INDORAMA

Indorama India Private Limited

ENVIRONMENTAL STATEMENT

2021-22

ENVIRONMENTAL STATEMENT

[FORM-V]

Environmental Statement for the financial year ending the 31st March 2022

PART-A

(i) Name and address of the owner/occupier of the industry operation or process:

- Name : Mr. Ashvini Hiran
- Address of Unit : Indorama India Pvt Ltd
  P.O. Durgachak, Haldia
  District Purba Medinipur
  West Bengal - 721 602
- Address of Corporate Office :
  Indorama India Pvt Ltd
  Formerly IRC Agrochemicals Private Limited
  Regd & Corporate Office: Ecocentre, EM-4, 12th floor, Unit No ECSL 1201, Sector V, Salt Lake, Kolkata 700091
  Telephone No. : 033-66343100
  FAX No. : 033-66343102

(ii) Industry category: RED

(iii) Production capacity – Units

- Sulphuric Acid : 247500MT/Annum
- Di-ammonium Phosphate : 759000 MT/Annum
  Or NPK : 924000 MT/Annum
- Single Super Phosphate : 208980MT/Annum

(iv) Year of establishment : 1979

(v) Date of the last environmental statement submitted: 19th Aug, 2021

PART-B

Water and Raw Material Consumption

Raw water consumption m^3/d (Yearly avg)

Process	:	637
Cooling & boiler feed	:	1773
Domestic	:	72

Name of Product	**Process water consumption per unit of product output (m3/MT of production)**	
	During the current financial year (2020-21)	**During the current financial year (2021-22)**
Sulphuric Acid (cooling+ boiler feed water included)	2.96	2.82
Di-ammonium Phosphate/ NPK	0.11	0.11
Single Super Phosphate	0.020	0.020

Raw material consumption

***Name of raw materials**	**Name of Products**	**Consumption of raw material per unit of output(Ton/Ton of production)**	
		During the current financial year (2020-21)	**During the current financial year (2021-22)**
Sulphur	Sulphuric Acid	0.331	0.332
Ammonia	Di-ammonium Phosphate	0.221	-
P_2O_5		0.462	-
Ammonia	NPK 10:26:26	0.121	0.121
P_2O_5		0.262	0.263
MOP		0.4400	0.444
Ammonia	NPK 12:32:16	0.151	0.1472
P_2O_5		0.323	0.323
MOP		0.276	0.273
Ammonia	NPK 14:35:14	0.1736	0.1712
P_2O_5		0.3575	0.3595

MOP		0.2491	0.2453
Ammonia	NP 16:20	-	0.2032
P_2O_5		-	0.2201
Ammonia	NP 14:28	-	0.1739
P_2O_5		-	0.2845
Rock Phosphate	Single Super Phosphate	0.5966	0.6078
Sulphuric Acid		0.373	0.359

PART-C

Pollution discharged to environment / unit of output (Parameter as specified in the consent issued)

(a) Water

Pollutants	Quantity of Pollutants discharged (kg/d)	Concentration of Pollutants discharged (mg/L) except PH	Prescribed Standards (Consent Limits)
pH	-	7.78	Between 6.5 - 8.5
TSS	4.92	2.87	Not to exceed 100 mg/L
BOD	4.35	7.47	Not to exceed 30 mg/L
COD	23.15	39.75	Not to exceed 250 mg/L
Oil & Grease	1.16	2	Not to exceed 10 mg/L
Phosphate	0.08	0.13	Not to exceed 5 mg/L
Fluorides	0.33	0.56	Not to exceed 10 mg/L
Ammonical Nitrogen as N	4.2	7.2	Not to exceed 50 mg/L

Kjeldhal Nitrogen as N	5.7	9.7	Not to exceed 75 mg/L
Free Ammonical Nitrogen as N	0.33	0.57	Not to exceed 4 mg/L

(b) Air

Pollutants	Quantity of Pollutants discharged (kg/d)	Concentration of Pollutants discharged (mg/Nm^3)	Prescribed Standards (Consent Limits)***
Sulphuric Acid Plant -1			
SO_2	54.8	169	<1250 mg/ Nm^3
Acid mist	10.9	34	< 70 mg/ Nm^3
Sulphuric Acid Plant -2			
SO_2	80.7	168	<1250 mg/ Nm^3
Acid mist	19	40	< 70 mg/ Nm^3
DAP Plant -1			
Fluoride as HF	5.82	1.83	< 10 mg/ Nm^3
PM	222	70	< 150 mg/ Nm^3
NH3	464	146	<300 mg/Nm3
DAP Plant -2			
Fluoride as HF	9.5	3	< 10 mg/ Nm^3
PM	217	66	< 150 mg/ Nm^3
NH3	427	130	<300 mg/Nm3
SSP plant			
Fluoride as HF	0.51	1.9	< 20 mg/ Nm^3
PM	14.13	53	< 125 mg/ Nm^3

NOTE: Actual emissions are well within the permissible limits, there is no violation of prescribed standards. Ammonia terminal facility (erst while

Sanjana Cryogenics storage Ltd) is part of Indorama Corporation. There is no emission from ammonia terminal facility except emergency DG.

PART-D

HAZARDOUS WASTES

(As specified under Hazardous Wastes / Management and handling Rules,1989)

Hazardous Waste Generated

Hazardous Wastes	Total Quantity (MT/year)	
	During the previous financial year (2020-21)	During the current financial year (2021-22)
(a) From Process		
Vanadium Pentoxide Catalyst	12.6	11.64
Used Oil	12.18	4.17
Sludge and filters contaminated with oil	-	0.8
Residues from production of mineral acid	0.78	0
Sulphur Sludge	388	61.6
Spent Resin	-	-
(b) From pollution control facilities		
ETP Sludge	106	74.5

PART E

Solid Waste

Solid Waste	Mode of Disposal	Total Quantity (Kg/year)	
		During the previous financial year (2020-21)	During the current financial year (2021-22)
(a) From Process			
Fly ash	Re-used in DAP	688	1615
(b) From pollution control facilities			
NIL	--	--	-

PART-F

Please specify the characterization (in terms of composition and quantum) of hazardous as well as solid wastes and indicate disposal practice adopted for both the categories of wastes.

Hazardous waste / Solid Waste	Source	Quantity Disposal(MT/year)	Method of Disposal
(a) Hazardous Waste			
Vanadium Pentoxide Catalyst	Spent catalyst dust generated from Sulphuric acid plant	11.64	Sent to West Bengal Waste Management Ltd. (Common Hazardous Waste Transfer, Storage, Disposal Facility) for disposal
Used Oil	Spent lubricant oil generated from maintenance applications	4.17	Sold to CPCB registered used oil recyclers
Waste Oil	From FO , Diesel tank	0.8	Sold to CPCB registered used oil recyclers
Sulphur Sludge	Generated from Sulphuric Acid plant during cleaning of Raw Sulpur.	43.79	Sent to West Bengal Waste Management
ETP Sludge	Chemical sludge from waste water treatment	48.16	ETP Sludge sent to West Bengal Waste Mangement Ltd
Solid Waste			

Fly Ash	Generated from new hot air generator due to burning of biomass and coal	1615	Re-used in DAP

PART-G

Impact of pollution abatement measures taken up on conservation of natural resources and on the cost of production.

Please refer to Annexure - 1 & 2

PART-H

Additional measures/investment proposal for environment protection including abatement of pollution prevention of pollution

Please refer to Annexure – 3

PART-I

Any other particular for improving the quality of the environment

Please refer Annexure -4

ANNEXURE - 1

Measures taken to reduce water consumption and for conservation of energy & pollution control measures are as follows.

Resource Conservation:-

A. Energy Conservation:

For GHG reduction and improvement in energy management system we have taken the intitaive such as

- To avoid steam venting and improving the energy efficiency of the site, steam turbogenerator capacity 8.3 MW installation and commissioning done in Dec 2020 . Scope 1 & 2 Carbon foot print reduced 15% from previous year (20-21).

- To support Carbon sequestration to the extent possible from Fertilizer manufacturing process , biomass pellets and briquettes are used in place of coal and Furnace oil in DAP 1& DAP 2 plant. Only in case of unavailability of biom ass , coal is used.

B. Water Conservation:-

- DM & RO plant reject water(Effluent) as a scrubbing media is utilized in DAP/NPK plant instead of using raw water. Approx 12-13 m3/Hr effluent is consumed .

- Rainwater in SSP plant enchament area & part of cooling tower blowdown is utilised in scrubber system of SSP plant water to minimize the raw water consumption.

- Condensate recovery system in SAP Plant is working to reduce fresh water consumption.

- Utilization of ETP treated water in Greenery development & horticulture area .

- Construction of two rain water storage pond of 2700 and 2000 m3 completed. Stored rainwater is utilized in process to reduce fresh water consumption.

- Installation of 40 m3/Hr effluent recycling plant is in progress. This will reduce the fresh water consumption and effluent discharge from plant premises.

ANNEXURE - 2

Treatment facilities for Gaseous emission

Sulphuric Acid Plant:

- The plant was converted in DCDA Process in 1983 to improve conversion of SO_2 to SO_3 thereby reducing the SO_2 emissions. Both the plant has alkali scrubber system to control the emission of SO2 through stack. Ammonia or soda solution can be used as scrubbing media.

- High Efficiency Mist Eliminators have been installed in the Absorption Tower to control acid mist in stack gas.

- All critical plant parameters are indicated in central control panel in the plant control room. Suitable alarms have been provided to warn the operators in case any critical control parameter goes beyond limits.

- An on line stack monitoring instrument has been installed to continuously measure SO_2 emissions from the stack. This has been connected to Distributed Control System for getting real time record of plant emission levels. This is connected to CPCB server also. The online analyser has remote calibration facility.

- To comply with the provision of new notification for Sulphuric Acid plants 2008, pH recorders for on-line pH meters are installed and interlock facility provided with high level indication alarm and auto-trip along with the on-line monitoring system

- Interlock facility provided of Sulphur pump tripping in case of any high SO2 emission from stack.

Di-ammonium Phosphate Plant:

- Ammonia Scrubber has been provided to recover ammonia from exhaust gas of reactor and granulator . A set of Cyclone separator followed by Gas Scrubber and Ventury scrubber has been provided to remove DAP dust from exhaust gases. Dust is scrubbed by water in gas scrubber.

- Fluorine Scrubber has been provided to remove any traces of Fluorides present in exhaust gases. The scrubbing medium is water. This is recycled back to the plant and thereby there is no liquid effluent coming out of the plant.

- PM, NH3, HF online analyser installed to the stack of both the plants and connected to CPCB server .

- In both the DAP plants system is designed such as in case of any scrubbing system failure, the plant will trip instantly . Intelocking system provided of dryer tripping with the gas scrubber pump failure.

SSP PLANT

- Bag filters are provided to arrest dust from the Ball Mill vent gases.

- A multi -stage fluorine scrubber is provided to efficiently scrub the vent gases from the main plant. The scrubbers are made of MSRL. The water is pumped to the scrubbers and sprayed inside void towers by means of nozzles.

- Ventury Scrubber was provided to undergo efficient scrubbing of pollutants. All Four Scrubber are now provided with ventury scrubber.

- Extra spray Lechler Nozzles provided into Gas duct for intimate contact and hence better scrubbing in the SSP scrubber.SPM, HF analyser connected to SSP main stack . Data transferred to CPCB server real time basis.

- In SSP plant system is designed such as in case of any scrubbing system failure, the plant will trip instantly. Interlocking system provided of scrubber pump with RAL-1(Rotary valve- rock input to mixer)

Effluent Treatment plant

- In Effluent treatment plant treated water discharge online pH ,flowmeter, TSS, BOD, COD analyser installed and connected to CPCB server. Treated water discharge pump having interlock system with the discharge parameters of online analyser which is out of range.

- A effluent recycling plant of 40 m3/Hr installation job is under progress to minimize the fresh water consumption and effluent discharge outside plant.

Components of effluent Recycling plant :

- High-rate Solid Contact Clarifier (HRSCC)
- Ultra-Filtration (UF)
- Reverse Osmosis (RO)

ETP treated effluent will be treated in HRSCC if required. Effluent will be fed to Ultra-Filter (UF) followed by Reverse Osmosis. From RO plant the permeate water generated will be used in cooling tower and DM plant. The reject water from RO plant will be used in DAP/NPK and SSP plant.

Photograph of effluent recycling plant

Effluent Recycling Plant Overview (40 m3/Hr)

RO Section

ANNEXURE - 3

Additional measures/investment proposal for environment protection including abatement of pollution prevention of pollution

Total expenditure in various Environment protection measures in 2021-22

Sl no	**Item wise Expenditure under Environmental control measures**	**Total Amount in Lacs (Approx)**
01	Effluent treatment plant operational raw material cost	**24**
02	Manpower charges for operation of ETP Plant	33
02	Hazardous and Biomedical Waste management	14
03	Stack, effluent, ground water monitoring charges	**30**
04	Green belt Development Cost(Purchase of plant , manpower for maintainenece)	32
05	Capex project in Environmental measures	25
06	Stack and effluent analyser maintenance cost	28
Total		186

Major Capex in 2021-22 for Environment protection measure:-

1. Replacement of PM analyser in DAP & SSP plant , Expenditure: 11.48 Lacs

2. Installation of new pump at equilisation tank , effluent treatment sump and final discharge , Expenditure : 13.52 Lacs

Capex planned in 2022-23 for improving the sustainability performance of the site :-

01. Installation of effluent recycling plant of 40 m3/hr along with HRSCC (High rate solid Contact Clarifier). This will include UF and RO system. ETP treated water will be fed to RO system and the permeate water from RO will be used in cooling tower make up and reject will be used in process plant. This will reduce the effluent discharge and fresh water consumption. Approx cost – 600 Lakhs (Carry forward Capex 2021-22)

02. Installation of 4 no of digital flow meters and connectivity to Cloud sever in water withdrawal system.– as per CGWA guideline.

Annexure-4

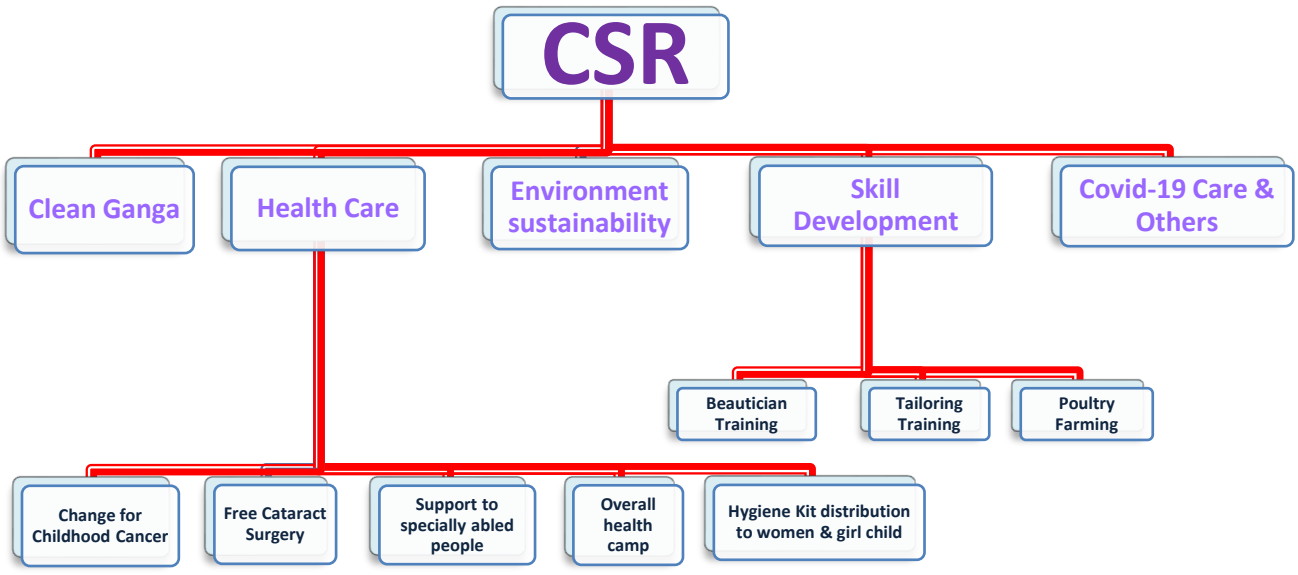
Eco development measures and community welfare measures are as below :

- **Environment Day Celebration 5th June ,2021**

Environment Day celebration done in factory on 5th June 21 with tree plantation programme. Total 2000 no of tree plantation done in factory and township.

CSR Report (April'21 - March '22)

We believe in creating synergy between business and the society by working closely with the local communities for the purpose of improving the quality of life of the communities we serve through long term stakeholder value creation. We believe in positively impacting the environment and supporting the communities we operate in, focusing on sustainability of our programs and empowerment of our communities.



➢ General Health Camp

There are many villages in rural pockets of West Bengal where people have to travel to other villages for basic primary health care services. There are multiple limitations for villagers to avail proper health service. Few of them include – lack of medicines at health center, unavailability of doctors, traveling to other village or even cities.

To address such issues we organised regular health camps in villages and provide some basic health care support to the villagers with the support of Deulpota Seva Samiti. The specialised doctor's from the Cancer Research Institute, Kolkata was there to treat the patients. In these camps primary focus was given on healthcare of children, women and senior citizens.

1438 people from under privileged community have benefited through ten health camps at South24 Parganas, West Medinipur and East Medinipur district.

➢ Free Cataract Surgery

Cataract is defined as opacity within clear lens of the eye which reduce the amount of incoming light and cause deterioration of vision. Cataract remains a concern for public health, especially in low and

middle-income countries.520 identified people form marginalized community have been benefited through free cataract surgery.

- **Raising awareness about menstrual hygiene**

We have create awareness at the villages and the schools. We installed sanitary napkin vending machine and incinerator at the Govt. Offices and also distributed hygiene kits to the women and the adolescent girls.

8 sanitary napkin vending machine and incinerator installed at different govt offices of Sutahata block and hygiene kit have been distributed to 500 women of this block.

Support to differently abled people

The main objective of this project is to provide aid to the differently abled people. We have provided the opportunity to differently abled people for social interaction with each other which boosted up their courage and new hope of life to counter disability. 122 wheel chair, 181 tricycle, 68 hearing aid, 15 scratch & 14 artificial limb distributed to the selected people from merginalised community of South 24 Parganas and East Medinipur district of West Bengal.

- **Installation of Oxygen plant at Digha Hospital**

We have successfully commissioned the 233 LPM, PSA medical oxygen plant at Digha SG hospital. The CMOH team members of Nandigram Health District had already visited the PSA plant. We have also provided in hand training to the active team members of Hospital for plant operation and maintenance.

- **Women Empowerment**

Poultry farming training44 women from economically backward community of the East Medinipur & West Medinipur get the training on poultry farming. After the training, they would be assisted with construction of the poultry farm and supported with chicks, poultry feed and medicines.

Tailoring & Beautician training

100 Young women from marginalized communities of South Kolkata & South 24 Parganas have trained on beautician & tailoring training with the collaboration of Hope Kolkata Foundation and Abhyudaya-Haldia.

After completion of the training each trainee will receive the certificate and startup kit.