FORM – V

[See Rule 14 of Environmental (Protection) Rules, 1986]

ENVIRONMENTAL STATEMENT FOR FINANCIAL YEAR ENDING THE 31st MARCH 2024

PART - A

1	Name and address of the owner/ occupier of the industry operation or process	Mr. Shashank Pareek Unit Head Grasim Industries Limited; Unit - Indian Rayon Junagadh - Veraval Road, Veraval - 362266
2	Industry category Primary: (STC Code) Secondary: (STC Code)	Red
3	Production Capacity	Details are attached as **Annexure - I**
4	Year of Establishment	1963
5	Date of the last Environmental Statement submitted	29th September 2023

PART - B

Water Consumption

Sr. No.	Purpose	Average Water Consumption, m^3/day	
		During the Previous Financial Year (2022-23)	During the current Financial Year (2023-24)
1	Process	9654.79	9362.75
2	Cooling	2248.38	2180.37
3	Domestic	1322.58	1282.57
	TOTAL	**13225.75**	**12825.69**

Name of Products	Process Water Consumption per unit of product output, (m^3/MT)	
	During the Previous Financial Year (2022-23)	During the current Financial Year (2023-24)
Viscose Filament Yarn (VFY)	141.45	150.88
Caustic Soda Lye (CSP)	3.93	3.89
Sulphuric Acid (H_2SO_4)	0.50	0.33
Carbon Di Sulphide (CS_2)	5.07	6.37
Captive Power Plant (Thermal) (m^3/MW)	105.96	106.10

Raw Material Consumption

Name of Raw Material	Name of Product	Consumption of Raw Material per Unit output (MT/MT of production)	
		During the Previous Financial Year (2022-23)	During the current Financial Year (2023-24)
Wood Pulp	VFY	1.07	1.06
Caustic Soda	VFY	0.66	0.65
CS_2	VFY	0.26	0.25
H_2SO_4	VFY	1.05	1.04
Zinc	VFY	0.01	0.01
Sulphur	H_2SO_4	0.33	0.33
Sulphur	CS_2	0.93	0.92
Charcoal	CS_2	0.37	0.33
Salt	Caustic	1.64	1.66

PART – C

Pollution discharged to environment/ unit of output

(Parameters as specified in the Consent issued)

Pollutants	Quantity of Pollutants Discharged (Mass/day)	Concentrations of Pollutants in Discharges (Mass/Volume)	Percentage of variation from Prescribed Standards with Reasons
(a) Water	(Details are attached as **Annexure- II**)		
(b) Air			

PART – D

Hazardous Wastes

(As specified under Hazardous and Other Wastes (Management, & Transboundary Movement) Rules, 2016)

Sr. No.	Hazardous Waste	Total Quantity (MT)	
		During the Previous Financial Year (2022-23)	During the current Financial Year (2023-24)
1	From Process	(Details are attached as **Annexure - III**)	
2	From Pollution Control Facilities		

PART – E

Solid Wastes

Sr. No.		Total Quantity	
		During the Previous Financial Year (2022-23)	During the current Financial Year (2023-24)
A	From Process	(Details are attached as **Annexure - III**)	
B	From pollution control facilities		
C	1. Quantity recycled or re-utilized within the unit		
	2. Sold		
	3. Disposed		

PART – F

Please specify the characterizations (In terms of composition and quantum) of hazardous as well as solid wastes and indicate disposal practice adopted for both these categories of wastes)

(Details are attached as **Annexure-IV**)

PART – G

Impact of the pollution abatement measures taken on conservation of natural resources on the cost of production:

(Details are attached as **Annexure V - A & V - B**)

PART – H

Additional measures/ investment proposal for environmental protection including abatement of pollution, prevention of pollution.

(Details are attached as **Annexure-VI**)

PART – I

Any other particulars for improvement in the quality of the environment:

(Details are attached as **Annexure-VII**)

Date: 23.05.2024

Name : **Shashank Pareek**
Designation : **Unit Head**
Address : Grasim Industries Limited; Unit - Indian Rayon, Veraval - 362266

Annexure – I

Production Capacity

Sr. No.	Name of Products	Quantity as per GPCB Consent MT/ Month	Average Actual Production in FY 2023-24 MT/ Month
1	Viscose Filament Yarn	1950	1583.353
2	Sodium Sulphate	2050	933.207
3	Sulphuric Acid	3600	2617.708
4	Sodium Sulphide (100%)	100	36.588
5	Carbon di Sulphide	1000	430.432
6	Caustic Soda Lye (100%)	12000	6696.996
7	Chlorine (100%)	10560	5089.950
8	Hydrochloric Acid (100%)	1800	958.125
9	Sodium Hypo chlorite (100%)	3750	44.182
10	Compressed Hydrogen	650000 Nm^3	112768.287 Nm^3
11	Captive Power Plant (Thermal)	54.5 MW	21099960 kWh

PART - C

Pollution Discharged to Environment per unit of output

(Parameters as specified in the Consent issued)

Sr. No.	Pollutants	Quantity of Pollutants Discharged (Kg/ day)	Concentration of pollutants in discharges (Mass/ volume) mg/l	% of variation from prescribed Standards with reasons.
A	**Water Pollution**			The limits of various pollutants are quite lower than the specified limits.
1	B.O.D	435.02	49.8	
2	C.O.D	1495.31	171.1	
3	Suspended solids	201.45	23.1	
4	Oil & Grease	18.75	2.1	
5	Zinc	7.69	0.9	
6	Bio-Assay test	100 % survival	100 % survival	
Note:	1. Values were calculated on the basis of around 8737.97 m^3/day Effluent discharge. 2. Calculations have been done on Annual Average Concentration.			

Sr. No.	Pollutants	Quantity of Pollutants Discharged (Kg/ day)	Concentration of pollutants in discharges (Mass/ volume) mg/m^3	% of variation from prescribed Standards with reasons.
B	**Air Pollution**			
1	Sulphur Di Oxide from both Acid Plant	14.23	0.17 Kg/Ton of 100% Acid Production	The limits of various pollutants are quite lower than the specified limits.
2	Carbon Di Sulphide from both Rayon Stack	6119.70	117.88 Kg/Ton of yarn Production	
3	Hydrogen Sulphide from both Rayon Stack	997.17	19.21 Kg/Ton of yarn Production	
4	Chlorine Stack	0.001	0.27 mg/Nm^3	
5	HCl Stack	0.090	4.22 mg/Nm^3	
6	Total Particulate matter form Boiler 1 & 2 (Old Power Plant)	63.465	89.2 mg/Nm^3	
7	SO_X from Boiler - 1 & 2 of Old Power Plant	313.167	440 mg/Nm^3	
8	NO_X from Boiler - 1 & 2 Old of Power Plant	7.892	11.1 mg/Nm^3	
9	Total Particulate matter from Boiler 3 & 5 (New Power Plant)	126.254	25.27 mg/Nm^3	
10	NO_X from Boiler-3 & 5 of New Power Plant	51.761	10.4 mg/Nm^3	
11	SO_X from Boiler – 3	2007.409	402 mg/Nm^3	
12	SO_X from Boiler – 5	415.671	83.2 mg/Nm^3	
Note: Calculations have been done on Annual Average Concentration.				

Note: Boiler 1 & 2 (Old Power Plant) was only operational in the month of December 2023.

Annexure-III

PART – D

Hazardous Wastes

(As specified under Hazardous and Other Wastes (Management, & Transboundary Movement) Rules, 2016)

Hazardous Waste Quantity FY 2022-23

Sr. No.	Waste Name	Category	Generation	Disposal
			MT	MT
1	Sulphur Sludge	17.1	138.294	57.68
2	Used Oil/Burnt Oil/LDO	5.1	22.12	26.71
3	Discarded Drums	33.1	37.755	40.34
4	Cellulose Waste	23.1	38.471	51.61
5	Spent Catalyst	17.2	4.4	3.61
6	Spent Resin	35.2	0	0
7	Oily Cotton Waste	5.2	0.675	0
8	Exhaust Membrane	36.1	0.281	0
9	E-Waste	18 (Schedule IV)	7.531	14.57
10	Lead Acid Battery plates and other Led Scrap not covered under Batteries Rules 2001	17 (Schedule IV)	45.105	42.06
11	Brine Sludge	16.3	1575.05	1915.22
12	ETP Sludge	35.3	5066.49	2992.58
13	Asbestos containing material & Asbestos Sheets	B01 (Schedule II)	8.966	29.47
14	Bag Filter Clothes	35.1	0	0
15	Glass Wool Insulation	S2 (Schedule other)	4.15	4.15
16	FRP Waste	23.1	40.53	0
17	Spent Acid	B-15 (Schedule II)	1823.612	1812.76
18	RO Membrane	36.1	10.77	0

Hazardous Waste Quantity FY 2023-24

Sr. No.	Waste Name	Category	Generation	Disposal
			MT	MT
1	Sulphur Sludge	17.1	74.914	60.91
2	Used Oil/Burnt Oil/LDO	5.1	8.23	10.14
3	Discarded Drums	33.1	32.7098	32.18
4	Cellulose Waste	23.1	7.72	15.5
5	Spent Catalyst	17.2	2.1	2.29
6	Spent Resin	35.2	9.2	3.06

Sr. No.	Waste Name	Category	Generation	Disposal
			MT	MT
7	Oily Cotton Waste	5.2	0.165	1.12
8	Exhaust Membrane	36.1	0	0
9	E-Waste	18 (Schedule IV)	6.505	6.65
10	Lead Acid Battery plates and other Led Scrap not covered under Batteries Rules 2001	17 (Schedule IV)	29.045	32.09
11	Brine Sludge	16.3	1670.96	1348.98
12	ETP Sludge	35.3	3377.969	3210.42
13	Asbestos containing material & Asbestos Sheets	B01 (Schedule II)	85.454	89.95
14	Bag Filter Clothes	35.1	0	0
15	Glass Wool Insulation	S2 (Schedule other)	0	0
16	FRP Waste	23.1	1.86	9.98
17	Spent Acid	B-15 (Schedule II)	2018.716	2018.512
18	RO Membrane	36.1	1	9.22

PART – E

Solid Wastes Quantity

Sr. No.	Waste Name	FY 2022-23		FY 2023-24	
		Generation	Disposal	Generation	Disposal
		MT	MT	MT	MT
1	Hard Mass	95.86	48.31	165.30	0.00
2	Deashing Charcoal	24.83	102.36	58.98	58.98
3	Fly Ash	25655.00	25625.02	20694.40	20617.93
4	Bed ash	5270.54	4777.35	3851.51	4316.99
5	Viscose	77.60	77.60	81.31	81.31
6	Alkali Cellulose	16.54	16.54	11.51	11.51

PART –F

Characteristics of Hazardous /Solid Waste

Waste Name	pH	Moisture (%) at 105 ^{0}C	Calorific Value (Kcal/kg)	Chloride (%)	Sulphur (%)
ETP Sludge	6.0	6.20	< 200	0.05	1.82
Brine Sludge	7.0	42.48	< 200	0.08	< 0.5
Sulphur Sludge	7.0	2.80	2729	0.10	98.46
Bag Filter Clothes	7.0	0.21	< 200	0.02	< 0.5
FRP Waste	6.0	2.33	3196	0.06	< 0.5
Asbestos Waste	6.0	2.66	< 200	0.01	< 0.5
Spent Catalyst	< 2.0	2.77	< 200	0.1	17.84

Solid Waste

Sr. No.	Solid Waste	Composition	Percentage
1	Hard Mass	Sulphur	2-4
		Ash	36.1
		V.M.	17.2
		Fixed Carbon	46.7
2	Deashing Charcoal	Moisture	7-24
		Sulphur	2 - 4
		Ash	5-9
		V.M	11-18
		Fixed Carbon	83-96
3	Fly Ash	Moisture	72
		Ash	25
		Fixed Carbon	3
4	Bed Ash	Moisture	16 -22
		Ash	68-78
		Fixed Carbon	4-8
5	Viscose	Cellulose	8.1-8.80
		Caustic Soda	5.5-5.80
		Moisture	84-85
6	Alkali Cellulose	Cellulose	33-35
		Caustic Soda	15-17
		Moisture	47-50

Disposal Practice

1. Hazardous wastes are stored in the interim storage area having HDPE pipe along with the filter media with leachate collection System. The other wastes are stored in properly designated storage shed with proper segregation.
2. We have obtained the membership of M/s. Safe Enviro Pvt. Ltd., Jambusar for disposal of Cellulose waste, Spent catalyst and Glass Wool Insulation.
3. We have obtained the membership of M/s Saurashtra Enviro Private Project Limited, Bhachau for disposing Sulphur sludge, Spent Resin and Oily Cotton Waste, Exhaust Membrane, Bag filter Cloth, FRP waste, RO Membrane.
4. We have obtained the membership of M/s. Eco care Infrastructure Pvt. Ltd for disposing ETP Sludge, Brine Sludge, Asbestoses waste.
5. We have disposed E-waste, Used Oil/Burnt Oil, Lead Acid Battery plates, FRP waste, Spent Acid & discarded Containers to GPCB authorized recyclers.
6. As an adherence to circular economy, Total 77.7 % ETP sludge i.e. total 2495.660 MT out of 3210.42 MT has been sent to the nearby cement plants in FY 24 and Total 100 % Cellulose waste i.e. 15.5 MT has been sent to the cement industry to be used in the kiln for co-processing as alternative fuels (AFR) in FY 24. 100 % FRP waste i.e. 9.980 MT has been sent GPCB Approved Recycler/Cement Industries in FY 24
7. VLTS (Vehicular location tracking system) with AIS-140 compliant GPS System has been implemented that is in line with circular issued on 3rd June, 2022 by Gujarat pollution control board pertaining to VLTS system to improve tractability of hazardous waste carrying vehicle.

PART – G

Table showing Impact of Pollution Abatement measures taken on Conservation of Natural Resources

Sr. No.	Particulars	Pollutant	Pollution Control System	Pollution Level		GPCB Level
				Before Pollution Control System	After Pollution Control System	
A	**Air Pollution Control**					
1	Acid Plant (SCSA)	SO_2	Alkali Scrubber	11 - 12 Kg/ MT of 100 % H_2SO_4	1.2 - 1.9 Kg/ MT of 100 % H_2SO_4	2 Kg/ MT of 100 % H_2SO_4
2	Acid Plant (DCDA)	SO_2	Alkali Scrubber	> 2 Kg/ MT of 100 % H_2SO_4	1.2 - 1.8 Kg/ MT of 100 % H_2SO_4	2 Kg/ MT of 100 % H_2SO_4
3	Captive Power Plant (Boiler 3 and Boiler 5)	PM	4 field ESP/ Filtration Column	58 g/Nm^3	<30 mg/Nm^3	50/30 mg/Nm^3
B	**Water Pollution Control**					
1	Effluent Treatment Plant	pH	Lime preparation & auto dozing, Clarifier thickener, Centrifuge, Belt Press, sludge Drying beds Polyelectrolyte.	1.2-10.5	5.5-9.0	6.0-8.5
		S.S.		100-330 mg/L	30-95 mg/L	100 mg/L
2	Sewage Treatment plant	BOD	Aeration tank, clarifier, Chlorination tank, pressure sand filter, activated carbon filter, Ultra Filtration	<20 mg/l	<5 mg/l	<30 mg/l
		TSS		20-30 mg/l	<20-30 mg/l	<100 mg/l

Note : To control the particulate matter emission, Boiler no. 5 is equipped with 4 field Electrostatic Precipitator (ESP). Moreover, at Present Boiler no. 3 equipped with total four field ESP as the additional one number of ESP was installed in the month of January 2023.

From the above table, it is evident that the installation and operation of Pollution abatement measures have resulted in keeping pollutants level well within the limits specified by GPCB keeping the Environment clean.

Details of Pollutants into the Environment and Pollution Control Technology Adopted

Sr. No.	Pollutants	Pollution Control Technology /System Adopted
1	**Water (Outlet Effluent)**	
a.	pH	Auto Control Valves for addition of milk of lime/ dilute Sulphuric Acid to maintain the effluent quality in the range of pH 6.0 to 8.5 and online pH recorder at the outlet of the treated effluent to measure the pH on continuous basis. Lime Slacker has been installed at ETP for providing consistent quality of lime slurry with maximum utilization of lime powder.
b.	Suspended Solid & Zinc	Effluent Treatment System consisting of 2 No. of Clarifier for removal of Suspended Solids, System to add Polyelectrolyte for maintaining effective settling of Suspended Solids, 2 Nos. of Zinc Clarifiers for removal of Zinc and 5 No. Centrifuge /Belt Press for dewatering of Sludge.
c.	Color ,COD & BOD	By adding Coagulants & Flocculants in Mixing Chamber
2	**Air (Stack)**	
a.	PM, RSPM & SPM	Cyclone Separators, Bag Filters, Electrostatic precipitators, Filtration Columns, Opacity meters and Dust Suppression System with Air Fog Nozzles. Online Continuous Emission Analyzer have been installed for parameter PM and data has been transmitted to GPCB/CPCB.
b.	SO_X & NO_X	Lime dosing system and CFBC boilers to maintain low combustion temp in the furnace. Online Continuous Emission Analyzer have been installed for parameter SO_2 & NOx and data has been transmitted to GPCB/CPCB.
c.	CS_2 and H_2S	Alkali Scrubber for recovery of H_2S and CS_2 emission and generation of Sodium Sulphide as salable by-product in CS_2 Plant and H_2S and CS_2 emissions control by continuous supply of humidified air through Air Washers and exhausting dilute gases through 2 Nos. of Process Stacks. Online Continuous Emission Analyzer have been installed for parameter CS_2 & H_2S.
d.	Chlorine and HCl	Multistage Alkali Scrubber for recovery of Waste/ Chlorinated Gases as Sodium Hypochlorite by product in Caustic Soda Plant and Bubble Cap tray followed by packed bed scrubber with DM water. Online Chlorine monitors at 47 locations hooked with DCS. Online Continuous Emission Analyzer have been installed for parameter HCl & Cl_2 and data has been transmitted to GPCB/CPCB.
e.	SO_2	Alkali Scrubber for removal of traces of SO2 emission from Sulphuric Acid Plant. Online Continuous Emission Analyzer have been installed for parameter SO2.

Annexure – V- B

Impact of the Pollution Abatement measures taken on the Cost of Production for the FY 2023-24

Sr. No	Items	Cost (All figures in Lacs)
1	Total cost of installation of various water and Air Pollution Control Equipment.	4127.27
2	Interest on Investment (9.5 % per Year)	392.09
3	Depreciation @ 10.0 % per year.	412.73
4	Total operational cost of various Pollution Control Equipment/ Year.	1513.91
5	Total expenses / Year (Operating Cost + Interest + Depreciation)	2318.73
6	Total Viscose Filament Yarn Production during the year ended 31st March 2024	19000.23 MT
7	Total expenses per ton of Yarn	Rs. 12,203.68 Rs./Ton of Yarn

PART – H

Additional Measures/ Investment Proposed for Environmental Protection including Abatement of Pollution, Prevention of Pollution

It is ensured that Effluent Treatment Plant and other Pollution Control facilities are effectively operated round the clock. Further, we have taken additional preventive measures. The brief of the System is stated below:

1. A comprehensive Environment Audit is being carried out by M/s. R K University, Rajkot, in last Financial Year.
2. A comprehensive Marine Audit is being carried out by M/s. National Institute of Oceanography, Mumbai annually.
3. Quarterly monitoring of our unit is being carried out by the M/s. Kadam Environmental Consultants.
4. We have adopted Aditya Birla Sustainablility Framework for Safety System in VFY, CSP & CPP as the part of which we have:
   - Implemented 14 Safety Sustainability Standards to maintain and improve workplace safety culture.
   - Implemented Process Safety Management System to prevent process incidents and to prevent unexpected releases of toxic, reactive or flammable liquids and gases from processes of highly hazardous processes.
5. Indian Rayon has Aproached towards Business Excellence for improving the systems and standards through ISO-9001:2015, ISO-14001:2015, ISO-45001:2018, ISO-50001:2018 & SA-8000:2014.
6. Polyelectrolyte dozing is done in Clarifiers to ensure zinc levels in effluent.
7. Sulphur recovery system is working to reduce Sulphur sludge.
8. Use of High-quality lime started to reduce lime and lime sludge.
9. Lime Slacker has been installed at ETP for providing consistent quality of lime slurry with maximum utilization of lime powder.
10. Dry fog-based Dust suppression system (114 Nos.) Nozzles provided in Coal Handling plant to control of sub-micron particle of dust and also water sprinkler provided in Coal yard to suppress coal dust.
11. To improve the ambient air quality, 26 nos. of Rain Guns are provided for suppression of Coal Dust in Coal Storage & Handling Unit.
12. Extension of the Coal Yard Shed has been accomplished.
13. Industry has obtained the membership of M/s. Safe Enviro Pvt. Ltd., Jambusar for disposal of Cellulose waste, Spent catalyst and Glass Wool Insulation.

14. Industry has obtained the membership of M/s Saurashtra Enviro Private Project Limited, Bhachau for disposing Sulphur sludge, Spent Resin and Oily Cotton Waste, Exhaust Membrane, Bag filter Cloth, FRP waste, RO Membrane.

15. Industry has obtained the membership of M/s. Eco care Infrastructure Pvt. Ltd for disposing ETP Sludge, Brine Sludge, Asbestoses waste.

16. Industry has disposed E-waste, Used Oil/Burnt Oil, Lead Acid Battery plates, FRP waste, Spent Acid & discarded Containers to GPCB authorized recyclers.

17. Industry has also taken Membership of M/s Girnar Bio-Medical Waste Services, Junagadh for environment friendly disposal of Bio-Medical Waste.

18. We have reduced Chlorine inventory at site by 70 MT as per guideline of World Chlorine Council by direct pumping of liquid Chlorine in tonners which resulted in to increase in Plant Safety. The vehicles carrying chlorine and hydrogen have been installed with GPS (Global Positioning System) Tracking System to stop accidents due to speed or to avoid any environmental release in the atmosphere.

19. We have also installed 47 Nos. of Chlorine Sensors in our Caustic Soda Plant which are inter-connected to the Distributed Control System through which whole manufacturing process are carried out.

20. 15 Nos. of hydrogen sensors are hooked up with DCS for onsite monitoring around the hydrogen handling area of caustic soda plant.

21. Periodical Review of EMS including Compliance of Environmental Laws through Periodic Management Review & monthly EHS inspection of all the sections throughout the Plant Premises.

22. Safety Audit by external agency M/s Naik & Associates, Surat in February 2023 as it is conducted in alternate years.

23. In this financial year, Industry has implemented Sixteen Nos. of Energy Conservation Schemes in Caustic Soda Plant and Power Plant with total investment of Rs. 626 Lakhs with an Electricity Saving 70.68 Lakhs KWH.

24. In this financial year, Industry has implemented Eight Nos. of Energy Conservation Schemes in Rayon Plant with total investment of Rs. 150.88 Lacs with Conservation of 7.16 lakhs KWH.

25. Industry has conducted a Stratification Study to ensure all the locations for its Continuous Ambient Air Quality Monitoring Stations are apt as per the location and layout of the plant.

26. Indian Rayon, Veraval has proactively commissioned Sea Water Reverse Osmosis Desalination plant (12000 m^3/day) on January 2024 to meet the Plant water requirement for manufacturing process thereby developed a sustainable & alternate source of water & reducing its dependency on River water i.e. Hiran II Dam which is located at a distance of approx. 22 km in the village Umrethi. Total investment made by the Indian Rayon for the innovative desalination technology is Rs. 105 Cr.

27. In this financial year, Industry has purchased total 18828.77 MWH electrical energy from GEB renewable sources.

Part – I

Any other particulars for improving the Quality of the Environment

1. Effluent generated from different processes in company is treated in Effluent Treatment Plant to meet stipulated standards before discharge from factory outlet through Marine Pipeline with diffuser system into deep sea.
2. Industry has Installed Sewage Treatment Plant capacity of 500 m^3/day and used as source of make-up Water for cooling Towers & Plantation. The Ultra filtration of capacity 50 m^3/hr. has been installed in last financial year for better quality of the treated sewage.
3. Industry has well equipped online continuous monitoring system to encapsulate pollutant concentration, emanates from processes.
4. To control the particulate matter emission, Boiler no. 5 is equipped with 4 field Electrostatic Precipitator (ESP). Moreover, at Present Boiler no. 3 equipped with total four field ESP as the additional one number of ESP was installed in the month of January 2023.
5. As an adherence to circular economy, Total 77.7 % ETP sludge i.e. total 2495.660 MT out of 3210.42 MT has been sent to the nearby cement plants in FY 24 and Total 100 % Cellulose waste i.e. 15.5 MT has been sent to the cement industry to be used in the kiln for co-processing as alternative fuels (AFR) in FY 24. 100 % FRP waste i.e. 9.980 MT has been sent GPCB Approved Recycler/Cement Industries in FY 24
6. **Online Continuous Effluent Monitoring System:**
   - Latest version of CPCB approved, Online Continuous Effluent Monitoring System for pH, TSS, Temperature & Flow have been installed in our ETP and the online data has been transmitted to GPCB/CPCB server since 19.08.2015.
   - We have installed TOC Meter for treated effluent water.
7. **Online Continuous Emission Monitoring System:**
   - Latest version CPCB approved, Continuous Emission Monitoring System for Parameter Cl_2, HCl were installed in Chlor-Alkali Plant and monitoring results has been transmitted to GPCB & CPCB server since 21.05.2015 and 12.08.2015 respectively.
   - Online Continuous Emission Monitoring System for parameter Particulate matter has been installed in Power Plant and data is being transmitted to GPCB & CPCB server since 19.08.2015.
   - Online continuous Emission Monitoring system for Parameter PM, SO_2, NO_X has been installed and data transmission to GPCB/CPCB has been carried out.
   - Online Continuous Emission Monitoring System for parameter SO_2 has been installed for both Sulphuric Acid Plant.
   - Online Continuous Emission Monitoring System for parameter CS_2 & H_2S in Rayon Plant has been installed.
8. Three No. of Online Continuous Ambient Air Quality Monitoring Systems have been installed.

9. Industry is regularly analyzing the treated effluent water samples for the Bioassay Test to maintain Marine Ecology.
10. Indian Rayon lays high emphasis on Environmental improvement program like tree planting in its premises & surrounding areas. It has improved aesthetic beauty in all areas & also working as good interceptor for fugitive dust & noise. Greenbelt has been developed to cover more than 33.5% of the total area of the existing project. Regular monitoring regarding the health of trees is being carried out to maintain good survival rate. Jan Seva Trust has received Certificate from Social Forestry Department (Govt. of Gujarat) for actively participating in People Awareness towards Tree Plantation Campaign taken by the Govt. at the Taluka Level. Also patches of gardens are developed inside of the plant premises wherever the open space is available to improve the plant beautification.
11. The industry has Developed Biodiversity Park using the Miyawaki Plantation Technique. The Sapling were planted on 14th October 2023 at Raysil Heights colony of Indian Rayon, Veraval within the area of 450 sq. m. with 62 different species.
12. "Earth day - 22nd April, Environment day - 5th June" are celebrated with enthusiasm in which Elocution, Essay Writing, Poster making and slogan competition pertaining to Environment is held for employee and School Students.
13. Business Excellence is used as a tool for better housekeeping, good maintenance practice and assist in control of pollution. Also, we have implemented 5" S' Programme in all the departments of the factory which is useful in minimizing waste.
14. Regular monitoring of ambient air quality by recognized third party Auditor and in-house monitoring.
15. The industry has installed 3 Nos. of H_2S sensors & 6 Nos. of CS_2 sensors within CS_2 Plant to indicate the work zone concentration of CS_2 & H_2S gas. At Sulphur acid plant, total 6 Nos. SO_2 sensors has been installed for monitoring.
16. We are regularly carrying out monitoring of GHG emissions and keeping track of our carbon footprint.
17. The quantity of Fly Ash generated from Power Plant is around 70-80 MT/day. We are also providing 100% fly ash to Group Cement Plant, Ambuja Cement & Sidhee Cement Ltd.
18. Indian Rayon has been awarded the prestigious Golden Peacock Environment Management Award 2014 by Institute of Directors, New Delhi for outstanding achievement in Environment Management. We have also received National Award for Prevention of Pollution titled - The Rajiv Gandhi Environment Award for Prevention of Pollution 2008-2009.

Indian Rayon has been recognized at national level various time in the financial year 2023-24

Sr. No.	Title of Award	Awarding Authority Name	Category of Award	Month
1	Silver Award in National LEAN Competition 2023	Confederation of Indian Industry (CII)	Resource Efficiency	May 2023
2	Gold Award in ICC Award 2022, Mumbai	Indian Chemical Council (ICC)	Energy	August 2023
3	Excellent Energy Efficient Gold Award, Hyderabad	Confederation of Indian Industry (CII)	Energy	September 2023
4	SEEM Gold Award 2022, Delhi	Society of Energy Engineers and managers (SEEM)	Energy	September 2023
5	Gold Award in 1st Ever TQM India Summit, Bangalore	Quality Circle Forum of India	Energy	October 2023
6	Gold Award in 1st Ever TQM India Summit, Bangalore	Quality Circle Forum of India	Waste	October 2023
7	Energy Saving champion award-2023	Forbes Marshall	Resource Efficiency	December 2023