S. M. SAIYAD, IFS
MEMBER SECRETARY
SEIAA (GUJARAT)

सत्यमेव जयते

STATE LEVEL ENVIRONMENT IMPACT ASSESSMENT AUTHORITY GUJARAT

Government of Gujarat

By R P A D

No. SEIAA/GUJ/TOR/5(f)/ 701 /2019 **Date:** 4 MAY 2019

Time Limit

Sub: Terms Of Reference to M/s. Divine Chemicals for setting up of 'Synthetic Organic Chemicals' manufacturing plant at Plot No. 3004, 2917, GIDC Industrial Estate, Panoli, Ta. Ankleshwar, Bharuch.

Ref: Your Proposal No: SIA/GJ/IND2/31017/2019.

Dear Sir,

This has reference to your online application dated 21/02/2019 along with Form-I submitted to SEIAA. The project activity is covered in 5(f) and is of 'B' Category.

The SEAC, Gujarat vide their letter dated 05/04/2019 had recommended to the SEIAA, Gujarat, to grant the Terms Of Reference for the above-mentioned project based on its meeting held on 12/03/2019.

The proposal was considered by SEIAA, Gujarat in its meeting held on 09/04/2019 at Gandhinagar. After careful consideration, the SEIAA hereby accords Terms Of Reference to above project under the provisions of EIA Notification dated 14th September, 2006. The copy of Terms Of Reference is attached herewith.

With regards,
Yours sincerely,

(S. M. SAIYAD)
Member Secretary

Encl: As Above

Issued to:
M/s. Divine Chemicals
Plot No. 3004, 2917,
GIDC Industrial Estate, Panoli,
Ta. Ankleshwar, Bharuch

Terms of Reference [ToR] to M/s. Divine Chemicals for setting up of expansion in manufacturing plant of 'Synthetic Organic Chemicals' at Plot No. 3004, 2917, GIDC Industrial Estate,Panoli – 394 116,Tal: Ankleshwar, Dist: Bharuch.

Category of the unit: 5(f)

Project status: Expansion

I. This is in reference to proposal no. SIA/GJ/IND2/31017/2019 dated 21/02/2019 made by project proponent (PP) regarding grant of Terms of Reference [ToR] for preparation of EIA/EMP report.

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

III. This is an existing unit engaged in organic chemicals and now proposes for expansion of synthetic organic chemical products as tabulated below:

Sr. No.	Product	Existing Quantity	Proposed Quantity	Total Quantity	CAS No.	End Use
		(MT/Month)				
1.	Calcium Chloride	150	NIL	150	10043-52-4	Used as food additive, to treat internal hydrofluoric acid burns
2.	Copper Sulfate	100	NIL	100	7758-98-7	Mordant for dyeing
3.	Ferrous Sulfate	100	NIL	100	13463-43-9	To treat iron deficiency anemia
4.	4-Hydroxy Coumarin	NIL	1	1	1076-38-6	Anti- coagulant
5.	Trimethyl Ortho Benzoate	NIL	2	2	707-07-3	Pharmaceutical Intermediate
6.	Tri alkyl Ortho Alkonates	NIL	1	1	-	Pharmaceutical Intermediate
7.	2,4-thiazolidinedione	NIL	1	1	2295-31-0	Bulk drug: Pioglitazone
8.	1-(2-Hydroxy ethyl) pyrolidine	NIL	1	1	2955-88-6	Active Pharmaceutical Intermediate
9.	4-chloro butyraldehyde dimethyl acetal	NIL	1	1	29882-07-3	Useful in organic synthesis
10.	1-(4-Rphenyl)-2-piperidone	NIL	1	1	385425-15-0	Bulk drug: Apixaban
11.	2-Piperidone(2-PD)	NIL	1	1	675-20-7	Active Pharmaceutical Intermediate
12.	Dimethyl Formamide Dimethyl Acetal	NIL	9	9	4637-24-5	Used as a reagent in the formation of pyridine derivatives
13.	1-(2-chloroethyl)-4-(3-chlorophenyl) Piperazine	NIL	5	5	112747-94-1	Active Pharmaceutical Intermediate
14.	N-Acetyl-4-(4-Hydroxy phenyl) Piperazine	NIL			67914-60-7	Used in the multi - step synthesis of ketoconazole, 1,2,4-triazole and thiazole analogs
15.	1-Hydroxyethylethoxy piperazine	NIL			13349-82-1	Used as Quetiapine intermediate
16.	Anthranilic acid	NIL	2	2	118-92-3	Used in organic synthesis to generate benzyne
17.	3-(2-amino-2-oxoethyl)-5-methylhexanoic acid	NIL	5	5	181289-15-6	Active Pharmaceutical Intermediate
18.	Theobromine	NIL	5	5	83-67-0	Used as a bronchodilator and as a vasodilator
19.	[1,2,4]triazolo [4,3-α] pyridine-3(2H)-one	NIL	5	5	69696-71-7	Active Pharmaceutical Intermediate
20.	Agomelatine	NIL	10	10	138112-76-2	Antidepressant
21.	Ambroxol HCl	NIL			23828-92-4	Chronic bronchitis
22.	Fluconazole	NIL			86386-73-4	Antifungal
23.	Pregabalin	NIL			148553-50-8	Epilectic
24.	Milnacipram HCl	NIL			101152-94-7	Treatment of depression
25.	Amlodipine	NIL			88150-42-9	Hypertension
26.	Rosuvastatin Calcium	NIL			7554-65-6	High cholesterol
27.	Glibenclamide	NIL			10238-21-8	To control high blood sugar
28.	Deferasirox	NIL			201530-41-8	To reduce chronic iron

						overload
29.	Ivabradine HCl	NIL			155974-00-8	Treatment of chronic stable angina
Total		350	50	400		

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

V. PP was called for presentation in the SEAC meeting dated 12/03/2019.

VI. The project proponent along with their expert /consultant M/s. Aqua-Air Environmental Engineers Pvt. Ltd attended the meeting and made presentation before the committee.

VII. Salient features of the project including Water, Air and Hazardous waste management:

Sr. no.	Particulars	Details
A	Total cost of Proposed Project (Rs. in Crores):	Existing: 2.50 Proposed:2.0 Total: 4.5
B	Total Plot area (sq. meter)	Existing: 2544 Sq. m. Proposed: 00 Sq. m. Total: 2544 Sq. m.
	Green belt area (sq. meter)	Existing: 839 Sq. m. Proposed: 00.Sq. m. Total: 839 Sq. m.
C	Employment generation	Existing:20 Proposed:20 Total:40
D	Water	
i	Source of Water Supply (GIDC Bore well, Surface water, Tanker supply etc...)	GIDC Water Supply
	Status of permission from the concern authority.	Permission obtained
ii	Water consumption (KLD)	

	Existing KLD	Proposed (Additional) KLD	Total after Expansion KLD
(A) Domestic	2	3	5
(B) Gardening	2	2	4
(C) Industrial			
Process	Nil	13.67	13.67
Washing	Nil	5	5
Boiler	4	8	12
Cooling	Nil	5	5
Scrubber	-	-	-
Industrial Total	4	31.67	35.67
Grand Total (A+B+C)	8	36.67	44.67

1) Total water requirement for the project: 44.67 KLD
2) Quantity to be recycled: 0.0 KLD
3) Total fresh water requirement: 44.67 KLD

iii Waste water generation (KLD)

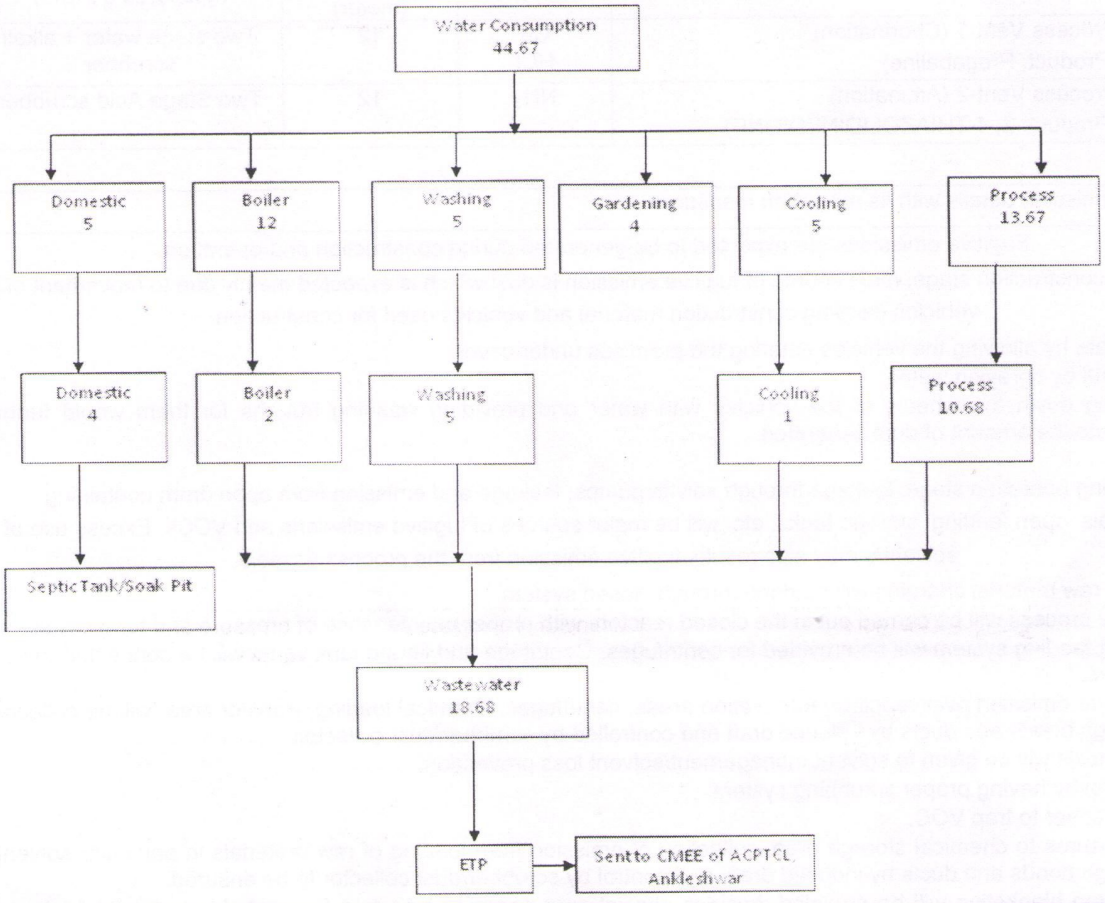
Category	Existing KLD	Proposed (Additional) KLD	Total after Expansion KLD
(A) Domestic	1.5	2.5	4
(B) Industrial			
Process	Nil	10.68	10.68
Washing	Nil	5	5
Boiler	Nil	2	2
Cooling	Nil	1	1
Others	-	-	-
Total Industrial waste water	Nil	18.68	18.68

iv Treatment facility within premises with capacity

[In-house ETP (Primary, Secondary, Tertiary), MEE, Stripper, Spray Dryer, STP etc..

	➢ In-house ETP (Primary Treatment) – 18.68 KL/Day	
	Treatment scheme including segregation at source. ➢ Segregation at source is not required as composite stream after treatment in ETP will be disposed off to Common MEE of M/s. ACPTCL, Ankleshwar	
	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. ➢ Not Applicable	
	Brief note on adequacy of ZLD (In case of Zero Liquid Discharge): ➢ Treated effluent will be disposed off to Common MEE of M/s. ACPTCL, Ankleshwar	
v	Mode of Disposal & Final meeting point	
	Domestic:	4.0 KL/Day → Soak Pit
	Industrial:	Industrial waste water (18.68 KL/day) will be treated in Effluent Treatment Plant (ETP) and treated waste water will sent to Common MEE of M/s. ACPTCL, Ankleshwar for further treatment and disposal.
vi	In case of Common facility (CF) like CETP, Common Spray dryer, Common MEE, CHWIF etc. Name of Common facility (CF)(For waste water treatment)	
	Common MEE of M/s. ACPTCL, Ankleshwar	
	Membership of Common facility (CF)	
	(For waste water treatment) Common MEE of M/s. ACPTCL, Ankleshwar	
vii	Simplified water balance diagram with reuse / recycle of waste water	

NOTE: ALL UNITS IN KL/DAY



vii	Reuse/Recycle details (KLD) [Source of reuse & application area]	
	Total reuse - NIL	

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

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Sr. no.	Source of emission With Capacity e.g. Boiler (8 TPH)	Stack Height (meter)	Name of the fuel	Quantity of Fuel MT/hr & MT/Day	Type of emissions i.e. Air Pollutants	APCM
Existing						
1	Baby Boiler	12	Natural Gas	400 SM^3/day	SPM SO2 Nox	Adequate stack height
Proposed						
1	Boiler (1 TPH)	12	Natural Gas	400 SM^3/day	SPM SO2 Nox	Adequate stack height
2	Thermic Fluid Heater (2 Lac KCal)	11	Natural Gas	400 SM^3/day	SPM SO2 Nox	Adequate stack height
3	D.G. Set (160 KVA)	10	LDO	400 Lit/day	SPM SO2 Nox	Adequate Stack Height

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

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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)
1	Process Vent-1 (Chorination) (Product: Pregabaline)	Cl_2 HCl	12	Two stage water + alkali scrubber
2	Process Vent-2 (Amination) (Product: 2, 4-THIAZOLIDINEDIONE)	NH_3	12	Two Stage Acid scrubber

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iii Fugitive emission details with its mitigation measures.

Fugitive emissions are expected to be generated during construction and operation.

During construction stage, main source of fugitive emission is dust which is expected mainly due to movement of vehicles carrying construction material and vehicles used for construction.

- Mitigate by allowing the vehicles entering the premises under cover.
- Control by spraying water.
- Hosing down the wheels of the vehicles with water and providing washing troughs for them would further mitigate the amount of dust generated.

During operation stage, leakage through valves/pumps, leakage and emission from open drum containing chemicals, open feeding, storage tanks, etc. will be major sources of fugitive emissions and VOCs. Excess use of solvent/s may also results fugitive emission from the process vessels.

- Solid raw material charging will be done through closed system.
- Entire process will be carried out in the closed reactors with proper maintenance of pressure and temperature.
- Close feeding system will be provided for centrifuges. Centrifuge and filtrate tank vents will be connected to vent chillers.
- Fugitive emission over reactors, formulation areas, centrifuges, chemical loading, transfer area, will be collected through hoods and ducts by induced draft and controlled by scrubber/dust collector.
- Emphasis will be given to solvent management/solvent loss prevention.
- Control by having proper scrubbing system.
- Condenser to trap VOC.
- 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.
- Nitrogen blanketing will be provided, besides special care needs to be taken for control in respect of odorous chemicals.
- Proper maintenance schedule will be adhered to avoid emissions through flange joints, pump seals etc.
- Minimum number of flanges, joints and valves in pipelines.
- Proper gland packing will be maintained for pumps and valves and to the extent possible pumps with mechanical

seal.

- All Flange joints of the pipe lines which carry solvents will be covered with flange guards.
- All rotating equipments like pumps will be installed with mechanical seals to arrest any sort of emissions.
- A regular preventive maintenance schedule will be in place to replace or rectify all gaskets and joints etc. as a part of ISO systems to ensure no fugitive emissions take place.
- Periodic monitoring of work area will be carried out to check the fugitive emission.
- Solvent tank vents will be connected to vent chillers.
- Stand by pumps will be provided on all scrubbers. Besides, scrubbers are equipped with on-line pH meter with hooter system for better operational control.
- Regular inspection of floating roof seals and proper preventive maintenance of roofs and seals for tanks.

Adequate ventilation will be provided.

F Hazardous waste

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

Existing & Proposed

i

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
				Existing	Proposed	Total	
1.	ETP Waste	ETP	Sch-I/ 35.3	Nil	5	5	Collection, Storage, Transportation and Disposal at common TSDF site of M/s. BEIL, Ankleshwar.
2.	Distillation residue	Distillation Unit	Sch-I/ 20.3	Nil	20	20	Collection, Storage, Transportation and sent for co-processing in cement industries or Disposal at common incineration site of M/s. BEIL, Ankleshwar.
3.	Used Oil	Plant & machineries	Sch-I/ 5.1	Nil	2	2	Collection, Storage, Transportation & Sale to GPCB registered re-processor.
4.	Discarded Containers/ Bag or Liners	Raw material & Storage	Sch-I/ 33.1	2	2	4	Collection, Storage, Transportation, Decontamination & Sale to GPCB approved vendors.
5.	Spent Solvent	Process	Sch-I/ 28.6	Nil	480	480	Collections, Storage, Distillation and reuse in plant premises.
6.	Sodium Sulphate	Process (11)	Sch-I/ 28.1	Nil	2.8	2.8	Collection, Storage, Transportation & Sale to end user who is having Rule-9 Permission
7.	HCl (30%)	Scrubber	Sch-II/ B15	Nil	22	22	Collection, Storage and re-use within premises for the manufacturing of Rosuvastatin Calcium (Reqd Qty: 36 TPA)
8.	Sodium Chloride	Process (5, 8, 14, 19) (12 TPA)+ Scrubber (8 TPA)	Sch-I/ 28.1	Nil	20	20	Collection, Storage and send to ETP for further process
9.	Sodium Bromide	Process (13)	Sch-II/ B36	Nil	2.1	2.1	Collection, Storage, Transportation & Sale to end user who is having Rule-9 Permission
10.	Acetic Acid	Process (14)	Sch-I/ 28.1	Nil	2.2	2.2	
11.	Ammonium Sulphate	Scrubber	Sch-I/ 28.1	Nil	24	24	
12	Off specification	Process (Batch	Sch-I/ 28.4	0	5	5	Collection, Storage, Transportation and sent for

	Products	Failure)					co-processing in cement industries or Disposal at common incineration site of M/s. BEIL, Ankleshwar

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ii	Membership details of TSDF, CHWIF etc. (For HW management)	Company has obtained the membership of TSDF, CHWIF of M/s. BEIL, Ankleshwar.
iii	Details of Non-Hazardous waste & its disposal (MSW and others)	There is no generate non – hazardous waste.

G Solvent management, VOC emissions etc.

i Types of solvents, Details of Solvent recovery, % recovery, reuse of recovered Solvents etc.

Name of Solvent	Total Input (Kg)	Qty. of Recovered Solvent (Kg)	Qty. of Losses (Kg)	% Recovery	% Losses
Acetone	1000	950	50	95.0	5.0
Chloro benzene	2427	2395	32	98.7	1.3
Isopropyl Alcohol	2492	2308	184	92.6	7.4
Methanol	11275	11653	622	103.4	5.5
Mix Xylene	2500	2375	125	95.0	5.0
MDC	10882	10767	115	98.9	1.1
Toluene	8032	7717	315	96.1	3.9

ii VOC emission sources and its mitigation measures

- Enclosed Processed
- Minimum joints/flanges
- Adequate Condenser
- Brine will be utilised as chilling agent
- Pumps with double mechanical seals
- Proper Ventilation
- PPEs

H
- Details regarding storage of Hazardous chemicals

Storage details	Name of major Hazardous chemicals	Remarks
Storage tanks	Toluene, Methanol, MDC	
Drum/Barrel storage	HCl, Sulphuric Acid, Caustic Lye, DMF	

- Applicability of PESO : Not Applicable

VII. Considering the above project details, the terms of reference (ToR) are prescribed as below and as per the standard TOR for the Synthetic Organic Chemical projects recommended by SEAC vide letter no. EIA-10-GEN-21/1480 dated 14/09/2017 and approved by SEIAA in its 12th meeting dated 16/09/2017 for the EIA study to be done covering **10 Km** radial distance from the project boundary.

1. Compliance of MoEFCC's OM dated 01/05/2018 regarding "Corporate Environment Responsibility" (CER). Fund allocation for Corporate Environment Responsibility (CER) shall be made as per MoEFCC's O.M. No. 22-65/2017-IA.III dated 01/05/2018 for various activities therein. The details of fund allocation and activities for CER shall be incorporated in EIA/EMP report.
2. Adequacy of proposed area with respect to plant machineries, EMS, green belt , safety aspect, raw material & product storage considering worst case scenario. Submit proper lay out plan clearly demarcating all activities with scale.
3. Details with respect to justification for proposed expansion: (1) To address proportionate availability of space for production plant. (2) To address proportionate availability of storage area for raw materials finished goods, utilities and goods carrier movement within premises. (3) To address proportionate captive/common infrastructure available to accommodate additional load due to proposed expansion. (4) Environment impact and its mitigation measures for common/ captive infrastructure due to proposed production.

4. Explore the use of renewable energy to the maximum extent possible. Details of provisions to make the project energy-efficient through 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.
5. PP shall furnish status of all the applicable rules, acts, regulation, clearances in a tabular form.
6. Provision of safety precaution for storage and handling of Chlorine as per the PESO standards.
7. Membership certificate of Common facility (Common Spray dryer, Common MEE etc.) with booking quantity in KLD along with other details/information like Spare capacity of Common Facility (CF), quality of waste water by member industry and assurance by CF that there is no adverse impact on Environment and Human Health due to treatment of waste water received from your industrial effluent.
8. Justification regarding adequacy of spent HCl from scrubber will be totally reused in process of Rosuvastatin product within premises.
9. Unit shall produce MoU for final disposal of above mentioned Solutions which are going to be generated as Hazardous Waste as per HWR – 2016, (1) Sodium bromide (2) Sodium Sulphate, (3) Acetic acid and (4) Ammonium sulphate at the time of appraisal of Environmental Clearance.
10. Submit status of compliance of Environmental norms of existing Common Infrastructure of M/s: ACPTCL, Ankleshwar.

VIII. The TOR prescribed as above and as per the standard TOR approved by SEIAA and the model ToRs available in the MoEFCC's sector specific EIA Manual for 'Synthetic Organic Chemical Industry' 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.

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

1. A tabular chart with index for point-wise compliance of below mentioned TORs.
2. 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.
3. Justification for selecting the proposed product and unit size.
4. Land requirement for the project including its break up for various purposes, its availability and optimization.
5. Land possession documents. Copy of NA order showing permission to use the project land for industrial purpose. If located in GIDC, copy of plot holding certificate obtained from GIDC Authority.
6. Location of the project site and nearest habitats with distances from the project site to be demarcated on a toposheet (1: 50000 scale).
7. Topography details of the project area.
8. Geological features and geo-hydrological status of the study area.
9. In case of project located outside notified area: Legal Undertaking stating that unit is complying the three conditions [i.e. water consumption less than 25 M^3/day; Fuel consumption less than 25 TPD; and not covered in the category of MAH units as per the Management, Storage, Import of Hazardous Chemical Rules (MSIHC Rules), 1989] as per the amendment to EIA Notification, 2006 vide SO 1599 (E) dated 25/06/2014.
10. Present land use pattern of the study area shall be given based on satellite imagery.
11. Layout plan of the factory premises clearly demarcating various units within the plant. Provision of separate entry & exit and adequate margin all round the periphery for unobstructed easy movement of the emergency vehicle / fire tenders without reversing back. Mark the same in the plant layout.
12. Technical details of the plant/s along with details on best available technologies (BAT), proposed technology and reasons for selecting the same.
13. Product spectrum (Proposed products along with production Capacity) and processes.
14. Chemical name of each proposed product to be manufactured. Details on end use of each product. (Provide CAS number of all the products & raw materials. In case of Dyes, CI number).
15. Details on raw materials, source and storage within the premises.
16. Details of complete manufacturing process / operations of each product along with chemical reactions, process flow diagram describing each unit processes and unit operations along with material balance, consumption of raw materials etc.
17. Details on strategy for the implementation of cleaner production activities.
18. Assessment of source of the water supply with adequacy of the same to meet with the requirements for the project. Permission obtained from the concern authority for supply of raw water.
19. Undertaking stating that no bore well shall be dug within the premises (If project is located within the Industrial estate).
20. Details on water balance including quantity of effluent generated, recycled & reused. Details of methods to be adopted for the water conservation.
21. Efforts to minimize effluent discharge and to maintain quality of receiving water body.
22. Explore the possibilities for Zero Liquid Discharge (ZLD) option for the proposed project.
23. Segregation of waste streams, characterization and quality with specific treatment and disposal of each stream including action plan for maximum recycle of treated waste water and minimum discharge for effluent.
24. Capacity of ETP in KL/day. 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.
25. In case of discharge into GIDC drainage / Pipeline:
    I. Copy of permission letter with quantity (KL/day) from the concern authority of drainage network / pipeline with confirmation for spare capacity available to take additional effluent.
    II. Characteristics of the combined effluent and treated water to be sent to Common pipeline with reference to the MoEFCC/CPCB/GPCB discharge norms.

SEIAA

III. Provision for Continuous Monitoring System for waste water discharge.

26. In case of waste water sent to Common Facilities (CF) like CETP, MEE, Spray Dryer etc.
    a. Details of Common facilities including (1) Total capacity of the CF (2) Copy of CC&A of the CF. (3) Actual load at present (Qualitative and Quantitative – KL per day) (4) Booked quantity & Spare capacity of CF (5) Copies of XGN generated Inspection reports with analysis reports of the water/Air/Hazardous samples collected by GPCB (Last 2 year). Copies of instructions issued by GPCB in last 2 year and point wise compliance thereof. (6) Copies of Show- cause notices, closure notices etc. served by the GPCB and its compliance (6) Recommendations and suggestions of the last two Environment Audit reports of CETP and its compliance report. (7) Common Facility Up gradation scheme, if any.
    b. Status of compliance to the 18(1) (b) direction issued by the CPCB with respect to CETP compliance & CEPI area action plan along with relevant supportive document.
    c. Give status of compliance of Environmental norms of existing Common Infrastructure i.e. CETP, MEE & Spray Dryer (Whichever is applicable) in which you are a member.
    d. Submit adequacy of Common Infrastructure i.e. CETP, MEE & Spray Dryer for additional load (Whichever is applicable) along with written confirmation/membership certificate mentioning the same (Total consented quantity, total quantity booked so far, quantity booked for the unit, spare quantity available).

27. In case of Zero Liquid Discharge (ZLD) :
    I. Action plan for 'Zero' discharge of effluent shall be included. Notarized undertaking for assuring that underground drainage connection will not be taken in the unit and there shall be no effluent discharge outside the plant premises.
    II. Economical and technical viability of the effluent treatment system to achieve Zero Liquid Discharge (ZLD).
    III. Certification of adequacy of proposed ZLD scheme through credible institutes of National repute.
    IV. To estimate & monitor ground water quality & its contamination status, piezometer wells, one on up gradient of the groundwater flow and other three on the down gradient side of the ground water flow of the proposed project at different depth based on available ground water depth shall be established and all the parameters mentioned in IS 10:500 for potable water standard shall be monitored.

28. In case of in-house MEE/Spray dryer for waste water treatment: Capacity of MEE/Spray dryer in KL/hr. Technical details of MEE including evaporation capacity, steam required for evaporation, adequacy of the proposed boiler to supply steam for evaporation in addition to the steam required for the process etc. Techno-economical viability of the evaporation system. Control measures proposed for the evaporation system in order to avoid/reduce gaseous emission/VOC from evaporation of industrial effluent containing solvents & other chemicals.
29. Technical details of ATFD/Crystallizer/ spray Dryer, RO/NF system etc. (If any).
30. Details of the treatability and feasibility of wastewater to be disposed off by means of spray dryer and its impact on environment and Human Health
31. Undertaking stating that a separate electric meter will be provided for the waste water treatment system viz. ETP, RO, MEE, Spray dryer etc. (Whichever is applicable)
32. Economical and technical viability of the effluent treatment system.
33. Plans for management, collection and disposal of waste streams to be generated from spillage, leakages, vessel washing, used container washing etc. Measures proposed for preventing effluent discharge during unforeseen circumstances.
34. Action plan for reuse of liquid waste streams like Spent acids, Poly Aluminium Chloride etc. within premises to convert into valuable products instead of sending outside to actual end-users.
35. Adequacy of the proposed EMS with respect to the pollution load envisaged in terms of Air, Water and hazardous waste.
36. One season Site-specific micro-meteorological data using temperature, relative humidity, hourly wind speed and direction and rainfall should be incorporated.
37. 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 for all the concerned/identified VECs and likely impacts will have to be assessed for their magnitude in order to identify mitigation measures.

38. One complete season base line ambient air quality data (except monsoon season) 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 (NAAQS) as well as project specific parameters like NH3, HCl, CL2, HBr, VOC etc. 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.
39. 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 satellite Image / geographical area map.
40. Base line status of the noise environment, impact of noise on present environment due to the project and proposed measures for noise reduction including engineering controls.
41. Specific details of
    a) Process gas emission from each unit process with its quantification.
    b) Air pollution Control Measures (APCM) proposed for process gas emission. Adequacy of the air pollution control measures (APCM) for process gas emission measures to achieve the GPCB norms.
    c) Details of the utilities required.
    d) Type and quantity (MT/hr & MT/Day) of fuel to be used for each utility.
    e) Flue gas emission rate emission from each utility.
    f) Air Pollution Control Measures (APCM) proposed to each of the utility along with its adequacy
    g) List the project specific sources of fugitive emission along with its quantification and proposed measures to control it.
    h) Details on tail gas treatment.(If any)
42. Provision of CEMS (Continuous Emission Monitoring system).
43. Action plan for odour control to be submitted.
44. Management plan for hazardous/Solid waste including storage, handling, utilization and safe disposal as per the Hazardous and Other Wastes (Management and Transboundary Movement) Rules 2016. CPCB guidelines in respect of specific treatment, such as solar evaporation, incineration, etc., need to be followed.
45. How the manual handling of the hazardous wastes will be minimized? Methodology of de-contamination and disposal of discarded containers and its record keeping.
46. Management of by-products which fall under the purview of the Hazardous and Other Wastes (Management and Transboundary Movement) Rules 2016 as per the said rules and necessary permissions from the concern authority.
47. Membership of Common Environmental Infrastructure like TSDF, Common Incineration Facility (CHWIF), MEE, Spray dryer etc.
48. Name and quantity of each type of solvents to be used for proposed production. Details of in-house solvent recovery system including mass balance, solvent loss, recovery efficiency (% recovery), feasibility of reusing the recovered solvents etc. for each type of solvent.
49. Appropriate monitoring network has to be designed and proposed, to assess the possible residual impacts on VECs.
50. A detailed EMP including the protection and mitigation measures for impact on human health and environment as well as detailed monitoring plan and environmental management cell proposed for implementation and monitoring of EMP. 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.

SEIAA

51. Details of in-house monitoring capabilities and the recognized agencies if proposed for conducting monitoring.
52. Permission from PESO, Nagpur for storage of solvents, other toxic chemicals, if any.
53. 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. Provision of industrial hygienist and monitoring of the occupational injury to workers as well as impact on the workers. Plan for periodic medical checkup of the workers exposed. Details of work place ambient air quality monitoring plan as per Gujarat Factories Rules.
54. Details on volatile organic compounds (VOCs) from the plant operations and occupational safety and health protection measures. Proposal for Leak Detection and Repair (LDAR) program as per the CPCB guidelines.
55. Risk assessment including prediction of the worst-case scenario and maximum credible accident scenarios should be carried out. The worst-case scenario should take into account the maximum inventory of storage at site at any point of time. The risk contours should be plotted on the plant layout map clearly showing which of the facilities would be affected in case of an accident taking place. Based on the same, proposed safeguard measures including On-Site / Off-Site Emergency Plan should be provided.
56. MSDS of all the products and raw materials.
57. Details of hazardous characteristics and toxicity of raw materials and products to be handled and the control measures proposed to ensure safety and avoid the human health impacts. This shall include the details of Antidotes also.
58. Details of quantity of each hazardous chemical (including solvents) to be stored, Material of Construction (MoC) of major hazardous chemical storage tanks, dyke details, threshold storage quantity as per schedules of the Manufacture, Storage & Import of Hazardous Chemicals Rules of major hazardous chemicals, size of the biggest storage tank to be provided for each raw material & product etc. How the manual handling of the hazardous chemicals will be minimized?
59. Details of the separate isolated storage area for flammable chemicals. Details of flame proof electrical fittings, DCP extinguishers and other safety measures proposed. Detailed fire control plan for flammable substances and processes showing hydrant pipeline network, provision of DG Sets, fire pumps, jockey pump, toxic gas detectors etc.
60. Submit checklist in the form of Do's & Don'ts of preventive maintenance, strengthening of HSE, manufacturing utility staff for safety related measures.
61. Specify safety precautions to be taken for Chemical storage, process, handling & transportation hazard.
62. Details on workers training before engaging work, periodical, in-house, outside etc.
63. Details on various SOP to be prepared.
64. Details on safety audit to be carried out and their compliance status.
65. Specific safety measures to be taken for general Public living in the vicinity.
66. Details on hazard identification i.e. HAZOP, HAZAN, Fault tree analysis, Event tree analysis, Checklist, Audit etc. to be adopted for the safety operation of the plant.
67. Detection and monitoring of VOC's / gases.
68. Detailed five year greenbelt development program including annual budget, planning schedule, species, width of plantations, number of trees to be planted, area under green belt development [with map], budgetary outlay etc. along with commitment of the management to carry out the tree plantation activities outside the premises at appropriate places in the nearby areas and elsewhere.
69. Action plan for the greenbelt development – species, width of plantations, planning schedule, etc., in accordance to CPCB published guidelines.
70. Detailed socio-economic development measures including community welfare program most useful in the project area for the overall improvement of the environment. Submit a detailed plan for social corporate responsibilities, with appropriate budgetary provisions for the next five years and activities proposed to be carried out; specific to the current demographic status of the area.
71. (a) Does the company have a well laid down Environment Policy approved by its Board of Directors? If so, it may be detailed in the EIA report. (b). Does the Environment Policy prescribe for standard operating

process / procedures to bring into focus any infringement / deviation / violation of the environmental or forest norms / conditions ? If so, it may be detailed in the EIA.

72. What is the hierarchical system or administrative order of the company to deal with the environmental issues and for ensuring compliance with the EC conditions. Details of this system may be given.
73. Does the company have a 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 should be detailed in the EIA Report.
74. Phase wise project implementation schedule with bar chart and time frame, in terms of site development, infrastructure provision, EMS implementation etc.
75. Certificate of accreditation issued by the NABET, QCI to the environmental consultant should be incorporated in the EIA Report.
76. 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.
77. All documents to be properly referenced with index and continuous page numbering.
78. Where data are presented in the Report especially in Tables, the period in which the data were collected and the sources should be indicated.
79. Project Proponent shall enclose all the analysis/testing reports of water, air, soil, noise etc. using the MoEF&CC/NABL accredited laboratories. All the original analysis/testing reports should be available during appraisal of the Project.
80. <u>In case of Expansion of the project</u>
    a. Need for the proposed expansion should be justified in detail.
    b. Adequacy of existing EMS (Environmental Management System).
    c. Explore the possibility to achieve Zero Liquid Discharge (ZLD) for existing as well as proposed activity.
    d. Records of any legal breach of Environmental laws i.e. details of show- cause notices, closure notices etc. served by the GPCB to the existing unit in last five years and actions taken then after for prevention of pollution.
    e. Copies of Environmental Clearances obtained for the existing plant, its point wise compliance report.
    f. Environmental audit reports for last 3 years and compliance of its recommendations/Suggestions. (Include latest audit report and its compliance.)
    g. Copy of Consent to Operate (CC&A) obtained along with point wise compliance status of all the conditions stipulated therein.
    h. Compliance of MoEFCC circulars vide No: J-11011/618/2010-IAII (I) dated 30/05/2012 and J-11013/41/2006-IA-II(I) dated 20/10/2009.
    i. Copies of XGN generated Inspection reports with analysis reports of the water/Air/Hazardous samples collected by GPCB (Last 2 year). Copies of instructions issued by GPCB in last 2 year and point wise compliance thereof.
81. <u>In case of project is located in Ankleshwar-Panoli, Vatva-Narol & Vapi GIDC.</u>
    (A) Compliance of MOEFCC's OM no. J-11013/5/2010-IA.II (I) dated 25/11/2016 regarding lifting of moratorium on the consideration of projects for environmental clearance.
    (B) Compliance of direction under section 18 (1) (b) of the Water (Prevention and Control of Pollution) act, 1974 issued by CPCB dated 31/03/2016 regarding compliance of CETP.
        a) Action initiated by GPCB, if any, against proposed unit regarding non-compliance of prescribed standards under the various environmental laws.
        b) Performance of CETP with respect to current hydraulic load & prescribed standards with No Objection Certificate of CETP regarding incorporation of the proposed unit for acceptance of waste water.
        c) Performance of TSDF site with respect to current load & prescribed standards with No Objection Certificate of TSDF site regarding incorporation of the proposed unit for acceptance of hazardous waste to the common infrastructure.
        d) Copies of quarterly action report taken for the above points submitted to the CPCB.
        e) Report of GPCB which have conducted monitoring as per the said direction by CPCB dated 31/03/2016.

<u>Validity of ToR:</u>

- The ToRs prescribed for the project will be valid for three years for submission of EIA & EMP report.
- The period of validity could be extended for a maximum period of one year provided an application is made by the applicant to the Regulatory Authority, at least three months before the expiry of validity period together with an updated Form-I, based on proper justification and also recommendation of the SEAC.

State Level Environment Impact Assessment Authority SEIAA