufacturing process and other ancillary operations after expansion shall not exceed **99 KL/day**.

3.2 The quantity of the domestic waste water (Sewage) shall not exceed **31 KL/day** after expansion.

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3.3 The applicant shall operate adequate effluent treatment in order to achieve GPCB norms as mentioned below;

PARAMETER	PERMISSIBLE LIMIT
pH	5.5 – 9.0
Temperature	40°C
Colour (Pt.Co.scale units)	100 units
Suspended Solids	200 mg /L
Oil & Grease	10 mg /L
BOD (3 Days at 27°C)	30 mg /L
COD	100 mg /L
Chlorides	600 mg / L
Sulphates	1000 mg / L
Total Dissolved Solids	2100 mg / L
Sulphides	02 mg / L
Total Chromium	02 mg / L
Hexavelent Chromium	0.1 mg / L
Copper	03 mg / L
Lead	0.1 mg / L
Mercury	0.01 mg / L
Nickel	03 mg / L
Zinc	05 mg / L

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

3.4 The quality of the sewage shall conform to the following standards:

PARAMETER	PERMISSIBLE LIMIT
BOD (3 days at 27° C)	20 mg/L
Suspended Solid	30 mg/L
Residual Chlorine	Minimum 0.5 mg/L

3.5 The industrial effluent generated shall be treated in existing ETP and conforming above standards shall be completely evaporated and incinerated within premises, hence unit shall achieve Zero Liquid Discharge.

3.6 Sewage shall be disposed off through septic tank / soak pit system.

3.7 The unit shall install meters at utilities for measuring category wise (Category as given in Schedule II of "Water (Prevention & Control of Pollution) Cess Act-1977) consumption of water.

4. CONDITIONS UNDER AIR ACT 1981:

4.1 After installing new Boiler (36 T/hr), existing both boilers shall become stand by (15 T/hr) & 12 T/hr)

4.2 The following shall be used as fuel in Boiler / Hot Air Generator / Thermic Fluid Heater / D.G. set;

Sr. No.	Name of Fuel	Quantity
1.	Coal / Lignite	220 MT/day
2.	Diesel	325 L/h

4.3 The applicant shall install & operate air pollution control system in order to achieve flue gas emission norms after proposed expansion as prescribed below;

Sr No.	Stack attached to	Status	Stack height in Meters	APCM	Parameter	Permissible limit
1.	FBC Boiler (12 MT/h)	Existing, (Stand by)	30	ESP	PM SO_2 NOx	150 mg/Nm^3 100 ppm 50 ppm
2.	Boiler (15 MT/h)	Existing, (Stand by)	30	Bag Filter		
3.	**Boiler (36 MT/h)**	**Proposed**	30	**ESP**		
4.	Thermic Fluid Heater (20 Lac Kcal/h)	Existing Working	30	Multi Cyclone with Dust Collector		
5.	Thermic Fluid Heater (20 Lac Kcal/h)	Existing, Working	30	Bag Filter		
6.	Hot Air Generator	Existing, Working	10	Alkali Scrubber		
7.	D.G. Set (1000 KVA)	Existing, (Stand by)	15	Adequate Stack Height		
8.	D.G. Set (1000 KVA)	Existing, (Stand by)	15			

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4.4 The applicant shall install & operate existing air pollution control system in order to achieve process gas emission norms as prescribed & there shall be no-new process stack due to proposed expansion.

4.5 The concentration of the following parameters in the ambient air within the premises of the industry shall not exceed the limits specified hereunder as per National Ambient Air Quality Standard issued by MoEF&CC dated 16th November-2009.

No.	Pollutant	Time Weighted Average	Concentration in Ambient air in µg/m³
1.	Sulphur Dioxide (SO_2)	Annual 24 Hours	50 80
2.	Nitrogen Dioxide (NO_2)	Annual 24 Hours	40 80
3.	Particulate Matter (Size less than 10 µm) OR PM_{10}	Annual 24 Hours	60 100
4.	Particulate Matter (Size less than 2.5 µm) OR $PM_{2.5}$	Annual 24 Hours	40 60

4.6 The applicant shall provide portholes, ladder, platform etc at chimney(s) for monitoring the air emissions and the same shall be open for inspection. 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.

4.7 The concentration of Noise in ambient air within the premises of industrial unit shall not exceed following levels:

Between 6 A.M. to 10 P.M.: 75 dB (A)
Between 10 P.M. to 6 A.M.: 70 dB (A)

5. CONDITIONS UNDER HAZARDOUS WASTE:

5.1 The applicant shall provide temporary storage facilities and maintain the record for each type of Hazardous Waste as per Hazardous waste (Management, Handling & Transboundary Movement) Rules-2008 as amended from time to time.

5.2 The applicant shall obtain membership of common TSDF site for disposal Hazardous Waste as categorized in Hazardous Waste (Management, Handling & Transboundary movement) Rules-2008 as amended thereof.

6. GENERAL CONDITIONS:

6.1 Unit shall develop green belt within premises as per the CPCB guidelines. However, if the adequate land is not available within premises, the unit shall tie up with local agencies like gram panchayat, school, social forestry office etc. for the plantation at suitable open land in nearby locality and submit an action plan of plantation for next three years to GPCB.

6.2 Adequate plantation shall be carried out all along the periphery of the industrial premises in such a way that the density of plantation is at least 1000 trees per acre of land and a green belt of **10** meters width shall be developed.

6.3 The applicant shall have to submit the returns in prescribed form regarding water consumption and shall have to make payment of water cess to the Board under the Water (Prevention & Control of Pollution) Cess Act- 1977.

6.4 In case of change of ownership/management the name and address of the new owners/partners/directors/proprietor should immediately be intimated to the Board.

6.5 The applicant shall however, not without the prior consent of the Board bring into use any new or altered outlet for the discharge of effluent or gaseous emission or sewage waste from the proposed industrial plant. The applicant is required to make applications to this Board for this purpose in the prescribed forms under the provisions of the Water (Prevention and Control of Pollution) Act-1974, the Air (Prevention and Control of Pollution) Act-1981 and the Environment (Protection) Act-1986.

6.6 The overall noise level in and around the plant area shall be kept well within the standards by providing noise control measures including engineering control like acoustic insulation hoods, silencers, enclosures etc on all sources of noise generation. The ambient noise level shall conform to the standards prescribed under the Environment (Protection) Act, 1986 & Rules.

6.7 Applicant is required to comply with the manufacturing, Storage and Import of Hazardous Chemicals Rules-1989 framed under the Environment (Protection) Act-1986.

6.8 If it is established by any competent authority that the damage is caused due to their industrial activities to any person or his property in that case they are obliged to pay the compensation as determined by the competent authority.

6.9 Applicant shall have to comply with all Guidelines/Directive issued/ being issued by MoEF&CC / CPCB / DoEF from time to time.

6.10 Applicant shall not use/withdraw ground water either during construction and /or operation phase.

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6.11 Environmental cell shall be setup and shall be responsible for the total Environmental management.

6.12 Monitoring in respect to Air, Water, Noise level shall be carried out and results shall be submitted to GPCB on quarterly basis.

For and on behalf of
Gujarat Pollution Control Board

(Sushil Vegda)
Senior Environment Engineer

Clean Gujarat Green Gujarat
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15. CTO Amendment, issued on: 18-Sep-17; Valid upto 31-Dec-19

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GUJARAT POLLUTION CONTROL BOARD

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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 Authorization under rule 6(2) of the Hazardous Waste (Management, Handling & Transboundary Movement) Rules-2016 & as amended, framed under the Environment (Protection) Act-1986.

And whereas Board has received application **Inward ID No.120028 dated 16/05/2017** for the **Amendment** to **Consolidated Consent and Authorization (CC&A)** of the Board under the provisions/rules of the aforesaid acts. Consents & Authorization is hereby amended as under:

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

To,
Anushakti Chemical & Drugs Ltd,
Plot No: 1430/1,
N.H. No 8A, Bhachau,
Taluka: Bhachau,
Dist: Kutch 370140.

1. **Consent Order No.: AWH –87331, Date of Issue: 25/07/2017.**
2. The **consent** order shall be valid up to **31/12/2019** for use of outlet for the discharge of treated effluent and emission due to operation of industrial plant at **Plot No: 1430/1,N.H.No 8A, Bhachau, Taluka: Bhachau, Dist: Kutch 370140.**

Sr. No.	Products	Total Capacity (MT/Month)		
		Existing	Proposed	Total
1.	Co-Generation Power Plant	---	4.0 MW	4.0 MW
2.	Chloro products of Benzene, Toluene	3600	---	3600
3.	Mononitro derivatives of Benzene/ Chloro benzene/Toluene/Xylene/ Cumene	2000	---	2000
4.	Di nitro derivatives of Benzene / Chloro benzene	1000	---	1000
5.	Mix Nitro derivatives of Hydrocarbon	1000	---	1000
6.	Hydrogenated / Reduction	5940	---	5940
7.	Ammonolysis Products	30	---	30

8.	Phenylene Diamines	30	---	30
9.	Chloro Phenols	300	---	300
10.	Chloro Sulphonic Acid	1000	---	1000
11.	Acetanilide	1000	---	1000
12.	Vinyl Sulphone & its derivatives	300	---	300
13.	Phthalate Derivatives	2000	---	2000
14.	Calcium Chloride	3000	---	3000
By Products:				
1.	Spent Sulphuric Acid	5,000	---	5,000
2.	Dilute Hydrochloric Acid	10,600	---	10,600
3.	Acetic Acid	100	---	100
4.	Metal Salt (Copper/Ferrous Sulphate)	300	---	300
5.	Metal Salt (Magnesium/Aluminium Sulphate)	300	---	300
6.	$CaCl_2$	700	---	700
7.	Sodium Thio sulphate	300	---	300
8.	Ammonium Chloride	1,000	---	1,000

SPECIFIC CONDITIONS:

1. No ground water shall be withdrawal without obtaining prior permission from competent authority.
2. You shall not carry out any activity which may attract applicability of EIA Notification-2006

3. CONDITIONS UNDER WATER ACT 1974:

3.1 The quantity of industrial effluent generated from manufacturing process and other ancillary industrial operations shall not exceed 38 m3/day from power plant & total waste water generation shall not exceed of 130 m3/day.

3.2 The quantity of the domestic waste water (Sewage) shall be 31 m3/day after expansion. The quality of the industrial effluent of the treated effluent shall conform to the following standards.

PARAMETER	PERMISSIBLE LIMIT
pH	6.5 to 8.5
Temperature	40 °C
Colour (pt.co. scale units)	100 units
Suspended Solids	100 mg / l

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Oil & Grease	10 mg / l
Phenolic Compound	01 mg / l
Ammonical Nitrogen	50 mg / l
BOD (3Days at 27 oC)	30 mg / l
COD	100 mg / l
Chlorides	600 mg / l
Sulphates	1000 mg / l
Total Dissolved Solids	2100 mg/l

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

3.3 The treated effluent conforming to above standards shall be evaporated in existing MEE & Incinerator and unit shall strict to zero discharge.

3.4 The quality of the sewage shall conform to the following standards;

PARAMETER	PERMISSIBLE LIMIT
BOD (5 days at 20° C)	10 mg/L
Suspended Solid	20 mg/L
Residual Chlorine	Minimum 0.5 mg/L

3.5 Sewage shall be disposed off through septic tank / soak pit system.

3.6 The unit shall install meters at utilities for measuring category wise (Category as given in Schedule II of "Water (Prevention & Control of Pollution) Cess Act-1977") consumption of water.

4. CONDITIONS UNDER AIR ACT 1981:

4.1 The following shall be used as additional fuel in Boiler/ D G sets as following rates;

Sr. No.	Fuel	Quantity
1.	Coal	220 T/Day

4.2 The applicant shall operate air pollution control system in order to achieve additional flue

4.3 gas emission norms as prescribed below;

No.	Stack attached to	Status	Stack height in Meters	APCM	Parameter	Permissible limit
1.	FBC Boiler (12 MT/h)	Existing, (Stand by)	30	ESP	PM SO_2 NOx	150 mg/Nm^3 100 ppm 50 ppm
2.	Boiler (15 MT/h)	Existing, (Stand by)	30	Bag Filter		
4.	Thermic Fluid Heater (20 Lac Kcal/h)	Existing, Working	30	Multi Cyclone with Dust Collector		
5.	Thermic Fluid Heater (20 Lac Kcal/h)	Existing, Working	30	Bag Filter		
6.	Hot Air Generator	Existing, Working	10	Alkali Scrubber		

7.	D.G. Set (1000 KVA)	Existing, (Stand by)	15	Adequate Stack Height		
8.	D.G. Set (1000 KVA)	Existing, (Stand by)	15			
9	Boiler (36 MT/h)	Proposed	30	ESP		

4.4 Existing Boilers of 15 T/hr & 12 T/hr shall be standby after installing of New Boiler (36 T/ Hr).

4.5 There shall be no Process gas emission from the proposed manufacturing activities and other ancillary operations.

4.6 The concentration of the following parameters in the ambient air within the premises of the industry shall not exceed the limits specified hereunder as per National Ambient Air Quality Standards issued by MoEF& CC dated 16th November-2009.

Sr. No.	Pollutant	Time Weighted Average	Concentration in Ambient air in µg/m^3
1.	Sulphur Dioxide (SO_2)	Annual 24 Hours	50 80
2.	Nitrogen Dioxide (NO_2)	Annual 24 Hours	40 80
3.	Particulate Matter (Size less than 10 µm) OR PM_{10}	Annual 24 Hours	60 100
4.	Particulate Matter (Size less than 2.5 µm) OR $PM_{2.5}$	Annual 24 Hours	40 60

4.7 The applicant shall provide portholes, ladder, platform etc. at chimney(s) for monitoring the air emissions and the same shall be open for inspection. 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.

4.8 The concentration of Noise in ambient air within the premises of industrial unit shall not exceed following levels:

Between 6 A.M. to 10 P.M.: 75 dB (A)
Between 10 P.M. to 6 A.M.: 70 dB (A)

5. Authorization under Hazardous and Other Waste [Management & Transboundary Movement] Rules, 2016 & amended.

5.1 Authorization Number: AWH – 87331 and shall valid up to 31/12/2019.

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5.2 **Anushakti Chemical & Drugs Ltd,** is hereby granted an authorization to operate facility for following hazardous wastes after expansion on the premises situated, **Plot No: 1430/1,N.H.No 8A, Bhachau, Taluka: Bhachau, Dist: Kutch 370140.**

Sr. No.	Waste	Quantity per Year	Category	Mode of Disposal
1.	ETP sludge	5400 MT	35.3	Collection, storage, Transportation, Disposal at common TSDF site
2.	Used Spent Oil	0.5 MT	5.1	Collection, storage, Transportation, Disposal by selling to MoEF registered recycler
3.	Incinerator Ash	90 MT	37.2	Collection, storage, Transportation, Disposal at common TSDF site
4.	Discarded Containers Drums and Barrels	150 MT	33.3	Collection, storage, Transportation, Disposal at common TSDF site or selling to re-processors.
5.	Sludge from calcium chloride plant	5400 MT	26.1	Collection, storage, Transportation, Disposal at common TSDF and selling to end users.

5.3 The authorization is granted to operate a facility for collection, storage, within factory premises, transportation, and ultimate disposal of Hazardous wastes by selling out to registered recyclers

5.4 The authorization 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. GENERAL CONDITIONS OF AUTHORIZATION:

1. The authorized person shall comply with the provisions of the Environment (Protection) Act, 1986, and the rules made there under.
2. The authorization or its renewal shall be produced for inspection at the request of an officer authorized by the State Pollution Control Board.
3. The person authorized shall not rent, lend, sell, transfer or otherwise transport the hazardous and other wastes except what is permitted through this authorization.
4. Any unauthorized change in personnel, equipment or working conditions as mentioned in the application by the person authorized shall constitute a breach of his authorization.
5. Hazardous Waste generated shall be disposed off in accordance with the Hazardous Waste & other waste (Management & Transboundary Movement) Rules, 2016 as amended and unit shall have to obtain authorization of the Board for all applicable categories of Hazardous wastes.
   (a) Used oil / spent oil shall be disposed off by selling it to registered re-refiner units only.
   (b) Oily sludge from separators shall be dispose or of selling it to registered re-refiners unit only.

(c) ETP sludge shall be disposed of at TSDF approved by the Board.
(d) Used batteries shall be sold to the GPCB authorized dealers.

6. The person authorized shall implement Emergency Response Procedure (ERP) for which this authorization is being granted considering all site specific possible scenarios such as spillages, leakages, fire etc. and their possible impacts and also carry out mock drill in this regard at regular interval of time;

7. It is the duty of the authorized person to take prior permission of the State Pollution Control Board to close down the facility.

8. The imported hazardous and other wastes shall be fully insured for transit as well as for any accidental occurrence and its clean-up operation.

9. The record of consumption of hazardous and other wastes shall be maintained.

10. The hazardous and other waste which gets generated during recycling or reuse or recovery or pre-processing or utilization of imported hazardous or other wastes shall be treated and disposed of as per specific conditions of authorization.

11. An application for the renewal of an authorization shall be made as laid down under these Rules.

12. Any other conditions for compliance as per the Guidelines issued by the Ministry of Environment, Forest and Climate Change or Central Pollution Control Board from time to time.

13. Annual return shall be filed by June 30th for the period ensuring 31st March of the year.

7. GENERAL CONDITIONS

7.1 Any change in personnel, equipment or working conditions as mentioned in the consents form/order should immediately be intimated to this Board.
7.2 The waste generator shall be totally responsible for (i.e. Collection, storage, transportation and ultimate disposal) of the wastes generated.
7.3 Records of waste generation, its management and annual return shall be submitted to Gujarat Pollution Control Board in Form – 4 by 31st January of every year.
7.4 In case of any accident, details of the same shall be submitted in Form – 5 to Gujarat Pollution Control Board.
7.5 Applicant shall comply relevant provision of "Public Liability Insurance Act – 91".
7.6 Empty drums and containers of toxic and hazards material shall be treated as per guideline published for "management & handling of discarded containers". Records of the same shall be maintained and forwarded to Gujarat Pollution Control Board regularly.
7.7 In no case any kind of hazardous waste shall be imported without prior approval of appropriate authority.

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7.8 Adequate plantation shall be carried out all along the periphery of the industrial premises and a green belt of 10 meters width is developed.

7.9 The applicant shall however, not without the prior consent of the Board bring into use any new or altered outlet for the discharge of effluent or gaseous emission or sewage waste from the proposed industrial plant. The applicant is required to make applications to this Board for this purpose in the prescribed forms under the provisions of the Water Act-1974, the Air Act-1981 and the Environment (Protection) Act-1986.

7.10 The over all noise level in and around the plant area shall be kept well within the standards by providing noise control measures including engineering control like acoustic insulation hoods, silencers, enclosures etc on all sources of noise generation. The ambient noise level shall conform to the standards prescribed under the Environment (Protection) Act, 1986 & Rules.

7.11 The concentration of Noise in ambient air within the premises of industrial unit shall not exceed following levels:

Between 6 A.M. and 10 P.M.: 75 dB (A)
Between 10 P.M. and 6 A.M.: 70 dB (A)

7.12 In case of transport of hazardous waste to a facility for (i.e. Treatment, Storage and disposal) existing in a state other than the state where hazardous waste are generated, the occupier shall obtain "No Objection certificate" from the state pollution Control Board, the Committee of the concerned state or Union territory Administration where the facility exists.

7.13 Unit shall take all concrete measures to show tangible results in waste generation reduction, voidance, reuse and recycle. Action taken in this regards shall be submitted within 03 months and also along with Form 4.

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

7.15 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 waste generated within the factory premises.

For and on behalf of
GUJARAT POLLUTION CONTROL BOARD

(P.J. Vachhani)
Senior Environment Engineer

NO. PC/CCA-KUTCH – 228(5)/GPCB ID 17766/ **Date: -**

TO,
Anushakti Chemical & Drugs Ltd,
Plot No: 1430/1,
N.H. No 8A, Bhachau,
Taluka: Bhachau,
Dist: Kutch 370140

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16. CTE(NOC) Amendment, issued on 23-Jan-20, valid upto 23-Sep-24

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GUJARAT POLLUTION CONTROL BOARD

PARYAVARAN BHAVAN
Sector-10-A, **Gandhinagar** 382 010
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"Consent to Establish-Amendment"
(CTE-104173)

BY R.P.A.D.
Date:

NO: GPCB/CCA-228(7) ID- 17766/

To,
M/s Aarti industries Ltd. (Anushakti division),
Plot No: 1430/1, N. H. No- 8A,
Bhachau- 370140, Tal: Bhachau
Dist: Kutch

Sub: Consent to Establish (NOC)-Amendment under Section 25 of Water Act 1974 and Section 21 of Air Act 1981
Ref: Your application for CTE-Amendment no. **135859** received on **06/04/2018**

Without prejudice to the powers of this Board under the Water (Prevention and Control of Pollution) Act-1974, the Air Act-1981 and the Environment (Protection) Act-1986 and without reducing your responsibilities under the said Acts in any way, this is to inform you that this Board grants **Consent to Establish- Amendment** for change in product-mix at Plot No: 1430/1, N. H. No- 8A, Bhachau- 370140, Tal: Bhachau, Dist: Kutch

The list of product to be manufactured as below:

Sr. No.	Name of Products	Quantity (MT/Month) as per CCA dated: 18/09/2017	Quantity as per CTE – Amendment (MT/Month)	Total Quantity after CTE – Amendment (MT/Month)	Remarks
	Co-Generation Power Plant	**4.0 MW**	**0**	**4.0 MW**	**Continue**
(A)	**Chloro Products of Benzene, Toluene**	**3600**	**0**	**3600**	**Continue**
1.	Mono chloro Benzene (MCB)	3000	0	3000	**Continue**
2.	Dichloro Benzene (PDCB, ODCB, & MDCB)				
3.	1 2 4 TCB	300	0	300	
4.	DiChloro Toluene Mixture	100	0	100	
5.	Chloro Toluene Mixture	100	0	100	
6.	Dichloro Pera Nitro Aniline DCPNA	100	0	100	

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(B)	**Mono nitro Derivatives of Benzene, Chlorobenzene or Toulene or Xylene or Cumene.**	**2000**	**0**	**2000**	**Continue**
1.	Nitrobenzene	500	0	500	**Continue**
2.	Para Nitro Chloro benzene(PNCB)				
3.	Ortho Nitro Chloro Benzene(ONCB)				
4.	Nitro Toluene Mixture				
5.	Nitro Xylene mixture				
6.	Nitro Cumene mixture '				
7.	2,5-Di-chloro Nitro Benzene (2,5-DCNB)	1500	0	1500	**Continue**
8.	2,5-Di-chloro Nitro Benzene (3,4-DCNB)				
9.	2,5-Di-chloro Nitro Benzene (3,5-DCNB)				
10.	2,5-Di-chloro Nitro Benzene (2,4-DCNB)				
11.	2,5-Di-chloro Nitro Benzene (2,4, 5-TCNB)				
(C)	**Dinitro Derivatives of Benzene or Chloro Benzene**	**1000**	**0**	**1000**	**Continue**
1.	Di-nitro Benzene	1000	0	1000	**Continue**
2.	Di-Nitro Chloro Benzene (DNCB)				
(D)	**Mix Nitro Derivatives of Hydrocarbon**	**1000**	**0**	**1000**	**Continue**
1.	Mixture of Nitro Chloro Benzene	1000	0	1000	**Continue**
2.	Mixture of Dichloro Nitro Benzene				
3.	Mixture of Nitro Toluene				
(E)	**Hydrogenated/Reduction**	**5940**	**+1060**	**7000**	**Continue**
1.	Aniline	3140	-2940	200	Out of total production (3140 MT/M) of Sr. No 1 to 11, after change in product mix, Sr. No. 1
2.	Metachloro Aniline & Hydrochloride (MCA HCL)			00	
3.	Metachloro Aniline & Hydrochloride (MCA HCL)				
4.	Para chloro Aniline & Hydrochloride (PCA HCL)				

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5.	Ortho chloro Aniline & Hydrochloride (OCA HCL)				(Aniline) will be manufactured (200 MT/M)
6.	3 5 Dichloro Aniline (3 5 DCA)				
7.	2 5 Dichloro Aniline (2 5 DCA)				
8.	3 4 Dichloro Aniline (3 4 DCA)				
9.	Ortho Anisidine (OA)				
10.	Para Anisdine (PA)				
11.	2 4 5 Tri Chloro Aniline				
12.	Monomethyl Aniline	2500	+4000	6500	Continue
13.	Dimethyl Aniline	300	0	300	Continue
(F)	**Amminolysis Products**	**30**	**-30**	**0**	**Discontinue**
1.	Para Nitro Aniline (PNA)	30	-30	0	
2.	Ortho Nitro Aniline (ONA)				
3.	Para Chloro Ortho Nitro Aniline (PCONA)				
4.	Ortho Chloro Para Nitro Aniline (OCPNA)				
5.	2 4 Dinitro Aniline (2 4 DNA)				
(G)	**Phenylene Diamines**	**30**	**-30**	**0**	**Discontinue**
1.	Paraphenylene Diamine (PPDA)	30	-30	0	
2.	Metaphenylene Diamine (MPDA)				
3.	Orthophenylene Diamine (OPDA)				
(H)	**Chloro Phenols**	**300**	**-300**	**0**	**Discontinue**
1.	Orthochloro Phenols (OCP)	50	-50	0	
2.	Parachloro Phenols (PCP)	50	-50	0	
3.	Meta Dichloro Phenols (MDCP)	50	-50	0	
4.	2,3 Dichloro Phenols (2,3 DCP)	35	-35	0	
5.	2,4 Dichloro Phenols (2,4 DCP)	50	-50	0	
6.	2,5 Dichloro Phenols (2,5 DCP)	30	-30	0	
7.	2,6 Dichloro Phenols (2,6 DCP)	35	-35	0	
(I)	**Chloro Sulphonic Acid**	**1000**	**-1000**	**0**	**Discontinue**
(J)	**Acetanilide**	**1000**	**-1000**	**0**	**Discontinue**
(K)	**Vinyle Sulphone & Its Derivatives (Except Dyes)**	**300**	**-300**	**0**	**Discontinue**

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(L)	Phthalate Derivatives	2000	0	2000	Continue
1.	Di Metyl Phthalate (DMP)				
2.	Di Iso Nonyl Phthalate (DINP)				
3.	Di Iso Decyl Phthalate (DIDP)	2000	0	2000	
4.	Di Methyl Adipate				
5.	Di Octyl Adipate				
6.	Di Octyl Phthalate				
	TOTAL	18200	-1600	16600	
(M)	Calcium chloride	3000	0	3000	Continue
(N)	By products				
1.	Calcium chloride	700	0	700	Continue

SUBJECT TO THE FOLLOWING CONDITIONS:

1. The validity of this order will be up to 23/09/2024.
2. There shall be no generation of following hazardous waste, after CTE amendment.
   - Acetic Acid – 100 MT/M
   - Metal Salt (Copper/Ferrous Sulphate) - 300 MT/M
   - Metal Salt (Magnesium/Aluminum Sulphate) – 300 MT/M
   - Sodium Thiosulphate - 300 MT/M
   - Ammonium Chloride – 1000 MT/M
3. Industry shall not carry out any activities which attract provision of EIA notification 2006 and amendments made therein.
4. Unit shall install dry scrubber attached with boilers within 2 months to control SO_2 emission.
5. MEE condensate shall be reused in plant.
6. Unit shall use only coal as fuel in utilities except DG Set
7. Unit shall use existing infrastructure only.
8. Unit shall submit Rule-9 permission from all end users immediately for utilization of spent H_2So_4 & spent HCL.
9. Unit shall strictly comply with all recommendation and suggestions of Schedule-I Auditor report for proposed CTE- Amendment for product mix change.
10. Industry shall provide spent acids i.e H_2So_4 & spent HCL only to the actual end user industries having permission under Rule-9 of Hazardous And Other Waste (Management And Transboundary) Rules, 2016.
11. Industry shall maintain complete records of generation, storage, disposal & reuse of spent acids along with name and address of actual user industries & their permission as per Hazardous and Other Waste (Management And Transboundary) Rules, 2016.
12. Industry shall obtain NOC from CGWA as per order of Hon. National Green Tribunal for withdrawal of ground water.

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CONDITIONS UNDER WATER ACT 1974:

1. Water Source: - Narmada line
2. The quantity of the fresh water consumption for industrial purpose, after change in product mix, shall be reduced from 926 KL/Day to 899 KL/Day.
3. There shall be no change in existing quantity (50 KLD) of domestic water consumption.
4. The quantity of the industrial effluent to be generated from the manufacturing process and other ancillary industrial operations shall be reduced from 130 KL/Day to 128.01 KL/Day.
5. Industrial effluent shall be treated in ETP followed by RO+MEE. RO permeate and MEE condensate shall be reused back (95 KLD) in process. MEE Condensate shall be treated in ATDF to achieve (maintain) Zero Liquid Discharge after change in proposed product mix.
6. There shall be no change in existing quantity (31 KLD) of domestic waste water generation.
7. Industry shall provide fixed pipeline with flow meter at inlet of MEE & RO plant as well as on reuse line and maintain its record.
8. Industry shall provide separate energy meter for ETP& MEE and maintain its record.
9. Disposal system for storm water shall be provided separately. In no circumstances storm water shall be mixed with the industrial effluent.
10. Industry shall provide Sewage Treatment Plant (STP) for treatment of domestic wastewater so that treated domestic effluent shall comply with following norms:

PARAMETERS	PERMISSIBLE LIMIT
pH	6.5 to 9.0
BOD (5 days at 200 C)	30 mg/L
Suspended Solids	100 mg/L
Fecal Coliforjm	<1000 MPN/100 ml

11. Treated sewage conforming to above standard shall be discharged on land for gardening and plantation within premises only.
12. Industry shall provide fixed pipeline network with flow meter for even distribution of treated effluent and maintain its record.

CONDITIONS UNDER AIR ACT 1981:

13. Unit shall use only coal as fuel in utilities except DG Set.
14. There shall be no change in existing consumption of fuel & flue gas stacks.
15. There shall be no change in existing process gas emission/stacks

CONDITIONS UNDER HAZARDOUS WASTE RULES:

16. The applicant shall have to comply with provisions of Hazardous and other Waste (Management and Trans Boundary Movement) Rules 2016.

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17. The applicant shall obtain membership of common TSDF site for disposal of Hazardous waste as categorized in Hazardous and other Waste (Management and Trans Boundary Movement) Rules 2016.
18. The applicant shall obtain membership of common Hazardous Waste incinerator for disposal of incinerable waste.
19. The applicant shall provide temporary storage facilities for each type of Hazardous Waste as per Hazardous and other Waste (Management and Trans Boundary Movement) Rules 2016.
20. The applicant shall obtain registration/authorization for recycling/reprocessing any hazardous waste before procuring material/starting production as per HW Rules 2016.
21. The applicant shall obtain authorization for recovery/reuses of any hazardous waste material as per HW Rules 2016.

GENERAL CONDITION:

22. Adequate plantation shall be carried out all along the periphery of the industrial premises in such a way that the density of plantation is at least 1000 trees per acre of land and a green belt of **03** meters' width is developed.
23. The applicant shall have to submit the returns in prescribed form regarding water consumption and shall have to make payment of water cess to the Board under the Water Cess Act- 1977.
24. In case of change of ownership/management the name and address of the new owners /partners/ directors/ proprietor should immediately be intimated to the Board.
25. The applicant shall however, not without the prior consent of the Board bring into use any new or altered outlet for the discharge of effluent or gaseous emission or sewage waste from the proposed industrial plant. The applicant is required to make applications to this Board for this purpose in the prescribed forms under the provisions of the Water Act-1974, the Air Act-1981 and the Environment (Protection) Act-1986.
26. The concentration of Noise in ambient air within the premises of industrial unit shall not exceed following levels:
    Between 6 A.M. and 10 P.M. : 75 dB(A)
    Between 10 P.M. and 6 A.M. : 70 dB(A)
27. Applicant is required to comply with the manufacturing, Storage and Import of Hazardous Chemicals Rules-1989 framed under the Environment (Protection) Act-1986.
28. If it is established by any competent authority that the damage is caused due to their industrial activities to any person or his property .in that case, they are obliged to pay the compensation as determined by the competent authority.

For and on behalf of
GUJARAT POLLUTION CONTROL BOARD

23/01/2022

(Smt U.K. Upadhyay)
Environmental Engineer

17. CTO Amendment, issued on 16-Jan-20, valid upto 31-Dec-24

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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 Authorization under rule 6(2) of the Hazardous & Other Waste (Management & Transboundary Movement) Rules-2016, framed under the Environmental (Protection) Act-1986.

And whereas Board has received application inward No. **167490** dated **15/11/2019** for the **Renewal Cum Consolidated Consent and Authorization** (CC&A) of this Board under the provisions / rules of the aforesaid Acts. Consents & Authorization are hereby granted as under:

To,
M/s Aarti Industries Ltd. (Anushakti division),
Plot No: 1430/1, N. H. No- 8A,
Bhachau- 370140, Tal: Bhachau
Dist: Kutch.

1. **Consent Order No. AWH- 106201 Date of Issue: 16/01/2020**
2. The consent shall be valid up to **31/12/2024** for the use of outlet for the discharge of trade effluent & emission due to operation of industrial plant for storage of the following items / products:

Sr. No.	Name of Products	Quantity (MT/Month)
(A)	**Co-Generation Power Plant**	**4.0 MW**
(B)	**Chloro Products of Benzene, Toluene**	**3600**
1.	Mono chloro Benzene (MCB)	3000
2.	Dichloro Benzene (PDCB, ODCB, & MDCB)	
3.	1 2 4 TCB	300
4.	DiChloro Toluene Mixture	100
5.	Chloro Toluene Mixture	100
6.	Dichloro Pera Nitro Aniline DCPNA	100
(C)	**Mono nitro Derivatives of Benzene, Chlorobenzene or Toulene or Xylene or Cumene.**	**2000**
1.	Nitrobenzene	500
2.	Para Nitro Chloro benzene(PNCB)	
3.	Ortho Nitro Chloro Benzene(ONCB)	
4.	Nitro Toluene Mixture	
5.	Nitro Xylene mixture	
6.	Nitro Cumene mixture '	
7.	2,5-Di-chloro Nitro Benzene (2,5-DCNB)	1500
8.	2,5-Di-chloro Nitro Benzene (3,4-DCNB)	
9.	2,5-Di-chloro Nitro Benzene (3,5-DCNB)	
10.	2,5-Di-chloro Nitro Benzene (2,4-DCNB)	
11.	2,5-Di-chloro Nitro Benzene (2,4, 5-TCNB)	

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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 Authorization under rule 6(2) of the Hazardous & Other Waste (Management & Transboundary Movement) Rules-2016, framed under the Environmental (Protection) Act-1986.

And whereas Board has received application inward No. **167490** dated **15/11/2019** for the **Renewal Cum Consolidated Consent and Authorization** (CC&A) of this **Board** under the provisions / rules of the aforesaid Acts. Consents & Authorization are hereby granted as under:

To,
M/s Aarti Industries Ltd. **(Anushakti division),**
Plot No: 1430/1, N. H. No- 8A,
Bhachau- 370140, Tal: Bhachau
Dist: Kutch.

1. **Consent Order No. AWH- 106201 Date of Issue: 16/01/2020**
2. The consent shall be valid up to **31/12/2024** for the use of outlet for the discharge of trade effluent & emission due to operation of industrial plant for storage of the following items / products:

Sr. No.	Name of Products	Quantity (MT/Month)
(A)	Co-Generation Power Plant	4.0 MW
(B)	Chloro Products of Benzene, Toluene	3600
1.	Mono chloro Benzene (MCB)	3000
2.	Dichloro Benzene (PDCB, ODCB, & MDCB)	300
3.	1 2 4 TCB	100
4.	DiChloro Toluene Mixture	100
5.	Chloro Toluene Mixture	100
6.	Dichloro Para Nitro Aniline DCPNA	
(C)	Mono nitro Derivatives of Benzene, Chlorobenzene or Toulene or Xylene or Cumene.	2000
1.	Nitrobenzene	500
2.	Para Nitro Chloro benzene(PNCB)	
3.	Ortho Nitro Chloro Benzene(ONCB)	
4.	Nitro Toluene Mixture	
5.	Nitro Xylene mixture	
6.	Nitro Cumene mixture '	
7.	2,6-Di-chloro Nitro Benzene (2,5-DCNB)	1500
8.	2,5-Di-chloro Nitro Benzene (3,4-DCNB)	
9.	2,5-Di-chloro Nitro Benzene (3,5-DCNB)	
10.	2,5-Di-chloro Nitro Benzene (2,4-DCNB)	
11.	2,5-Di-chloro Nitro Benzene (2,4, 5-TCNB)	

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(D)	**Dinitro Derivatives of Benzene or Chloro Benzene**	**1000**
1.	Di-nitro Benzene	1000
2.	Di-Nitro Chloro Benzene (DNCB)	
(E)	**Mix Nitro Derivatives of Hydrocarbon**	**1000**
1.	Mixture of Nitro Chloro Benzene	1000
2.	Mixture of Dichloro Nitro Benzene	
3.	Mixture of Nitro Toluene	
(F)	**Hydrogenated/Reduction**	**7000**
1.	Aniline	200
2.	Monomethyl Aniline	6500
3.	Dimethyl Aniline	300
(G)	**Phthalate Derivatives**	**2000**
1.	Di Metyl Phthalate (DMP)	2000
2.	Di Iso Nonyl Phthalate (DINP)	
3.	Di Iso Decyl Phthalate (DIDP)	
4.	Di Methyl Adipate	
5.	Di Octyl Adipate	
6.	Di Octyl Phthalate	
	TOTAL	**16500**
(H)	**Calcium chloride**	**3000**
(I)	**By products**	
1.	**Calcium chloride**	700

SUBJECT TO THE FOLLOWING SPECIFIC CONDITIONS:

1. There shall be no generation of following hazardous waste,
   - Acetic Acid - 100 MT/M
   - Metal Salt (Copper/Ferrous Sulphate) - 300 MT/M
   - Metal Salt (Magnesium/Aluminum Sulphate) – 300 MT/M
   - Sodium Thiosulphate - 300 MT/M
   - Ammonium Chloride – 1000 MT/M
2. Industry shall not carry out any activities which attract provision of EIA notification 2006 and amendments made therein.
3. Industry shall provide spent acid i.e. H_2So_4 & HCL, only to the actual end user industry having permission under Rule-9 of Hazardous and Other Waste (Management and Transboundary) Rules, 2016.
4. Industry shall maintain complete records of generation, storage, disposal & reuse of spent acids along with name and address of actual user industries & their permission as per

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Hazardous and Other Waste (Management And Transboundary) Rules, 2016 at regular intervals & make it available at site for inspection and also submit to the Board regularly.

5. Unit shall install dry scrubber attached with boilers within 2 months to control SO_2 emission.
6. Industry shall not withdraw groundwater without prior NOC from CGWA as per Hon. National Green Tribunal order.
7. Industry shall comply with coal handling guideline of this Board.
8. Industry shall operate MEE regularly to maintain Zero Liquid Discharge.
9. Industry shall provide dedicated storage facility for fly ash.
10. Industry shall dispose of fly ash as per fly ash notification 1999 as amended from time to time.
11. Industry shall use only coal as fuel in utilities except DG Set.
12. Unit shall submit Rule-9 permission from all end users immediately for utilization of spent H_2SO_4 & spent HCL.

3. **CONDITIONS UNDER WATER ACT 1974:**

3.1 Water Source: - Narmada line

3.2 The quantity of the fresh water consumption for industrial purpose, after change in product mix, shall be reduced from 926 KL/Day to 899 KL/Day.

3.3 The quantity of the fresh water consumption for industrial purpose shall not exceed 50 KL/Day.

3.4 The quantity of the industrial effluent to be generated from the manufacturing process and other ancillary industrial operations shall not exceed 126.01 KL/Day.

3.5 Industrial effluent shall be treated in ETP followed by RO+MEE. RO permeate and MEE condensate shall be reused back (95 KLD) in process. MEE Concentrate shall be treated in ATDF to achieve Zero Liquid Discharge.

3.6 There shall be no change in existing quantity (31 KLD) of domestic waste water generation.

3.7 Industry shall provide fixed pipeline with flow meter at inlet of RO plant, MEE & ATDF as well as on reuse line and maintain its record.

3.8 Industry shall provide separate energy meter for ETP, MEE, ATDF and maintain its record.

3.9 Disposal system for storm water shall be provided separately. In no circumstances storm water shall be mixed with the industrial effluent.

3.10 Industry shall provide Sewage Treatment Plant (STP) for treatment of domestic wastewater so that treated domestic effluent shall comply with following norms:

PARAMETERS	PERMISSIBLE LIMIT
pH	6.5 to 9.0
BOD (5 days at 200°C)	30 mg/L
Suspended Solids	100 mg/L
Fecal Coliform	<1000 MPN/100 ml

3.11 Treated sewage conforming to above standard shall be discharged on land for gardening and plantation within premises only.

3.12 Industry shall provide fixed pipeline network with flow meter for even distribution of treated domestic effluent and maintain its record.

4 CONDITIONS UNDER AIR ACT 1981:

4.1 There shall be used as fuel in the Boiler & D.G. Set respectively;

Sr. No.	Name of Fuel	Quantity
1.	Coal	220 T/ day
2.	Diesel	325 Hr

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

No.	Stack attached to	Stack height in meter	APCM	Para-meter	Permissible limit
1.	FBC Boiler (12 TPH) (STAND BY)	30	ESP + Dry Scrubber	PM SO_2 NO_x	150 mg/Nm3 100 ppm 50 ppm
2.	Boiler (15 TPH) (STAND BY)	30	Bag Filter + Dry Scrubber		
3.	Thermic Fluid Heater (20 Lac Kcal/H)	30	Multi Cyclone with Dust Collector + Dry Scrubber		
4.	Thermic Fluid Heater (20 Lac Kcal/H)	30	Bag Filter + Dry Scrubber		
5.	Hot Air Generator	10	Alkali Scrubber		
6.	D.G. Set (1000 KVA)	15	–		
7.	D.G.Set (1000 KVA)	15	–		
8.	Boiler (36 TPH)	30	ESP + Dry Scrubber		

4.3 The process gas emission through various stacks/vent of reactors, process, vessel shall conform to the following standards.

Sr. No.	Stack attached to	Stack height in meter	APCM	Para-meter	Permissible limit
1.	Incinerator	30	Scrubber	PM SO_2 NO_x	150 mg/Nm3 100 ppm 50 ppm
2.	HCL Stack	30	Two stage water & Alkali Scrubber	HCL	20 mg/Nm3
3.	Nitrator	30	Two stage water & Alkali Scrubber	NO_x	25 mg/Nm3
4.	Mixing tank of $CaCl_2$	25	Alkali Scrubber	PM HCL	150 mg/Nm3 20 mg/Nm3
5.	$CaCl_2$ Dryer Vent	20	Two stage Wet Scrubber (Venturi Scrubber)	PM	150 mg/Nm3

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4.4 The concentration of the following parameters in the ambient air within the premises of the industry and a distance of 10 meters from the source (other than the stack/vent) shall not exceed the following levels.

Sr. No.	Pollutant	Time Weighted Average	Concentration in Ambient air in µg/M³
1.	Sulphur Dioxide (SO_2)	Annual	50
		24 Hours	80
2.	Nitrogen Dioxide (NO_2)	Annual	40
		24 Hours	80
3.	Particulate Matter (Size less than 10 µm) OR PM_{10}	Annual	60
		24 Hours	100
4.	Particulate Matter (Size less than 2.5 µm) OR $PM_{2.5}$	Annual	40
		24 Hours	60

4.5 The applicant shall provide portholes, ladder, platform etc at chimney(s) for monitoring the air emissions and the same shall be open for inspection. 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.

4.6 The concentration of Noise in ambient air within the premises of industrial unit shall not exceed following levels:

Between 6 A.M. to 10 P.M.: 75 dB (A)
Between 10 P.M. to 6 A.M.: 70 dB (A)

4.7 D.G. SETS CONDITIONS

The D.G. Set shall have acoustic enclosure and shall comply sith the standards specified at Sr. no. 95 of Schedule-I of the rule-3 of E.P. Rules -1986 and Noise pollution level as per the Air Act-1981.

D.G. Sets standards:-
The flue gas emission through stack attached to D.G. Sets shall conform to the following standards.

a) The minimum height of stack to be provided with each of the generator set shall be H=h + 0.2 (KVA)$^{1/2}$, where H= Total stack height in meter, h= height of the building in meters where or by the side of which the generator set is installed.
b) Noise from DG set shall be controlled by providing an acoustic enclosure or by treating the room acoustically, at the users end.

c) The acoustic enclosure or acoustic treatment of the room shall be designed for minimum 25 dB (A) insertion loss or for meeting the ambient noise standards, whichever is on the higher side (if the actual ambient noise is on the higher side, it may not be possible to check the performance of the acoustic enclosure/ acoustic treatment. Under such circumstances the performance may be checked for noise reduction up to actual ambient noise level, preferably, in the night time). The measurement for insertion loss may be done at different points at 0.5 m from the acoustic enclosure/room, and the averaged.

d) The D.G. Set shall be provided with proper exhaust muffler with insertion loss of minimum 25 dB (A).

e) All efforts shall be made to bring down the noise level due to the D.G.Set, outside the premises, within the ambient noise requirements by proper siting and control measures.

f) Installation of a D.G. Sets must be strictly in compliance with the recommendations of the D.G. Set manufacturer.

g) A proper routine and preventive maintenance procedure for the D.G.Set should be set and followed in consultation with the DG Set manufacture which would help prevent noise levels of the DG Set from deteriorating with use.

5 Authorization under Hazardous and Other Waste (Management & Transboundary Movement) Rules, 2016 & amended.

5.1 **Authorization Number: AWH- 106201and shall valid up to 31/12/2024.**

5.2 **M/s. M/s Aarti Industries Ltd.** is hereby granted an authorization to operate facility for following hazardous wastes on the premises situated at **Plot No: 1430/1, N. H. No- 8A, Bhachau- 370140, Tal: Bhachau, Dist: Kutch.**

Sr. No.	Waste	Quantity per Annum	Schedule/I & Category	Facility
1.	ETP Sludge	5400 MT	35.3	Collection, storage, Transportation, Disposal to TSDF Site.
2.	Used Spent Oil	0.5 MT	I-5.1	Collection, storage, Transportation & Disposal by selling to registered recycler
3.	Discarded Containers Drums and Barrels	150 MT	I-33.3	Collection, storage, Transportation & Disposal by selling to Decontaminator or selling to re-processors.
4.	Sludge from Calcium Chloride Plant	5400 MT	I-26.1	Collection, storage, Transportation, Disposal to common TSDF Site and selling to end users.
5.	Incinerator Ash	90 MT	I-26.1	Collection, storage, Transportation, Disposal to common TSDF Site.

5.3 The authorization shall be valid up to **31/12/2024.**

Page 6 of 9

GPCB

GUJARAT POLLUTION CONTROL BOARD

PARYAVARAN BHAVAN
Sector-10-A, **Gandhinagar** 382 010
Phone : (079) 23222425
(079) 23232152
Fax : (079) 23232156
Website : www.gpcb.gov.in

5.4 The authorization 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.

5.5 The authorization is granted to operate a facility for collection, storage, within factory premises, transportation, and ultimate disposal of Hazardous wastes by selling as per condition 5.2 to the industry having vaid CCA of this Board.

5.6 TERMS AND CONDITIONS OF AUTHORISATION

1. The applicant shall comply with the provisions of the Environment (Protection) Act-1986 and the rules made there under.
2. The authorization or its renewal shall be produced for inspection at the request of an officer authorized by the Gujarat Pollution Control Board.
3. The persons authorized shall not rent, lend, sell, and transfer or otherwise transport the hazardous wastes without obtaining prior permission of the Gujarat Pollution Control Board.
4. Any unauthorized change in personnel, equipment or working conditions as mentioned in the authorization order by the persons authorized shall constitute a beach of this authorization.
5. The person authorized shall implement Emergency Response Procedure (ERP) for which this authorization is being granted considering all site specific possible scenarios such as spillages, leakages, fire etc. and their possible impacts and also carry out mock drill in this regard at regular interval of time.
6. The person authorized shall comply with the provisions outlined in the Central Pollution Control Board guidelines on "Implementing Liabilities for Environmental Damages due to Handling and Disposal of Hazardous Wastes and Penalty"
7. It is the duty of the authorized person to take prior permission of the Gujarat Pollution Control Board to close down the facility.
8. An application for the renewal of an authorization shall be made as laid down in rules 6(2) under Hazardous and Other Waste Rules, 2016.
9. The imported hazardous and other wastes shall be fully insured for transit as well as for any accidental occurrence and its clean-up operation.
10. The record of consumption and fate of the imported hazardous and other wastes shall be maintained.
11. The hazardous and other wastes which gets generated during recycling or reuse or recovery or pre-processing or utilization of imported hazardous or other wastes shall be treated and disposed of as per specific conditions of authorization.
12. The importer or exporter shall bear the cost of import or export and mitigation of damages if any.
13. Any other conditions for compliance as per the Guidelines issued by the Ministry of Environment, Forest and Climate Change or Central Pollution Control Board from time to time.
14. The waste generator shall be totally responsible for (i.e. collection, storage, transportation and ultimate disposal) the wastes generated.
15. Records of waste generation, its management and annual return shall be submitted to Gujarat Pollution Control Board in Form-4 by 30th day of June of every year for the preceding period April to March.
16. In case of any accident, details of the same shall be submitted on Form-11 to Gujarat Pollution Control Board.

Clean Gujarat Green Gujarat

ISO-9001-2008 & ISO-14001 - 2004 Certified Organisation

17. As per "Public Liability Insurance Act-91" company shall get insurance Policy, if applicable.
18. Empty drums and containers of toxic and hazard material shall be treated as per guideline published for "Management & Handling of discarded containers". Records of the same shall be maintained and forwarded to Gujarat Pollution Control Board regularly.
19. In case of transport of hazardous wastes to a facility for (i.e. treatment, storage and disposal) existing in a State other than the State where hazardous wastes are generated, the occupier shall obtain 'No Objection Certificate' from the State Pollution Control Board or Committee of the concerned State of Union Territory Administration where the facility exists.
20. Unit shall take all concrete measures to show tangible results in waste generation, reduction, avoidance, reuse and recycle. Actions taken in this regard shall be submitted within three months and also along with Form-4.
21. Industry shall have to display the relevant information with regards to hazardous waste as indicated in the Hon. Supreme Court's Order in W.P. No.657 of 1995 dated 14th October, 2003.
22. 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.

5.7 GENERAL CONDITIONS: -

1. Any change in personnel, equipment or working conditions as mentioned in the consents form/order should immediately be intimated to this Board.
2. Applicant shall also comply with the general conditions given in annexure I.
3. Whenever due to accident or other unforeseen act or ever, such emissions occur or is apprehended to occur in excess of standards laid down such information shall be forthwith reported to Board, concerned Police Station, Office of Directorate of Health Service, Department of Explosives, Inspectorate of Factories and local body.
4. In case of failure of pollution control equipments, the production process connected to it shall be stopped. Remedial actions/measures shall be implemented immediately to bring entire situation normal.
5. The Environmental Management Unit/Cell shall be setup to ensure implementation on and monitoring of environmental safeguards and other conditions stipulated by statutory authorities. The Environmental Management Cell/Unit shall directly report to the Chief Executive of the organization and shall work as a focal point for internalizing environmental issues. These cells/units also coordinate the exercise of environmental audit and preparation of environmental statements.
6. The Environmental audit shall be carried out yearly and the environmental statements pertaining to the previous year shall be submitting to this State Board latest by 30th September every year.
7. The Board reserves the right to review and/or revoke the consent and/or make variations in the conditions, which the Board deems, fit in accordance with Section 27 of the Act.
8. In case of change of ownership/management the name and address of the new owners/ partners/directors/proprietor should immediately be intimated to the Board.

GPCB

GUJARAT POLLUTION CONTROL BOARD
PARYAVARAN BHAVAN
Sector-10-A, **Gandhinagar** 382 010
Phone : (079) 23222425
(079) 23232152
Fax : (079) 23232156
Website : www.gpcb.gov.in

9. Industry shall have todisplay the relevantinformation with regard to hazardouswaste as indicated in the Hon. Supreme order in w.p. no. 657 of 1995 dated 14th October 2003.

6 **SPECIFIC CONDITIONS:-**

6.1 The authorized actual user of hazardous and other wastes shall maintain records of hazardous and other wastes purchased in a passbook issued by the State Pollution Control Board along with the authorization.
6.2 Handling over of the hazardous and other wastes to the authorized actual user shall be only after making the entry in the passbook of the actual user.
6.3 In case of renewal of authorization, a self-certified compliance report in respect of effluent, emission standards and the conditions specified in the authorization for hazardous and other wastes shall be submitted to SPCB.
6.4 The occupier of the facility shall comply Standard operating procedure/guidelines published by MOEF&CC or CPCB or GPCB from time to time.
6.5 Unit shall comply provisions of E-Waste Management Rules-2016.
6.6 The disposal of Hazardous Waste shall be carried out as per the waste Management hierarchy.
6.7 The occupiers of facilities shall not store the hazardous and other wastes for a period not exceeding **ninety days**. Prior permission of the Board shall be obtained for extension of the storage period.
6.8 The occupier shall maintain the records of generation, sale, storage, transport, recycling, co processing and disposal of hazardous waste and make available during the inspection.
6.9 The transportation of the hazardous waste shall be carried out in GPS mounted dedicated vehicles.

For and on behalf of
GUJARAT POLLUTION CONTROL BOARD

(Smt U.R. Upadhyay)
Environmental Engineer

NO: PC/ CCA- KUTCH-228(8)/GPCB ID: - 17766/
ISSUED TO:
M/s Aarti Industries Ltd. (Anushakti division),
Plot No: 1430/1, N. H. No- 8A,
Bhachau- 370140, Tal: Bhachau
Dist: Kutch.

Date: -

Annexure 4: Site Layout Map

PLOT PLAN

N

NORTH

GENERAL NOTES:

1. ALL DIMENSIONS ARE IN METERS

1A) PIT FOR RAIN WATER HARVESTING

2) STORM WATER RESERVOIR

AREA TABLE

TOTAL BUILT UP AREA	:	48672.64 SQ. MTR.
ALL GREEN BELT AREA FOR PLANT	:	11675.77 SQ. MTR.
ALL PARKING AREA	:	1210.72 SQ. MTR.
ALL ROADS AREA	:	20554.03 SQ. MTR.
ALL OPEN AREA IN SIDE & BOUNDARY SIDE	:	12785.61 SQ. MTR.
TOTAL PLOT AREA	:	94898.77 SQ. MTR.

PLOT NO. - 1430 / 1, N.H. NO. 8-A

SR. NO.	DESCRIPTION	AREA in m2
1	SECURITY CABIN	11.99
2	OFFICE BUILDING	279.63
3	CANTEEN, A.D.M. BUILDING & QC LAB	827.41
4	STP, PANEL ROOM & ECOMAN FOOD COMPOST M/C	231.28
5	FIRE HYDRANT WATER STORAGE TANK, ECC ROOM, ORC & FIRE EQUIPMENT ROOM & FIRE TENDER PARKING	672.85
6	PETROLEUM CLASS-'A' UNDER GROUND STORAGE TANK	901.23
7	TOILET BLOCK	32.00
8	PROPOSED TANK FARM	825.00
9	TANK FARM, CABLE YARD & FINISHED PRODUCT STORAGE TANK	979.00
10	SOLAR PANEL ROOM	18.37
11	CEMENT & INSULATION GODOWN	267.73
11-A	SPECILITY DCS CONTROL ROOM	
12	MMA PLANT	395.35
13, 14	MMA STORAGE TANK, U.G. TANK FRAM & FINISHED PRODUCT TANK FARM	1028.70
15, 16	FACTORY BUILDING & 2500 t/l MMA PLANT	726.00
17, 18, 19	ETP PLANT, MEE PLANT & PANEL ROOM	1060.00
20	COLE FIRE BOILER SHED	754.11
21	ESTER PLANT BUILDING	729.20
22	STORAGE SHED, RAW MATERIAL GODOWN, MELTER & GODOWN	1772.74
23	BOILER HOUSE	1348.74
24	ASH HANDLING CYLO BUILDING	35.50
25	POWER PLANT BUILDING	882.00
26	TURBINE PLANT BUILDING, CONTROL ROOM + MCC ROOM & DG SET	641.57
27	COMPRESSOR ROOM, WATER TANK	598.89
28	TOILET BLOCK	32.40
29	WEIGH BRIDGE CABIN	39.19
30	O.B.C. BUILDING	74.28
31, 32	R.O. PLANT, PACKING GODOWN BUILDING, SHED R.O. WATER TANK EXTENSION & R.O. WATER TANK	1748.28
33	UN LOADING SHED BUILDING	691.59
34	NITRATION PLANT BUILDING, TANK FARM	982.00
35	CRISTILIZER TANK FARM	216.00
36	FACTORY SHED, TRANSFORMER YARD, D.C.S., STORAGE AREA, CHLORINATION BUILDING, CHLORINATION AREA & COLUMN SECTION	3259.21
37	PROCESS TANK FARM	430.49
38, 39	WATER S.T., FIRE WATER S.T., DCMB S.T., SCRUBBER SYSTEM, CHILLING PLANT, COOLING TOWER & NITROGEN PLANT	2247.20
40	TOILET BLOCK	
41	LIME STORAGE GODOWN	175.41
42	BRINE STORAGE TANK FARM	137.42
43	CHLORINE CYLINDER STORAGE SHED, SCRUBBER	1458.19
44, 45, 46	HCL S.T., CONICAL S.T., FILTER PRESS & HCL REACTION TANK,	773.00

SR. NO.	DESCRIPTION	AREA in m2
47, 48, 49, 50, 51 & 52	GODOWN, CaCl2 PLANT, CaCl2 FURNACE AND GODOWN, PROPOSED SEE, COOLING TOWERS, BRINE STORAGE TANK, STORAGE TANK, ID FAN, DUST COLLECTOR, SLUDGE BAD, COAL STORAGE SHED, ENGINEERING SPARE STORAGE	4851.00
53	EXT. WARE HOUSE	00.00
54	VCB & PCC ROOM	94.79
55	ELECTRIC ROOM	167.88
56	300 TPD CALCIUM CHLORIDE SOLUTION PLANT, 300 TPD MCC ROOM, BRINE S.T. & CLARIFIER	443.98
57	SETTLING TANK & SLUDGE FILTER SYSTEM	150.69
58	4TH & 5 TH REYCTOR PLANT	102.93
59	SLUDGE STORAGE AREA	900.00
60	CYLINDER STORAGE AREA	1971.00
61	CEMENT GODOWN	
62	PROPOSED RAW WATER TREATMENT PLANT & S. TANK	
63	VAM & COMPRESSOR ROOM	218.10
64	FUTURE CONTRACTOR WORK SHOP	654.00
65	STORAGE TANK, COOLING TOWER	768.77
66	HCL TANK FARM	374.92
67, 68	COOLING TOWER	184.00
69A	THERMO PACK, THERMAL OXIDIZER	671.00
69B	ANSLINE ST. TANK	671.00
70	COMMON LOADING AREA	300.00
71	LIQ N2 STORAGE TANK	144.00
72	LIME STONE STORAGE-1	1604.50
73	ENGINEERING MATERIAL STORAGE	1551.00
74	PAINTING YARD	654.00
75	BIO REACTOR ASSEMBLY	1449.00
76	LIME STONE STORAGE-2	2303.79
77	BOILER (3% TPH) PROPOSED	528.57
78	THERMO PACK	281.17
79	SECURITY & ADM BLOCK	33.00
80	THERMIC FLUID HEATER	300.00
81	DG SET PROPOSED	65.00
	TOTAL BUILT UP AREA	=48672.64

REV.	DESCRIPTION	DRAWN	CHECKED	DATE

AARTI INDUSTRIES LIMITED.
(ANUSHAKTI DIVISION)
1430/1, N.H. NO.:8A, AT & TA.-BHACHAU, KUTCH, GUJARAT
www.aarti-industries.com

DRN	RAHUL	08/02/22
CHD	DEV	08/02/22
REVD	SUDHIR	08/02/22
APD	KM	08/02/22

TITLE: AARTI (Anushakti Division) - SITE LAYOUT

SCALE : - | PROJECT: KUTCH PROJECT SITE PLAN | PROJECT NO: GPCB

PROJECTION	UNIT	SIZE	DRAWING NO.	PAGE NO	REV.
	-	A0	AIK/MEGA/01	-	00

Table 9-3: Area Break up at Site

Description	Existing (m^2)	Proposed (m^2)	Total (m^2)	% of Total Area
Plant area	13685.53	100	13785.53	14.53%
Utility (Boiler House, TFH, DG set area, raw water tank, Fire tank, Trolley Area, Dispatch room, pump room, weighbridge, OHC, etc.)	2404.24	2821.05	5225.29	5.51%
ETP, MEE, RO & Hazardous waste storage, STP	3190.25	4274.49	7464.74	7.87%
Canteen / Security / Office / Watch tower / Toilet block, etc.	1087.76	332	1419.76	1.50%
Boiler & Coal Storage & Ash Silo Area	3020.35	528.57	3548.92	3.74%
Storage/Tank Farms/ warehouses	11545.76	4748.55	16294.31	17.17%
Open land & Road	53095.18	-19755.54	33339.64	35.13%
Greenbelt area	6383.475	6226.385	12609.86	13.29%
Parking area	486.22	724.5	1210.72	1.28%
Total Plot Area	**94898.77**	**0**	**94898.77**	**100%**
Greenbelt adjacent to AIL	**0**	**20133**	**20133**	**21.21%**
Greenbelt at NH-41, in front of project site	**0**	**10117.1**	**10117.1**	**10.66%**

***Note on Greenbelt Area:**

33% of 94898.77 m^2 total plot area = 31,316.59 m^2

Available greenbelt within plant premises = 12609.86 m^2

Additional land required to make 33% area of the project site area= (31,316.59 m^2 - 12609.86 m^2) = 18,706.73 m^2

Thus, additional land acquired to fulfil requirement of 33% (of total plot area) Greenbelt = 20133 m^2

Also, about 10,117.1 m^2 (10.66%) is developed as greenbelt along the median and island region of Samakhiali Gandhidham highway (NH-41) considering 2500 saplings will be planted and maintained.

Hence, the total greenbelt area will be (12609.86 m^2 + 20,133 m^2 + 10117.1 m^2) 42859.96 m^2 which will be approximately 45.16 % of total plot area. In this regard, the request letter has been submitted on 07.03.2022 and the same has been sent through email on 09.03.2022 to The Director, National Highway Authority of India, Gandhidham. The copy of both communication is presented in ***Figure 9-1*** & ***Figure 9-2*** respectively.

Figure 9-1: Acknowledgment of submitted Request Letter to NHAI, Gandhidham

OIC

AARTI INDUSTRIES LIMITED

Date - 07.03.2022

To,
Project Director,
National Highways Authority of India (NHAI),
Gandhidham.

Subject : Green belt development work for Highway median and island near Aarti Industries Limited (Anushakti Division) located at Survey no.1430/1, N.H. 8-A, Bhachau, Kutch.

Respected Sir,

We at Aarti Industries Limited believe in a sustainable way of development. Considering this we would like to propose development of green belt along the median of highway (start Lat:23.2836447, Long:70.3336926 and end Lat:23.2611182, Long:70.3112015 and the island and surrounding (at **1.** Lat:23.286276, Lon:70.3365907 & 2. Lat:23.2588097, Lon:70.3068883) located near our plant. We request you to grant us the permission/assurance for development of green belt in the above said area. The approx area comes out to be around 2.5 acres.

Thanking You,

Yours faithfully,
For, Aarti Industries Limited (Anushakti Division)

Authorized Signatory

NHAI
Noted
7.3.2022
No 9766219932

Cc,
To,
L&T Samakhiali Gandhidham Tollways Ltd.

www.aarti-industries.com | CIN: L24110GJ1984PLC007301
Regd. Office : Plot No. 801, 801/23, IIIrd Phase, GIDC Vapi-396195, Dist- Valsad. INDIA. T : 0260-2400366.
Factory : Survey No.1430/1, N.H No. 8-A, Tal.-Bhachau, Dist-Kutch, Pin-370140, INDIA. Tel.: +91 6353865478.
Admin. Office : 71, Udyog Kshetra, 2nd Floor, Mulund Goregaon Link Road, Mulund (W), Mumbai - 400080, INDIA.
T : 022-67976666, F : 022-2565 3234 | E : info@aarti-industries.com

Figure 9-2: Request letter submitted to NHAI, Gandhidham thorugh email

AARTI INDUSTRIES LIMITED

Date - 09.03.2022

To,
Project Director,
National Highways Authority of India (NHAI),
Gandhidham.

Subject : Green belt development work for Highway median and island near Aarti Industries Limited (Anushakti Division) located at Survey no.1430/1, N.H. 8-A, Bhachau, Kutch.

Respected Sir,

We at Aarti Industries Limited believe in a sustainable way of development. Considering this we would like to propose development of green belt along the median of highway NH 41 (start Lat:23.2836447, Long:70.3336926 and end Lat:23.2611182, Long:70.3112015) and the island and surrounding (at **1.** Lat:23.286276, Lon:70.3365907 & **2.** Lat:23.2588097, Lon:70.3068883) located near our plant, the chainage of which is as mentioned below in table. We request you to grant us the permission/assurance for development of green belt in the above said area. We propose to plant 2500 saplings for green belt development work.

Location	Starting Chainage	Ending Chainage	Plant Species
Median	325.850 km	329.650 km	Kaner, Jasud, Bougainvillea, chameli,duranta, or other suitable species as per NHAI and CPCB guidelines.
Island	At 325.550 km	At 331.250 km	

Maintenance: We would maintain the greenbelt as of now for a period of five Years.

Ownership: We would be showing the proposed green belt that we would develop as a part of statutory compliances and CER activities. We do not claim any right on property of the NHAI land.

Thanking You,

Yours faithfully,
For, Aarti Industries Limited (Anushakti Division)

AARTI INDUSTRIES LTD. Anushakti (Div.) BHACHAU

Authorized Signatory

Cc,
To, L&T Samakhiali Gandhidham Tollways Ltd.

By mail to . pdenhai.org . 09/03/22

www.aarti-industries.com | CIN: L24110GJ1984PLC007301
Regd. Office : Plot No. 801, 801/23, IIIrd Phase, GIDC Vapi-396195, Dist- Valsad. INDIA. T : 0260-2400366.
Factory : Survey No.1430/1, N.H No. 8-A, Tal.-Bhachau, Dist-Kutch, Pin-370140, INDIA. Tel.: +91 6353865478.
Admin. Office : 71, Udyog Kshetra, 2nd Floor, Mulund Goregaon Link Road, Mulund (W), Mumbai - 400080, INDIA.
T : 022-67976666, F : 022-2565 3234 | E : info@aarti-industries.com

Annexure 5: Raw Material Quantity and Transportation details

Table 9-4: Raw Material Quantity and Transportation details

Sr. No.	Product Name	Product Capacity/Month	Raw Material	Quantity (MT/MT)	Quantity (MT/Month)	Mode of Transport
1	Mono Chloro Benzene and/or Crude Mono Chloro Benzene (MCB)	5333.33	Fresh Benzene	0.69	38346	Tanker
			Recovered Benzene	1.04	57546.66	Tanker
			Chlorine	0.63	34915.33	Truck
			Caustic	0.001	55.33	Tanker
2	Ortho/Meta/Para Di Chloro Benzene and/or Crude Di Chloro Benzene and/or Crude Tri chloro benzene	5333.33	Fresh Benzene	0.53	2816	Tanker
			Recovered Benzene	0.44	2362.67	Tanker
			Chlorine	0.97	5189.33	Truck
			Promoter	0.0001	0.53	Tanker
			Caustic	0	10.67	Tanker
3	1 2 4 Tri Chloro Benzene and/1 2 3 Tri Chloro Benzene /Crude Tri Chloro Benzene	300	Ortho DiChloro Benzene/Para dichloro Benzene	0.78	234.9	Tanker
			Recovered Ortho DiChloroBenzene/Para DiChloroBenzene	1.86	557.1	Tanker
			Chlorine	0.45	133.8	Truck
			Caustic	0.001	0.3	Tanker
4	Di Chloro Toluene Mixture and/or Crude DCT	100	Chloro Toluene Mixture	0.81	80.7	Tanker
			Chlorine gas	0.57	56.9	Truck
5	Ortho/Meta/Para Chloro Toluene and/or Crude Ortho/Meta/Para Chloro Toluene	100	Toluene	0.73	72.7	Tanker
			Chlorine	0.56	56.1	Truck
			Caustic	0.001	0.11	Tanker
6	Di Chloro Para Nitro Aniline and/or Crude Di Chloro Para Nitro Aniline	100	Para Nitro Aniline	0.796	79.6	Tanker
			Recovered Mono Chloro Benzene	2.645	264.5	Tanker
			Recycled MCB	1.123	112.3	Tanker
			Recycled spent HCl	0.066	6.6	Tanker
			Chlorine	0.816	81.6	Truck
			5% Na2CO3 Solution	0.606	60.6	Tanker

Sr. No.	Product Name	Product Capacity/Month	Raw Material	Quantity (MT/MT)	Quantity (MT/Month)	Mode of Transport
			Fresh MCB	0.091	9.1	Tanker
			Recovered MCB	1.022	102.2	Tanker
			Caustic	0.002	0.2	Tanker
7	Nitrobenzene and/or Crude Nitrobenzene	2000	Nitric Acid	0.527	1054	Tanker
			Sulphuric Acid	0.428	856	Tanker
			Fresh Benzene	0.635	1270	Tanker
			Recycled Benzene	0.949	1898	Tanker
			Recycled Spent Sulphuric Acid	2.122	4244	Tanker
			Soda Ash	0.024	48	Truck
			Caustic	0.001	2	Tanker
8	Ortho/Meta/Para-Nitro Chloro Benzene and/or Crude Ortho/Meta/Para-Nitro Chloro Benzene	2000	Mono Chloro Benzene (Fresh)	0.724	1448	Tanker
			Mono Chloro Benzene (Rec)	0.01	20	Tanker
			Nitric Acid	0.411	822	Tanker
			Sulphuric Acid	0.312	624	Tanker
			Recycled Spent sulphuric acid	1.526	3052	Tanker
			Soda Ash	0.001	2	Truck
			Caustic	0.001	2	Tanker
9	Nitro Toluene Mixture (MNT/PNT/ONT)	2000	Nitric Acid	0.46	920	Tanker
			Fresh Toluene	0.56	1120	Tanker
			Recovered Toluene	0.112	224	Tanker
			Sulphuric Acid	0.379	758	Tanker
			Recycled Spent sulphuric acid	0.805	1610	Tanker
			Caustic	0.001	2	Tanker
10	Nitro Xylene Mixture	2000	Fresh O-Xylene	0.836	1672	Tanker
			Recovered O-Xylene	0.067	134	Tanker
			Nitric Acid	0.599	1198	Tanker
			Sulphuric Acid	0.005	10	Tanker
			Recycled Sulphuric Acid	0.44	880	Tanker

Sr. No.	Product Name	Product Capacity/Month	Raw Material	Quantity (MT/MT)	Quantity (MT/Month)	Mode of Transport
			Recycled Phosphoric Acid	2.39	4780	Tanker
			Fresh Methylene Chloride	0.035	70	Tanker
			Recovered Methylene Chloride	3.511	7022	Tanker
			Sodium Carbonate Solution	1.241	2482	Truck
			Caustic	0.001	2	Tanker
11	Nitro Cumene	2000	Cumene	0.727	1454	Truck
			Nitric Acid	0.39	780	Tanker
			Sulphuric Acid	0.319	638	Tanker
			Recycled Sulphuric Acid	1.156	2312	Tanker
			Caustic	0.0005	1	Tanker
12,13,14,15	2 5 Di Chloro nitro benzene and/or Crude 2 5 Di Chloro nitro benzene/ 3 4 Di Chloro nitro benzene and/or Crude 3 4 Di Chloro nitro benzene/ 2 6 Di Chloro nitro benzene and/or Crude 2 6 Di Chloro nitro benzene/ 2 4 Di Chloro nitro benzene and/or Crude 2 4 Di Chloro nitro benzene	2000	Ortho/Meta/Para- Di chloro benzene	0.783	1566	Truck
			Nitric Acid	0.342	684	Tanker
			Sulphuric Acid	0.382	764	Tanker
			Recycled Sulphuric Acid	0.734	1468	Tanker
			Soda solution	0.005	10	Tanker
			Caustic	0.001	2	Tanker
16	2 4 5 Tri Chloro nitro benzene and/or Crude 2 4 5 Tri Chloro nitro benzene/234 Tri Chloro nitro benzene and/or Crude 234 Tri Chloro nitro benzene	2000	1,2,3 Tri Chloro Benzene/1,2,4 Tri Chloro Benzene	0.813	1626	Truck
			Nitic Acid	0.3	600	Tanker
			Sulphuric Acid	0.562	1124	Tanker
			Recycled Sulphuric Acid	0.004	8	Tanker
			Soda Solution	0.002	4	Tanker
			Caustic	0.0004	0.8	Tanker
17	4-nitro-N-methyl phthalimide and/or Crude 4-nitro-N-methyl phthalimide	833.33	N-methylphthalimide	0.84	700	Truck
			Sulphuric Acid	0.479	399.17	Tanker
			Recycled Sulphuric Acid	2.614	2178.32	Tanker
			Caustic	0.004	3.33	Tanker
18	2,4-dichloro-3- fluoro nitro benzene /3,5-dichloro-4- fluoro nitro benzene	833.33	2,6 DCFB	0.792	660	Tanker
			HNO3	0.32	266.67	Tanker

Sr. No.	Product Name	Product Capacity/Month	Raw Material	Quantity (MT/MT)	Quantity (MT/Month)	Mode of Transport
	and/or Crude 2,4-dichloro-3- fluoro nitro benzene/Crude 3,5-dichloro-4-fluoro nitro benzene		Sulphuric Acid	0.108	90	Tanker
			Recycled Sulphuric Acid	0.341	284.17	Tanker
			10% Carbonate wash	0.365	304.17	
			Caustic	0.0004	0.33	Tanker
19	3-nitro benzotrifluoride (MNBTF) and/or Crude 3-nitro benzotrifluoride (MNBTF)	833.33	Benzotrifluoride	0.82	683.33	Tanker
			HNO3	0.421	350.83	Tanker
			Sulphuric Acid	0.238	198.33	Tanker
			Recycled Sulphuric Acid	0.523	435.83	Tanker
			Caustic	0.001	0.83	Tanker
20	3-nitro-4-chloro benzotrifluoride (CNBTF) and/or Crude 3-nitro-4-chloro benzotrifluoride (CNBTF)	833.33	4-Chlorobenzotrifluoride	0.88	733.33	Tanker
			HNO3	0.357	297.5	Tanker
			Sulphuric Acid	0.174	145	Tanker
			Recycled Sulphuric Acid	0.471	392.5	Tanker
			Caustic	0.001	0.83	Tanker
21	3,5-dinitro-4-chloro benzotrifluoride (CDNBTF) and/or Crude 3,5-dinitro-4-chloro benzotrifluoride (CDNBTF)	833.33	4-Chlorobenzotrifluoride	0.74	616.66	Tanker
			HNO3	0.55	458.33	Tanker
			Sulphuric Acid	0.826	688.33	Tanker
			Recycled Sulphuric Acid	1.683	1402.49	Tanker
			Caustic	0.001	0.83	Tanker
22	1-(3-nitrophenyl) ethanone (3-NAP) and/or Crude 1-(3-nitrophenyl) ethanone (3-NAP)	833.33	Acetophenone	0.926	771.66	Tanker
			HNO3	1.03	858.33	Tanker
			Sulphuric Acid	0.009	7.5	Tanker
			Recycled Sulphuric Acid	0.337	280.83	Tanker
			Caustic	0.002	1.67	Tanker
23	2,4-dichloro-3,5-dinitro benzotrifluoride (DCDNBTF) and/or Crude 2,4-dichloro-3,5-dinitro benzotrifluoride (DCDNBTF)	833.33	DNCBTF	0.74	616.66	Tanker
			Chlorine gas	2.3	1916.66	Truck
			Fe powder	0.3	250	Truck
			Fresh EDC	0.2	166.67	Tanker

Sr. No.	Product Name	Product Capacity/Month	Raw Material	Quantity (MT/MT)	Quantity (MT/Month)	Mode of Transport
			Recovered EDC	5.5	4583.32	Tanker
			Caustic	0.237	197.5	Tanker
24	2,4-Dichloro-5-fluoronitrobenzene or Crude 2,4-Dichloro-5-fluoronitrobenzene	833.33	2,4-Di Chloro Fluoro Benzene	0.854	126249.7	Tanker
			98% HNO3	0.348	51446	Tanker
			Sulphuric Acid	1.36	201053.3	Tanker
			Recycled Sulphuric Acid	0.004	591.33	Tanker
			Aq.NaHCO3 solution	0.855	126397.5	Tanker
			Caustic	0.0004	59.13	Tanker
25	2-Chloro-5-nitro-benzonitrile and/or Crude 2-Chloro-5-nitro-benzonitrile	833.33	O-chloro benzo nitrile	0.834	695	Tanker
			HNO3	0.39	325	Tanker
			Sulphuric Acid	0.706	588.33	Tanker
			Recycled Sulphuric Acid	0.101	84.17	Tanker
			Caustic	0.0005	0.42	Tanker
26	2,6-dichloro-3,5-difluoronitrobenzene	833.33	Oleum	0.357	297.5	Tanker
			Sulphuric Acid	1.065	887.5	Tanker
			DCDFB	0.809	674.16	
			HNO3	0.279	232.5	Tanker
			10 % Na2 CO3	0.039	32.5	
27	2-chloro-4-fluoro-5-nitrobenzoic acid	833.33	Sulphuric acid	8.593	7160.8	Tanker
			2-chloro-4-fluoro benzoic acid	1.093	910.83	Truck
			Nitric acid	0.552	460	Tanker
			Fresh Ethyl Acetate	0.085	70.83	Tanker
			Recovered Ethyl Acetate	4.164	3469.99	Tanker
			n-Hexane	0.056	46.67	Tanker
			Recovered n-Hexane	2.727	2272.49	Tanker
28	Di nitro benzene and/or Crude Di nitro benzene	1000	Nitric Acid	0.925	925	Tanker
			Benzene	0.512	512	Tanker
			Sulfuric Acid	1.459	1459	Tanker

Sr. No.	Product Name	Product Capacity/Month	Raw Material	Quantity (MT/MT)	Quantity (MT/Month)	Mode of Transport
			Spent sulfuric acid Recycled	0.847	847	Tanker
			Caustic	0.001	1	Tanker
29	Di nitro Chloro benzene and/or Crude Di nitro Chloro benzene	1000	Fresh Para nitro chloro benzene	0.721	721	Tanker
			Recycled Para nitro chloro benzene	0.847	847	Tanker
			Nitric Acid	0.396	396	Tanker
			Sulphuric Acid	0.714	714	Tanker
			Soda Solution	0.227	227	Tanker
			Caustic	0.001	1	Tanker
30	Mixture of Nitro Chloro Benzene and/or Crude Nitro Chloro Benzene	1000	Mono Chloro Benzene (Fresh)	0.724	724	Tanker
			Mono Chloro Benzene (Rec)	0.01	10	Tanker
			Nitric Acid	0.411	411	Tanker
			Sulphuric Acid	0.312	312	Tanker
			Spent sulfuric acid Recycled	1.526	1526	Tanker
			Soda Ash	0.001	1	Truck
			Caustic	0.001	1	Tanker
31	Mixture of Di Chloro Nitro Benzene and/or Crude Di Chloro Nitro Benzene	1000	Ortho/Meta/Para- Di chloro benzene	0.783	783	Tanker
			Nitric Acid	0.342	342	Tanker
			Sulphuric Acid	0.382	382	Tanker
			Recycled Spent sulfuric acid	0.734	734	Tanker
			Soda	0.005	5	Truck
			Caustic	0.001	1	Tanker
32	Mixture of Nitro Toluene and/or Crude Nitro Toluene	1000	Nitric Acid	0.46	460	Tanker
			Fresh Toluene	0.56	560	Tanker
			Recovered Toluene	0.112	112	Tanker
			Sulphuric Acid	0.379	379	Tanker
			Spent acid Recycled	0.805	805	Tanker
			Caustic	0.001	1	Tanker
33,34,35		12000	Aniline	0.919	11028	Tanker

Sr. No.	Product Name	Product Capacity/Month	Raw Material	Quantity (MT/MT)	Quantity (MT/Month)	Mode of Transport
	Aniline and /or Crude Anilne/Monomethyl Aniline and/or Crude Monomethyl Aniline/Dimethyl Aniline and/or crude Dimethyl Aniline		Methanol	0.467	5604	Tanker
			Recovered Aniline	0.263	3156	Tanker
			Recovered Methanol	0.014	168	Tanker
36	Di Methyl Phthalate (DMP) and/or Crude Crude Di Methyl Phthalate (DMP)	5000	Phthalic Anhydride fresh	0.792	3960	Tanker
			Fresh Methanol	0.346	1730	Tanker
			Recovered Methanol	0.63	3150	Tanker
			Sulphuric Acid	0.008	40	Tanker
			Recovered Phthalic Acid	0.006	30	Tanker
			Caustic	0.007	35	Tanker
			KMnO4	0.001	5	Tanker
			Sodium Bisulfite (SBS)	0.001	5	Truck
			Carbon	0.0001	0.5	Truck
37	Di Iso Nonyl Phthalate (DINP) and/or Crude Di Iso Nonyl Phthalate (DINP)	5000	Phthalaic Anhydride	0.357	1785	Tanker
			Iso Nonyl Alcohol	0.695	3475	Tanker
38	Di Iso Decyl Phthalate (DIDP) and/or Crude Di Iso Decyl Phthalate (DIDP	5000	Phthalaic Anhydride	0.335	1675	Tanker
			Iso decyl Alcohol	0.715	3575	Tanker
39	Di Methyl Adipate	5000	Adipic Acid	0.847	4235	Truck
			Methanol	0.371	1855	Tanker
40	Di Octyle adipate	5000	Adipic Acid	0.394	1970	Truck
			Ethyl Hexanol	0.703	3515	Tanker
			Recycled Ethyl Hexanol	0.135	675	Tanker
			Catalyst	0.004	20	Truck
			NaOH	0.003	15	Truck
			Carbon	0.002	10	Truck
41	Dioctyl Phthalate (DOP)	5000	Phthalic Anhydride (PA)	0.381	1905	Tanker
			Ethyl Hexanol	0.667	3335	Tanker
			Ethyl Hexanol (Recovered)	0.169	845	Tanker
			Catalyst	0	0	Truck

Sr. No.	Product Name	Product Capacity/Month	Raw Material	Quantity (MT/MT)	Quantity (MT/Month)	Mode of Transport
			NaOH	0.001	5	Truck
			Carbon	0.002	10	Truck
42	Dibasic Ester	5000	Succinic anhydride	0.687	3435	Truck
			Methanol	0.451	2255	Tanker
			Recovered Methanol	0.21	1050	Tanker
			Zinc oxide	0.001	5	Truck
			NaOH	0.012	60	Truck
43	Dioctyl Terephthalate	5000	Terephthalic acid	0.427	2135	Truck
			2-Ethyl Hexanol	0.673	3365	Tanker
			Recovered 2-Ethyl Hexanol	0.164	820	Tanker
			Tetraisopropyl titanate	0.004	20	Tanker
			NaOH	0.007	35	Truck
44	Dicyclohexyl phthalate	5000	Phthalic anhydride	0.45	2250	Tanker
			Cyclohexanol	0.611	3055	Truck
			Recovered Cyclohexanol	0.144	720	Truck
			Sulphuric acid	0.005	25	Tanker
			NaOH	0.007	35	Truck
45	Di isononyl Adipate	5000	Adipic acid	0.368	1840	Truck
			Isononyl alcohol	0.743	3715	Tanker
			Recovered Isononyl alcohol	0.347	1735	Tanker
			Tetraisopropyl titanate	0.001	5	Tanker
			NaOH	0.009	45	Truck
46	Calcium Chloride	700	Spent HCl	1.967	1376.9	Tanker
			CaCO3(94%)	1.021	714.7	Truck
			20% HCL from Scrubber	0.177	123.9	Tanker
			Ca(OH)2	0.054	37.8	Truck

Annexure 6: Water Consumption and Waste Water Generation Details

Source of Water

Water is supplied by Gujarat Water Infrastructure Limited (**GWIL).** Existing water supply permission is of 1000 KLD. The same source will be utilized for proposed water demand. An assurance letter for 3000 KLD water supply also attached under ***Figure 9-6*** in ***Annexure 6.***

Table 9-5: Water Consumption Details

Sr. No.	Purpose	Source	Existing (KL/Day)		Proposed (KL/Day)		Total (KL/Day)	
			Fresh	Recycled	Fresh	Recycled	Fresh	Recycled
A	Domestic	GWIL	50		25		75	
B	Industrial							
1	Process	GWIL	154		531		685	
2	Scrubber	GWIL	0		241		241	
2	DM Plant/Boiler	RO (from GWIL) + Recycled water	325		383	510	708	510
3	Softener/Cooling	GWIL + Recycled water	420	95	754	655	1174	750
4	Washing	GWIL	0		20		20	
B	Industrial total		899	95	1929	1165	2828	1260
C	Gardening	From STP	0	31	0	0	0	31
Quantity of Fresh/Recycled Water (A+B+C)			**949**	**126**	**1954**	**1165**	**2903**	**1291**
TOTAL (of Fresh and Recycled water for Industrial, Domestic and Gardening)			**1075**		**3119**		**4194**	
Quantity of Fresh water			**949**		**1954**		**2903**	
Quantity of Recycled water			**126**		**1165**		**1291**	

Table 9-6: Wastewater Generation and Treatment

S. No.	Purpose	Effluent Generation in KLD			Remark
		Existing	Proposed	Total	
A	**Domestic**	31	37	68	Generated effluent will be treated in STP and recycled water will be recycled back in gardening and cooling tower
B	**Industrial**				
1	Process	58.01	388.99	447	Effluent from process is segregated in 2 streams. 1. 328 KLD effluent treated in MEE/ATFD and condensate water will be recycled in cooling towers 2. 119 KLD effluent treated in ETP followed by RO & MEE. RO permeate & MEE condensate recycled in cooling tower
2	Scrubber	0	6	6	Effluent from scrubber will be treated in MEE/ATFD and condensate water will be recycled in cooling towers

S. No.	Purpose	Effluent Generation in KLD			Remark
		Existing	Proposed	Total	
3	Washing	0	20	20	Effluent from washing will be treated in MEE/ATFD and condensate water will be recycled in cooling towers
4	DM Reject & Boiler blow down	49	85	134	Utility water treated in RO followed by MEE/ATFD and condensate water will be recycled in cooling towers.
5	Softener reject and cooling blowdown	21	299	320	
6	Pre-treatment of GWIL supplied water (RO Reject)	0	214	214	
	Total Industrial	**128.01**	**1012.99**	**1141**	
	Total Industrial + domestic	**159.01**	**1049.99**	**1209**	

Figure 9-3: Existing Water Balance

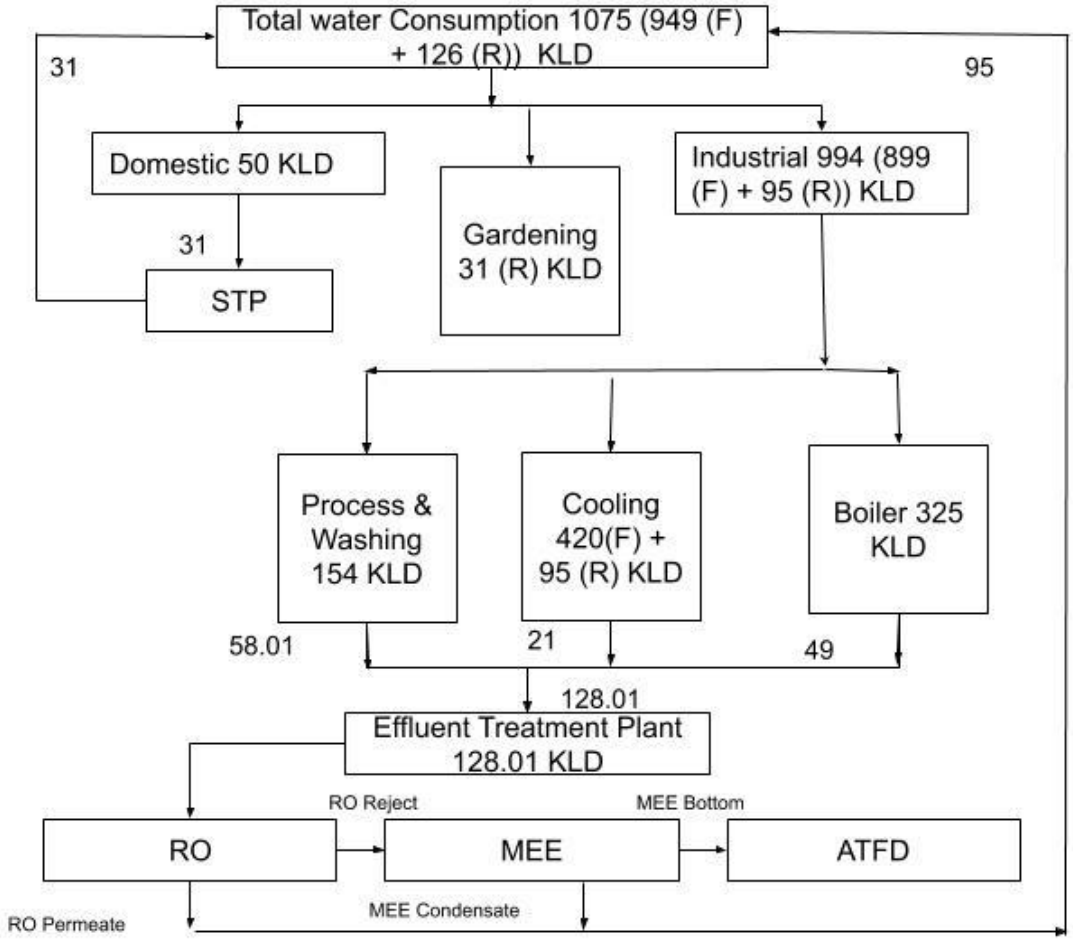


Figure 9-4: After Proposed Expansion Water Balance

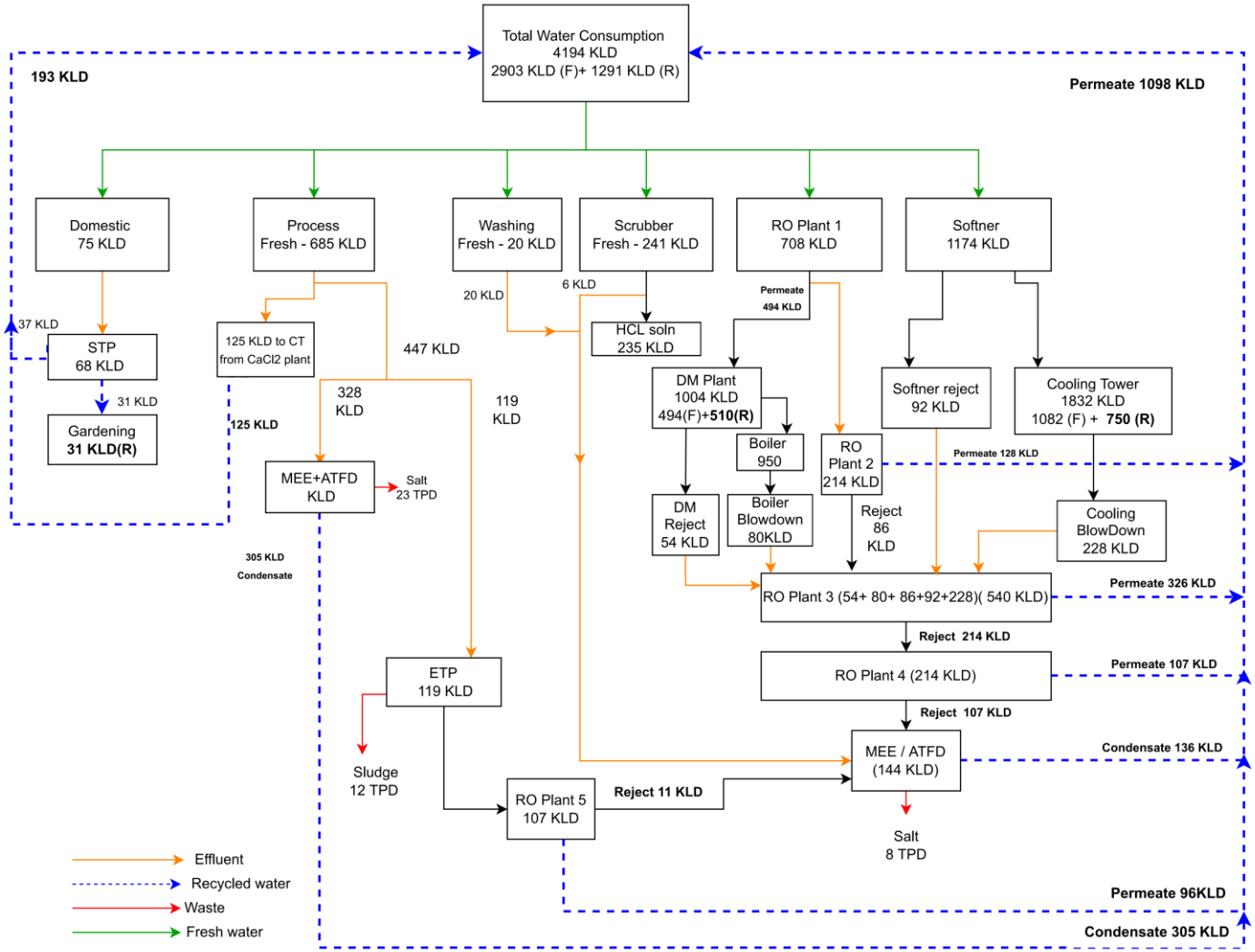
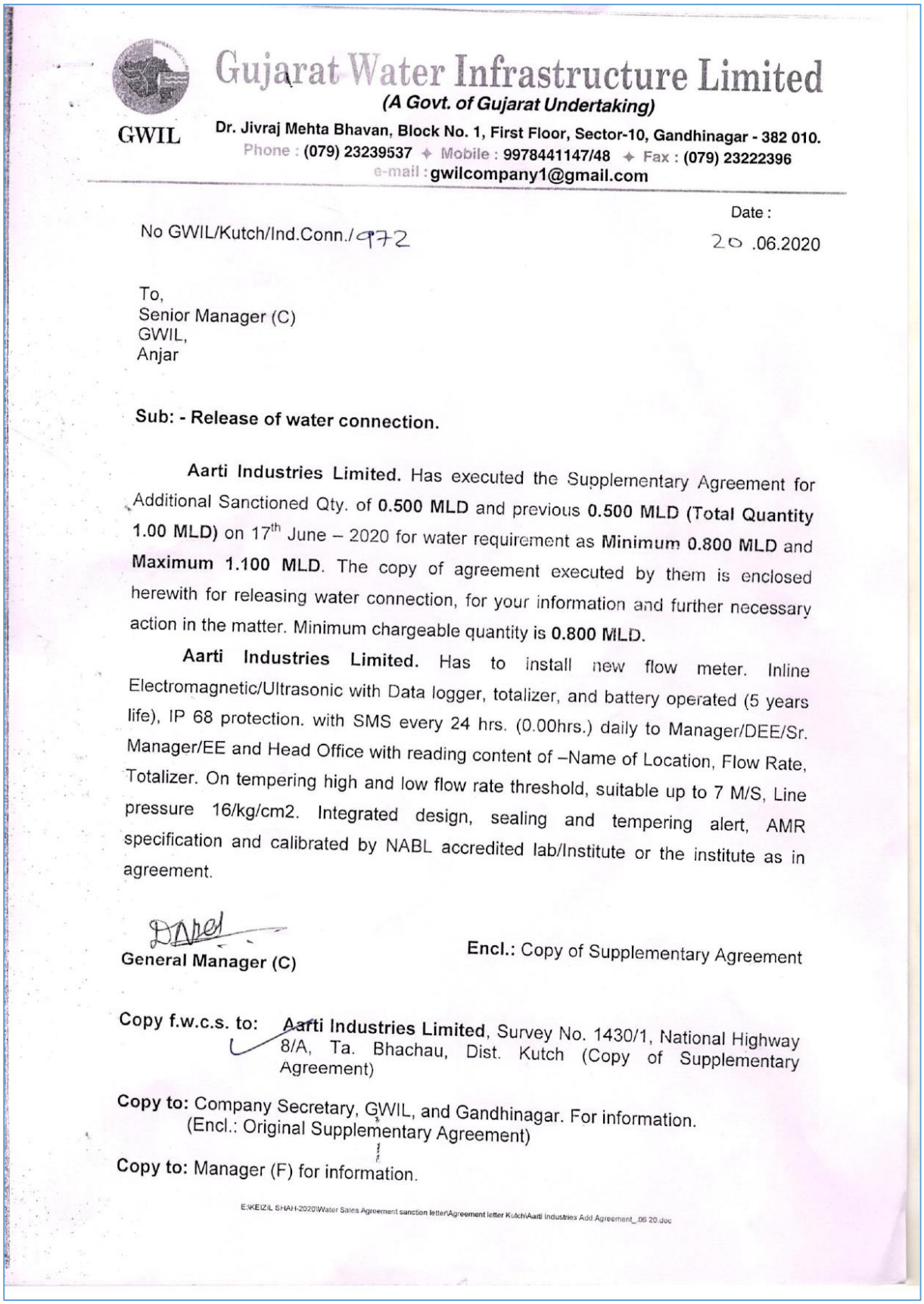


Figure 9-5: Permission letter for Water Supply by GWIL

Existing Water supply Permission



Gujarat Water Infrastructure Limited
(A Govt. of Gujarat Undertaking)
GWIL
Dr. Jivraj Mehta Bhavan, Block No. 1, First Floor, Sector-10, Gandhinagar - 382 010.
Phone : (079) 23239537 ✦ Mobile : 9978441147/48 ✦ Fax : (079) 23222396
e-mail : gwilcompany1@gmail.com

Date :

No GWIL/Kutch/Ind.Conn./972 20 .06.2020

To,
Senior Manager (C)
GWIL,
Anjar

Sub: - Release of water connection.

Aarti Industries Limited. Has executed the Supplementary Agreement for Additional Sanctioned Qty. of **0.500 MLD** and previous **0.500 MLD (Total Quantity 1.00 MLD)** on 17th June – 2020 for water requirement as **Minimum 0.800 MLD** and **Maximum 1.100 MLD**. The copy of agreement executed by them is enclosed herewith for releasing water connection, for your information and further necessary action in the matter. Minimum chargeable quantity is **0.800 MLD.**

Aarti Industries Limited. Has to install new flow meter. Inline Electromagnetic/Ultrasonic with Data logger, totalizer, and battery operated (5 years life), IP 68 protection. with SMS every 24 hrs. (0.00hrs.) daily to Manager/DEE/Sr. Manager/EE and Head Office with reading content of –Name of Location, Flow Rate, Totalizer. On tempering high and low flow rate threshold, suitable up to 7 M/S, Line pressure 16/kg/cm2. Integrated design, sealing and tempering alert, AMR specification and calibrated by NABL accredited lab/Institute or the institute as in agreement.

General Manager (C)

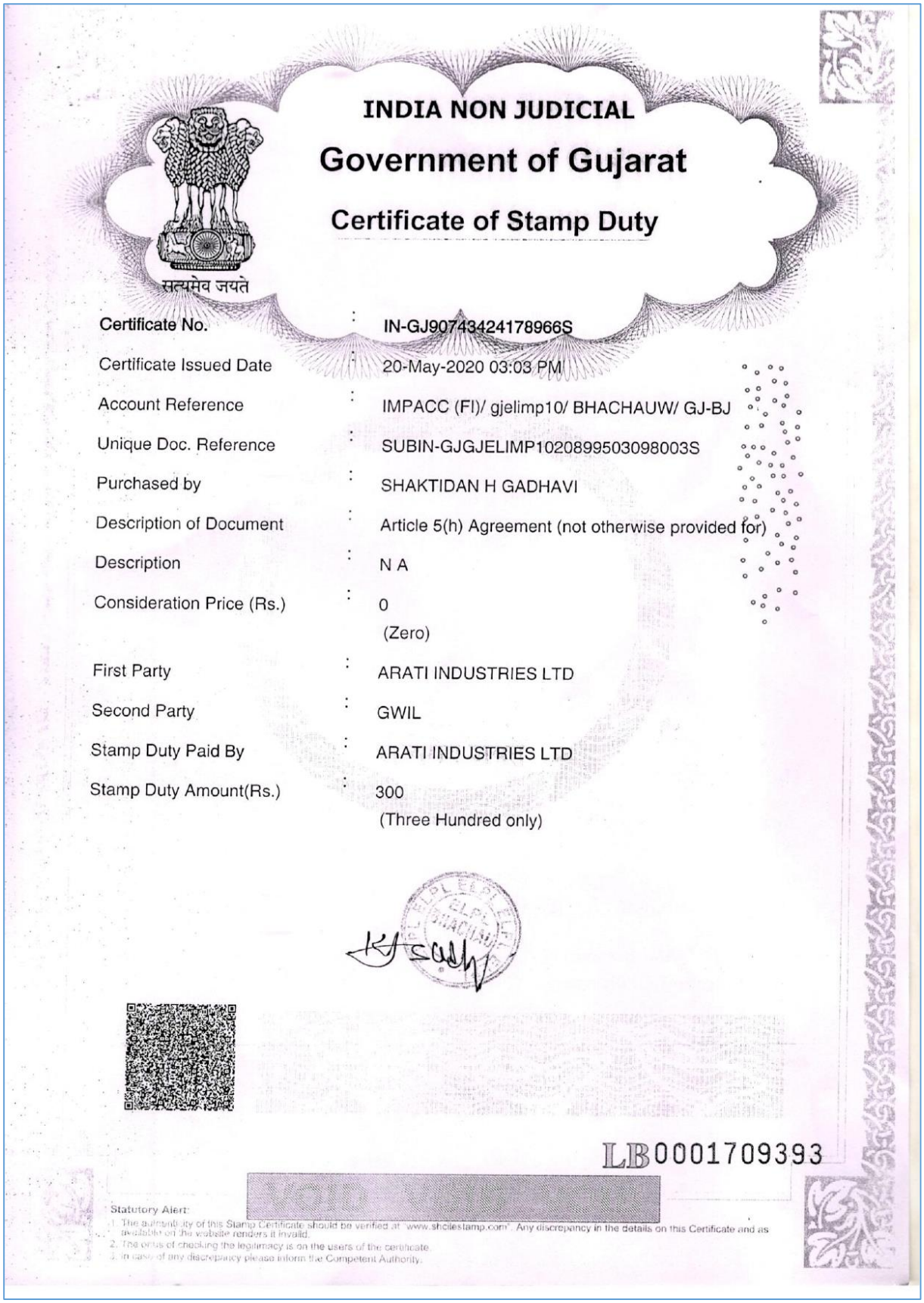
Encl.: Copy of Supplementary Agreement

Copy f.w.c.s. to: **Aarti Industries Limited**, Survey No. 1430/1, National Highway 8/A, Ta. Bhachau, Dist. Kutch (Copy of Supplementary Agreement)

Copy to: Company Secretary, GWIL, and Gandhinagar. For information. (Encl.: Original Supplementary Agreement)

Copy to: Manager (F) for information.

E:\KEIZIL SHAH-2020\Water Sales Agreement sanction letter\Agreement letter Kutch\Aarti Industries Add Agreement_06 20.doc



INDIA NON JUDICIAL

Government of Gujarat

Certificate of Stamp Duty

सत्यमेव जयते

Certificate No.	:	IN-GJ907434241789665
Certificate Issued Date	:	20-May-2020 03:03 PM
Account Reference	:	IMPACC (FI)/ gjelimp10/ BHACHAUW/ GJ-BJ
Unique Doc. Reference	:	SUBIN-GJGJELIMP10208995030980035
Purchased by	:	SHAKTIDAN H GADHAVI
Description of Document	:	Article 5(h) Agreement (not otherwise provided for)
Description	:	N A
Consideration Price (Rs.)	:	0 (Zero)
First Party	:	ARATI INDUSTRIES LTD
Second Party	:	GWIL
Stamp Duty Paid By	:	ARATI INDUSTRIES LTD
Stamp Duty Amount(Rs.)	:	300 (Three Hundred only)

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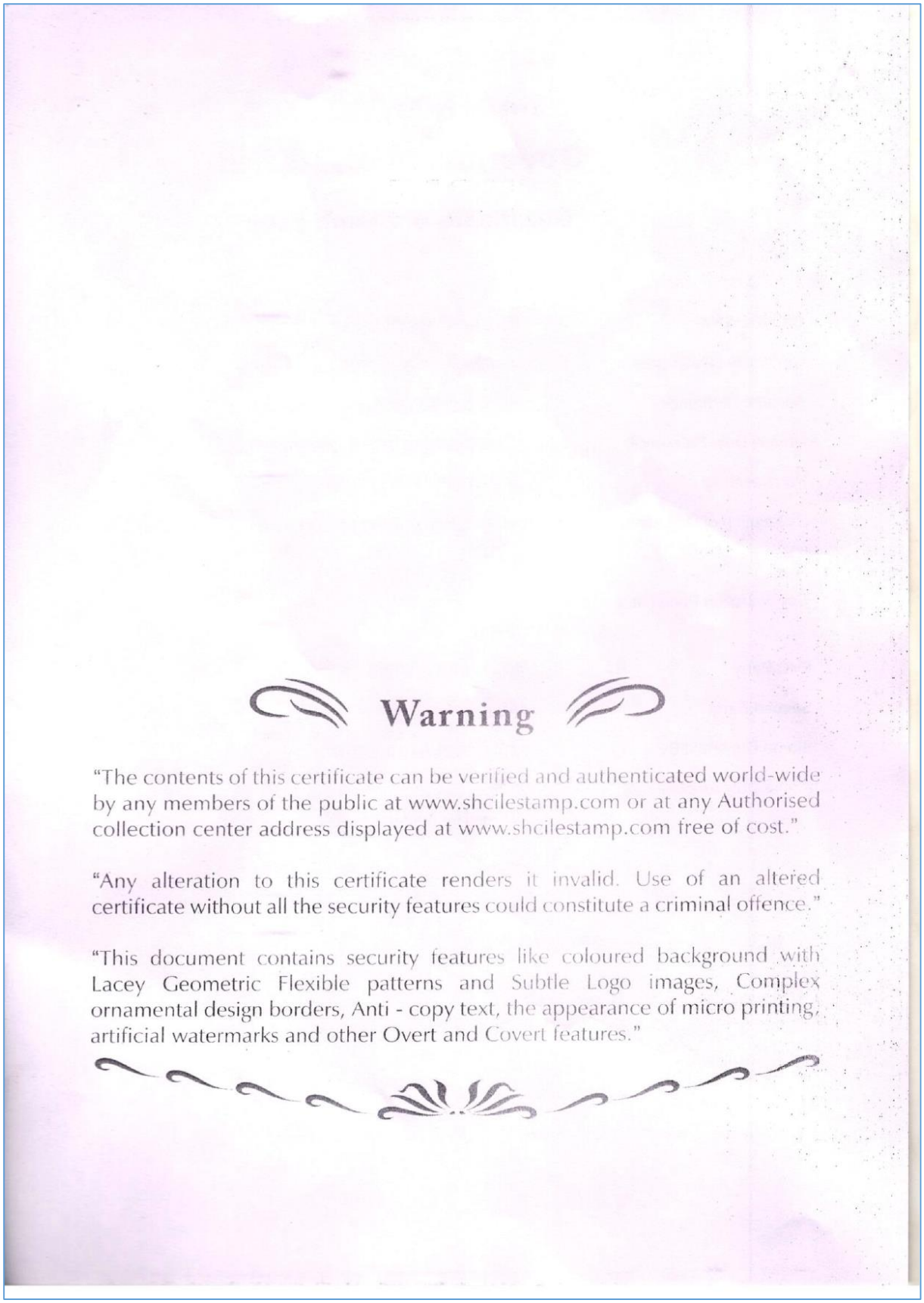

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Supplementary Agreement – 1

This Agreement is entered into on this the 17th day of June 2020

BETWEEN

GUJARAT WATER INFRASTRUCTURE LIMITED a company registered under the Companies Act, 1956 and having its registered office at Sec-10A, Block no. 1, 1st floor, Dr. Jivraj Mehta Bhavan, Gandhinagar – 382 010 (Gujarat) and wholly owned by the Government of Gujarat, hereafter referred to as the "Bulk Supplier", which expression shall include unless repugnant to the context or the meaning thereof include its successors and assigns.

AND

Aarti Industries Limited a Company registered under the Companies Act, 1956 and having its having its **Regd. Office at Plot No. 801, 801/23, 3rd Phase, GIDC – Vapi, Valsad & works at Survey No. 1430/1, National Highway 8/A, Ta.: Bhachau, Dist. Kutch,** hereafter referred to as the "Purchaser", which expression shall include unless repugnant to the context or the meaning thereof include its successors and assigns.

1) The Purchaser had executed Renewal Water Sales Agreement dated **01st September 2014** with the Bulk Supplier. As per the terms of agreement the buyer was sanctioned water to the extent of **0.500 MLD**. The Buyer had also deposited with the Bulk Supplier security deposit of **Rs. 28,86,300/- (Rupees Twenty eight lakh eighty six thousand three hundred only)**.

2) Now, the Purchaser vide its letter has requested the Bulk Supplier for increase in the quantity of water. The Bulk Supplier vide letter dated **09th March 2020** has agreed to sanction additional quantity of **0.500 MLD**. The Purchaser has also deposited additional amount of deposit of **Rs. 38,27,700/- (Rupees Thirty eight lakh twenty seven thousand seven hundred only)**. Accordingly, parties to the agreement agrees to the enhanced sanctioned quantity **0.500 MLD** to **1.00 MLD,** i.e. allowable drawl of water that equals to minimum quantity shall be 80% of sanctioned quantity i.e. **0.800 MLD** maximum quantity shall be 110 % of sanctioned quantity i.e. **1.100 MLD** by way of this Supplementary Agreement. **Any withdrawal beyond the Maximum quantity shall be charged double the normal rates.**

3) Also the difference in deposit **Rs. 17,06,400/- (Rupees Seventeen lakh six thousand four hundred only)** recovered due to change in rate every year has been paid by Purchaser.

4) **Tariff Rate**

(a) As per state Govt. Resolution No.VWS/102013/167/Kh-4, Dated 03.02.2015, the tariff rate have been revised by state Govt. in terms of provision following clause;

i. Tariff rate @ Rs.35.94 (Rupees thirty five and paisa ninety four only) per 1000 ltr is applicable from 1st July -2018.
ii. The tariff rate @ Rs.42.53 (Rupees forty two and paisa fifty three only) per 1000 ltr is applicable from 1st April - 2019.
iii. As per state Govt. Resolution No.VWS/102013/167/Kh-4, Dated 16.07.2018, the tariff rate have been revised by state Govt and the tariff rate @ Rs.46.78 (Rupees forty six and paisa seventy eight only) per 1000 ltr is applicable from 1st April - 2020 till further revision.

(b) The above rate also will be revised every year/as and when, based on the rate of supply of raw water charged by Sardar Sarovar Narmada Nigam Limited/ water resources department of Govt. of Gujarat. Thus Rs.15.40 per 1000 ltr will be added on the rate of raw water being charged by Sardar Sarovar Narmada Nigam Limited/water resources department of Govt. of Gujarat as per above General Resolution.

(c) Nevertheless, the above rate (s) will be applicable subject to revision of rate for industrial/domestic purpose from time as may be decided by the Government of Gujarat including change in other terms & conditions of the agreement and the same shall be binding on parties to this agreement.

4) **Arbitration**

(i) Any Dispute, which is not resolved amicably within a period of forty-five (45) days from the date on which one Party notified the other Party of the Dispute, shall be finally decided by reference to arbitration by sole Arbitrator appointed pursuant to paragraph (ii) below. Such arbitration shall be subject to the provisions of the Arbitration and Conciliation Act, 1996.

AARTI INDUSTRIES LTD. BHACHAU

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(ii) The name of sole Arbitrator shall be decided mutually by both parties within period of 60 days from the date of notice as per clause no (i) of clause no 4 However, if both the parties fail to arrive at the consent for the name of arbitrator then the matter should be referred to high court of Gujarat who shall appoint Arbitrator.

(iii) The reasoned award of Arbitrator shall be final and binding to both the parties.

(iv) The venue of such arbitration shall be Gandhinagar, Gujarat and the language of such arbitration shall be English.

5). ADDITIONAL CONDITIONS:

1 Notwithstanding anything contained herein above, the Purchaser agrees and undertakes:

a. that Purchaser knows that the water is being drawn from longer distance and hence shall not raise any objection for irregular supply by the Supplier nor shall make any claim in this regard.

b. that Purchaser knows that the drinking water has got priority over the water for industrial use and in view of this industrial user shall be supplied water only after meeting requirement of drinking water. Therefore, purchaser shall not take any objection to accept less quantity as provided in this agreement than the agreed quantity as may be decided by the supplier.

c. that the Purchaser shall not use underground water for its requirement and understand that failure to do that shall make the Purchaser liable for termination of this agreement without cost & consequences.

d. that the bulk supplier is not responsible for continuous supply of water. The purchaser shall ensure storage of at least 30 days of requirement of water and therefore, shall create facility of storage for this purpose. In case of non-compliance of this condition, the purchaser shall be fully responsible for all consequences.

6). any modification or amendment suggested by State Government shall be applicable and accordingly the agreement shall be revised as per suggestion or direction of the State Government from time to time.

7). Other terms and conditions of the original renewal agreement dated **01st September 2014** shall remain unchanged.

GUJARAT WATER INFRASTRUCTURE LTD. UT. Govt. of Gujarat

Page 3 of 4

IN WITNESS WHEREOF THE PARTIES HAVE EXECUTED AND DELIVERED THIS AGREEMENT AS OF THE DATE FIRST ABOVE WRITTEN.

For and on behalf of

Gujarat Water Infrastructure Limited by:

GUJARAT WATER INFRASTRUCTURE LTD. UT Govt. of Gujarat

_____ (Signature)

(D.A.Vyas)

General Manager (C)

In the presence of:

Arvind Gaudana
Consulting Company Secretary

SIGNED, SEALED AND DELIVERED

For and on behalf of

Aarti Industries Limited

AARTI INDUSTRIES LTD. BHACHAU

_____ (Signature)

(Mr. Mangalbhai V Gadhavi)

In the presence of:

Page 4 of 4

Figure 9-6: Assurance Letter from GWIL for Proposed Water Requirement

GUJARAT WATER INFRASTRUCTURE LIMITED

[A Govt. of Gujarat Undertaking]
Office of the Senior Manager
Near Nagarpalika Head Works, Anjar-Bhuj State Highway
Anjar - Kutch - 370110
E-Mail - gwilanjar@gmail.com

GWIL

No.GWIL/Anjar/Aarti Industries/621 Date :- 25/02/2022

To Whom So Ever It May be Concern

This is to certify that GWIL will able to supply 3000 KLD quantity of water to Aarti Industries Limited, Survey No. 1430/1, N.H.No.8-A, Bhachau, Tal: Bhachau, Dist: Kutch as per prevailing water supply rules and regulations after getting approval from Competent Authority of GWIL.

Senior Manager
GWIL-Anjar

To,
Aarti Industries Limited,
Survey No. 1430/1,
N.H.No.8-A, Bhachau.
Tal: Bhachau, Dist: kutch.

Annexure 7: Effluent Treatment Plant

Process Description for Proposed Effluent Treatment Scheme

Process

Total effluent generation from process will be 447 KLD.

Process Effluent is segregated in 2 streams.

1. 328 KLD effluent treated in MEE/ATFD and condensate water will be recycled in cooling towers
2. 119 KLD effluent treated in ETP followed by RO & MEE/ATFD. RO permeate & MEE condensate recycled in cooling tower

Effluent from all stream will come in to collection tank which will act as a holding tank for the effluent. pH of the effluent will then be adjusted in pH correction tank. Post pH correction, the effluent will undergo flocculation in Alum/poly dosing tank, where alum and poly-electrolytes will be used as flocculants. After poly/alum dosing the effluent will be moved in the clarifier. Clarifier will settle all the suspended solids present in the effluent. After clarification in the clarifier, the effluent will undergo aeration in the aeration tank in order to decrease its BOD and COD content. After reduction in BOD and COD, the effluent will be allowed to settled in secondary clarifier. Sludge containing moisture generated from Primary and secondary clarifier will be centrifuged to separate the liquid and solid content from the sludge. The solid sludge will be sent for landfilling and the left over liquid sludge i.e. effluent. will be sent back to primary clarifier. Post-secondary clarification, the effluent will be passed through PSF and ACF as a part of tertiary treatment to again reduce the suspended solids. The effluent will then be passed through RO treatment in RO 5(KLD). Permeate from RO will be recycled in cooling tower and reject will be sent to MEE and ATFD system. Effluent will be concentrated in MEE and ATFD, the salt from the process will be landfilled and the effluent (i.e. MEE condensate) will be recycled in cooling tower.

Effluent from scrubber @6 KLD and washing @20 KLD will be treated in MEE/ATFD.

Utility

Effluent quantity generated from utilities @668 KLD will undergo 3 stage RO treatment (i.e. in RO2, RO 3 and RO 4). RO permeate will be recycled in the cooling tower. The RO reject will be treated in MEE and ATFD system. Effluent will be concentrated in MEE and ATFD, the salt from the process will be landfilled and the effluent (i.e. MEE/ATFD condensate) will be recycled in cooling tower.

Existing specification of ETP components are given in ***Table 9-7***.

Table 9-7: Unit Details of Existing ETP facility

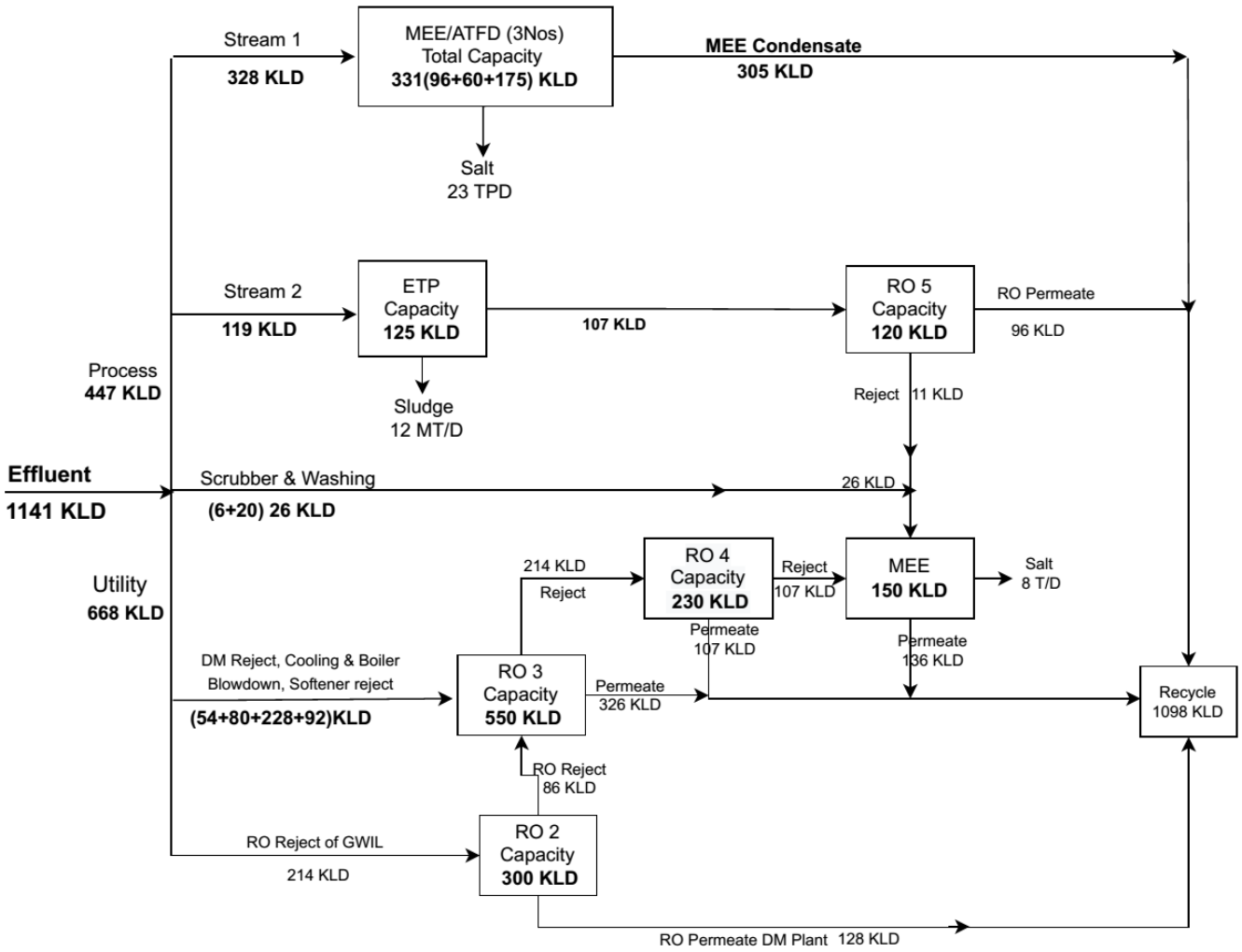
EXISTING			
S. No.	**Name of the Unit**	**Nos.**	**Capacity(In KL)**
1	Collection Tank-1	1	30
2	Collection Tank-2	1	30
3	Collection Tank-3	1	30
4	Neutralization-1	1	10
5	Neutralization-2	1	10
6	Settling Tank-1	1	3
7	Settling Tank-2	1	5
8	Lime Preparation Tank	1	4
9	Membrane Filter Press-1	1	800*800 MM
10	Membrane Filter Press-2	1	800*800 MM
11	Lamella Separator-1	1	2.5

EXISTING			
S. No.	**Name of the Unit**	**Nos.**	**Capacity(In KL)**
12	Lamella Separator-2	1	2.5
13	Holding/Receiving Tank	1	1
14	Sand Filter	1	0.98
15	Carbon tower	1	0.98
16	Treated Water Holding Tank-1	1	10
17	Treated Water Holding Tank-2	1	10
18	Sludge Drying Bed	1	NA
19	RO 2	1	300
20	MEE	1	96
21	MEE	1	60
22	ATFD	1	550 Litre/Hr

Table 9-8: Unit Details of Proposed ETP

S. No.	Name of the Unit	Nos.	Capacity	Unit
1	Equalization tank-1	1	64.7	m^3
2	Equalization tank-2	1	64.7	m^3
3	Flash Mixer	1	1.4	m^3
4	Flocculator	1	2.5	m^3
5	Primary Clarifier	1	25.6	m^3
6	Aeration Tank I (Single stage)	1	1089	m^3
7	Secondary Clarifier	1	32.2	m^3
8	Aeration Tank I (Single stage)	1	650.3	m^3
9	Final Clarifier	1	32.2	m^3
10	Pressure sand filter	1	5	m^3/hr
11	Activated carbon filter	1	5	m^3/hr
12	RO 3	1	550.00	KLD
13	RO 4	1	230.00	KLD
14	RO 5	1	120.00	KLD
15	MEE/ATFD (Process)	1	175.00	KLD
16	MEE/ATFD (Utility)	1	150.00	KLD

Figure 9-7: Flow Diagram- proposed effluent treatment scheme



Annexure 8: Fuel Consumption with Stack Details

Table 9-9: Fuel Consumption & Flue Gas Stack Details

S. No.	Stack Attached to	Capacity	No. of working hrs	Type of Fuel used	Fuel consumption	Stack No.	Stack Height in m	Stack Diameter in m	APCM Details	Remarks
Existing										
1	Boiler	12 TPH-Standby	-	Coal	43.2 MT/Day	1	30	1.5	ESP + Dry Scrubber	Standby
2	Boiler	15 TPH-Standby	-	Coal	100 MT/day	1	30	1.5	Bag Filter + Dry Scrubber	Standby
3	Thermic Fluid Heater	20 Lac Kcal/Hr	24	Coal	14.4 MT/Day	1	30	1.2	Multi Cyclone with Dust Collector + Dry Scrubber	Working
4	Thermic Fluid Heater	20 Lac Kcal/Hr	24	Coal	14.4 MT/Day	1	30	1	Bag Filter + Dry Scrubber	Working
5	Hot Air Generator	-	24	Coal	48 MT/Day	1	10	1	Alkali Scrubber	Working
6	Boiler	36 TPH	24	Coal	220 MT/Day	1	30	1.2	ESP + Dry Scrubber	Working
7	DG Sets	1000 kVA x 2 nos.	Standby, use during power failure	Diesel	650 litres/hr	1	15	0.1524	Adequate stack height	used when power from grid is not available
Proposed										
1	Boiler	12 TPH	24	Coal/ Coal + Biomass	75 MT/Day	1	30	1.5	ESP + Dry Scrubber	Existing standby converted to running
2	Boiler	15 TPH	24	Coal/ Coal + Biomass	100 T/Day	1	30	1.5	ESP + Dry Scrubber	Existing standby

S. No.	Stack Attached to	Capacity	No. of working hrs	Type of Fuel used	Fuel consumption	Stack No.	Stack Height in m	Stack Diameter in m	APCM Details	Remarks
										converted to running
3	Boiler	36 TPH	24	Coal/ Coal + Biomass	220 MT/Day	1	30	1.2	ESP + Dry Scrubber	Additional + Working
4	Thermic Fluid Heater	30 Lac Kcal/Hr	24	Coal/ Coal + Biomass	26 MT/Day	1	30	1.2	Bag Filter + Dry Scrubber	Existing replaced by higher capacity
5	Thermic Fluid Heater	40 Lac Kcal/Hr	24	Coal/ Coal + Biomass	36 MT/Day	1	30	1.4	ESP + Dry Scrubber	Additional + Working
6	Thermic Fluid Heater	20 Lac Kcal/Hr	24	LSHS	6.25 MT/day	1	30	0.55	Stack with adequate height	Additional + Working
7	Thermic Fluid Heater	0.5 Lac KCal/Hr	24	Diesel	0.15 MT/day	1	15	0.15	Stack with adequate height	Additional + Working
8	DG sets	2000 KVA x 2 nos.	Standby, use during power failure	Diesel	1300 litres/hr	1	11	0.1524	Stack with adequate height	Additional Used when power from grid is not available
9	Thermal Oxidizer / Waste heat boiler for off gases	90 lakh kcal/hr / 12.66 TPH	24	Off-gases (Process Gases)	62 MT/Day	1	30	1.2	Selective Catalytic Reduction (SCR)	Additional + Working
Total after Proposed expansion										
1	Boiler	12 TPH	24	Coal/ Coal + Biomass	75 MT/Day	1	30	1.5	ESP + Dry Scrubber	Existing + Working
2	Boiler	15 TPH	24	Coal/ Coal + Biomass	100 T/Day	1	30	1.5	ESP + Dry Scrubber	Existing + Working
3	Boiler	36 TPH	24	Coal/ Coal + Biomass	220 MT/Day	1	30	1.2	ESP + Dry Scrubber	Exiting + Working
4	Boiler	36 TPH	24	Coal/ Coal + Biomass	220 MT/Day	1	30	1.2	ESP + Dry Scrubber	Additional + Working

S. No.	Stack Attached to	Capacity	No. of working hrs	Type of Fuel used	Fuel consumption	Stack No.	Stack Height in m	Stack Diameter in m	APCM Details	Remarks
5	Thermic Fluid Heater	20 Lac Kcal/Hr	24	Coal/ Coal + Biomass	14.4 MT/Day	1	30	1.2	Multi Cyclone with Dust Collector + Dry Scrubber	Existing + Working
6	Thermic Fluid Heater	30 Lac Kcal/Hr	24	Coal/ Coal + Biomass	26 MT/Day	1	30	1.2	Bag Filter + Dry Scrubber	Existing replaced by higher capacity
7	Thermic Fluid Heater	40 Lac Kcal/Hr	24	Coal/ Coal + Biomass	36 MT/Day	1	30	1.4	ESP + Dry Scrubber	Additional + Working
8	Thermic Fluid Heater	20 Lac Kcal/Hr	24	LSHS	6.25 MT/day	1	30	0.55	Adequate stack height	Additional + Working
9	Thermic Fluid Heater	0.5 Lac Kcal/Hr	24	Diesel	0.15 MT/day	1	30	0.15	Adequate stack height	Additional + Working
10	Hot Air Generator	-	24	Coal/ Coal + Biomass	48 MT/Day	1	30	1	Alkali Scrubber	Existing + Working
11	DG Set	1000 KVA x 2 nos.	Standby, use during power failure	Diesel	650 lit/hr	1	11	0.1524	Adequate stack height	Existing + Working
12	DG set	2000 KVA x 2 nos.		Diesel	1300 lit/hr	1	11	0.1524	Adequate stack height	Additional + Working
13	Thermal Oxidizer / Waste heat boiler for off gases	90 lakh kcal/hr / 12.66 TPH	24	Off-gases	62 MT/day	1	30	1.2	Selective Catalytic Reduction (SCR)	Additional + Working

Table 9-10: Process Vent Details

S. No.	Stack Attached to	Nos. of Stacks	Stack Height in m	Pollutants Emitted	Air Pollution Control Measures Attached	Location
Existing						

S. No.	Stack Attached to	Nos. of Stacks	Stack Height in m	Pollutants Emitted	Air Pollution Control Measures Attached	Location
1	Incinerator	1	30	PM, SO_2, NOx	Scrubber	Removed
2	HCl Stack	1	30	HCl	Two Stage water & Alkali Scrubber	Chlorination Plant
3	Nitrator	1	30	NOx	Two Stage water & Alkali Scrubber	Nitration Plant
4	Mixing Tank of $CaCl_2$	1	25	PM, HCl	Alkali Scrubber	$CaCl_2$ plant
5	$CaCl_2$ Dryer Vents	1	20	PM	Two Stage Wet Scrubber (Venturi Scrubber)	$CaCl_2$ plant
Proposed						
1	$CaCl_2$ manual handling plant mixing tank	1	15	HCl	Alkali scrubber	$CaCl_2$ manual handling plant mixing tank
2	Chlorine Shed	1	15	Cl_2	Chlorine shed scrubber (Alkali Scrubber)	Chlorine Shed
3	HCL Tank farm - (Additional precautionary)	1	11	HCl	Two stage (water + caustic) scrubber	HCl Tank farm
4	2,4 Dichloro- 3,5 Dinitro Benzo Tri Fluoride (DCDNBTF) scrubber	1	11	NOx	two stage H_2SO_4 scrubber followed by Caustic scrubber	Nitro toluene mixture
Total after Proposed expansion						
1	Alkali scrubber of Chlorination plant (HCl stack)	1	30	HCl	Two stage water & alkali scrubber	Chlorination Plant
2	H_2SO_4 scrubber followed by Caustic Scrubber of Nitration plant (Nitrator, Nitration plant Loading area)	1	30	NOx	two stage H_2SO_4 scrubber followed by Caustic scrubber	Nitration Plant
3	Alkali scrubber of $CaCL_2$ plant	1	25	PM	Alkali Scrubber	$CaCl_2$ plant
4	$CaCl_2$ Dryer vents	1	20	PM	Two stage wet Scrubber (Venturi Scrubber)	$CaCl_2$ plant
5	$CaCl_2$ manual handling plant mixing tank	1	11	HCl	Alkali scrubber	$CaCl_2$ manual handling plant mixing tank
6	Chlorine Shed	1	11	Cl_2	Chlorine shed scrubber (Alkali Scrubber)	Chlorine Shed
7	HCL Tank farm - (Additional precautionary)	1	11	HCl	Two stage (water + caustic) scrubber	HCl Tank farm
8	2,4 Dichloro- 3,5 Dinitro Benzo Tri Fluoride (DCDNBTF) scrubber	1	11	HCl, Cl_2	Two stage water followed by caustic scrubber	DCDNBTF

Annexure 9: Hazardous Waste Generation

Table 9-11: Hazardous Waste Generation Details

Sr. No.	Type of waste	Source of generation (Plant/Group)	Category	Existing Quantity (MT/year)	Proposed Quantity (MT/year)	Total After Proposed (MT/Year)	Disposal at
1.	ETP Sludge	ETP	35.3	5400	9132	14532	Collection, Storage, Transportation and Disposal at Common TSDF site.
2.	MEE/ATFD Salt	MEE/ATFD		0			Collection, Storage, Transportation and Disposal at Common TSDF site.
3.	Discarded Containers, Barrels, Drums	Packaging Material	33.1	150	160	310	Collection, Storage, Transportation and Disposal at Common TSDF site or Selling to Re-processors.
4.	Used Oil/Spent Oil	Process	5.1	0.5	24.5	25	Collection, storage, Transportation & and Disposal by Selling to MoEF registered recyclers/re-processors.
5.	Incinerator Ash*	Incinerator	26.1	90	-90	NIL	Collection, Storage, Transportation and Disposal at Common TSDF site.
6.	Sludge from Calcium Chloride Plant	Process	26.1	5400	7765	13165	Collection, Storage, Transportation and Disposal at TSDF site
7.	Process waste (organic layer from after HCL purification, from flash vessel, Storage tank contaminated residue during tank cleaning)	Process	26.1	0	200	200	Collection, Storage, Transportation and Disposal at Common Incinerator facility or pre/co-processing
8.	Spent Carbon	ETP/Process	36.2	0	200	200	Collection, Storage, Transportation and Disposal at Common Incinerator facility/TSDF/Re processor
9.	Spent Resin & Used RO Membrane	Process & RO Plant	35.2	0	20	20	Collection, Storage, Transportation and Disposal at Common Incinerator facility/TSDF/Re processor

Sr. No.	Type of waste	Source of generation (Plant/Group)	Category	Existing Quantity (MT/year)	Proposed Quantity (MT/year)	Total After Proposed (MT/Year)	Disposal at
10.	HCl	Chloro Products of Benzene, Toluene	B15 of Schedule II	127000	-10040	116960	Collection, Storage, Transportation & reuse in manufacturing of $CaCl_2$ in-house 'OR' Will be sold to market as per Rule 9 of Hazardous and Other wastes (Management & Transboundary Movement) Rules 2016
11.	Spent Sulphuric Acid	Mononitration Derivatives, Dinitro Derivatives Mix Nitro Derivatives	B15 of Schedule II	60000	+187000	247000	Will be sold to market as per Rule 9 of Hazardous and Other wastes (Management & Transboundary Movement) Rules 2016
12.	Off-specification products	Process	26.1	0	20	20	Collection, Storage, Transportation and Disposal at Common Incinerator or pre/co-processing
13.	Non-recyclable plastic waste & PPE's	Process	33.1	0	28	28	Collection, Storage, Transportation and Disposal at Common TSDF site.
14.	Spent Catalyst	Process	26.5	0	12	12	Collection, storage, Transportation & and Disposal by Selling to MoEF registered recyclers/re-processors
15.	Ceramic saddles	Plant	--	0	3	3	Collection, Storage, Transportation and Disposal at Common TSDF site.
16.	Residue	Process	26.1	0	9512	9512	Collection, Storage, Transportation and Disposal at Common Incinerator or pre/co-processing
17.	Sodium Hypochlorite (NaOCl)	Process & Chlorine Scrubber	B15 of Schedule II	0	27356	27356	Will be sold to market as per Rule 9 of Hazardous and Other wastes (Management & Transboundary Movement) Rules 2016

Note: * The request letter for amendment in CTO has been submitted to GPCB on 13/02/2020 & 09/10/2020 for justification. We have installed advanced technology ATFD as an alternative treatment for MEE concentrate. As of today our incinerator plant is idle and the ATFD plant is in under the operation. In future, we will dismantle the Incinerator facility.

Table 9-12: Other Solid Wastes

S. No.	Name of Waste	Source of generation (Plant/Group)	Existing Quantity (MT/year)	Proposed Quantity (MT/year)	Total After Proposed (MT/Year)	Disposal Mode
1	Insulation waste	Plant and machinery	0	50	50	Collection, Storage, Transportation and Disposal at TSDF
2	Battery waste/Lead- Acid Batteries	Plant and machinery	0	20 Nos	20 Nos	Collection, storage, Transportation & and Disposal by Selling to MoEF registered recyclers/re-processors
3	E- waste/Electrical waste	Plant and machinery	0	2	2	Collection, storage, Transportation & and Disposal by Selling to MoEF registered recyclers/re-processors
4	Fly ash	Use of coal	9125	17863	26988	Sold to Brick Manufacturers, Construction activities and other end users.
5	Office Waste	Admin/ Office	0	20	20	Collection, Storage, Transportation Registered recyclers
6	Glass	Plant/lab/ Buildings	0	15	15	Collection, Storage, Transportation , disposal/sold to scrap processors
7	STP Waste (Sludge)	STP	0	60	60	Collection, Storage, Transportation disposal as manure.
8	Bio-medical waste	Occupational health centre	0	2	2	Collection, Storage, Transportation , Disposal to CBWTF-Incineration

Figure 9-8: Hazardous Waste Disposal Membership

DETOX INDIA
operated by VEOLIA

Date:21.10.2020

TO WHOMSOEVER CONCERNED

CERTIFICATE

This is to inform **M/s. Aarti Industries Ltd. (Anushakti Division)** situated at **Plot No. 1430/1, N.H. No. - 8A Bhachau - 370140, Tal: Bhachau Dist: Kutch.** is an active member of Integrated Common Hazardous Waste Management Facility (ICHWMF) operated by M/s. Detox India Pvt. Ltd. vide Membership No.**1200001326**. Details of Waste type along With Quantity Proposed by the member unit are mentioned below:

Sr. No.	Type of Waste	Quantity (MT/Annum)
1	Landfilling Waste	25,200

M/s. Detox India Pvt. Ltd. shows its readiness to accept the above waste proposed by **M/s. Aarti Industries Ltd. (Anushakti Division)** after they complete the necessary membership formalities and conduct Comprehensive analysis of their waste to confirm disposal pathway for its safe disposal at our site.

For,Detox India Pvt. Ltd.

(Authorized Signatory)

Detox India Private Limited
(Formerly : Ankleshwar Cleaner Process Technology Centre Pvt. Ltd.)
R.S.No. : 418, Vill. : Juna Kataria, B/h. Gail Pump Station, Samakhiali-Radhanpur Highway, Tal. : Bhachau, Dist. : Kutch-370 150 (Guj.) INDIA
Corporate Office : Detox House, Opp. Gujarat Samachar Press, Udhna Darwaja, Ring Road, Surat-395 002 (Guj.) INDIA
Ph. : +91 261 2351248, 2346181, E-mail : info@detoxindia.com | CIN : U90000GJ2010PTC060122

Saurashtra Enviro Projects Private Limited - Kutch

DETOX GROUP

Date:21.10.2020

TO WHOMSOEVER CONCERNED

CERTIFICATE

This is to inform **M/s. Aarti Industries Ltd. (Anushakti Division)** situated at **Plot No. 1430/1, N.H. No. - 8A Bhachau - 370140, Tal: Bhachau Dist: Kutch.** is an active member of Integrated Common Incineration Facility operated by M/s. Saurashtra Enviro Projects Pvt. Ltd. vide Membership No.**1200001326**. Details of Waste type along With Quantity Proposed by the member unit are mentioned below:

Sr. No.	Type of Waste	Quantity (MT/Annum)
1	Incineration waste	250

M/s. Saurashtra Enviro Projects Pvt. Ltd. shows its readiness to accept the above waste proposed by **M/s. Aarti Industries Ltd. (Anushakti Division)** after they complete the necessary membership formalities and conduct Comprehensive analysis of their waste to confirm disposal pathway for its safe disposal at our site.

For,Saurashtra Enviro Projects Pvt. Ltd.

(Authorized Signatory)

R.S.No. : 417, Vill. : Juna Kataria, B/h. Gail Pump Station, Samakhiali-Radhanpur Highway, Tal. : Bhachau, Dist. : Kutch-370 150 (GUJARAT).
Regd Office: 3rd Floor, K.G. Chambers, Opp. Gujarat Samachar Press, Udhna Darwaja, Ring Road, Surat - 395002. (GUJARAT)
Phone. No.- +91 261 2351248, 2346181, E-mail: info@detoxgroup.in | Website: www.detoxgroup.in | CIN: U51100GJ2006PTC047689

BEIL INFRASTRUCTURE LIMITED
(formerly known as Bharuch Enviro Infrastructure Limited)

Ref. BEIL/ANK/2021

24TH MARCH, 2021

To,
AARTI INDUSTRIES LTD. (ANUSHAKTI DIVISION)
PLOT NO.1430/1,
N.H.NO.8A,
BHACHAU, DIST-KUTCH-370140.

Sub: Membership Certificate for Common Solid Waste Disposal Facility.

Dear Sir,

We hereby certify that you have become member for **5 years up to 23/03/2026** for the common Solid/Hazardous waste disposal facility of BEIL Infrastructure Limited. (Formerly Known as Bharuch Enviro Infrastructure Limited.)., at GIDC, Dahej. You have booked solid waste quantity of **10890 MT/Years.** Your Membership No. is **Oth/824.**

Waste will be accepted after submitting valid authorization of GPCB.

Thanking you,

Yours faithfully,
For BEIL Infrastructure Limited.
(Formerly Known as Bharuch Enviro Infrastructure Limited.)

AUTHORISED SIGNATORY

CIN NO. U45300GJ1997PLC032696
Regd. Office : Plot No. 9701-16, GIDC Estate, Post Box No. 82, Ankleshwar 393 002, Dist. : Bharuch (Gujarat)
Phones (02646) 253138, 225228 Fax : (02642) 222849 E-mail : daheadbd@beil.co.in

DETOX INDIA
operated by VEOLIA

"Certificate"

Certificate No.:100926

To Whomsoever it may concern

This is to certify that

AARTI INDUSTRIES LTD. (ANUSHAKTI DIV)

SURVEY NO. 1430/1,
N.H. NO.8 A, TAL: BHACHAU,
KUTCH

is a valid member of

SAFE ENVIRO PRIVATE LIMITED

SEPL - Magnad

for

Integrated Common Hazardous Waste Management Facility

This membership is valid for a period of

05 Years

Date of Issue :07-09-2021
Date of Expiration : 07-09-2026
Place of Issue : Surat

For, Safe Enviro Private Limited

Director

SUBJECT TO SURAT JURISDICTION

Safe Enviro Private Limited
Corporate Office : Detox House, Opp. Gujarat Samachar Press, Udhna Darwaja, Ring Road, Surat-395 002 (Guj.) INDIA
Ph. : +91 261 2351248, 2346181, E-mail : sepl.magnad@gmail.com | CIN : U51101GJ2015PTC083237

Annexure 10: Long Term Climatological Table, New Kandla IMD Station

जलवायवी सारणी
CLIMATOLOGICAL TABLE

BACK

स्टेशन : नया कांडला STATION : New Kandla — अक्षांश LAT. 23° 00' — देशांतर LONG. 70° 13' — समुद्री तल माध्य से ऊंचाई HEIGHT ABOVE M.S.L. 14 मीटर METRES — प्रेक्षणों पर आधारित BASED ON OBSERVATIONS 1981-2010

माह / MONTH		स्टेशन का सतह दाब / STATION LEVEL PRESSURE एच.पी.ए. hPa	वायु तापमान / AIR TEMPERATURE — माध्य / MEAN: शुष्क बल्ब DRY BULB डि. से °C	नम बल्ब WET BULB डि. से °C	दैनिक अधिक तम DAILY MAX डि. से °C	दैनिक न्यून तम DAILY MIN डि. से °C	माह में उच्चतम HIGHEST IN THE MONTH डि. से °C	माह में निम्नतम LOWEST IN THE MONTH डि. से °C	चरम / EXTREMES: उच्चतम HIGHEST डि. से °C	दिनांक और वर्ष DATE AND YEAR	निम्नतम LOWEST डि. से °C	दिनांक और वर्ष DATE AND YEAR	आर्द्रता / HUMIDITY: सापेक्ष आर्द्रता RELATIVE HUMIDITY प्रतिशत %	वाष्प दाब VAPOUR PRESSURE एच.पी.ए. hPa	मेघ की मात्रा / CLOUD AMOUNTS: समस्त मेघ ALL CLOUDS आकाश के अष्टमाश Oktas of sky	निम्न मेघ LOW CLOUDS	मासिक योग MONTHLY TOTAL मि.मि. mm	वर्षा के दिनोंकी संख्या NO. OF RAINY DAYS	वर्षा / RAINFALL: वर्षसहित सबसे नम महीने का योग TOTAL IN WETTEST MONTH WITH YEAR मि.मि. mm	वर्षसहित सबसे शुष्कतम महीने का योग TOTAL IN DRIEST MONTH WITH YEAR मि.मि. mm	24 घंटोंकी सबसे भारी वर्षा HEAVIEST FALL IN 24 HOURS मि.मि. mm	दिनांक और वर्ष DATE AND YEAR	माध्य पवन गति MEAN WIND SPEED कि.मी. प्र. घं. Kmph
जनवरी JAN	I	1015.6	15.7	12.1	26.1	14.5	30.2	11.2	35.2	28 1991	4.4	10 1954	62	11.4	1	0.1	0.2	0	21.2 1965	0	12	2 1965	8.7
	II	1012.7	24.9	16.8									40	12.7	0.8	0.1							
फरवरी FEB	I	1014.1	17.9	14.1	28.6	16.7	33.4	13.1	38.8	28 1953	7.7	10 1957	63	13.4	0.9	0.2	0	0.1	32.5 1999	0	24	15 1999	9
	II	1011	27.4	18									36	13.2	0.8	0.1							
मार्च MAR	I	1011.4	22.4	18.6	32.4	20.7	37.8	17	42.7	18 2004	12.8	1 1972	68	18.7	1.1	0.3	0.8	0.1	64.6 1967	0	31	24 1967	10.5
	II	1008.1	31.1	21.3									40	17.8	1	0.2							
अप्रैल APR	I	1008.5	25.9	22.4	34.7	23.9	39.3	20.7	42.9	19 2009	14.4	16 1955	73	24.5	1	0.5	0.1	0	7 1983	0	7	15 1983	14.2
	II	1005.1	33.1	24.6									48	24.3	0.8	0.2							
मई MAY	I	1005.2	28.8	25.6	35.5	26.7	40.1	24	45.9	4 2002	19.8	2 1979	76	30.2	1.4	1.2	3.1	0.2	26.4 1982	0	22.4	20 1999	18.8
	II	1001.9	34.1	26.8									56	29.6	0.5	0.2							
जून JUN	I	1001.3	29.9	26.9	35.2	28.1	38.8	25.4	47.1	18 1979	22	1 1997	78	33.1	3.1	2.4	64.7	1.9	368.1 2008	0	235.5	14 2008	19
	II	998.3	33.9	27.8									61	32.3	1.9	1.2							
जुलाई JUL	I	1000.1	28.6	26.2	32.9	27.3	36	24.5	38.3	3 2003	21.2	26 1992	82	32.2	5.2	4	175.7	6.5	554 1967	0	224	11 1981	18.8
	II	997.9	31.6	26.9									68	31.8	4.3	2.9							
अगस्त AUG	I	1002.2	27.5	25.4	31.8	26.3	34.4	24.2	37.8	6 1995	20.8	29 1998	83	30.8	5.4	3.8	99.1	5.4	535.9 1979	0	185.9	4 1956	17.3
	II	999.9	30.8	26.4									69	30.8	4.5	2.9							
सितम्बर SEP	I	1006.5	27.4	24.8	33.3	25.9	36.9	24.1	41.3	30 2001	20.3	8 1966	80	29.3	2.8	1.7	44.9	2.1	287.6 1997	0	101.9	13 1997	13.7
	II	1003.4	32.1	26									60	28.9	2.3	1.4							
अक्तूबर OCT	I	1010.5	26.3	22.5	34.9	24.6	38.3	21.5	41.4	9 2002	15	28 1954	70	24.4	0.9	0.4	14	0.6	216 1975	0	146.2	23 1975	8.6
	II	1007.1	33.3	24.3									46	23.3	1	0.5							
नवम्बर NOV	I	1013.8	22.1	17.9	31.9	20.4	35.6	16.3	38.6	7 2007	10.6	30 1996	64	17.3	0.8	0.3	3.3	0.4	204.2 1979	0	87.6	18 1979	7.4
	II	1010.6	30	20.8									41	17.3	0.8	0.2							
दिसम्बर DEC	I	1015.7	17.3	13.6	27.6	16	31.4	12.1	35.6	17 2002	7.2	27 1989	62	12.7	0.9	0.2	1.4	0.1	161.2 1967	0	160	16 1967	8.4
	II	1012.6	26.1	18									42	14.4	0.9	0.2							
वार्षिक योग या माध्य ANNUAL TOTAL OR MEAN	I	1008.6	24.2	20.9	32.1	22.6	41.4	10.8	47.1	18	4.4	10	72	23.2	2	1.2	407.4	17.3	1018.8	15.5	235.5	14	12.9
	II	1005.6	30.7	23.2					6	1979	1	1954	51	23.1	1.6	0.8			1994	1987	6	2008	
वर्षोंकी सं NUMBER OF YEARS	I																						
	II	25	25	25	28	28	28	28	57		57		25	25	25	25	29	29	55	55	59		27

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जलवायवी सारणी
CLIMATOLOGICAL TABLE

स्टेशन : नया कांडला
STAION : New Kandla

	मौसम परिघटना						पवन											मेघ										दृश्यता				
	के साथ दिनों की संख्या						पवन की गति के साथ दिनों की संख्या (कि. मी. प्र. घं.)				पवन की दिशा के दिनों की संख्या का प्रतिशत										मेघ मात्रा (सभी मेघ) सहित दिनों की संख्या - अष्टमांश					निम्न स्तरी मेघ मात्रा सहित दिनों की संख्या - अष्टमांश						दृश्यता सहित दिनों की संख्या				
माह	वर्षण 0.3 मि.मि.या अधिक	ओले	गर्जन	कुहरा	धूल भरी आंधी	चंड वात	62 या अधिक	20-61	1-19	0	उ	उपू	पू	दपू	द	दप	प	उप	शांत	0	ले-2	3-5	6-7	8	0	ले-2	3-5	6-7	8	कुहरा	1 कि.मी. तक	1-4 कि.मी.	4-10 कि.मी.	10-20 कि.मी.	20 कि.मी. से अधिक
	WEATHER PHENOMENA						WIND													CLOUD										VISIBILITY				
	No. OF DAYS WITH						No. OF DAYS WITH WIND SPEED (Km. p. h.)				PERCENTAGE No. OF DAYS WIND FROM									No. OF DAYS WITH CLOUD AMOUNT (ALL CLOUDS) OKTAS					No. OF DAYS WITH LOW CLOUD AMOUNT OKTAS						No. OF DAYS WITH VISIBILITY				
MONTH	PPT 0.3 mm Or more	HAIL	THUNDER	FOG	DUST STORM	SQUALL	62 Or more	20-61	1-19	0	N	NE	E	SE	S	SW	W	NW	CALM	0	T-2	3-5	6-7	8	0	T-2	3-5	6-7	8	FOG 8	UP TO 1 Km.	1-4 Kms.	4-10 Kms.	10-20 Kms.	OVER 20 Kms.
जनवरी I	0.1	0	0	0	0	0	0	0	27	4	39	11	1	1	1	2	5	26	14	22	4	3	2	0	29	1	1	0	0	0	0.2	0.8	4.3	24	1.8
JAN II							0	4	24	3	37	16	4	2	9	10	2	10	10	22	5	3	1	0	30	1	0	0	0	0	0	0.1	1	23.4	6.5
फरवरी I	0.1	0	0	0	0	0	0	0	23	5	30	9	1	1	2	7	9	25	16	20	4	3	1	0	25	2	1	0	0	0	0.2	0.5	3.8	21.8	1.8
FEB II							0	5	21	2	23	12	2	3	17	23	6	5	9	21	4	2	1	0	26	2	0	0	0	0	0.1	0	1.2	20	6.8
मार्च I	0.2	0	0	0	0	0	0	0	26	5	17	4	1	1	4	17	20	19	17	21	5	4	1	0	27	3	1	0	0	0	0.2	0	2	26.4	2.4
MAR II							0	10	20	1	10	4	1	2	21	45	9	4	4	22	5	3	1	0	27	3	1	0	0	0	0	0	1.6	22.5	6.8
अप्रैल I	0.1	0	0.1	0	0	0	0	3	25	2	7	2	0	0	5	36	32	10	8	19	6	4	1	0	23	5	2	0	0	0	0	0	1.4	26.6	2
APR II							0	20	9	1	2	1	0	0	22	55	17	1	2	21	5	3	1	0	26	3	1	0	0	0	0	0.1	1.4	23.5	5
मई I	0.3	0	0.2	0	0	0	0	11	19	1	2	0	0	0	7	51	33	4	3	14	9	7	1	0	16	9	6	0	0	0	0	0.1	1.8	27.1	2
MAY II							0	26	5	0	0	0	0	0	16	63	20	1	0	25	4	1	1	0	27	3	1	0	0	0	0	0.1	3.1	25	2.8
जून I	2.9	0	0.2	0	0	0	0	9	20	1	1	0	1	2	8	46	36	4	2	6	8	9	5	2	6	11	10	2	1	0	0	0.2	2.6	24	3.2
JUN II							0	24	6	0	0	0	1	1	12	59	27	0	0	13	8	5	3	1	16	8	4	1	1	0	0	0.4	3.7	21	4.9
जुलाई I	10.3	0	0.4	0	0	0	0	9	21	1	1	0	1	1	5	46	39	4	3	2	3	9	11	6	2	6	15	5	3	0	0	1.3	6	22.4	1.3
JUL II							0	25	6	0	1	0	0	1	10	57	29	1	1	4	6	9	8	4	5	10	11	3	2	0	0	1	6.8	21.5	1.6
अगस्त I	10.2	0	0.2	0	0	0	0	5	24	2	1	0	0	1	5	42	40	4	7	1	3	9	13	5	2	8	13	5	3	0	0	0.5	7	22.1	1.3
AUG II							0	24	7	0	1	0	0	0	11	57	29	1	1	2	6	10	9	4	4	12	10	3	2	0	0	0.5	6.8	21.7	2
सितम्बर I	3.5	0	0.3	0	0	0	0	2	24	4	4	1	1	1	4	26	37	13	13	7	8	9	5	1	12	10	6	2	0	0	0	0	3.4	21.4	5.1
SEP II							0	17	12	1	3	1	1	1	17	53	20	2	2	9	11	6	3	1	12	13	4	1	0	0	0	0	3.7	20.3	6
अक्तूबर I	0.8	0	0.1	0	0	0	0	0	24	7	23	6	2	2	2	7	14	21	23	22	5	3	1	0	26	4	1	0	0	0	0	0.2	2	23.6	5.2
OCT II							0	5	23	3	15	7	4	4	18	30	8	4	10	20	7	3	1	0	24	6	1	0	0	0	0	0.1	1.9	21.4	7.7
नवम्बर I	0.5	0	0	0	0	0	0	0	25	5	37	15	2	1	1	1	3	21	19	24	3	2	1	0	28	1	1	0	0	0	0	0	1.3	26.1	2.5
NOV II							0	2	23	5	26	18	6	6	7	9	4	5	19	23	4	2	1	0	28	1	1	0	0	0	0	0	0.7	23.8	5.5
दिसम्बर I	0.1	0	0	0	0	0	0	1	25	5	45	14	2	0	0	0	2	21	16	22	5	3	1	0	29	1	1	0	0	0	0.1	0.5	2.7	25	2.7
DEC II							0	2	24	5	38	19	4	2	5	5	1	8	18	22	5	3	1	0	29	1	1	0	0	0	0	0	1.1	24	5.8
वार्षिक योग I																																			
या माध्य ANNUAL II	29.2	0	1.5	0	0	0	0	41	282	42	17	5	1	1	4	24	22	14	12	181	62	64	41	17	227	61	55	15	7	0	0.7	4.2	38.5	290.5	31.1
TOTAL OR MEAN							0	157	186	22	13	7	2	2	14	38	15	3	6	202	69	51	31	12	255	62	34	9	5	0	0.2	2.4	33	268.1	61.3
वर्षों की सं I																																			
NUMBER II OF YEARS	28						25				25									25					25						25				

Annexure 11: Land Document for additional land acquired for Greenbelt

Additional Land of 20,133 m² acquired for Proposed Greenbelt (in English & Gujarati)

G.P.Rjt.Sr.No.-11, Std-27,10-2021, 10,00,000 A4 Blue 1.
G.R.R.D.No.R.A.M.102006-1223-L,1, dated 3-8-2006

R.V.24 G (Correction)
1012664
Page 1 of 1

VILLAGE FORM NO. 7/12

No. V-2593190

Block / Survey No. : 1433/ P1
Authority Type : Old Tenure
Name of Farm : Sevkiyu
Other Details :

Village: Bhachau
Taluka : Bhachau
Dist. : Kuchchh

Land Possession	Area H. Area. M.	Ledger A/c No.	Area H.Area. Sq.Mt.	Shapes	Note No. and Name of Occupant
Jarayat	2-01-33				325,7291,9077,9078,9720,9721, 10068,13419
Total	2-01-33	3344	2-01-33	9.00	Aarti Industries Ltd.(13419)
Shapes Rs.	0.00				
Judy or Special Act	0.00				
Water	0.00				
Details of Tenants			Other right and other details		

Processed by
Sd/-
Deputy Mamlatdar
(E-Dhara)

As on 07/06/2020 01:04:
Received Fee for Certified copy Rs. 5/- (Rupees Five only) Print Dt. 07/03/2022 11:25:42
Copy from :Mamlatdar Office, Bhachau

NOTARY Radheshyam M. Ayachi Area : Dist. Kutch Regd. No. NTR/539/2002 GUJARAT STATE GOVT. OF GUJARAT

Translation Verified & Compared by me.
(R. M. AYACHI)
NOTARY
DIST. KUTCH (GUJARAT)
Sr. No. 3215
Date 10 MAR 2022
At : Gandhidham - Kutch

NOTARY Radheshyam M. Ayachi Dist.-Katch Regd. No. NTR/539/2002 GOVT. OF GUJARAT (INDIA)


NOTARIAL
Radheshyam M Ajachi
GUJARAT STATE
GOVT. OF GUJARAT
FIVE RUPEES

G. P. Rjt., Sr.No.-11 Std.-27 10-2021 10,00,000 A4 Blue I.
G.R., R.D., No. R.A.M. 102006-1223-L.1. dated : 3-8-2006.

આર. વી. ૨૪ જી. (સુધારેલ)

1,012,664,
1 of 1

૧૪૩૩/ પૈકી ૧ **ગામ નમુનો નંબર ૭ અને ૧૨** No. V 2593190

બ્લોક/સરવે નંબર : જુની શરત (જ.શ) પાનુમ્ચાઉ

સત્તાપ્રકાર : સેવકીયું મોજે : ભચાઉ

ખેતરનું નામ : તાલુકો : કચ્છ

અન્ય વિગતો : જિલ્લો :

લાયક જમીન જરાયત	ક્ષેત્રફળ હે.આરે.ચો.મી.	ખાતા નંબર	ક્ષેત્રફળ હે.આરે.ચો.મી.	આકાર	નોંધ નંબરો અને કબ્જેદારોના નામ
કુલ ક્ષેત્રફળ	૨-૦૧-૩૩	૩૩૪૪	૨-૦૧-૩૩	૯.૦૦	૩૨૫,૭૨૯૧,૯૦૭૭,૯૦૭૮,૯૭૨૦,૯૭૨૧,૧૦૦૬૮,૧૩૪૧૯, આરતી ઇન્ડસ્ટ્રીઝ લીમીટેડ(૧૩૪૧૯)
આકાર રૂ.	૯.૦૦				
જુડી તથા વિશેશધારો રૂ	0.00				
પાણીભાગ રૂ.	0.00				

ગણોતિયાની વિગતો

બીજા હકો અને બોજાની વિગતો

#-નામંજુર &-તકરારી *-૨૬

07/06/2020 01:04 am ની સ્થિતિએ

મામલતદાર કચેરી, ગુજરાત સરકાર

વેચાણની નકલ/ Chargable Copy અંકે રૂ. 5/- (રૂપીયા પાંચ પુરા) મળેલ છે, આભાર સહ. પ્રીંટ તા. 07/03/2022 11:25:42

સૌજન્ય : રાષ્ટ્રીય સૂચના-વિજ્ઞાન કેન્દ્ર, ગુજરાત રાજ્ય. નકલ આપનાર કચેરી : મામલતદાર કચેરી, ભચાઉ

Kadam

Environmental Consultants

www.kadamenviro.com

Environment *f*or Development

CONTACT DETAILS

Vadodara (Head Office)

871/B/3, GIDC Makarpura, Vadodara, India – 390 010.

E: kadamenviro@kadamenviro.com; T:+91-265-6131000

Delhi / NCR

Spaze IT Park, Unit No. 1124, 11th Floor, Tower B-3, Sector 49, Near Omaxe City Center Mall, Sohna Road, Gurgaon, India – 122 002

E: delhi@kadamenviro.com; T: 0124-424 2430-436