EXECUTIVE SUMMARY

DRAFT ENVIRONMENT IMPACT ASSESSMENT REPORT
OF

Setting up a manufacturing unit of
Synthetic Organic Chemicals
(Dyes and Dye Intermediates)
in H. B. No. 199, Village Koom Khurd,
Sub-Tehsil Koom Kalan, Tehsil Ludhiana (East),
Distt. Ludhiana (Punjab)

Project Proponent

M/s Dyesynth Industries Pvt. Ltd
(Director - Mr. Rajan Garg)
Address: B-23/2334, 309 Cheema Chowk,
Ludhiana (Punjab)-141003

- **ToR** : File No.: IA-J-11011/68/2024-IA-II(I) dt 29.02.2024
- **Category**: "**A"** of Item No 5(f) i.e.S.O.Chemicals
- **Production**: Dyes and Dyes Intermediates Manufacturing
- **Baseline Data Collection**: December 2023 - February 2024 (Winter Season)
- **NABL Laboratory**-ETS Ghaziabad
- **Public Hearing:** **Submitted for Public Hearing**

ENVIRONMENTAL CONSULTANT

Rian Enviro Private Limited,
H/O- 202 & 402, Mangal Market, Raza Bazar, Sheikhpura, Patna, Pincode: 800014; Ph- +91 -9716173106
NABET/EIA/2124/ SA 0197 Valid till Sept 11, 2024

The Dyesynth Industries Pvt Ltd is private limited firm having registered office at at B-23/2334, Cheema Chowk, Ludhiana is planning to setup a manufacturing unit of Synthetic Organic chemicals of **Dyes and Dyes Intermediates Manufacturing Unit** with the capacity of production of around **70 Tonnes / day**. The project is proposed at H.B.No 199, Village Koom Khurd Tahsil Koom Kalan, District Ludhiana, Punjab. The commercial production of dyes and dyes intermediates chemicals includes manufacturing of acid dyes, basic dyes, reactive dyes and disperse dyes with azo & anthraquinone base which will be produced based on the market demand. **Since it is located outside the notified Industrial area and the unit is not covered under small unit, the proposed project falls under Category "A" Project** for Activity 5 (f) as per EIA Notification dated 14th Sep, 2006 and its subsequent amendments. The environmental clearance process includes obtaining ToR, preparation of EIA report and obtaining Environmental Clearance which will be given by the MoEF&CC New Delhi. Accordingly, the project proponent submitted its application for ToR. In MoEF&CC, GoI has issued ToR vide identification no TO24A2401PB5917437N (File no :1A-J-11011/68/2024-IA-II(1)) dated 29.02.2024 for conducting EIA study.

The salient features of the project are as follows:

S. No	Aspects	Description
1.	Identification of project	Project falls under *Synthetic organic chemicals industry (dyes & dye intermediates; bulk drugs and intermediates excluding drug formulations; synthetic rubbers; basic organic chemicals, other synthetic organic chemicals and chemical intermediates)* "Item 5(f)" of the schedule of EIA notification of Sept 14, 2006 issued by MOEF & CC.
2.	Project Proponent	M/s. Dyesynth Industries Private Limited
3.	Estimated project cost	₹ 710.00 lacs
4.	Brief description of nature of the project	Manufacturing of; • Dyes = ~40 MT/day ▪ *Acid – Azo/Anthraquinone = ~4 MT/day* ▪ *Basic = ~4 MT/day* ▪ *Reactive – Azo/Anthraquinone = ~16 MT/day* ▪ *Disperse – Azo/Anthraquinone = ~16 MT/day* • Dye Intermediates = ~10 MT/day • Dye Formulations = ~20 MT/day

S. No	Aspects	Description
5.	Location	H. B. No. 199, Village Koom Khurd, Sub-Tehsil Koom Kalan, Tehsil Ludhiana (East), Distt. Ludhiana (Punjab)
6.	Approach	Through branch road on Kohara-Machhiwara Link Road
7.	Alternative site	Site is in industrial zone as per Master Plan of LPA Ludhiana
8.	Total land area	~16810 m^2 (~4.16 acres)
9.	Land form, land use and land ownership	Private land owned by the project proponent
10.	Area details	a) Covered area = ~3835 m^2 (~22.8%) b) Open area (paved/utility) = ~5040.88 m^2 (~29.98%) c) Total green area = ~7935 m^2 (~47.2%)
11.	Forest area	Not applicable
12.	Man Power	• Total = ~80 • On-site stay = ~40
13.	Utilities	a) Boiler – ~2 MT/hour @~15 kg/cm^2 ▪ *Fuel – rice husk (@~600 kg/hour at MCR)* b) Thermic fluid heater – ~15,00,000 kCal/hour ▪ *Fuel – rice husk (@~750 kg/hour at MCR)* c) Hot air generator – ~30,00,000 kCal/hour ▪ *Fuel – rice husk (@~1500 kg/hour at MCR)* d) Air compressor – ~20 HP e) Brine chiller (water cooled) – ~70 TR ▪ *Operating temperature – ~-15°C* f) Chiller plant (water cooled) – ~50 TR ▪ *Operating temperature – 5°C* g) Ice plant (water cooled) – ~30 MT/day h) Circulating cooling system = ~300 TR (aggregate) i) Power backup (DG sets) = 2 x 250 kVA, 1 x 75 kVA

S. No	Aspects	Description
14.	Electrical power	• Electrical power connectivity (State supply) = ~400 kW • Power backup (DG sets) = 2 x 250 kVA, 1 x 75 kVA
15.	Water requirement	a) Gross process water demand =~ 427 m^3/day b) Process water demand met through reuse of treated wastewater = ~226 m^3/day c) Process water demand met through fresh water = ~178 m^3/day d) Domestic water demand (fresh water) = ~7 m^3/day e) Gross fresh water demand = ~196 m^3/day
16.	Source of water	Groundwater by permission from PWRDS
17.	Wastewater	a) Process effluent = ~237 m^3/day b) Domestic wastewater = ~5 m^3/day
18.	Wastewater management	**Process effluent:** • Gross process effluent generation = ~237 m^3/day • Effluent treatment –ETP of 285 KLD (involving membrane treatment, MEE) for complete reuse of the effluent. Its Zero-liquid discharge plant. • ~Treated effluent being reused in the process = ~226 m^3/day • ~Process effluent needing final disposal = Nil **Domestic wastewater:** • Wastewater generation from domestic activity = ~5 m^3/day • Treatment – STP of 7 KLD) • Disposal – onto land for watering of green area • Green area available inhouse = ~7935 m^2
19.	Fuel	Boiler/thrmopack/hout air generator furnaces – ~2850 kg/hour (rice husk at MCR)
20.	Air emissions	Combustion emissions from furnaces

S. No	Aspects	Description
21.	Air pollution control	a) Combustion emissions from boiler furnace (rice husk fired) – Cyclonic separator b) Combustion emissions from thermo-pack furnace (rice husk fired) – Cyclonic separator c) Combustion emissions from hot air generator (rice husk fired) – Cyclonic separator
22.	Solid/hazardous wastes	a) Combustion ash = ~4.5 MT/day ▪ *non-hazardous – disposal through agricultural soil conditioner or brick making* b) ETP sludges = ~0.4 MT/day ▪ *Hazardous waste – disposal through TSDF* c) MEE drier residue = ~2.7 MT/day ▪ *Hazardous waste – disposal through TSDF* d) Discarded containers/bags/liners ▪ *Hazardous waste – disposal through authorized recyclers* e) Used/spent oil = ~200 kg/year ▪ *Hazardous waste – disposal through authorized recyclers*

Process/Technology

Manufacturing process involves diazotization and coupling of the raw materials followed by filtration. The filtered product will further be washed with water and get dried. Heat will be used to initiate and carry out the reaction however ice will be used to condense the product by providing controlled cooling.

Environmental Consultant

RIAN Enviro Private Limited located at 202 and 402 Mangal Market, Raja Bazar, Sheikhpura, Patna-800014 is NABET Accredited Consultancy organization with accreditation in Seven EIA Sectors including Synthetic Organic Chemicals [5(f)] sector. Its accreditation certificate number is NABET/EIA/2124/SA0197 valid till Sept 11, 2024. Services of ETS laboratory (Ghaziabad) which is a NABL & MoEF accredited laboratory are taken for sampling and analysis of ambient air, noise, water, and soil samples.

Description of the Environment

The baseline quality of various components of the environment, viz. air, noise, water, land, biology, meteorological and socio-economic is assessed within the impact zone of about 10km around the

proposed site. The report presents the baseline data of air, water, soil, and noise attributes collected and analyzed by ETS laboratory (Ghaziabad) for the period of three months during winter season from Dec 23- Feb 24.

Air Environment

Ambient air quality monitoring was carried out at 8 locations i.e. at project site, near gurudwara shib in Panjeta village, village Koom Khurd, Raipur Bet, Gumait, Uppal, Partapgrarh and at 500m distance in downwind direction from project site on 24 hourly average bases as per guidelines of CPCB and NAAQS within 10 km radius. The values of maximum PM_{10} range from 68.2 $\mu g/m^3$ to 80.2 $\mu g/m^3$. The minimum values vary from 56.2 $\mu g/m^3$ to 68.9 $\mu g/m^3$. The values of maximum $PM_{2.5}$ range from 32.5 $\mu g/m^3$ to 39.0 $\mu g/m^3$. The minimum values vary from 25.4 $\mu g/m^3$ to 31.8 $\mu g/m^3$. The values of maximum SO_2 range from 10.7 $\mu g/m^3$ to 12.6 $\mu g/m^3$. The minimum values vary from 5.6 $\mu g/m^3$ to 10.5 $\mu g/m^3$. The values of maximum NO_x range from 17.9 $\mu g/m^3$ to 29.0 $\mu g/m^3$. The minimum values vary from 15.5 $\mu g/m^3$ to 20.8 $\mu g/m^3$. The values of maximum CO range from 0.59 mg/m^3 to 0.91 mg/m^3. The minimum values vary from 0.2 mg/m^3 to 0.33 mg/m^3.

Noise Environment

Noise can be defined as an unwanted sound. Noise can be defined as an unwanted sound.A total of 8 locations same as ambient air monitoring locations were identified for ambient noise monitoring in the study area. The noise levels varied in the study area during daytime from 44.4 dB (A) Leq to 65.4 dB (A) Leq and the nighttime noise level in the study area is in the range of 34.8 dB (A) Leq to 48.1 dB (A) Leq.

Water Environment

In order to establish the water quality, 8 ground water were collected from the nearby villages of Koom Khurd, Panjeta, Komm Kalan, Raipur Bet, Gumait, Uppal, Partapgarh and Pirthipur village and analyzed in the study area. The groundwater samples were analyzed in the laboratory. All the samples were found colorless and under the desirable pH range meeting the norms. The TDS is found in the range from 156 mg/L to 435 mg/L, total Hardness from 117.3 mg/L to 165.4 mg/L, Calcium content from 27 mg/L to 58 mg/L, Magnesium content from 10.4 mg/L to 18.7 mg/L, Sulphate content from 15.2 mg/L to 37.6 mg/L, total alkalinity from 90.0 mg/L to 148 mg/L and Chlorides range from 21.0 mg/L to 65.0 mg/L. The analysis result for ground water sampleswere within drinking water limit as per IS 10500: 2012.

The surface water samples were collected from the eight points of four water source i.e. Neelon Canal, Sutlej river, Budha Nala and nallah close to the project site. The analysis shows that surface water is colourless nad meeting the desirable standard of pH. The TDS is found in the range from 138.3 mg/L to 918.2 mg/L, total hardness from 104.8 mg/L to 412.6 mg/L, calcium content ranges from 40.7 mg/L to 61.7 mg/L, Magnesium content from 21.9 mg/L to 27.3 mg/L, Sulfate content from 32.5 mg/L to 46.9 mg/L, and total alkalinity from 82 mg/L to 390.9 mg/L.

Soil Quality

Soil samples were collected from 8 locations in the study area i.e. project site, Panjeta, Koom Khurd, Raipur Bet, Gumait, Uppal, Partapgarh and Pirthipur village and analyzed for physico-Chemicals characteristics. Soil quality was found to be normal. The Nitrogen content found in the range from 154.1 mg/kg to 188.4 mg/kg, Phosphorus content ranges from 36.7 mg/kg to 52.0 mg/kg and potassium from 185.8 mg/kg to 277.4 mg/kg.

Land Use/Land Cover of the Study Area

The existing plot is a vacant land with zero construction activity. The land falls under the Ludhiana Industrial Zone but not under the notified industrial area.

The 10 KM Study area is mainly covered by the agricultural activities followed by built-up area. Agricultural land/fallowland area covers 85.85% of the total study area followed by 9.84 % of the built-up area.

Biological Environment

Biological environment includes flora and fauna including aquatic species found in the study area of 10 km radius.The core zone was devoid of any plant or tree naturally growing over there. The agro-biodiversity of the study area is unique.

The fauna visiting the core zone includes Squirrels (*Funambulus pulmarum*), snakes (*Ptyas mucosus*), rabbits (*Lepus nigricollis*), crows (*Corvus splendens*), Mynas (*Acridotheres tristris*) etc. The buffer zone was found to be moderately rich with its diversity of plants and animals. Some of the most dominant species found are Babool (*Vachellia nilotica*), Neem (*Azadirachta indica*) and Gulmohar (*Delonix regia*.) etc. were observed within 10km radius of the study area. Predominant plant vegetation found are Peepal (*Ficus religiosa)* and Semal (*Bombax ceiba)* respectively. Similarly, Dogs (*Canis lupus familiaris*), Cows (*Bos taurus*), Mynas (*Acredotheres tristris*), Rats (*Mus booduga*) and Langur (*Semnopithecus entellus*) were found to be most frequently seen faunal species. Secondary information about fishes noticed from study are Catla, Rohu, Carps, Snakeheads etc as mentioned in the study. Two

major water sources quenching the needs of the area are Sutlej River and Neelon Drain (Canal). The species of fishes given are commonly reported in the fresh water bodies like river, streams, lakes, pond and estuaries.

Socio-economic Environment

There is total 92 villages fall in the 10 km study area of the project. The Total Population of study area is 1,19,149 individuals and 23,913 numbers of households. The literacy rate is in study area 71% of the total population in 2011. The male literacy rate was 74.5% (of total male population), whereas corresponding figures for the female literacy rate was 66% (of total female population) in 2011. The number of total workers in the study area is 44765 which are 38% of total population. Out of which 81% is male and only 19% is female. The total number of non-workers population is 74348 which are 62% of the total population. Out of which 36% is male and 64% is female. There shall not be any displacement of people due to project as the proponent is owner of the land. No further land acquisition required for the project; hence, no R &R Action plan is required. There is no Land Acquisition.

Anticipated Environmental Impact and Mitigation Measures

Air Environment

In order to estimate the ground level concentrations due to the emission from the proposed project, AERMOD View Software has been employed. The emissions from one Boiler 2 MT/hour, One TFH of 15 Lac Kcal/hr and one Hot air generator 30 lac kCal/hr is estimated. The predicted concentrations for PM10 for controlled and uncontrolled scenario found to be 0.355 µg/m3 and 1.07 µg/m3 when added to baseline scenario, the overall scenario levels of PM_{10}, are well within the permissible limits specified by CPCB. Adequate mitigation measures i.e. stack height 25 m and used of cyclone separator as APCD have been proposed to control air pollution.

General air pollution control measures i.e. water sprinkling on the road and stockpiles, use of tarpaulin covered trucks for carrying construction material and deployment of PuC certified vehicles will be adopted during both in construction and operation phase .

Noise Environment

The major noise source includes various machines, pumps, motors, and vehicular traffic. The noise levels were below the stipulated standards of CPCB for residential and industrial areas.

Technical and administrative measures are already implemented to minimize the noise levels which include periodic maintenance of machinery, mandatory use of personal hearing protection equipment

with operable mufflers, oiling and lubrication of machinery, noise suppression measures such as enclosures, buffers, greenbelt development etc.

Water Environment

Water requirement during construction phase will be around 39 KLD (domestic 4.5 KLD, greenbelt 16 KLD, and construction activity 18.5 KLD). The water for construction activity and greenbelt will be purchased from tanker supply. Sewage generated during construction phase will be 3.6 m3/day and the same be treated through in a Mobile STP and sludge generated from the STP will be disposed off at designated municipal sites.

During operation phase, approx.196 KLD of Fresh Water will be required which will be met by borewell. Approximately 237 KLD of effluent generation is envisaged which will be treated in the ETP of 285 KLD. The treated effluent will further be used in process. The domestic sewage of approximately 5 KLD will be generated which will be treated in STP of 07 KLD. The treated sewage will be used in greenbelt

Land Environment

There is no discharge of solid as well as liquid effluent in open land. During construction phase of the proposed unit, approx. 20 kg/day (assuming 200 gm/capital/day) solid wastes may be generated by 100 construction workers. The type of wastes expected to be generated by workers will be segregated at site by providing dustbins. Top soil from fresh land with ground flora will be segregated and stockpiled. Top soil will be used during the greenbelt development and landscaping at the plant site. The greenbelt area development and tree plantation will help in enhancing the aesthetics of the plant. Thus, no adverse impact is envisaged on land environment.

Biological Environment

Analysis of abiotic factors reveals that ambient air and fresh water quality will remain practically unaffected. Hence no impact on flora and fauna is envisaged. Moreover, there are no reserve forest and protected areas within 10 km radius.

Socio-economic Environment

The proposed project is expected to provide direct and indirect employment opportunity to skilled and unskilled workers. The project will contribute to the socio-economic development of the area at the local level in turn reducing migration for employment. Hence, the proposed project will have positive impact on the socio-economic environment.

Environmental Monitoring Program

Environmental Monitoring Program is designed for operation phase of the project for monitoring of various environmental parameters like air, water, noise, soil and ecology etc. The cost of monitoring plan for construction phase (12 months) of the proposed project is estimated as Rs. 2,60,000/- while for operation phase cost of monitoring plan is estimated as Rs. 4,50,000/-. During operation phase environmental monitoring will be carried out every six-monthly basis. Fresh budget will be allocated every year for environmental monitoring.

Additional Studies

Risk Assessment

Oleum, hydrochloric acid and sulphuric acid are the three major concerning hazardous chemicals are to be stored at site in tanks. Consequence scenario in case of leakage from storage tanks of these chemicals are generated and analysed. The life-threatening concentration from the leak scenario will be limited inside the plant premises. It is proposed to have concrete dykes for storage tanks, good ventilation system in the factory, ample numbers of fire extinguishers, spill control kit, first-aid box, PPEs (acid resitant gloves, ear muffs, hazmet suits, helmets, breathing apparatus etc) in place to avoid any casualty during accident at the site.

Disaster Management Plan

Disaster Management Plan is prepared for identification of various hazards addressed qualitatively and included onsite and off-site emergency plan. A Disaster Management Plan is prepared to meet any grave emergency which can occur due to Natural Disasters such as Floods, Earthquakes, or due to Man-Made Disasters such as Acts of war and Fires, Power failures. The DMP plan has proposed to have a robust Emergency Control Centre, Assembly points, Warning system, medical services, first-aid, evacuation arrangements and communication system.

Carbon and Water footprint

Total carbon dioxide emission due to various project activities i.e. burning of rice husk in boiler, burning of diesel in DG sets, burning of petroleum in vehicular movement and power consumption etc is estimated to be 16126.032 tonns CO2/year. However CO2 sequestration due to plantation of around 2000 tress under greenbelt development comes out to be 101 tCO2/year. The use of solar power and rainwater will further reduce/avoid the emission of CO2 by 81.92 tCO2/year. The total CO2 footprint comes out to be 15943.112 tCO2/year.

Similarly, water footprint is calculated based on water debited i.e.71200 KL/Year and water credited i.e. 71200 KL/year which comes out to be – 8500 due to use of 100% effluent generated in the process.

Project Benefits

Growth in the industrial sector creates new opportunities for employment and can also help diversify the economy. The project will directly provide employment to approximately 130 people in the construction phase and 80 people in the operation phase. Indirect activities i.e. stay-homes for drivers, visitor; hotel & restaurant for visitors, allied activities will create new job opportunities in the region.

Environment Management Plan

The EMP presents the project specific guidelines on

- Environmental management strategies
- Specialized engineering construction procedures in relation to environmental guidelines of the country
- Management of wastes and hazardous Chemicals
- Air, water and soil quality protection
- Noise control measures
- Fire & Safety measures
- Occupation health services
- Budget allocation for environment management plan

CER Activity

M/s. Dysynth Industries will initiate various CSR/CER activities for the development and care of the area and people. The proposed project of synthetic organic chemicals will invest more than 2.0 % of the total proposed cost i.e 14.35 Lac for CER works as per MoEF&CC OM dated 01.05.2018. The implementation of CER will begin from the operation of the plant up to 5 years of working.

S.No.	Activity	Expenditure					
		I Year	II Year	III Year	IV Year	V Year	Total
1	Drinking Water Facility in the nearby two village school	1,00,000	20,000	20,000	20,000	20,000	180000
2	Solar Lights on the Village Road (20 Solar Panel x 1 KW) (@40 INR/Watt)	800000	20,000	20,000	20,000	20,000	880000
3	Distribution of Sewing Machines Vocational to poor women	75,000	75,000	75,000	75,000	75,000	375000
Total		**9,75,000**	**115000**	**115000**	**115000**	**115000**	**1435000**

Greenbelt development

The unit has earmarked 7943.7.0 sq. m green belt areas within plant premises as per CPCB norms. It is proposed to plant additional local, fast-growing species with adequate spacing and density for their fast growth and survival for landscaping. A capital budget of Rs 1.45 lacs and recurring budget of Rs 1 lacs/year is earmarked for the greenbelt development.

EMP Budget

Sr. No.	Unit	Detail	Capital Cost (Rs. InLakhs)	Operating Cost (Rs. In Lakhs)	Maintenance Cost (Rs. In Lakhs)	Total RecurringCost (Rs. In Lakhs)
1	Wastewater Management	Installation of STP and ETP	20	2	1	3
2	Air Pollution Control	Dust Control measures, Cyclone Separator	05	0.5	0.5	1
3	Hazardous Management	Separate room, Membership and Disposal	2	1	1	2
4	Noise Control	Earmuffs distribution, Acoustic Enclosures	2	0.5	0.5	1
4	Fire & Safety	Fire Hydrant System	3	1	1	2
		Fire Water Tank 50 KL	2	-	-	-
		Fire Extinguishers Rs 5000 x 10 Nos.	0.5	-	-	-
		Cost of Process Control System	2	-	-	-
5	AWH Monitoring	Stack Monitoring/ Waste water Analysis / Soil Test/ Noise	2	-	-	-
6.	Green Belt Development	Samples, Fertilizers	1.45	0.5	0.5	1
7.	Occupational Health	First aid box, Bed and General Equipment	8	1	1	2
8.	CER Activity	2 % of Total Project Cost Rs 710 Lacs	14.4	-	-	-
Total	**Total**		**62.35**	**6.5**	**5.5**	**12**