

Executive Summary
of
EIA report

by

M/s. Swastik Chemicals

Plot No. D-2/CH/86,
GIDC, Dahej-II
Dist: Bharuch,
Gujarat

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Executive summary

E-1 BACKGROUND

Since India is a developing country and industries have always played major role in the economic development of the country. Gujarat is one of the well developed industrialized state and has significant contribution in industrial as well as economic development of the country.

M/s. Swastik Chemicals is a new unit and proposed to set up at Plot No. D-2/CH/86, GIDC Estate, Dahej-2, Dist.: Bharuch, Gujarat and proposes to manufacture Parachloro Aniline - 100 MT/Month and Parachloro Aniline Hydrochloride - 100 MT/Month.

The total area of the premises is 5000 sqm.

E-2 PROJECT DESCRIPTION

Location of Project

Location details are shown in the table below:

Location Details

Particulars	Details
Plot No.	D-2/CH/86, GIDC Estate, Dahej-2
District	Bharuch
State	Gujarat
Coordinates	
Latitude	21 ⁰ 43'15.46" N
Longitude	72 ⁰ 36'12.57" E
Nearest Railway Station	Bharuch (36 km)
Nearest Airport	Surat (60 km)
Nearest City	Bharuch (36 km)
Nearest Town	Vagra (28 km)

Site selection

The proposed unit, apart from generating direct and indirect employment and various business opportunities will bring an overall upliftment of the area and will ultimately result in its complete socio-economic and infrastructure development.

Other supporting site specific criteria are briefly summarized here under,

- Availability of raw materials of proper quality and in adequate quantity;
- Availability of suitable and adequate land;
- Availability of infrastructure facilities such as water supply, power, roads, social infrastructure and man power;
- Good communication and transportation facilities;
- Proximity of market;
- The nearest town Vagra and city Bharuch are 28 km and 36 km away from the project site, which is very well connected with other parts of the country by road & rail;
- No R & R will be required;
- No national park or wildlife habitat falls within 10 km radial distance from proposed project site.

The location of project is best suited for proposed activities. So no alternative for site is analyzed.

E-3 PROPOSED PRODUCTION CAPACITIES OF PLANT

Unit intends to set up Parachloro Aniline and Parachloro Aniline Hydrochloride manufacturing plant. Details are given hereunder:

Magnitude of products

Sr. No.	Name of Product	Production Capacity MT/Month
1.	Parachloro Aniline	100
2.	Parachloro Aniline Hydrochloride	100

Cost of the project

The estimated cost of the project is around Rs. 400 lakhs. Out of this, around Rs. 40 lakhs will be invested for EMS as capital investment and around 15.0 lakhs as recurring cost per annum.

E-4 DESCRIPTION OF ENVIRONMENT

To predict the impact of the proposed activities on the surrounding environment the current baseline environmental status was studied by

collecting the data and carrying out monitoring for the period of **Summer Season, 2013**.

The environmental quality has been analyzed with respect to ambient air quality, water quality, noise levels, soil characteristics, flora & fauna and parameters concerning human interest. Based on the data, the relevant impacts on various environmental components were also predicted by using appropriate mathematical models as well as impact assessment techniques. An appropriate environmental management plan was also delineated to minimize the adverse impacts.

E-5 AIR ENVIRONMENT

The ambient air quality monitoring was carried out at six locations, to assess the existing sub regional air quality status in summer season. The Respirable Dust Sampler and Fine Particulate Sampler along with the analytical methods prescribed by CPCB were used for carrying out air quality monitoring. At all these sampling locations; PM₁₀, PM_{2.5}, SO₂ and NO_x were monitored on 24-hourly basis to enable the comparison with ambient air quality standards prescribed by the Central Pollution Control Board.

The data on concentrations of various pollutants were processed for different statistical parameters like arithmetic mean, standard deviation, minimum and maximum concentration and various percentile values.

Particulate Matter (PM₁₀)

An average and 98th percentile value of 24-hourly PM₁₀ values at all -the locations ranged between 65.1-74.1 µg/m³ and 73.1-83.7 µg/m³, which are well within the stipulated standard of CPCB i.e. 100 µg/m³.

Particulate Matter (PM_{2.5})

An average and 98th percentile value of 24-hourly PM_{2.5} values at all -the locations ranged between 25.2-32.3 µg/m³ and 31.1-37.8 µg/m³, which are well within the stipulated standard of CPCB i.e. 60 µg/m³.

Sulphur Dioxide (SO₂)

An average and 98th percentile value of 24-hourly SO₂ value of arithmetic mean at all the locations ranged between 11.2-14.3 µg/m³

and 14.0-18.2 $\mu\text{g}/\text{m}^3$ respectively, which are well within the stipulated standards of 80 $\mu\text{g}/\text{m}^3$.

Oxides of Nitrogen (NO_x)

An average and 98th percentile value of 24 hourly NO_x value of arithmetic mean at all the locations ranged between 12.2-15.8 $\mu\text{g}/\text{m}^3$ and 15.3-19.5 $\mu\text{g}/\text{m}^3$ respectively, which are much lower than the standards i.e. 80 $\mu\text{g}/\text{m}^3$, stipulated by CPCB.

E-6 WATER ENVIRONMENT

Ground water quality

Color: All the samples were found color less meeting desirable norms.

pH: All the samples meet the desirable standards (pH ranges from 7.8 to 8.0).

Total Dissolved Solids (TDS): TDS in samples ranges from 958 mg/L (Nr. Project site) to 1876 mg/L (Ambheta). All the samples were meet the permissible limit of 2000 mg/L, (If alternate sources of potable water are not available).

Calcium: Calcium contents in the water ranges from 39 mg/L (Dahej) to 51 mg/L (Ambheta), all the samples were meet the permissible limit of 200 mg/L, (If alternate sources of potable water is not available).

Magnesium: Magnesium content in the water ranges from 30 mg/L (Dahej) to 37 mg/L (Jolva). All the samples meet the permissible limit of 100 mg/L (if alternate source of potable water in not available).

Sulfate: Sulfate content in the water ranges from 41 mg/L (Dahej) to 105 mg/L (Jolva). All the samples meet the permissible limit of 400 mg/L for drinking water (if alternate source of potable water in not available).

Total Alkalinity: Total alkalinity in the water samples ranges from 288 mg/L (Nr. Project site) to 359 mg/L (Ambheta). All the samples are within the permissible limit of drinking water (600 mg/L) (if alternate source of portable water is not available).

Other Parameters: Potassium (ranges from 54 mg/L to 67 mg/L), Sodium (ranges from 302 mg/L to 633 mg/L) and Chloride (ranges from 412 mg/L to 877 mg/L).

Heavy metals like copper, lead, chromium and zinc are well below to limit in all samples.

Conclusions: Ground water samples from villages meet the permissible limit set by the authority (BIS).

E-7 NOISE ENVIRONMENT

The L_{eq} values of noise levels during daytime (L_d) varied between 51.8 to 67.1 dB(A). Highest L_d value was recorded near project site (67.1 dB(A)), while the L_{eq} values of noise levels during night time (L_n) varied between 38.2 to 52.6 dB(A). Highest L_n value was recorded near project site (52.6 dB(A)).

E-8 ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

SOURCE OF AIR POLLUTION

There will be no process emission. Only source of gaseous emission will be flue gas emission due to combustion of fuel. There will be installation of two flue gas stacks, attached to boiler and thermic fluid heater. Bio fuel (Briquette)/ Coal will be used as a fuel. However, adequate stack height of 30 m will be provided to both the stacks for proper dispersion of emission. Dust collector (Bag filter) will be provided as air pollution control system. Probable emitted pollutants will be SPM, SO_2 and NO_x .

Unit has proposed to install D.G. set of 120 kVA capacity to fulfill power requirement in case of non-availability of power/emergency, where HSD will be used as a fuel.

Probable pollutants likely to emit will be SPM, SO_2 and NO_x , but it will not constant source of emission as it will be used only in case of power failure only.

Air Quality Modelling and Predictions

It is predicted that highest 24-hourly incremental GLC value for SPM, SO_2 & NO_x are $0.470 \mu\text{g}/\text{m}^3$, $0.212 \mu\text{g}/\text{m}^3$ and $0.131 \mu\text{g}/\text{m}^3$ respectively.

The point of maximum concentration by unit would be 1.41 km from centre of industry in SE direction. With this marginal contribution due to the proposal of the project, the levels of SPM, SO_2 and NO_x will be below residential area limit prescribed by CPCB.

Water Environment

Water demand will be met through GIDC water supply. Total water requirement will be 23.0 KLD, out of which fresh water requirement will be 15.0 KLD and 8.0 KLD will be condensate water from evaporator, reuse for utility (boiler and cooling make up).

The main source of the industrial wastewater generation will be from process (water from RM), utilities i.e. boiler blow down & cooling bleed off and washing; which will be around 9.0 KLD. Entire quantity of wastewater will be treated in ETP consisting of primary treatment units and taken to single effect evaporator. Condensate from the evaporator will be reused in utility i.e. boiler and cooling.

The other source of wastewater generation will be domestic wastewater of 4.0 KLD; which will be disposed off to soak pit through septic tank.

Hence there will not be any adverse impact on water environment.

Hazardous/Solid Waste Management

Entire quantity of hazardous waste will be handled and disposed as per Hazardous Waste (Management, Handling and Trans boundary movement) Rules'2008, amended time to time.

The main source of hazardous waste generation will be ETP sludge from ETP, used oil from machineries, discarded drums/barrels & plastic liners and evaporation salt.

ETP sludge and evaporation salt will be disposed off to approve TSDF site for land filling, whereas discarded containers/barrels & plastic liners will be sold to authorized recyclers. The used oil will be sold to registered re-refiners.

There will be also generation of ash from combustion of fuel, which will be sold to brick manufacturers.

The unit will provide isolated area for the storage of hazardous waste and there will not be any major impact on the environment due to hazardous waste management.

Noise Control Measures

Generation of noise will be due to the operation of boiler, TFH, process plant, DG set, machineries and other vehicular movements. All these

sources will generate continuous noise. However, the noise transmitted outside the plant boundary will be low because most of the noise generating equipments will be in closed structures. The unit will provide acoustic systems to D.G. set. However D.G. set is treated as stand-by and usage is very less in emergency or during the power failure only. The workers are also provided ear muff, ear plug while working at noisy area.

Green Belt Development

Unit proposes to provide around 1650 m² area for the greenbelt development, which will be of 33% of total plant area.

E-9 ENVIRONMENT MONITORING PROGRAM

The details of monitoring are as below:

Nature of Analysis	Frequency of analysis with its analyzer	Parameters
Wastewater analysis	Monthly by external agency	pH, TDS, SS, Oil & Grease, etc.
Stack Monitoring of each stack	Monthly by external agency	PM, SO ₂ , NO _x
Ambient Air Quality Monitoring	Monthly for 24 hours or as per the statutory conditions by external agency	PM ₁₀ , PM _{2.5} , SO ₂ , NO _x
Noise Pollution	Monthly as per the statutory conditions by external agency	Near main gate, near boiler, process area, etc.
Work area monitoring	Monthly by external agency	RPM, HCl fumes
Health check up of workers	As per the statutory guideline	All workers

E-10 ENVIRONMENTAL MANAGEMENT PLAN

Overall objective of EMP

Prevention: Measures aimed to impede the occurrence of negative environmental impacts and/or preventing such an occurrence having harmful environmental impacts.

Preservation: Preventing any future actions that might adversely affect an environmental resource or attribute.

Minimization: Limiting or reducing the degree, extent, magnitude, or duration of adverse impacts.

EMP for **Swastik Chemicals** for proposed project covers following aspects:

- Description of mitigation measures
- Description of monitoring program
- Institutional arrangements
- Implementation schedule

E-11 QUALITATIVE RISK ANALYSIS

Risk analysis and study have been carried out for identification of hazards, selection of credible scenarios, Risk Mitigation measures etc. Qualitative risk analysis study will be followed to minimize accidents and for safe operations. All the hazardous materials will be stored and handled as per MSDS guidelines.

E-12 CONCLUSION

Based on the study

- There will be no major impact on water environment as generated effluent will be treated in Effluent Treatment Plant and evaporated. Condensate from evaporator will be reused for utility. Domestic effluent will be disposed to soak pit through septic tank.
- Dust Collector (Bag Filter) will be used as air pollution control system.
- There will be no process emission.
- To prevent fugitive emission, various steps will be taken like regular sprinkling of water and making of concrete roads.
- Adequate arrangement for handling and disposal of Hazardous/ solid waste will be made.
- Fire protection and safety measures will be provided to take care of fire and explosion hazard.
- Suggestions of qualitative risk analysis study will be followed to minimize accidents and for safe operations.

- Recommendations suggested in Environmental Management Plan will be followed to minimize the impact of proposed project.

Overall, direct and indirect employment opportunities, improvement in basic infrastructures by development of industry etc. will be observed with negligible impact on environment.

It can be concluded that on positive implementation of mitigation measures and environmental management plan during the construction and operational phase, there will be negligible impact on the environment.