EXECUTIVE SUMMARY OF ENVIRONMENTAL IMPACT ASSESSMENT (EIA) REPORT

Expansion of Synthetic Organic Chemicals Manufacturing Unit from Existing 700 TPM Production Capacity to Total 7000 TPM Production Capacity and Unsaturated Polyester Resin (by mixing & blending) capacity of 1565 TPM

By

M/s. Orson Resins and Coatings Private Limited

Address - Gut No. 398/1&2, 459/1, At/Post: Dinkarpada, Kudus, Taluka - Wada, District-Palghar, Maharashtra, India – 421312.

EIA CONSULTANT

M/s. Sadekar Enviro Engineers Pvt. Ltd.

QCI – NABET Accredited EIA Consultancy for Schedule 5(f) Category - 'A'
Vide Certificate No. – NABET/EIA/23-26/SA 0239; Valid up to 18/04/2026
NABL Accredited Laboratory; Valid up to 06/09/2027
Lab. Recognized by MoEF& CC, GOI under EPA 1986; Valid up to 06/09/2028
Certified by ISO 9001:2015& ISO 45001:2018; Valid up to 07/03/2026

Plot No. A-95, Road No. 16, Kisan Nagar Road, M.I.D.C. Wagle Industrial Area, Thane- 400604.
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Baseline monitoring period: October 2024 to December 2024

Project Schedule & Category – 5(f) 'B1'

ES 1 PROJECT DESCRIPTION

M/s. Orson Resins and Coatings Private Limited (ORCPL) is an expansion of Synthetic Organic Chemicals Manufacturing Unit from Existing 700 TPM Production Capacity to Total 7000 TPM Production Capacity and Unsaturated Polyester Resin (by mixing & blending) capacity of 1565 TPM located at Gut No. 398/1&2, 459/1, At/Post: Dinkarpada, Kudus, Taluka - Wada, District-Palghar, Maharashtra, India – 421312.The total plot area of the project is 12060 Sq.m.

The said project falls under Schedule 5(f) viz. Synthetic organic chemicals industry as per of the EIA notification 2006 vide no S.O.1533 (E). dated 14/09/2006. Moreover, in reference to the MoEF&CC Notification vide no. S.O. 1599(E) dated 22nd June 2014, which amended the EIA Notification S.O. 1533(E) dated 14th September 2006, the proposed project falls under item 5(f) – Synthetic Organic Chemicals Industry. As the unit qualifies as a small unit—with water consumption less than 25 m^3/day, fuel consumption less than 25 TPD, and is not classified as a MAH unit under the Manufacture, Storage and Import of Hazardous Chemicals Rules, 1989—the project is categorized as 'Category B1'. Accordingly, the project shall be appraised by the State Expert Appraisal Committee (SEAC-1) and the State Environment Impact Assessment Authority (SEIAA), Maharashtra. Furthermore, the project is located in outside notified industrial area thus public hearing is applicable for the said project.

ORCPL has appointed M/s Sadekar Enviro Engineers Private Limited. (NABET Accredited consultant) to conduct Environmental Impact Assessment (EIA) study and the report has been prepared as per the additional Terms of Reference along with Standard Terms of Reference granted to ORCPL vide TOR Letter File No. SIA/MH/IND3/535124/2025 dated 20/09/2025 by the State Environment Impact Assessment.

ES 1.1 SALIENT FEATURE OF THE PROJECT

Table No. ES 1: Salient features of the project

Sr. No.	Components	Details
1.	**Name**	Expansion of Synthetic Organic Chemicals Manufacturing Unit from Existing 700 TPM Production Capacity to Total 7000 TPM Production Capacity and Unsaturated Polyester Resin (by mixing & blending) capacity of 1565 TPM by M/s. Orson Resins and Coatings Pvt. Ltd.
2.	**Location**	Gut No. 398/1&2, 459/1, At/Post : Dinkarpada, Kudus, Taluka - Wada, District-Palghar, Maharashtra, India - 421312
3.	**Geographical location**	Latitude 19°32'3.38"N & Longitude 73°7'30.90"E.
4.	**Product Type**	Synthetic Organic Chemicals
5	**Project Type**	Expansion
6.	**Schedule**	5(f)
7.	**Category**	'B1' (As per EIA notification 2006 and its subsequent amendments.) *Reference: As per Ministry of Environment, Forests And Climate Change, New Delhi notification vide number S.O. 1598(E), dated the 25th June, 2014, the project qualifies as Small Unit to be appraised as Category 'B1' Project.*

8. Area Details

Particulars	Existing (Sq. m.)	Proposed (Sq. m.)	Total (Sq. m.)	Percentage (%)
Plot Area	9960	2100	12060	100
Greenbelt Area (At Site)	822	1909	2731	22.65
Greenbelt Area (At Gut No 459/1 Adjoining to plot in east direction)	1500	2500	4000	33.17
Total Greenbelt Area (At Site + Adjoining land)	**2322**	**4409**	**6731**	**55.82**

9. Production capacity

	Existing (TPM)	Proposed (TPM)	Total (TPM)
Synthetic Organic Chemicals (EC Products)	700	6300	7000
Unsaturated Polyester Resin by mixing & blending (Non EC Products)	1565	--	1565

10. Project Cost

Project Cost (Crs)	Existing	Proposed	Total
	20.30	9.0	29.30

11. CER Cost

INR 9.0 Lakhs

(Considering 1% of Additional Capital Investment as the project is brownfield project) Note: As per the Corporate Environmental Responsibility (CER) OM. F. No. 22-65/2017-IA.III dated 1st May 2018 by MoEF&CC, the company has earmarked INR 9.0 Lakhs. (1 % of the additional capital investment) for CER activity.

12. Power Requirement

Power Requirement	Existing	Proposed	Total
Contract Demand (kVA)	225	265	490
Connected Load (KW)	196	196	392

Source : Maharashtra State Electricity Distribution Company Limited (MSEDCL)

13. Water Requirement

Total water Requirement	Existing	Proposed	Total
	18.04	4.93	22.97
Source	*Water Tanker /Borewell*		

14. Utility details with stack specifications

	Existing		Proposed		Total	
	Capacity	Stack Height	Capacity	Stack Height	Capacity	Stack Height
Thermic Fluid Heater	1 Nos × 10 Lakh Kcal/hr	33m (Common Stack)	--	--	1 Nos × 10 Lakh Kcal/hr	33m (Common Stack)
	2 Nos × 15 Lakh Kcal/hr		--	--	2 Nos × 15 Lakh Kcal/hr	
***Note:** 1 Nos. of 15 Lakh Kcal/hr of Thermic Fluid Heater is a standby.*						

		***D.G.Set**	2 Nos × 125 kVA	5m (Separate Above Roof Top)	1 Nos × 250 kVA	5m (Above Roof Top	2 Nos × 125 kVA	5m (Separate Above Roof Top)
							1 Nos × 250 kVA	5m (Above Roof Top
		Note:D.G. Set will be operated during power failure only.*						

		Utilities	**Capacity**	**Fuel Type**	**Existing**	**Proposed**	**Total after expansion**
15.	**Fuel Requirement**	**Thermic Fluid Heater**	1 Nos × 10 Lakh Kcal/hr	LSHS (Kg/Day)	200	400	600
			2 Nos × 15 Lakh Kcal/hr		800	400	1200
					800	400	1200
		***D.G.Set**	2 Nos × 125 kVA	HSD (Ltr/ Hr)	31.25	--	31.25
			1 Nos × 250 kVA		56.9		56.9
		*Note:*D.G. Set will be operated during power failure only.* *1 Nos. of 15 Lakh Kcal/hr of Thermic Fluid Heater is a standby.*					

		Effluent Generation	**Existing (CMD)**	**Proposed (CMD)**	**Total (CMD)**
16.	**Effluent Generation**	**Trade Effluent**	1.5	13.31	14.81
		Domestic Effluent	3.10	0.60	3.70

17. Treatment Scheme for Trade and Domestic Effluent

Existing

Trade Effluent treatment scheme

- The project is a Zero Liquid Discharge (ZLD) Unit.
- The Effluent Treatment Plant (ETP) of designed capacity of 1.50 CMD consisting of Primary (Collection tank, Neutralization tank, Equalization tank, Flash mixer, Primary Clarifier/Primary Settling Tank), Secondary, Tertiary (Pressure sand filter, Activated carbon filter), Advanced treatment (Multi Effective Evaporator) is provided. The condensate is treated in ETP and recycled back in utilities
- As per the Consent to Operate granted by MPCB, the effluent treatment plant (ETP) to treat the trade effluent and recycle the entire treated effluent into the process for various purposes such as for cooling, process & Scrubbing.

Domestic Sewage disposal scheme

- 4.2 CMD Sewage is subjected to Septic Tank followed by Soak pit as per CTO condition.

Proposed (After Expansion)

Trade Effluent treatment scheme

- The project is a Zero Liquid Discharge (ZLD) Unit.
- The effluent will be segregated in two streams HCOD/LTDS and LCOD/LTDS stream.
- The entire HCOD/LTDS (< 2.0% COD & < 0.3% TDS) effluent stream generated from the manufacturing process will be treated in Multiple Effect Evaporator (MEE), out of which 2% glycol containing stream will be recovered and reused in process and remaining condensate will be fed to ETP for further treatment.
- The entire LCOD/LTDS (<0.8% COD & <0.2% TDS) effluent stream considering effluent generated from blowdown from cooling tower along with condensate from the

Single Effect Evaporator (SEE) & condensate from MEE, will be treated in full-fledged ETP consist of primary, secondary & tertiary treatment.

- Treated effluent from ETP will be fed to the RO system wherein the RO permeate will be recycled & reused for the Cooling Tower make-up and RO Reject will be fed to the dedicated Single Effect Evaporator followed by Centrifuge for the further treatment. Condensate from the SEE will be re-sent to the ETP for further treatment.

Domestic Sewage Treatment scheme

The sewage (3.70 CMD) will be treated in a STP. Treated sewage from STP will be recycled & reused for Toilet flushing purpose.

18. Man Power (Nos.)

Existing : 85 Nos
Proposed : 15 Nos
Total : 100 Nos

19. Hazardous waste Management

Sr. No.	Type of Waste	Cat of waste	Unit	Existing	Proposed	Total	Disposal Method
1	Chemical sludge from waste water treatment	35.3	Ton/Y	6.0	10	16	Disposal to CHWTSDF
2	Wastes or residues containing oil	5.2	Kg/M	5.0	6.0	11	Disposal to CHWTSDF/ Co-Processing.
3	Concentration or evaporation residues (From Multiple Effect Evaporator)	37.3	Lit/Day	2500	0.00	2500	Disposal to CHWTSDF
4	Concentration or evaporation residues (From Single Effect Evaporator)	37.3	TPA	0.0	25.0	25.0	Disposal to CHWTSDF
5	Discarded containers/ Barrels / liners/ plastic Bags/ PPE	33.1	Nos./M	0.0	400	400	MPCB Authorized party/ recycler/ CHWTSDF

Reference: Schedule I of The Hazardous and Other Wastes (Management and Transboundary Movement) Rule, 2016.

20. Non-Hazardous waste

Sr No	Type of Waste	Unit	Quantity	Method of Disposal
1	Plastic waste / Plastic wrappers / scrap	TPA	0.5	To MPCB Authorized Recycler
2	Contaminated glassware	TPA	0.5	Sale to MPCB Authorized party / recycler
3	Broken Wooden Pallets	TPA	1.0	Sale to MPCB Authorized party
4	STP Sludge	TPA	12.0	Use as manure for Greenbelt development.
5	Dry waste Garbage	TPA	3.74	Sale to MPCB authorized party
6	Wet waste Garbage	TPA	2.50	After composting use as manure (Organic Waste Convertor)

21. E-Waste

Sr. No.	Particulars	E – Waste Category	Quantity	UOM	Method of Disposal
1	Personal Computers (Central Processing Unit with input and output devices)	ITEW2	0.08	TPA	Sale to MPCB Authorized recycler / Returned to manufacturer / Supplier
2	Personal Computing: Laptop Computers (Central Processing Unit with input and output devices)	ITEW3	0.03	TPA	
3	Printers including cartridges	ITEW6	0.03	TPA	
4	Telephones	ITEW12	0.005	TPA	
Reference: E- Waste (Management) Rules 2022 and its amendments.					

22. Battery Waste

Particulars	Quantity	Method of Disposal
Lead batteries from D.G. Sets, UPS system	10 Nos./A	Returned to supplier
Reference: Battery Waste Management Rules, 2022.		

23. Bio -Medical Waste

Particulars	BMW Category	Quantity (TPA)	Method disposal
Soiled waste (Items contaminated with blood, body fluids like dressings, plaster casts, cotton swabs and bags containing residual or discarded blood and blood components)	Yellow	0.05	To CBMWTSDF
Reference: Biomedical Waste Management Rules 2016 and its amendments.			

ES 2 DESCRIPTION OF THE ENVIRONMENT

ES 2.1 AMBIENT AIR QUALITY MONITORING

ES 2.2.1 INTERPRETATION

PM_{10}

The study reveals that PM_{10} concentration at all 8 locations was observed to be in the range of 40.2 µg/m^3– 68.5 µg/m^3.The highest concentration was observed to be 68.5 µg/m^3 at A1 Project site; it might be due to emissions from various surrounding industries & heavy vehicular movements on the surrounding internal road network. The minimum concentration was observed to be 40.2 µg/m^3 at A6 Near Biloshi Village, located at aerial distance of 7.81 km from the project site towards NW Direction.

$PM_{2.5}$

The study reveals that $PM_{2.5}$ concentration at all 8 locations was observed to be in the range of 12.0 µg/m^3– 31.9 µg/m^3.The maximum concentration of $PM_{2.5}$ was observed to be 31.9 µg/m^3 at location A1 Project site. High concentration of this might be due to vehicular movement on the surrounding internal road network and suspension of dust into air by the winds. The minimum concentration of $PM_{2.5}$ was observed at 12.0 µg/m^3 at A6 and A7 Near Biloshi Village and Near Vape Village respectively.

Sulphur Dioxide (SO_2)

The study reveals that SO_2 concentration at all 8 locations was observed to be in the range of 5.0 µg/m^3 – 14.8 µg/m^3. The ambient air monitoring results indicate that the highest concentration 14.8 µg/m^3 of SO_2 is experienced at location A1. The emission emanating from vehicular fuel combustion and other anthropogenic activities can contribute to higher concentration of SO_2 at location A1. The minimum concentration was observed at location A7 which is 5.0 µg/m^3. The location is at an aerial distance of 6.02 km from the project site towards SE Direction.

Oxides of Nitrogen (NO_X)

The study reveals that Oxides of Nitrogen were found in range of 8.1 µg/m^3 – 22.6 µg/m^3. The highest value of NO_X 22.6 µg/m^3 during the monitoring period was observed at location A1. This might be due to vehicular movement as vehicular emission are mostly responsible for NO_X emission. The minimum value 8.1 µg/m^3 was observed at location A6 located at an aerial distance 7.81 km.

Carbon Monoxide (CO)

Monitoring reveals that CO concentration was found to be in range of 0.4 mg/m^3 – 2.2 mg/m^3 in the study area. The maximum concentration 2.2 mg/m^3 was found at location A1 locations. It might be due to the location being in industrial, where fossil fuel is use for burning. And also due to area having industrial emissions and vehicular movements. The minimum concentration 0.4 mg/m^3 was found at location A8.

Monitoring of Additional Parameters

The additional ambient air quality parameters like Ozone, Lead, Ammonia, Arsenic, Nickel, Benzo(a)pyrene and Benzene were monitored within the project premises (A1 location). On the basis of results of additional ambient air quality parameters at sampling location A1 (project premises) it can be said that values for some additional parameters were below detection limit and other parameters did not exceed the National Ambient Air Quality Standards (NAAQS) during the sampling period.

ES 2.1 SURFACE WATER QUALITY

ES 2.2.1 INTERPRETATION

Based on the analysis results of water samples, and comparison of the same with the Designated Best Use Water Quality Criteria by CPCB It can be concluded that based on their usage & information provided by the locals and obtained results these water bodies were categorized. It can be concluded that based on their usage & information provided by the locals and obtained results these water bodies were categorized. SW1, SW5, SW6 is classified as category B (Outdoor bathing (Organized); SW2 classified as category C (Drinking water source after conventional treatment and disinfection); SW3, SW4 classified as category D (Propagation of wildlife and fisheries), SW7, SW8 classified as Below E (Not meeting A, B, C, D, or E criteria)

ES 2.3 GROUND WATER QUALITY

ES 2.3.1 INTERPRETATION

Based on the Ground water analysis it can be concluded that the ground water can be considered fit for domestic purposes. In case the water is intended to be used for drinking a basic primary treatment is advised prior to its use. The water sample after treatment is suggested to be tested and compared with the IS standards as to ensure the quality

ES 2.4 AMBIENT NOISE QUALITY MONITORING

ES 2.4.1 INTERPRETATION

Industrial Zone

The noise levels during the day time as well as night time were observed to be within the prescribed standards by Central Pollution Control Board.

Residential Zone

The noise levels during the day time as well as night time were observed to be within the prescribed standards by Central Pollution Control Board.

Silence Zone

The noise levels during the day time as well as night time were observed to be within the prescribed standards by Central Pollution Control Board.

ES 2.5 SOIL QUALITY

ES 2.5.1 INTERPRETATION

The findings of the study are compared with Hand Book of Agriculture, ICAR, which reveals that pH of the soil in the study area are neutral to slightly alkaline nature of soil The values for Total Nitrogen, Phosphate and potassium at all locations are found to be more than sufficient. The concentration of electrical conductivity was estimated to be average to harmful to germination for all locations.

ES 2.6 GEOLOGY & HYDROGEOLOGY OF THE STUDY AREA

ES 2.6.1GEOLOGY

A major part of district is covered with basalt lava flows generally called as Deccan trap. This volcanic activity was confined mainly to Upper Cretaceous to Lower Eocene age. Besides Deccan traps, the formation like local alluvium, beach sand, coastal alluvium, laterites, trachytes & rhyolite cover very small area of the district.

ES 2.6.2 HYDROGEOLOGY

Deccan trap Basalt of Upper Cretaceous to Lower Eocene age is the major rock type covering about 80% of the district, coastal alluvium is other formation occurring only in western end of the district.

ES 2.7 LAND USE & LAND COVER PATTERN ASSESSMENT

ES 2.7.1 INTERPRETATION

The study area encompassing radial area of 314.15 sq. km. from the project site as centre, broadly had 6 types of classification such as Built-up land, Agriculture land, Forest, Wasteland, Water bodies and others. Built-up land (Brick Industry, Built-Up, Educational Institution, Industry, Mining, Mining Crust, Under Construction, Water/Sewage, Treatment Plant, and River Front Development) was the dominant land use class with 99.15 sq.m which is 32% of the total land cover. Agriculture (Crop Land, Plantation) was the second major land use class with 138.94 sq. km. which accounted for 44% of the total land use land cover pattern of the

study area followed by Wastelands (Open Scrub) is third major land use class with 38.13 Sq.km accounting 12% of the total land use land cover. Apart from these land use land cover type, 20.19 sq.km (6%), 14.44 sq.km (5%) and 3.3 sq.km (1%) of the study area were subjected to Water Bodies, forest and others respectively.

ES 2.8 TRAFFIC STUDY

ES 2.8.1 INTERPRETATION

It can be concluded that the existing traffic scenario is in Very good for observation point TS 1. Also, considering traffic scenario after the expansion activity the traffic scenario won't change and LOS in both the case will remain same.

ES 2.9 BIOTIC ENVIRONMENT

ES 2.9.1 INTERPRETATION

The project activity does not involve any sort of habitat loss also of the recorded 67 Flora species, 73 faunal species from secondary data, out of that from floral group only 2 species of trees are belonging to categories of concern as per IUCN assessment in which 1 comes under Endangered category and another comes under Near threatened category. Similarly, in the faunal group only 1 species of bird belongs to Near threatened categories of concern as per IUCN assessment and no one species of birds are listed as schedule – I as per WPA, 1972 of the recorded primary data of fauna; 1 was endangered and 1 was Near Threatened, in recorded primary data of fauna. Also, 1 species were listed under schedule – I as per WPA, 1972 from secondary data observation from faunal group of species. Moreover, the remaining recorded plant & animal species were extremely common for the study area and had a very wide range of presence & abundance across the entire Palghar district.

ES 2.10 SOCIO ECONOMIC STATUS OF THE STUDY AREA

ES 2.10.1 CONCLUSION

From the above Socio economic study result, the percentage obtained for the study parameters i.e. Health Facilities, Educational Facilities, Water Facilities, Transport Facilities, Employment Facilities & Local Body Functioning & support are 40%, 48.8%, 44.8 %, 43.2%, 46.8 %, 43.2%. The Minimum percentage for satisfaction obtained was 40 % i.e. for Health Facilities and the Maximum percentage for satisfaction obtained was 48.8 % i.e. for Education Facilities. Looking into the results obtained for socio economic study, M/s. Orson Resins and Coatings Private Limited. plans to spend its CER fund on the parameters for which the study sample is least satisfied i.e. Health Facilities and Water Facilities. The CER Plan in accordance to the results obtained for social economic study has been prepared and provided in the chapter 8 of this EIA report.

ES 2 ANTICIPATED ENVIRONMENT ASPECT, IMPACT AND MITIGATION MEASUREMENT

ES 3.1 DETAILS OF ENVIRONMENTAL MITIGATION MEASURES

Table No. ES 2: Overview of probable Environmental Pollution & Mitigation Measures during Construction Phase

Sr. No.	Environmental Parameters	Aspect Attributes	Impact	Mitigation Measures
1	**Air Quality**	• Dust emissions from handling & transportation of cement / concrete / stone aggregates	• The emission would be around 0.12 tons/month of the construction activity. • There would be maximum 10 nos. of temporary workers (7 nos. of Skilled workers, 3 nos. of Unskilled workers) appointed for construction activity, who may get affected by the dust pollution. • Workers getting exposed to the dust generated due to the construction activity can suffer from respiratory problems and prolonged exposure to dusty environment can lead to malfunctioning of lungs.	• Management for loading and unloading of the materials • Transport routes for carrying construction material to be identified – preferably to avoid residential, schools / institutional and hospital areas. • Transport material that are easily wind borne need to be covered by a sheet made of either jute, tarpaulin, plastic or any other effective material. • Trucks / Lorries should not be overloaded to avoid overflow of material (construction material) during transportation. • During the unloading activities ensure that dust borne particles are damped either by water spray or aligning the waste disposal in such a way that minimizes dust dispersal (wind breakers). • The unloading activities of construction material at site / off site to ensure that dispersal of dust borne particles are minimized by using water sprinklers or covered by a sheet made of either jute, tarpaulin, plastic or any other effective material. • PUC certified vehicles which are older not more than 15 years shall be used for transportation.
2	**Water Quality**	Water used for construction activity mainly for concrete mixing, sprinkling, Sewage generation due to construction workers.	• Contamination of the soil at the project site and nearby water bodies due to the surface runoff. • Sewage due to construction workers of 10 nos. will be generated during construction phase of the project.	• The sanitation facilities of the industry will be utilized by the temporary construction workforce. • Proper surface water runoff management would be implemented. • Storm water drains will be constructed.

3	**Noise Quality**	• Noise generated from construction equipment's /machinery like spade, shovel, dabber, drill, hammer, concrete mixer etc. • Transportation of construction materials.	• The Impacts of high noise level can be temporary/permanent hearing loss, mental disturbance, increasing heart rate, affecting workers performance.	• Appropriate PPEs to 10 nos. of construction workers. (Hearing protection) • Implementation of Traffic management. • Creating wind barriers for containing noise within project boundary. • Avoid night-time activities. • Development of green belt along the plot boundary.
4	**Solid Waste Management**	• Construction wastes such as left off concrete, stone, aggregates, wooden piles, excavated material etc.	• Unhealthy Work Conditions at project site. • The nutrient in the top soil will get wasted if is not utilized for greenbelt development.	• The inert recyclable waste viz. left-over metal rods, wooden flanks, cardboards; wooden boxes will be stored in separately & sold to authorized recycler. • The inert non-recyclable wastes viz. left-over concrete debris, stones, aggregates will used for base filling & levelling activity within plot. • The excavated soil will be used stored & used for replenishing & greenbelt maintaining activity.
5	**Safety & Health**	• Site Safety	• Unsafe conditions at workplace compromising safety at work place.	• Construction area barricading, sign boards. • Provision of mask, hand sanitizers, Reflective clothing, Safety shoes, Helmet & Glasses to workers. • Management and Handling SOPs will prepared in case of spillages or accidents etc.

Table No. 10.2: Overview of probable Environmental Pollution & Mitigation Measures during Operation Phase

<table>
<tr><th>Sr. No.</th><th>Environmental Parameters</th><th>Aspect Attributes</th><th>Impact</th><th>Mitigation Measures</th></tr>
<tr><td>1</td><td>Air Quality</td><td>•Emission from LSHS fired Thermic Fluid Heater (1 Nos × 10 Lakh Kcal/hr and 2 Nos. × 15 lakh kcal/hr).
(Note: 1 Nos. of 15 Lakh Kcal/hr of Thermic Fluid Heater is a standby).
•Emission from HSD fired D.G Set (2 Nos x 125 kVA and 1 Nos. x 250 kVA kVA)
•Gaseous emission from manufacturing process, Non-spontaneous emissions from transportation of raw materials & finished goods.</td><td>•The Health effects related to particulate matter are majorly respiratory, pulmonary injury & lung cancer etc.
•Exposure to SO2 and NOx majorly leads to respiratory problems.
•Carbon monoxide decreases the oxygen carrying capacity of the blood by reducing the hemoglobin.
•The health effects related to VOC emission are eye, nose and throat irritation headaches, loss of coordination and nausea, damage to liver, kidney and central nervous system etc.
•The air emissions in long course of time may affect the immediate surrounding vegetation stature physically (leaf senescence, hampered growth etc.) & biologically thus may affect the overall surrounding ecology.</td><td>
<table>
<tr><th>Sr. No.</th><th>Source</th><th>Fuel</th><th>Air Pollution Control Devices</th></tr>
<tr><td>1</td><td>Thermic Fluid Heater</td><td>LSHS</td><td>Adequate Common stack with height of 33 meter</td></tr>
<tr><td colspan="4">Note: 1 Nos. of 15 Lakh Kcal/hr of Thermic Fluid Heater is a standby.</td></tr>
<tr><td>2</td><td>D.G. Set</td><td>HSD</td><td>5 m Above roof top (with acoustic enclosure)</td></tr>
<tr><td colspan="4">Note:*D.G. Set will be operated during power failure only.</td></tr>
</table>
•The roads within the premises will be concreted / paved to avoid the dust generation from vehicular activity.
•It will be ensured that all the vehicles used for transportation activity will have a valid PUC (Pollution under Control) Certificate.
•Proper servicing & maintenance of vehicles will be carried out. Same practice will be continued in future.
•Regular sweeping of all the roads & floors will be done.
•Development of the green belt will help to capture the fugitive emission.
•Industry to ensure that at no point of time the air emission concentrations does not exceed the prescribe standards.</td></tr>
</table>

2	**Noise Quality**	• Operation of Thermic Fluid Heater (1 Nos × 10 Lakh Kcal/hr and 2 Nos. × 15 lakh kcal/hr). *(Note: 1 Nos. of 15 Lakh Kcal/hr of Thermic Fluid Heater is a standby).* • D.G Set (2 Nos x 125 kVA and 1 Nos. x 250 kVA kVA), Full-fledged ETP, Vehicular activities.	The impacts of high noise level can be Temporary/Permanent hearing loss, Mental disturbance Increase in heart rate, decrease in workers performance due to psychiatric disorder, Workers developing Tinnitus due to high level of noise exposure on regular basis.	• Acoustic enclosure will be provided to D.G set for attenuation of noise level during operation. • Isolation of high intensity noise generating equipment's. • Appropriate traffic management to be implemented. • Greenbelt developed in the company premises will acts a noise barrier. • The proper maintenance out of the thermic fluid heater, including regular descaling to prevent whistling or screeching noises caused by mineral deposits will be carried. • Appropriate PPE will be provided to workers.
3.	**Water Quality**	• Effluent from Industrial process • Blow down water from Cooling Tower • Domestic wastewater	Indiscriminate release/discharge of effluents may contaminate the surrounding surface and groundwater & there by affecting the overall ecology & agricultural productivity.	**Trade Effluent Treatment Scheme** • The project is a Zero Liquid Discharge (ZLD) Unit. • The effluent will be segregated in two streams HCOD/LTDS and LCOD/LTDS stream. • The entire HCOD/LTDS (< 2.0% COD & < 0.3% TDS) effluent stream generated from the manufacturing process will be treated in Multiple Effect Evaporator (MEE), out of which 2% glycol containing stream will be recovered and reused in process and remaining condensate will be fed to ETP for further treatment. • The entire LCOD/LTDS (<0.8% COD & <0.2% TDS) effluent stream considering effluent generated from blowdown from cooling tower along with condensate from the Single Effect Evaporator (SEE) & condensate from MEE, will be treated in full-fledged ETP consist of primary, secondary & tertiary treatment. • Treated effluent from ETP will be fed to the RO system wherein the RO permeate (80%) will be recycled & reused for the Cooling Tower make-up and RO Reject (20%) will be fed to the dedicated Single Effect Evaporator followed by Centrifuge for the further treatment.

				Condensate from the SEE will be re-sent to the ETP for further treatment. **Domestic Sewage:** • The sewage (2.50 CMD) will be treated in a STP. Treated sewage (2.475 CMD) from STP will be recycled & reused for Toilet flushing purpose.
4.	**Occupational health and Safety**	• During operation activity, any type of accident/physical hazard/danger to life scenario to the 100 nos. employees/workers and Visitors.	Provision of standard PPE's, Annual health-medical check-up of all employees and provision of health insurance to workers.	• Provision of standard PPE's (masks, helmets, gloves, safety boots and ear plug and ear muffs, safety vest), Annual health-medical check-up of all employees (100 nos.) and provision of health insurance to workers.
5.	**Solid Waste Management - Hazardous Waste**	• Chemical sludge from waste water Treatment. • Wastes or residues containing oil residues • Concentration or evaporation residues (From Multiple Effect Evaporator) • Concentration or evaporation residues (From Single Effect). • Discarded containers/ Barrels / liners/ plastic Bags/ PPE	• Exposure to Hazardous Chemicals • Chemical spills and leaks can result in immediate and severe health problems. Inadequate safety measures can lead to life threatening accidents. Short-term & Long-term health effects. • Unscientific handling & disposal may lead to contamination of surrounding soil, water sources & there by affecting the ecology & health of the workers coming in direct contact with the hazardous	• Membership with CHWTSDF, Synergy Techno Ventures LLP is obtained for disposal of hazardous waste • The recyclable / recoverable wastes will be disposed to authorized vendors. • The remaining waste will be disposed to Coprocessing/ CHWTSDF facility for disposal. • Provision of Hazardous Waste storage and Non- Hazardous waste storage in dedicated area of 343 Sq. m. inside industry premises. • The provision of impervious flooring with leachate collection system and Proper ventilation will be done. • Waste will be sent only to MPCB authorize disposal facilities. • Chemical sludge from waste water treatment, Concentration or evaporation residues – CHWTSDF. • Wastes or residues containing oil will be sent to Disposal to CHWTSDF/ Co-Processing.

			waste like skin allergies/rashes/burns etc.	• Concentration or evaporation residues (From Multiple Effect Evaporator) will be sent to Disposal to CHWTSDF. • Concentration or evaporation residues (From Single Effect Evaporator) will be sent to Disposal to CHWTSDF • Discarded containers/ Barrels / liners/ plastic Bags/ PPE will be sent to MPCB authorized party/ recycler/ CHWTSDF

Table No. ES 3: Post project monitoring parameters & frequency

Sr. No.	Activity / Area	Pollutant	Pollutant Characteristics	Frequency	Period	No. of samples	Sampling Cost per sample	Analysis Charges Per Sample	Estimated Cost (Quarterly)	Estimated Cost (Annual)
1	Ambient Air	Air Emission	SO_2, NO_x, CO, Benzene, Ammonia, Benzopyrene, Lead, Nickel, Arsenic, Ozone	Intermittent / Periodic	Quarterly	4.00	13,800	14,400	1,12,800	4,51,200
2	DG Set, Thermic Fluid Heater stack	Air Emission	TPM, SO_2, NO_x from Thermic Fluid Heater, D.G. Set Stacks	Intermittent / Periodic	Quarterly	4.00	12,900	12,000	99,600	3,98,400
3	Thermic Fluid Heater Area, ETP, Work Place Area, DG Set Area	Sound	Noise Level dB(A)	Intermittent / Periodic	Quarterly	4.00	400	-	1,600	6,400

4	Effluent Treatment Plant (ETP)	All parameters	pH, O & G, TDS, TSS, COD, BOD. Heavy Metals & Organic Compounds	Monthly/ Quarterly	Monthly/ Quarterly	4.00	755	13,900	58,620	2,34,480
5	Hazardous Wastes	Chemical sludge from waste water treatment , Wastes or residues containing oil Concentration or evaporation residues (From MEE) , Concentration or evaporation residues (From SEE) , Discarded containers/ Barrels / liners/ plastic Bags/ PPE	Hazardous Waste Characteristics	As per CHWTSDF	Annual	1.00	1,400	5,100	6,500	6,500
6	Work Place	Air pollutants, Heavy metals	Heavy Metals in Ambient Air,	Intermittent / Periodic	Quarterly	4.00	13,800	8,900	90,800	3,63,200

			VOCs & Fugitive Emissions							
7	Monitoring of Six-Monthly Compliance (by Third-Party Audit)	--	--	--	Six Monthly	-	-	-	-	4,00,000
Total									**3,69,920**	**18,60,180**
Hence, budgetary allocation of INR 18.60 Lakhs has been made in Environmental Management Plan										

ES 5 ADDITIONAL STUDIES

ES 5.1 QUANTITATIVE RISK ASSESSMENT BASED ON THE SOFTWARE ALOHA

Based on the unsafe distances identified by the software output, the MCLS (maximum credible loss scenario) for the factory works out to about 395 m for Ethylenediamine (Orange threat zone) for the direct source scenario., whereas maximum unsafe distance is for Toxic area of vapor cloud. Prominent wind direction is from North West. The scenario considered for assessing the impact by quantitative risk assessment was taken from the scenario considered for assessing the impact by quantitative risk assessment was taken from CPR18 E. The probability of occurrence of the scenario is 5 × 10-6 y-1 which is very less. The Disaster management plan highlights the suggestive measures to be taken during the occurrence of such an accident.

ES 5.2 DOW INDEX

The DOW Index has been performed for materials which are stored in drums and bags and are flammable. DOW Index is calculated for all the chemicals in storage having N(f) = 3 and 4 and for LSHS and HSD fuel. From the calculation Catalyst storage will have a Dow Index of 97.92 indicating an Intermediate Hazard Potential. For HSD fuel storage will have Dow Fire and Explosion Index of 33.1 indicating a Light Hazard Potential. For LSHS fuel will have Dow Fire and Explosion Index of 29.2 indicating Light Hazard Potential.

ES 5.1 MOND'S INDEX

Mond's toxicity index is performed for raw materials whose Health factor is ≥ 3. According to the Mond's Index the toxicity is calculated for the storage of Maleic Anhydride, Bisphenol-A, Paraformaldehyde, Oxalic Acid, Xylene, Phenol, Tetraethylenepentamine, Solvent Naphtha out of which Maleic Anhydride have maximum value for Mond's index i.e. 9.48 indicating moderate degree of Hazard. Also, other chemicals Mond's index indicate Moderate degree of Hazard.

ES 5.4 CORPORATE ENVIRONMENT RESPONSIBILITY (CER)

As per the Corporate Environmental Responsibility (CER) OM. F. No. 22- 65/2017-IA.III dated 1st May 2018 by MoEF&CC, the company has earmarked INR 9.0 Lakhs. (1 % of the additional capital investment) Corporate Environment Responsibility (CER) activities and need based CER activities will be implemented in consultation with District Authority. Thus, INR 9.0 lakhs cost will be allocated for CER activities i.e. 1% of the additional capital investment.

ES 6 PROJECT BENEFITS

- No human displacement or habitat loss is envisaged.
- Additional Employment of around 15 personnel.
- ORCPL will undertake CER activity to improve social infrastructure in the vicinity.
- Renewable energy use in the form of solar installations will help to reduce electricity consumption.
- ZLD installations and Roof top Rainwater water harvesting will help to reduce water consumption.
- The existing and proposed products will help to decrease the demand supply gap and increase the foreign exchange of the country.

ES 7 ENVIRONMENT MANAGEMENT PLAN

ES 7.1 COST DETAILS FOR ENVIRONMENT MANAGEMENT

Table No. ES 5: Cost details for environmental management (Construction phase)

Sr. No.	Component	Construction Phase	
		Capital Cost (Lakh Rs.)	Recurring (Lakh Rs. /Annum)
1	**Air Pollution Control**	3	0.5
2	**Noise Pollution Control**	3	1
3	**Land / Soil / Water Pollution**	2	0.5
Total		**8**	**2**

Table No. ES 6: Cost details for environmental management (Operation phase)

Sr. No.	Component	Capital (Lakh Rs.)	Recurring (Lakh Rs. /Annum)	Timeline	Responsibility in Organization
1	**Air Pollution Control**	0	5.2	Same practice will be continued after grant of EC	EHS Officer
2	**Water Pollution Control**	165	115	Same practice will be continued after grant of EC	EHS Officer

Sr. No.	Component	Capital (Lakh Rs.)	Recurring (Lakh Rs. /Annum)	Timeline	Responsibility in Organization
3	**Noise Pollution Control**	0	0.3	2 Months after grant of EC	EHS Officer
4	**Occupational Health**	4	4	Same practice will be continued after grant of EC	EHS Officer
5	**Waste Management**	4.38	44.14	2 After grant of EC & Waste Disposal shall be on regular basis	EHS Officer
6	**Greenbelt**	8.13	9.03	3 Months after grant of EC & Maintenance will be regularly	EHS Officer
7	**Rain Water Harvesting**	6	0.50	3 Months after grant of EC & Maintenance will be regularly	EHS Officer
8	**Energy Conservation**	21.70	0.70	3 Months after grant of EC & Maintenance will be regularly	EHS Officer
9	**Environmental Monitoring**	0	14.60	As per MPCB CTO on regular basis	EHS Officer
10	**EC Conditions Monitoring**	0	4.0	After EC Regular 6 month	EHS Officer
Total		**209.21**	**197.47**		