

# **EXECUTIVE SUMMARY OF EIA**

**M/s. QUILON REAL INDUSTRIES PVT. LTD.**

Plot No. C/292, GIDC Saykha, Taluka: Vagra,

District: Bharuch, Gujarat.

## **PROJECT DESCRIPTION**

### **TITLE OF THE PROJECT**

#### **Proposed Dyes & Dyes Intermediates unit**

**M/s. Quilon Real Industries Pvt. Ltd.** will be located at Plot No. C/292, GIDC Saykha, Taluka: Vagra, District: Bharuch, Gujarat.

### **LAND ACQUIRED**

Yes

### **LAND BREAK-UP**

Total Plot Area: 21,592 m<sup>2</sup>

Total Built Area: 5,100 m<sup>2</sup>

Total Open Area: 9,367 m<sup>2</sup>

Total Green Belt Area: 7,125 m<sup>2</sup>

### **COST OF THE PROJECT & CAPITAL AND RECURRING COST EARMARKED FOR ENVIRONMENT PROTECTION MEASURES**

Total project cost of proposed project activity is Rs. 25 Crores. Capital cost of air & water pollution control system and environmental monitoring equipments will be Rs. 5 Crores.

### **POWER & FUEL REQUIREMENT**

#### **Power**

Power required from DGVCL is 2450 KVA.

D.G. set: 250 KVA (Stand by)

**Fuel**

Coal: 25 MT/day (for Steam Boiler)

Coal: 5 MT/day (for Thermic Fluid Heater)

Coal: 10 MT/day (for Hot Air Generator)

HSD: 50 lit/hour (for DG set)

**LIST OF PRODUCTS ALONG WITH THEIR PRODUCTION CAPACITY**

<b>Sr. No.</b>	<b>Name of Product</b>	<b>Proposed Capacity</b>
<b>Acid Dyes Group</b>		<b>50 MT/Month</b>
1	Acid Black 210	
2	Acid Black 194	
3	Acid Black 235	
4	Acid Brown 165	
5	Acid Brown 161	
6	Acid Brown 282	
7	Acid Brown 355	
8	Acid Brown 432	
9	Acid Brown 425	
10	Acid Blue 113	
11	Acid Blue 193	
12	Acid Red 119	
13	Acid Red 97	
14	Acid Red 357	
15	Acid Yellow 42	
16	Acid Orange 142	

<b>Reactive Dye Group</b>	
1	Reactive Black B and Black Mixes
2	Reactive Orange M2R
3	Reactive Orange-122
4	Reactive Red-195
5	Reactive Golden Yellow 145
6	Reactive Golden Yellow HER
7	Reactive Orange H2R
8	Blue 3R
9	Blue F4R
10	Blue HERD
11	Blue 221
12	Blue HEGN
13	Blue LFNG
14	Blue BF
15	Blue BFN
16	Blue 2B
17	Red BS
18	Red RB
19	Red HE3B
20	Red 5B
21	Red F3G
22	Red H7B
23	Red DS4B

**650 MT/Month**

24	Red F2B	
25	Red SGR	
26	Golden Yellow R	
27	Golden Yellow RNL	
28	Navy Blue 2G	
29	Navy XLE	
30	Navy RGB	
<b>Direct Dyes Group</b>		<b>50 MT/Month</b>
1	Direct Orange 26	
2	Direct Red 31	
3	Direct Black 22	
4	Direct Blue 71	
5	Direct Blue 281	
6	Direct Blue 218	
7	Direct Red 239	
8	Direct Blue 80	
9	Direct Black 170	
10	Direct Black 168	
11	Direct Black 179	
12	Direct Black 80	
13	Direct Black 22	
14	Direct Orange 39	
<b>Vinyl Sulphone Derivatives</b>		
1.	Sulpho VS	<b>100 MT/Month</b>

2.	Sulpho OAVS		
<b>Naphthalene Derivatives</b>			
1.	H-Acid	200 MT/Month	<b>325 MT/Month</b>
2.	K Acid	50 MT/Month	
3.	Gamma Acid	50 MT/Month	
4.	NMJ Acid	25 MT/Month	
<b>Amine Derivatives</b>			
1.	MPDSA	25 MT/Month	<b>250 MT/Month</b>
2.	4 Sulpho Anthranilic Acid	10 MT/Month	
3.	5 Sulpho Anthranilic Acid	10 MT/Month	
4.	Aniline 2,5 Di Sulphonic Acid	10 MT/Month	
5.	P.N.A.	20 MT/Month	
6.	6,Choloro Metanilic Acid	10 MT/Month	
7.	F.C. Acid	30 MT/Month	
8.	4-Sulpho Hydrazone	10 MT/Month	
9.	5-Sulpho Hydrazone	10 MT/Month	
10.	DASA	50 MT/Month	
11.	DABA	25 MT/Month	
12.	6-Actyl OAPSA	20 MT/Month	
13.	Acetanilide	30 MT/Month	
	<b>TOTAL</b>	<b>1425 MT/Month</b>	

## DESCRIPTION OF THE ENVIRONMENT

To understand impact of various industrial activities it is first necessary to find out the baseline environment status of the area wherein project falls. As per the guidelines of MoEFCC we need to study quality of air, water, soil, noise, socioeconomic and biodiversity. The study period was March, 2016 to May, 2016.

## SITE SPECIFIC METEOROLOGICAL DATA

(PERIOD: MARCH, 2016 TO MAY, 2016)

METEOROLOGICAL PARAMETER	MONTH		
	MARCH' 16	APRIL' 16	MAY' 16
<b>Temperature (°C)</b>			
Min.	20	22	27
Max.	42	43	45
Avg.	32	33	34
<b>Relative Humidity (%)</b>			
Min.	9	17	20
Max.	98	84	92
Avg.	44	44	56
<b>Wind Speed (km/h)</b>			
Min.	0	0	0
Max.	22	26	34
Avg.	6	7	11

## **AMBIENT AIR QUALITY MONITORING**

Eight Ambient Air Quality Monitoring (AAQM) locations were selected based on guidelines of ambient air quality network siting criteria of CPCB. All AAQM locations were selected within the study area of 10 km radial distance from the project site. Ambient air quality monitoring was carried out in the pre-monsoon season from March, 2016 to May, 2016.

The maximum concentration of PM<sub>10</sub> (76.22 µg/m<sup>3</sup>) was recorded at Village: Saykha and minimum concentration of PM<sub>10</sub> (65.88 µg/m<sup>3</sup>) was recorded at Village: Keshrol. The maximum concentration of PM<sub>2.5</sub> (46.03 µg/m<sup>3</sup>) was recorded at village Saykha and minimum concentration of PM<sub>2.5</sub> (38.20 µg/m<sup>3</sup>) was recorded at Village: Keshrol. The maximum concentration of SO<sub>2</sub> (18.10 µg/m<sup>3</sup>) was recorded at Village: Khojbal and minimum concentration of SO<sub>2</sub> (11.74 µg/m<sup>3</sup>) was recorded at Village: Kothia. The maximum concentration of NO<sub>x</sub> (18.12 µg/m<sup>3</sup>) was recorded at Village: Juned and minimum concentration of SO<sub>2</sub> (14.23 µg/m<sup>3</sup>) was recorded at Village: Bhersam.

## **WATER ENVIRONMENT**

Eight nos. of ground water and three nos. of surface water samples were collected from the study area. These samples were analyzed for physico-chemical parameters to ascertain the baseline status in the existing surface water and ground water bodies. Samples were collected during April 09, 2016 to April 12, 2016; during the study period.

## **GROUND WATER QUALITY**

pH of ground water samples varied from 7.15 to 7.72. Turbidity was found 0.2 to 0.3 NTU, Total Dissolved Solids varied in the range of 216 to 288 mg/L. DO and COD are found in range of 6.97 to 7.45 mg/L, and BDL to 3.29 mg/L respectively. BOD<sub>3</sub> was found in BDL. Total Hardness varied from 112 to 140 mg/L. Total Alkalinity varied from 125 to 155 mg/L. Chlorides and Sulfates are found in the range of 32.48 to 39.98 mg/L and 21.74 to 44.18 mg/L respectively.

## **SURFACE WATER QUALITY**

pH of surface water samples varied from 7.02 to 7.59. Turbidity was found to vary between 0.1 to 0.2 NTU, Total Dissolved Solids varied in the range of 378 to 798 mg/L. DO and COD are found in range of 6.88 to 7.18 mg/L, and 5.03 to 7.55 mg/L respectively. BOD<sub>3</sub> was found in BDL. Total Hardness varied



from 120 to 160 mg/L. Total Alkalinity varied from 105 to 210 mg/L. Chlorides and Sulfates are found in the range of 34.98 to 56.12 mg/L and 22.62 to 43.80 mg/L respectively.

## **NOISE ENVIRONMENT**

The noise monitoring was carried out at eight locations in day time during (6 am to 9 pm) and at night time (9 pm to 6 am) in the study area. One day monitoring on April 9, 2016 during day and night time was carried out at all the locations.

The objective of the noise pollution survey around the project site was to identify existing noise sources and to measure background noise levels. The study was carried out in the following steps:

- Reconnaissance
- Identification of noise sources and measurement of noise levels
- Measurement of noise levels due to transportation
- Community noise levels

## **SOIL ENVIRONMENT**

Soil samples were collected from eight different locations during study period of April 9, 2016 to April 11, 2016; in the study area (0-20 cm depth). Soil sampling and analysis was carried out to assess physico-chemical characteristics of the soils and delineate existing cropping pattern, existing land use and topography, within the study area.

pH varies from 7.16 to 7.92. Water Holding Capacity (WHC) varies from 51.2% to 55.5%. Porosity varies from 46.03% to 52.92%. Bulk density varies from 1.26 gm/cm<sup>3</sup> to 1.43 gm/cm<sup>3</sup>. Sulphates & Chloride are found in the range 103.1 mg/kg to 492.2 mg/kg & 168.2 mg/kg to 620.4 mg/kg respectively. Total Hardness varies from 504.0 mg/kg to 786.2 mg/kg. Total Phosphorus varies from 2.18 mg/kg to 7.10 mg/kg. Total Nitrogen varies from 294.4 mg/kg to 439.4 mg/kg. Calcium & Sodium are found in the range of 105.0 mg/kg to 177.8 mg/kg & 517.0 mg/kg to 2450.0 mg/kg respectively. Organic matter varies from 3.68% to 5.14%. Potassium, Nickel & Copper are found in the ranges 428.0 mg/kg to 6412.0 mg/kg, BDL & BDL respectively.

## ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

### AIR ENVIRONMENT

The details of various air pollution sources and its control measures are as follows:

#### Flue Gas Emission

##### 1. DETAILS OF FLUE GAS STACK; STACK ATTACHED TO STEAM BOILER

SOURCES OF GASESOUS EMISSIONS	STACK		
Fuel Used	Coal: 25 MT/day		
Capacity	7 MT/Hr		
Type of Emissions	SO <sub>2</sub>	NOx	SPM
Permissible Limits	262 mg/Nm <sup>3</sup>	94 mg/Nm <sup>3</sup>	150 mg/Nm <sup>3</sup>
Stack Height	35 meter		
Stack Diameter at the Top	1.0 meter		
Air Pollution Control Measures	Bag Filter, Multicyclone Separator & Scrubber		

##### 2. DETAILS OF FLUE GAS STACK; STACK ATTACHED TO THERMIC FLUID HEATER BOILER

SOURCES OF GASESOUS EMISSIONS	STACK		
Fuel Used	Coal: 5 MT/day		
Capacity	4 Lac.Kcal/Hr		
Type of Emissions	SO <sub>2</sub>	NOx	SPM
Permissible Limits	262 mg/Nm <sup>3</sup>	94 mg/Nm <sup>3</sup>	150 mg/Nm <sup>3</sup>
Stack Height	30 meter		
Stack Diameter at the Top	0.5 meter		
Air Pollution Control Measures	Bag Filter, Multicyclone Separator & Scrubber		

##### 3. DETAILS OF FLUE GAS STACK; STACK ATTACHED TO HOT AIR GENERATOR

SOURCES OF GASESOUS EMISSIONS	STACK		
Fuel Used	Coal: 10 MT/day		
Capacity	30 Lac.Kcal/Hr		
Type of Emissions	SO <sub>2</sub>	NOx	SPM
Permissible Limits	262 mg/Nm <sup>3</sup>	94 mg/Nm <sup>3</sup>	150 mg/Nm <sup>3</sup>
Stack Height	30 meter		
Stack Diameter at the Top	0.5 meter		
Air Pollution Control Measures	Bag Filter, Multicyclone Separator & Scrubber		

#### 4. Details of Flue Gas Stack; Stack Attached To D.G. Set

Sources of Gaseous Emissions	D.G. Set (200 KVA)		
Fuel Used	HSD		
Stack Height	11 meter		
Stack Diameter at The Top	0.2 meter		
Type of Emissions	SO <sub>2</sub>	NO <sub>x</sub>	SPM
Permissible Limits	262 mg/Nm <sup>3</sup>	94 mg/Nm <sup>3</sup>	150 mg/Nm <sup>3</sup>

#### 5. Details of Process Vent

Sr. No.	Stack attached to	Stack Height	Air Pollution Control System	Parameter	Permissible Limit
<b>Proposed</b>					
1	Process Vent - 1	15 m	Two Stage Scrubber	SO <sub>2</sub>	40 mg/Nm <sup>3</sup>
2	Process Vent - 2	15 m	Ventury Scrubber	NO <sub>x</sub>	25 mg/Nm <sup>3</sup>
3	Process Vent - 3	15 m	Two Stage Scrubber	NH <sub>3</sub>	175 mg/Nm <sup>3</sup>

#### WATER ENVIRONMENT

Total water requirement will be 474 m<sup>3</sup>/day which will be met through GIDC water supply. The wastewater generation will be 336 m<sup>3</sup>/day (321 m<sup>3</sup>/day industrial + 15 m<sup>3</sup>/day domestic). Low COD Stream (191 m<sup>3</sup>/day) will be sent to propose ETP consists of primary, secondary and tertiary treatment facility to treat the effluent and then treated effluent shall be sent to RO. High TDS Stream (130 m<sup>3</sup>/day) & RO reject water will be treated in MEE. Domestic waste water (15 m<sup>3</sup>/day) will be disposed by septic tank & soak pit.

Details of water consumption and wastewater generation are given in Table.

## WATER CONSUMPTION AND WASTE WATER GENERATION

Sr. No.	Category	Proposed Scenario (m <sup>3</sup> /day)	
		Water Consumption	Waste Water Generation
<b>1. Industrial</b>			
	Process	193	181
	Boiler	66	10
	Cooling	60	10
	Scrubber	10	10
	Washing	110	110
<b>2.</b>	Gardening	20	NIL
<b>3.</b>	Domestic	15	15
<b>Total (Industrial)</b>		<b>439</b>	<b>321</b>
<b>Total</b>		<b>474</b>	<b>336</b>

## LAND ENVIRONMENT

Hazardous waste generation quantity, physical characteristics and mode of disposal are given in Table.

Sr. No.	Type of Hazardous Waste	Quantity	Hazardous Waste Category	Storage, Collection & Disposal
1.	ETP Sludge	125 MT/Month	35.3	Collection, Storage, Transportation & Disposal to nearest TSDF
2.	Gypsum Sludge	3735 MT/Month	--	Collection, Storage, Transportation & Sell to cement industries
3.	Iron Sludge	730 MT/Month	--	Sell to cement industries
4.	Distillation Residue	15 MT/Month	26.1	Collection, Storage, Transportation & Sell to cement industries
5.	MEE Salt	300 MT/Month	35.3	Collection, Storage, Transportation & Disposal to nearest TSDF
6.	Inorganic Salt	170 MT/Month	--	Collection, Storage, Transportation & Disposal to nearest TSDF
7.	Spent H <sub>2</sub> SO <sub>4</sub> (70%)	775 MT/Month	26.3	Collection, Storage, Transportation & Reuse in Process (H-Acid)
8.	Liquid Sodium Bisulphide (25%)	100 MT/Month	--	Collection, Storage, Transportation & Sell to end user
9.	Liquor Ammonia	20 MT/Month	--	Collection, Storage, Transportation & Reuse in Process (K-Acid &

				Gamma Acid)
10.	Fly Ash	200 MT/Month	--	Collection, Storage, Transportation & Sell to Brick Manufacturers
11.	Empty Drums (MS/PP)	200 Nos./Month	33.1	Collection, Storage, Transportation & Sell to GPCB Authorised Vender
12.	Empty Bags (HDPE/LDPE/Paper)	700 Nos./Month	33.1	Collection, Storage, Transportation & Sell to GPCB Authorised Vender

### STORAGE DETAILS OF HAZARDOUS CHEMICALS

Sr. No.	Hazardous Chemicals	Type of Hazard	MOC of Storage	Volume in MT
1	Oleum 23 %	Corrosive	CS	30
2	Oleum 63 %	Corrosive	CS	30
3	Sulphuric Acid 98 %	Corrosive	CS	50
4	Nitric Acid	Corrosive	CS	30
5	Caustic Soda Lye	Corrosive	CS	30
6	Liq. Ammonia	Toxic	CS	30
7	Hydrochloric Acid	Corrosive	PPFRP / HDPE	30
8	Dilute Sulphuric Acid	Corrosive	CSRL / PPFRP	50
9	Formaldehyde	Flammable	CS	10
10	Methanol	Flammable	CS	30
11	Acetic Acid	Toxic	SS	10

### ENVIRONMENTAL MONITORING PROGRAMME

A detailed monitoring schedule has been prepared to ensure effectiveness of the environmental management plan.

### ADDITIONAL STUDIES

EIA study conducted with reference to the following...

- Hazard identification taking recourse to hazard indices, inventory analysis, dam break probability, Natural Hazard Probability etc.

- Consequence analysis of failures and accidents resulting in fire, explosion, hazardous releases etc.
- Assessment of risk on the basis of the necessary evaluations
- Preparation of an onsite /off site Emergency Plan and Disaster Management Plan

## PROJECT BENEFITS

By setting up this unit M/s. Quilon Real Industries Pvt. Ltd. will be able to meet the demand of various products locally. The project will save forex as certain products import will be reduced. This will also generate direct and indirect employment opportunity for various levels of people.

## FUND FOR CSR ACTIVITIES

CSR Activities	Year	Fund (Rs. In Lakhs)
Integrated Agricultural Growth Project, Income Generation Program, Health, Education & Infrastructure	2016-17	15-20
	2017-18	15-20
	2018-19	15-20
	2019-20	15-20
	2020-21	15-20

## ENVIRONMENT MANAGEMENT PLAN

ENVIRONMENT ISSUE/COMPONENT	REMEDIAL MEASURES
Hazardous waste generation & disposal	Proper collection, Safe Handling, Storage within premises and disposal of waste at approved TSDF site, sell to GPCB authorized vender and reuse in process.
Effluent generation and treatment	Low COD Stream will be sent to propose ETP consists of primary, secondary and tertiary treatment facility to treat the effluent and then treated effluent shall be sent to RO. High TDS Stream & RO reject water will be treated in MEE. Domestic waste water will be disposed by septic tank & soak pit.
Emission from stack	Adequate pollution control system will be provided for control of gaseous emission.

	<ul style="list-style-type: none"> <li>• To control emission from boiler; Multi cyclone separator, Bag filter &amp; Scrubber will be installed.</li> <li>• To control emission from Thermic fluid heater; Multi cyclone separator, Bag filter &amp; Scrubber will be installed.</li> <li>• To control emission from Hot air generator; Multi cyclone separator, Bag filter &amp; Scrubber will be installed.</li> <li>• To control the emission from process vents; Two Stage Scrubbers &amp; Ventury Scrubber will be installed.</li> </ul>
Noise	Acoustic enclosure, engineering control at high noise level areas will be provided. Wherever feasible, proper oiling, lubrication and maintenance of equipment will be carried out. Development of greenbelt around plant boundary and inside plant.
Greenbelt	Total (33 %) area will be covered as greenbelt and other forms of greenery.
Information and awareness about hazardous chemicals plant	Awareness and information will be provided within 5 km of the study area about the hazardous situations.
Preparedness to handle onsite & offsite emergency	Onsite & Offsite Emergency Management Plan will be prepared.
Monitoring of Environmental parameters	Regular monitoring of various environmental parameters will be carried out to check the effectiveness of the control system.

## Conclusion

The draft EIA study of M/s. Quilon Real Industries Pvt. Ltd. has been carried out with respect to the TORs awarded by SEAC, Gandhinagar. All the impacts likely to have an effect on the environment have been identified and efficient/adequate mitigation measures have been proposed for the same.

M/s. Quilon Real Industries Pvt. Ltd. will be able to meet the demand of various products locally. The project will save forex as certain products import will be reduced. This will also generate direct and indirect employment opportunity for various levels of people.

The unit shall maintain the quality of its product, environment, safety & housekeeping of the site.

Further, M/s. Quilon Real Industries Pvt. Ltd. has also planned CSR activities which will have beneficial impacts on the socio-economic environment.