Minutes of the 461st meeting of the State Level Expert Appraisal Committee held on 28th July 2022 through Video Conference (VC) on National Informatics Centre (NIC).

In the wake of recent crisis of COVID-19, the agenda of the present meeting was mailed to expert Committee in advance and a Video conference meeting on NIC was organised in this regard on 28/07/2022 at 13.30 hrs.

The 461st meeting of the State Level Expert Appraisal Committee (SEAC) was held online by Video conferencing on 28th July 2022 at 13.30 hrs. Following members joined the meeting:

1.	Shri Akshay Kumar Saxena, Chairman, SEAC
2.	Dr. S. C. Pant, Vice Chairman, SEAC
3.	Shri J. K. Vyas, Member, SEAC
4.	Shri Anand Zinzala, Member, SEAC
5.	Shri B. M. Tailor, Member, SEAC

The Committee considered the applications made by project proponents, additional details submitted as required by the SEAC/SEIAA and details furnished in the Form-1, PFR, EMP reports etc. The applicants made presentations on the activities to be carried out along with other details furnished in the Form-1, PFR, EIA-EMP reports and other reports.

1.	SIA/GJ/IND/77740/2021	**M/s Wonder Cement** Survey No: 57, 58, 63, 74/1/P1, 74/1/P2, 75, 94, 95 Vill: Tulsigam, Tal: Desar & Dist: Vadodara	EC

Category of the unit: **3(b)**

Project status: **New**

1) Project proponent (PP) submitted online application vide SIA/GJ/IND/77740/2021 on dated 06/06/2022 for obtaining Environmental Clearance (EC).
2) This is a Greenfield project proposed for Clinker Grinding Unit with Cement production as mentioned below:

Particular	Unit	Phase - I	Phase - II	Total Production
Cement	Million TPA	2.0	2.0	4.0
D.G. Set	MW	6.5		6.5
Railway Siding	Part of the Proposal			

3) The project falls under B1 category of project activity 5(f) as per the schedule of EIA Notification 2006.
4) The proposal was considered in the SEAC video conference meeting dated 28.07.2022.
5) Project proponent (PP) and their Technical Expert M/s J.M. EnviroNet Pvt. Ltd, Haryana remain present during video conference meeting.
6) SEIAA issued TOR to PP vide letter dated: 05.03.2022.
7) Public hearing was conducted on dated: 19.05.2022 at Survey no.63/B/P, 94/1, 94/2, (i.e. Project site), Village-Tulsigam, Tehsil- Desar, District- Vadodara.
8) Project proponent has submitted EIA Report prepared by M/s. J.M. EnviroNet Pvt. Ltd, Haryana based on the TOR issued by SEIAA.
9) Committee deliberated on Product profile, Layout plan, Storage details, Process safety, Fire safety, water balance & waste water management, Flue gas and process gas emission & Air Pollution Control System, Hazardous waste matrix, EMP, CER, Green belt, etc.
10) The baseline environmental quality has been assessed for various components of the environment viz. air, noise, water, biological and socioeconomic aspect. The baseline environmental study has been conducted for the study area of 10 km radial distance from project site for the period October-2021 to December-2021. Ambient Air Quality monitoring was carried out PM10, PM2.5, SOx, NOx and CO at Eight locations, including the project site. Values conform to the prescribed standards for Ambient Air Quality. The incremental Ground Level Concentration (GLC) has been computed. Incremental GLC's for all parameters remain within 500 m from the project site. The resultant concentrations are within the NAAQS. The modelling study proved that the air emissions from the proposed plant would not affect the ambient air quality of the region in any significant manner. The ambient air quality around the proposed project site will remain within the National Ambient Air Quality Standards (NAAQS).
11) Risk assessment including prediction of the worst-case scenario and maximum credible accident scenarios has been carried out. The detailed proposed safeguard measures including On-Site / Off-Site Emergency Plan has been covered in the RA report.
12) Commitee noted that
13) PP presented salient features of the project including Water, Air and Hazardous waste management are submitted.
14) Commitee asked the following details upon which PP could not reply satisfactorily:
    - ✓ Detailed time bound plan of construction and operation of Phase-I & Phase-II.
    - ✓ Alternative site analysis and justification for selection of the present site based on the pros & cons of various alternatives with technical reasons along with site selection matrix.
    - ✓ Justification regarding selection of site though the mining area is located in Rajasthan.
    - ✓ Time bound action plan of points raised during public hearing of individual villages.

- ✓ Details of CER as per MOEF&CC OM dated: 01.05.2018 and 30.09.2020.
- ✓ Stauts of NA for all survey numbers (Total-14 Nos) of the project site.
- ✓ Justification of quantity of fuel proposed for 6.5 MW D G Set.
- ✓ Compliance of ToR No-40 Proposal to construct approach road from the main road to the company premises and to maintain it in good condition for reducing fugitive emission due to transportation of vehicles.
- ✓ Energy conservation plan mentioning details related to solar panels within premises.

15) **After detailed discussion, Committee unanimously decided to consider the project in one of upcoming meeting after submission of following documents,**

1. Detailed time bound plan of construction and operation of Phase-I & Phase-II.
2. Alternative site analysis and justification for selection of the present site based on the pros & cons of various alternatives with technical reasons along with site selection matrix.
3. Justification regarding selection of site as Clinker will be sourced from Wonder Cement Ltd.'s Captive Integrated Cement Plant located at Nimbahera (Rajasthan).
4. Time bound action plan of points raised during public hearing of individual villages.
5. Details of CER as per MOEF&CC OM dated: 01.05.2018 and 30.09.2020.
6. Stauts of NA for all survey numbers (Total-14 Nos) of the project site.
7. Justification of quantity of fuel proposed for 6.5 MW D G Set.
8. Compliance of ToR No-40 Proposal to construct approach road from the main road to the company premises and to maintain it in good condition for reducing fugitive emission due to transportation of vehicles.
9. Energy conservation plan mentioning details related to solar panels within premises.
10. SEAC prescribed format for B1 category project.

2.	SIA/GJ/IND2/265513/2022	**M/s ONGC** Onshore Exploration of Oil and Gas from 3 wells in Block CB-ONHP-2019/2 in Surat and Bharuch Districts	EC

Category of the unit: **1(b), B2**

Project status: **New**

1) Details of application:

1.1. Type of application:	Application for EC
1.2. Proposal no.	(Proposal No-SIA/GJ/IND2/278277/2022)
1.3. Category of Project :	**B2 Category**
1.4. Date of application : (Online accepted by	20.06.2022

SEAC)	
1.5. Documents Submitted by Project Proponent(PP)	Cover letter, Authorization Letter by Competent Authority, Prefeasibility Report. Risk Assessment Report.
1.6. TOR No. & Date :	N/A
1.7. Technical expert / Environmental Consultant :	In house executives are available.
1.8. SEAC Meeting No. and Date:	461ST Meeting dated 28.07.2022.
1.9. ADS vide letter dated :	N/A
1.10. Reply Submitted by PP dated:	N/A
1.11. Revised Consideration SEAC Meeting No. and Date:	N/A
1.12. Compliance of Existing EC & CCA	N/A

2) The proposed project is onshore Oil and Gas Exploration and Appraisal in the CB-ONHP-2019/2 in Surat and Bharuch Districts of Gujarat.

3) The block CB-ONHP-2019/2 located in Surat and Bharuch districts of Gujarat. It encloses an area of 152.98 Sq.Km and is bounded by the points having following coordinates provided in below Table. The proposed project is green field in nature. The proposed onshore oil and gas exploration & appraisal is expected to carry out Drilling of 3 exploratory (including appraisal) wells and the exploratory and appraisal wells will be drilled to explore the reservoirs up to a depth of 3000 m approx.

Apex Co-ordinates of Block CB-ONHP-2019/2 boundary (as per RSC)

BLOCK-CB-ONHP-2019/2		
APEX POINTS	**LONGITUDE**	**LATTITUDE**
1	72046’	21035’
2	72049’	21035’
3	72049’	21031’
4	72050’	21031’
5	72050’	21030’
6	72056’	21030’
7	72056’	21029’
8	72055’	21029’
9	72055’	21028’
10	72054’	21028’
11	72054	21027’
12	72053	21027’
13	72053	21025’
14	72049’	21025’
15	72049’	21028’
16	72046’	21028’

4) The proposed well locations with Village and Taluka/Tehsil as follows:

Proposed Well Locations

S. No	Well / Well pad ID	Latitude	Longitude	Vill. Name	Taluka/ Tehsil	District	Present Land use	Road Infrastructure	Forest/ Wildlife Sanctuary/ National Park	Nearest River/ Water bodies	Major human establishments *etc.*	Industries *etc.*
1	NL-1	21°25'55.1253" N	72°52'27.1310" E			Bharuch	Final location is yet to be decided based on survey report.					
2	NL-2	21°28'41.3662" N	72°48'12.1592" E			Bharuch						
3	NL-3	21°27'49.7240" N	72°50'44.6281" E			Bharuch						

5) The project falls under Category B2 of project activity 1(b) as per the schedule of EIA Notification 2006 and amendment dated 16.01.2020.
6) The proposal was considered in the meeting dated 28.07.2022.
7) During the meeting dated 28.07.2022, the project was appraised based on the information furnished in Form – 1, Pre-Feasibility Report, Environment Management Plan, details submitted by e-mail and presentation made before committee. Project proponent. (PP) remain present during video conference meeting and made presentation before committee.
8) Committee found presentation and submission of project proponent satisfactory.
9) Since, the unit falls in B2 category as per the MoEF&CC's amended EIA Notification vide S.O. 236 (E) dated 16.01.2020, the public consultation is not applicable as per paragraph 7(i) III (i) (e) of the Environment Impact Assessment Notification-2006.
10) Committee asked to submit the CER details as per MOEF&CC OM dated: 01.05.2018. PP later on submitted CER details as per MOEF&CC OM dated: 01.05.2018 i.e 2 % of Project cost.
11) PP submitted salient features of the project including Water, Air and Hazardous waste management are as under.

Sr. no.	Particulars	Details
A	Total **cost of Proposed** Project (Rs. in Crores):	

Total Project Cost
30.75

Break-up of proposed project Cost:

Details	**Project Cost (Rs. In Crores)**
Land	1.50
Building	

	Machinery	28.49
	Env. & Safety	0.76
	Miscellaneous	0.0
	Total	**30.75**

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B	**Land / Plot ownership details:** (Linking between Land ownership and PP is required.)
B-1	**In case of outside GIDC only -**

Siting Criteria

Sr. no.	Environmental Sensitivity	Name/Specific details	Aerial Distance in Km
1	Habitat (Residential Area)	The proposed location is away from Residential Area.	3.0
2	Eco sensitive zones	The proposed location is not falling under Eco sensitive zones.	N/A
3	Wild life sanctuaries/National Parks	The proposed location is not falling under Wild life Sanctuaries/National Parks	N/A
4	Water Bodies	The proposed location is away from the watercourses.	9.0
	River	There is no river in nearby area to proposed locations.	N/A
	Natural Nallah/Drain	There is no Nallah/Drain/ Lake/Pond/Wetlands in nearby area to proposed locations.	N/A
	Lake/Pond/Wetlands	There is no Nallah/ Drain/ Lake/Pond/Wetlands in nearby area to proposed locations.	N/A
	Water supply Tanks/Reservoirs		
	Canal		
5	Protected Monuments/Heritage sites/Public Buildings etc.	There is no any Protected Monuments/Heritage sites/Public Buildings etc. in nearby proposed location	N/A
6	National/State Highway OR Express way	No National/state high way is passing through CB-ONHP-2019/2 ML., however the distance criteria shall be followed while selection of actual site for drilling of proposed well	N/A
7	Coastal Regulation Zone	Not Applicable	N/A

		(CRZ) (In case of Coastal area projects)		
	8.	Ground water table in meter	17 M.	N/A
	9.	Railway Line	No rail line passes through this block. Proposed well will be approximately 3 KM away	3.0
	10.	Air Port	Vadodara	30.0
	-			

B-2

Area adequacy

Area Adequacy table: Not applicable.

B-3 **Green belt area**

	Total (Sq. meter)
Area in Sq. meter	9075
% of total area	25%

Comments:

The condition shall be given that -

- The PP shall develop green belt within premises i.e 33 % of the total plot area as per the undertaking submitted before SEAC. Green belt shall be developed with native plant species that are significant and used for the pollution abatement as per the CPCB guidelines. It shall be implemented within 3 years of operation phase in consultation with GPCB.

C **Employment generation**

Total
85

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D **WATER**

D-1 **Source of Water Supply: Water will be supplied through tankers from nearest ONGC Installation.**

Comments:

- Water will be supplied through tankers from nearest ONGC.

D-2 **Water consumption (KLD)**

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Category	Quantity KLD	Remarks
(A) Domestic	2.0	
(B) Gardening	1.0	Domestic recycled water.
(C) Industrial		
Process	15.0	
Washing	6.0	
Boiler	0.0	
Cooling	2.0	
Others (Scrubber)	0.0	
Industrial Total	**23.0**	
Grand Total (A+B+C)	**26.0**	

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Comments:

- The water consumption above is found to be calculated considering the worst case scenario and in any case the waste water generation shall not exceed the same.

D-3 **Waste water generation (KLD)**

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Category	Waste water KLD	Remarks
(A) Domestic	1.0	
(B) Industrial		
Process	1.0	
Washing	1.0	
Boiler	0.0	
Cooling	1.0	
Others (Scrubber)	0.0	
Total Industrial waste water	**3.0**	
Total [A + B]	**4.0**	

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Comments:

- The waste water generation above is found to be calculated considering the worst case scenario and in any case the waste water generation shall not exceed the same.

D-4	Break-up of waste water disposal & facility (For Domestic): Treated through Sewage treatment plant (STP). Treated water used for gardening.

Comments:

- Domestic wastewater generation shall not exceed 1 KL/day for proposed project and it shall be treated in modular STP. It shall not be disposed off through soak pit/ septic tank. Treated sewage shall be utilized for gardening and plantation purpose within premises after achieving on-land discharge norms prescribed by the GPCB.

D-5 **Break-up of waste water disposal & facility (For Industrial)**

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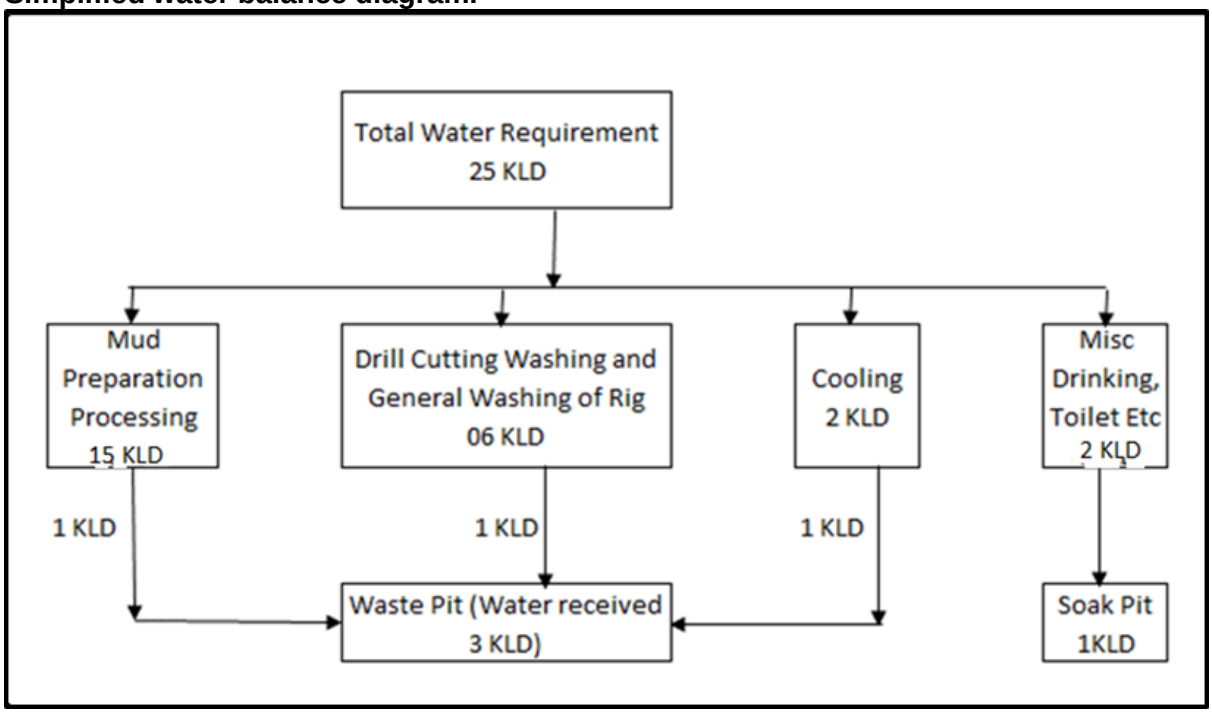
Sr. no.	Quantity KLD	Facility
1	3.0	Will be reuse within the facility for mud preparation
Total	3.0	

D-6 **Simplified water balance diagram.**



D-7 Summary

Summary of water requirement	**Quantity** KLD	Remarks
Total water requirement for the project **(A)**	25	

		Quantity to be **recycled (B)**	0	
		Total **fresh water** requirement **(C)**	22	
		Ensure **Total water requirement = Recycled water + Fresh water i.e. A = B + C**		
	Comments:			

E	**AIR**
E-1	Power (Electricity) requirement: 2 NO. DG SET of 1250 KVA will be running during operation.
E-2	**Flue gas emission details**

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Sr. no.	Source of emission With Capacity	Stack Height (meter)	Type of Fuel	Quantity of Fuel	Type of emissions i.e. Air Pollutants	Air Pollution Control Measures (APCM)
1.	DG SET	8	HSD	5-6 KLD	Flue gas	Supercharging, DOC(Diesel oxidation Catalyst), Particulate matter Reducer.

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E-3	**Process gas** : Not Applicable.

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Sr No	Specific Source of emission (Name of the Product & Process)	Type of Emission	Stack/Vent Height (meter)	Air Pollution Control Measures (APCM)
	This is only exploratory well drilling activity.			

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E-4	**Fugitive emission details with its mitigation measures.**

Sr. No.	Source	Probable Pollutant Emission	Control Measures/ APCM	
As example given below.				
1	Solvent storage tank	Air pollutant (VOC)	i) Carry out work place area monitoring to find out concentration level in ambient air Close handling system. ii) Provision of breather valve	cum

			flamearrester.
2	Solvent recovery system	Air pollutant (VOC)	i) Solvent recovery system with steam condensation system. ii) Pumps & motors are Mechanical seal type.
3	Handling of raw material bags in storage area	Air pollutant (PM)	i) Provision of exhaust ventilation Provision ofPPE. ii) Provision of Job rotation to reduceexposure.
4	Flange joints of pipeline, pump & motors	Air pollutant (VOC)	i) Routine &periodic inspection to checkleakage. ii) Preventive maintenance, Follow SOP formaintenance. iii) Pumps & motors will be mechanical sealtype. iv) LDAR program will be followed. Provision of Flange guard.
5	Solid raw material transferring to reactor	Air pollutant (PM)	Hopper will be provided with powder transfer system.
6	Liquid raw material transferring to reactor	Air pollutant (VOC)	Feeding of liquid raw material will be carried out by closed pipeline and mechanical seal pump.
7	Loading /unloading at storage area	Air pollutant (VOC)	Unloading through pipeline to tank in a close system.

Comments for E2, E3 & E4:

- The fuel to be used is approved fuel for the requirement of the heat energy and has been proposed the Air pollution Control measures so as to achieve the emission norms prescribed by the competent authorities.
- The air pollution control measures, has been proposed by PP for checking flue gas emission, Process gas emission, fugitive gas emission, with adequate systems of reaction/ reaction condensers, thermic fluid heaters, boilers, and scrubbing systems as per the requirements, to achieve the emission norms prescribed by the competent authorities.

F	**Solvent management, VOC emissions etc. Not/Applicable.**
F-1	**Types of solvents, Details of Solvent recovery, % recovery, reuse of recovered Solvents etc.: Not Applicable**
F-2	**VOC emission sources and its mitigation measures for achieving maximum solvent recovery and minimize VOC generation: Not Applicable**
F-3	**LDAR proposed: Not Applicable**
F-4	**LDAR for specific solvent :**
	Comments for F-1, F-2, F-3 & F-4

	➢ No use of solvent.
G	**Hazardous waste:**
G-1	**Hazardous waste management matrix**

No.	Type/Name of Hazardous waste	Name of Activity/Product	Category and Schedule as per HW Rules.	Quantity (MT/Annum)	Management of HW
1	Drill cuttings	Drilling	HW Sc-I cat. 2.1	500 tons per Well.	Collection in HDPE lined pit and disposal as per Hazardous waste Rules, 2016
2	Drilling mud	Drilling	HW Sc-I cat 2.3	250 Tons per Well.	Collection in HDPE lined pit and disposal as per Hazardous waste Rules, 2016
3	Used oil/ spent oil	Others	HW Sc-I cat 5.1	0.2 M Ton	Disposal as per Hazardous and Other Wastes (Management and Trans boundary Movement) Rules, 2016

Comments:

- Waste management includes hazardous waste management and other solid waste management. Hazardous waste-management comprises of collection, storage, transportation, disposal, incineration, and recycle of waste. SEAC examined the details provided and found it as per requirement.
- The project proponent has to obtain membership of TSDF site & CHWIF before obtaining CTO of GPCB.

G-2	Non- Hazardous waste management matrix: Non-Hazardous waste will be sent to authorize recycler.
H	**SAFETY details**
H-1	**Details regarding storage of Hazardous chemicals: Not applicable**

- **Applicability of PESO:** Not Applicable.

Comments:

- PESO not applicable

H-2	**Types of hazardous Processes involved and its safety measures: Not Applicable**
H-3	**Details of Fire Load Calculation**

Total Plot Area:	

Area utilized for plant activity:	ONGC follows all the stipulated guide lines of **DGMS Mines Act 1952**
Area utilized for Hazardous Chemicals Storage:	
Number of Floors:	
Water requirement for firefighting in KLD:	
Water storage tank provided for firefighting in KLD:	
Details of Hydrant Pumps:	
Nearest Fire Station :	
Applicability of Off Site Emergency Plan:	

Comments:

- Unit will follow all the stipulated guide lines of DGMS Mines Act 1952

H-4	**Details of Fire NOC/Certificate:** ONGC follows all the stipulated guide lines of **DGMS Mines Act 1952**

H-5	**Details of Occupational Health Centre (OHC): ONGC has its own PME Policy.**

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Number of permanent Employee:	60
Number of Contractual person/Labour:	25
Area provided for OHC:	In house facility of Health center
Number of First Aid Boxes:	4No.
Nearest General Hospital:	Rig Doctor available in Drill Site
Name of Antidotes to be store in plant:	N/A

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Comments

- Project proponent has provided Occupational health center with adequate provision of manpower, equipment and operational cost. SEAC finds it as per the provisions of Gujarat Factory Rules 1963.

H-6	**Details of Emergency measures proposed and preparedness action for chemicals and fire explosion etc.: Emergency Response Plan is available at Site**

I	**Details of Membership for Common Facility:**

Sr. No.	Membership for Common Facility	Membership Certificate issuing agency Date of Issue and validity of membership
01	CETP	ONGC ETP are available.
02	TSDF site	BEIL Infrastructure Ankleshwar.
03	Common Hazardous Waste Incineration Facility	ONGC follows all the stipulated guide lines of respective statutory body.
04	Common Spray Drying Facility	

05	Common MEE Facility	
06	Common Conveyance System	
07	PESO permission	
08	FIRE permission	
09	Health Certificate	ONGC has its own PME Policy.

J	**Reduce / Reuse / Recycle measures adopted.** ONGC has permanent membership for TSDF site with M/s BEIL Infrastructure Ankleshwar

K	**EMP Details**

Sr. No	Unit	Detail	Capital Cost (Rs. In Lakhs/Crores)	Total Recurring Cost per Month (Rs. In Lakhs/ Crores per Annum)
1	Wastewater	HDPE lined Pit making (to avoid any liquid on surface ground or spillage)	2.8 Lacs	Exploratory Drilling of well is temporary activities i.e. for 30 – 45 days.
2	Air	Preparation of Road to avoid dust pollution	60.0 Lacs	
3	Hazardous Management	No hazardous waste generated during exploratory drilling activities		
4.	Fire & Safety	ONGC follows all the stipulated guide lines of **DGMS Mines Act 1952**		
5	Green Belt Development	Restoration of site (in case of abandoned well)	13.0 Lacs	
6.	Occupational Health	ONGC has its own Periodical Medical Examination Policy.	1.0 Lacs	
7.	Noise Control		0.10 Lacs	
8.	VOC Control & LDAR		0.10 Lacs	
9	Environment Monitoring Program	Environment Monitoring	0.20 Lacs	
10	CER Activity	2% of project cost i.e. 0.615 Crore.	61.5 Lacs	
Total			**83.35 Lacs**	

Comments:

- The overall environment management plan (EMP) provided for capital and recurrent cost for waste water treatment, air emission control, noise control, hazardous waste disposal, fire safety,

occupational health, green belt and corporate social responsibility was deliberated and found satisfactory.

L	**Details of CER** -

PP shall carry out CER activities as below:

2% of Project cost 0.615 Crore.

Activities Identified for CER (As per MOEFCC guide line)	**Period from 2022-23 To 2026-27** **Rs. In lakhs**
1. Infrastructure creation for drinking water supply	4.39
2. Sanitation	4.39
3. Health	4.39
4. Education	4.39
5. Skill development	4.39
6. Roads	4.39
7. Cross drains	4.39
8. Electrification including solar power	4.39
9. Solid waste management facilities,	4.39
10. Scientific support and awareness to local farmers to increase yield of crop and fodder	4.39
11. Rain water harvesting	4.39
12. Soil moisture conservation works	4.39
13. Avenue plantation	4.39
14. Plantation in community areas, etc.	4.43
Total Amount (Rs in lakhs)	**61.50**

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12) **Recommendation by SEAC:**

"On the basis of information provided to SEAC on project, its location, technical, physical and environmental infrastructure, products, quantity to be manufactured, its raw material, storage, waste disposal, water treatment, safety measures, green belt development planning, regulatory compliance assured of related statutory provisions, necessary documents of requisite permissions provided from concerned departments and overall environmental management planning for the project, along with financial resources committed for operation and maintenance, and on the basis of presentation made before SEAC, modification suggested by SEAC and incorporated by project proponent, SEAC finds the project as per the requirement and **unanimously** recommends the same to SEIAA for environmental clearance."

Conditions with which Environment Clearance is recommended:

SPECIFIC CONDITIONS:

1. Project proponent (PP) shall obtain separate Environmental Clearance for commercial drilling and exploration as this proposal is for drilling of Exploration activity only as per EIA Notification 2006 and amendment dated 16.01.2020 [Category B2 of activity 1(b)]
2. No drilling shall be carried out in protected areas.
3. The company shall make all arrangements at the drilling site to prevent runoff of any oil containing

waste into the nearby water bodies. Separate drainage system shall be created for oil contaminated and non-oil contaminated. Effluent shall be properly treated and treated waste water shall confirm to CPCB/GPCB standards.

4. Drill cuttings separated from drilling fluid shall be adequately washed and disposed according to HWMH rule, 2016. No effluent /drilling mud /drill cutting shall be discharged /disposed off into nearby surface water bodies. The company shall comply with the guidelines for disposal of solid waste, drill cutting and drilling fluids for onshore drilling operation notified vide GSR. 546 dated 30 the August ,2005
5. Oil spillage prevention and mitigation scheme shall be prepared. In case of oil spillage/ contamination, action plan shall be prepared to clean the site by adopting proven technology. The recyclable waste (oily sludge) and spent oil shall be disposed of to the authorized recyclers.
6. After completion of drilling activities, in case of non-availability of hydrocarbons the site shall be restored back to its normal condition as per the prevailing Rules/Guidelines/Site restoration policy.
7. PP shall adopt best drilling practices and drilling operations shall be designed in such a way that there is no chance of contamination of ground water aquifer.
8. PP shall take all precautionary measures to avoid any contamination of ground water.
9. The National Ambient Air Quality Emission Standards issued by the Ministry vide G. S. R. No. 826 (E) dated 16th November, 2009 shall be complied with.
10. Unit shall have to adhere to the prevailing area specific policies of GPCB with respect to the discharge of pollutants, and shall carry out the project development in accordance & consistence with the same.
11. The project proponent must strictly adhere to the stipulations made by the Gujarat Pollution Control Board, State Government and/or any other statutory authority.
12. The company shall develop a contingency plan for H2S release including all necessary aspects from evacuation to resumption of normal operations. The workers shall be provided with personal H2S detectors in locations of high risk of exposure along with self-containing breathing apparatus.
13. Company shall prepare operating manual in respect of all activities, which would cover all safety & environment related issues and measures and measures to be taken for protection. One set of environment manual shall be made available at the drilling site /project site. Awareness shall be created at each level of management. All the schedules and results of environmental monitoring shall be available at the project site office. Remote monitoring of site should be done.

14. <u>Safety & Health:</u>

a) PP shall carry out mock drill within the premises as per the prevailing guidelines of safety and display proper evacuation plan in the manufacturing area in case of any emergency or accident.

b) PP shall take all the necessary steps for human safety within premises to ensure that no any harm is caused to any worker/employee or labor within premises.

c) The consequence arising out of incidents such as Well Blow Out, Fire, Explosion, Natural

Calamities etc. shall be accurately predicted with the help of latest technique available by various Risk Analysis Studies and unit shall submit Disaster Management Plan (DMP) to the concern authority based on such probable scenarios.

d) Personal Protective Equipments (PPEs) shall be provided to workers and its usage shall be ensured and supervised.

e) First Aid Box shall be made readily available in the unit.

f) Occupational health surveillance of the workers shall be done and its records shall be maintained. Pre-employment and periodical medical examination for all the workers shall be undertaken on regular basis as per Factories Act & Rules.

g) The company shall take necessary measures to prevent fire hazards, containing oil spill and soil remediation as needed.

h) Blow out preventer system shall be installed to prevent well blowouts during drilling operations.

i) Emergency response plan shall be based on the guidance prepared by OISD, DGMs and Govt. of India.

WATER

15. Total water requirement for the project shall not exceed 25 KLD per well. Unit shall reuse 3 KLD per well of treated industrial effluent within premises. Hence, fresh water requirement shall not exceed 22 KLD per well and it shall be met through tankers from nearby ONGC establishment.
16. PP shall not dig borewell for fresh water requirements.
17. The industrial effluent generation from the project shall not exceed 3 KLD.
18. 3 Total Industrial effluent generated from various activities shall be treated in mobile ETP and reused back in mud preparation.
19. PP shall obtain prior permission for disposal of treated effluent.
20. Zero Liquid Discharge [ZLD] status shall be maintained all the time and there shall not be any industrial wastewater discharge from the unit.
21. Domestic wastewater generation shall not exceed 1 KL/day for proposed project and it shall be treated in STP. Treated sewage shall be utilized for gardening and plantation purpose within premises after achieving on-land discharge norms prescribed by the GPCB.
22. During monsoon season when treated sewage may not be required for the plantation / Gardening / Green belt purpose, it shall be stored within premises. There shall be no discharge of waste water outside the premises in any case.
23. Unit shall provide buffer water storage tank of adequate capacity for storage of treated waste water during rainy days.
24. The unit shall provide metering facility at the ETP & STP and maintain records for the same.
25. Proper logbooks of ETP & STP; treated effluent reused in gardening/ plantation; chemical consumption in effluent treatment; quantity & quality of treated effluent; power consumption etc. shall be maintained and shall be furnished to the GPCB from time to time.

AIR:

26. Unit shall not exceed fuel consumption for D G Set as per the point no. E-2 as mentioned above.
27. Unit shall provide adequate APCM with flue gas generation sources to achieve the norms prescribed by GPCB.
28. There shall be no process gas emission from drilling & exploration activities and other ancillary operations.
29. The fugitive emission in the work zone environment shall be monitored. The emission shall conform to the standards prescribed by the concerned authorities fromtime to time (e.g. Directors of IndustrialSafety& Health). Following indicativeguidelines shall also be followed to reducethe fugitive emission.

    - Internal roads shall be either concreted or asphalted or paved properly toreducethe fugitive emission during vehicular movement.
    - Air borne dust shall becontrolled with water sprinklers at suitable locations in the plant.
    - A green belt shall be developed all around the plant boundary and also along the roads to mitigate fugitive & transport dust emission.

30. Regular monitoring of Volatile Organic Compounds (VOCs) shall be carried out in the work zone area and ambient air.
31. Regular monitoring of ground level concentration of PM_{10}, $PM_{2.5}$, SO_2, NOx and VOCs shall be carried out in the impactzoneand its records shall be maintained. Ambient air quality levels shall not exceed the standards stipulated by the GPCB. If at any stage these levels are found toexceed the prescribed limits, necessary additionalcontrol measures shall be taken immediately. The location of the stations and frequency of monitoring shall be decided in consultation with the GPCB.

HAZARDOUS / SOLID WASTES:

32. All the hazardous/ solid waste management shall be taken care as per the point no. F-1 as mentioned above.
33. Authorized end-users shall have permissions from the concerned authorities under the Rule 9 of the Hazardous and Other Wastes (Management and Transboundary Movement) Rules 2016.
34. Unit shall explore the possibilities for environment friendly methods like co-processing of hazardous waste for disposal of Incinerable & land fillable wastes before sending to CHWIF & TSDF sites respectively.
35. The project proponent has to obtain membership of TSDF site & CHWIF before obtaining CTO of GPCB.
36. The unit shall submit the list of authorized end users of hazardous wastes along with MoU signed with them at least two months in advance prior to the commencement of production. In the absence of potential buyers of these items, the unit shall restrict the production of the respective items.

NOISE:

37. The company shall make all arrangement for control of noise from the drilling activities.
38. 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 source of noise generation. The ambient noise level shall confirm to the standards prescribed under Environment (Protection) Act & Rules, 1986 amended from time to time.
39. Noise levels for workers shall be as per the Factories Act & Rules.

GREEN BELT AND OTHER PLANTATION:

40. The unit shall develop green belt within premises as per the CPCB guidelines. However, if the adequate land is not available within the premises, the unit shall take up adequate plantation on road sides and suitable open areas in GIDC estate or any other open areas in consultation with the GIDC / GPCB and submit an action plan of plantation for next three years to the GPCB.
41. Drip irrigation / low-volume, low-angle sprinkler system shall be used for the green belt development within the premises.

OTHERS:

42. The project proponent shall also comply with any additional condition that may be imposed by the SEAC or the SEIAA or any other competent authority for the purpose of the environmental protection and management.
43. Necessary permissions as mandated under water (Prevention and control of Pollution) act, 1974 and the Air (prevention and control pollution) Act, 1981, as applicable from time to time, shall be obtained from the State Pollution Control Board.
44. The project proponent shall allocate the separate fund of Rs 61.5 Lakhs [Infrastructure creation for drinking waster supply; Sanitation; Health; Education; Skill development; roads, cross drains; electrification including solar power; solid waste management facilities; scientific support and awareness to local farmers to increase yield of crop and fodder; rain water harvesting; soil moisture conservation works; Avenue plantation and Plantation in community areas] proposed under CER and it shall be part of the Environment Management Plan (EMP) as per the MoEF&CC's OM no. F. No. 22-65/2017-IA.III dated 30.09.2020. This shall be monitored and the monitoring report shall be submitted to the regional office of MoEF&CC as a part of half-yearly compliance report and to the District Collector. The monitoring report shall be posted on the website of the project proponent.
45. All the environmental protection measures and safeguards proposed in the Form-1 & PFR submitted by the project proponent and commitments made in their application shall be strictly adhered to in letter and spirit.

COMPLIANCE OF ENVIRONMENT CLEARANCE/REPORTING/ADMINISTRATION/APPEAL:

46. Project proponent shall inform to all the concerned authorities including Municipal Corporation and District Collector and shall also give wide publicity through advertisement in minimum two local newspapers within seven days, about the Environment Clearance order accorded.

47. Project proponent shall appoint a key person in the organization who shall be responsible for compliance of above condition fully on behalf of the proponent. It will not mean that appointing a key person will exempt the project proponent from the responsibility of compliance. Any change in key person shall immediately be informed to SEIAA and all concerned authorities.
48. Designated key person shall submit six monthly compliance report to SEIAA/SEAC, MOEF&CC, GPCB and Nodal Department of the Government.
49. The Nodal Department or any authority or officer authorized by MOEF&CC/SEIAA can inspect the site of the project and all the facilities, for verification of compliances of environment clearance conditions.
50. In case of violation reported upon, the project proponent shall be responsible for all the legal actions as per Environment Protection Act, 1986 including SEIAA may cancel, withdraw or keep in abeyance, the Environment Clearance accorded.
51. Any person including the project proponent affected by this Environment Clearance order may file appeal to Honorable National Green Tribunal West Zone branch, Pune, preferably within a period of thirty days from the date of issue of Environment Clearance as prescribe under section 16 of National Green Tribunal Act 2010.
52. All complains and public grievance or representations may be addressed to SEIAA/SEAC in the email addresses (a) msseiaagj@gmail.com& (b) seacgujarat@gmail.com

3.	SIA/GJ/IND3/71045/2022	**M/s. Supreme Chemical Industries (Unit-II)** Plot No. DP/136/3, Sayakha Industrial Estate, Dist.: Bharuch-392140	EC

Category of the unit: **5(f)**

Project status: **New**

1) Details of Application:

1.13. Type of application:	EC-New
1.14. Proposal no.	SIA/GJ/IND3/71045/2022
1.15. Category of Project :	5 (f) – B1
1.16. Date of application : (Online accepted by SEAC)	Date of application: 12.05.2022, Accepted on 04.07.2022
1.17. Documents Submitted by Project Proponent(PP)	Form -1, Pre-feasibility Report, EMP
1.18. TOR No. & Date :	File No. SIA/GJ/8601/2022, Dated: 15.01.2022
1.19. Technical expert / Environmental Consultant :	M/s. San Envirotech Pvt. Ltd. Dr. Mahendra Sadaria
1.20. SEAC Meeting No. and Date:	Meeting no. 461st Dtd. 28.07.2022
1.21. ADS vide letter dated :	Not applicable
1.22. Reply Submitted by PP dated:	Not applicable
1.23. Revised Consideration SEAC Meeting No. and Date:	Not applicable

2) This is a Greenfield project proposed for manufacturing of Synthetic Organic Chemicals as mentioned below:

Sr. No.	Color Name	CAS No.	Proposed Capacity (MT/month)	End use of product
A	**Classical Azo Pigments**			
1.	Pigment Yellow 1	2512-29-0	250	Textile, leather Printing etc.
2.	Pigment Yellow 3	6486-23-3		
3.	Pigment Yellow 12	6358-85-6		
4.	Pigment Yellow 13	5102-83-0		
5.	Pigment Yellow 14	5468-75-7		
6.	Pigment Yellow 16	5979-28-2		
7.	Pigment Yellow 17	4531-49-1		
8.	Pigment Yellow 62	12286-66-7		
9.	Pigment Yellow 65	6528-34-3		
10.	Pigment Yellow 74	6358-31-2		
11.	Pigment Orange-5	3468-63-1		
12.	Pigment Orange-13	3520-72-7		
13.	Pigment Orange-34	15793-73-4		
14.	Pigment Red 2	6041-94-7		
15.	Pigment Red 3	2425-85-6		
16.	Pigment Red 4	2814-77-9		
17.	Pigment Red 8	6410-30-6		
18.	Pigment Red 12	6410-32-8		
19.	Pigment Red 31	6448-96-0		
20.	Pigment Red 41	6505-29-9		
21.	Pigment Red 48:2	7023-61-2		
22.	Pigment Red 49:2	1103-39-5		
23.	Pigment Red 53:2	67990-35-6		
24.	Pigment Red 57:1	17852-98-1		
25.	Pigment Red 63:2	35355-77-2		
26.	Pigment Red 112	6535-46-2		
27.	Chloranil	118-75-2	100	Intermediate in dyes and pigments
		Total	**350**	**--**

3) The project falls under B1 category of project activity 5(f) as per the schedule of EIA Notification 2006.

4) The proposal was considered in the SEAC video conference meeting dated 28.07.2022.

5) Project proponent (PP) and their Technical Expert M/s San Envirotech Pvt. Ltd. remain present during video conference meeting.

6) Committee deliberated on Product profile, Layout plan, Fire safety, water balance & waste water management, Flue gas and process gas emission & Air Pollution Control System, Hazardous waste matrix, EMP, CER, Green belt, issued raised during public hearing along with time bound action plan, etc.

7) The baseline environmental quality has been assessed for various components of the environment viz. air, noise, water, biological and socioeconomic aspect. The baseline environmental study has been conducted for the study area of 10 km radial distance from project site for the period October-2021 to December-2021. Ambient Air Quality monitoring was carried out PM10, PM2.5, SOx, NOx, VOCs

(Benzene, Toluene & Xylene), HCl, CO and HC at Eight locations, including the project site. Values conform to the prescribed standards for Ambient Air Quality. The incremental Ground Level Concentration (GLC) has been computed using "ISCST3". Incremental GLC's for all parameters remain within 500 m from the project site. The resultant concentrations are within the NAAQS. The modelling study proved that the air emissions from the proposed plant would not affect the ambient air quality of the region in any significant manner. The ambient air quality around the proposed project site will remain within the National Ambient Air Quality Standards (NAAQS).

8) Risk assessment including prediction of the worst-case scenario and maximum credible accident scenarios has been carried out. The detailed proposed safeguard measures including On-Site / Off-Site Emergency Plan has been covered in the RA report.

9) Committee asked the following details upon which PP could not reply satisfactorily:
   - ✓ GIDC permission for discharge of 66.5 KLD treated effluent into CETP-Saykha.
   - ✓ Details of population affected considering the worst case scenario in risk assessment of hazardous chemicals.

10) PP presented salient features of the project including Water, Air and Hazardous waste management are submitted.

11) **After detailed discussion, Committee unanimously decided to consider the project in one of upcoming meeting after submission of following documents:**
    1. CETP-Saykha membership certificate for discharge of 66.5 KLD treated effluent into CETP-Saykha.
    2. Details of population affected considering the worst case scenario in risk assessment of hazardous chemicals.

4.	SIA/GJ/IND3/74736/2022	**M/s. RMX Intermediate Pvt. Ltd.** D-2/CH/177, GIDC Industrial Estate, Dahej-II Dist. Bharuch-393002.	EC

Category of the unit: **5(f)**

Project status: **Expansion**

1) Details of Application:

1.24. Type of application:	EC-Expansion
1.25. Proposal no.	SIA/GJ/IND3/74736/2022
1.26. Category of Project :	5 (f) – B1
1.27. Date of application : (Online accepted by SEAC)	04th- July-2022
1.28. Documents Submitted by Project Proponent(PP)	EIA Report
1.29. TOR No. & Date :	File No. SIA/GJ/7101/2022 dated

	09th January, 2022.
1.30. Technical expert / Environmental Consultant :	M/s. Jyoti Om Chemical Research Centre Pvt. Ltd.
1.31. SEAC Meeting No. and Date:	461st meeting no and Date:- 28/07/2022.
1.32. ADS vide letter dated :	--
1.33. Reply Submitted by PP dated:	--
1.34. Revised Consideration SEAC Meeting No. and Date:	--
1.35. Compliance of Existing EC & CCA	The unit has applied for CTE only. First time unit is applying for EC application. Hence, EC compliance report is not applicable. The unit has still not obtained CCA.

2) This is an existing unit proposed for manufacturing of Synthetic Organic Chemicals as mentioned below:

Sr. No.	Name of the Products	CAS No.	Existing Quantity MT/ Month	Proposed Quantity MT/ Month	Total Quantity MT/ Month	*End-use of products
1.	Magnesium chloride anhydrous AND/OR	7786-30-3	**100** Either / Or	**0.0**	**100** Either / Or	--
	Magnesium chloride hexahydrate	7791-18-6				
A	**Grignard reagents for industrial application such as; in solvent like as THF/Methyl THF/ Dibutyl ether/Toluene etc. as per customers requirement.**					
a	**Alkyl magnesium halide (C-1 to C-10 aliphatic halide saturated or unsaturated, linear or cyclic or substituted)**		**0.0**	**500** Either / Or	**500** Either / Or	
1	Methyl magnesium chloride	676-58-4				Pharma, F&F & Specialty Chemical
2	Methyl magnesium bromide	75-16-1				Pharma, F&F & Specialty Chemical
3	Ethyl Magnesium chloride	2386-64-3				Pharma, F&F & Specialty Chemical
4	Propyl Magnesium chloride	2234-82-4				Pharma, F&F & Specialty

						Chemical
5	Butyl magnesium chloride	693-04-9				Pharma, F&F & Specialty Chemical
6	Pentyl Magnesium chloride	6333-56-2				Pharma, F&F & Specialty Chemical
7	Pentyl magnesium bromide	693-25-4				Pharma, F&F &Specialty Chemical
8	Vinyl magnesium chloride	3536-96-7				Pharma, F&F & Specialty Chemical
9	Vinyl magnesium bromide	1826-67-1				Pharma, F&F & Specialty Chemical
10	Allyl magnesium chloride	2622-05-1				Pharma, F&F & Specialty Chemical
11	Isobutyl magnesium chloride	5674-02-2				Pharma, F&F & Specialty Chemical
12	Cyclohexyl magnesium chloride	931-51-1				Pharma, F&F & Specialty Chemical
13	Cyclopentyl magnesium chloride	32916-51-1				Pharma, F&F & Specialty Chemical
14	Isopropyl magnesium chloride	1068-55-9				Pharma, F&F & Specialty Chemical
15	Isopropyl magnesium bromide	920-39-8				Pharma, F&F & Specialty Chemical
16	Tertbutyl magnesium chloride	677-22-5				Pharma, F&F & Specialty Chemical
17	Octyl magnesium bromide	17049-49-9				Pharma, F&F & Specialty Chemical
18	Hexyl magnesium	3761-92-0				Pharma,

	bromide					F&F & Specialty Chemical
19	Isoamyl magnesium chloride	4237-74-5				Pharma, F&F & Specialty Chemical
20	Cyclopropyl magnesium chloride	88947-47-1				Pharma, F&F & Specialty Chemical
21	Ethynyl magnesium chloride	65032-27-1				Pharma, F&F & Specialty Chemical
22	Cyclopropyl magnesium bromide	23719-80-4				Pharma, F&F & Specialty Chemical
23	Propargyl magnesium chloride	65032-28-2				Pharma, F&F & Specialty Chemical
24	Ethynyl Magnesium Bromide, etc.	4301-14-8				Pharma, F&F & Specialty Chemical
b	**Aryl magnesium halide (Aromatic monocyclic/di-cyclic/ Tri-cyclic mono substituted or multi substituted)**					
25	Phenyl magnesium chloride	100-59-4				Pharma, F&F & Specialty Chemical
26	Phenyl magnesium bromide	100-58-3				Pharma, F&F & Specialty Chemical
27	Benzyl magnesium chloride	6921-34-2				Pharma, F&F & Specialty Chemical
28	Phenyl ethyl magnesium chloride	90878-19-6				Pharma, F&F & Specialty Chemical
29	4-Fluorophenyl magnesium bromide	352-13-6				Pharma, F&F & Specialty Chemical
30	3-Methoxy phenyl magnesium bromide	13139-86-1				Pharma, F&F & Specialty

						Chemical
31	3-Methoxy phenyl magnesium chloride	189032-84-6				Pharma, F&F & Specialty Chemical
32	4-Tolyl magnesium chloride	696-61-7				Pharma, F&F & Specialty Chemical
33	4-Tolyl magnesium bromide	4294-57-9				Pharma, F&F & Specialty Chemical
34	4-Chlorophenyl magnesium bromide, etc.	51833-36-4				Pharma, F&F & Specialty Chemical
c	**Heterocyclic magnesium halide (linear/monocyclic/di-cyclic/ Tri-cyclic mono substituted or multi substituted)**					
35	Thiophen-2yl Magnesium Bromide	5713-61-1				Pharma
36	Dimethyl Aminopropyl Magnesium chloride	2226489-31-0				Pharma
37	1-Methylpiperidin-4-yl Magnesium Chloride	63463-36-5				Pharma
38	Thiophen-2yl Magnesium chloride, etc.	52770-33-9				Pharma
B	**Catalytic hydrogenation reaction products like as**					
$R_2C=CR'_2$(alkene) → $R_2CHCHR'_2$(alkane) RC≡CR (alkyne → *cis*-RHC=CHR'(alkene) RCHO (aldehyde) → RCH_2OH (primary alcohol) R_2CO (ketone) → R_2CHOH (secondary alcohol) RCO_2R'(ester) → RCH_2OH + R'OH (two alcohols) RR'CNR"(imine → RR'CHNHR"(amine) RC(O)NR'_2(amide) → $RCH_2NR'_2$(amine) RCN (nitrile) → RCH_2NH_2(primary amine) RNO_2(nitro) → RNH_2(amine) Aryl/Aromatic/Phenyl compound → Alkyl/Aliphatic/Cyclohexyl compound			**0.0**	**200** Either / Or	**200** Either / Or	
39	4-Phenyl-2-butanone	2550-26-7				Pharma, F&F &Specialty Chemical
40	4-Phenyl-2-butyl amine	22374-89-				Pharma,

		6				F&F & Specialty Chemical
41	4-cyclohexyl-2-Methyl-2-butanol	83926-73-2				F&F
42	Methyl cyclohexyl propionate	20681-51-0				Pharma & Specialty Chemical
43	Phenyl cyclohexyl propionate	103-25-2				Pharma, F&F &Specialty Chemical
44	1-(2-tert-Butylcyclohexyloxy)-2-butanol	139504-68-0				F&F
45	Dihydrodicyclopentadiene	4488-57-7				Pharma, F&F & Specialty Chemical
46	3-Phenyl-1-Propanol	1335-12-2				Pharma, F&F & Specialty Chemical
47	3-Phenyl-2-Methyl-1-Propanol	7384-80-7				Pharma, F&F & Specialty Chemical
48	Tetrahydrodicyclopentadiene, etc.	2825-83-4, 2825-82-3, 6004-38-2				Pharma, F&F & Specialty Chemical
49	Dihydroionone beta	17283-81-7				F&F & Specialty Chemical
50	Dihydroionone alpha	31499-72-6				F&F & Specialty Chemical
51	Dihydroeugenol	2785-87-7				F&F & Specialty Chemical
52	Dicyclohexyl methanol	4453-82-1				Pharma, F&F & Specialty Chemical
53	Kohinool	81787-05-5, 81787-06-6, 81787-07-7				F&F & Specialty Chemical
54	Timberol	70788-30-6				F&F & Specialty Chemical

55	Tetrahtdrocitral, etc.	5988-91-0				F&F & Specialty Chemical
C	**Alkylation by using Grignard reagent with alkyl halide, epoxide, aldehyde, Ketone such as; (Linear or cyclic, mono substituted or multi substituted, Saturated or unsaturated compounds, C-C cleavage reaction)**					
a	**Terminal or internal alkyne Representative products**		**0.0**	**200** Either / Or	**200** Either / Or	
56	1-Octyne	2809-67-8				Pharma, F&F & Specialty Chemical
57	1-Heptyne	628-71-7				Pharma, F&F & Specialty Chemical
58	1-Decyne	764-93-2				Pharma, F&F & Specialty Chemical
59	3-bytyne-2-ol	2028-63-9				Pharma, F&F & Specialty Chemical
60	2-pentyn-1-ol	6261-22-9				Pharma, F&F & Specialty Chemical
61	5-hexyne-1-ol	928-90-5				Pharma, F&F & Specialty Chemical
62	1-Hexyne	693-02-7				Pharma, F&F & Specialty Chemical
63	Cyclopropyl acetylene	6746-94-7				Pharma, F&F & Specialty Chemical
64	Phenyl acetylene, etc.	536-74-3				Pharma, F&F & Specialty Chemical
B	**Substituted Biphenyl compounds Representative products**					Pharma, F&F & Specialty Chemical
65	o-tolyl benzonitrile, etc.	114772-53-1				Pharma, F&F & Specialty Chemical
c	**Tertiary alcohols**					Pharma,

	Representative products					F&F & Specialty Chemical
66	α-Methyl allyl alcohol	598-32-3				Pharma, F&F & Specialty Chemical
67	α-Ethyl allyl alcohol	616-25-1				Pharma, F&F & Specialty Chemical
68	α-Propyl allyl alcohol	4798-44-1				Pharma, F&F & Specialty Chemical
69	α-Butyl allyl alcohol	4938-52-7				Pharma, F&F & Specialty Chemical
70	α-Pentyl allyl alcohol	3391-86-4				Pharma, F&F & Specialty Chemical
71	α-Hexyl allyl alcohol	21964-44-3				Pharma, F&F & Specialty Chemical
72	Dimethyl phenyl ethyl carbinol	103-05-9				Pharma, F&F & Specialty Chemical
73	Tetra butyl tin	1461-25-2				Pharma, F&F & Specialty Chemical
74	Tributyl tin chloride	1461-22-9				Pharma, F&F & Specialty Chemical
75	4-Methyl-3-decene-5-ol	81782-77-6				Pharma, F&F & Specialty Chemical
76	2,6-Dimethyl heptanol	13254-34-7				Pharma, F&F & Specialty Chemical
77	2-Phenyl-2-butanol	1565-75-9				Pharma, F&F & Specialty Chemical
78	Diphenylmethanimine	1013-88-3				Pharma & Specialty Chemical

79	1-Phenyl-2-butanol	701-70-2				Pharma, F&F & Specialty Chemical
80	3-Cyclohexyl-3-hydroxy-1-propene	4352-44-7				Pharma, F&F & Specialty Chemical
81	2-Phenyl-2-propanol	617-94-7				Pharma, F&F & Specialty Chemical
82	1-Phenyl-1-propanol	93-54-9				Pharma, F&F & Specialty Chemical
83	Benzeneethanol, α,α-dimethyl-	100-86-7				Pharma, F&F & Specialty Chemical
84	Tributyl phosphine	998-40-3				Pharma & Specialty Chemical
85	Thiophene-2-ethanol, etc.	5402-55-10				Pharma
86	5-Methyl-2-hepten-4-one	81925-81-7				F&F & Specialty Chemical
87	Benzophenone	119-61-9				F&F & Specialty Chemical
88	3-Methyl-4-phenylbutan-2-ol /Muguesia	56836-93-2				F&F & Specialty Chemical
89	SALICYNALVA, etc.	3508-98-3				F&F & Specialty Chemical
D	**Esters by Hot esterification/addition of organic acids across olefins, transesterification, by reacting alcohol with acetic anhydride**					
90	Methyl mono chloroacetate	96-34-4	**0.0**	**1050 MT** Either / Or	**1050 MT** Either / Or	F&F & Specialty Chemical
91	Ethyl chloroacetate	105-39-5				F&F & Specialty Chemical
92	Isopropyl chloroacetate	105-48-6				F&F & Specialty Chemical
93	tert-butyl chloroacetate	107-59-5				F&F & Specialty Chemical
94	Isoamyl acetate	123-92-2				F&F & Specialty Chemical

95	Benzyl acetate	140-11-4				F&F & Specialty Chemical
96	Methyl Salicylate	119-36-8				F&F & Specialty Chemical
97	Ethyl Salicylate	118-61-6				F&F & Specialty Chemical
98	Allyl amyl glycolate	67634-00-8, 67634-01-9				F&F & Specialty Chemical
99	2-Methyl pentyl Salicylate	98969-19-8				F&F & Specialty Chemical
100	Isobutyl Salicylate	87-19-4				F&F & Specialty Chemical
101	Pentyl Salicylate	2050-08-0				F&F & Specialty Chemical
102	2-Methyl butyl Salicylate	51115-63-0				F&F & Specialty Chemical
103	Isoamyl Salicylate	87-20-7				F&F & Specialty Chemical
104	Hexyl salicylate	6259-76-3				F&F & Specialty Chemical
105	Cyclohexyl Salicylate	25485-88-5				F&F & Specialty Chemical
106	Octyl Salicylate	118-60-5				F&F & Specialty Chemical
107	Benzyl Salicylate	118-58-1				F&F & Specialty Chemical
108	Allyl phenoxy acetate	7493-74-5				F&F & Specialty Chemical
109	Ethyl butyrate	105-54-4				F&F & Specialty Chemical
110	Allyl caproate	123-68-2				F&F & Specialty Chemical
111	Allyl heptanoate	142-19-8				F&F & Specialty Chemical
112	3,3,5-trimethyl cyclohexyl acetate	67859-96-5				F&F & Specialty Chemical

113	Lineally acetate	115-95-2				F&F & Specialty Chemical
114	Citronellyl acetate	150-84-5				F&F & Specialty Chemical
115	Citronellyl format	105-85-1				F&F & Specialty Chemical
116	Methyl geranate	1189-09-9				F&F & Specialty Chemical
117	Cinnamyl acetate	103-54-8 21040-45-9				F&F & Specialty Chemical
118	Cinnamyl format	104-65-4				F&F & Specialty Chemical
119	Cinnamyl butyrate	103-61-7				F&F & Specialty Chemical
120	Phenyl propyl acetate	122-72-5				F&F & Specialty Chemical
122	Ethyl caproate	123-66-0				F&F & Specialty Chemical
123	Ethyl cinnamate	103-63-6				F&F & Specialty Chemical
124	Phenyl ethyl acetate	101-97-3				F&F & Specialty Chemical
125	Stearyl acetate	822-23-1				F&F & Specialty Chemical
126	1-Phenyl ethyl acetate	93-92-5				F&F & Specialty Chemical
127	Ethyl tricycle decan-2-carboxylate	80657-64-3				F&F & Specialty Chemical
128	Octyl cinnamate	69038-78-4				F&F & Specialty Chemical
129	Methoxy Octyl cinnamate	5466-77-3				F&F & Specialty Chemical
130	2-Methyl butyl acetate	624-41-9				F&F & Specialty Chemical
131	2-methyl Pentyl acetate	7789-99-3				F&F & Specialty Chemical

132	Tri ethyl citrate	77-93-0				F&F & Specialty Chemical
133	Citronellyl tiglate	24717-85-8 & 84254-89-7				F&F & Specialty Chemical
134	Cis-3-hexenyl acetate	3681-71-8				F&F & Specialty Chemical
135	Cis-3-hexenyl Salicylate	65405-77-8				F&F & Specialty Chemical
136	Cis-3-hexenyl tiglate	67883-79-8				F&F & Specialty Chemical
137	Cis-3-hexenyl butyrate	16491-36-4				F&F & Specialty Chemical
138	Phenyl ethyl Salicylate	87-22-9				F&F & Specialty Chemical
139	Benzyl benzoate	120-51-4				F&F & Specialty Chemical
140	Sodium Stearyl fumarate	4070-80-8				F&F & Specialty Chemical
141	Mysore acetate	30772-79-1				F&F & Specialty Chemical
142	Methyl cyclogeranate	28043-10-9				F&F & Specialty Chemical
143	Ethyl-2-tert-butylcyclohexyl-carbonate	67801-64-3				F&F & Specialty Chemical
144	diethyl cyclohexane-1,4-dicarboxylate	72903-27-6				F&F & Specialty Chemical
145	2,2-dimethyl-3-methyl-3-butenyl propanoate, etc.	104468-21-5				F&F & Specialty Chemical
146	3,5,5 Trimethylhexyl acetate/ Vanoris	58430-94-7				F&F & Specialty Chemical
147	Montaverdi	188570-78-7				F&F & Specialty Chemical
148	Helvatolide	141773-73-1				F&F & Specialty Chemical
149	Romandolide	236391-76-7				F&F & Specialty

						Chemical
150	Hedion	24851-98-7				F&F & Specialty Chemical
151	Styrallal acetate	50373-55-2				F&F & Specialty Chemical
152	Dimethyl phenyl ethyl acetate	151-05-3				F&F & Specialty Chemical
153	Dimethyl phenyl ethyl butyrate	10094-34-5				F&F & Specialty Chemical
154	Methyl cinnamate	1754-62-7				F&F & Specialty Chemical
155	Ethyl cinnamate	103-36-6				F&F & Specialty Chemical
156	Phenylethyl cinnamate	103-53-7				F&F & Specialty Chemical
157	Benzyl cinnamate	103-41-3				F&F & Specialty Chemical
158	Methyl anthranilate	134-20-3				F&F & Specialty Chemical
159	Phenirat	103-60-6				F&F & Specialty Chemical
160	Phenylethyl salicylate	87-22-9				F&F & Specialty Chemical
161	Ethylene brassylate	105-95-3				F&F & Specialty Chemical
162	Hexyl acetate	142-92-7				F&F & Specialty Chemical
163	Ethyl-2-Methyl butyrate	7452-79-1				F&F & Specialty Chemical
164	Ethyl caproate	123-66-0				F&F & Specialty Chemical
165	Ethyl heptanoate	106-30-9				F&F & Specialty Chemical
166	Ethyl octanoate	106-32-1				F&F & Specialty Chemical
167	Fructalate	72903-27-6				F&F & Specialty

						Chemical
168	NEOBUTENONE® ALPHA	56973-85-4				F&F & Specialty Chemical
169	2-Methyl butyl acetate	624-41-9				F&F & Specialty Chemical
170	Benzyl isobutyrate	103-28-6				F&F & Specialty Chemical
171	ISOAMYL PHENYLACETATE	102-19-2				F&F & Specialty Chemical
172	Edenolide	478695-70-4				F&F & Specialty Chemical
173	OCTYL ACETATE	112-14-1				F&F & Specialty Chemical
174	PHENETHYL BUTYRATE	103-52-6				F&F & Specialty Chemical
175	Hexyl butyrate	2639-63-6				F&F & Specialty Chemical
176	3-Methylbut-2-en-1-yl acetate	1191-16-8				F&F & Specialty Chemical
177	VERAMOSS	4707-47-5				F&F & Specialty Chemical
178	ZENOLIDE	54982-83-1				F&F & Specialty Chemical
179	Oct-1-en-3-yl-acetate/AVC acetate	2242-10-6				F&F & Specialty Chemical
180	Frutinat	35206-51-0				F&F & Specialty Chemical
181	Isobutyl salicylate	87-19-4				F&F & Specialty Chemical
182	Hexyl benzoate	93-58-3				F&F & Specialty Chemical
183	Methyl phenyl acetate	101-41-7				F&F & Specialty Chemical
184	Prenyl salicylate	68555-58-8				F&F & Specialty Chemical
185	Pyroprunat	68039-73-6				F&F & Specialty

						Chemical
186	Rholiate	93981-50-1				F&F & Specialty Chemical
187	Koavone	81786-73-4				F&F & Specialty Chemical
188	Isononyl acetate	58430-94-7				F&F & Specialty Chemical
189	Pivarose	67662-96-8				F&F & Specialty Chemical
190	Triacetin	102-76-1				F&F & Specialty Chemical
191	trans-2-Hexenyl acetate	2497-18-9				F&F & Specialty Chemical
192	Isoamyl butyrate	106-27-4				F&F & Specialty Chemical
193	Isobutyl benzoate	120-50-3				F&F & Specialty Chemical
194	Hexyl benzoate	6789-88-4				F&F & Specialty Chemical
195	Myraldyl Acetate	72403-67-9				F&F & Specialty Chemical
196	Metambrate	72183-75-6				F&F & Specialty Chemical
197	OCTOCRYLENE	6197-30-4				F&F & Specialty Chemical
198	HOMOSALATE	118-56-9				F&F & Specialty Chemical
199	Ethyl 2-tert-butylcyclohexyl carbonate	67801-64-3				F&F & Specialty Chemical
200	Dihydro Ambrate, etc.	37172-02-4				F&F & Specialty Chemical
E	**Catalytic Oxidation reaction products** Aromatic or aliphatic aldehyde oxidation in solvent like as Methanol/IPA/Water etc. Oxidizing reagent Air, Oxygen gas, Hydrogen peroxide, Aluminium isopropoxide, Sodium chlorite Representative products					
201	2-Cyclohexene-1-hydrosorbic acid, tetramethyl-	110334-57-1	**0.0**	**500 MT** Either / Or	**500 MT** Either / Or	Pharma, F&F & Specialty Chemical

202	4-Phenyl butyric acid	1821-12-1				Pharma, F&F & Specialty Chemical
203	2-Methyl butyric acid	116-53-0				Pharma, F&F & Specialty Chemical
204	2-Methyl pentanoic acid	97-61-0				Pharma, F&F & Specialty Chemical
205	2-Methyl-2-pentenoic acid	3142-72-1				Pharma, F&F & Specialty Chemical
206	Tiglic acid	80-59-1				Pharma, F&F & Specialty Chemical
207	Hexanoic acid	142-62-1				Pharma, F&F & Specialty Chemical
208	Heptanoic acid	111-14-8				Pharma, F&F & Specialty Chemical
209	3,7-Dimethylocta-2,6-dienoic acid	4698-08-2				Pharma, F&F & Specialty Chemical
210	Cinnamic acid	140-10-3				Pharma, F&F & Specialty Chemical
211	Cyclohexyl Propionic acid	701-97-3				Pharma, F&F & Specialty Chemical
212	Phenyl Propionic acid	501-52-0				Pharma, F&F & Specialty Chemical
213	4-Pentenoic acid, etc.	591-80-0				Pharma, F&F & Specialty Chemical
214	2-Methyl-2-pentenoic acid	3142-72-1				Pharma, F&F & Specialty Chemical
215	2 METHYL HEPTANOIC ACID,	1188-02-9				Pharma, F&F &

	etc.					Specialty Chemical
F	**Acetal, Cyclic Acetal, ether, vinyl ether Representative products**					
216	Acetaldehyde dimethyl acetal	534-15-6	**0.0**	**300 MT** Either / Or	**300 MT** Either / Or	Pharma, F&F & Specialty Chemical
217	3-Phenyl propyl dimethyl acetal	30076-98-3				Pharma, F&F & Specialty Chemical
218	Propionaldehyde dimethyl acetal	4744-10-9				Pharma, F&F & Specialty Chemical
219	Isobutyraldehyde dimethyl acetal	41632-89-7				Pharma, F&F & Specialty Chemical
220	Acetaldehyde diethyl acetal	105-57-7				Pharma, F&F & Specialty Chemical
221	Propionaldehyde diethyl acetal	4744-08-5				Pharma, F&F & Specialty Chemical
222	Isobutyraldehyde diethyl acetal	1741-41-9				Pharma, F&F &Specialty Chemical
223	Ethyl vinyl ether	109-92-2				Pharma, F&F & Specialty Chemical
224	Methyl vinyl ether	107-25-5				Pharma, F&F &Specialty Chemical
225	Methyl propenyl ether	7319-16-6				Pharma, F&F & Specialty Chemical
226	Ethyl propenyl ether	928-55-2				Pharma, F&F & Specialty Chemical
227	Methyl dimethyl vinyl ether	17574-84-4				Pharma, F&F & Specialty Chemical
228	Ethyl dimethyl vinyl ether	927-61-7				Pharma, F&F & Specialty

						Chemical
229	Formal glycol	646-06-0				Pharma, F&F & Specialty Chemical
230	Diethylene ether	123-91-1				Pharma, F&F & Specialty Chemical
231	Ethyl 2-(2-methyl-1,3-dioxolan-2-yl) acetate	6413-10-1				Pharma, F&F & Specialty Chemical
232	Citral dimethyl acetal	7549-37-3				Pharma, F&F & Specialty Chemical
233	Citral diethyl acetal	7492-66-2				Pharma, F&F & Specialty Chemical
234	2-(1-propoxyethoxy) ethylbenzene	7493-57-4				Pharma, F&F & Specialty Chemical
235	2-Isopropoxyethyl-2-hydroxybenzene	79915-74-5				Pharma, F&F & Specialty Chemical
236	2-(1-propoxyethoxy) ethylbenzene	7493-57-4				Pharma, F&F & Specialty Chemical
237	2-(1-ethoxyethoxy) ethylbenzene	2556-10-7				Pharma, F&F & Specialty Chemical
238	3-pentanone dimethyl acetal, etc.	25636-49-1				Pharma, F&F & Specialty Chemical
239	Palisandin	2986-54-1				F&F & Specialty Chemical
240	Boisambrene forte	58567-11-6				F&F & Specialty Chemical
241	Phenylethyl methyl ether	3558-60-9				F&F & Specialty Chemical
242	Anther	56011-02-0				F&F & Specialty Chemical
243	Hyacinth body	2556-10-7				F&F &

						Specialty Chemical
244	Hydrotropic aldehyde dimethyl acetal	90-87-9				F&F & Specialty Chemical
245	Herboxane	54546-26-8				F&F & Specialty Chemical
246	Fraistone	6290-17-1				F&F & Specialty Chemical
247	Anethole	4180-23-8				F&F & Specialty Chemical
248	Hexylmethyl ether /DIOLA	4747-07-3				F&F & Specialty Chemical
249	1,1-Dimethoxyoctane	10022-28-3				F&F & Specialty Chemical
250	ORANGE FLOWER ETHER	14576-08-0				F&F & Specialty Chemical
251	Violett	87731-18-8				F&F & Specialty Chemical
252	Herboxane	54546-26-8				F&F & Specialty Chemical
253	Frescolate MGA	63187-91-7				F&F & Specialty Chemical
254	Ysamber K	70788-30-6				F&F & Specialty Chemical
255	Indoflor	18096-62-3				F&F & Specialty Chemical
256	Calone	28940-11-6				F&F & Specialty Chemical
257	Citrathal® TECH	147060-73-9 90480-35-6				F&F & Specialty Chemical
258	Madrox	37514-30-0				F&F & Specialty Chemical
259	Phenyl ethyl isopropyl ether, etc.	68039-47-4				F&F & Specialty Chemical
I	**Aldehyde and Ketone production by aldol condensation representative products**					
260	Dimethyl butenal	5820-05-3	**0.0**	**300 MT** Either /	**300 MT** Either /	Pharma, F&F &

				Or	Or	Specialty Chemical
261	Amyl Cinnamic aldehyde	122-40-7				Pharma, F&F & Specialty Chemical
262	Hexyl Cinnamic aldehyde	101-86-0				Pharma, F&F & Specialty Chemical
263	Cinnamic aldehyde	14371-10-9				Pharma, F&F & Specialty Chemical
264	Alpha methyl Cinnamic aldehyde	101-39-3				Pharma, F&F & Specialty Chemical
265	Benzylideneacetone	937-53-1 /1896-62-4				Pharma, F&F & Specialty Chemical
266	Benzyl acetone	2550-26-7				Pharma, F&F &Specialty Chemical
267	Pseudoionone	141-10-6				Pharma, F&F & Specialty Chemical
268	Alpha ionone	127-41-3				Pharma, F&F & Specialty Chemical
269	Beta ionone	79-77-6				Pharma, F&F & Specialty Chemical
270	Gama methyl ionone	79-76-5				Pharma, F&F & Specialty Chemical
271	1-(2,6,6-Trimethylcyclohexa-1,3-dien-1-yl) but-2-en-1-one	23696-85-7				Pharma, F&F & Specialty Chemical
272	(2E)-1-(2,6,6-trimethylcyclohex-2-en-1-yl) but-2-en-1-one	24720-09-0				Pharma, F&F & Specialty Chemical
273	(2E)-1-(2,6,6-trimethylcyclohex-1-en-1-yl) but-2-en-1-one	23726-91-2				Pharma, F&F & Specialty Chemical

274	(2E)-1-(2,6,6-trimethylcyclohex-3-en-1-yl) but-2-en-1-one	57378-68-4 / 71048-82-3				Pharma, F&F & Specialty Chemical
275	1-(5,5-Dimethylcyclohex-1-en-1-yl) pent-4-en-1-one	56973-85-4				Pharma, F&F & Specialty Chemical
276	2-Methyl undecanal	110-41-8				Pharma, F&F & Specialty Chemical
277	3-methyl-3-pentene-2-one	565-62-8 /1567-73-3 /1567-72-2				Pharma, F&F & Specialty Chemical
278	Boronal	3155-71-3				F&F & Specialty Chemical
279	Canthoxal	5462-06-6				F&F & Specialty Chemical
280	Helional	1205-17-0				F&F & Specialty Chemical
281	Trans-2-hexenol	928-95-0				F&F & Specialty Chemical
282	Aldehyde MNA	110-41-8				F&F & Specialty Chemical
283	Mandrain Aldehyde	20407-84-5				F&F & Specialty Chemical
284	3-(4-Isopropylphenyl) propanal	7775-00-0				F&F & Specialty Chemical
285	trans, cis-2,6-Nonadienal, etc.	557-48-2				F&F & Specialty Chemical
286	Anisyl acetone, etc.	104-20-1				F&F & Specialty Chemical
J	**Aldehyde and Ketone production by rearrangement of glycedic ester representative products**					
287	2,6-dimethyl heptenal	106-72-9	**0.0**	**50 MT** Either / Or	**50 MT** Either / Or	F&F & Specialty Chemical
288	2-Methyl-6-methoxy heptanal	62439-41-2				F&F & Specialty Chemical
289	2,6,10-trimethylundec-9-enal	141-13-9				F&F & Specialty Chemical

290	2,6,10-trimethylundeca-5,9-dienal	24048-13-3 54082-68-7				F&F & Specialty Chemical
291	Aldehyde c-16, etc.	77-83-8				F&F & Specialty Chemical
K	**Aldehyde and Ketone production by Claisen rearrangement representative products**					
292	4-Decenal	65405-70-1	**0.0**	**25 MT** Either / Or	**25 MT** Either / Or	F&F & Specialty Chemical
293	Lilybelle	1378867-81-2				F&F & Specialty Chemical
294	Dimethyl octenone	2550-11-0				F&F & Specialty Chemical
295	tetramethyl octenone	74338-72-0				F&F & Specialty Chemical
296	Dupical, etc.	30168-23-1				F&F & Specialty Chemical
L	**Nitrile products for perfumery application by Using Knoevenagel condensation representative products**					
297	Citronitrile	93893-89-1	**0.0**	**25 MT** Either / Or	**25 MT** Either / Or	F&F & Specialty Chemical
298	Limonile	61792-11-8				F&F & Specialty Chemical
299	Citronellyl nitrile	51566-62-2				F&F & Specialty Chemical
300	Hydrocitronitrile, etc.	54089-83-7				F&F & Specialty Chemical
301	Parmanyl	142653-61-0				F&F & Specialty Chemical
302	Ozonil /Tridecene-2-Nitrile	22629-49-8				F&F & Specialty Chemical
303	Hypo-Lem	40188-41-8				F&F & Specialty Chemical
304	Peonile	10461-98-0				F&F & Specialty Chemical
305	Frescile	85351-07-1				F&F & Specialty Chemical
306	Frutonile	69300-15-				F&F &

		8				Specialty Chemical
307	Cumin nitrile, etc.	13816-33-6				F&F & Specialty Chemical
M	**Hydration reaction to produce diols and or alcohol representative products**					
308	1,2-Hexane diol	6920-22-5	**0.0**	**25 MT** Either / Or	**25 MT** Either / Or	F&F & Specialty Chemical
309	1,2-Octane diol	1117-86-8				F&F & Specialty Chemical
310	Ethyl hexyl glycerin	70445-33-9				F&F & Specialty Chemical
311	Verdinol, etc.	3385-61-3				F&F & Specialty Chemical
N	**R&D Products**	**--**	**0.0**	**0.5 MT**	**0.5 MT**	
	TOTAL		**100**	**3175.5**	**3275.5**	

3) The project falls under B1 category of project activity 5(f) as per the schedule of EIA Notification 2006.

4) The proposal was considered in the SEAC video conference meeting dated 28.07.2022.

5) Project proponent (PP) and their Technical Expert M/s Jyoti Om Chemical Research Centre Pvt. Ltd. remain present during video conference meeting.

6) Committee noted that unit has applied for NOC for manufacturing of inorganic product i.e Magnesium chloride anhydrous and/or Magnesium chloride hexahydrate and applied for expansion project. PP submitted that there is no legal court case and public complaint against unit.

7) Committee was of the opinion that unit has yet not obtained CTE/CCA of the GPCB and applied as an existing project which cannot be considered.

8) <u>After detailed discussion, Committee unanimously decided to defer the proposal and consider the same in one of upcoming meeting after submission of copy of CTE of GPCB for inorganic products i.e Magnesium chloride anhydrous and/or Magnesium chloride hexahydrate.</u>

5.	SIA/GJ/IND3/76878/2022	**M/s. Varunesh Chemicals Private Limited** Plot No. C-183+184, Saykha Industrial Estate, Saykha, Tal: Vagra, Dist: Bharuch, Gujarat – 392 140	EC

Category of the unit: **5(f)**

Project status: **New**

13) Details of Application:

1.1. Type of application:	EC-New
1.2. Proposal no.	SIA/GJ/IND3/76878/2022
1.3. Category of Project :	5 (f) – B1

1.4. Date of application : (Online accepted by SEAC)	04/07/2022
1.5. Documents Submitted by Project Proponent(PP)	EIA Report, SEAC Format, Form-2
1.6. TOR No. & Date :	SIA/GJ/17301/2022 dated 29th Jan, 2022
1.7. Technical expert / Environmental Consultant :	M/s. Jyoti Om Chemical Research Centre Pvt. Ltd.
1.8. SEAC Meeting No. and Date:	461st SEAC VC Meeting dated 28th July 2022
1.9. ADS vide letter dated :	--
1.10. Reply Submitted by PP dated:	--
1.11. Revised Consideration SEAC Meeting No. and Date:	--

14) This is a Greenfield project proposed for manufacturing of Synthetic Organic Chemicals as mentioned below:

Sr. No.	Products	CAS No	Quantity (MT/Month)	End Use
1.	Tolnaftate	2398-96-1	50	Pharma API
2.	Oxfendazole	53716-50-0		Pharma API
3.	Febendazole	43210-67-9		Pharma API
4.	Ricobendazole	54029-12-8		Pharma API
5.	Diclazuril	101831-37-2		Pharma API
6.	Nitroxynil	1689-89-0		Pharma API
7.	Triclabendazole	68786-66-3		Pharma API
8.	Theobromine	83-67-0		Pharma API
9.	Chlorzoxazone	95-25-0		Pharma API
10.	Albendazole	54965-21-8		Pharma API
11.	Fluconazole	86386-73-4		Pharma API
12.	Luliconazole	187164-19-8		Pharma API
13.	Loratadine	79794-75-5		Pharma API
14.	Chlorohexidine Base	55-56-1		Pharma API
15.	Thiophosgene	463-71-8		Specialty Chemical
16.	Diglyme	111-96-6		Specialty Chemical
17.	Phenyl thio chloroformate	1005-56-7		Specialty Chemical
18.	Methyl thio chloroformate	79-22-1		Specialty Chemical
19.	Benzyl thio Chloroformate	501-53-1		Specialty Chemical
20.	Isobutyl thio Chloroformate	543-27-1		Specialty Chemical
21.	N Pentyl thio Chloroformate	638-41-5		Specialty Chemical
22.	N Hexyl thio Chloroformate	6092-54-2		Specialty Chemical
23.	1,2 – Dimethoxy ethane (Monoglyme)	110-71-4		Specialty Chemical
24.	Cis bromo benzoate	61397-56-6		Pharma intermediate
25.	N- Hexyl Bromide	111-25-1		Pharma intermediate
26.	N-Octyl Bromide	111-83-1		Pharma intermediate

27.	N-Amyl bromide	110-53-2		Pharma intermediate
28.	N Propyl Bromide	106-94-5		Pharma intermediate
29.	Iso Butyl Bromide	78-77-3		Pharma intermediate
30.	Isopropyl bromide	75-26-3		Pharma intermediate
31.	Butyl bromide	109-65-9		Pharma intermediate
32.	N Heptyl Bromide	629-04-9		Pharma intermediate
33.	Cyclopropyl bromide	4333-56-6		Pharma intermediate
34.	Cyclohexyl bromide	108-85-0		Pharma intermediate
35.	N Decyl Bromide	112-29-8		Pharma intermediate
36.	1,2 Dibromo Ethane	106-93-4		Pharma intermediate
37.	1,3 Dibromo Propane	109-64-8		Pharma intermediate
38.	1,4-Dibromobutane	110-52-1		Pharma intermediate
39.	1,5 Dibromo Pentane	111-24-0		Pharma intermediate
40.	1,6 Dibromo Hexane	629-03-8		Pharma intermediate
41.	Cyclo Propyl Methyl Bromide	7051-34-5		Pharma intermediate
42.	Cyclo Pentyl Bromide	137-43-9		Pharma intermediate
43.	Cyclo Pentyl Chloride	930-28-9		Pharma intermediate
44.	5-Bromo Valeric Acid	2067-33-6		Pharma intermediate
45.	5 Bromo Valeryl Chloride	4509-90-4		Pharma intermediate
46.	n-Propyl chloride	540-54-5		Pharma intermediate
47.	n-Butyl chloride	109-69-3		Pharma intermediate
48.	Isobutyl chloride	513-36-0		Pharma intermediate
49.	n-Pentyl chloride	543-59-9		Pharma intermediate
50.	n-Hexyl chloride	544-10-5		Pharma intermediate
51.	n-Octyl Chloride	111-85-3		Pharma intermediate
52.	2-Ethylhexyl Chloride	123-04-6		Pharma intermediate
53.	1,2,4 Tri Azole	288-88-0		Pharma intermediate
54.	4 amino 1 2 4 triazole	584-13-4		Pharma intermediate
55.	3-Nitroacetophenone	121-89-1		Pharma intermediate
56.	3-Hydroxyacetophenone	121-71-1		Pharma intermediate
	OR			
57.	Clorsulonar	60200-06-8	13.5	Pharma API
58.	Toltrazuril	69004-03-1		Pharma API
59.	R&D		0.1	
	TOTAL		**50.1**	

15) The project falls under B1 category of project activity 5(f) as per the schedule of EIA Notification 2006.

16) The proposal was considered in the SEAC video conference meeting dated 28.07.2022.

17) Project proponent (PP) and their Technical Expert M/s. Jyoti Om Chemical Research Centre Pvt. Ltd. remain present during video conference meeting.

18) Committee deliberated on Product profile, Layout plan, Fire safety, water balance & waste water management, Flue gas and process gas emission & Air Pollution Control System, Hazardous waste matrix, EMP, CER, Green belt, issued raised during public hearing along with time bound action plan, etc.

19) The baseline environmental quality has been assessed for various components of the environment viz. air, noise, water, biological and socioeconomic aspect. The baseline environmental study has been conducted for the study area of 10 km radial distance from project site for the period December-2019 to February-2020. Ambient Air Quality monitoring was carried out PM10, PM2.5, SOx, NOx, HCl, Br2, HBr,

Cl_2, NH_3, VOCs and CO at Eight locations, including the project site. Values conform to the prescribed standards for Ambient Air Quality. The incremental Ground Level Concentration (GLC) has been computed. Incremental GLC's for all parameters remain within 500 m from the project site. The resultant concentrations are within the NAAQS. The modelling study proved that the air emissions from the proposed plant would not affect the ambient air quality of the region in any significant manner. The ambient air quality around the proposed project site will remain within the National Ambient Air Quality Standards (NAAQS).

20) Risk assessment including prediction of the worst-case scenario and maximum credible accident scenarios has been carried out. The detailed proposed safeguard measures including On-Site / Off-Site Emergency Plan has been covered in the RA report.

21) Committee asked to propose solar Panel in government organization instead of solar street light. PP agreed and later on submitted the revised CER details mentioning 10 KW solar panel in Saykha gram panchayat along with letter of Saykha Gram Panchayat by email.

22) Compliance of the ToR found satisfactory.

23) PP presented salient features of the project including Water, Air and Hazardous waste management are as under:

Sr. no.	Particulars	Details
A-1	Project cost	

Total **cost of Proposed** Project
(Rs. in Crores):

Total Project
Rs. 4.5 Crores

Break-up of proposed project Cost:

Details	Project Cost (Rs. In Crores)
Land	0.74
Building	0.90
Machinery	1.00
Env. & Safety	1.71
Miscellaneous	0.15
Total	**4.50**

-

A-2	**Details of CER** -

PP shall carry out CER activities as below:

- ✓ Provision of 10 kW solar panel & development of 500 sq. m. green belt in Saykha village.

B	**Land / Plot ownership details:**

Plot is allotted to **Varunesh Chemicals Private Limited** vide **GIDC/RM/ANK/TRF/FTO/SAY1/76** dated **18/03/2021.**

B-1	**Plot area**

Total Plot area
4199.99 Sq. m.

-

B-2	Area adequacy

SR. NO.	DESCRIPTION	GROUND FLOOR SQ.M.	FIRST FLOOR SQ.M.	SECOND FLOOR SQ. M.	AREA PERCENTAGE OF GROUND COVERAGE (%)
1.	Finished Goods area	82.4	-	-	1.96
2.	Drum Storage Area (Flammable Chemicals)	83.5	-	-	1.99
3.	Drum Storage Area (Toxic Chemicals)	83.5	-	-	1.99
4.	Drum Storage Area (Corrosive Chemicals)	83.5	-	-	1.99
5.	Solvent & Spent Solvent Area	175.1	-	-	4.17
6.	Haz. Waste Storage Area	154.5	-	-	3.68
7.	ETP Area	103.0	-	-	2.45
8.	Boiler & Utility	55.0	-	-	1.31
9.	OHC Center	18.0	-	-	0.43
10.	API Manufacturing Area (G+2)	217.1	217.1	217.1	5.17
11.	Intermediates Manufacturing Area (G+2)	167.0	167.0	167.0	3.98
12.	Specialty Chemicals Manufacturing Area (G+2)	167.0	167.0	167.0	3.98
13.	Admin & R&D Area	82.2	-	-	1.96
14.	Chlorine Gas Storage	30.0	-	-	0.71
15.	Green Belt @ 33.0 %	1386.5	-	-	33.02
16.	Security Cabin	6.0	-	-	0.13
17.	Road Area	1249.6	-	-	29.76
18.	U/G Water Tank	56.0	-	-	1.33
	TOTAL	**4199.99**	**551.1**	**551.1**	**100.0**

Hence, adequate area is available for proposed new Facility.

Comments:

- SEAC has examined it w.r.t.to total monthly production, maximum products, manufactured per month, the total raw material required, weekly storage requirement of each raw material, their mode of storage, their compatibility (flammability, corrosive, toxic), area needed by each raw material, one week storage of finished goods. Area adequacy, from overall safety perspective, has been provided in proposal and is satisfactory.

B-3	Green belt area

	Total (Sq. meter)
Area in Sq. meter	1386.5
% of total area	33%

Comments:

The condition shall be given that -

- The PP shall develop green belt (1386.5 Sq. m i.e. 33 % of the total plot area) as per the undertaking submitted before SEAC. Green belt shall be developed with native plant species that are significant and used for the pollution abatement as per the CPCB guidelines. It shall be implemented within 3 years of operation phase in consultation with GPCB.

C	Employment

Employment generation

Total
30

-

D	**WATER**
D-1	**Source of Water Supply**

- GIDC Water supply.

Comments:

- Prior permission from concerned authority shall be obtained for withdrawal of water.

D-2	Water consumption (KLD)

-

Category	Quantity KLD
(D) Domestic	3.0
(E) Gardening	2.0
(F) Industrial	
Process & R&D	10.6
Washing	2.0
Boiler	15.0
Cooling	10.0
Others (Scrubber)	3.1
Industrial Total	**40.7**
Grand Total (A+B+C)	**45.7**

-

Comments:

- The water consumption above is found to be calculated considering the worst case scenario and in any case the waste water generation shall not exceed the same.

D-3	Waste water generation (KLD)

-

Category	Waste water KLD
(C) Domestic	2.5
(D) Industrial	
Process & R&D	8.5
Washing	2.0
Boiler	1.5
Cooling	1.0

Others (Scrubber)	4.0*
Total Industrial waste water	**13.0**
Total [A + B]	**15.5**

--* 4.0 KLD Scrubbing solution will be re-used within premises or sent to authorized users registered under Rule-9.

Comments:

- The waste water generation above is found to be calculated considering the worst case scenario and in any case the waste water generation shall not exceed the same.
- 22.5 KLD boiler and cooling tower condensate is reused within the same.

D-4	Break-up of waste water disposal & facility (For Domestic)

2.5 KLD Domestic Waste Water will be treated in ETP-1 & treated wastewater will be sent to CETP, Saykha along with industrial waste water.

Comments:

- Domestic wastewater generation shall not exceed 2.5 KL/day for proposed project and it shall be treated in ETP-1. It shall not be disposed off through soak pit/ septic tank.

D-5a	**Break-up of waste water disposal & facility (For Industrial)**

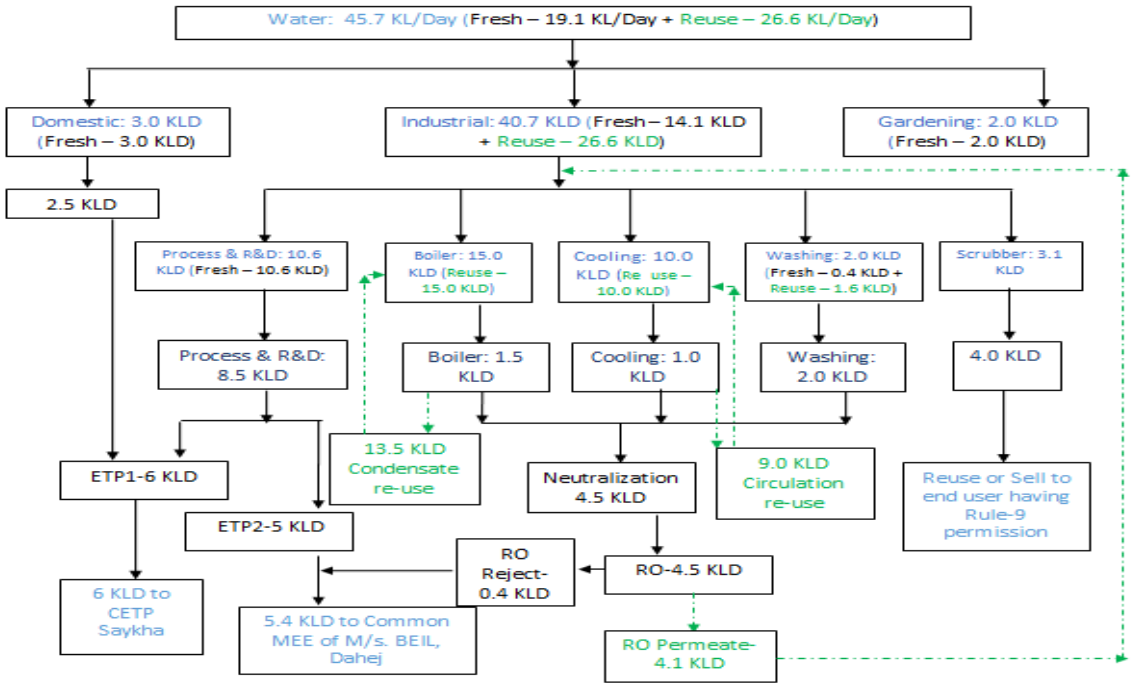
Sr. no.	**Quantity KLD**	**Facility**
1	3.5 KLD Process + 2.5 KLD Domestic = 6.0 KLD	CETP, Saykha
2	5 KLD Process	Common MEE of M/s. BEIL
3	4.5 KLD Utilities	In-House RO
Total	**13.0 KLD Industrial + 2.5 KLD Domestic**	**To CETP, CMEE & in-house RO**

Membership Certificate no. & Date (For CETP/CMEE/CSD etc.)

Membership certificate of CETP, Saykha vide no. Ref. GIDC/BRH/ DEE/DRG/1163 dated 15.03.2022

Membership certificate of M/s: BEIL-Dahej vide no. Ref. BEIL/ANK/2022 dated 05.02.2022

D-5b	**Simplified water balance diagram**



D-5c **Summary**

Summary of water requirement	**Quantity** KLD	Remarks
Total water requirement for the project **(A)**	45.70	
Quantity to be **recycled (B)**	26.6	
Total **fresh water** requirement **(C)**	19.10	
Ensure **Total water requirement = Recycled water + Fresh water i.e. A = B + C**		

Comments:

- Total water requirement for the project shall not exceed 45.70 KLD. Unit shall reuse 26.6 KLD of treated industrial effluent within premises. Hence, fresh water requirement shall not exceed 19.10 KLD and it shall be met through GIDC water supply only. Prior permission from concerned authority for withdrawal of water shall be obtained.
- Management of Industrial effluent shall be as under:
  - ✓ 3.5 KLD industrial effluent from process and 2.5 KLD domestic effluent will be treated in primary, secondary & tertiary ETP-1. 6 KLD, Treated effluent will be sent to CETP-Saykha for further treatment & disposal.
  - ✓ 5 KLD industrial effluent from process will be treated in primary ETP-2. 5 KLD treated effluent and 0.4 KLD RO reject, total 5.4 KLD effluent will be sent to CMEE-BEIL for further treatment & disposal.
  - ✓ 4.5 KLD industrial effluent from utilities will be neutralized passed through dual media filter

followed by RO. 4.1 KLD RO permeate will be reused within premises.

- ✓ 4 KLD industrial effluent from scrubber will be reused within premises or sold to authorized actual users having Rule-9 permission.

- Unit shall provide ETP & RO with adequate capacity.
- The PP shall ensure to dispose off Waste water to the Common Facilities having valid CTO of GPCB.

E	**AIR**
E-1	Power (Electricity) requirement :200 KVA
E-2	**Flue gas emission details**

-

Sr. no.	**Source of emission With Capacity**	**Stack Height (meter)**	**Type of Fuel**	**Quantity of Fuel MT/ Day**	**Type of emissions i.e. Air Pollutants**	**Air Pollution Control Measures (APCM)**
1.	Boiler (1.0 TPH)	30	Natural Gas or Briquettes of Bio-Coal	750 SCM/Day or 1.0 MT/day	PM, SO2, NOx	Adequate Stack Height/ Multi-Cyclone Separator with Bag Filter & Water Scrubber
2.	Boiler (2.0 TPH)	30	Natural Gas or Briquettes of Bio-Coal	1500 SCM/Day or 2.0 MT/day	PM, SO2, NOx	Adequate Stack Height/ Multi-Cyclone Separator with Bag Filter & Water Scrubber
3.	Thermic Fluid Heater (2 Lac Kcal)	30	Natural Gas or Briquettes of Bio-Coal	1000 SCM/Day or 1.0 MT/day	PM, SO2, NOx	Adequate Stack Height/ Multi-Cyclone Separator with Bag Filter & Water Scrubber
4.	Thermic Fluid Heater (4 Lac Kcal)	30	Natural Gas or Briquettes of Bio-Coal	2000 SCM/Day or 2.0 MT/day	PM, SO2, NOx	Adequate Stack Height/ Multi-Cyclone Separator with Bag Filter & Water Scrubber
5.	D.G. set (200 KVA)	12	HSD: 300 liter/Day	Adequate Stack Height	PM, SO2, NOx	Adequate Stack Height

-

E-3	**Process gas**

-

Sr No	**Specific Source of emission (Name of the Product & Process)**	**Type of Emission**	**Stack/Vent Height (meter)**	**Air Pollution Control Measures (APCM)**
1	Reaction Vessel (Sulphonation) (n-Propyl chloride)	HCl SO_2	18	Two Stage Water + Alkali Scrubber

2	Reaction Vessel (Chlorination) (Albendazole)	Cl_2 HCl	18	Two Stage Water + Alkali Scrubber
3	Reaction Vessel (Bromination) (1,2 Dibromo Ethane)	Br_2 HBr	18	Two Stage Water + Alkali Scrubber
4	Reaction Vessel (Amination) (1,2,4 Triazole)	NH_3	18	Two Stage Acid Scrubber
5.	Reaction Vessel (Nitration) (3-Nitroacetophenone)	NOx	18	Two Stage Alkali Scrubber

-

E-4	**Fugitive emission** details with its mitigation measures.

Following measures will be adopted to prevent and control fugitive emissions…

1. Airborne dust at all transfers operations/ points will be controlled either by spraying water or providing enclosures.
2. Raw materials loading and unloading will be done in covered area
3. Care will be taken to store construction material properly to prevent fugitive emissions, if any.
4. Regular maintenance of valves, pumps, flanges, joints and other equipment will be done to prevent leakages and thus minimizing the fugitive emissions of VOCs.
5. Entire process will be carried out in the closed reactors with proper maintenance of pressure and temperature.
6. Periodic monitoring of work area will be carried out to check the fugitive emission.
7. To eliminate chances of leakages from glands of pumps, mechanical seal will be provided at all solvent pumps.
8. Close feeding system will be provided for centrifuges. Centrifuge and filtrate tank vents will be connected to vent chillers.
9. Minimum number of flanges, joints and valves in pipelines.
10. Enclosures to chemical storage area, collection of emission from loading of raw materials in particular solvents through hoods and ducts by induced draft, and control by scrubber / dust collector to be ensured.
11. Adequate ventilation will be provided.
12. Periodic monitoring of work area will be carried out to check the fugitive emission as per the norms of Gujarat Factory Rules.

Comments for E2, E3 & E4:

- The fuel to be used is approved fuel for the requirement of the heat energy and has been proposed the Air pollution Control measures so as to achieve the emission norms prescribed by the competent authorities.
- The air pollution control measures, has been proposed by PP for checking flue gas emission, Process gas emission, fugitive gas emission, with adequate systems of reaction/ reaction

condensers, thermic fluid heaters, boilers, and scrubbing systems as per the requirements, to achieve the emission norms prescribed by the competent authorities.

F	**Solvent management**, VOC emissions etc.
F-1	Types of solvents, Details of Solvent recovery, % recovery, reuse of recovered Solvents etc.

Sr. No.	Name of the Product	Name of Solvent used	Solvent Quantity in (Kg)	Solvent Recovered quantity (Kg)	Solvent Loss quantity (Kg)	Percentage Recovered (%)	Percentage Loss (%)
1.	Tolnaftate	Toluene	4.24	4.12	0.12	97.17	2.83
		Methanol	3.00	2.94	0.06	98.00	2.00
2.	Oxfendazole	Acetone	1.37	1.31	0.06	95.62	4.38
3.	Febendazole	Methanol	3.03	2.94	0.09	97.03	2.97
4.	Ricobendazole	Methanol	3.03	2.93	0.1	96.70	3.30
5.	Diclazuril	DMF	3.50	3.37	0.13	96.29	3.71
		Methanol	5.00	4.80	0.20	96.00	4.00
6.	Nitroxynil	Methanol	5.00	4.80	0.20	96.00	4.00
7.	Triclabendazole	Methanol	8.50	8.18	0.32	96.24	4.94
8.	Chlorzoxazone	Methanol	3.07	3.00	0.07	97.72	2.28
9.	Albendazole	Methanol	3.72	3.64	0.08	97.85	2.15
		Toluene	3.83	3.71	0.12	96.87	3.13
		Acetone	2.68	2.59	0.09	96.64	3.36
10.	Fluconazole	DMF	0.32	0.31	0.01	96.87	3.13
11.	Luliconazole	Ethyl Acetate	1.28	1.24	0.04	96.88	3.13
12.	Loratadine	MDC	5.08	4.88	0.20	96.06	3.94
		THF	3.00	2.90	0.10	96.67	3.33
		Chloroform	5.19	4.99	0.20	96.15	3.85
		Toluene	4.89	4.79	0.10	97.96	2.04
		Acetonitrile	0.66	0.64	0.02	96.97	3.03
13.	Chlorohexidine Base	Butanol	1.90	1.83	0.07	96.32	3.68
14.	Cis Bromo Benzoate	Toluene	4.17	4.11	0.06	98.56	1.44
		Methanol	2.0	1.94	0.06	97.00	3.00
15.	4-amino-1, 2, 4-triazole	Methanol	2.0	1.94	0.06	97.00	3.00
16.	3-Nitro acetophenone	EDC	2.02	1.95	0.07	96.53	3.47
		Methanol	1.22	1.19	0.03	97.54	2.46
17.	3-Hydroxy acetophenone	Toluene	2.00	1.96	0.04	98.00	2.00
18.	Clorsulon	Methanol	5.00	4.8	0.2	96.00	4.00
		MDC	3.00	2.9	0.1	96.67	3.33

		Ethyl Acetate	2.00	1.92	0.08	96.00	4.00
19.	Toltrazuril	Toluene	4.50	4.41	0.09	98.00	2.00
		Methanol	11.14	10.92	0.22	98.03	1.97
		DMC	4.21	4.12	0.09	97.86	2.14

F-2 **VOC emission** sources and its mitigation measures

Measures for achieving maximum solvent recovery and minimize VOC generation:

Sr. No.	Source	Probable Pollutant Emission	Control Measures/ APCM
FLUE GAS EMISSION			
1.	Boiler (1.0 TPH)	Air pollutant (PM, SO_2, NO_X)	Adequate Stack Height/ Multi Cyclone Separator + Bag filter +water scrubber
2.	Boiler (2.0 TPH)	Air pollutant (PM, SO_2, NO_X)	Adequate Stack Height/ Multi Cyclone Separator + Bag filter +water scrubber
3.	Thermic Fluid Heater (2 Lac Kcal)	Air pollutant (PM, SO_2, NO_X)	Adequate Stack Height/ Multi Cyclone Separator + Bag filter +water scrubber
4.	Thermic Fluid Heater (4 Lac Kcal)	Air pollutant (PM, SO_2, NO_X)	Adequate Stack Height/ Multi Cyclone Separator + Bag filter +water scrubber
5.	D.G. set (200 KVA)	Air pollutant (PM, SO_2, NO_X)	Adequate Stack Height and Acoustic Enclosure
PROCESS GAS EMISSION			
1.	Reaction Vessel (Sulphonation)	Air pollutant (HCl, SO2)	Two stage Water Scrubber followed by Alkali Scrubber
2.	Reaction Vessel (Chlorination)	Air pollutant (Cl2, HCl)	Two stage Water Scrubber followed by Alkali Scrubber
3.	Reaction Vessel (Bromination)	Air pollutant (Br2, HBr)	Two stage Water Scrubber followed by Alkali Scrubber
4.	Reaction Vessel (Amination)	Air pollutant (NH3)	Two stage Acid Scrubber
5.	Reaction Vessel (Nitration)	Air pollutant (NOx)	Two stage Alkali Scrubber
FUGITIVE EMISSION			
1.	Handling of raw material bags in storage area	Air pollutant (PM)	i) Provision of exhaust ventilation ii) Provision of PPE. iii) Provision of Job rotation to reduce exposure.
2.	Flange joints of pipeline, pump & motors	Air pollutant (VOC)	i) Routine &periodic inspection to check leakage. ii) Preventive maintenance, Follow SOP for maintenance. iii) Pumps & motors will be

			mechanical seal type. iv) LDAR program will be followed. Provision of Flange guard.
3.	Solid raw material transferring to reactor	Air pollutant (PM)	Hopper will be provided with powder transfer system.
4.	Liquid raw material transferring to reactor	Air pollutant (VOC)	Feeding of liquid raw material will be carried out by closed pipeline and mechanical seal pump.
5.	Loading /unloading at storage area	Air pollutant (VOC)	Unloading through pipeline to tank in a close system.

F-3 LDAR proposed:

To prevent losses of these solvents in atmosphere, following infrastructure shall be used in addition to LDAR program

- Leak Free Pumps for transfer of solvents
- MSW Gaskets in solvent pipelines to prevent leakage from flanges
- Minimum number of flanges, joints and valves in pipelines.
- To eliminate chances of leakages from glands of pumps, mechanical seal will be provided at all solvent pumps.
- All the rotating equipments like pumps will be installed with Mechanical Seals to arrest any sort of emissions.
- Condenser and scrubber post Reactor with cooling arrangement
- Enclosures to chemical storage area, collection of emission from loading of raw materials in particular solvents through hoods and ducts by induced draft, and control by scrubber / dust collector to be ensured.
- In case the small spillage or leakage observed, first pour the china clay (vermiculate) on material and collect the contaminated china clay (vermiculate) and send to ETP.
- If the spillage is of inflammable liquid, switch off all the power supply in the area to prevent Electric Spark
- Flanges will be sealed so less loss will be there.
- Two condensers will be installed with cooling water and chilled brine to recover the solvent.
- **Primary Condenser HE-01:** Cooling Tower water or Chilled water (at 5^0C) will be used to condense the solvents depend on the vapor pressure at its operating conditions and the non-condensed vapors will be condensed in a Secondary Condenser
- **Secondary Condenser HE-02**: Chilled Brine at -05 ^{0}C will be used to trap any traces of Solvent which is slipped from Secondary condenser.
- **VOC Trap Condenser HE-03:** Chilled Brine at -15 ^{0}C will be used to trap any traces of Solvent which is slipped from Secondary condenser.

Comments:

- Measures for achieving maximum solvent recovery and minimize VOC generation, inclusive of VOC detectors, pumps, maintenance of pipelines, proper ventilation etc., provided are as per requirement.
- Spent solvents shall be recovered by in-house distillation in such a manner that recovery shall not be achieved to the maximum extent and recovered solvent shall be reused in the process. Solvent recovery system with adequate reflux condensers shall be provided for controlling escape of low boiling solvents (VOCs).

G Hazardous waste

G-1 Hazardous waste management matrix

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Sr.	Type/ Name	Specific	Category	Quantit	Management of HW

no.	of Hazardous waste	Source of generation (Name of the Activity, Product etc.)	and Schedule as per HW Rules.	y (MT/ Annum)	
1	Discarded HDPE Drums/Bags	Raw Material and Storage	Sch-I/ 33.1	20.0	Collection, Storage, Transportation and sell to Register Re-processors after decontamination.
2	Used / Spent Oil	Equipment & Machinery	Sch-I/ 5.1	240 Lit/ Year	Collection, Storage, Transportation and sell to registered recycler.
3	Spent Catalyst	Process (Febendazole)	Sch-I/ 28.3	30.0	Collection, Storage, Transportation and sent to registered regenerator.
4	ETP Sludge	ETP	Sch-I/ 35.3	70.0	Collection, Storage, Transportation and sent to co-processing or common TSDF site.
5	Inorganic Solid Waste	Process (Tolnaftate)	Sch-I/ 28.1	288.0	
6	Distillation Residue	Distillation	Sch-I/ 20.3	76.0	Collection, Storage, Transportation and sent for co-processing in cement industries or CHWIF Site.
7	Spent Carbon	Process (Luliconazole)	Sch-I/ 28.2	60.0	
8	Organic Waste	Process (Clorsulon)	Sch-I/ 28.1	450.0	
9	Off Specification Products	From mfg. Process (Batch failure)	Sch-I/ 28.4	6.0	
10	Hydrochloric Acid (30%)	Scrubber	Sch-II/ B15	870.0	Collection, Storage and Reuse within premises or sell to end user under Rule-9 permission.
11	Sulphuric Acid (80%)	Process (Iso Butyl Bromide)	Sch-II/ B15	300.0	
12	Sodium Bisulphite (25%)	Scrubber	Sch-II/ B36	348.0	
13	Recoverable Solvent	Fro Distillation unit	Sch-I/ 28.6	2050.0	Collection, Storage, in-house Distillation and Reuse within plant premises.
14	Sodium Hypochlorite (20%)	Scrubber	Sch-I/ 28.1	10.0	Collection, Storage, Transportation and sent to ETP for further treatment.
15	Hydrogen Bromide (48%)	Scrubber	Sch-I/ 28.1	1332.0	Collection, Storage, Transportation and sold to end user having permission under rule-9.
16	Sodium Bromide	Scrubber	Sch-I/ 28.1	480.0	
17	Ammonium Chloride	Scrubber	Sch-I/ 28.1	420.0	
18	Sodium Nitrite	Scrubber	Sch-I/ 28.1	35.0	

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Comments:

- Waste management includes hazardous waste management and other solid waste

management. Hazardous waste-management comprises of collection, storage, transportation, disposal, incineration, and recycle of waste. SEAC examined the details provided and found it as per requirement.

- The project proponent has to obtain membership of TSDF site & CHWIF before obtaining CTO of GPCB.

G-2	Non- Hazardous waste management matrix

✓ Fly Ash generation will be 240 MTPA and Management of fly ash will be as per the Fly ash Notification 2009 & its amendment time to time and it will be ensured that there is 100% utilization of fly ash to be generated from the unit. .

Comments:

- Management of fly ash shall be as per the Fly ash Notification 2009 & its amendment time to time and it shall be ensured that there is 100% utilization of fly ash to be generated from the unit.

H	SAFETY details
H-1	Details regarding storage of Hazardous chemicals

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Storage details	Name of major Hazardous chemicals
Drums	Methanol, Toluene, Dimethyl Formamide, Methylene Di Chloride, Sulphuric Acid, Liq. Ammonia, Hydrochloric Acid, Nitric Acid
Bottle	Bromine, Thiophosgene
Tonner	Chlorine

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Safety details:

- Storage facility constructed as per the norms of explosive dept. & regulatory requirements.
- Breather valve & flame arrestor provided for all storage areas.
- Explosion proof electric fittings are provided in the area.
- Double earthing provision to all the storage area & flange to flange jumpers are provided & being checked periodically.
- Periodically checking of Earth pit resistance & continuity.
- Unloading & transferring of material done under close supervision & using pump or gravity.
- Firefighting facilities such as Fire hydrant system with fire monitor, Fire Extinguishers & Sand buckets are provided.
- Dyke wall & fencing provided.
- Closed handling and transferring systems for Hazardous chemicals.
- Fire Extinguishers and absorbents will be available near storage area.
- Drums to be stored on pallet with the suitable trap.
- Trained & dedicated persons are engaged for material handling activities.

- Smoking is strictly prohibited in this area. Cautionary notice boards are displayed.
- Level indicators provided for solvent tanks.
- Safety Shower cum eye washer provided….

Safety details of Hazardous Chemicals:

Type of Hazardous Chemicals	Safety measures
FLAMMABLE & EXPLOSIVE	Storage in compatible storage unit with flame proof fitting, also provide firefighting measures .Only trained person allowed to handle
CORROSIVE& CHEMICALS	Storage in compatible storage unit with safe distance with other chemicals, Only trained person allowed to handle
TOXIC CHEMICALS	Storage in compatible storage unit with safe distance with other chemicals, Only trained person allowed to handle

- **Applicability of PESO:** Yes. Unit will obtain PESO License for storage of chemicals.

Comments:

- Committee was of the opinion that the provisions of PESO, licensing, condition compliance, monitoring, fall within the preview of The Petroleum and Explosives Safety Organization (PESO) and SEAC has very limited role in this. Nevertheless SEAC has examined it. The PP has submitted that the list of raw materials/products proposed to be produced along with the quantity, attract the provisions of PESO and they will abide by the requisite legal compliances with reference to storage and safety. SEAC has taken note of it.

H-2	**Types of hazardous Processes involved and its safety measures:**

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Type of Process	Safety measures including Automation
Bromination	• Integrated DCS System will be installed. • Cooling & Chilling system provided to vent. • Maintain bromine vapor concentration in the work area to less than 0.1 ppm with adequate exhaust hoods, ventilation systems and scrubbers. Analyze air for proper control. • Transfer or repackage bromine only in a controlled, closed environment. • Exhaust ventilating systems will be used in enclosed areas where bromine is handled.
Sulphonation	• Integrated DCS (Distributed Control System) base process controls and operation of plant will be installed. • Provisions of safety valve & rupture disk on reactor. • Provisions of auto dumping Vessel. • Required PPEs like full body protection PVC apron, Hand gloves, gumboot, Respiratory mask etc. will be provided to operator. • To avoid runaway reaction, TC charging will be done gradually & slowly. • Charging will be done only through closed line and system. Scrubber attached with closed system.

	• Make sure the absorber unit (two stage Alkali scrubber) is working and capable of handling vented SO2 / HCl fumes. • Neutralizing agent will be kept ready for tackle any emergency spillage. • Safety Shower and eye wash will be provided near process area. • For Thionyl Chloride evacuate area in down wind direction up to 0.3 km (300 meter) in small spillage. • Emergency siren and wind sock will be provided. • Tele Communication system and mobile phone will be used in case of emergency situations for communication. • Total close process will be adopted for Thionyl chloride charging. • Caution note and emergency first aid will be displayed and train for the same to all employees. • First Aid Boxes will be available in process area. • Emergency organization and team will be prepared as per On site-Off site emergency planning. • Emergency team will be prepared and trained for scenario base emergency. Like Toxic control team, Fire control team, First aid team, communication and general administration team, Medical team etc. • Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. • Use water spray to reduce vapors; do not put water directly on leak, spill area or inside container. Keep combustibles (wood, paper, oil, etc.) away from spilled material. • Cover with DRY earth, DRY sand or other non-combustible material followed with plastic sheet to minimize spreading or contact with rain.
Chlorination	• Chlorine Emergency Kit will be procured and kept ready at process site. • Integrated DCS (Distributed Control System) base process controls and operation of plant will be installed. • Chlorine Hood with blower will be provided with scrubbing arrangement. • SCBA sets will be kept ready at site. • Safety Shower and eye wash will be provided in process area. • Chlorine absorption system will be provided. In case of chlorine leakage in chlorine shed it will be suck through blower and it will be scrubbed in Caustic scrubber. • Also a Provisional / Emergency Scrubber will be provided at Vessel. • Emergency siren and wind sock will be provided. • Tele Communication system and mobile phone will be used in case of emergency situations for communication. • First Aid Boxes and Occupational health centre will be made at site. • Emergency organization and team will be prepared as per On site-Off site emergency planning. • Full body protection suite and other PPEs will be kept ready at site. • Emergency team will be prepared and trained for scenario base emergency. Like Toxic control team, Fire control team, First aid team, Communication and general administration team, Medical team etc.
Amination	• Integrated DCS System will be installed.

	• Valve, pipeline will be checked and maintain, in good condition. • Ammonia cylinders will be stored in cylinder storage area. Cylinder storage license will be obtained from CCOE as per Gas cylinder rules. • Ammonia cylinder will be made well ventilated and safe distance will be maintained. • Sprinkler system provision will be made in cylinder storage area. • Ammonia cylinder leakage identification will be done by HCL torch. • Ammonia cylinder leakage control Kit will be kept available at store. • Hazard identification, control measures in case of leakage and first Aid procedure will be prepared and displayed at handling locations. • Copper tube will be used for Ammonia cylinder connection with header. • Sprinkler point and Eyewash/ Safety shower will be provided near Ammonia header point. • ADEQUATE PPE will be kept to handle the Hazard. • ISI Portable fire extinguisher & Hydrant line will be provided as per TAC norms. • Sufficient amount of sand/soil are kept to control any spillage. • Flame proof fitting provided. • Eye washer cum shower will be provided near storage area. • Spark arrester will be installed on all vehicles inside the premises. • SBA set, Canister mask and airline mask will be provided. • Earthing & bonding will be provided.
Nitration	• Total enclosed process system. • Instrument & Plant Air System. • Safety valve and Rupture disc provided on reactor. • Cooling and power alternative arrangement have been made on reactor. • Emergency cooling alternative arrangement have been made on reactor. • Nitric acid storage away from the auto clave reactor. • Open well ventilated and fragile roofs will be provided to on reactor. • Scrubbing system will be installed to scrub nitrous gases generated during reaction. • SOP will be prepared and operators will be trained for the same. • Employees will be trained to handle nitric acid and continuous training schedule will be made. • Dumping vessel arrangement will be made.

H-3 Details of Fire Load Calculation

Total Plot Area:	4199.99
Area utilized for plant activity:	1653.3
Area utilized for Hazardous Chemicals Storage:	693.1
Number of Floors:	G+2
Water requirement for firefighting in KLD:	19.09
Water storage tank provided for firefighting in KLD:	125.0 KL
Details of Hydrant Pumps:	Kirloskar main pump (20m^3/Hr, 150-meter head) and one jockey pump (15 m^3/hr, 90-meter head) will be provided
Nearest Fire Station :	Fire Station - Bharuch @ 18.5 km
Applicability of Off Site Emergency Plan:	Not Applicable

Comments:

- The project proponent has proposed fire safety plan which includes fire hydrant line, sprinkler system, fire extinguishers, fire suits, covering the project area and provides for fire water storage tank of 125 KL. SEAC found it as per the requirement.

H-4	Details of Fire NOC/Certificate:

Shall be obtained after receipt of EC.

H-5	Details of Occupational Health Centre (OHC):

-

Number of permanent Employee:	20
Number of Contractual person/Labour:	10
Area provided for OHC:	18 m^2
Number of First Aid Boxes:	2
Nearest General Hospital:	Arogya Kendra, Vagra @ 8.07 kms
Name of Antidotes to be store in plant:	Required antidotes will be kept readily available at site

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Comments

- Project proponent has provided Occupational health center with adequate provision of manpower, equipment and operational cost. SEAC finds it as per the provisions of Gujarat Factory Rules 1963.

	Details of Environmental Management Plan (EMP)	As below:

Sr. No	Unit	Detail	Capital Cost (Rs. In Crore)	Operating Cost (Rs. In Crore)	Maintenance Cost (Rs. In Crore)	Total Recurring Cost (Rs. In Crore)
1	Waste Water	Membership cost of CMEE, Cost of ETP & treatment cost	0.24	0.58	0.12	0.70
2	Air	Cost of Stack Installation, Scrubber & APCM	0.45	0.027	0.01	0.037
3	Hazardous Management	Membership cost & Disposal cost to TSDF/ CHWIF	0.05	0.75	0.18	0.93
4	Fire & Safety	Fire fighting equipment's & Integrated DCS	0.655	0.055	0.025	0.08
6	Green Belt Development	Trees & maintenance	0.085	0.008	0.002	0.01
7	Occupational Health	OHC, Training & medical examination	0.03	0.03	0.015	0.045

		of employees				
8	Noise Control	Acoustic Enclosure	0.01	0.002	0.001	0.003
9	Monitoring of Environmental Parameters	Monitoring Equipments	0.10	0.010	0.005	0.015
10	CER Funds	2% as per OM dated 01/05/2018	0.09	0.09	0.0	0.09
Total			**1.71**	**1.552**	**0.358**	**1.91**

Comments:

- The overall environment management plan (EMP) provided for capital and recurrent cost for waste water treatment, air emission control, noise control, hazardous waste disposal, fire safety, occupational health, green belt and corporate social responsibility was deliberated and found satisfactory.

24) **Recommendation by SEAC:**

"On the basis of information provided to SEAC on project, its location, technical, physical and environmental infrastructure, products, quantity to be manufactured, its raw material, storage, waste disposal, water treatment, safety measures, green belt development planning, regulatory compliance assured of related statutory provisions, necessary documents of requisite permissions provided from concerned departments and overall environmental management planning for the project, along with financial resources committed for operation and maintenance, and on the basis of presentation made before SEAC, modification suggested by SEAC and incorporated by project proponent, SEAC finds the project as per the requirement and **unanimously**recommends the same to SEIAA for environmental clearance."

Conditions with which Environment Clearance is recommended:

Construction Phase

a) "Wind – breaker of appropriate height i.e. 1/3rd of the building height and maximum up to 10 meters shall be provided. Individual building within the project site shall also be provided with barricades.

b) "No uncovered vehicles carrying construction material and waste shall be permitted."

c) "No loose soil or sand or construction & demolition waste or any other construction material that cause dust shall be left uncovered. Uniform piling and proper storage of sand to avoid fugitive emissions shall be ensured."

d) Roads leading to or at construction site must be paved and blacktopped (i.e. – metallic roads).

e) No excavation of soil shall be carried out without adequate dust mitigation measures in place.

f) Dust mitigation measure shall be displayed prominently at the construction site for easy public viewing.

g) Grinding and cutting of building materials in open area shall be prohibited.

h) Construction material and waste should be stored only within earmarked area and road side storage of construction material and waste shall be prohibited.

i) Construction and demolition waste processing and disposal site shall be identified and required dust mitigation measures be notified at the site. (If applicable).

SPECIFIC CONDITIONS:

1. Unit shall install CEMS **[Continuous Emission Monitoring System]** in line to CPCB directions to all SPCB vide letter no. B-29016/04/06PCI-1/5401 dated 05/02/2014 for effluent discharge and air emission as per pollutants discharge/emission from respective project and an arrangement shall also be done for reflecting the online monitoring results on the company's server, which can be assessable by the GPCB/CPCB on real time basis. **[For Small/Large/Medium (Red Category) & Whichever (Air emission & Effluent discharge) is applicable].**

2. Close loop solvent recovery system with adequate condenser system shall be provided to recover solvent vapours in such a manner that recovery shall be maximum and recovered solvent shall be reused in the process within premises.

3. Leak Detection and Repair (LDAR) program shall be prepared and implemented as per the CPCB guidelines. LDAR Logbooks shall be maintained.

4. The National Ambient Air Quality Emission Standards issued by the Ministry vide G. S. R. No. 826 (E) dated 16th November, 2009 shall be complied with.

5. National Emission Standards for Organic Chemicals Manufacturing Industry issued by the Ministry vide G. S. R. 608 (E) dated 21/07/2010 and amended from time to time shall be followed.

6. Unit shall have to adhere to the prevailing area specific policies of GPCB with respect to the discharge of pollutants, and shall carry out the project development in accordance & consistence with the same.

7. All measures shall be taken to avoid soil and ground water contamination within premises.

8. Safety & Health:

a) Unit shall obtain all required permissions from the Narcotics Control Bureau for manufacturing, storage and handling of Acetic Anhydride & any such chemicals.
b) PP shall obtain PESO permission for the storage and handling of hazardous chemicals.
c) PP shall provide Occupational Health Centre (OHC) as per the provisions under the Gujarat Factories Rule 68-U.
d) PP shall obtain fire safety certificate / Fire No-Objection certificate (NOC) from the concern authority

as per the prevailing Rules / Gujarat Fire Prevention and Life Safety Measures Act, 2016.

e) Unit shall adopt functional operations/process automation system including emergency response to eliminate risk associated with the hazardous processes.

f) PP shall carry out mock drill within the premises as per the prevailing guidelines of safety and display proper evacuation plan in the manufacturing area in case of any emergency or accident.

g) PP shall install adequate fire hydrant system with foam trolley attachment within premises and separate storage of water for the same shall be ensured by PP.

h) PP shall take all the necessary steps for control of storage hazards within premises ensuring incompatibility of storage raw material and ensure the storage keeping safe distance as per the prevailing guidelines of the concerned authority.

i) PP shall take all the necessary steps for human safety within premises to ensure that no any harm is caused to any worker/employee or labour within premises.

j) Flame proof electrical fittings shall be provided in the plant premises, wherever applicable.

k) Unit shall provide water sprinkler to the ammonia storage cylinder.

l) Unit shall never store drum/barrels/carboys of incompatible material/chemical together.

m) Unit shall provide effective fire hydrants, water monitors & foam application system at solvent storage area and unit shall provide adequate safety system such as water sprinklers, water curtains, foam pouring system etc. to restrict cascade fire emergency in solvent storage area.

n) Unit shall provide effective Isolation for Process area and storage of hazardous chemicals.

o) Unit shall Store Bromine Bottle in cool dry separate area, out of direct sunlight.

p) Unit shall provide water sprinkler to the ammonia storage cylinder.

q) Unit shall provide chlorine leakage control emergency kit and FRP hood with scrubber system for chlorine safety.

r) Unit shall provide safety valve and rapture disc, as well as auto dump or auto quench/, suppress system for nitration vessel safety.

s) Unit shall provide safety valve and rapture disc, as well as auto dump or auto quench/, suppress system for exothermic reaction vessel safety.

WATER

9. Total water requirement for the project shall not exceed 45.70 KLD. Unit shall reuse 26.6 KLD of treated industrial effluent within premises. Hence, fresh water requirement shall not exceed 19.10 KLD and it shall be met through GIDC water supply only. Prior permission from concerned authority for withdrawal of water shall be obtained.

10. The industrial effluent generation from the project shall not exceed 13 KLD.

11. Management of Industrial effluent shall be as under:

- ✓ 3.5 KLD industrial effluent from process and 2.5 KLD domestic effluent shall be treated in

primary, secondary & tertiary ETP-1. 6 KLD, Treated effluent shall be sent to CETP-Saykha for further treatment & disposal.

- ✓ 5 KLD industrial effluent from process shall be treated in primary ETP-2. 5 KLD treated effluent and 0.4 KLD RO reject, total 5.4 KLD effluent shall be sent to CMEE-BEIL for further treatment & disposal.
- ✓ 4.5 KLD industrial effluent from utilities shall be neutralized passed through dual media filter followed by RO. 4.1 KLD RO permeate will be reused within premises.

12. Domestic wastewater generation shall not exceed 2.5 KL/Day for proposed project and it shall be treated in ETP-1. It shall not be disposed off through soak pit/ septic tank.

13. Treated waste water shall be sent to common facilities (CETP, Common MEE, Spray dryer etc.) only after complying with the inlet norms of common facilities prescribed by GPCB to ensure no adverse impact on Human Health and Environment.

14. The unit shall provide metering facility at the inlet and outlet of ETP, STP and RO and maintain records for the same.

15. Proper logbooks of ETP, STP and RO; reuse/ recycle of treated/ untreated effluent; chemical consumption in effluent treatment; quantity & quality of treated effluent; power consumption etc. shall be maintained and shall be furnished to the GPCB from time to time.

AIR:

16. Unit shall not exceed fuel consumption for boilers, TFHs and D G Set as per the point no. E-2 as mentioned above.
17. Unit shall provide adequate APCM with flue gas generation sources to achieve the norms prescribed by GPCB.
18. Unit shall provide adequate APCM with process gas generation sources as the point no**. E-3** as mentioned above.
19. PP shall use approved fuels only as fuel in boilers.
20. The fugitive emission in the workzoneenvironment shall be monitored. The emission shall conform to the standards prescribed by the concerned authorities fromtime to time (e.g. Directors of IndustrialSafety& Health). Following indicativeguidelines shall also be followed to reducethe fugitive emission.

    - ➢ Internal roads shall be either concreted or asphalted or paved properly toreducethe fugitive emission during vehicular movement.
    - ➢ Air borne dust shall becontrolled with water sprinklers at suitable locations in the plant.
    - ➢ A green belt shall be developed all around the plant boundary and also along the roads to mitigate fugitive & transport dust emission.

21. Regular monitoring of Volatile Organic Compounds (VOCs) shall be carried out in the work zone area

and ambient air.

22. Forcontrol of fugitive emission, VOCs, following steps shall be followed :

    a. Closed handling and charging system shall be provided for chemicals.
    b. Reflux condenser shall be provided over Reactors / Vessels.
    c. Pumps shall be provided with mechanical seals toprevent leakages.
    d. Air borne dust at all transfers operations/ points shall be controlled either by spraying water or providing enclosures.

23. Solvent management shall be carried out as follows:

    - ✓ Measures shall be taken to reduce the process vapors emissions as far as possible. Use of toxic solvents shall be minimum. All venting equipment shall have vapour recovery system
    - ✓ Reactor shall be connected to adequate chilling system to condensate solvent vapors and reduce solvent losses.
    - ✓ Reactor and solvent handling pump shall have mechanical seals to prevent leakages.
    - ✓ The condensers shall be provided with sufficient HTA and residence time so as to achieve maximum solvent recovery.
    - ✓ Solvents shall be stored in a separate space specified with all safety measures.
    - ✓ Proper earthing shall be provided in all the electrical equipment wherever solvent handling is done.
    - ✓ Solvent storage and handling area shall be flame proof. The solvent storage tanks shall be provided with breather valve to prevent losses.

24. Regular monitoring of ground level concentration of PM_{10}, $PM_{2.5}$, SO_2, NOx, HCl, Cl_2, HBr, Br_2, NH_3 and VOCs shall be carried out in the impactzoneand its records shall be maintained. Ambient air quality levels shall not exceed the standards stipulated by the GPCB. If at any stage these levels are found toexceed the prescribed limits, necessary additionalcontrol measures shall be taken immediately. The location of the stations and frequency of monitoring shall be decided in consultation with the GPCB.

HAZARDOUS / SOLID WASTES:

25. All the hazardous/ solid waste management shall be taken care as per the point no. F-1 as mentioned above.
26. Authorized end-users shall have permissions from the concerned authorities under the Rule 9 of the Hazardous and Other Wastes (Management and Transboundary Movement) Rules 2016.
27. Unit shall explore the possibilities for environment friendly methods like co-processing of hazardous waste for disposal of Incinerable & land fillable wastes before sending to CHWIF & TSDF sites respectively.
28. The project proponent has to obtain membership of TSDF site & CHWIF before obtaining CTO of GPCB.
29. Management of fly ash shall be as per the Fly ash Notification 2009 & its amendment time to time and it

shall be ensured that there is 100% utilization of fly ash to be generated from the unit.

30. The unit shall submit the list of authorized end users of hazardous wastes along with MoU signed with them at least two months in advance prior to the commencement of production. In the absence of potential buyers of these items, the unit shall restrict the production of the respective items.

GREENBELT AREA

31. The PP shall develop green belt within premises (1386.5 Sq. m i.e. 33 % of the total plot area) as per the undertaking submitted before SEAC. Green belt shall be developed with native plant species that are significant and used for the pollution abatement as per the CPCB guidelines. It shall be implemented within 3 years of operation phase in consultation with GPCB.

OTHERS:

32. The project proponent shall carry out the activities of Rs 18 Lakhs [Provision of 10 kW solar panel & development of 500 sq. m. green belt in Saykha Gram Panchayat] proposed under CER and it shall be part of the Environment Management Plan (EMP) as per the MoEF&CC's OM no. F. No. 22-65/2017-IA.III dated 30.09.2020. This shall be monitored and the monitoring report shall be submitted to the regional office of MoEF&CC as a part of half-yearly compliance report and to the District Collector. The monitoring report shall be posted on the website of the project proponent.
33. All the recommendations, mitigation measures, environmental protection measures and safeguards proposed in the EIA report of the project prepared by M/s. Jyoti Om Chemical Research Centre Pvt. Ltd. and submitted by the project proponent and commitments made during presentation before SEAC and proposed In the EIA report shall be strictly adhered to in letter and spirit.

COMPLIANCE OF ENVIRONMENT CLEARANCE/REPORTING/ADMINISTRATION/APPEAL:

34. Project proponent shall inform to all the concerned authorities including Municipal Corporation and District Collector and shall also give wide publicity through advertisement in minimum two local newspapers within seven days, about the Environment Clearance order accorded.
35. Project proponent shall appoint a key person in the organization who shall be responsible for compliance of above condition fully on behalf of the proponent. It will not mean that appointing a key person will exempt the project proponent from the responsibility of compliance. Any change in key person shall immediately be informed to SEIAA and all concerned authorities.
36. Designated key person shall submit six monthly compliance report to SEIAA/SEAC, MOEF&CC, GPCB and Nodal Department of the Government.
37. The Nodal Department or any authority or officer authorized by MOEF&CC/SEIAA can inspect the site of the project and all the facilities, for verification of compliances of environment clearance conditions.
38. In case of violation reported upon, the project proponent shall be responsible for all the legal actions as per Environment Protection Act, 1986 including SEIAA may cancel, withdraw or keep in abeyance, the Environment Clearance accorded.
39. Any person including the project proponent affected by this Environment Clearance order may file appeal to Honorable National Green Tribunal West Zone branch, Pune, preferably within a period of thirty days

from the date of issue of Environment Clearance as prescribe under section 16 of National Green Tribunal Act 2010.

40. All complains and public grievance or representations may be addressed to SEIAA/SEAC in the email addresses (a) msseiaagj@gmail.com& (b) seacgujarat@gmail.com

6.	SIA/GJ/IND3/77731/2021	**M/S. Colorband Dyestuff Pvt. Ltd. (Unit-5)** Plot No.441+442,Saykha GIDC, Tal- Vagra, Dist.: Bharuch	EC

Category of the unit: **5(f)**

Project status: **New**

1) Details of Application:

1.1. Type of application:	EC-NEW
1.2. Proposal no.	**SIA/GJ/IND3/77731/2021**
1.3. Category of Project :	B1
1.4. Date of application : (Online accepted by SEAC)	12th July 2022
1.5. Documents Submitted by Project Proponent(PP)	Form-1 Pre feasibility report EMP
1.6. TOR No. & Date :	SIA/GJ/237512/2021
1.7. Technical expert / Environmental Consultant :	**M/s. En-vision Environmental Services, 201-301, Union Trade Center(UTC), Nr. Apple Hospital,Udhana Darwaja, Surat**
1.8. SEAC Meeting No. and Date:	28th July 2022
1.9. ADS vide letter dated :	---
1.10. Reply Submitted by PP dated:	--
1.11. Revised Consideration SEAC Meeting No. and Date:	---

2) This is a Greenfield project proposed for manufacturing of Synthetic Organic Chemicals as mentioned below:

SR. NO.	NAME OF THE PRODUCTS	CAS NO.	QUANTITY MT/MONTH			END-USE OF PRODUCT
			DISPERSE CRUDE DYES	OR	FORMULATED DYES	
DISPERSE DYES (A)						
1.	DISPERSE BLUE 79	12239-34-8	195.00		2000	POLYESTER FABRIC
2.	DISPERSE ORANGE-30	12223-23-3	70.00			

3.	DISPERSE RED 167	26850-12-4	170.00				
4.	DISPERSE RED 54	12217-86-6	35.00				
5.	DISPERSE ORANGE-288	69472-19-1	45.00				
6.	DISPERSE RED 118	52623-75-3					
7.	DISPERSE ECO BLUE 291:1	83929-84-4					
8.	DISPERSE VIOLET 63	64294-88-8					
9.	DISPERSE VIOLET 33	12236-25-8					
10.	DISPERSE VIOLET 93	52697-38-8					
11.	DISPERSE RED 73	16889-10-4					
12.	DISPERSE RED 152	78564-86-0					
13.	DISPERSE RED 153	78564-87-1					
14.	DISPERSE ORANGE 29	61902-11-2					
15.	DISPERSE BLUE 183:1	2537-62-4					
16.	DISPERSE BLUE 291	83929-84-4					
17.	DISPERSE ORANGE 61	12270-45-0					
18.	DISPERSE BLACK 9	12222-69-4					
19.	BROWN 1	12236-00-9					
20.	BROWN 4	12223-16-4					
21.	BLUE 165 MONO AZO	84870-65-5					
22.	BLUE 79:1	75497-74-4					
23.	DISPERSE RED 74	16889-10-4					
24.	DISPERSE YELLOW-211	86836-02-4					
25.	DISPERSE YELLOW-119	57308-41-5					
26.	DISPERSE ORANGE-25	31482-56-1					
27.	DISPERSE ORANGE-44	4058-30-4					
28.	DISPERSE RED-202	61931-39-3					
29.	DISPERSE YELLOW 79	12236-36-1					
30.	DISPERSE RED 50	12223-35-7					
31.	DISPERSE YELLOW 114	61968-66-9					
32.	DISPERSE YELLOW 126	61968-70-5					
33.	DISPERSE YELLOW SGL	70528-90-4					
34.	DISPERSE YELLOW 241	83429-52-9					
35.	DISPERSE ORANGE 73	79300-11-1					
36.	DISPERSE RUBINE 5B	3769-57-1					
37.	DISPERSE ORANGE3	730-40-5					
38.	DISPERSE YELLOW 3	2832-40-8					
39.	DISPERSE RED 13	3180-81-8					
40.	DISPERSE ORANGE 31	61968-38-5					
41.	DISPERSE RED 1	2872-52-8					
42.	BLUE GSL	41642-51-7					
43.	BLUE 165:1	86836-00-2					
44.	BLUE 366	84870-65-5					
45.	RED 343	99031-78-6					
46.	YELLOW 184:1	164578-37-4					
47.	YELLOW 82	12239-58-6					
48.	YELLOW 242	152442-18-0					
49.	DISPERSE BROWN 19	71872-49-6					
50.	DISPERSE RED 311	77907-28-9					
51.	DISPERSE RED 60	17418-58-5	285.0				

52.	DISPERSE VIOLET 26	12217-95-7				
TOTAL (A)		**800**		**OR**	**2000**	
REACTIVE DYES (B)						
1.	REACTIVE BLACK 5	17095-24-8	280.0			
2.	REACTIVE BLACK 39	12731-63-4	1.34			
3.	REACTIVE BLUE 49	12239-92-9	0.19			
4.	REACTIVE BLUE HEXL	93951-21-4	1.00			
5.	REACTIVE BLUE 220	128416-19-3	1.89			
6.	REACTIVE BLUE 250	93951-21-4	13.77			
7.	REACTIVE ORANGE 84	91261-29-9	4.95			
8.	REACTIVE ORANGE 107	90597-79-8	2.71			
9.	REACTIVE ORANGE 122	79809-27-1	9.20			
10.	REACTIVE ORANGE 131/ W3R	12220-12-1	9.78			
11.	REACTIVE ORANGE 2R	42986-20-1	10.00			
12.	REACTIVE ORANGE H2R	12225-85-3	3.50			
13.	REACTIVE RED CD	68248-10-2	2.60			
14.	REACTIVE RED 21	11099-79-9	3.23			
15.	REACTIVE RED 24	70210-20-7	2.48			
16.	REACTIVE RED 111	88232-20-6	21.69			COTTON
17.	REACTIVE RED 120	61951-82-4	5.52			
18.	REACTIVE RED 141	61931-52-0	16.50			
19.	REACTIVE RED 194	23354-52-1	2.95			
20.	REACTIVE RED 195	93050-79-4	37.80			
21.	REACTIVE RED 198	145017-98-7	14.00			
22.	REACTIVE RED 245	340977-00-6	1.53			
23.	REACTIVE RED 250	125830-49-1	1.24			
24.	REACTIVE VIOLET 2R	8063-57-8	3.07			
25.	REACTIVE YELLOW 18	12226-48-1	2.00			
26.	REACTIVE YELLOW 81	59112-78-6	0.24			
27.	REACTIVE YELLOW 84	61951-85-7	0.83			
28.	REACTIVE YELLOW 95	71838-98-7	4.25			
29.	REACTIVE YELLOW HEXL	12226-48-1	1.00			
30.	REACTIVE YELLOW S3R	77907-38-1	10.50			
31.	REACTIVE YELLOW 145	93050-80-7	21.20			
32.	REACTIVE YELLOW 160	129898-77-7	9.05			
TOTAL (B)		**500**				
	ACID DYES/SOLVENT DYES (C)					
33.	ACID RED 182	61901-42-6	200.0			NYLON
34.	ACID YELLOW 151	12715-61-6				
35.	ACID BLUE 171	51053-44-2				
TOTAL (C)		**200.0**				
	DIRECT DYES (D)					
36.	DIRECT YELLOW 86	50925-42-3	200.0			COTTON
37.	DIRECT BLUE 71	4399-55-7				
38.	DIRECY RED 239	60202-35-9				
TOTAL (D)		**200.0**				
	BASIC DYES (E)					
39.	BASIC RED12	6320-14-5	**200.0**			
40.	BASIC RED 13	3648-36-0				
41.	BASIC RED 18	25198-22-5				
42.	BASIC YELLOW 51	83949-75-1				

43.	BASIC YELLOW 28	54060-92-3		
44.	BASIC BLUE41	12270-13-2		
45.	BASIC BLUE54	15000-59-6		
TOTAL (E)		**200.0**		
	VAT DYES (F)			
46.	VAT BLUE 2B	**--**	**50.0**	
47.	VAT BROWN 5	3989-75-1		
48.	VAT ORANGE RF	3468-63-1		
49.	VAT PINK R	2379-74-0		
50.	VAT GREEN 9	128-60-9		
51.	VAT BLACK	1328-19-4		
TOTAL (F)		**50.0**		
	SULPHUR DYES (G)			
51.	SULPHUR BLACK – GRAINS	1326 – 82 – 5	**500.0**	
52.	SULPHUR BLACK – LIQUID	1326 – 82 – 5	**1250.0**	
53.	SULPHUR COLORS (Wet/dry (Yellow, Yellow brown, Calf brown, Fawn brown, Dark brown, Bordeaux, Red, Bright green, Bottle green, Dark blue, Green blue, Indigo blue, Blue, Steel grey)	**--**	**250.0**	
TOTAL (G)			**2000.0**	
	TEXTILE AUXILIARY (H)			
54.	Binders	68891-50-9	**400.0**	
55.	Adhesives	98-59-9		
56.	Wetting agents	1477-55-0		
57.	O.T. Paste	577-11-7		
TOTAL (H)		**400.0**		
	INTERMEDIATES (I)			
1	VINYL SULPHONE	2494-89-5	50	IN MANUFACTURING OF REACTIVE BLACK 5
2	H ACID	90-20-0	25	
3	BROMAMINE ACID	116-81-4	43	IN MANUFACTURING OF DISPERSE & REACTIVE DYES
4	MD 42	18791-02-1	43	
5	MD 12	6375-46-8	132	
6	MD 5	23128-51-0	223	
7	MD 7	22031-33-0	108	
8	MD 29	51868-45-2	36	
9	M 28	26322-20-3	58	
10	M 22	1555-66-4	12	
11	MD 3A	27059-08-1	201	
12	MD 8	148-87-8	20	
13	MD 9	22185-75-7	02	
14	6 BROMO 2:4DNA	1817-73-8	27	
15	6 CHLORO 2:4DNA	3531-19-9	174	
16	2:6 DCPNA	99-30-9	63	

17	2:6 DBPT	6968-24-7	37	
18	MD 1	92-00-2	24	
19	MD 2 A	21615-36-1	15	
20	MD 14	28505-89-7	07	
21	BROMO CYNO PNA	17601-94-4	02	
22	MD 23	18934-20-8	10	
23	M19	53733-94-1	04	
24	PERYDONES	28141-13-1	34	
25	DCPT	56461-98-4	08	
26	M 31	61038-96-8	07	
27	M 35	17754-90-4	25	
28	M-4A	19249-34-4	04	
29	MT-8	148-69-6	04	
30	M-39	62072-82-6	07	
31	2:6-DBPNA	827-94-1	35	
TOTAL (I)			**1440**	
SN	**NAME**	**CAS NO.**	**QUANTITY (MT/MONTH)**	
	DISPERSING AGENT (J)			
1	NKS	2624-05-9	900	
2	DYTOL	9003-25-4	300	
TOTAL (J)			**1200**	
GRAND TOTAL (A+B+C+D+E+F+G+H+I+J)			**5790**	**OR** **6990**

3) The project falls under B1 category of project activity 5(f) as per the schedule of EIA Notification 2006.
4) The proposal was considered in the SEAC video conference meeting dated 28.07.2022.
5) Project proponent (PP) and their Technical Expert M/s. En-vision Environmental Services remain present during video conference meeting.
6) Committee deliberated on Product profile, Layout plan, Fire safety, water balance & waste water management, Flue gas and process gas emission & Air Pollution Control System, Hazardous waste matrix, EMP, CER, Green belt, issued raised during public hearing along with time bound action plan, etc.
7) The baseline environmental quality has been assessed for various components of the environment viz. air, noise, water, biological and socioeconomic aspect. The baseline environmental study has been conducted for the study area of 10 km radial distance from project site for the period December-2021 to February-2022. Ambient Air Quality monitoring was carried out PM10, PM2.5, SOx, NOx and CO at Eight locations, including the project site. Values conform to the prescribed standards for Ambient Air Quality. The incremental Ground Level Concentration (GLC) has been computed by "AERMOD View". Incremental GLC's for all parameters remain within 500 m from the project site. The resultant concentrations are within the NAAQS. The modelling study proved that the air emissions from the proposed plant would not affect the ambient air quality of the region in any significant manner. The ambient air quality around the proposed project site will remain within the National Ambient Air Quality Standards (NAAQS).
8) Risk assessment including prediction of the worst-case scenario and maximum credible accident

scenarios has been carried out. The detailed proposed safeguard measures including On-Site / Off-Site Emergency Plan has been covered in the RA report.

9) Committee asked to submit the following:
   - ✓ Quanity of spent solvent generation & its management and adequate quantity of generation of flyash wrt coal consumption.
   - ✓ Quanity of recycle/ reuse of water in water balance.
   - ✓ Provision of fire proximity suits as PPE in safety components.
   - ✓ Details of Noise control as a component in EMP.
   - ✓ CER activities mentioning solar panels in government organizations.
10) Later on PP submitted following details through email:
   - ✓ Revised hazardous waste matrix mentioning quanity of spent solvent generation & its management and quantity of generation of flyash wrt coal consumption. PP also submitted agreement with Brick Manufacturer M/s Recycle X Pvt Ltd for sending flyash.
   - ✓ Revised water balance mentioning quanity of recycle/ reuse of water in water balance.
   - ✓ Provision of 2 Nos of fire proximity suits as PPE in safety components.
   - ✓ Revised EMP mentioning Noise control as a component.
   - ✓ Revised CER activities mentioning solar panels in schools, Gram panchayat, dispensary, Post office in Saykha Village .
11) Compliance of the ToR and submission found satisfactory.
12) PP presented salient features of the project including Water, Air and Hazardous waste management are as under:

<table>
<tr><th>Sr. no.</th><th>Particulars</th><th>Details</th></tr>
<tr><td>A</td><td>Total cost of Proposed Project
(Rs. in Crores):
<table><tr><td>Total</td></tr><tr><td>54.0 Crores</td></tr></table>Break-up of proposed project Cost:
<table><tr><th>Details</th><th>Total (Rs. in Crores)</th></tr><tr><td>Land</td><td>0.5</td></tr><tr><td>Building</td><td>4.5</td></tr><tr><td>Machinery</td><td>45.0</td></tr><tr><td>Other</td><td>4.0</td></tr></table></td><td></td></tr>
<tr><td>B</td><td>Land / Plot ownership details:
(Linking between Land ownership and PP is required.)</td><td></td></tr>
<tr><td>B-1</td><td>In case of outside GIDC only – GIDC Saykha Proposal</td><td></td></tr>
<tr><td colspan="3"></td></tr>
</table>

B **Land / Plot ownership details:**

(Linking between Land ownership and PP is required.)

Total
40,000 sq. mt.

B-2 Brief note on **Area adequacy** in line to proposed project activities:

Sr. No.	Land Use	Area Required (Sq. Mt.)	Remark / Justification	Proposed Area (Sq. Mt.)		
				On Ground Floor	On other Floor (1st, 2nd & 3rd)	Total
1.	Office, Lab, OHC, Canteen, Rest Room etc.	800	-	500	500	1000
2.	Intermediate Plant-2	2500	-	1000	2000	3000
3.	Raw material & Finished Goods	3200	R.M in storage tank (3 days inventory) = 3200 MT Area required (1 sq.mt for 1 MT) = 3200 x 1 = 3200 sq.mt.	1000	3000	4000
4.	Formulation plant	1600	--	1000	1000	2000
5.	Intermediate Plant-1	2500	-	1000	2000	3000
6.	Synthesis Plant	2600	--	1000	2000	3000
7.	Ethoxilation Plant	2400	--	1000	2000	3000
8.	Solvent Recovery Plant	450	--	500	1000	1500
9.	Utility area	800	--	500	500	1000
10.	Boiler, TFH, HAG etc.	600	Boiler, TFH and HAG will require 200 sq.m; each	1000	0	1000
11.	ETP area	275	ETP Capacity = 1100 KLD Area required = (1 sq.mt for 4 KLD) = 1100/4 = 275	250	250	500
12.	Stripper, MEE 1& 2, ATFD etc.	280	MVR capacity = 1125 Area required (1 sq.mt. for 4.0 KLD)	125	250	375
13.	Solid/ Haz; Waste Storage	200	64.7 MT/day will be generated Area	228	0	228

			required will be 0.25 sq.m; for one MT. (12 days storage capacity)			
14.	Treated Water Tank	100	--	125	0	125
15.	Ash Storage Area	319	--	319	0	319
16.	Road Area	3711	--	3711	0	3711
17.	EO Tank area	400	--	400	0	400
18	Watchman Cabin	10		10	0	10
19	Green Belt area	13225	Area required (33% of plot area)=40000 x 0.33 = 13200 sq.mt	13225	0	13225
20	Tank farm Area	2035.9		2035.88		
20	Open Space	11071.92	--	11071.92	0	13107
	Total	**49077**		**40000**	**14500**	**54500**

Comments:

- SEAC has examined it w.r.t.to total monthly production, maximum products, manufactured per month, the total raw material required, weekly storage requirement of each raw material, their mode of storage, their compatibility (flammability, corrosive, toxic), area needed by each raw material, one week storage of finished goods. Area adequacy, from overall safety perspective, has been provided in proposal and is satisfactory.

B-3 **Green belt area**

	Total (Sq. meter)
Area in Sq. meter	13,225.0
% of total area	33.0

In case of GREEN-BELT partly outside premises, give complete details like exact location (Lat-Long), Agreement/MoU with specific area etc.

Comments:

The condition shall be given that -

- The PP shall develop green belt (13325 Sq. m i.e. 33 % of the total plot area) as per the undertaking submitted before SEAC. Green belt shall be developed with native plant species that are significant and used for the pollution abatement as per the CPCB guidelines. It shall be implemented within 3 years of operation phase in consultation with GPCB.

C **Employment generation**

Total
171

	In case of Indirect employment, Give details.
D	**WATER**
D-1	**Source of Water Supply** (GIDC, Bore well, Surface water, Tanker supply etc...)
	Status of permission from the concern authority. ➢ GIDC water supply **Comments:** Prior permission from concerned authority shall be obtained for withdrawal of water.
D-2	**Water consumption (KLD)**

Category	Quantity KLD
(G) Domestic	**8.5**
(H) Gardening	42.0
(I) Industrial	
Process	1061.10
Washing	25.0
Boiler	432.0
Cooling	98.0
Others	--
Industrial Total	**1616.1**
Grand Total (A+B+C)	1666.6

Reuse/Recycle details (KLD) with feasibility.
[Source of reuse & application area]

Source of waste water for reuse in KLD (From where it is coming)	Application area with quantity in KLD (Where it is used)	Characteristics of waste water to be reused (COD, BOD, TDS etc.)	Remarks regarding feasibility to reuse
MEE-2 Condensate	In Process, Floor & Drum washing, Boiler & Cooling Tower make-up etc. 13.6 KLD	MEE-2 Condensate	--
MEE-1 Condensate	In Process, Floor & Drum washing, Boiler & Cooling Tower make-up etc. 1042.69 KLD	MEE-1 Condensate	--
STP Treated Water	In Green Belt Development 7.98 KLD	STP Treated Water	--
Recovered water from Steam Condensate	As Boiler Make-up 380.0 KLD	Recovered water from Steam Condensate	--

		In case of no reuse/recycle of waste water, Give brief note on justification as why no reuse/recycle. ➢ NA	
	Comments: ➢ The water consumption above is found to be calculated considering the worst case scenario and in any case the water requirement shall not exceed the same.		
D-3	**Waste water generation (KLD)**		

Category	Quantity KLD
(E) Domestic	8.0
(B) Industrial	
Process	1035.5
Washing	25.0
Boiler	40.0
Cooling	29.0
Others	--
Total Industrial waste water	1129.5
Total waste water	1137.5

Comments:

- The waste water generation above is found to be calculated considering the worst case scenario and in any case the waste water generation shall not exceed the same.
- 380 KLD boiler condensate will be recycled within the boiler.

D-4	Break-up of waste water disposal & facility (For Domestic)
Domestic:	In STP (10.0 KLD capacity)

Comments:

- Domestic wastewater generation shall not exceed xx KL/day for proposed project and it shall be treated in STP. It shall not be disposed off through soak pit/ septic tank. Treated sewage shall be utilized for gardening and plantation purpose within premises after achieving on-land discharge norms prescribed by the GPCB.

D-5	**Break-up of waste water disposal & facility (For Industrial)**

For Industrial waste water:

ETP: 1100.0 KLD; MEE 1(1100.0 KLD capacity); MEE2 (25.0 KLD)

Industrial Wastewater Treatment

WASTE WATER GENERATED WILL BE SEGREGATED IN FOLLOWING FOUR STREAMS FOR TREATMENT;

STREAM-1: Very High COD and High TDS Effluent from Production of H-Acid and Vinyl Sulphone

STREAM-2: High COD and High TDS Effluents from Other Products

STREAM-3: Low COD & Low TDS Effluent from Boiler & Cooling Tower

STREAM-4: Domestic Sewage

Stream-1: Very High COD and high TDS effluent generated from production of H-acid and Vinyl Sulphone (21.26 KLD) will be treated in Stripper (25.0 KLD capacity), MEE-2 (25.0 KLD capacity) followed by ATFD (10.0 KLD capacity). MEE-2 condensate at 13.6 KLD will be reused in process, floor & Drum washing and Scrubber bleed, and Cooling Tower make-up. Stripper bottom residue at 0.41 Ton will be sent to nearby Common Incinerator Facility. MEE-2 bottom product at 10.1 KLD will be subjected to ATFD. Salt generated from ATFD at 3.19 Ton will be disposed through TSDF site of SEIPL, Saykha.

Stream-2: High COD & high TDS effluent generated from other products, floor & Drum washing and Scrubber bleed at 1036.39 KLD will be treated in In-house ETP of 1100.0 KLD capacities. The ETP treated water at 1023.69 KLD along with 69.0 KLD from Boiler & cooling Tower blow-down will be further treated in MEE-1. Condensate of MEE-1 at 1042.69 KLD will be reused in Process, Drum & floor washing, Scrubber make-up and cooling Tower make-up. MEE-1 bottom product will be subjected to ATFD of capacity 50.0 KLD. Salt Generated from ATFD at 12.25 Ton will be disposed through nearby TSDF site of SEIPL, Saykha.

Stream-3: Low COD & low TDS effluent generated from Boiler and cooling tower blow-down will be treated in In-house MEE-1 along with treated water from ETP.

Stream-4: Domestic sewage at 8.0 KLD will be treated in proposed STP of 10.0 KLD capacity. Treated water at 7.98 KLD will be reused in green belt development and sludge at 0.02 ton will be used as manure in plantation.

Note: (In case of CETP discharge):

Management of waste water keeping in view direction under section 18 (1) (b) of the Water (Prevention and Control of Pollution) act, 1974 issued by CPCB regarding compliance of CETP.

- **Zero Liquid Discharge**

Brief note on adequacy of ZLD (In case of Zero Liquid Discharge):

Wastewater Treatment Scheme, Recycle/ Reuse

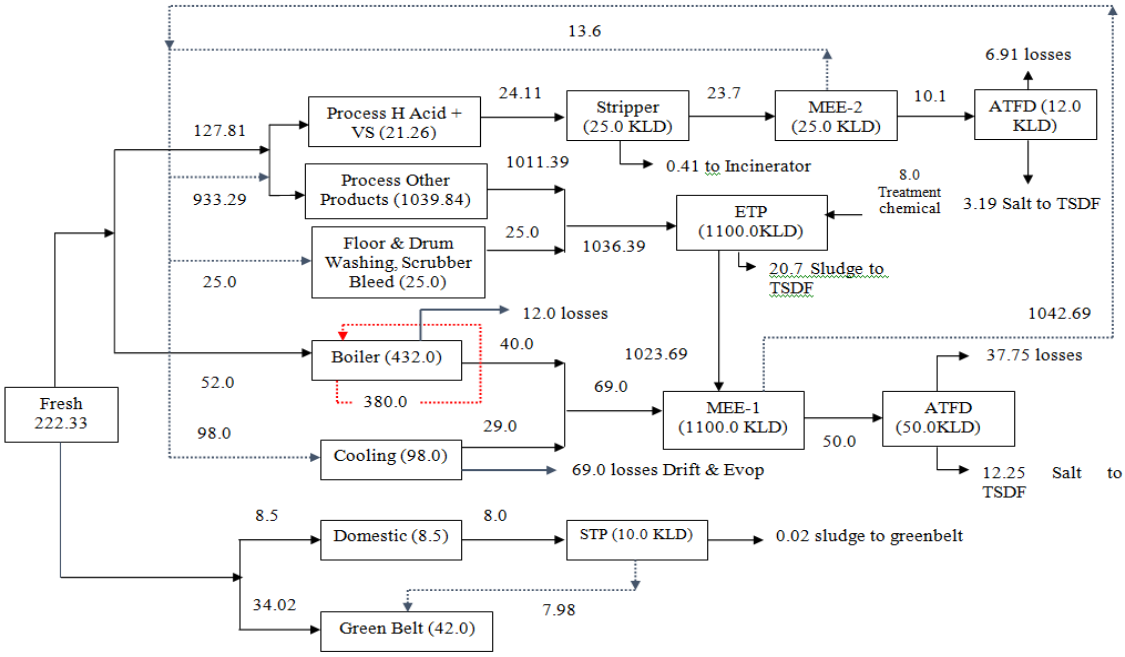
Total water requirement will be 1666.60 KLD. (21.26 KLD for process of H-acid and Vinyl Sulphone, 1039.84 KLD for process of other products, 25.0 KLD for Floor, Drum washing and Scrubber Bleed, 432.0 KLD for Boiler, 98.0 KLD for cooling, 8.5 KLD for Domestic Purpose and 42.0 KLD for green belt development).

Total Treated Water Reuse/ Recycle will be 1444.27 KLD (Reuse of 1042.69 KLD from MEE-1, 13.6 KLD from MEE-2 and 7.98 KLD treated water from STP + Recycle of 380.0 KLD condensate Recovery from Boiler).

Hence, water requirement reduced to 222.33 KLD (Fresh Water) and unit will achieve **Zero Liquid Discharge.**

D-6 **Simplified water balance diagram**

Summary of Water Requirement	Quantity KLD	Remarks
Total water requirement for the project (A)	1666.60	--
Quantity to be recycled (B)	1444.27	(1064.27 Reuse + 380.0 Recycle)
Total fresh water requirement (C)	222.33	--



D-7 Summary

Summary of water requirement	**Quantity** KLD	Remarks
Total water requirement for the project **(A)**	1666.60	--
Quantity to be **recycled (B)**	1444.27	(1064.27 Reuse + 380.0 Recycle)
Total **fresh water** requirement **(C)**	222.33	--
Ensure **Total water requirement = Recycled water + Fresh water i.e. A = B + C**		

Comments

- Total water requirement for the project shall not exceed 1666.60 KLD. Unit shall reuse 1444.27 KLD of treated industrial effluent within premises. Hence, fresh water requirement shall not exceed 222.33 KLD and it shall be met through GIDC water supply only. Prior permission from concerned authority for withdrawal of water shall be obtained.
- Management of Industrial effluent shall be as under:
  - ✓ 24.11 KLD efflurnt generation of H-Acid & VS stream shall be treated in Stripper followed by MEE-2 & ATFD. 13.6 KLD MEE condensate shall be reused within

premises.

- ✓ 1036.39 KLD industrial effluent generation process (other products), floor & drum washing and scrubber shall be treated in ETP. 1023.69 KLD treated effluent along with 69 KLD effluent rom utilities shall be treated in MEE-1 & ATFD. 1042.69 KLD, MEE condensate shall be reused within premises.

E	**AIR**
E-1	**Power (Electricity) requirement:** 4800 KVA D.G. Set : 3 x 750 KVA stand by
E-2	**Flue gas emission details**

Sr. No.	Source of Emission With Capacity	Stack Height (Meter)	Type of Fuel	Quantity of Fuel MT/Day	Type of Emissions I.E. Air Pollutants	Air Pollution Control Measures (APCM)
1	Steam Boiler 6 T/hr X 3 Nos	36.5	Imported coal	60 TPD	PM	High Efficiency Multi Cyclone Separator, Bag Filter, Wet scrubber
2	Thermo pack 2,00,000 Kcal/Hr. x 2 Nos.	30.0	Imported coal	14 TPD	SO_X NO_X	High Efficiency Multi Cyclone Separator, Bag filter
3	HAG x 2 nos	34.0	Imported coal	46 TPD	PM	Dual Teema Cyclone Separator, Bag Filter, Wet scrubber
4	D. G. set of 750 KVA X 3 nos. (In Emergency only)	12.0	Diesel	160 Lit./hr approx.	SO_X NO_X	Acoustic Enclosure

E-3	**Process gas**

Sr. No.	Specific Source of emission (Name of the Product & Process) With Capacity	Type of Emission	Stack/Vent Height (meter)	Air Pollution Control Measures (APCM)
1	Spray Dryer No. 1	PM, SOx, NO_X	33.0 M	Cyclone + Wet Scrubber
2	Spray Dryer No. 2	PM, SO_X, NO_X	33.0 M	Cyclone + Wet Scrubber

3	Spray Dryer No.3	PM, SO_X, NO_X	33.0 M	Cyclone + Wet Scrubber
4	Spray Dryer No.4	PM, SO_X, NO_X	33.0 M	Cyclone + Wet Scrubber
5	Scrubber at Intermediates Plant	Br_2	16.5 M	Two Stage venturi scrubbers followed by packed column Scrubber
6	Scrubber at Intermediates Plant	HBr	16.5 M	Two Stage venturi scrubbers followed by packed column scrubber
7	Scrubber at Azo-Plant Formulation	SO_2	5.3 M	Two Stage venturi scrubbers followed by packed column scrubber
8	Scrubber at Azo-Plant Formulation & VS	HCl	5.6 M	Two Stage venturi scrubbers followed by packed column scrubber
9	Scrubber at Intermediates Plant	Cl_2	5.6 M	Two Stage venturi scrubbers followed by packed column scrubber
10	Scrubber at Intermediates Plant, Scrubber at Sulphur Black Grains & Liquid Plant	Ammonia	5.6 M	2 Stage Water Scrubber (Chilled Water)
11	Scrubber at Sulphonator Reaction Vessel (H-Acid Plant)	SO_X	20 M	Two Stage Alkali Scrubber
12	Scrubber at Nitration Reactor (H-Acid Plant)	NO_X	20 M	Two Stage Alkali Scrubber
13	Scrubber at Thionyl Chloride Reaction Vessel (Vinyl Sulphone Plant)	SO_X	11 M	Two Stage venturi scrubbers followed by packed column
14	Scrubber at Sulphur Black Grains & Liquid Plant, VAT Brown 5	H_2S	11 M	2 Stage Water Scrubber (Chilled Water)

E-4 **Fugitive emission** details with its mitigation measures.

- All reactors, treatment vessels, agitator and process pumps shall be mechanically sealed as per requirement.
- All process pumps shall be provided trays to collect probable leakage.
- More weightage on selection of MoC of piping shall be given to avoid leakage/spillage.
- Overflow system with return line today tank/storage tankfrom batch tank will be provided to prevent hazardous material overflow.
- De-dusting system will be provided at solid product bagging area.
- Proper system shall be provided for decontamination and effective cleaning of drums.
- All transfer points shall be full yen closed.
- Airborne dust shall be controlled. All roads shall be paved on which movement of raw materials or products will take place.
- Maintenance of air pollution control equipment shall be done regularly.
- All the workers shall be provided with dust mask.
- Greenbelt will be developed around the plant to arrest the fugitive emissions.

Comments for E2, E3 & E4:

- The fuel to be used is approved fuel for the requirement of the heat energy and has been proposed the Air pollution Control measures so as to achieve the emission norms prescribed by the competent authorities.
- The air pollution control measures, has been proposed by PP for checking flue gas emission, Process gas emission, fugitive gas emission, with adequate systems of reaction/ reaction condensers, thermic fluid heaters, boilers, and scrubbing systems as per the requirements, to achieve the emission norms prescribed by the competent authorities.

F **Solvent management, VOC emissions etc.**

F-1 **Types of solvents, Details of Solvent recovery, % recovery, reuse of recovered Solvents etc.**

Sr. No	Source	Probable Pollutant Emission	Control Measures/ APCM
FUGITIVE EMISSION			
1	Solvent recovery system	Air pollutant (VOC)	• Solvent recovery system with steam condensation system. • Pumps & motors are mechanical seal type.
2	Handling of raw material bags in storage area	Air pollutant (PM)	• Provision of exhaust ventilation • Provision of PPE. • Provision of Job rotation to reduce exposure.
3	Flange joints of pipeline, pump & motors	Air pollutant (VOC)	• Routine &periodic inspection to check leakage. • Preventive maintenance, Follow SOP for maintenance. • Pumps & motors will be mechanical seal type. • LDAR program will be followed. • Provision of Flange guard.
4	Solid raw material transferring to reactor	Air pollutant (PM)	• Hopper will be provided with powder transfer system.
5	Liquid raw material transferring to reactor	Air pollutant (VOC)	• Feeding of liquid raw material will be carried out by closed pipeline and mechanical seal pump.

F-2 **VOC emission sources and its mitigation measures for achieving maximum solvent recovery and minimize VOC generation:**

SN	Spent solvent	From Product	Spent Solvent Generated (TPD)	Recovered Solvent (TPD)	Loss TPD	Residue TPD	% Recover
1	DMF	Disperse Blue	21.85	20.976	0.184	0.690	96.0
		366					
2	Methanol	Disperse	42.13	40.234	0.926	0.970	95.5

		Yellow 184:1					
		H Acid					
3	Phenol	Disperse Violet 26	5.7	5.506	0.078	0.116	96.6
4	ODBC	Bromamine	6.661	6.381	0.096	0.184	95.8
		Acid					
5	EDC	MD-42	2.18	2.116	0.024	0.040	97.1
		Vat Brown 5					
6	ACN	M-22	0.42	0.400	0.008	0.012	95.3
7	Methyl Acrylate	M-31	0.021	0.020	0.00	0.001	96.1
8	Amines	Pyridone	1.93	1.870	0.042	0.018	96.9
9	MCB	Basic Blue-54	73.26	70.622	1.716	0.922	96.4
10	Nitro Benzene	Vat Blue-28	3.33	3.190	0.86	0.72	95.8
11	Acetic Acid	Vat Pink-R	0.25	0.240	0.00	0.01	96.3
		Total	**79.211**	**76.342**	**2.626**	**1.683**	**96.37**

F-3 **LDAR proposed:**

Brief Note on LDAR proposed:

LDAR program for the sources of leakages will be carried out by the unit. Steps such as monitoring of solvent losses, preventive maintenance measures, and immediate corrective actions will be followed by the unit.

Monitoring of Solvent Losses:

- The storage and consumption of the solvent in product should be measured through Level Transmitters and Load Cells weighing system respectively. The quantity at each stage shall be reconciled periodically to arrive at Losses.

- Batch outputs shall be monitored and reconciled with quantity of input raw materials added. Any variation beyond 5% shall be analysed in detail and action plan shall be prepared to reduce the variation.
- Workplace VOC monitoring shall be carried out.
- Periodic Leakage Audit at Plant shall be done.

Preventive Maintenance Measures:

- In order to prevent leakage from Pump, Seals, Valves etc, preventive maintenance shall be carried out periodically as per plan scheduled. In case of any recurring problem, action plan shall be prepared or frequency shall be revised

VOC emission sources and its mitigation measures

Sr. No	Source	Probable Pollutant Emission	Control Measures
1	Flange Joint of Pipeline, pumps & Motors	VOC	• Routine & Periodic inspections • Proper Maintenance • LDAR program is followed • Good quality MOC
2	Liquid Raw material transferring to reactor	VOC	Closed pipeline and mechanical seal pump
3	Loading &unloading at storage area	VOC	Unloading trough pipeline to tank in a close system

F-4 **LDAR for specific solvent :**

Sr. No.	Name of Chemicals	Storage Detail	LDAR Program	
			Source of VOC Losses	Mitigation Measures
1	Aniline Oil	Tank Storage	• Loading & unloading of solvent Valve, transfer line, valves fittings, & joint leakages • Charging of solvent • Use flexible pipeline & leakages of pipeline • Leak from pump typically occur at seal • Leakage from scrubber body & caustic circulation pump • Leakage from the stack • Leakage from the vent of the reactor vessel • Charging of solvent from drum	• Proper preventive maintenance • Routine inspection of process equipments • Carry out regular leak detection test & repair activities • Estimate the leak rate in order to decide corrective action • Inspection of transfer lines, valves, fittings & every joints periodically • Use fix pipeline for transferring solvent tank to reactor/vessel • Conduct LDAR audit • For loading/unloading of solvent, use proper pumping system • Avoid manually charging • Give proper training ro workers on regular basis • Use PPE's • Provide SOP of storage, transportation & handling of solvent • Gas detectors can be used to identify leaks • Proper handling system
2	DMF	Tank Storage		
3	Methanol	Underground Tank Storage		

G **Hazardous waste**

G-1 **Hazardous Waste Management Matrix**

S. No.	Type/Name of Hazardous waste	Specific Source of generation (Name of the Activity, Product etc.)	Category and Schedule as per HW Rules	Quantity (MT/ Annum)	Management of HW
1.	Spent/Used oil	From pumps, compressors, blowers etc.	5.1	2.0	Collected in drums and stored at specified area, Reuse in plant for lubrication and Balance will be Selling to authorized recyclers
2.	Discarded drums/ Containers	From storage of RM and Goods	33.3	1500.0	Collected and stored at specified area and sold to approved/ registered vendors.
3.	Distillation residue	Stripper Bottom And Residue from Solvent recovery	36.1	755.53	Collection, Storage Transportation, Disposal at GPCB approved CHWIF or co/pre- processing
4.	Spent solvent Generation	Various Manufacturing Process	20.2	28912.0	Collection, Storage and Recovered Spent Solvent Complete Reuse in manufacturing process
5.	ETP sludge Primary sludge Secondary sludge	Treatment of Industrial Effluent	34.3	7555.5	Collection, Storage, Transportation, Disposal at BEIL, TSDF

6.	Process waste	Mfg; of Disperse Violet 26	26.1	292.0	Collection, Storage, Transportation, Disposal at GPCB approved CHWIF
7.	Gypsum	Mfg; of VS & H-acid	D2	7318.25	Collection, Storage Transportation, Disposal by selling to actual user authorized by GPCB
8.	MEE Salts from ATFD	Waste water treatment through MEE	34.3	5635.6	Collection, Storage, Transportation, Disposal at BEIL, TSDF
9	Fly Ash (Boiler)	Boiler Operation	-	3504.0	Collection, Storage Transportation, Disposal by selling to brick manufactures
10.	Iron Sludge	Mfg; of H-acid	26.1	238.70	Collection, Storage, Transportation & Sell to Cement Industries
11.	Spent Acetic Acid	Mfg; of VS	26.3	128.48	Will be Reuse in coupler preparation in Disperse Dyes
12.	Spent HCl + H_2SO_4	Mfg; of VS	26.3	3883.6	Will be Reuse in production of H-Acid & VS
13.	S.B.S (Sodium Bi Sulphite	Mfg; of VS & H-acid	26.3	406.97	Will be Reuse in Reduction process of VS
14.	$NaNO_2$ (Sodium Nitrate)	Mfg; of H-acid	26.3	10.47	Will be reused in Disperse dyes
15.	$NaNO_3$ (Sodium Nitrite)	Mfg; of H-acid	26.3	3.175	Will be reused in Disperse dyes
16.	Press Cake	Mfg; of Sulphur Black Grains & Liquid	--	16245.0	Will be reused in Mfg; of Sulphur Black Grains & Liquid
17.	NaCl	Mfg; of Sulphur Black Grains & Liquid	--	1770.0	Will be reused in Mfg; of Sulphur Black Grains & Liquid
18.	Sodium Thiosulphate	Mfg; of Sulphur Black Grains & Liquid	--	34406.04	Will be reused in Mfg; of Sulphur Black Grains & Liquid
19.	NaBr	Mfg. of VAT Blue 2B	---	153.30	Will be sold to actual users under Rule 9

Comments:

- Waste management includes hazardous waste management and other solid waste management. Hazardous waste-management comprises of collection, storage, transportation, disposal, incineration, and recycle of waste. SEAC examined the details provided and found it as per requirement.
- The project proponent has to obtain membership of TSDF site & CHWIF before obtaining CTO of GPCB.

G-2	Non- Hazardous waste management matrix

1.	Fly Ash (Boiler)	Boiler Operation	-	186.0	Collection, Storage Transportation, Disposal by selling to brick manufactures

Comments:

- Management of fly ash shall be as per the Fly ash Notification 2009 & its amendment time to time and it shall be ensured that there is 100% utilization of fly ash to be generated from the unit.

G	**Solvent management**, VOC emissions etc.
G-1	Types of solvents, Details of Solvent recovery, % recovery, reuse of recovered Solvents etc.

SN	Spent solvent	From Product	Spent Solvent Generated (TPD)	Recovered Solvent (TPD)	Loss TPD	Residue TPD	% Recovery
1	DMF	Disperse Blue 366	21.85	20.976	0.184	0.690	96.0
2	Methanol	Disperse Yellow 184:1 H Acid	42.13	40.234	0.926	0.970	95.5
3	Phenol	Disperse Violet 26	5.7	5.506	0.078	0.116	96.6
4	ODBC	Bromamine Acid	6.661	6.381	0.096	0.184	95.8
5	EDC	MD-42 Vat Brown 5	2.18	2.116	0.024	0.040	97.1
6	ACN	M-22	0.42	0.400	0.008	0.012	95.3
7	Methyl Acrylate	M-31	0.021	0.020	0.00	0.001	96.1
8	Amines	Pyridone	1.93	1.870	0.042	0.018	96.9
9	MCB	Basic Blue-54	73.26	70.622	1.716	0.922	96.4
10	Nitro Benzene	Vat Blue-2B	3.33	3.190	0.86	0.72	95.8
11	Acetic Acid	Vat Pink-R	0.25	0.240	0.00	0.01	96.3
		Total	**79.211**	**76.342**	**2.626**	**1.683**	**96.37**

G-2	**LDAR proposed:**

- Identify the Chemical streams that must be monitored.
- Types of components (pumps, valves, connectors, etc.) to be monitored.
- Frequency of monitoring.
- Actions to be taken if a leak is detected.
- Length of time in which an attempt to repair the leak must be performed.
- Actions that must be taken if a leak cannot be repaired within guidelines.
- Record-keeping and reporting requirements

G-3	**VOC emission** sources and its mitigation measures

- Leak free pumps for transfer of solvents
- Metal Slice Wreath (MSW) gaskets in solvent pipelines to prevent leakage from flanges
- Minimum number of flanges, joints and valves in pipelines
- To eliminate chances of leakage from glands of pumps, mechanical seal is and will be provided at all solvent pumps
- All the rotating equipment's like pumps are and will be installed with mechanical seals to arrest any sort of emissions
- Condenser and scrubber post reactor with cooling arrangement. Two condensers are installed with

cooling water and chilled water to recover the solvent.

- Primary condenser – cooling tower water and chilled water at 5 °C is used to condense the solvents depend on the vapor pressure at its operating conditions.
- In case the small spillage or leakage observed, spill kit is used.

Comments:

- Measures for achieving maximum solvent recovery and minimize VOC generation, inclusive of VOC detectors, pumps, maintenance of pipelines, proper ventilation etc., provided are as per requirement.
- Spent solvents shall be recovered by in-house distillation in such a manner that recovery shall not be achieved to the maximum extent and recovered solvent shall be reused in the process. Solvent recovery system with adequate reflux condensers shall be provided for controlling escape of low boiling solvents (VOCs).

H	SAFETY details
H-1	Details regarding storage of Hazardous chemicals (For tank storages only including spent acid and spent solvent tanks)

A) **Storage of Hazardous chemicals in Tanks**

Sr. No	Name of Chemical	Capacity of Tank	Number of Tanks	Hazardous Characteristics of Chemical
1	HCL	50 KL	1	Corrosive
2	98% Sulphuric Acid	15 KL	2	Corrosive
3	Nitrosyl Sulphuric Acid	20 KL	1	Corrosive
4	23 % Oleum	10 KL	1+1 (Spare)	Corrosive
5	65% Oleum	10 KL	1+1 (Spare)	Corrosive
6	Nitric Acid	10 KL	1	Corrosive
7	Caustic Lye	10 KL	2	Corrosive
8	Acetic Acid	10 KL	2	Corrosive
9	Acetic Anhydride	10 KL	1	Corrosive
10	Aniline Oil	10 KL	1	Corrosive
11	Acrylonitryl	10 KL	1	Flammable
13	Phenol 90%	10 KL	2	Corrosive
14	Formaldehyde 37%	10 KL	1	Corrosive
15	Chloro Shulphonic acid	25 KL	1	Corrosive
16	Ethylene Oxide	7 KL	2	Corrosive
Solvents				
1	DMF	10 KL	2	Flammable
2	Methanol	20 KL	2	Flammable

Safety Measures for PESO Underground storage tank farm:

- The underground vessels shall be placed within concrete or brick masonry pit with a gap of 1.0 meter between the walls of the pit and the vessel as well as in between the vessels.

- The underground vessels shall be installed on a firm foundation and firmly secured to the foundation so as to prevent movement of floatation.
- Class A Petroleum products shall be received through road tanker and stored in u/g storage tank as per PESO Rule.
- Tank farm shall be constructed as per explosive department requirement and separation distance shall be maintained.
- The underground vessels covered by earth (Mound) shall be

o Designed to withstand external pressure due to load of the earth cover.

o Provided with external anti-corrosive coating or cathodic protection to prevent corrosion ;
o Covered by earth, sand or any other non-corrosive material free from abrasive particles likely to damage the anti-corrosive coating of the vessel-the thickness of the covering material above the top surface of the vessel shall not be less than 0.5 meter;
o Having the discharge level of the safety relief valves at least 2 meters above the top surface of the vessel, but in any case not less than 3 meters from the ground level;
o Fitted with the necessary piping's, fittings, valves and other mounting on top of vessel in such a manner that they can be operated and maintained without disturbing the earth cover. In case of above ground vessel with earth cover (mound), liquid outlet pipe at the bottom may be allowed provided the control valve and emergency valve of this line is just outside the earth cover for the purpose of operation and maintenance from outside.

- Static earthing provision shall be made for road tanker as well as storage tank.
- Flame arrestor with breather valve shall be provided on vent line.
- Road tanker unloading procedure shall be prepared and implemented.
- Fire load calculation shall be done and as per fire load hydrant system shall be provided as per NFPA std. and fire extinguishers shall be provided as per fire load calculation.
- Spark arrestor shall be provided to all vehicles in side premises
- Lightening arrestor shall be provided on the top.
- Flame proof type equipment and lighting shall be provided.
- Trained and experience operator shall be employed for tank farm area.
- NFPA label (hazard identification) capacity and content shall be displayed on tanks
- Solvents shall be transferred by pump only in plant area and day tank shall be provided. Overflow line shall be return to the storage tank or Pump On-Off switch shall be provided near day tank in plant.
- Jumpers shall be provided on solvent handling pipe line flanges & Flexible SS hose shall be used for road tanker unloading purpose and other temporary connection.

b) Storage of Hazardous chemicals other than Tanks i.e. Drum, Barrels, Carboys, Bags etc. Safety details of Hazardous Chemicals:

SR NO	Name of Chemical	CAS NO.	QUANTITY (MT/DAY)	Capacity of Drum/Bag/ Cylinder/ Glass Bottle	Maximum Quantity to be Stored MT
1	6 CL 2:4-DNA	3531-19-9	**9.026**	**50 KG BAG**	**18.1**

2	SULPHURIC ACID	7664-93-9	**14.5**	**MS Tank 15 KL x 2**	**30.0**
3	Nitrosyl Sulphuric Acid	7782-78-7	**9.7**	**MS Tank 20 KL**	**20.0**
4	Sulphamic Acid	5329-14-6	**0.48**	**50 KG BAG**	**1.0**
5	Emulsifier	8012-56-4	**7.72**	**50 KG CARBOY**	**15.5**
6	2:6-DCPNA	99-30-9	**6.83**	**50 KG BAG**	**14.0**
7	6 Br .2:4-DNA	590-97-6	**6.11**	**50 KG BAG**	**13.0**
8	-CNPNA	--	**4.72**	**50 KG BAG**	**10.0**
9	2-CNPNA	12236-00-9	**7.91**	**50 KG BAG**	**16.0**
10	HCL	7647-01-0	**23.6**	**HDPE Tank 50 KL**	**50**
11	Para Nitro Aniline	100-01-06	**7.68**	**50 KG BAG**	**16.0**
12	Sodium nitrite	7632-00-0	**13.46**	**50 KG BAG**	**28.0**
13	Sodium bisulphite	7631-90-5	**3.77**	**50 KG BAG**	**8.0**
14	O-anisidine	90-04-0	**3.77**	**50 KG BAG**	**8.0**
15	Formaldehyde	50-00-0	**9.1**	**HDPE Tank 10 KL x 2**	**20**
16	Soda ash	497-19-8	**32.13**	**50 KG BAG**	**65.0**
17	Caustic lye	1310-73-2	**8.8**	**HDPE Tank 10 KL**	**10**
18	Salt	7647-14-5	**32.04**	**50 KG BAG**	**65.0**
19	2:6-DBPNA	10222-01-2	**6.5**	**50 KG BAG**	**13.0**
20	NOIGEN ET	--	**0.13**	**50 KG CARBOY**	**0.5**
21	Fe Powder	99-30-9	**1.38**	**50 KG BAG**	**3.0**
22	Acetic Acid	64-19-7	**9.6**	**SS Tank 10 KLX2**	**20**
23	OCPNA(Ortho Chloro Para Nitro Aniline)	121-87-9	**11.81**	**50 KG BAG**	**25.0**
24	PCONA(Para Chloro Ortho Amino Phenol)	89-63-4	**8.23**	**50 KG BAG**	**17.0**
25	3(Phenylsulfonyl) benzenaminein	26815-49-6	**6.33**	**200 KG DRUM**	**15.0**
26	Sodium Acetate	127-09-3	**5.06**	**50 KG BAG**	**11.0**
27	4-Aminobenzoicester	619-45-4	**6.08**	**200 KG DRUM**	**13.0**
28	*(tert*-Butylsulfonyl) BUS Amine	31562-43-3	**5.42**	**200 KG DRUM**	**12.0**
29	Dichloroacetic acid	79-43-6	**5.06**	**50 KG BAG**	**11.0**
30	PAA-Para Amino Acetanilide	122-80-5	**6.33**	**50 KG BAG**	**14.0**
31	Blue GSL	3468-11-9	**14.25**	**50 KG BAG**	**30.0**
32	DMF (N,N-dimethylformamide)	68-12-2	**7.9**	**MS Tank 10 KL x 2**	**20**
33	Metal Cyanide	57-12-5	**4.43**	**50 KG MS DRUM**	**10.0**
34	Cuprous Chloride	7758-89-6	**3.34**	**50 KG BAG**	**10.0**
35	Methanol	67-56-1	**17.6**	**u/g MS Tank 20 KL x 2**	**40**
36	Blue165.1	86836-00-2	**12.35**	**50 KG BAG**	**25.0**
37	Blue 366	84870-65-5	**15.2**	**50 KG BAG**	**32.0**
38	Mono Azo Red 343	99035-78-6	**14.58**	**50 KG BAG**	**30.0**
39	Demap Aldehyde	17754-90-4	**7.6**	**50 KG BAG**	**16.0**
40	ECA	7085-85-0	**3.76**	**200 LITER DRUM**	**10.0**
41	4 Cap	95-85-2	**4.75**	**50 KG BAG**	**10.0**
42	OPDA	95-54-5	**3.61**	**50 KG BAG**	**8.0**
43	POCL3	10025-87-3	**11.21**	**50 KG CARBOY**	**25.0**

44	2:4-DNA	97-02-9	**10.09**	**50 KG BAG**	**22.0**	
45	Phenol	108-95-2	**8.8**	**MS Jacketed Tank 10 KL x 2**	**20.0**	
46	K2CO3	584-08-7	**6.84**	**50 KG BAG**	**15.0**	
47	DCDAAQ	84-58-2	**9.31**	**50 KG BAG**	**20.0**	
48	VS	77-77-0	**4.85**	**50 KG BAG**	**10.0**	
49	H-Acid	90-20-0	**3.027**	**50 KG BAG**	**7.0**	
50	ANILINE 2,5 DSA	24605-36-5	**0.009**	**50 KG BAG**	**0.05**	
51	CYNAURIC CHLORIDE	108-77-0	**2.26**	**200 KG DRUM**	**5.0**	
52	MPDSA	88-63-1	**0.17**	**50 KG BAG**	**0.5**	
53	BROMAMINE ACID	116-81-4	**0.019**	**50 KG BAG**	**0.05**	
54	M-ACID	99-04-7	**0.011**	**50 KG BAG**	**0.05**	
55	COUPERUS CHLORIDE	10025-69-1	**0.003**	**50 KG BAG**	**0.05**	
56	METANILIC ACID	121-47-1	**0.1**	**50 KG BAG**	**0.5**	
57	6-Acetyle OAPSA	40306-75-0	**0.018**	**50 KG BAG**	**0.05**	
58	Copper Sulphate	7758-98-7	**0.01**	**50 KG BAG**	**0.05**	
59	4-Sulfo Hydra zone	118969-29-2	**0.025**	**50 KG BAG**	**0.05**	
60	OAVS	10079-20-6	**0.114**	**50 KG BAG**	**0.5**	
61	OT 5-SA	98-33-9	**0.005**	**50 KG BAG**	**0.01**	
62	J-ACID	87-02-5	**2.22**	**50 KG BAG**	**5.0**	
63	ACETIC ANHYDRIED	108-24-7	**1.639**	**SS Tank 10 KL**	**10**	
64	BDSA	117-61-3	**0.023**	**25 KG BAG**	**0.1**	
65	S.T.ACID	57-11-4	**0.404**	**25 KG BAG**	**1.0**	
66	ACETYLE MPDSA	88-64-2	**0.02**	**50 KG BAGS**	**0.1**	
67	Sulfo VS	42986-22-1	**0.119**	**50 KG BAG**	**0.5**	
68	Sodium Napthonate	130-13-2	**0.067**	**50 KG BAG**	**0.5**	
69	Liquid Amonia	7664-41-7	**8.339**	**200 L DRUM**	**20.0**	
70	N Methyl J-Acid	22346-43-6	**0.023**	**50 KG BAG**	**0.1**	
71	BENZANILIDE VS ESTER	66056-51-7	**0.034**	**50 KG BAG**	**0.1**	
72	ORTHANILIC ACID	88-21-1	**0.213**	**50 KG BAG**	**1.0**	
73	N METHYL ANILINE	100-61-8	**0.01**	**200LITER DRUM**	**0.1**	
74	PPD	106-50-3	**0.03**	**50 KG BAG**	**0.1**	
75	N ETHYLE ANILINE	103-69-5	**0.459**	**200 LITER DRUM**	**1.0**	
76	Tobias Acid	81-16-3	**0.009**	**50 KG BAG**	**0.05**	
77	PCVS	21635-69-8	**0.022**	**50 KG BAG**	**0.1**	
78	Para Anisidine	104-94-9	**0.01**	**50 KG BAG**	**0.1**	
79	SPCP	118-47-8	**0.016**	**50 KG BAG**	**0.1**	
80	DASDA	81-11-8	**0.005**	**50 KG BAG**	**0.05**	
81	K-ACID	118-03-6	**0.33**	**50 KG BAG**	**1.0**	
82	MUA	0103-03-07	**0.13**	**50 KG BAG**	**1.0**	
83	SODIUM FORMALDEHYDE BISULPHITE	870-72-4	**0.028**	**50 KG BAG**	**0.1**	
84	2-PYRIDONE	142-08-5	**0.069**	**50 KG BAG**	**0.1**	
85	C-Acid	131-27-1	**2.697**	**50 KG BAG**	**5.0**	

86	3-Amino 4-Methoxy Acetanilide	6375-47-9	**0.005**	**50 KG BAG**	**0.01**
87	OAPSAMIDE	98-32-8	**1.428**	**50 KG BAG**	**4.0**
88	Beta Napthol	135-19-3	**1.1**	**50 KG BAG**	**3.0**
89	Cobalt Sulphate	10026-24-1	**1.58**	**50 KG BAG**	**4.0**
90	3-OXO-NPHENYLBUTANAMIDE	0102-01-02	**1.03**	**50 KG BAG**	**3.0**
91	5-NAP	121-88-0	**1.58**	**50 KG BAG**	**4.0**
92	N-METHYL BRONNER'S ACID	93-00-5	**1.71**	**200 KG DRUM**	**4.0**
93	META TOLUIDINE	108-44-1	**1.06**	**200LITER DRUM**	**3.0**
94	DEA	56329-27-2	**0.92**	**200 KG DRUM**	**2.0**
95	ANA	219766-25-3	**1.27**	**200 KG DRUM**	**3.0**
96	MIX CLEAVE	119-28-8	**1.97**	**50 KG BAG**	**5.0**
97	Bronner's Acid	93-00-5	**1.48**	**200 KG DRUM**	**5.0**
98	J-Acid Urea	134-47-4	**1.03**	**50 KG BAG**	**3.0**
99	NAPHTHALENE	91-20-3	**13.378**	**50 KG BAG**	**27.0**
100	SODIUM SULPHITE	7757-83-7	**0.6**	**50 KG BAG**	**2.0**
101	ACETANILIDE	103-84-4	**1**	**50 KG BAG**	**2.0**
102	CHLORO SULPHONIC ACID	7790-94-5	**3.29**	**MS Tank 10 KL**	**10**
103	THIONYL CHLORIDE	7719-09-7	**1.85**	**200 LITER DRUM**	**4.0**
104	S.B.S	7681-57-4	**2.19**	**50 KG BAG**	**5.0**
105	ETHYLENE OXIDE	75-21-8	**4.26**	**SS Tank 7 KL x 2**	**14**
106	Oleum (23%)	8014-95-7	**2.1**	**SS Tank 10 KL x 2 (One spare)**	**10**
107	Oleum (65%)	8014-95-7	**1.37**	**SS Tank 10 KL x 2 (One spare)**	**10**
108	HNO3	7697-37-2	**3.82**	**Aluminum Tank 10 KL**	**10**
109	Glauber Salt	7757-82-6	**1.74**	**50 KG BAG**	**4.0**
110	Iron	7439-89-6	**0.33**	**50 KG BAG**	**1.0**
111	ODCB	95-50-1	**6.39**	**200 KG DRUM**	**20.0**
112	1 Amino anthra quinon	82-45-1	**1.1**	**50 KG BAG**	**3.0**
113	Liquid Bromine	7726-95-6	**4.34**	**WOODEN BOX (6 NOS OF GLASS BOTTLE 1 LITER EACH)**	**10.0**
114	EDC	1892-57-5	**0.516**	**200 LITER DRUM**	**1.5**
115	ACRYLIC ACID	79-10-7	**0.54**	**200 LITER DRUM**	**1.5**
116	MPDA	108-45-2	**3.85**	**200 KG DRUM**	**8.0**
117	DIETHYL SULPHATE	64-67-5	**6.6**	**200 KG DRUM**	**10.0**
118	AMA	96-05-9	**3.52**	**50 KG BAG**	**8.0**
119	CATALIST	--	**0.21**	**50 KG BAG**	**1.0**
120	BORIC ACID	10043-35-3	**0.19**	**50 KG BAG**	**0.5**
121	ANILENE OIL	62-53-3	**3.64**	**SS Tank 10 KL**	**10**
122	ALLYL CHLORIDE	107-05-1	**0.91**	**200 LITER DRUM**	**2.0**
123	M-7CN	2243-27-8	**1.25**	**50 KG BAG**	**3.0**
124	BENZYL CHLORIDE	100-44-7	**1.19**	**200 LITER DRUM**	**3.0**
125	Acrylonitryl	107-13-1	**4.8**	**SS Tank 10 KL**	**10**

126	ZINC CHLORIDE	7646-85-7	**2.4**	**50 KG BAG**	**5.0**
127	MAA	79-41-4	**3.41**	**50 KG BAG**	**7.0**
128	PROPIONIC ANHYDRIDE	123-62-6	**0.058**	**200 LITER DRUM**	**0.2**
129	2:4-DNCB	97-00-7	**27.52**	**50 KG BAG**	**60.0**
130	CHLORINE	7782-50-5	**2.71**	**TONNER**	**10.0**
131	HYDROGEN PEROXIDE	7722-84-1	**2.76**	**200 LITER DRUM**	**6.0**
132	PT	7440-06-4	**0.68**	**200 KG DRUM**	**2.0**
133	MCA	79-11-8	**2.88**	**200 LITER DRUM**	**6.0**
134	METHYL ACRYLATE	96-33-3	**0.34**	**200 LITER VDRUM**	**1.0**
135	METAL Chloride	16887-00-6	**0.03**	**50 KG BAG**	**0.1**
136	MMA/MEA/NBA/MPA	141-43-5	**0.79**	**200 LITER DRUM**	**2.0**
137	2:6-DBPT (W/C)	104-23-4	**0.37**	**50 KG BAG**	**1.0**
138	DEMAAP	1122-58-3	**0.92**	**50 KG BAG**	**2.0**
139	MONO ETHYL META TOLYDENE	102-27-2	**0.1**	**200 LITER DRUM**	**0.5**
140	AN HY.ZINC CHLORIDE	7646-85-7	**0.001**	**50 KG CARBOY**	**0.005**
141	C12H15N Fischer's Base	40784-95-0	**3.33**	**200 LITER DRUM**	**8.0**
142	C13H15NO Fisher's Aldehyde	--	**5.06**	**50 KG BAG**	**12.0**
143	C10H13Cl2NO Fisher's Aldehyde	135936-36-6	**3.86**	**50 KG BAG**	**8.0**
144	1-Methyl-3-octylimidazolium chloride	64697-40-1	**4.8**	**50 KG BAG**	**10.0**
145	C7H9NO	2835-95-2	**3.06**	**200 KG DRUM**	**7.0**
146	C8H8N2OS	1747-60-0	**4.2**	**200 KG DRUM**	**10.0**
147	MCB	108-90-7	**9.2**	**200 KG DRUM**	**20**
148	C2H6O4S	20305-86-6	**6.66**	**200 KG DRUM**	**15.0**
149	C8H11N	591769-05-0	**2.83**	**200 KG DRUM**	**7.0**
150	Indigo	482-89-3	**0.76**	**50 KG BAG**	**2.0**
151	Iodine	7553-56-2	**0.008**	**200 KG DRUM**	**0.05**
152	Nitro Benzene	98-95-3	**8.54**	**200 KG DRUM**	**20**
153	EDS	60-00-4	**8.33**	**200 KG DRUM**	**17.0**
154	Acetyl Chloride	75-36-5	**1.2**	**200 KG DRUM**	**2.5**
155	2-Nepthyle Methyl Ketone (wet Cake)	1646-26-0	**2**	**50 KG BAG**	**5.0**
156	IBA	133-32-4	**11.66**	**200 KG DRUM**	**25.0**
157	Sulphur Powder	7704-34-9	**23.73**	**50 KG BAG**	**50.0**
158	Para Phenitidine	156-43-4	**2.22**	**200 KG DRUM**	**5.0**
159	Sulphur Mono chloride	10025-67-9	**5**	**200 KG DRUM**	**10.0**
160	Chalk Powder	--	**1.44**	**50 KG BAG**	**5.0**
161	Zinc Powder	7440-66-6	**0.22**	**50 KG BAG/DRUM**	**1.0**
162	Sodium Cyanide	143-33-9	**1.22**	**50 KG DRUM**	**3.0**
163	Soda Bi Carb	144-55-8	**3.33**	**50 KG BAG**	**7.0**
164	Sodium Sulphide	1313-82-2	**4.66**	**50 KG BAG**	**10.0**
165	Sodium Tetra Sulphide Solution	12034-39-8	**5.55**	**200 KG DRUM**	**12.0**
166	OT Liq.	95-53-4	**2.22**	**200 KG DRUM**	**5.0**

167	Alcl3	7446-70-0	**0.11**	**200 KG DRUM**	**0.5**
168	Vat Blue 20	116-71-2	**1.66**	**50 KG BAG**	**4.0**
169	Vat Green 9	226-893-9	**3.48**	**50 KG BAG**	**7.0**
170	Acrylamide	79-06-1	**0.26**	**200 KG DRUM**	**1.0**
171	DOM	142-16-5	**2.93**	**200 KG DRUM**	**6.0**
172	DBM	74-95-3	**0.2**	**200 KG DRUM**	**1.0**
173	VAM	108-05-4	**0.13**	**200 KG DRUM**	**0.5**
174	PPS/other Catalyst	15471-17-7	**0.02**	**BAGS/DRUMS**	**0.01**
175	GH	9034-39-3	**0.4**	**50 KG CARBOY**	**1.0**
176	PVA	9002-89-5	**1.6**	**DRUMS/TANK**	**5.0**
177	Defoamer	55965-84-9	**0.02**	**200 KG DRUM**	**0.1**
178	SLS	151-21-3	**0.13**	**200 KG DRUM**	**0.5**
179	PEG	25322-68-3	**6.53**	**200 LITER DRUM**	**14.0**
180	Octanol	111-87-5	**5.33**	**200 LITER DRUM**	**12.0**
181	Malic Anhydride	108-31-6	**2**	**25/50 KG BAG**	**5.0**
182	PTSA	6192-52-5	**0.13**	**50 KG CARBOY**	**0.3**
183	Sodium Hydrogen Sulphide (60%)	207683-19-0	**8.46**	**200 KG DRUM**	**18.0**
184	Dextrose Mono Hydrate	14431-43-7	**2.04**	**50 KG BAG**	**5.0**

C) Safety details of Hazardous Chemicals:

Type of Hazardous Chemicals	Safety measures
Hydrochloric Acid	1. To stay in upwind direction. 2. Gas masks to be used while Mitigating Risk 3. Down wind direction plants have to be stopped till mitigation is complete
Sulphuric Acid	1. To stay in upwind direction. 2. Gas masks to be used while Mitigating Risk 3. Down wind direction plants have to be stopped till mitigation is complete
Oleum	1. To stay in upwind direction. 2. Gas masks to be used while Mitigating Risk
Ethylene Oxide	1. To stay in upwind direction. 2. Use of Fire retardant suits 3. Area must be evacuated 4. Immediately declaring Onsite-Offsite based on severity
Chloro sulhonic Acid	1. To stay in upwind direction. 2. Gas masks to be used while Mitigating Risk
Acetic Anhydride	1. To stay in upwind direction.

Applicability of PESO: Will obtain after EC

Comments:

- Committee was of the opinion that the provisions of PESO, licensing, condition compliance, monitoring, fall within the preview of The Petroleum and Explosives Safety Organization (PESO) and SEAC has very limited role in this. Nevertheless SEAC has examined it. The PP has submitted that the list of raw materials/products proposed to be produced along with the quantity, attract the provisions of PESO and they will abide by the requisite legal compliances with

reference to storage and safety. SEAC has taken note of it.

H-2 **Types of hazardous Processes involved and its safety measures:**

Type of Process	Safety measures including Automation
Bromination Reaction	• Bromination will be done in closed S.S vessels. • Bromine will be used for bromination process. Bromine is an extremely corrosive & toxic capable of causing severe skin burns and eye damage. Because of the hazards posed by bromine, it is important to take safety measures whenever handling it. • In our bromination process, reaction will be controlled by adequate dosing of reaction chemicals in a fixed time (not short duration) having adequate cooling water circulation in jacket of reaction vessels. Thus, any energy generated due to exothermic reaction will be controlled by external cooling circulation and therefore vessels will not be pressurized. • The bromination reaction will be controlled by systematic cooling design to withdraw the energy evolved. • Adequate pressure relief valve will be provided for each vessel having pressure release capacity will be kept below-3 kg/cm^2 than that of reaction vessels.
Chlorination process	• Chlorine Emergency Kit will be procured and kept ready at process site. • Safety Shower and eye wash will be provided in process area. • Chlorine absorption system will be provided. In case of chlorine leakage, it will be suck through blower and it will be scrubbed in Caustic scrubber. • Emergency siren and wind sock will be provided. • First Aid Boxes and Occupational health centre will be made at site. • Emergency organization and team will be prepared as per on site-off site emergency planning. • Full body protection suite and other PPEs will be kept ready at site. • Emergency team will be prepared and trained for scenario base emergency. • Safety valve provided on vaporizer header and outlet of safety valve connected to scrubber. • Flow and temperature controllers will be provided on process line. • HCl Detectors will be placed at suitable locations. Vacuum system will be in place to capture HCl and transferred to two stage water Scrubber. Regular work place monitoring will be carried out. • Charging will be done only through closed line and system. • Neutralizing agent will be kept ready for tackle any emergency spillage. • Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. • Use water spray to reduce vapors; do not put water directly on leak, spill area or inside container. Keep combustibles (wood, paper, oil, etc.) away from spilled material. • All emergency valves, switches and emergency handling facilities will be easily assessable. • All the vessels and equipments will be earthed appropriately and protected against Static Electricity. • Flame proof light fittings will be installed in the plant.
Sulphonation	• Provisions of safety rupture disk on reactor. • Provisions of auto dumping Vessel. • Required PPEs like full body protection PVC apron, Hand gloves, gumboot, Respiratory mask etc. will be provided to operator. • Caution note and emergency first aid will be displayed and train for the same to all employees. • First Aid Boxes will be available in process area. • Emergency organization and team will be prepared as per on-site Off-site emergency planning.

	• Emergency team will be prepared and trained for scenario base emergency. Like Toxic control team, Fire control team, first aid team, communication and general administration team, medical team etc. • Provision of pressure gauge and pressure release valve which will be below than reactor hydraulic pressure. • Provision of rupture disk. • Dosing of chemicals will be controlled by flow meters and is value. • End of Toxic vapour release line will be connected with alkali tank
Nitration:	• Nitration is exothermic reaction leads to runaway reaction. So, entire process of nitration is to be followed as per standard operating procedure established by industry. • All engineering controls w.r.t. nitration process i.e. temperature and pressure controller, jacket surrounding to reactor etc. will be provided. Chilled water to control exothermic reaction during nitration. • NOx fumes will be scrubbed inventury Scrubber from the Nitration reactor. • Only trained person will be allocated for handling nitration process. • Programmable Logic Controller (PLC) based control plan will be provided for Nitration. • Direct Contact with skin and eyes will be avoided. • Appropriate personal protective equipment's like Safety Gloves, Goggles, shoes etc., will be provided to workers.
Ammonification	• Valve pipeline will be checked and maintain, in good condition. • All Gaskets will be checked periodically • Joints will be checked regularly to found any Leakage. • ADEQUATE PPE will be kept to handle the Hazard. • ISI Portable fire extinguisher • Hydrant line will be provided as per TAC norms. Sufficient amount of sand /soil are kept to control any spillage. • Flame proof fitting provided. • Eye washer cum shower will be provided near tank-farm area. • Spark arrester will be installed on all vehicles inside the premises.

H-3 Details of Fire Load Calculation

Total Plot Area:	40,000 sq.m;
Area utilized for plant activity:	6000 sq.m;
Area utilized for Hazardous Chemicals Storage:	228 sq.m;
Number of Floors:	2 Nos.
Water requirement for firefighting in KLD :	400
Water storage tank provided for firefighting in KLD:	400
Details of Hydrant Pumps:	18 Nos of yard hydrant & 04 Nos of Water cum Foam monitor
Nearest Fire Station :	DPMC Fire station GIDC, Ankleshwar
Applicability of Off Site Emergency Plan:	NA

Comments:

- The project proponent has proposed fire safety plan which includes fire hydrant line, sprinkler system, fire extinguishers, fire suits, covering the project area and provides for fire water storage tank of 400 KL. SEAC found it as per the requirement.

H-4 Details of Fire NOC/Certificate:

Will be applied after EC

H-5	Details of Occupational Health Centre (OHC):

Number of permanent Employee :	171
Number of Contractual person/Labour	80
Area provided for OHC:	40 sq.m;
Number of First Aid Boxes :	As per Gujarat Factory rule
Nearest General Hospital :	Civil Hospital 19.8 KM

Name of Antidotes to be store in plant :

Agent	Indication
Activated charcoal with sorbitol	Used for many oral toxins
Theophylline	Adenosine poisoning
Atropine	Organophosphate and carbamate insecticides, nerve agents, some poison mushrooms
Beta blocker	Theophylline
Calcium chloride	calcium channel blockers, black widow spider bites
Calcium gluconate	Hydrofluoric acid
Chelators such as EDTA, dimercaprol (BAL), penicillamine, and 2,3-dimercaptosuccinic acid (DMSA, succimer)	Heavy Metal Poisoning
Cyanide antidote (hydroxocobalamin, amylnitrite, sodiumnitrite, orthiosulfate)	Cyanide poisoning
Cyproheptadine	Serotonin syndrome
Deferoxamine mesylate	Iron poisoning
DigoxinImmune Fabantibody (Digibind and Digifab)	Digoxin poisoning
Diphenhydramine hydrochloride and benztropinemesylate	Extra pyramidal reactions associated with antipsychotic
Ethanolor fomepizole	Ethylene glycol poisoning and methanol poisoning
Flumazenil	Benzodiazepine over dose
Glucagon	Beta blocker poisoning and calcium channel blocker poisoning
100% oxygen or hyper baricoxygen therapy(HBOT)	Carbon monoxide poisoning and cyanide poisoning
Idarucizumab	Reversal of dabigatran etexilate

Comments

- Project proponent has provided Occupational health center with adequate provision of manpower, equipment and operational cost. SEAC finds it as per the provisions of Gujarat

Factory Rules 1963.	
H-6	**Details of Emergency measures proposed and preparedness action for chemicals and fire explosion etc.** **EMERGENCY MEASURES PROPOSED AND PREPAREDNESS ACTION FOR CHEMICALS AND FIRE EXPLOSION ETC.** The actions taken in the initial minutes of an emergency are critical. A prompt warning to employees to evacuate, shelter or lockdown can save lives. A call for help to public emergency services that provides full and accurate information will help the dispatcher send the right responders and equipment. An employee trained to administer first aid or perform CPR can be lifesaving. Action by employees with knowledge of building and process systems can help control a leak and minimize damage to the facility and the environment. The first step when developing an emergency response plan is to conduct a risk assessment to identify potential emergency scenarios. An understanding of what can happen will enable you to determine resource requirements and to develop plans and procedures to prepare your business. The emergency plan should be consistent with your performance objectives. At the very least, every facility should develop and implement an emergency plan for protecting employees, visitors, contractors and anyone else in the facility. This part of the emergency plan is called “protective actions for life safety” and includes building evacuation (“fire drills”), sheltering from severe weather such as tornadoes, “shelter-in-place” from an exterior airborne hazard such as a chemical release and lockdown. Lockdown is protective action when faced with an act of violence. When an emergency occurs, the first priority is always life safety. The second priority is the stabilization of the incident. There are many actions that can be taken to stabilize an incident and minimize potential damage. First aid and CPR by trained employees can save lives. Use of fire extinguishers by trained employees can extinguish a small fire. Containment of a small chemical spill and supervision of building utilities and systems can minimize damage to a building and help prevent environmental damage. Some severe weather events can be forecast hours before they arrive, providing valuable time to protect a facility. A plan should be established and resources should be on hand, or quickly, available to prepare a facility. The plan should also include a process for damage assessment, salvage, protection of undamaged property and cleanup following an incident. These actions to minimize further damage and business disruption are examples of property conservation. Guidance for the development of an emergency response plan can be found in this step. **PROTECTIVE ACTIONS FOR LIFE SAFETY** When there is a hazard within a building such as a fire or chemical spill, occupants within the building should be evacuated or relocated to safety. Other incidents such as a bomb threat or receipt of a suspicious package may also require evacuation. If a tornado warning is broadcast, everyone should be moved to the strongest part of the building and away from exterior glass. If a transportation accident on a nearby highway results in the release of a chemical cloud, the fire department may warn to “shelter-in-place.” To protect employees from an act of violence, “lockdown” should be broadcast and everyone should hide or barricade themselves from the perpetrator Protective actions for life safety include: • Evacuation • Sheltering

- Shelter-In-Place
- Lockdown

Your emergency plan should include these protective actions. If you are a tenant in multi-tenanted building, coordinate planning with the building manager.

Evacuation:
Prompt evacuation of employees requires a warning system that can be heard throughout the building. Test your fire alarm system to determine if it can be heard by all employees. If there is no fire alarm system, use a public address system, air horns or other means to warn everyone to evacuate. Sound the evacuation signal during planned drills so employees are familiar with the sound.

Make sure that there are sufficient exits available at all times.

- Check to see that there are at least two exits from hazardous areas on every floor of every building. Building or fire codes may require more exits for larger buildings
- Walk around the building and verify that exits are marked with exit signs and there is sufficient lighting so people can safely travel to an exit. If you find anything that blocks an exit, have it removed.
- Enter every stairwell, walk down the stairs, and open the exit door to the outside. Continue walking until you reach a safe place away from the building. Consider using this safe area as an assembly area for evacuees.

Appoint an evacuation team leader and assign employees to direct evacuation of the building. Assign at least one person to each floor to act as a “floor warden” to direct employees to the nearest safe exit. Assign a backup in case the floor warden is not available or if the size of the floor is very large. Ask employees if they would need any special assistance evacuating or moving to shelter. Assign a “buddy” or aide to assist persons with disabilities during an emergency. Contact the fire department to develop a plan to evacuate persons with disabilities.

Have a list of employees and maintain a visitor log at the front desk, reception area or main office area. Assign someone to take the lists to the assembly area when the building is evacuated. Use the lists to account for everyone and inform the fire department whether everyone has been accounted for. When employees are evacuated from a building, OSHA regulations require an accounting to ensure that everyone has gotten out safely. A fire, chemical spill or other hazard may block an exit, so make sure the evacuation team can direct employees to an alternate safe exit.

Emergency Response Plans are listed with regards to the responses desired for successful management of the possible emergency situations. Suggested Objectives would include:

- To define and assess emergencies
- To control and contain incidents.
- To safeguard the employees.
- To minimize damage to the property and/or the environment.
- To inform the employees, the general public residing around the plant and the authority on the• hazards/risks assessed.
- To safeguard provided residual risk, if any, and the role to be played by the

employees in the event of emergency.

- To inform the state authorities like Police and Fire Departments, Mutual Aid Centers, Medical Centers to come up for help.
- To effectively rescue and to provide treatment of casualties and to count the injured.
- To identify and list fatal accidents, if any.
- To secure the safe rehabilitation of affected areas and to restore normally.
- To provide authoritative information to the news media for the incident.
- To preserve records, equipments, etc. and to organize investigation into the cause of the emergency and to suggest preventive measures to stop its recurrence.
- To ensure safety of staff and patients and resume work.
- To work out a plan with all provisions to handle emergencies and to provide for emergency

The On-site emergency plan: deals with, measures to prevent and control emergencies within the factory and not affecting outside public or Environment. In proposed site onsite Emergency can be exposed by estimated from Risk assessment. Below code of practice, Objective and Line of action will be planning to control emergency.

S.No.	Code of Practice	Objective	Line of Action
1	In Case of Fire at hazardous chemicals Storage area.	To deal with Fire efficiently and quickly at different locations in the storage area and electrical Panel	Any person notices any sign of fire shall start shouting FIRE, FIRE (Aag, Aag) to seek assistance and also immediately take steps to give warning by blowing the siren continuously and take steps to extinguish the fire by using fire extinguishers available near the site of fire. After giving information reach the spot remove Man & Machinery and take steps to tackle the fire in accordance with the firefighting instructions. Inform at security office to get Ambulance if required.
2	In case of Heavy Spillage, Leakage of chemicals. Fire and explosion	To deal with the incidence of chemical spillage or leakage efficiently and Quickly.	Any person who notices any leakage or spillage of chemicals from storage tank, pipe line or from any equipment should try to warn the nearby persons and report to the shift supervisor without any delay. The Person should not go near the spill unless he is wearing a proper PPE and has been fully trained to handle the chemicals leaks.

I

Sr. No.	Membership for Common Facility	Membership Certificate issuing agency Date of Issue and validity of membership

01	CETP	Not Applicable (ZLD Unit)
02	TSDF site	BEIL, BEIL/ANK/2022 date 15th July 2022
03	Common Hazardous Waste Incineration Facility	NA
04	Common Spray Drying Facility	NA
05	Common MEE Facility	NA
06	Common Conveyance System	NA
07	PESO permission	Will be obtain after getting EC
08	FIRE permission	Will be obtain after getting EC
09	Health Certificate	Will be obtain after getting EC

J **Reduce / Reuse / Recycle measures adopted.**

(a) Reduce

Sr. No.	Item	Quantity	% percentage
	-	-	-

(b) Reuse

Sr. No.	Item	Quantity	% percentage
		1064.27	63.85

(c) Recycle

Sr. No.	Item	Quantity	% percentage
		380	87.9

K **EMP Details**

Sr. No.	Item		Capital Cost in Lakhs	Recurring Cost in Lakhs/Annum
1.	Air Act	Air Pollution Control Equipment/ Scrubber etc.	150.0	20.71
2.	Water Act	ETP-2 (Primary) Treatment Facility + MEE + ATFD	720.0	30.0
3.	Hazardous Waste Rule	Membership Fees for TSDF facility	30.0	50.0
		Hazardous Waste Transportation		
		Disposal Charges		
4.	Environmental Monitoring expenses (Operation Phase)	1. Ambient air quality monitoring 2. Stack monitoring 3. Surface Water	--	10.0

		4. Ground Water 5. Soil 6. Noise		
5.	OH & Safety	Environment & Safety training, Mock drills, periodic health check-up of workers, Other Risk Minimise Action, Antidotes, Safety ear plug etc.	15.0	4.0
6.	Green Belt	Greenbelt development (in house and outside premises)	3.0	1.0
7.	CER	Environmental Responsibilities	108.0	--
8.	Fire Hydrant System + PPEs + Extinguishers	Installation of Fire Hydrant System + purchase of PPEs and fire extinguishers	80.0	12.0
		Total (in Lakhs)	**1106.0**	**127.71**

Comments:

- The overall environment management plan (EMP) provided for capital and recurrent cost for waste water treatment, air emission control, noise control, hazardous waste disposal, fire safety, occupational health, green belt and corporate social responsibility was deliberated and found satisfactory.

L **Details of CER** -

PP shall carry out CER activities as below:

We will discuss with Sarpanch and villagers regarding their requirement such as solar panels in School, Gram-panchayat Office, Dispensary, Post-Office etc. accordingly we will use our CER Cost.

S. No.	Activities	Estimated Cost (in Lakhs)
1.	Provision of Solar Panels in School, Gram-panchayat Office, Dispensary, Post-Office etc. at Saykha Village and also at nearby villages.	108.0
	Total (in Lakhs)	**108.0**

25) **Recommendation by SEAC:**

"On the basis of information provided to SEAC on project, its location, technical, physical and environmental infrastructure, products, quantity to be manufactured, its raw material, storage, waste disposal, water treatment, safety measures, green belt development planning, regulatory compliance assured of related statutory provisions, necessary documents of requisite permissions provided from concerned departments and overall environmental management planning for the project, along with financial resources committed for operation and maintenance, and on the basis of presentation made before SEAC, modification suggested by SEAC and incorporated by project proponent, SEAC finds the project as per the requirement and **unanimously**recommends the same to SEIAA for environmental clearance."

Conditions with which Environment Clearance is recommended:

Construction Phase

a) "Wind – breaker of appropriate height i.e. 1/3rd of the building height and maximum up to 10 meters shall be provided. Individual building within the project site shall also be provided with barricades.

b) "No uncovered vehicles carrying construction material and waste shall be permitted."

c) "No loose soil or sand or construction & demolition waste or any other construction material that cause dust shall be left uncovered. Uniform piling and proper storage of sand to avoid fugitive emissions shall be ensured."

d) Roads leading to or at construction site must be paved and blacktopped (i.e. – metallic roads).

e) No excavation of soil shall be carried out without adequate dust mitigation measures in place.

f) Dust mitigation measure shall be displayed prominently at the construction site for easy public viewing.

g) Grinding and cutting of building materials in open area shall be prohibited.

h) Construction material and waste should be stored only within earmarked area and road side storage of construction material and waste shall be prohibited.

i) Construction and demolition waste processing and disposal site shall be identified and required dust mitigation measures be notified at the site. (If applicable).

SPECIFIC CONDITIONS:

1. Unit shall install CEMS **[Continuous Emission Monitoring System]** in line to CPCB directions to all SPCB vide letter no. B-29016/04/06PCI-1/5401 dated 05/02/2014 for effluent discharge and air emission as per pollutants discharge/emission from respective project and an arrangement shall also be done for reflecting the online monitoring results on the company's server, which can be assessable by the GPCB/CPCB on real time basis. **[For Small/Large/Medium (Red Category) & Whichever (Air emission & Effluent discharge) is applicable].**

2. Close loop solvent recovery system with adequate condenser system shall be provided to recover solvent vapours in such a manner that recovery shall be maximum and recovered solvent shall be reused in the process within premises.

3. Leak Detection and Repair (LDAR) program shall be prepared and implemented as per the CPCB guidelines. LDAR Logbooks shall be maintained.

4. The National Ambient Air Quality Emission Standards issued by the Ministry vide G. S. R. No. 826 (E) dated 16th November, 2009 shall be complied with.

5. National Emission Standards for Organic Chemicals Manufacturing Industry issued by the Ministry vide G. S. R. 608 (E) dated 21/07/2010 and amended from time to time shall be followed.

6. Unit shall have to adhere to the prevailing area specific policies of GPCB with respect to the discharge of pollutants, and shall carry out the project development in accordance & consistence with the same.

7. All measures shall be taken to avoid soil and ground water contamination within premises.

8. <u>Safety & Health:</u>

a) Unit shall obtain all required permissions from the Narcotics Control Bureau for manufacturing, storage and handling of Acetic Anhydride & any such chemicals.
b) PP shall obtain PESO permission for the storage and handling of hazardous chemicals.
c) PP shall provide Occupational Health Centre (OHC) as per the provisions under the Gujarat Factories Rule 68-U.
d) PP shall obtain fire safety certificate / Fire No-Objection certificate (NOC) from the concern authority as per the prevailing Rules / Gujarat Fire Prevention and Life Safety Measures Act, 2016.
e) Unit shall adopt functional operations/process automation system including emergency response to eliminate risk associated with the hazardous processes.
f) PP shall carry out mock drill within the premises as per the prevailing guidelines of safety and display proper evacuation plan in the manufacturing area in case of any emergency or accident.
g) PP shall install adequate fire hydrant system with foam trolley attachment within premises and separate storage of water for the same shall be ensured by PP.
h) PP shall take all the necessary steps for control of storage hazards within premises ensuring incompatibility of storage raw material and ensure the storage keeping safe distance as per the prevailing guidelines of the concerned authority.
i) PP shall take all the necessary steps for human safety within premises to ensure that no any harm is caused to any worker/employee or labour within premises.
j) Flame proof electrical fittings shall be provided in the plant premises, wherever applicable.
k) Unit shall provide water sprinkler to the ammonia storage cylinder.
l) Unit shall never store drum/barrels/carboys of incompatible material/chemical together.
m) Unit shall provide effective fire hydrants, water monitors & foam application system at solvent storage area and unit shall provide adequate safety system such as water sprinklers, water curtains, foam pouring system etc. to restrict cascade fire emergency in solvent storage area.
n) Unit shall provide effective Isolation for Process area and storage of hazardous chemicals.
o) Unit shall Store Bromine Bottle in cool dry separate area, out of direct sunlight.
p) Unit shall provide water sprinkler to the ammonia storage cylinder.
q) Unit shall provide chlorine leakage control emergency kit and FRP hood with scrubber system for chlorine safety.
r) Unit shall provide safety valve and rapture disc, as well as auto dump or auto quench/, suppress system for nitration vessel safety.
s) Unit shall provide safety valve and rapture disc, as well as auto dump or auto quench/, suppress system for exothermic reaction vessel safety.

t) Unit shall provide a spare tank with emergency transfer system and bund/ dyke wall to Oleum storage tank.

WATER

9. Total water requirement for the project shall not exceed 1666.60 KLD. Unit shall reuse 1444.27 KLD of treated industrial effluent within premises. Hence, fresh water requirement shall not exceed 222.33 KLD and it shall be met through GIDC water supply only. Prior permission from concerned authority for withdrawal of water shall be obtained.

10. The industrial effluent generation from the project shall not exceed 1129.5 KLD.

11. Management of Industrial effluent shall be as under:

    - ✓ 24.11 KLD efflurnt generation of H-Acid & VS stream shall be treated in Stripper followed by MEE-2 & ATFD. 13.6 KLD MEE condensate shall be reused within premises.
    - ✓ 1036.39 KLD industrial effluent generation process (other products), floor & drum washing and scrubber shall be treated in ETP. 1023.69 KLD treated effluent along with 69 KLD effluent rom utilities shall be treated in MEE-1 & ATFD. 1042.69 KLD, MEE condensate shall be reused within premises.

12. Domestic wastewater generation shall not exceed 8 KL/Day for proposed project and it shall be treated in STP. It shall not be disposed off through soak pit/ septic tank. Treated sewage shall be utilized for gardening and plantation purpose within premises after achieving on-land discharge norms prescribed by the GPCB.

13. During monsoon season when treated sewage may not be required for the plantation / Gardening / Green belt purpose, it shall be stored within premises. There shall be no discharge of waste water outside the premises in any case.

14. Unit shall provide buffer water storage tank of adequate capacity for storage of treated waste water during rainy days.

15. Complete Zero Liquid Discharge [ZLD] status shall be maintained all the time and there shall be no drainage connection from the premises.

16. Unit shall feed wastewater to in-house MEE only after ensuring content of effluent for COD/VOC so as not to get air borne during evaporation in order to achieve no adverse impacts on Environment and Human Health.

17. The unit shall provide metering facility at the inlet and outlet of ETP, Stripper, MEE, ATFD & STP and maintain records for the same.

18. Proper logbooks of ETP, Stripper, MEE, ATFD & STP; reuse/ recycle of treated/ untreated effluent;

chemical consumption in effluent treatment; quantity & quality of treated effluent; power consumption etc. shall be maintained and shall be furnished to the GPCB from time to time.

AIR:

19. Unit shall not exceed fuel consumption for boilers, TFHs, HAGs and D G Set as per the point no. E-2 as mentioned above.
20. Unit shall provide adequate APCM with flue gas generation sources to achieve the norms prescribed by GPCB.
21. Unit shall provide adequate APCM with process gas generation sources as the point no**. E-3** as mentioned above.
22. PP shall use approved fuels only as fuel in boilers.
23. The fugitive emission in the workzoneenvironment shall be monitored. The emission shall conform to the standards prescribed by the concerned authorities fromtime to time (e.g. Directors of IndustrialSafety& Health). Following indicativeguidelines shall also be followed to reducethe fugitive emission.

    - Internal roads shall be either concreted or asphalted or paved properly toreducethe fugitive emission during vehicular movement.
    - Air borne dust shall becontrolled with water sprinklers at suitable locations in the plant.
    - A green belt shall be developed all around the plant boundary and also along the roads to mitigate fugitive & transport dust emission.

24. Regular monitoring of Volatile Organic Compounds (VOCs) shall be carried out in the work zone area and ambient air.

25. Forcontrol of fugitive emission, VOCs, following steps shall be followed :

    a. Closed handling and charging system shall be provided for chemicals.
    b. Reflux condenser shall be provided over Reactors / Vessels.
    c. Pumps shall be provided with mechanical seals toprevent leakages.
    d. Air borne dust at all transfers operations/ points shall be controlled either by spraying water or providing enclosures.

26. Solvent management shall be carried out as follows:

    - ✓ Measures shall be taken to reduce the process vapors emissions as far as possible. Use of toxic solvents shall be minimum. All venting equipment shall have vapour recovery system
    - ✓ Reactor shall be connected to adequate chilling system to condensate solvent vapors and reduce solvent losses.
    - ✓ Reactor and solvent handling pump shall have mechanical seals to prevent leakages.
    - ✓ The condensers shall be provided with sufficient HTA and residence time so as to achieve maximum solvent recovery.

- ✓ Solvents shall be stored in a separate space specified with all safety measures.
- ✓ Proper earthing shall be provided in all the electrical equipment wherever solvent handling is done.
- ✓ Solvent storage and handling area shall be flame proof. The solvent storage tanks shall be provided with breather valve to prevent losses.

27. Regular monitoring of ground level concentration of PM_{10}, $PM_{2.5}$, SO_2, NOx, HCl, Cl_2, HBr, Br_2, NH_3, H_2S and VOCs shall be carried out in the impactzoneand its records shall be maintained. Ambient air quality levels shall not exceed the standards stipulated by the GPCB. If at any stage these levels are found toexceed the prescribed limits, necessary additionalcontrol measures shall be taken immediately. The location of the stations and frequency of monitoring shall be decided in consultation with the GPCB.

HAZARDOUS / SOLID WASTES:

28. All the hazardous/ solid waste management shall be taken care as per the point no. F-1 as mentioned above.
29. Authorized end-users shall have permissions from the concerned authorities under the Rule 9 of the Hazardous and Other Wastes (Management and Transboundary Movement) Rules 2016.
30. Unit shall explore the possibilities for environment friendly methods like co-processing of hazardous waste for disposal of Incinerable & land fillable wastes before sending to CHWIF & TSDF sites respectively.
31. The project proponent has to obtain membership of TSDF site & CHWIF before obtaining CTO of GPCB.
32. Management of fly ash shall be as per the Fly ash Notification 2009 & its amendment time to time and it shall be ensured that there is 100% utilization of fly ash to be generated from the unit.
33. STP sludge shall be collected and used as manure in gardening activity or send to TSDF site for landfilling.
34. The unit shall submit the list of authorized end users of hazardous wastes along with MoU signed with them at least two months in advance prior to the commencement of production. In the absence of potential buyers of these items, the unit shall restrict the production of the respective items.

GREENBELT AREA

35. The PP shall develop green belt within premises (13, 225 Sq. m i.e. 33 % of the total plot area) as per the undertaking submitted before SEAC. Green belt shall be developed with native plant species that are significant and used for the pollution abatement as per the CPCB guidelines. It shall be implemented within 3 years of operation phase in consultation with GPCB.

OTHERS:

36. The project proponent shall carry out the activities Rs 1.08 Crores [Provision of Solar Panels in School, Gram-panchayat Office, Dispensary, Post-Office etc. at Saykha Village and also at nearby villages] proposed under CER and it shall be part of the Environment Management Plan (EMP) as per the MoEF&CC's OM no. F. No. 22-65/2017-IA.III dated 30.09.2020. This shall be monitored and the

monitoring report shall be submitted to the regional office of MoEF&CC as a part of half-yearly compliance report and to the District Collector. The monitoring report shall be posted on the website of the project proponent.

37. All the recommendations, mitigation measures, environmental protection measures and safeguards proposed in the EIA report of the project prepared by M/s. En-vision Environmental Services and submitted by the project proponent and commitments made during presentation before SEAC and proposed In the EIA report shall be strictly adhered to in letter and spirit.

COMPLIANCE OF ENVIRONMENT CLEARANCE/REPORTING/ADMINISTRATION/APPEAL:

38. Project proponent shall inform to all the concerned authorities including Municipal Corporation and District Collector and shall also give wide publicity through advertisement in minimum two local newspapers within seven days, about the Environment Clearance order accorded.
39. Project proponent shall appoint a key person in the organization who shall be responsible for compliance of above condition fully on behalf of the proponent. It will not mean that appointing a key person will exempt the project proponent from the responsibility of compliance. Any change in key person shall immediately be informed to SEIAA and all concerned authorities.
40. Designated key person shall submit six monthly compliance report to SEIAA/SEAC, MOEF&CC, GPCB and Nodal Department of the Government.
41. The Nodal Department or any authority or officer authorized by MOEF&CC/SEIAA can inspect the site of the project and all the facilities, for verification of compliances of environment clearance conditions.
42. In case of violation reported upon, the project proponent shall be responsible for all the legal actions as per Environment Protection Act, 1986 including SEIAA may cancel, withdraw or keep in abeyance, the Environment Clearance accorded.
43. Any person including the project proponent affected by this Environment Clearance order may file appeal to Honorable National Green Tribunal West Zone branch, Pune, preferably within a period of thirty days from the date of issue of Environment Clearance as prescribe under section 16 of National Green Tribunal Act 2010.
44. All complains and public grievance or representations may be addressed to SEIAA/SEAC in the email addresses (a) msseiaagj@gmail.com& (b) seacgujarat@gmail.com

7.	SIA/GJ/IND3/77900/2022	**M/s. Jyoti Colours Pvt. Ltd** Shed no.: A1/314, GIDC Sarigam, Tal.: Umargam, Dist.: Valsad, Gujarat-396155	EC

Category of the unit: **5(f)**

Project status: **New**

1) Details of Application:

1.1. Type of application:	EC-New
1.2. Proposal no.	SIA/GJ/IND3/77900/2022

1.3. Category of Project:	5 (f) – B1
1.4. Date of application : (Online accepted by SEAC)	04/07/2022
1.5. Documents Submitted by Project Proponent (PP)	Form -1, Pre-feasibility Report, EIA-EMP
1.6. TOR No. & Date:	SIA/GJ/16701/2022, dated on 26/01/2022
1.7. Technical expert / Environmental Consultant:	M/S.ECOGREEN ENVIRO SERVICES
1.8. SEAC Meeting No. and Date:	461st Meeting & 28th July, 2022
1.9. ADS vide letter dated :	--
1.10. Reply Submitted by PP dated:	--
1.11. Revised Consideration SEAC Meeting No. and Date:	--

2) This is a Greenfield project proposed for manufacturing of Synthetic Organic Chemicals as mentioned below:

Sr. No.	Name of the Products	CAS no.	Quantity MT/Month	*End-use of products
1	4B Acid	88-44-8	**320**	Pigment Intermediate
2	Para Toluidine	108-88-3	**240**	
3	2B Acid	88-51-7	**40**	
4	C Acid	131-27-1	**40**	
Naphthol Group			**40**	Pigment Intermediate
5	Naphthol-AS **& OR**	92-77-3		
6	Naphthol-ASE **& OR**	92-78-4		
7	Naphthol-ASD **& OR**	135-61-5		
8	Naphthol-ASPH **& OR**	92-74-0		
9	Naphthol-ASLC **& OR**	4273-92-1		
10	Naphthol-ASIRG **& OR**	90-15-3		
11	Naphthol-ASITR **& OR**	92-72-8		
	Total		**680 MT/Month**	

3) The project falls under B1 category of project activity 5(f) as per the schedule of EIA Notification 2006.

4) The proposal was considered in the SEAC video conference meeting dated 28.07.2022.

5) Project proponent (PP) and their Technical Expert M/s. ECOGREEN ENVIRO SERVICES remain present during video conference meeting.

6) Committee deliberated on Product profile, Layout plan, Fire safety, water balance & waste water management, Flue gas and process gas emission & Air Pollution Control System, Hazardous waste matrix, EMP, CER, Green belt, issued raised during public hearing along with time bound action plan, etc.

7) The baseline environmental quality has been assessed for various components of the environment viz. air, noise, water, biological and socioeconomic aspect. The baseline environmental study has been conducted for the study area of 10 km radial distance from project site for the period October-2021 to December-2021. Ambient Air Quality monitoring was carried out PM10, PM2.5, SOx, NOx, VOCs and CO at Eight locations, including the project site. Values conform to the prescribed standards for Ambient Air Quality. The incremental Ground Level Concentration (GLC) has been computed by "ISCST3". Incremental GLC's for all parameters remain within 500 m from the project site. The resultant concentrations are within the NAAQS. The modelling study proved that the air emissions from the proposed plant would not affect the ambient air quality of the region in any significant manner. The ambient air quality around the proposed project site will remain within the National Ambient Air Quality Standards (NAAQS).
8) Risk assessment including prediction of the worst-case scenario and maximum credible accident scenarios has been carried out. The detailed proposed safeguard measures including On-Site / Off-Site Emergency Plan has been covered in the RA report.
9) Compliance of the ToR and submission found satisfactory.
10) PP presented salient features of the project including Water, Air and Hazardous waste management are as under:

Sr. no.	Particulars	Details
A-1	Total **cost of Proposed** Project (Rs. in Crores): **Total Project**: 10.0 Cr. Break-up of proposed project Cost: **Details** / **Project Cost (Rs. In Crores)**: Land 0.85 Building 1.5 Machinery 3.0 Env. & Safety 4.075 Miscellaneous 0.21 **Total** **9.635~10.0** -	
A-2	**Details of Environmental Management Plan (EMP)**	As below:

-

Sr. No	Unit	Detail	Capital Cost (Rs. In Crore)	Operating Cost (Rs. In Crore/ Month)	Maintenance Cost (Rs. In Crore/ Month)	Total Recurring Cost (Rs. In Crore/ Month)

1	Waste Water	ETP-1 (Primary): 90 KLD ETP-2 (Primary+ secondary): 35 KLD MVR:115 KLD CETP Membership	3.3	0.63	0.07	0.7
2	Air	MCS: 2 Nos. Bag Filter: 2 Nos. Scrubber: 4 Nos. & Stack: 5 Nos. LDAR Measures Dust Control Measures Fugitive Control Measures	0.30	0.007	0.003	0.01
3	Hazardous Management	Membership, Transportation and Paved Dedicated Storage Area	0.01	0.04	--	0.04
4	Fire & Safety	Fire Hydrant & Fire Protection & Electrical fittings (Flameproof), PLC- SCADA (Auto), PPES & Fire Suit, Fire Extinguishers & Foam Type Trolley	0.40	0.01	0.0025	0.0125
5	Green Belt Development	150 trees	0.01	0.0005	0.0003	0.0008
6	Occupational Health	OHC & Medical Check-up, OHS Training & Misc.	0.03	0.004	0.001	0.005
7	Noise Control & AWH Monitoring	Acoustic enclosure, Silencer, Vibration pads & Noise PPEs & AWH Monitoring	0.035	0.004	0.002	0.006
8	CER Funds	2.0 % of project cost	0.20	0.0007	0.0003	0.001
Total			**4.285~4.3**			**0.775~0.78**

Comments:

- The overall environment management plan (EMP) provided for capital and recurrent cost for waste water treatment, air emission control, noise control, hazardous waste disposal, fire safety, occupational health, green belt and corporate social responsibility

was deliberated and found satisfactory.

A-3 **Details of CER** -

PP shall carry out CER activities as below:

- Cleaning of lake and water treatment plant (Screening, Tertiary treatment (Sand & Carbon filter) and disinfection process) @- Manda Village

B **Land / Plot ownership details:**

The land was allotted to M/s. Jyoti Colours Pvt. Ltd. vide order no. GIDC/RM/VAP/TRF/FTO/SAR1/66 Dated 30/07/2021

B-1 **Plot area**

Total Plot area
2702.0 Sq. m.

B-2

Area adequacy

S.N.	Particular	Qty. in MT/KL	Remark	Area required (Sq. m.)	Area proposed (Sq. m.)	GF (sq. m.)	FF (sq. m.)	SF (sq. m.)	Ground coverage (%)
1	Security cabin-1	-	-	6	6	6	-	-	0.22
2	Security cabin-2	-	-	6	6	6	-	-	0.22
3	F. G area	170 MT	1 week inventory	175	180	90	90	-	3.33
4	R.M area	175 MT	1 week inventory	180	200	100	100	-	3.70
5	Non PESO Tank Farm	10 KL (10 Kl X1)	At a time	12	15	15	-	-	0.56
6	PESO Tank Farm	60 KL (15KLx2, 25 KL×1, 5 KL×1)	At a time	62	65	65	-	-	2.41
7	Drum storage (Toxic)	18 KL (200 lit x 90)	At a time	45	50	50	-	-	1.85
8	Haz. waste storage area	200 MT	90 days inventory	90	100	100	-	-	3.70
9	ETP area	ETP-1 (Primary) & MVR ETP-2 (Primary + secondary)		60	70	70	-	-	2.59
10	Admin building and lab	-	-	50	100	50	50	-	1.85
11	Plant & Machinery	23.0 MT	MT/Day	600	900	300	300	300	11.10
12	Boiler &	Boiler-6 TPH,		45	50	50	-	-	1.85

	TFH	TFH-8.0 Lac kcal/Hr.						
13	O.H.C	16 sq mt. required	16	16	16	-	-	0.59
14	Fuel storage	50 MT	10	15	15	-	-	0.56
15	Fly Area ash storage	5 MT	3	5	5	-	-	0.19
16	Road and Open area	6.0 mt. wide road	862	862	862	-	-	31.90
17	Green Belt @ 33 %	33% Req of Plot Area	891.6	892	892	-	-	33.01
18	Hydrogen gas storage area	12 Nos. Cylinder = Skid	10	10	10	-	-	0.37
Total			**3123.6**	**3542.0**	**2702.0**	**540.0**	**300.0**	**100.0**

Remark*: Hence, the proposed area is adequate as per area adequacy.

Comments:

- SEAC has examined it w.r.t.to total monthly production, maximum products, manufactured per month, the total raw material required, weekly storage requirement of each raw material, their mode of storage, their compatibility (flammability, corrosive, toxic), area needed by each raw material, one week storage of finished goods. Area adequacy, from overall safety perspective, has been provided in proposal and is satisfactory.

B-3 **Green belt area**

	Total (Sq. meter)
Area in Sq. meter	892 sq. m (inside plant premises)
% of total area	33 %

Comments:

The condition shall be given that -

- The PP shall develop green belt (892 Sq. m i.e. 33 % of the total plot area) as per the undertaking submitted before SEAC. Green belt shall be developed with native plant species that are significant and used for the pollution abatement as per the CPCB guidelines. It shall be implemented within 3 years of operation phase in consultation with GPCB.

C **Employment generation**

Total
50

-

D	**WATER**
D-1	**Source of Water Supply** ➢ GIDC Water supply: NAO/SRG/2021-22/495, Dated: 07.08.2021
	Comments: Prior permission from concerned authority shall be obtained for withdrawal of water.
D-2	**Water consumption (KLD)**

-

Category	**Quantity KLD**
(J) Domestic	2.0
(K) Gardening	1.0
(L) Industrial	
Process	100.0
Washing	5.0
Boiler	100.0
Cooling	5.0
Other (Scrubber)	3.3
Industrial Total	**213.3**
Grand Total (A+B+C)	**216.3**

-

Comments:

➢ The water consumption above is found to be calculated considering the worst case scenario and in any case the water requirement shall not exceed the same.

D-3 **Waste water generation (KLD)**

-

Category	**Waste water KLD**
(F) Domestic	1.8
(G) Industrial	
Process	102.0
Washing	5.0
Boiler	2.0
Cooling	1.0
Other (Scrubber)	3.3
Total Industrial waste water	**113.3**
Total [A + B]	**115.1**

	- **Comments:** ➢ The waste water generation above is found to be calculated considering the worst case scenario and in any case the waste water generation shall not exceed the same. ➢ 80 KLD boiler condensate will be reused within the same.
D-4	Break-up of waste water disposal & facility (For Domestic)

1.8 KLD Domestic Waste Water will be treated in ETP & treated wastewater will be sent to CETP, Sarigam for further treatment and final disposal.

Comments:

Domestic wastewater generation shall not exceed 1.8 KL/day for proposed project and it shall be treated in ETP. It shall not be disposed off through soak pit/ septic tank.

D-5	**Break-up of waste water disposal & facility (For Industrial)**

-

Sr. no.	**Quantity KLD**	**Facility**
1	84.0	sent to in house ETP -1 (Primary) + Inhouse MVR + reused in plant premises.
2	27.5	Sent to in house ETP-2 (primary + secondary) + CETP, Sarigam
3	1.8	Sent to end users under rule-9.
Total	**113.3**	
*Membership: PP has obtained CETP membership certificate from CETP, Sarigam vide letter no. SCI/CETP/2022-23/050, dated: 20.07.2022		

Comments:

➢ Total water requirement for the project shall not exceed 216.3 KLD. Unit shall reuse 162.5 KLD of treated industrial effluent within premises. Hence, fresh water requirement shall not exceed 53.8 KLD and it shall be met through GIDC water supply only. Prior permission from concerned authority for withdrawal of water shall be obtained.

➢ Management of Industrial effluent shall be as under:

✓ 84 KLD effluent from process shall be treated in primary ETP-1 followed by MVR & Centrifuge. 82.5 KLD MVR condensate shall be reused within process.

✓ 18 KLD effluent from pocess and 9.5 KLD effluent from utilities, washing & scrubber

along with 1.8 KLD domestic effluent shall be treated in primary & secondary ETP-2. 28.7 KLD treated effluent shall be sent to CETP-Sarigam for further treatment & disposal.

- ✓ 1.8 KLD effluent from scrubber shall be sent to authorized actual users having Rule-9 permission.

- Unit shall provide ETP, MVR & Centrifuge with adequate capacity.
- The PP shall ensure to dispose off Waste water to the Common Facilities having valid CTO of GPCB.

E	**AIR**
E-1	Power (Electricity) requirement : **600 KVA**
E-2	**Flue gas emission details**

-

Sr. no.	Source of emission With Capacity	Stack Height (meter)	Type of Fuel	Quantity of Fuel MT/ Day	Type of emissions i.e. Air Pollutants	Air Pollution Control Measures (APCM)
6.	Boiler (6.0 TPH)	30	Natural Gas OR Coal	7680 SCM/Day OR 15.0 MT/Day	SPM SO_2 NO_X	M.C.S + Bag filter + Alkali scrubber with Adequate stack height
7.	Thermic Fluid Heater(8 Lac kcal/Hr.)	30	Natural Gas OR Coal	1734 SCM/Day OR 4.0 MT/day	SPM SO_2 NO_X	M.C.S + Bag filter + Alkali scrubber with Adequate stack height
8.	DG Set 125 KVA (Standby)	11	HSD	40 Lit/Hr	SPM SO_2 NO_X	Adequate stack height provided

-

E-3	**Process gas**

-

Sr. no.	Specific Source of emission (Name of the Product & Process)	Type of emission	Stack/Vent Height (meter)	Air Pollution Control Measures (APCM)
1.	Reaction Vessel **(Nitration)** (Mfg. process of C Acid)	NOx	18	Two stage Alkali Scrubber

2.	Reaction Vessel **(Sulphonation)** (Mfg. process of C Acid)	SO2	18	Two stage Alkali Scrubber

-

E-4	**Fugitive emission** details with its mitigation measures.

- Minimum number of flanges, joints and valves in pipelines
- Selection / use of state-of-the art leak proof valves
- Provision of mechanical seals in pumps
- Proper preventive maintenance of roofs and seals for tanks
- Monitoring and preventive maintenance of valves, flanges, joints, etc.
- Fugitive emission over reactors, formulation areas, centrifuges, chemical loading, transfer area, shall be collected through hoods and ducts by induced draft and controlled by dust collector.
- For particulate / dust emissions from the coal handling system: Water will be sprinkled to control particulate / dust emission from coal storage area.
- Solid fuel will be received in closed trucks
- Green belt will be developed along the plant premises
- De-dusting system will be provided at solid product finishing area.
- All transfer points will be fully closed.
- Overflow system with return line to storage tank from batch tank will be provided to prevent hazardous material overflow.

Comments for E2, E3 & E4:

- The fuel to be used is approved fuel for the requirement of the heat energy and has been proposed the Air pollution Control measures so as to achieve the emission norms prescribed by the competent authorities.
- The air pollution control measures, has been proposed by PP for checking flue gas emission, Process gas emission, fugitive gas emission, with adequate systems of reaction/ reaction condensers, thermic fluid heaters, boilers, and scrubbing systems as per the requirements, to achieve the emission norms prescribed by the competent authorities.

F	**Hazardous waste**
F-1	**Hazardous waste management matrix**

-

Sr. no.	Type/Name of Hazardous waste	Specific Source of generation (Name of the Activity, Product etc.)	Category and Schedule as per HW Rules.	Quantity (MT/ Annum)	Management of HW
1	Discarded containers Bags/Liners	Raw material Storage	33.1/SCH-I	15	Collection, Storage, Transportation, return to Supplier Or reuse within premises Or Disposal by selling to authorized recycler

	2	ETP Sludge	ETP	35.3/SCH-I	402	Collection, Storage, Transportation, disposable at TSDF site.
	3	Salt	MVR	35.3/SCH-I	365	Collection, Storage, Transportation, disposable at TSDF site.
	4	Used Oil	Maintenance Activity	5.1/SCH-I	0.5	Collection, Storage, Transportation & Disposal by selling to Authorized re- refiners or reused as lubricant within premises.
	5	NaNo2 (20-25%) Scrubbing solution	From Scrubber (Mfg. C Acid)	21.1/SCH-I	548	Collection, Storage & Treatment in ETP within facility & send to CETP, Sarigam.
	6	Na2So3 (20-22%) Scrubbing solution	From Scrubber (Mfg. C Acid)	21.1/SCH-I	657	Collection, Storage, Transporataion sell to ens users having permission under rule-9.
	7	Spent Phosphoric Acid (30-40%)	Mfg. process (Naphthol-AS)	21.1/SCH-I	150	
	8	Spent Hydrochloric Acid (25-30%)	Mfg. process (Naphthol-AS)	21.1/SCH-I	70	
	9	Spent solvent	Mfg. Process (4 B acid, Para Toluidine, 2 B acid, Naphthol-ASIRG or Naphthol-ASITR)	26.4/SCH-I	20650	Collection, Storage, Handling, recovered & recycled by Solvent Distillation Plant within premises OR send to end user having Rule-9.
	10	Distillation Residue	Mfg. Process (4 B acid, Para Toluidine, 2 B acid, Naphthol-ASIRG or Naphthol-ASITR)	20.3/SCH-I	584	Collection, Storage, Transportation & send to pre/co- processing units (cement industries) **OR** disposal at nearest CHWIF site
	11	Spent carbon	Mfg. Process (2 B Acid)	28.3/SCH-I	30	
	12	Spent Catalyst	Mfg. Process (Naphthol-ASIRG or Naphthol-ASITR)	26.5/SCH-I	5	

13	Iron Sludge	Mfg. process (C Acid)	21.1/SCH-I	713	Collection, Storage, Transportation, disposable at TSDF site.
14	Contaminated Cotton Rags or Other Cleaning Materials	Process & Maintenance	21.1/ SCH-I	0.5	Collection, Storage, Transportation, Disposal by Selling to Registered Reprocesses

-

Comments:

- Waste management includes hazardous waste management and other solid waste management. Hazardous waste-management comprises of collection, storage, transportation, disposal, incineration, and recycle of waste. SEAC examined the details provided and found it as per requirement.
- The project proponent has to obtain membership of TSDF site & CHWIF before obtaining CTO of GPCB.

F-2	Non- Hazardous waste management matrix

1. Fly Ash generation will be **730.0** MTPA
2. STP sludge generation will be **00** MTPA

Comments:

- Management of fly ash shall be as per the Fly ash Notification 2009 & its amendment time to time and it shall be ensured that there is 100% utilization of fly ash to be generated from the unit.

G	**Solvent management**, VOC emissions etc.
G-1	Types of solvents, Details of Solvent recovery, % recovery, reuse of recovered Solvents etc.

Sr. No.	Product Name	Solvent	Qty. Used MT/MT	Qty. Recovered MT/MT	solvent Loss in (Effluent - stripped out)	Distillation Residue	Total Losses	Solvent Recovery %
1	4B ACID (4-AMINOTOLUENE 3-SULPHONIC ACID)	ODCB	2.29	2.18	0.0229	0.0801	0.1145	95
2	PARA TOLUIDINE	Methanol	3.00	2.88	0.0300	0.0750	0.1200	96
3	2B ACID (2-Chloro 4-Aminotoluene 5-Sulphonic	ODCB	4.00	3.88	0.0400	0.0800	0.1400	95

	Acid)							
Naphthol Group (97%)								
4	NAPHTHOL-AS & or	Toluene	4.00	3.88	0.0400	0.0800	0.1400	95
5	NAPHTHOL-ASE & or	Toluene	4.00	3.88	0.0400	0.0800	0.1400	95
6	NAPHTHOL-ASD & or	Toluene	4.00	3.88	0.0400	0.0080	0.0680	95
7	NAPHTHOL-ASPH & or	Toluene	4.00	3.88	0.0400	0.0080	0.0680	95
8	NAPHTHOL-ASLC & or	Toluene	4.00	3.88	0.0400	0.0080	0.0680	95
9	NAPHTHOL-ASIRG & or	Toluene	4.00	3.88	0.0400	0.0080	0.0680	95
10	NAPHTHOL-ASITR & or	Toluene	4.00	3.88	0.0400	0.0080	0.0680	95

G-2 LDAR proposed:

The Following methodology to be adopted during LDAR study:

- Identify the Chemical streams that must be monitored.
- Types of components (pumps, valves, connectors, etc.) to be monitored
- Frequency of monitoring.
- Actions to be taken if a leak is detected.
- Length of time in which an attempt to repair the leak must be performed.
- Actions that must be taken if a leak cannot be repaired within guidelines.
- Record-keeping and reporting requirements.

Following frequency of monitoring of leaks and schedule for repair of leaks shall be followed:

S.N.	Component	Frequency of monitoring	Repair schedule
1.	Valves / Flanges	Quarterly (semi-annual after two consecutive period with < 2% leaks and annual after 5 periods with < 2% leaks)	Repair will be started within 5 working days and shall be completed within 15 working days after detection of leak.
2.	Pump seal	Quarterly	
3.	Compressor seals	Quarterly	
4.	Pressure relief devices	Quarterly	
5.	Pressure relief devices (after venting)	Within 24 hrs.	
6.	Process drains	Annually	Repair will be started within 5 working days and shall be completed within 15 working days after detection of leak.
7.	Components that are difficult to monitor	Annually	
8.	Pump seals with visible liquid dripping	Weekly	Immediately
9.	Any component with visible leaks	Weekly	Immediately
10.	Any component after repair / replacement	Within a week	-

LDAR for specific solvents:

Sr. No.	Solvent Name	Type of Storage	Mode of Transfer	Charging	Sources of Leakage	Mitigation Measure For find out leakages	Mitigation Measure (If leakages will be occur)	Action taken for prevention of leakages
1.	Methanol	Tank	By Pump & Fix Pipe line	Direct Vessel	• Leak from Valve (failure of the valve packing & O-ring) • Leak from pump (Occur at seal) • Leak from Tank • Leak from Connectors • Leak from open ended lines	• For using Gas Detector by PID Sensor technology.	If valve will be leak stop pumping system and replace with new valve. When pump sea will be leak immediatel y stop solvent transfer and immediatel y repair or replace with new seal.	Check Thickness of Tank Using fix pipeline for solvent transfer Minimum use o Connectors & Joins Provided sufficient Space (Solvent Unloading area) for Solvent Tanker

G-3	**VOC emission** sources and its mitigation measures

Measures for achieving maximum solvent recovery and minimize VOC generation:

- All the solvents shall be directly distilled from product mixes and; if required shall be purified in packed column with the help of reflux.
- The solvent distillation system shall be designed so as to achieve minimum 95.0 % recovery of solvent.
- All the pumps shall be mechanical seal type to avoid any leakage of solvent.
- All necessary firefighting systems shall be provided with alarm system. Flame proof wiring and flame proof electrical accessories shall be provided to avoid any mishap.
- All the distillation column vents are also connected to cooling water/ chilled brine condensers for maximum possible recovery of the solvents.
- All the vents will be connected to a common carbon Absorber for removing traces of solvent from vent gases.
- Residue generated from the distillation will be incinerated in-house or sent to BEIL incinerator site.
  - Two condenser will install with cooling water and chilled brine to recover the solvent.
- Primary Condenser HE-01: Cooling Tower water or Chilled water at 10 0C -will be used to condense the solvents depend on the vapor pressure at its operating conditions and the non-condensed vapors will be condensed in a Secondary Condenser VOC Trap Condenser HE-02: Chilled Brine at -05 0C will be used to trap any traces of Solvent which is slipped from Secondary condenser.

Comments:

- Measures for achieving maximum solvent recovery and minimize VOC generation, inclusive of VOC detectors, pumps, maintenance of pipelines, proper ventilation etc., provided are as per requirement.
- Spent solvents shall be recovered by in-house distillation in such a manner that recovery shall not be achieved to the maximum extent and recovered solvent shall be reused in the process. Solvent recovery system with adequate reflux condensers shall be provided for controlling escape of low boiling solvents (VOCs).

H	**SAFETY details**
H-1	**Details regarding storage of Hazardous chemicals**

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Sr. no	Name of Chemical	Capacity of Tank	Number of Tank	Hazardous Characteristics of Chemical
PESO Tank (KL)				
1	ODCB (Ortho Dichloro Benzene) (U/g)	15 KL (MS)	2	Highly Flammable
2	Toluene (U/g)	5 KL (MS)	1	Highly Flammable
3	Methanol (U/g)	25 KL (MS)	1	Highly Flammable
	Total		**4 Nos.**	
Non-PESO Tank				
1	Sulphuric acid	10 (MSRL)	1	Highly Toxic

-

Storage of Hazardous chemicals in Tanks

Safety Measures for PESO Underground storage tank farm:

- The underground vessels shall be placed within concrete or brick masonry pit with a gap of 1.0 meter between the walls of the pit and the vessel as well as in between the vessels.
- The underground vessels shall be installed on a firm foundation and firmly secured to the foundation so as to prevent movement of floatation.
- Class A Petroleum products will be received through road tanker and stored in u/g storage tank as per PESO Rule.
- Tank farm will be constructed as per explosive department requirement and separation distance will be maintained.
- The underground vessels covered by earth (Mound) shall be a designed to withstand external pressure due to load of the earth cover.
- Provided with external anti-corrosive coating or cathodic protection to prevent corrosion;
- Covered by earth, sand or any other non-corrosive material free from abrasive particles likely to damage the anti-corrosive coating of the vessel-the thickness of the covering material above the top surface of the vessel shall not be less than 0.5 meter;
- Having the discharge level of the safety relief valves at least 2 meters above the top surface of the vessel, but in any case, not less than 3 meters from the ground level;
- Fitted with the necessary piping's, fittings, valves and other mounting on top of vessel in such a manner that they can be operated and maintained without disturbing the earth cover. In case of above ground vessel with earth cover (mound), liquid outlet pipe at the bottom may be allowed provided the control valve and emergency valve of this line is just

outside the earth cover for the purpose of operation and maintenance from outside.

- Static earthing provision will be made for road tanker as well as storage tank.
- Flame arrestor with breather valve will be provided on vent line.
- Road tanker unloading procedure will be prepared and implemented.
- Fire load calculation will be done and as per fire load hydrant system will be provided as per NFPA std. and fire extinguishers will be provided as per fire load calculation.
- Spark arrestor will be provided to all vehicles in side premises
- Lightening arrestor will be provided on the top.
- Flame proof type equipment and lighting will be provided.
- Trained and experience operator will be employed for tank farm area.
- NFPA label (hazard identification) capacity and content will be displayed on tanks
- Solvents will be transferred by pump only in plant area and day tank will be provided. Overflow line will be return to the storage tank or Pump On-Off switch will be provided near day tank in plant.
- Jumpers will be provided on solvent handling pipe line flanges & Flexible SS hose will be used for road tanker unloading purpose and other temp. connection.

Safety Measures for Acid / Alkali Storage tank area:

- Storage tank will be stored away from the process plant.
- Tanker unloading procedure will be prepared and implemented.
- Caution note and emergency handling procedure will be displayed at unloading area and trained all operators.
- NFPA label will be provided.
- Required PPEs like full body protection PVC apron, Hand gloves, gumboot, Respiratory mask etc. will be provided to operator.
- Neutralizing agent will be kept ready for tackle any emergency spillage.
- Safety shower, eye wash with quenching unit will be provided in acid storage area.
- Material will be handled in close condition in pipe line.
- Dyke wall will be provided to all storage tanks, collection pit with valve provision.
- Double drain valve will provided.
- Level gauge will be provided on all storage tanks.
- Safety permit for loading unloading of hazardous material will be prepared and implemented. TREM CARD will be provided to all transporters and will be trained for transportation Emergency of Hazardous chemicals.
- Fire hydrant system with jockey pump as per TAC norms will be installed.

Storage of Hazardous chemicals other than Tanks i.e. Drum, Barrels, Carboys, Bags etc.

Sr. no	Name of Chemical	Capacity of Drum, Skid etc.	Number of Drum, Bank etc.	Hazardous Characteristics of Chemical
1	Nitric acid	HDPE Drum (200 lit)	15	Highly Toxic & Oxidizer
2	Aniline		5	Highly Toxic
3	HCl (Hydrochloric acid)		20	Highly Toxic
4	Sodium Hydroxide		15	Highly Toxic
5	Oleum (65%)		30	Highly Toxic
6	Hydrogen Gas	Cylinder	2.2 kg × 12 Nos. Cylinder	Highly Flammable

Safety details of Hazardous Chemicals:

Type of Hazardous	Safety measures

Chemicals	
FLAMMABLE & EXPLOSIVE	✓ Storage will be cool, well ventilated away from sources of ignition or heat. Prevent accumulation of static charge. Protect material from direct sunlight. ✓ Store in original container. Keep containers tightly closed and upright when not in use. ✓ Proper label and identification board /stickers will be provided in the storage area. ✓ Conductive drum pallets will be provided. ✓ Drum handling trolley / stackers/fork lift will be used for drum handling. Separate dispensing room with local exhaust and static earthing provision will be made. ✓ Ground container and transfer equipment to eliminate static electric sparks. ✓ Smoking and other spark, flame generating item will be banned near storage area. FLP type light fittings will be provided. ✓ Handling of materials from Drum will be done only through Mechanical Transfer System only. ✓ Training will be provided to employees for safe storage, handling and transpiration. ✓ When using, do not eat, smoke or drink. ✓ Fire Hydrant with monitor, fire proximity suits, automatic sprinkler system, Safety shower & eye wash unit will be installed nearby area. ✓ Provision of Respiratory protective equipment (airline respirator & SCBA) & personal protective equipment will be available. ✓ For spills involving small volumes of dilute solution of Xylene/Formaldehyde/Methanol, the following cleaning procedure can be used ✓ Wear appropriate personal protective equipment (PPE) ✓ Remove any ignition source from the spill area; ✓ Clean the spill area with a mixture of water and soap ✓ Dry the spill area with paper towels ✓ Onsite emergency plan prepared and mock drill will be carried out. Safety sign board displaying Do's and Don'ts in local language.
CORROSIVE & CHEMICALS	✓ Preventing or minimizing contact between corrosive substances and skin, mucous membranes and eyes. ✓ Corrosive substances will not be allowed to come in contact with materials that may react. ✓ All the containers, pipes, apparatus, installations and structures used for the manufacture, storage, transport or use of these substances will be protected by suitable coatings, impervious to and unaffected by corrosives. ✓ All containers or receptacles will be clearly labelled to indicate their contents and will bear the danger symbol for corrosives. ✓ Adequate ventilation and exhaust arrangement whether general or local, will be provided whenever corrosive toxic gases or dust are present. ✓ Personal protective devices will be used. ✓ First aid treatment facilities will be provided and all concerned will be instructed to follow safe practices such as (a) Prolonged washing with water (b) Removing contaminated clothing (c) Seeking immediate medical help. ✓ Safety showers and eye washers will be provided.
TOXIC CHEMICALS	✓ Storage will be cool, well ventilated away from sources of ignition or heat. Prevent accumulation of static charge. Protect material from direct sunlight. ✓ Store in original container. Keep containers tightly closed and upright when not in use. ✓ Proper label and identification board /stickers will be provided in the storage area. ✓ Conductive drum pallets will be provided. ✓ Drum handling trolley / stackers/fork lift will be used for drum handling. Separate dispensing room with local exhaust. ✓ Ground container and transfer equipment to eliminate static electric sparks. ✓ Handling of materials from Drum will be done only through Mechanical Transfer System only. Unloading procedure will be prepared and implemented. ✓ Training will be provided to employees for safe storage, handling and transpiration.

	✓ Safety shower & eye wash unit will be installed nearby area. ✓ Required PPEs like full body protection PVC apron, Hand gloves, gumboot, Respiratory protective equipment (airline respirator & SCBA) etc. will be provided to operator ✓ For spills involving small volumes, the following cleaning procedure can be used ✓ wear appropriate personal protective equipment (PPE) ✓ clean the spill area with a mixture of water and soap ✓ Neutralizing agent will be kept ready for tackle any emergency spillage ✓ Onsite emergency plan prepared and mock drill will be carried out. Safety sign board displaying Do's and Don'ts in local language.
REACTIVE CHEMICALS	✓ Store minimum quantities. ✓ Segregate chemicals, e.g. from water, air, incompatible chemicals, sources of heat, ignition sources. ✓ Spillage control; bund, spray, blanket, containment. Drain to collection pit. ✓ Decontamination and first-aid provisions, e.g. neutralize/destroy, fire-fighting • Contain/vent pressure generated to a safe area. ✓ Split-up stocks into manageable lots, e.g. with reference to fire loading/spillage control. ✓ Ensure appropriate levels of security, hazard warning notices, fences, patrols. Control access including vehicles. ✓ Appropriate gas/vapour/fume/pressure venting, e.g. flame arrestors, scrubbers, absorbers, stacks. ✓ Will ensure adequate natural or forced general ventilation of the storage area Provide adequate, safe lighting. ✓ Label (name and number); identify loading/unloading/transfer couplings. ✓ Provide appropriate fire protection (sprinkler, dry powder, gas). ✓ Will ensure adequate access for both normal and emergency purposes with alternative routes

- **Applicability of PESO:** Yes. Unit will obtain PESO License for storage of chemicals.

Comments:

- Committee was of the opinion that the provisions of PESO, licensing, condition compliance, monitoring, fall within the preview of The Petroleum and Explosives Safety Organization (PESO) and SEAC has very limited role in this. Nevertheless SEAC has examined it. The PP has submitted that the list of raw materials/products proposed to be produced along with the quantity, attract the provisions of PESO and they will abide by the requisite legal compliances with reference to storage and safety. SEAC has taken note of it.

H-2	**Types of hazardous Processes involved and its safety measures:**

Type of Process	**Safety measures including Automation**
Hydrogenation Process (Through Hydrogen gas)	✓ **Provision of Safety Valve & Rupture Diskon reactor**. ✓ PLC base process controls and operation of plant will be installed. ✓ All electrical equipment's shall be installed as per Hazardous Area Classification. ✓ **Total enclosed process system.** ✓ Instrument & Plant Air System. ✓ **Nitrogen blanketing in Hydrogenation reactor.** ✓ **Emergency dumping vessel will be provided during unforeseen circumstances.**

		✓ Safety valve and Rupture disc provided on reactor. ✓ Cooling, Chilling and alternate power arrangement have been made on reactor. ✓ Process area and Hydrogen cylinder bank shall be far away as per standards practice. ✓ PRV station with shut off valve, safety valve provision will be made for hydrogenation reaction safety. ✓ Standard Operating procedure shall be followed during operation of Hydrogen Gas charging in to reactor and after completion of reaction Nitrogen purging will be done. ✓ Flame arrestor will be provided on vent line of reactor and it will be extended above the roof level. ✓ Safe Catalyst charging method will be adopted. ✓ SOP will be displayed and operators will be trained for the same. ✓ Static earthing and electric earthing (Double) will be provided. ✓ Jumpers for static earthing on pipeline flanges of flammable chemical will be provided. ✓ **Hydrogen gas detector will be installed for early detection of gas leak.**
	Sulphonation (Through Oleum)	✓ **Provisions of safety valve & rupture disk on reactor.** ✓ **Provisions of auto dumping Vessel.** ✓ Required PPEs like full body protection PVC apron, Hand gloves, gumboot, Respiratory mask etc. will be provided to operator. ✓ **To avoid runaway reaction, oleum charging will be done gradually & slowly.** ✓ **Charging will be done only through closed line and system. Scrubber attached with closed system.** ✓ **Make sure the absorber unit (two stage Alkali scrubber) is working and capable of handling vented SO2 fumes.** ✓ **Neutralizing agent will be kept ready for tackle any emergency spillage.** ✓ Safety Shower and eye wash will be provided near process area. ✓ Evacuate area in down wind direction up to 0.3 km (300 meter) in small leakage. ✓ Emergency siren and wind sock will be provided. ✓ Tele Communication system and mobile phone will be used in case of emergency situations for communication. ✓ Total close process will be adopted for charging. ✓ Caution note and emergency first aid will be displayed and train for the same to all employees. ✓ First Aid Boxes will be available in process area. ✓ Emergency organization and team will be prepared as per On site-Off site emergency planning. ✓ Emergency team will be prepared and trained for scenario base emergency. Like Toxic control team, Fire control team, First aid team, communication and general administration team, Medical team etc. ✓ Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. ✓ Use water spray to reduce vapors; do not put water directly on leak, spill area or inside container. Keep combustibles (wood, paper, oil, etc.) away from gas storage area.
	Nitration (Through Nitric Acid)	✓ SOP will be displayed for safe charging of Nitric acid for nitration process. ✓ Required PPEs like full body protection PVC apron, Hand gloves, gumboot, Respiratory mask etc. will be provided to operator at time of nitric acid charging. ✓ Make sure the absorber unit (two stage Alkali scrubber) will be working

	and capable of handling vented NO2 fumes. ✓ Neutralizing agent will be kept ready for tackle any emergency spillage. ✓ Safety Shower and eye wash will be provided near process area. ✓ Total close process will be adopted (from storage tank to measured vessel & then to reactor) for Nitric Acid charging. ✓ Caution note and emergency first aid will be displayed and train for the same to all employees. ✓ First Aid Boxes will be available in process area. ✓ Prevention measures for runaway reaction of nitration reaction. ✓ Instrumentation control ✓ Rotameter ✓ PLC Automatic ✓ Level alarms ✓ TIC of jacket as well as the reactor ✓ Emergency control measures: ✓ Flushing water (chilled water / ice quenching) to control the runaway reaction. ✓ Provision of Drainage of the contents of the nitrator underneath reactor; the contents will be neutralized (by Alkali) in catch point. It will be sent to CF (Co-Processing/CHWIF/TSDF).

H-3	**Details of Fire Load Calculation**

Total Plot Area:	2702.0 sq. m.
Area utilized for plant activity:	300.0 sq. m. (G+2)
Area utilized for Hazardous Chemicals Storage:	140 sq. m.
Number of Floors:	03 (G+2)
Water requirement for firefighting in KLD:	19.51 m^3
Water storage tank provided for firefighting in KLD:	300 KLD
Details of Hydrant Pumps:	**Fire Hydrant Pump Details**

Type of Pump	**Quantity**	**Capacity**	**Head**	**RPM**
Main Electrical Pump	1	4550 Lit/Min	88 Mt	2920
Jockey Pump	1	1080 Lit/Min	88 Mt	1800
Diesel Pump	1	4550 Lit/Min	88 Mt	2920

Nearest Fire Station :	**Fire Station, Sarigam Fire station at around 1.01 km,** Around 5-10 min travel distance
Applicability of Off Site Emergency Plan:	Yes.

Comments:

- The project proponent has proposed fire safety plan which includes fire hydrant line, sprinkler system, fire extinguishers, fire suits, covering the project area and provides for fire water storage tank of 300 KL. SEAC found it as per the requirement.

H-4	**Details of Fire NOC/Certificate:**

Unit will obtain Fire NOC after receipt of EC and before getting CTO.

H-5	Details of Occupational Health Centre (OHC):

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Number of permanent Employee:	50
Number of Contractual person/Labour:	30
Area provided for OHC:	16.0 sq. m
Number of First Aid Boxes:	13
Nearest General Hospital:	Rotary Hospital at 1.77 km ESE
Name of Antidotes to be store in plant:	Sodium Hydro-Carbonate (4% Conc.), Milk, Lime Juice, Milk of Megnesia, 10 mg diazepam injection, Airline respirator, butter milk, Pontocane (0.5% solution) or Benoxinate (Novesine) 0.4 %, magnesium sulphate

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Comments

- Project proponent has provided Occupational health center with adequate provision of manpower, equipment and operational cost. SEAC finds it as per the provisions of Gujarat Factory Rules 1963.

11) Recommendation by SEAC:

"On the basis of information provided to SEAC on project, its location, technical, physical and environmental infrastructure, products, quantity to be manufactured, its raw material, storage, waste disposal, water treatment, safety measures, green belt development planning, regulatory compliance assured of related statutory provisions, necessary documents of requisite permissions provided from concerned departments and overall environmental management planning for the project, along with financial resources committed for operation and maintenance, and on the basis of presentation made before SEAC, modification suggested by SEAC and incorporated by project proponent, SEAC finds the project as per the requirement and **unanimously**recommends the same to SEIAA for environmental clearance."

Conditions with which Environment Clearance is recommended:

Construction Phase

a) "Wind – breaker of appropriate height i.e. 1/3rd of the building height and maximum up to 10 meters shall be provided. Individual building within the project site shall also be provided with barricades.

b) "No uncovered vehicles carrying construction material and waste shall be permitted."

c) "No loose soil or sand or construction & demolition waste or any other construction material that cause dust shall be left uncovered. Uniform piling and proper storage of sand to avoid fugitive emissions shall be ensured."

d) Roads leading to or at construction site must be paved and blacktopped (i.e. – metallic roads).

e) No excavation of soil shall be carried out without adequate dust mitigation measures in place.

f) Dust mitigation measure shall be displayed prominently at the construction site for easy public viewing.

g) Grinding and cutting of building materials in open area shall be prohibited.

h) Construction material and waste should be stored only within earmarked area and road side storage of construction material and waste shall be prohibited.

i) Construction and demolition waste processing and disposal site shall be identified and required dust mitigation measures be notified at the site. (If applicable).

SPECIFIC CONDITIONS:

1. Unit shall install CEMS **[Continuous Emission Monitoring System]** in line to CPCB directions to all SPCB vide letter no. B-29016/04/06PCI-1/5401 dated 05/02/2014 for effluent discharge and air emission as per pollutants discharge/emission from respective project and an arrangement shall also be done for reflecting the online monitoring results on the company's server, which can be assessable by the GPCB/CPCB on real time basis. **[For Small/Large/Medium (Red Category) & Whichever (Air emission & Effluent discharge) is applicable].**

2. Close loop solvent recovery system with adequate condenser system shall be provided to recover solvent vapours in such a manner that recovery shall be maximum and recovered solvent shall be reused in the process within premises.

3. Leak Detection and Repair (LDAR) program shall be prepared and implemented as per the CPCB guidelines. LDAR Logbooks shall be maintained.

4. The National Ambient Air Quality Emission Standards issued by the Ministry vide G. S. R. No. 826 (E) dated 16th November, 2009 shall be complied with.

5. National Emission Standards for Organic Chemicals Manufacturing Industry issued by the Ministry vide G. S. R. 608 (E) dated 21/07/2010 and amended from time to time shall be followed.

6. Unit shall have to adhere to the prevailing area specific policies of GPCB with respect to the discharge of pollutants, and shall carry out the project development in accordance & consistence with the same.

7. All measures shall be taken to avoid soil and ground water contamination within premises.

8. Safety & Health:

a) PP shall obtain PESO permission for the storage and handling of hazardous chemicals.

b) PP shall provide Occupational Health Centre (OHC) as per the provisions under the Gujarat Factories Rule 68-U.

c) PP shall obtain fire safety certificate / Fire No-Objection certificate (NOC) from the concern authority as per the prevailing Rules / Gujarat Fire Prevention and Life Safety Measures Act, 2016.

d) Unit shall adopt functional operations/process automation system including emergency response to eliminate risk associated with the hazardous processes.

e) PP shall carry out mock drill within the premises as per the prevailing guidelines of safety and display proper evacuation plan in the manufacturing area in case of any emergency or accident.

f) PP shall install adequate fire hydrant system with foam trolley attachment within premises and separate storage of water for the same shall be ensured by PP.

g) PP shall take all the necessary steps for control of storage hazards within premises ensuring incompatibility of storage raw material and ensure the storage keeping safe distance as per the prevailing guidelines of the concerned authority.

h) PP shall take all the necessary steps for human safety within premises to ensure that no any harm is caused to any worker/employee or labour within premises.

i) Flame proof electrical fittings shall be provided in the plant premises, wherever applicable.

j) Unit shall provide water sprinkler to the ammonia storage cylinder.

k) Unit shall never store drum/barrels/carboys of incompatible material/chemical together.

l) Unit shall provide effective fire hydrants, water monitors & foam application system at solvent storage area and unit shall provide adequate safety system such as water sprinklers, water curtains, foam pouring system etc. to restrict cascade fire emergency in solvent storage area.

m) Unit shall provide effective Isolation for Process area and storage of hazardous chemicals.

n) Unit shall provide safety valve and rapture disc, as well as auto dump or auto quench/, suppress system for nitration vessel safety.

o) Unit shall provide safety valve and rapture disc, as well as auto dump or auto quench/, suppress system for exothermic reaction vessel safety.

p) Unit shall provide safety valve & rupture disc to the Hydrogenation vessel.

q) Unit shall provide a spare tank with emergency transfer system and bund/ dyke wall to Oleum storage tank.

WATER

9. Total water requirement for the project shall not exceed 216.3 KLD. Unit shall reuse 162.5 KLD of treated industrial effluent within premises. Hence, fresh water requirement shall not exceed 53.8 KLD and it shall be met through GIDC water supply only. Prior permission from concerned authority for withdrawal of water shall be obtained.

10. The industrial effluent generation from the project shall not exceed 113.3 KLD.

11. Management of Industrial effluent shall be as under:

    - ✓ 84 KLD effluent from process shall be treated in primary ETP-1 followed by MVR & Centrifuge. 82.5 KLD MVR condensate shall be reused within process.
    - ✓ 18 KLD effluent from pocess and 9.5 KLD effluent from utilities, washing & scrubber along with 1.8 KLD domestic effluent shall be treated in primary & secondary ETP-2. 28.7 KLD treated effluent shall be sent to CETP-Sarigam for further treatment & disposal.
    - ✓ 1.8 KLD effluent from scrubber shall be sent to authorized actual users having Rule-9 permission.

12. Domestic wastewater generation shall not exceed 1.8 KL/Day for proposed project and it shall be treated in ETP. It shall not be disposed off through soak pit/ septic tank.

13. Unit shall provide buffer water storage tank of adequate capacity for storage of treated waste water during rainy days.

14. Treated waste water shall be sent to CETP-Sarigam only after complying with the inlet norms of common facilities prescribed by GPCB to ensure no adverse impact on Human Health and Environment.

15. The unit shall provide metering facility at the inlet and outlet of ETP, MVR & Centrifuge and maintain records for the same.

16. Proper logbooks of ETP, MVR & Centrifuge; reuse/ recycle of treated/ untreated effluent; chemical consumption in effluent treatment; quantity & quality of treated effluent; power consumption etc. shall be maintained and shall be furnished to the GPCB from time to time.

AIR:

17. Unit shall not exceed fuel consumption for boiler, TFH, and D G Set as per the point no. E-2 as mentioned above.
18. Unit shall provide adequate APCM with flue gas generation sources to achieve the norms prescribed by GPCB.
19. Unit shall provide adequate APCM with process gas generation sources as the point no**. E-3** as mentioned above.
20. PP shall use approved fuels only as fuel in boilers.
21. The fugitive emission in the workzoneenvironment shall be monitored. The emission shall conform to the standards prescribed by the concerned authorities fromtime to time (e.g. Directors of IndustrialSafety& Health). Following indicativeguidelines shall also be followed to reducethe fugitive emission.

    - ➢ Internal roads shall be either concreted or asphalted or paved properly toreducethe fugitive

emission during vehicular movement.

- Air borne dust shall becontrolled with water sprinklers at suitable locations in the plant.
- A green belt shall be developed all around the plant boundary and also along the roads to mitigate fugitive & transport dust emission.

22. Regular monitoring of Volatile Organic Compounds (VOCs) shall be carried out in the work zone area and ambient air.

23. Forcontrol of fugitive emission, VOCs, following steps shall be followed :

    a. Closed handling and charging system shall be provided for chemicals.
    b. Reflux condenser shall be provided over Reactors / Vessels.
    c. Pumps shall be provided with mechanical seals toprevent leakages.
    d. Air borne dust at all transfers operations/ points shall be controlled either by spraying water or providing enclosures.

24. Solvent management shall be carried out as follows:

    - ✓ Measures shall be taken to reduce the process vapors emissions as far as possible. Use of toxic solvents shall be minimum. All venting equipment shall have vapour recovery system
    - ✓ Reactor shall be connected to adequate chilling system to condensate solvent vapors and reduce solvent losses.
    - ✓ Reactor and solvent handling pump shall have mechanical seals to prevent leakages.
    - ✓ The condensers shall be provided with sufficient HTA and residence time so as to achieve maximum solvent recovery.
    - ✓ Solvents shall be stored in a separate space specified with all safety measures.
    - ✓ Proper earthing shall be provided in all the electrical equipment wherever solvent handling is done.
    - ✓ Solvent storage and handling area shall be flame proof. The solvent storage tanks shall be provided with breather valve to prevent losses.

25. Regular monitoring of ground level concentration of PM_{10}, $PM_{2.5}$, SO_2, NOx and VOCs shall be carried out in the impactzoneand its records shall be maintained. Ambient air quality levels shall not exceed the standards stipulated by the GPCB. If at any stage these levels are found toexceed the prescribed limits, necessary additionalcontrol measures shall be taken immediately. The location of the stations and frequency of monitoring shall be decided in consultation with the GPCB.

HAZARDOUS / SOLID WASTES:

26. All the hazardous/ solid waste management shall be taken care as per the point no. F-1 as mentioned above.

27. Authorized end-users shall have permissions from the concerned authorities under the Rule 9 of the Hazardous and Other Wastes (Management and Transboundary Movement) Rules 2016.

28. Unit shall explore the possibilities for environment friendly methods like co-processing of hazardous waste for disposal of Incinerable & land fillable wastes before sending to CHWIF & TSDF sites respectively.
29. The project proponent has to obtain membership of TSDF site & CHWIF before obtaining CTO of GPCB.
30. Management of fly ash shall be as per the Fly ash Notification 2009 & its amendment time to time and it shall be ensured that there is 100% utilization of fly ash to be generated from the unit.
31. The unit shall submit the list of authorized end users of hazardous wastes along with MoU signed with them at least two months in advance prior to the commencement of production. In the absence of potential buyers of these items, the unit shall restrict the production of the respective items.

GREENBELT AREA

32. The PP shall develop green belt within premises (892 Sq. m i.e. 33 % of the total plot area) as per the undertaking submitted before SEAC. Green belt shall be developed with native plant species that are significant and used for the pollution abatement as per the CPCB guidelines. It shall be implemented within 3 years of operation phase in consultation with GPCB.

OTHERS:

33. The project proponent shall carry out the activities of Rs 20.1 Lakhs [Provision of Solar Panels in School, Gram-panchayat Office, Dispensary, Post-Office etc. at Saykha Village and also at nearby villages] proposed under CER and it shall be part of the Environment Management Plan (EMP) as per the MoEF&CC's OM no. F. No. 22-65/2017-IA.III dated 30.09.2020. This shall be monitored and the monitoring report shall be submitted to the regional office of MoEF&CC as a part of half-yearly compliance report and to the District Collector. The monitoring report shall be posted on the website of the project proponent.
34. All the recommendations, mitigation measures, environmental protection measures and safeguards proposed in the EIA report of the project prepared by M/s. ECOGREEN ENVIRO SERVICES and submitted by the project proponent and commitments made during presentation before SEAC and proposed In the EIA report shall be strictly adhered to in letter and spirit.

COMPLIANCE OF ENVIRONMENT CLEARANCE/REPORTING/ADMINISTRATION/APPEAL:

35. Project proponent shall inform to all the concerned authorities including Municipal Corporation and District Collector and shall also give wide publicity through advertisement in minimum two local newspapers within seven days, about the Environment Clearance order accorded.
36. Project proponent shall appoint a key person in the organization who shall be responsible for compliance of above condition fully on behalf of the proponent. It will not mean that appointing a key person will exempt the project proponent from the responsibility of compliance. Any change in key person shall immediately be informed to SEIAA and all concerned authorities.
37. Designated key person shall submit six monthly compliance report to SEIAA/SEAC, MOEF&CC, GPCB and Nodal Department of the Government.
38. The Nodal Department or any authority or officer authorized by MOEF&CC/SEIAA can inspect the site of

the project and all the facilities, for verification of compliances of environment clearance conditions.

39. In case of violation reported upon, the project proponent shall be responsible for all the legal actions as per Environment Protection Act, 1986 including SEIAA may cancel, withdraw or keep in abeyance, the Environment Clearance accorded.
40. Any person including the project proponent affected by this Environment Clearance order may file appeal to Honorable National Green Tribunal West Zone branch, Pune, preferably within a period of thirty days from the date of issue of Environment Clearance as prescribe under section 16 of National Green Tribunal Act 2010.
41. All complains and public grievance or representations may be addressed to SEIAA/SEAC in the email addresses (a) msseiaagj@gmail.com& (b) seacgujarat@gmail.com.

8.	SIA/GJ/IND/77659/2022	**M/s. Mangalam Alloys Ltd.** Plot no. 3122, 3123, 3124, 3125, 3126, Phase - 3, GIDC Chhatral, Taluka : Kalol, District : Gandhinagar	ToR

1) During SEAC Video conference meeting dated 28.07.2022, Project Proponent (PP) remained absent.
2) PP has requested to withdraw the application on Parivesh portal..
3) **In view of the above, Committee decided to consider the withdrwal of application and delist the same.**

9.	SIA/GJ/MIS/79235/2022	**M/s Real Environment Enterprises Pvt Ltd** Survey / Block No. 65, 66, 76, 77, 78, 79, 80, 81, Village Porda, Taluka Dasada, District Surendranagar	TOR

Category of the unit: **7(d)**

Project status: New

12) Details of Application:

Type of application:	ToR - New
Proposal no.	SIA/GJ/MIS/79235/2022
Category of Project :	7(d) – B1
Date of application : (Online accepted by SEAC)	06/07/2022
Documents Submitted by Project Proponent(PP)	Form 1, PFR, SEAC Format for ToR
TOR No. & Date :	--
Technical expert / Environmental Consultant :	Ramans Enviro Services Pvt. Ltd., Ahmedabad
SEAC Meeting No. and Date:	453rd SEAC Meeting on dated 28/07/2022
ADS vide letter dated :	--

Reply Submitted by PP dated:	--
Revised Consideration SEAC Meeting No. and Date:	--

13) Project proponent (PP) has submitted Form-1, PFR and relevant details/information.

14) This is Greenfield project proposed for establishment of common TSDF, common MEE, spray dryer, co-processing facility and drum decontamination facility as tabulated below:

Sr. No.	Description/ Facility	Capacity
1	Secured Landfill (Direct Landfill and Landfill with treatment)	50 Lakh MT to be developed in phase wise manner in three cells – Cell 1, 2 and 3 Waste Input – 650 TPD
2	Stripper with MEE	15 KL per hr
3	Spray Dryer	5 KL per hr
4	Drum Decontamination Facility	1.5 Lakh barrels per annum – 500 barrels per day
5	Co-Processing Facility	80,000 MT/Annum

- Cell Height :

Cell	Height in Meter
Cell-I	33
Cell-II	26
Cell-III	

- Life of TSDF site: @ **10 years**
- Area of Landfill**:**

Cell	Area in Sq. M.
Cell-I	46565
Cell-II	45574
Cell-III	47296
Total	**139435**

- Depth of Landfill : @ **15 m**

4) The project falls under Category B1 of project activity 5(f) as per the schedule of EIA Notification 2006.

5) This case was considered in the SEAC meeting dated 28.07.2022.

6) Project proponent (PP) and their Technical Expert M/s Ramans Enviro Services Pvt. Ltd., Ahmedabad remain present during video conference meeting.

7) Committee deliberated on site alternatives, environmental sensitivity, Layout plan, details of cross section of landill, water balance & waste water management, Flue gas and process gas emission & Air Pollution Control System, Hazardous waste matrix, EMP, CER, Green belt, etc.

8) PP submitted that nearest residential area is Porda @ 1.4 Km and there is no water bodies, natural drain, National monuments within 500 m radius from the project boundary.

9) Committee asked to submit the superimpose maps of Ecosentive zone/ protected forests and location of the site. PP later on PP submitted following details through email. There are no Eco sensitive zones, wild

life sanctuaries within the 10 km area from the boundary of the project site

10) Committee found submission of details satisfactory.

11) Salient features of the project including Water, Air and Hazardous waste management are as under:

Sr. no.	Particulars	Details
A	**Water**	
i	Source of Water Supply (GIDC, Bore well, Surface water etc...)	Bore-well
	Status of permission from the concern authority.	Will be obtain
ii	Water consumption (KL/day)	

Sr. No.	Description	Water Consumption in KLD	Remarks
1	Domestic	12	Domestic and Drinking
2	Gardening	150	Absorbed in Soil
3	Boiler (7.5 Tonnes per hr)	48	Makeup + Evaporation Loss
4	Cooling Tower	200	Makeup
5	Scrubber	15	Scrubber Makeup
6	Floor, Equipment, Vehicle Washing	35	Floor washings and vehicle washings
7	Laboratory	10	Testing in Lab
	Total Water Consumption	**470**	
8	**High TDS & High COD Effluent From member units to Stripper & MEE**	**200 (Fresh)**	161 KLD MEE Condensates goes to ETP for treatment,
			9 KLD stripper condensates goes for Incineration (outside the site premises)
			30 KLD MEE bottom goes to Spray Dryer system
10	**Total Waste Water**	**-**	**To ETP followed by UF and RO System and MEE for recycling of treated waters from ETP**
11	**Recycle Water**	**239**	**170 KLD RO Permeates + 73 KLD of MEE Condensates**
12	**Net Maximum Water Consumption**	**231**	**-**

1) **Total water requirement** for the project: 470 KLD
2) Quantity to be **recycled**: 239 KLD
3) Total **fresh water** requirement: 231 KLD

(Total water requirement = Fresh water + Recycled water)

iii Wastewater generation (KL/day)

Sr. No.	Description	Water Consumption in KLD	Wastewater Generation in KLD	Effluent Treatment Facility
1	Domestic	12	11	To ETP followed by UF and RO System and further to MEE & Spray Dryer
2	Gardening	150	0	Absorbed in Soil
3	Boiler (7.5 Tonnes per hr)	48	3	Blow down to ETP
4	Cooling Tower	200	10	Blow down to ETP
5	Scrubber	15	15	To ETP followed by UF and RO System and further to Forced Evaporation System (Spray Dryer)
6	Floor, Equipment, Vehicle Washing & drum decontamination facility	35	35	To ETP followed by UF and RO System and further to MEE & Spray Dryer
7	Laboratory	10	10	To ETP followed by UF and RO System and further to MEE & Spray Dryer
	Total Water Consumption	**470**	**84**	
8	**High TDS & High COD Effluent From member units to Stripper & MEE**	**200 (Fresh)**	**161**	161 KLD MEE Condensates goes to ETP for treatment,
			9	9 KLD stripper condensates goes for Incineration (outside the site premises)
			30	30 KLD MEE bottom goes to Spray Dryer system
10	**Total Wastewater**	**-**	**245**	**To ETP followed by UF and RO System and MEE for recycling of treated waters from ETP**
11	**Recycle Water**	**239**	**-**	**158 KLD RO Permeates +81 KLD of MEE Condensates**
12	**Net Maximum Water Consumption**	**231**	**-**	**-**

iv Treatment facility with **capacity** (ETP, CETP, MEE, STP etc).

- Total Wastewater Generation: **245 KLD** (11 KLD sewage, 10 KLD from Laboratory, 3 KLD boiler blow down, 10 KLD cooling tower blow down, 35 KLD washing & Drum decontamination facility, 15 KLD from Scrubber and 161 KLD from MEE and 100 KLD of Leachate)
- Effluent will be treated in ETP followed by UF/RO and RO reject will be further sent to MEE with ATFD for further treatment.

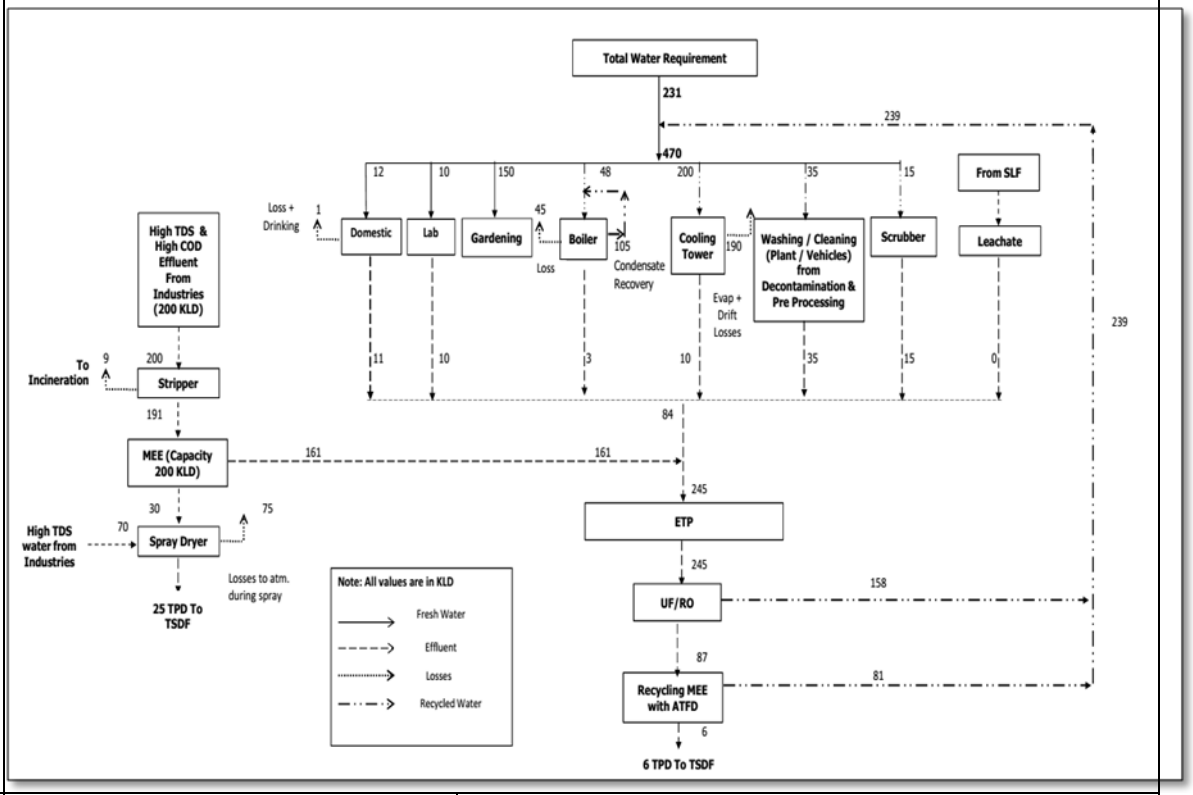
v Mode of Disposal & Final meeting point

Domestic: Sewage along with industrial wastewater will be Treated in ETP followed by UF and RO system and further sent to in-house MEE & Spray dryer. Condensate will be reused back within premises.

Industrial:

- Total Wastewater Generation: **245 KLD** (11 KLD sewage, 10 KLD from Laboratory, 3 KLD boiler blow down, 10 KLD cooling tower blow down, 35 KLD washing & Drum decontamination facility, 15 KLD from Scrubber and 161 KLD from MEE and 100 KLD of Leachate)
- Effluent will be treated in ETP followed by UF/RO and RO reject will be further sent to MEE with ATFD for further treatment.

Water Balance diagram:



vi Reuse/Recycle details (KL/day)
Total reuse – 239.0 KLD

Source of waste water for reuse	Application area with	Characteristics of wastewater to be reused	Remarks regarding
RO Plant(158 KLD)	To be reused in Boiler and Washing	COD : 20-50 mg/l BOD : 10-20 mg/l TDS :70-100 mg/l	Feasible
MEE Condensate (81 KLD)	To be reused in, Lab and dust suppression	COD : 50-70 mg/l BOD : 20-30 mg/l TDS :200-350 mg/l	Feasible

B	**Air**	
i	Flue gas emission details No. of Boilers/TFH/Furnaces/DG sets etc. with capacities viz. TPH, Kcal/hr, MT/hr, KVA etc.	

Sr. No.	Stack Attached to	Capacity	Stack Height (m)	Stack Dia. (m)	APCM Equipment	Pollutants
1	DG Set	500 KVA x 2 No.	10	2	Adequate Stack Height + Acoustic Enclosure	PM, SO2, NOx
2	Boiler – 2 Nos – W + SB	7.5 TPH	35	1	Multi Cyclone Separator + Bag Filter + water scrubber	PM, SO2, NOx
3	HAG (Hot Air Gas Generator)	30,00,000 K.Cal/hr	35	1	Multi Cyclone Separator + Bag Filter + Water Scrubber	PM, SO2, NOx
5	Standby Fire Engine pump	100 gpm ~ 380 lpm	10	0.1	Adequate Stack height	PM, SO2, NOx
Pre/Co-Processing Facility						
1	DG Set	150 KVA x 1 No.	10	1	Adequate Stack Height + Acoustic Enclosure	PM, SO2, NOx

ii Process gas i.e. Type of pollutant gases (SO_2, HCl, NH_3, Cl_2, NO_x etc.)

Sr. No.	Stack Attached to	Capacity	Stack Height (m)	Stack Dia. (m)	APCM Equipment	Pollutants
1	Spray Dryer	5000 Kgs per hr	35	1	Multi Cyclone Separator + water scrubber	PM
Pre/Co-Processing Facility						
1	Process/ Manufacturing Area – 2 Vents – For Solid Shed and for Liquid Shed building	-	15	2	Acid and Alkali Fume Scrubbing System – Double Stage scrubbing For Solid Particulate matter	HCl, SO2

						removal Bag Filter / Dust Collector and Cyclone will be provided.	

v Fugitive emission details with its mitigation measures.

Following measures will be adopted to ensure compliance and further reductions in Fugitive Emissions within TSDF area and MEE/Spray dryer area as applicable:

- Limiting vehicle speed,
- Spraying water on road.
- Good housekeeping will be maintained in the premises
- Proper maintenance and development of gardening area with high rise trees at the periphery

C Hazardous waste

(as per the Hazardous and Other Wastes (Management and Transboundary Movement) Rules 2016.

i

Sr. No.	Type of waste	Category of Waste	Generation (quantity)	Method of storage	Method of treatment	Handling & Mode of Disposal
Hazardous Waste from TSDF, MEE, Spray Dryer, UF+RO & Drum Decontamination Facility						
1	Used / Waste / Spent Oil	5.1	1 TPA	Drum	-	Will be sent to GPCB registered re – processor/ recycler.
2	Discarded Bags/ Drums/ barrels/containers	33.1	500 Nos/day (1 No.=0.5 Kg) 43 TPA	Waste Storage Area with impervious lining	-	In-situ decontamination followed by sale to third parties for reuse/ Ex-situ sale to authorized recyclers for sale to third party for reuse.
3	ETP Sludge	35.3	400 Kgs per day x 360 ~ 145 MTPA	HDPE Bags	Dewatering	Will be disposed in to authorised TSDF
4	Salt (Spray Dryer)	35.3	25 x 330 = 8250 MTPA	Bags	Storage and further disposal	Will be disposed in to authorised TSDF
5	Spent ML from Stripper	26.3	9 x 330 = 2970 MTPA	Drum	-	Will be disposed to CHWIF.
6	MEE salts	35.3	6 x 360 = 2160	Bags	Storage and	Will be disposed in to

				MTPA		further disposal	authorised TSDF
	Non-Hazardous Waste from Hazardous Waste from TSDF, MEE, Spray Dryer, UF+RO & Drum Decontamination Facility						
	1	Fly Ash	-	20% of 80 MT per day x 330 = 5280 MTPA ~5300 MTPA	Fly ash storage area	-	Will be sold to registered recyclers / brick manufacturers.
		Waste from Agro Briquettes, Fly ash, C & D waste, Bio medical waste, E-Waste, Battery waste, Plastic waste will be manage as per applicable Rules extent.					
	Hazardous Waste from Co-Processing Facility						
	1	Used oil	5.1	5 MTPA	Drum	-	Will be sent to GPCB registered re – processor/ recycler.
	2	Scrubbing media from scrubber	28.1	8 MTPA	Bags	Storage and further disposal	Will be disposed in to authorised TSDF
ii	Membership details of **CETP, TSDF, CHWIF, Common MEE** etc.			Not Applicable for our case, captive disposal.			
ii	Details of Non-Hazardous waste & its disposal (MSW and others)			Waste from Agro Briquettes, Fly ash, C & D waste, Bio medical waste, E-Waste, Battery waste, Plastic waste will be manage as per applicable Rules extent.			

12) RECOMMENDATION BY SEAC:

"On the basis of information provided to SEAC on project, its location, technical, physical and environmental infrastructure, products, quantity to be manufactured, its raw material, storage, waste disposal, water treatment, safety measures, green belt development planning, regulatory compliance assured of related statutory provisions, necessary documents of requisite permissions provided from concerned departments and overall environmental management planning for the project, along with financial resources committed for operation and maintenance, and on the basis of presentation made before SEAC, modification suggested by SEAC and incorporated by project proponent, SEAC finds the project as per the requirement and unanimously recommends the same to SEIAA for Terms of Reference."

11) <u>After detailed discussion, it was unanimously decided to recommend the project to SEIAA Gujarat for grant of Terms of Reference.</u>

12) <u>After deliberations on various aspects of the proposed project, the TOR proposed by the project proponent were accepted and the project proponent was asked to include the following additional TOR for the EIA study to be done covering 10 km radius from the project boundary of the proposed site including Public Hearing:</u>

1. A tabular chart with index for point-wise compliance of below mentioned TORs.
2. Justification of capacity of pre-processing facility along with the details of plant/machineries and storage of raw material and finished products specifically for pre-processing facility.
3. Reasons for selecting the site with details of alternate sites examined/rejected/selected on merit with comparative statement and reason/basis for selection. The examination should justify site suitability in terms of environmental damages, resources sustainability associated with selected site as compared to rejected sites. The analysis should include parameters considered along with weightage criteria for short-listing selected site.
4. Justification for selecting particular capacity of the TSDF based on the inventorization of hazardous waste generation of the State along with details of catchment areas and available sites.
5. Present land use pattern of the study area shall be given based on recent satellite imagery as well as field investigation clearly indicating, residential area, industries, vegetation (agricultural land, irrigated, unirrigated, uncultivated land-as per the revenue records, forest land-as per the records) grazing and waste land.
6. Pointwise compliance of guidelines published by MoEF&CC & CPCB for sitting and designing of the proposed TSDF.
7. Superimposed image of location of project on eco-sentive zone/ protected forests.
8. Land requirement for the project including its break up for various purposes, its availability and optimization.
9. Land possession documents. Copy of NA order showing permission to use the project land for industrial purpose.
10. Demarcation of proposed project activities in lay out Plan with separate entry & exit, adequate margin all-round the periphery for easy unobstructed movement of fire tender without reversing as well as various activities such as security, weigh bridge, laboratory facility, temporary hazardous waste storage areas, stabilization units, landfill, vehiche tyre wash areas, leachate collection pits/ wells and other such as admin building, canteen, worker's room, health centers, vehicle cleaning areas/ mainatenance areas, green belt, internal roads, etc. mentioning in layout plan.
11. The study area shall be up to a distance of 10 Km for air quality, soil, surface and groundwater quality from the boundary of the proposed site.
12. Location of TSDF, township and nearest villages with distances from the facility to be demarcated on toposheet.
13. A tabular chart for the issues raised and addressed during public hearing/consultation and commitment of the project proponent on the same should be provided. An action plan to address the issues raised during public hearing and the necessary allocation of funds for the same should be provided.
14. Ensure participation of people during Public Hearing with equality in gender so as to encourage woman participation in Public hearing & at the same time their issues shall also be given weightage.

15. Executive summary of the project – giving a prima facie idea of the objectives of the proposal, use of resources, justification, etc. In addition, it should provide a compilation of EIA report, including EMP and the post-project monitoring plan in brief.
16. Details of temporary storage facility for storage of hazardous waste at project site.
17. Details of pre-treatment facility of hazardous waste at TSDF.
18. Details of hazardous waste inventorization, segregation at source for compatability with transportation system and subsequent treatment.
19. Assessment of source of the water supply with adequacy of the same to meet with the requirements for the proposed project. Permission from concern Authority.
20. Detailed water balance (including reuse-recycle, evaporation if any).
21. Specific measures proposed to conserve water and plans for the future in this regard.
22. Furnish status of all the applicable rules, acts, regulation, clearances in a tabular form.
23. Details of transportation of Hazardous wastes and its safety in handling.
24. Details of on line pollutant monitoring.
25. Details of the odour control measures.
26. Pointwise compliance of SOP of CPCB for drum decontamination facility.
27. Details of impact on water body and mitigative measures during rainy season.
28. Environmental Management Plan should be accompanied with Environmental Monitoring Plan and environmental cost and benefit assessment. Regular monitoring shall be carried out for odour control.
29. Water quality around the landfill site shall be monitored regularly to examine the impact on the ground water.
30. The storage and handling of hazardous wastes shall be as per the Hazardous Waste Management Rules.
31. Submit details of a comprehensive Disaster Management Plan including emergency evacuation during natural and man-made disaster
32. Details on compliance program to the manifestation corresponding to waste transportation from source to TSDF-adequate number of trucks, authorized dealers if any , features of the vehicles, trained manpower ,health and safety measures ,identification of transportation routes by avoiding vulnerable installations, frequency of truck movements, etc.
33. Details on proposed protocol for waste acceptance (verifying the waste quantity through weigh bridge, frequency of calibration of weighing machine, system for sampling, testing parameters, analysis methods, time lags, criteria for identifying the wastes which require stabilization prior to the landfill, no. of people, qualifications, manifestation systems, etc.)
34. Details of the laboratory facilities and statement on adequacy including proposals for accreditation, etc.
35. Process description along with major equipments and machineries, process flow sheet (quantative) from waste material to disposal to be provided.

36. Design details of hazardous waste storage facilities (capacities, protocol for storing the segregated hazardous waste, compliance to the statutory requirements and proposed safety precautions).
37. Details on proposed protocol for establishing the requirement of stabilization for various of hazardous waste.
38. Details of stabilization process (step by step procedure, proposed structures, equipments, operations, general list of chemicals/material use, handling, personal protective equipment, occupational health and safety measurers, emergency preparedness, etc.)
39. Details of the secured landfill (design, construction, operational and post closure maintenance)including waste volume, landfill capacity, phase-wise landfill capacity development and utilization plan,groundwaster table, slop stability compaction levels, liners, capping arrangement, gas collection, leachate collection, equipments, stability consideration, trouble shooting mechanism, peizometric wells, health and safety measures, etc.)
40. Specification of liners (for bottom &sides) and coveres to be used for the proposed landfill site.
41. Details on landfill gas collection /venting system and its management.
42. Details of monitoring of Dioxin and Furon.
43. Details of leachate collection system-leachate generation rates, leachate collection network within the landfill, external collection tanks (if any) treatment and disposal options (recirculation, evaporation, treatment, discharge, etc) overflow control measures during flood/heavy, etc.
44. Details on landfill closure and its post closure monitoring plan including leachate, landfill gas, etc.
45. Possibilities of seepage & soil contamination and mitigation measure proposed to prevent the same.
46. Details of ETP including dimensions of each unit along with schematic flow diagram. Inlet, transitional and treated effluent qualities with specific efficiency of each treatment unit in reduction in respect of all concerned /regulated environmental parameters. Inlet effluent quality should be based on worst case scenario considering production of most polluting products that can be manufactured in the plant concurrently.
47. Membership certificate of common facilities like MEE, CHWIF etc. (Whichever is applicable).
48. Action plan for complete Zero Liquid Discharge (ZLD) system for proposed project.
49. Details of the existing access road (s)/walkways to the development site and its layout.
50. Details of vehicular traffic management within and outside the project area during waste transportation.
51. Proposed financial model, creation of fund for future liabilities till 30 years of post closure including monitoring, etc
52. Specific details of (i) Details of the utilities required, (v) Types &quantity of fuel to be used in each of the utilities, (vi) Flue gas emission rate from each utility along with stack height, (vii) Air pollution control Measures proposed along with its adequacy, (viii) List the sources of fugitive emission from the unit along with its quantification and proposed measures to control it.
53. Specific details of fugitive emission from the proposed TSDF project and proposed measure to

control it along with measures proposed to monitor VOC within work area.

54. Details of management of the hazardous wastes to be generated from the project stating of storage area for each type of wastes will be minimizes.
55. Survey and topography details of the project area with appropriate contour interval.
56. Details of site topography along with the contour plan of the project area. Details of change in topography of the area due to the project. Details of the mamagement of the run off/rainwater flowing through the existing natural drain/nallah/ streams within the project site if any. Impacts on the surface hydrology pattern due to the proposed project. Details of measures proposed to ensure that natural drainage of the site will not be disturbed obstructed/disturbed and measures proposed to project existing natural drain/nallan/streams within the project site.
57. Detailed plan to manage surface runoff in monsoon season. Measures proposed to avoid contamination of surface runoff from the TSDF in monsoon season. How it will be ensured that contaminated runoff won't flow outside the premises during rainy days.
58. Baseline date to be collected from the study area w.r.t. different components of environment viz. air. Noise, water, land biology and socio-economics.
59. Soil map up to 5 feet prepared by concerned Government Authority.
60. Details of geological and hydrogeological features of the project area such as type of soil, nature of soils, soil quality, soil properties including compressive strength, soil bearing capacity, consolidation, etc.
61. One season Site-specific micro-meteorological data using temperature, relative humidity, hourly wind speed and direction and rainfall should be incorporated.
62. Anticipated environmental impacts due to the proposed project/production may be evaluated for significance and based on corresponding likely impacts VECs (Valued Environmental Components) may be identified. Baseline studies may be conducted within the study area of 10 km for all the concerned/identified VECs and likely impacts will have to be assessed for their magnitude in order to identify mitigation measures.
63. One complete season base line ambient air quality data (except monsoon) to be given along with the dates of monitoring. The parameters to be covered shall be in accordance with the revised National Ambient Air Quality Standards as well as project specific parameters. Locations of the monitoring stations should be so decided so as to take into consideration the pre-dominant downwind direction, population zone and sensitive receptors. There should be at least one monitoring station in the upwind direction. There should be at least one monitoring station in the pre dominant downwind direction at a location where maximum ground level concentration is likely to occur.
64. Modeling indicating the likely impact on ambient air quality due to proposed activities. The details of model used and input parameters used for modeling should be provided. The air quality contours may be shown on location map clearly indicating the location of sensitive receptors, if any, and the habitation. The wind rose showing pre-dominant wind direction should also be indicated on the map.

Impact due to vehicular movement shall also be included into the prediction using suitable model. Results of Air dispersion modeling should be superimposed on Google map / geographical area map.

65. Details of noise levels at sensitive/ commercial receptors.
66. Impact of the TSDF installation on the environment including the local hydrology, soil condition, floral and faunal biodiversity of the region and mitigation measures proposed.
67. Details of flora and fauna duly authenticated should be provided. In case of any scheduled fauna, conservation plan should be provided.
68. Demography details of all villages falling within the study area.
69. While identifying the likely impacts, also include the following for analysis of significance and required mitigation measures:
    - ✓ Impacts due to hazardous waste carrying trucks movement
    - ✓ Impacts due to leachate on surface water, soil and groundwater
    - ✓ Impacts due to air pollution including landfill gas
    - ✓ Impacts due to odour pollution
    - ✓ Impacts due to noise
    - ✓ Impacts due to fugitive emissions
    - ✓ Impacts on health of workers due to proposed activities
70. Details of three year greenbelt development program including annual budget, types &number of trees to be planted, area under green belt development [with map], budgetary outlay; along with commitment of the management to carry out the tree plantation activities outside the premises at appropriate places in surrounding area. Notarized undertaking regarding development of green belt within premises (Minimum 33.33 % of the total plot area) as per the commitment before SEAC. Green belt shall be developed with native plant species that are significant and used for the pollution abatement as per the CPCB guidelines.
71. Details of existing tress to be protected/ preserved/ transplanted/ removed. Permission of concerned authority for cutting the trees within premises. Time bound action plan for compensatory tree plantation including details like number and type of trees to be planted, area of tree plantation, budgetary allocation for the same, etc. should also be submitted.
72. Details of top soil management plan during construction phase. If the topsoil is proposed to be preserved, the details relating to the quantity of topsoil stored, demarcated area on plan where it is stored along with preservation & reutilization plan is to be given.
73. Monitoring of pollutants at receiving environment for all the appropriate notified parameters
    - ✓ Air quality, groundwater, surface water, leachate, gas quality, etc during operational phase of the project
    - ✓ Leachte within the landfill and after treatment
    - ✓ Groundwater quality around the landfill
    - ✓ Surface water quality

- ✓ Gas quality within landfill (VOCs,H2S,etc.)
- ✓ Air quality Above landfill

74. Details on monitoring of qualitative parameters –air quality. Groundwater, surface water, leachate. Quality, etc-location frequency, parameters etc. all the appropriate notified parameters for monitoring after landfill closure
    - ✓ Leachte quality after treatment and at receiving environment
    - ✓ Groundwater quality around the capped landfill
    - ✓ Surface water quality
    - ✓ Air quality above landfill and at gas vents
75. Details of in-house monitoring capabilities and the recognized agencies if proposed for conducting monitoring.
76. Occupational health impacts on the workers and mitigation measures proposed to avoid the human health hazards along with the personal protective equipment to be provided to the workers. Detailed work area monitoring plan. Plan for periodic medical examinations of the workers exposed.
77. Details of landfill closure and its post closure monitoring plan including leachate, landfill gas, etc.
78. Detailed work area monitoring plan. Details of activity wise hazards, likely heat stress to the workers, radiation heat level in and around the furnaces, measures proposed for reduction of heat stress around furnaces and for safe handling of the molten metal considering the provision of the Gujarat Factories Rules. Details of automated systems to be provided to avoid manual handling / conveyance of materials.
79. Detailed risk assessment report including identification of the most hazardous activity, its sub activity, prediction of the worst-case scenario and maximum credible accident scenario along with damage distances and preparedness plan to combat such situation and risk mitigation measures.
80. Details of firefighting system including provision for flame detectors, temperature actuated heat detectors with alarms, automatic sprinkler system, location of fire water tanks & capacity, separate power system for firefighting, details of qualified and trained fire personnel& their job specifications, nearest fire station & time required to reach the proposed site. Submit line diagram of the fire hydrant network.
81. Details of emergency preparedness plan and on-site & off-site emergency management plan and disaster management plan.
82. Details of disaster management plan during operation phase of the project should include also scenario of natural catastrophe like earthquake, cyclone, floods in addition to other disasters. The plan should include the details of (i) Emergency lighting plan, (ii) details of power back up system in the case of emergency, (iii) fire fighting arrangements, (iv) first aid arrangements, (v) Training and Mock drill (vi) Emergency announcement system, (vii) Signages, (viii) location of emergency stair cases and pathways, etc.
83. Details of seismic zone of the project site and design aspects required to be adhered to as per

National Standards.

84. A detailed EMP including the protection and mitigation measures for the impacts on human health and environment as well as detailed monitoring plan. The EMP should also include the concept of waste-minimization, recycle/reuse/recover techniques, energy conservation, and natural resource conservation. Total capital cost and recurring cost/annum earmarked for environment pollution control measures. Environmental management cell proposed for implementation and monitoring of EMP.
85. An undertaking by the Project Proponent on the ownership of the EIA report as per the MoEF&CC OM dated 05/10/2011 and an undertaking by the Consultant regarding the prescribed TORs have been complied with and the data submitted is factually correct as per the MoEF&CC OM dated 04/08/2009. (Compliance of OM dated 05/10/2011 & 04/08/2009).
86. Fund allocation for Corporate Environment Responsibility (CER) for various activities therein. The details of fund allocation and activities for CER shall be incorporated in EIA/EMP report.
87. Explore the use of renewable energy to the maximum extent possible. Details of provisions to make the project energy-efficient through of energy efficient devices and adoption of modes of alternative eco-friendly sources of energy like solar water heater, solar lighting etc. Measures proposed for energy conservation.
88. Status of all the applicable rules, acts, regulation, clearances in a tabular form.
89. What is the hierarchical system or Administrative order of the company to deal with the environmental issues and for ensuring compliance with the environmental clearance conditions. Details of this system may be given.
90. Does the company have system of reporting of non compliances / violations of environmental norms to the Board of Directors of the company and / or shareholders or stakeholders at large? This reporting mechanism shall be detailed in the EIA report.
91. Certificate of accreditation issued by the NABET, QCI to the environmental consultant should be incorporated in the EIA Report.

The above mentioned project specific TORs/additional TORs and the model TORs available in the MoEFCC's sector specific EIA Manual for "CHWTSDF" shall be considered as generic TORs for preparation of the EIA report in addition to all the relevant information as per the generic structure of EIA given in Appendix III in the EIA Notification, 2006.

The project proponent shall have to apply for Environmental clearance through online portal http://environmentclearance.nic.in/ along with final EIA report.

Further Project Proponent may be advised to submit final EIA Report with EC application within 100 days from the date of issuance of this ToR to expedite processing of Environment Clearance application.

Validity of ToR:

The ToRs prescribed for the project shall be valid for a period of four years for submission of EIA & EMP report accordingly, ToR will lapse after 4 years from the date of issue.

The meeting ended with a vote of thanks to the chair.

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Minutes approved by:

1.	Shri Akshay Kumar Saxena, Chairman, SEAC	
2.	Dr. S. C. Pant, Vice Chairman, SEAC	
3.	Shri J. K. Vyas, Member, SEAC	
4.	Shri Anand Zinzala, Member, SEAC	
5.	Shri B. M. Tailor, Member, SEAC	