

Executive Summary

I. Background

M/s Jesons Industries Ltd (JIL) proposes a new unit for the “Manufacturing of synthetic Organic Chemicals” at survey No 63+1, 64/1, 64/4, 70, 71, 72, 74/11, 45 (phase-II), Mahagaon Village, Taluk Palghar District, Maharashtra State. JIL is one of the Largest Acrylic Emulsion manufacturers in India with growing Exports into high growth markets in East Asia, Africa & Middle East.

II. Management Commitments towards protection of Environment

The company is assigning prime importance for environmental protection. The company will implement zero liquid discharge concepts and comply the environmental laws. The industry will maintain greenery inside the industry & maintain well developed Greenbelt. Also all the environmental statutory requirements will be implemented and maintained continually.

III. Environmental Sensitive Areas

As seen in Table-1 below, there are no ecologically sensitive areas within 15km radius from Project Boundary. The proposed project land is located at survey no 63+1, 64/1, 64/4, 70, 71, 72, 74/11, 45 (phase-II), Mahagaon Village, Taluk Palghar District, Maharashtra State. The site environs are provided in **Table-1**.

Table 1: Site Environs

S. No	Features	Description
1.	Name of the Proponent	M/s Jesons Industries Ltd
2.	Proposed Development/Change	Synthetic Organic Chemicals
3.	Total Land Area of the Project Site	The total plot area of the project is 43946.10 Sq. M Proposed built up area is 14874.98 Sq. M (33.848% of total Plot area) Proposed Green belt is 14729.42 Sq. M (33.517% of total Plot area)
4.	Geographical Location of the Project site (centre co-ordinates)	Latitude: 19°47'40.62"N Longitude: 72°49'27.43"E
5.	State Boundary	-
6.	Elevation	183 m above MSL

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7.	Nearest Village	Mahagaon 1.35 Km towards North West
8.	Nearest Railway station	Boisar 6.5 km towards North
9.	Nearest National Highway	NH 8 is 9 Km towards East
10.	Nearest Airport	Daman, 70 km towards North
11.	Nearest major Town	Boisar, 6.5 km towards West
12.	Nearest Port	JNPT, Mumbai- 100 km towards South
13.	Reserved Forest/Protected Forest/ Notified Wildlife Sanctuary/ Ecologically sensitive areas	None in 15Km radius
14.	Water Bodies	Surya River is 1.2 Km towards North Banganga River is 6 Km towards West South West Devkhop Dam 8.3 Km towards South South West
15.	Type of soil	Black soil

IV. Products Detail

JIL propose to manufacture synthetic organic chemicals (12 numbers with a total capacity of 200000 MT/Y). The products categories are Resins and Allied Chemicals Products. Proposed products details are provided in **Table 2**.

Table 2: Details of the Products to be synthesized

S. No.	Name of the product	Quantity in MTPA
1.	Synthetic Acrylic Polymer Emulsions	72000
2.	Industrial Synthetic Adhesives, Glues	10000
3.	Thermosetting Acrylic Resins, Ethylene vinyl acetate Emulsions/ powder	6000
4.	Ethylene vinyl acetate redispersible powder	16000
5.	Polymer of Vinyl Acetate	12000
6.	Vinyl Copolymers	12000
7.	Water proofing compounds and Construction emulsions	15000
8.	Synthetic Organic/ Pigments &Preparation there on	12000
9.	Paper Chemical	9000
10.	Solvent based Adhesive	6000
11.	Styrene Polymer Emulsion	24000
12.	Polyurethane resins	6000
Total Capacity		200000

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V. Categorization

The proposed project activity falls under 5(f) category i.e. synthetic organic chemicals industry (dyes & dyes intermediates; bulk drugs and intermediates excluding drug formulations; synthetic rubbers; basic organic chemicals, other synthetic organic chemicals and chemical intermediates.

VI. Land Requirement

The total land area is 43946.12 Sq. M (10.86 acres). The total built up area is 14344.63 Sq. M i.e. 33.08% and Green belt areas is 14729.42 i.e. 33.52% of the total plot area. The land use pattern is provided in the below **Table-3**.

Table 3: land use pattern

S. No	Description	Area (m2)	%
1	Total BUA	17770.63	40.43
2	Road Area	7645.00	17.40
3	Green Area	14729.42	33.52
4	Parking Area	3800.00	8.65
Total Land Area		43945.05	100.00

VII. Water Requirement

The total requirement of water for the proposed project is 400 KLD i.e. 50 KLD of water is required during the construction phase and 350 KLD is required during the operational phase. During construction phase water needs will be fulfilled by water tankers while 350 KLD of water will be extracted from ground with due approval from Central Ground water Board. The water requirement break-up details are provided in **Table 4**.

Table 4: Water requirement breakup

S. No	Particulars	Water Required in KLD		Wastewater (KLD)	Loss (KLD)	Remarks
		Fresh	Treated			
1	Domestic	10	--	8	2	Wastewater Sent to STP
2	RO (Process water)	315	--	27	--	Sent to Evaporator
3	DM plant	20	--	2	--	Sent to ETP

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	a) Boiler	18	--	2	16	Sent to ETP
4	Cooling Tower		17	2	15	Sent to ETP
5	Gardening	5	15+7.6	--	27.6	15 KLD condensate from Evaporator 7.6 KLD From STP
6	Floor Washings	--	--	20	--	RO rejects used for washing and Sent to ETP
7	Evaporator	--	32	--	21	Used for gardening and cooling tower
	Total	350	39	53	81.6	
	Total fresh water demand :350 KLD					
	Total treated water : 39 KLD used for cooling tower and gardening					

VIII. Wastewater Generation

Wastewater will be segregated into Domestic and Industrial effluent. Blow down water from cooling systems, Boilers, Regeneration tanks, floor washing are the major sources of industrial effluent that will be treated in ETP. Toilets and canteen are the only source of domestic wastewater. Domestic effluent will be treated in a dedicated STP (10 KLD) and Industrial effluent will be treated in a dedicated ETP (30 KLD). Treated wastewater will be used within the plant and Zero Liquid Discharge concept will be maintained, hence no adverse impact due to the proposed project on water environment.

IX. Power Requirement

The power required for the project will be sourced from MSEDCL. DG sets will act as the standby facilities and will be utilized in case of power failures. The details of power requirement and backup power facilities are provided in **Table 5**.

Table 5 power requirement

S. No	Details	Capacity	Source
1	Power Requirement (kW)	1000	MSETCL
2	Back-up (kW)	625	DG sets
3	Diesel Requirements	Approx. 100 lit/hr.	-

X. Manpower

Skilled, semi-skilled and unskilled employees will be appointed during Construction and operational phase of the project. 150 workers will be employed during the construction phase

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while 250 workers will be appointed during operation phase. Preference will be given to locals and will be employed as per their educational qualification.

XI. Solid Waste

Solid waste generation will be in the form of metal pieces, cardboards, rags etc. The average solid generation during the construction phase would be 25MT and will be segregated as per the characteristics. During construction phase, domestic waste will be generated in the form of dry waste & wet waste. It will be collected at designated place and disposed-off through authorized vendor. Sludge generated from the STP will be used as manure.

XII. Hazardous waste Management

Hazardous wastes generated will be in the form of ETP waste from Effluent Treatment Plant, Used oil from gear boxes of the machineries and discarded bags/drums. Company will provide adequate storage area for proper storage of wastes until disposal.

Table 6 Details on Industrial Waste Generation & Management

S. No.	Hazardous Waste	Quantity	Disposal
1.	Gel Scrap	500 kg./Month	Send to CHWTSDF, M/s. Mumbai Waste Management Limited, Plot No. P-32, MIDC, Taloja, Tal: Panvel, Dist: Raigad
2.	Process waste	3000 kg./Month	
3.	Used Oil	25 Liter/Month	
4.	ETP Sludge	1000 kg./Month	
5.	Plastic drums	300 Nos./Month	
6.	E-Waste	1 MT/yr	
7.	STP sludge	5 kg/Month	

XIII. Analysis of Alternative Sites Considered

The proposed project site is located in Mahagaon village. Project site is 6.5 km away from Boisar Village and it is well connected to NH-8. District headquarter Palghar is 12 km & Daman Airport is 71 km away from site. It is non-agricultural private land which is already in already possession of proponent. Detailed discussion regarding the alternative site is given in **Section 5.2 of Chapter 5.**

XIV. Project cost

The total capital investment on the project is 50 crores details are given in Table-7.

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Table 7 Capital Investment on project

S. No.	Cost	INR (Crores)
1	Land	08
2	Building	20
3	Plant and Machineries	21
4	Implementation of Environmental Management Plan	01
TOTAL		50

XV. Baseline Study

Meteorological Environment

The micro-meteorological conditions during the study period (December 2017- February 2018) for hourly data of wind direction and temperature were recorded at the project site. From the Indian Meteorological Department (IMD) located at Dahanu provided climatological data for Palghar, the annually determined wind direction is mostly South West to North East. The total rainfall is 2458 mm. From the site specific meteorological data of study period (December 2017- February 2018) it was observed that predominant wind was observed as North West to South East, wind speed: 2.02 m/s, maximum temperature was 32.2°C, minimum temperature was 17.1°C and the average temperature was 24.6°C, while the average relative humidity was 64% at project site. Air, Noise, Surface water, ground water and soil quality monitoring locations are provided in **Table-8**.

Table-8 Air, Noise, Soil, Ground water monitoring locations

S. No	Air, Noise, Soil and Ground water Monitoring/sampling locations	Distance from the project boundary	Geographical Coordinates	
			Latitude (N)	Longitude (E)
1	Project site	Within the site	19°47'40.37"	72°49'27.71"
2	Nagzari	3.12	19°46'44.69"	72°51'05.08"
3	Gundale village	3.19	19°45'53.95"	72°49'49.66"
4	Man	3.38	19°46'48.11"	72°47'41.63"
5	Khanivade	3.82	19°49'07.64"	72°48'05.53"
6	Sagave	7.32	19°43'43.71"	72°50'23.97"
7	Devkhope	8.21	19°43'38.22"	72°47'19.49"
8	Boisar	7.83	19°48'00.75"	72°45'00.10"

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Table-9 Surface water monitoring locations

S. No	Surface water monitoring locations	Distance from the project site boundary (km)	Direction	Geographical Coordinates	
				Latitude(N)	Longitude(E)
1	Surya river U/S	-	-	19°48'41.64"	72°50'14.99"
2	Surya river D/S	3.12	ESE	19°46'20.05"	72°50'42.42"
3	Lake near Gundale	3.19	S	19°45'48.89"	72°49'29.55"
4	Pond near wade	7.71	ESE	19°47'18.19"	72°53'56.34"
5	Devkhope lake	7.2	SSW	19°43'05.94"	72°48'48.61"
6	Pond in newale	8.8	NW	19°50'54.23"	72°45'32.30"

Ambient Air Quality

The ambient air quality has been monitored at 8 locations for 14 parameters including 12 parameters as per NAAQS, 2009 within the study area. The baseline levels of PM₁₀ (34.6 - 349.5µg/m³), PM_{2.5}(17.5 - 116.8 µg/m³), SO₂ (15.3 - 33.6 µg/m³), NO₂(19.2 - 44.5 µg/m³), CO (0.7-1.7 mg/m³),all the parameters are well within the National Ambient Air Quality Standards for Industrial, Commercial and Residential areas at all monitoring locations except at Boisar Village during the study period from December 2017 to February 2018.

Noise Environment

The existing ambient noise levels were monitored using precision noise level meter in and around the project site at 10 km radius at 8 locations during December 2017 to February 2018 During the study period in industrial area day time noise levels was about 47.5 dB(A) and 42.1 dB(A) during night time, which is within prescribed limit by MoEF&CC (75 dB(A) Day time & 70 dB(A) Night time) In residential area day time noise levels varied from 38.7 dB(A) to 52.6 dB(A) and night time noise levels varied from 31.0 dB(A) to 41.5dB(A) across the sampling stations. The field observations during the study period indicate that the ambient noise levels in Residential area noise are slightly exceeded the limit prescribed by MoEF&CC [55 dB (A) Day time & 45 dB (A) Night time].

Water Environment

The prevailing status of water quality at 6 sampling locations for surface water and 8 sampling locations for ground water have been assessed. The standard methods prescribed in IS were followed for sample collection, preservation and analysis in the laboratory for various physiochemical parameters.

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Surface water quality

The values range pH: 7.54-8.08, TDS: 156 mg/l – 231 mg/l, Total Hardness: 85.1 mg/l – 117.9 mg/l, Chloride content: 5 mg/l – 22.7 mg/l. Sulphate content: 3.4mg/l – 7.1 mg/l.

Ground Water Quality

The values ranges pH: 7.33-8.11, TDS: 221 mg/l – 1378 mg/l, Total Hardness: 92 mg/l – 631 mg/l, Chloride content 22.5 mg/l – 274 mg/l and Sulphate content: 6.94 mg/l – 115.53 mg/l.

Land Environment

Assessment of soil characteristics is of paramount importance since the vegetation growth, agricultural practices and production is directly related to the soil fertility and quality. Soil sampling was carried out at eight (08) locations in the study area. It is observed that,

- The pH of the soil samples ranged from 6.48-7.92. Indicating that the soils are almost neutral in nature.
- Conductivity of the soil samples ranged from 180 – 264 μ S/cm. As the EC value is less than 2000 μ S/cm, the soil is found to be non-saline in nature.
- The water holding capacity of the soil samples varied from 18.7- 26.6(%).
- Nitrogen content ranged from 110 kg/ha – 205 kg/ha.
- Phosphorous ranged from 12.32 kg/ha to 20.16 kg/ha
- Potassium content ranges from 112 to 178 kg/ha

Biological Environment

The project site is devoid of any prominent vegetation. However, the study area within 10 km distance of the project site is rich in biodiversity. Assessment of vegetation within the study area showed that out of the observed 77 tree species, 60 species were not assessed indicating them to be extremely common in abundance & distribution, 14 species were assessed as Least Concern, 2 species as Data Deficient respectively according to the IUCN red data list.

Socio Economic Environment

A socio-economic study was undertaken in assessing aspects which are dealing with social and cultural conditions, and economic status in the study area. The study provides information such as demographic structure, population dynamics, infrastructure resources, and the status of human health and economic attributes like employment, per-capita income, agriculture, trade, and industrial development in the study area. The study of these

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characteristic helps in identification, prediction and evaluation of impacts on socio-economic and parameters of human interest due to proposed project developments.

The main economic activity is by non-agricultural activities like labour activity, government jobs, industrial jobs etc. Of total workers, 62.74% have been involved in the non-agricultural activities. The agriculture provides the employments to 34.56% of the working population. Of total workers, 80.90% are main workers. It is due to the industrialization in the nearby area and proximity to Mumbai City.

XVI. Anticipated Environmental Impacts

For construction and Operation phase of the proposed project, anticipated impacts were quantified and evaluated.

Air Environment

Air Emission during Construction phase: Construction activities like site clearing, excavation, loading, unloading of construction materials such as sand, bricks, cement etc. will lead to generation of dust. Emission from construction machineries, vehicles used for transportation will result in change of the atmospheric constituents. However, these results are temporary in nature.

Air Emission during Operation phase:

AERMOD 8.0.5 model was used to predict the Ground level concentration of SO₂, NO_x and PM for different temporal variations. It was observed that the maximum concentration due to proposed project for PM, SO₂ and NO_x are 0.095µg/m³, 0.074µg/m³ and 0.1534 µg/m³. So it can be concluded that there will be minimum or negligible impacts.

Noise Environment

Noise level during Construction phase: Construction equipments mainly pumps, generators, compressors, bulldozers, excavator will create noise and vibrations. However the impact generated due to noise will be temporary and local in nature.

Noise level during Operational phase: The major source of Noise during the operation phase will be from pressure release valve, cooling tower and stirrer of reactor etc. The results show that the noise levels from the industrial and commercial area are well within the prescribed limit of MoEF and CC. But the ambient noise levels from the residential areas are slightly exceeding the prescribed limits.

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Water Environment

Construction phase: The water requirement during the construction phase is 50 KLD which will be fulfilled by road tankers. At plant site packed RO filtered drinking water facility will be provided.

Operation phase: The water requirement during the operation phase is 350 KLD. Wastewater will be segregated into Domestic and Industrial effluent. Domestic effluent will be treated in a dedicated STP (10 KLD) and Industrial effluent will be treated in a dedicated ETP (30 KLD). Treated wastewater will be used within the plant and **Zero Liquid Discharge (ZLD)** concept will be maintained, hence no adverse impact due to the proposed project on water environment.

Land Environment

Construction phase: The proposed land is a barren land hence there will be no change in land use pattern. The impacts of construction phase are anticipated on land area only. Appropriate measures should be taken for the disposal of waste material generated at the construction site. The concerned authorities should take care to ensure that the oil and fuels are stored on the concrete floors to avoid seepage of the material.

Operation phase: The hazardous waste generated will be send to CHWTSDF, M/s. Mumbai Waste Management Limited, Plot No. P-32, MIDC, Taloja, Panvel Taluk, Raigad District for disposal of waste. E-waste generated will be send to authorized vendors.

Biological Environment: The land for the proposed project is a barren land. There are no potential sources of impacts on the terrestrial environment.

XVII. Environmental Monitoring Program

A monitoring plan should be implemented by the proponent to ensure the areas of environmental concern identified during EIA process are carried through to, and appropriately considered and incorporated into the detailed design and tender stage of project. A post project monitoring program should also be carried out in order to provide essential feedback about the actual environmental impacts of the project.

XVIII. Pollution Control Measures

- DG set will be procured as per CPCB norms having 8meter stack height above roof. The emission from boiler stack will be controlled by providing stack of 33 meter height.

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- Cooling Tower will be isolated from working area. Blowing horns strictly prohibited within factory area.
- Adequate PPE will be provided to the staff exposing to noise risks. Periodic maintenance of the equipment to be used in the developmental works will be carried out. Worn out parts will be replaced and rotating parts will be lubricated to minimize noise emissions.
- The generated domestic solid waste segregated as dry and wet waste and disposed off at Mahagaon Grampanchayat management system. Industrial hazardous waste will be send to CHWTSDF facility (MWML) while non-hazardous waste will be disposed off through authorized vendors.
- The sewage from domestic use will be treated in STP and the treated wastewater will be used for gardening.
- The proposed wastewater treatment system will be a Zero Liquid Discharge (ZLD). There will be no discharge to land environment.

XIX. Greenbelt Development

As per the rules and regulations laid by Ministry of Environment and Forest, Central Pollution Control Board (CPCB) and State Pollution Control Board (SPCB), it is legally mandatory to earmark 33% of the project area for greenbelt development to promote integration of environmental issues with industrial development projects. The total plot area is 43946.12 Sq. Meters (10.86 acres). The Greenbelt area is 14729.42 Sq. Meters (33.51% of the total plot area). Around 1000 number of trees should be planted as per CPCB guidelines for developing greenbelt (PROBES/75/1999-2000, published in Mar 2000).

XX. Risk Analysis

- As per the NFPA rating, the fire hazard is observed in chemicals such as Butyl Acrylate, Ethyl Acrylate, Methyl Methacrylate Monomer, Styrene Monomer, Vinyl Acetate Monomer, Xylene and Ethyl Acetate. The chemicals such as Metha Acrylic Acid, Acrilic Acid Liquor Ammonia and 2 Ethyl Hexyl Acrylate exhibits health hazards.
- Risk assessment is done for chemicals with NFA rating of 3 and above and storages with max. Capacity only.
- All the hazards are observed in South-East direction due to the wind, which is blowing from North-West direction.

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- The major receptors for most of the scenarios/ cases for catastrophic rupture of storage tanks are Kissan moulding limited on the west and Saibaba Boulevard TWP towards South & open area surrounding the facility
- For rupture of pipelines most of the scenarios observed within the plant boundary and few were extended into open place towards S and SW.

XXI. Disaster Management Plan

The salient features of Disaster Management Plan includes

- Emergency shutdown procedure.
- Electrical Power Failure & Key Utility failures.
- Fire protection system.
- Emergency safety equipment & Reporting and response to emergency.
- Emergency Help from nearby industries and tie up with nearby industries.
- Emergency Control Room - is the focal point in case of an emergency from where the operations to handle the emergency are directed and coordinated. It will be equipped with Internal and P & T telephones, Paging system and Emergency siren.

On-Site Emergency Plan

An on-site emergency plan to deal with emergencies and prevent disasters.

- To provide effective planning, communication and to ensure discipline while mitigating identified emergencies at the earliest utilizing available resources, safety gadgets and systems.
- Synchronized action from all the internal and external agencies at the earliest to initiate corrective and preventive action.
- To minimize the human injury and illness during emergency mitigation, priority will be given to rescue of incident victim/s, rendering them first aid onsite and if required providing further medical services at the earliest, which will be available nearest to our plant.
- To minimize damage to property, general environment or work environment.
- To effectively refer and utilize the revised onsite emergency plan while conducting on site emergency and preparedness response drills and also during real emergencies.
- To identify any deviations during above drills and real situations to ensure any identified and recorded observations for continual corrective actions and preventive actions.

XXII. Benefits of the Proposed Project

Though there are minor pollution impacts the project will be beneficial in the following aspects:

1. The proposed project will lead to increase in production of water based acrylic emulsion, adhesives, glues within India.
2. The processes are focused on improving yield of products and development on eco-friendly process
3. All the products that are proposed to be manufactured are import-substitute thereby helping India to save some foreign currency outflow.
4. As seen above there is no marginal impacts on air, noise, water & soil environments.
5. The proposed green belt will enhance the green coverage in the area & aesthetics.
6. Rain water harvesting will enhance the ground water table.
7. During construction phase, the proposed project is expected to employ about 400 people of various skills which would mean income to about 400 people.
8. During the project implementation, demand for goods and services required for the project will directly or indirectly contribute to the growth of other sectors such as cement, steel, heavy and light industries, construction equipment manufacturing industry, transport sector and other services.
9. Fulfil the market requirement and play a vital role in the Resins and Allied Chemicals Products sectors and thereby reduce imports and address the market demand and Social benefits. The products manufactured at these facilities will be exported that will aid in adding revenue to the nation.

Summary and Conclusion

- The Land is under possession of Jesons Industries limited. Hence no R&R issues
- There are no Ecological sensitive areas/ Notified parks within the study area.
- Anticipated increase in emission load due to proposed project is minimum. However adequate air pollution control equipments will be installed.
- Zero liquid discharge concept will be adopted
- Solid waste, Hazardous waste will be disposed as per norms
- Adequate provision will be made for reduction of noise emissions due to proposed project
- Detailed Hazop/ Risk assessment was carried out and suitable control measures suggested.