Project No: AESPL/IND-E/17-18/EIA/008

Environmental Impact Assessment Report

(Executive Summary)

Environmental Clearance for

Synthetic Organic Chemicals Manufacturing Facility

By

Fibrol Non-Ionics Private Limited

Survey No. 131, Rasal village, Khopoli-Pali Road

Tal.: Sudhagad Pali, Dist.: Raigad

Maharashtra, Pin 410205

Baseline Monitoring: Winter 2018-19
(November 2018- January 2019)

March 2020

Environmental Consultant:
Aditya Environmental Services Pvt. Ltd., Mumbai
QCI- NABET Accredited EIA consultant
www.aespl.co.in

1 EXECUTIVE SUMMARY

1.1 Introduction

As per EIA Notification S.O. No 1533 dated 14th Sep 2006 the project falls under activity 5 (f) (Synthetic organic chemical manufacturing), Category "A" and requires prior environmental clearance from EAC-II, Ministry of Environment, Forest and Climate Change.

The project is of Non-Ionics Surfactants & Industrial detergents and Emulsifier manufacturing with production capacity of 150 Ton per month.

The project has been issued Terms of Reference for undertaking EIA/EMP in accordance with the provisions of the EIA notification S.O. 804(E) dated 14th March 2017, as per MOEF&CC letter F.No. 23-139/2018-IA-III(V) dated 20th August 2018.

1.2 Project Proponent

Fibrol Non-Ionics Private Limited (Fibrol), Survey no 131, Rasal village, Khopoli road Tal.: Sudhagad-Pali, Dist.: Raigad, Maharashtra is a manufacturer of Non-Ionics Surfactants & Industrial detergents and Emulsifier.

Fibrol is a small-scale manufacturing company. Promoted by first generation entrepreneurs, who have had gained useful experience & knowledge about the process products safely aspects of the manufacturing unit, the procurement of raw materials & market potential & demands in their earlier jobs by the directors.

Health, & safety of employee & the surrounding population is prime objective throughout operations of last five years.

1.3 Project Description

The project is for manufacture of nonionic surfactants and industrial detergents.

The products (as per Consent to operate) are as below.

Table 1.1 Product and capacities

No	Products	Capacity as per CTO*
1	Non-Ionic surfactants	150 TPM
2	Industrial Detergents	

Ref: Consent to Operate No MPCB/ROR/14/09898/Amend/150102FT0365 dated 2nd January 2014 valid till Formate 1.0/BO/AST/UAN No. 0000027422/O-1801000004 dated 01.01.2018 valid till 31.03.2017.

The project is executed within the plot of Fibrol which is about 7460 sq m in area with capital investment of ~ Rs. 3.73 Crores.

Power requirement

Power requirement of the site is 85 KVA sourced from MSEDCL.

There are one DG set of 82.5 KVA capacity based on Diesel as fuel as emergency backup in case of power outage.

Steam requirement

Steam requirement of the site is catered 600 kg/hr steam capacity Light diesel fired boiler.

Water requirement

The required water for the project site is for domestic, industrial processing, boiler/cooling and green belt maintenance purpose. Water is supplied by tankers.

Water requirement at site is as below,

Table 1.2 Water requirement

No	Water requirement Break Up	Quantity (cmd)*	Additional required (cmd)	Total, cmd
1	Domestic	0.8	-	0.8
2	Industrial Process	0.1	-	0.1
3	Cooling & Boiler	2.5	0.6	3.1
4	Gardening*	-	4.0	4.0
	Total	**3.4**	**4.6**	**8.0**

Wastewater generation, treatment and disposal

Wastewater generation from various sources is as follows,

Table 1.3 Wastewater generation

No	Source	Total, cmd	Treatment and Disposal
1	Domestic effluent	0.20	Treated in soak pit. Overflow treated water used for gardening.
2	Trade effluent	0.25	Treated at Effluent treatment plant. Treated water is used within site for gardening purpose. There is no discharge outside.
	Total	**0.45**	

Waste generation and its management

Waste generation and disposal from the operation is as follows:

Table 1.4 Non-hazardous waste generation and disposal

Sr. No	Waste	Unit	Total	Disposal
1	Metal scrap	Kg/year	1000	Sale to scrap dealer
2	Rubber hand gloves, PVC shoes, tarpaulin, paper waste	Kg/year	100	Recycle/sale to scrap dealer

Table 1.5 Hazardous waste generation and disposal

No	Description	Category	UOM	Quantity	Method of Disposal
1	Used oil	5.1	Lit/year	25	Sale to authorized recycler
2	Empty barrels /containers /liners contaminated with hazardous chemicals/ wastes.	33.1	Nos/Year	100	Sale to authorized recycler
3	Lead acid batteries	--	Nos / year	1	Buy back arrangement with supplier

Storage/handling of solid and hazardous wastes

All waste is handed with proper PPEs ensuring safety of the individuals working with the solid and hazardous waste handling. Wastes are collected in drums and HDPE bags and further transferred at the storage location in the solid cum hazardous waste storage area provided with impervious flooring at site.

1.4 Description of the Environment

1.4.1 Study period and area

Baseline environmental study/monitoring is carried out during Winter 2018-19 (November, December, January) within 10 km radius of the site (study area) to understand ambient air, ground water, surface water, soil quality, noise level, biological study and socio-economic status.

1.4.2 Land use and Land cover

The project site is located at Khopoli Pali road at village Rasal at Sudhagad Pali Taluka of Raigad district.

Moderate dense vegetation is predominantly seen within the study area contributing approximately 26% of the land cover and mixed vegetation covers near about 18% of the land cover within study area. Scrub land (19.93%) and open land (21.33%) are some of the dominant classes within study area.

East and West side of the project site shows comparatively high altitude and that is the area where dense vegetation (10.99%) is predominantly observed. Fallow land comprises of 2.31% of overall land use.

Industrial area (0.21%) is seen amongst the land use classes found within study area. Quarry area (0.10%) also includes small open quarries which are used to extract stone for construction and filling purposes.

Habitation covers rural settlement of 0.21% and there is no urban settlement within 10km radius. Several waterbodies located throughout the study area contributes to 0.49% of the land cover. Presence of Amba River and its tributaries correspond to 0.31% of the land cover within the study area. It is observed that people have built many farmhouses and planted mango, coconut, Banana and jack fruit plants in the surrounding area. This way Plantation covers approximately 0.45% of the land cover.

1.4.3 **Meteorology**

Meteorology of the site and nearby areas is affected primarily by the presence of Coastline about 35 km to the west of site and presence of hills in immediate vicinity. The prevailing micrometeorology at project site plays a vital role in transport and dispersion of air pollutants released into atmosphere. The persistence of the predominant wind direction and wind speed class during a particular time period at the project site will decide the direction and extent of the worst impact zone at that time. The prominent wind direction at project site during the study period (winter 2018-19) is from west and South west direction.

Rasal village falls in Raigad district which has warm & humid weather throughout the year.

The area receives rainfall for more than four months of the year, which provides main climatic variations. Out of total rainfall 90% is experienced during Monsoon season of months June to September.

1.4.4 **Soil**

Based on the soil sample analysis for its physical and chemical properties, it is observed that

- Soil in the area is mainly having sandy and clay texture.
- pH of soil varies from 7.2 to 7.9 which is “Neutral” to “Moderately acidic” in nature.
- Organic carbon is > 1 that is more than sufficient.
- Potash content in soil is varies from very less to less and nitrogen content is very less in all locations.

1.4.5 **Ambient Air Quality**

The broad findings of the ambient air quality monitoring are as follows:

- Concentration of PM_{10} was varying from 50.9 µg/m^3 to 70.4 µg/m^3.
- Concentration of $PM_{2.5}$ was varying from 18.9 µg/m^3 to 27.3 µg/m^3.
- Concentration of SO_2 was varying from 8.7µg/m^3 to 15.1 µg/m^3.
- Concentration of NOx was varying from 15.3 µg/m^3 to 27.6 µg/m^3.

- Concentration of CO was varying from 0.15 mg/m^3 to 0.43 mg/m^3.
- Concentration of nMHC was varying from 0.15 ppm to 0.36 ppm.

Results are compared with National Ambient Air Quality Standards (NAAQ) in respect of monitored parameters and as can be seen the results, ambient air is well within the NAAQS standards in the areas.

1.4.6 Noise

Based on the noise monitoring carried out at 9 monitoring locations, following observations are made,

- Data monitored in Industrial area is within specified limits during Day & Nighttime, as not much activities around project site.

Noise levels were found to be exceeding the standard at Khavali, Manjare Jambhulpada, Pali, Unhere and Widsai villages during Day time & Khavali, Manjare Jambhulpada, Pali, Unhere and Widsai villages during nighttime. Exceedance of noise level is mainly due to nearby localized disturbances/traffic nearby on Pali Khopoli road.

1.4.7 Ground Water Quality

Ground water samples (borewell and open well) were collected from 10 locations within study area.

Ground water quality is mostly within specified standards except coliform, which is present in almost all sampling locations, probably due to sewage contamination.

1.4.8 Surface Water Quality

Surface water samples (River and dam water) were collected from 11 locations.

Based on analysis, surface water analysis mainly falls under classification C (Drinking water source with conventional treatment followed by disinfection) & E (Irrigation, industrial cooling or controlled waste disposal).

1.4.9 Biological Environment

District Raigad is one of the costal districts of Konkan region of Maharashtra, spread over an area of 7152 km^2. It shows variation in topography from high altitudinal Sahyadri hill ranges to coastal plains. The soils of the district are formed from the predominating rock formation i.e. Deccan Trap. According to the topographical situation and location, soils in Raigad district are grouped as Forest, Varkas, Rice, Khar or Salt, Coastal Alluvial and Laterite soils. District receives average 3029 mm annual rainfall mostly contributed by southwesterly monsoon.

According to bio-geographic zone classification of India, entire study area falls under 'Western Ghats'. Villages like Rasal, Asare, Nadsur are listed as Eco-Sensitive Areas in Order under section 5 of EP Act 1986 dated 13th November 2013, draft Notification dated 10th March 2014, draft Notification dated 4th September 2015 and draft Notification dated

27th February 2017 issued by Ministry of Environment, Forest & Climate Change (MoEF&CC).

Study area has undulating terrain as commonly seen in Konkan region. Besides dense vegetation on hills /Reserved Forest, study area contains habitats like, water bodies, agricultural fields and human settlements. These habitats possess different characteristic which supports typical composition of flora and fauna within them.

Flora: During survey, 47 tree, 26 shrub, 21 herb and some other species were observed. None of the observed species is listed in '*Red Data Book Plants of India (Nayar & Sastry 1987-88)'*.
Fauna: During survey, 8 mammal, 2 reptile, 52 bird, 7 insects' species were observed. Conservation status as per Indian Wildlife Protection Act 1972 of respective species is mentioned against it in table. Some species are not classified in any of the schedule.

Some areas are designated as 'Protected Area' under Wildlife Protection Act 1972; such as Karnala Bird Sanctuary, Phansad Wildlife Sanctuary and newly notified Sudhagad Wildlife Sanctuary. Sudhagad Wildlife Sanctuary is about 7.5km towards east of Fibrol site.

1.4.10 Socio economic environment

The study area comprises of both urban and rural background but predominantly rural in character as there are total 67 villages & as concerned with urban area only 1 Pali census town cover under the study area. 91% areas cover under Sudhagad tehsil & balanced belongs to Roha tehsil in Raigad District of Maharashtra State.

Households & Family Size: There are 10531 households in the study area with average family size is 4.3 persons per household as per 2011 census.

Population: Total population of the study area is 45638 out of which 23138 (50.7 per cent) are males and 22500 (49.3 per cent) are females. 79.9% population reside in rural region.

Child Population of Age Group 0 – 6 Yrs.: In the study area children population within the age group of 0 – 6 yrs. are 10.9%.

Sex Ratio: As per 2011 census record, study area sex ratio is 972 which is higher as compared with average sex ratio of Raigarh district 959 & Maharashtra State 929 female per 1000 male.

Literacy: Literacy rate of the study area has increased from 57.9 per cent in 2001 to 63.0 per cent in 2011. The male and female literacy rates are 69.3% and 56.4% respectively of the total male & female population as per 2011 census.

Education: Primary level of educational facilities is available in all the villages & town within the study area followed by middle school 35.3 percent & secondary school 6 percent (Khavali, Wavloli, Pehadali, Nadsur, Pachhapur villages & Pali town). Further

higher educational facilities such as senior secondary school, degree college of Arts, Science & Commerce and professional institutes of Management & Polytechnic are accessible at Pali town. Other sort of professional education is availed at nearest talukas /towns places namely law & medicine – accessible at Alibag & engineering college available at Lonere.

Workers & Non-Workers: The total working population in the study area is 20814, i.e. 45.6% of which 36.3% are main workers & 9.3% are marginal workers it means highest number of population is shared by non-workers i.e. 54.4% of the total population.

1.5 Anticipated Environmental Impacts and mitigation measures

1.5.1 Air environment

Impact on air environment is anticipated due to Light diesel oil fired boiler operation due to generation of NOx, SO2 and particulate matter.

Mitigation Measures for Air Quality Impacts

Following mitigation measures taken at site in view of air environment during operation phase:

1. **Boiler and DG set**

Stack of sufficient height for Boiler and DG set.

1.5.2 Noise

Noise & vibrations generated from the transport vehicles/traffic, equipment & machineries. This can add to noise level, exposing on site to high noise level.

During study it is observed that there is no source of high noise generation at site.

Mitigation Measures

- Provision of ear protection equipment (ear plug/ earmuff) for activities that are likely to create noise in excess of 75 dB (A) to protect worker's health and safety.
- Preventive maintenance including regular lubrication of machineries and equipment to reduce noise level
- Regular noise monitoring shall be done as per environment monitoring plan chapter 6.
- Dense Greenbelt development along the boundary of premises shall be carried out.

1.5.3 Water & wastewater

Total water requirement during operation phase is ~ 8.0 cmd. It is sourced by road tankers.

Treated waste water 0.45 cmd is recycled within site. There is no discharge outside.

1.5.4 Land

Major concern in land environment during operation phase is contamination of land by:

- Spill and leak during transport, handling, storage and handling of chemicals.
- Spill of oil and greases during maintenance of equipment, machineries and vehicles.
- Improper storage/dumping of wastes, resulting in leachate, contaminating the soil.
- Contaminated runoff from site and contaminated drain from storage areas of hazardous wastes and chemical storages, tanker loading/unloading areas draining to land.
- Transportation in truck/tanker or drums through highway, which may have considerable impacts on environment of the area falling in the route of the transportation. During the incidence of major accident, the hazardous materials being transported can have serious impacts on land where on it spilled or leaked.
- **Mitigation measures**
- Production, maintenance area and warehouses for storage of raw materials, finished products and hazardous wastes are provided with impervious flooring.
- All bulk storage tanks will be provided with adequate dyke walls to prevent spreading of spill or leaked chemicals causing contamination of soil.
- Necessary cleanup procedures (SOPs) for the specific area will be designed and implemented.
- Used oil from machineries/equipment etc. will be collected in drums & disposed of a per norms.
- The chemicals used are transferred through closed pipelines to avoid/prevent spill/leak of the materials.
- Discarded containers will be decontaminated and sale to MPCB authorized party.
- All transportation of hazardous wastes will be done in closed truck/tanker by MPCB approved agencies.
- HAZMAT guidelines will be followed for transport of all hazardous materials. All required safety & emergency equipment & materials will be provided on the transport vehicles.
- Proponent will maintain a good spill or leak control action plan to cope up with such incidents.
- Monitoring of soil samples in areas near hazardous waste storage will be done as per Environmental monitoring plan.
- No waste will be stored on open barren land under any condition.

1.5.5 Traffic management

There is no increase in traffic due to the project.

Traffic survey was carried out on approach road i.e. Pali Khopoli road.

As per the IRC: 106-1990, Type of carriageway is 2-Lane (Two-Way) and design service volume for this road is considered under category Arterial and PCU per hour 1500.

The PCUs per hour is 323 well within recommended design service volume (PCU/Hour) by IRC.

1.5.6 Biological environment

Operation phase involves transportation of raw material, work force and finished goods; operation of plants and machineries. This can lead to increase in noise levels at site.

Considering baseline environmental conditions, air dispersion modeling has been done, which indicates, incremental concentrations of gaseous pollutants together with existing baseline concentrations are lower than threshold limit specified in CPCB publication, March 2000 for Green belt Development.

Greenbelt will be developed includes periphery plantation, roadside plantation and plantation around various buildings. Well-developed greenbelt off area consisting different species of trees on ~ 1750 sq m is planned.

For particulate and noise abatement, two rows of trees will be planted all around the boundary of site. Green belt will be developed in two levels i.e. tall, native and evergreen broad-leaved species towards outer periphery whereas dwarf and native species towards inner side of it. This arrangement provides better screening effect.

1.5.7 Socio economic environment

Impacts on socio-economic environment due to proposed project during operation phase are envisaged due to direct and indirect employment which is beneficial.

Fibrol will carry out the Corporate Environmental Responsibility activities as per the MOEF & CC guidelines.

1.5.8 Environmental monitoring program

Post project monitoring is an important aspect in Environmental management plan. In order to verify the outcome on the implemented control/mitigation measures and to alter the mitigation, in case required, post project monitoring is required and essential.

Construction phase of the project is already over in the year 2012.

Following will be monitored on a regular basis during operation phase to ensure a high level of environmental performance and to comply with statutory/legal conditions

- Effect on baseline data.
- Effectiveness of pollution control measures.

1.6 Additional Studies

1.6.1 Risk Assessment, Hazard identification and consequence analysis

The principal objective of the risk assessment study is to identify and quantify the major hazards and the risk associated with various activities the project, which may lead to emergency consequences (disasters) affecting the public safety and health.

All necessary measures to minimize the risk due to the project are taken and will be taken during design stage and also during operation period viz, Fire & safety control measures, Emergency preparedness plan.

Risk assessment, Hazard identification is carried out for the project during various project phases, Quantitative risk assessment/ consequence analysis based on ALOHA, during storage and transportation of chemicals, loading and unloading of chemicals, Safety aspects and main risks of processes, and suggested control measures.

1.6.2 Public consultation

Public hearing will be conducted as per terms of reference issued.

1.7 Project benefits

Manpower requirement for the manufacturing activities is 17 Nos at site (Out of which 8 are permanent and 9 are on contract basis).

- Fibrol has employed technical and nontechnical (according to skill and educational qualification) people around the area and are given preference for employment.
- Other trade and commerce opportunities are provided to local people through following means either directly or indirectly
    - ✓ Mechanical supplies,
    - ✓ Machinery services and repair work.
    - ✓ Spare parts and accessories supplies.
    - ✓ Housekeeping and security.
    - ✓ Green belt maintenance.
    - ✓ Contractual labor for packaging and other activities.

  Through the manufacturing activity, Fibrol has created job opportunities thereby empowering the local population.

  The project has helped to increase the possibilities of export potential and import substitute.

1.8 Conclusion

The assessment for the project of Fibrol Non ionics private limited at village Rasal has revealed that the project activity does not have much environmental impacts in operation phase.

Other impacts of the project will also remain far below acceptable limits after necessary mitigation as described & suggested in EIA report.

The major impacts will also be brought under acceptable limits by implementing the required hazard prevention, mitigation/control and environmental management plan as suggested in the report. Thus, it can be concluded that there

would not be any major impacts on environment due to the project except the impacts of major accident scenarios.

The EIA study has concluded that the project is environmentally acceptable, in compliance with environmental legislation and standards, and is beneficial to surrounding communities and region as whole.