ADITYA BIRLA

GRASIM

To,
The Environmental Officer,
Karnataka State Pollution Control Board,
"C" Block, Plot No. 501, Near Income Tax Office,
Devraj Urs Layout,
Davangere – 577 006.

22nd Sept, 2021

Dear Sir,

Sub: Submission of Environmental Statement Report (Form-V) (April, 2020 to March, 2021) for Grasilene Division, at Kumarapatnam – 581 123, Dist: Haveri Karnataka by M/s. Grasim Industries Ltd.

With reference to the aforesaid subject, we are herewith submitting the **Environmental Statement Report (Form-V)** for Grasilene Division, at Kumarapatnam – 581 123, Dist: Haveri Karnataka for financial year April, 2020 to March, 2021.

Thanking you with regards,

For GRASILENE DIVISION

(Ashok K Prabhakaran)
Vice president (Technical)

Encl. as above.

Cc:

The Member Secretary
Karnataka State Pollution Control Board,
"Parisara Bhavan", #49, 4th & 5th Floor,
Church Street, Bangalore-560001

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ಸಂಖ್ಯೆ:
ದಿನಾಂಕ:
ಇವರಿಗೆ:
23/09/2021

Birla Cellulose
Fibres from Nature

Grasim Industries Limited
Unit Grasilene Division
Kumarapatnam 581 123, Dist. Haveri, Karnataka.
T : +91 836 2482000 / +91 8373 242637 To 39 / +91 8192 247550 To 54 | F : +91 8373 242875 / +91 8192 247555
W : www.grasim.com | E : grasimharihar@adityabirla.com | CIN : L17124MP1947PLC000410
Regd. Office : P.O. Birlagram, Nagda 456 331 (M.P.)

ENVIRONMENTAL STATEMENT REPORT

FORM-V

(See Rule 14)

Environmental Statement for the financial year ending with 31st March 2021

PART-A

(i)	**Name and address of the owner/occupier of the industry operation or process.**	Ajay Kumar Gupta Sr. President and Unit Head Grasim Industries Limited, Grasilene Division, Kumarapatnam - 581 123 Dist. Haveri., Karnataka.
(ii)	**Industry category Primary**	
(iii)	**Production capacity**	**Viscose staple Fibre - 94,900 TPA** **Sulphuric Acid - 76,650 TPA** **CS2 (Carbon Di-Sulphide)- 15,562 TPA** **by-product Sodium Sulphate- 74,972 TPA** **Power Plant - 20 MW** **as per CFOxp order No. AW 316809 Dtd: 23.01.2020.**
(iv)	**Year of establishment**	1977
(v)	**Date of the last environmental statement submitted**	18.09.2020

Note:

1. The industry has obtained EC for Expansion of Fibre Plant from 87,600 to 1,75,200 TPA, Pulp Plant from 74,400 to 1,48,800 TPA, Captive Power Plant from 20 to 50 MW and setting up Excel Fibre Plant of capacity 36,500 TPA vide EC LETTER NO. IA-J-11011/371/2006-IA II(I) DATED 13.08.2019 and half yearly compliance report has submitted to MoEF on 05.06.2020.

2. As per the EC, we have obtained the CFO for Viscose staple Fibre - 94,900 TPA, Sulphuric Acid - 76,650 TPA, CS2 (Carbon Di-Sulphide)- 15,562 TPA, by-product Sodium Sulphate- 74,972 TPA Power Plant - 20 MW vide CFOxp order No. AW 316809 Dtd: 23.01.2020.

PART-B

Water and Raw Material Consumption

(i) Water consumption: 12883 m^3/day

Process	9455 m^3 / day
Cooling	3226 m^3 / day
Domestic	202 m^3 / day (Including Gardening , Drinking and Miscellaneous)

Plant operation was under shutdown from 25.03.2020 to 17.06.2020 due to Nationwide Lockdown declared by the Hon'ble Prime Minister because of COVID-19 outbreak.

Name of Products	Process Water Consumption per Unit of product Output (m^3/TF)	
	During the previous financial year (2019-2020)	During the current financial year (2020-2021)
Viscose Staple Fibre	64.2	68.26

(ii) Raw Material Consumption

Name of raw materials	Name of products	Unit	Consumption of raw material per unit of output (Tons/TF)	
			During the previous financial year (2019-2020)	During the current financial year (2020-2021)
Rayon Grade Pulp	Viscose Staple Fiber	T/TF	1.003	1.003
Caustic Soda		T/TF	0.506	0.489
Sulphuric Acid		T/TF	0.680	0.665
Carbon-di-sulphide		T/TF	0.160	0.162
Zinc		T/TF	0.0015	0.0015

PART-C

Pollution discharged to environment/unit of output

(Parameters specified in the consent issued)

a. Air

Sl. No.	Pollutants (Particulates Emission)	Unit	Limits Specified by KSPCB	Concentration of the pollutant in flue gas (stack emission)	Quantity of pollutants discharged (ton/day)	Percentage of variation from prescribed standards with reasons
1.	Chimney attached to Spinning Plant					
a	SPM	**mg/Nm³**	150	24	0.17	Discharge level Maintained within prescribed standards
b	CS2	**Kg/Ton**	99	92	17.2	
2	H2SO4 Plant					
a	SO2	**Kg/Ton**	1.0	0.51	0.1	
b	Acid Mist	**mg/Nm³**	50.0	22.5	0.0076	
3	Power Plant					
	CFBC Boiler					
a	SPM	**mg/Nm³**	150	45.8	0.34	

b. Water

Sl. no.	Pollutants	Unit	Tolerance limit specified by KSPCB (Mass/Vol)	Concentrations of pollutants in mixed discharges (Mass/Vol)	Quantity of pollutants discharged (T/day) [Mass/day]	Percentage of variation from prescribed standards with reasons
1.	Colour & Odour	--	*			All the parameters are maintained within the prescribed standards
2.	Suspended Solids	mg/l	Max.100	51	1.45	
3.	Dissolved Solids (Inorganic)	"	Max.2100	1819	52.01	
4.	Temperature	Deg. C	***	31.5	-	
5.	pH	-	6.0 - 8.5	7.37	-	
6.	Oils & Grease	mg/l	Max. 10.0	1.52	0.043	
7.	Biochemical Oxygen Demand (3 days at 27 Deg.C)	"	Max.30.0	17	0.48	
8.	Chemical Oxygen Demand	"	Max.250.0	163	4.66	
9.	Mercury (as Hg)	"	Max. 0.01	ND	-	
10.	Total Chromium (as Cr)	"	Max.2.0	ND	-	
11.	Zinc (as Zn)	"	Less than 1.0	ND	-	
12.	Sulphate (as SO_4)	"	Max.1000	851	24.33	
13.	Sulphide (as S)	"	Max.2.0	1.65	0.047	
14.	Phenolic Compounds (as C_6H_5OH)	"	Max.1.0	ND	-	
15.	Bioassay – as per IS-6582: 1971	% survival	Not less than 90% of test animals shall survive in 96 hours	-	100%	
16.	Hexavalent Chromium (as Cr^{+6})	"	Max.0.10	ND	-	
17.	Total Volume of mixed effluent	m3/d Max	48120	28598		

* All efforts should be made to remove colour & unpleasant odour as far as possible.
** All efforts are made to remove colour & odour at source as far as possible.
*** Shall not exceed 5°C above the receiving water temperature
ND- Not Detectable

Note: 1) Treated effluent used for greenery development and formers for irrigation purpose is 1196 m3/day (Common for both HPF &GRD)

2) Plant operation was under shutdown from 25.03.2020 to 17.06.2020 due to Nationwide Lockdown declared by the Hon'ble Prime Minister because of COVID-19 outbreak.

PART-D
HAZARDOUS WASTES

(As specified under Hazardous & Other wastes/Management & Trans boundary movement Rules, 2016)

Hazardous Waste	Total Quantity (Kg)	
	During the previous financial year (2019-20)	During the current financial year (2020 – 2021)
(a) *From process	1300	3360
(b) *From Pollution Control facilities		

* Used oil generated from industrial operations using lubricants

PART-E
SOLID WASTE

Source		Total Quantity (Tons)	
		During the Previous financial Year 2019-20	During the Current financial Year 2020 – 2021
a) From Process	Fly Ash	42415.07	27066
	Bottom Ash	4261	4490
	Charcoal churi waste	1140	1580
	Sulphur hardmass	60	304.3
	Tow Waste (Cellulosic Fibre)	264	583.5
b) From pollution control facility	ETP Sludge (Organic)	1098	595
	Gypsum Sludge in ETP	1427.11	1632.6

PART-F

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

1. Hazardous Wastes

Hazardous Waste	Composition	Method of disposal
a. From Process	Lubricating oil	Provided designated area for collection and storage of waste oil and timely disposal to KSPCB authorized recycling unit i.e. M/s. Special Oils, Hubli.
b. From pollution control facility		

1. **SOLID WASTE**

Source		Composition	Method of disposal
c) From Process	Fly Ash	Ash collected from ESP	Made available to Bricks & Cement Manufacturers
	Bottom Ash	Noncombustible residue	Made available to Bricks manufacturers
	Charcoal churi waste	Waste generated from Charcoal	Used as fuel in Boiler
	Sulphur hardmass	Mixture of more than 90% carbon and traces of Sulphur.	Burnt in CFBC Boiler
	Piece Up/ Tow Waste	Alpha cellulose	Sold to low quality fibre Manufacturers
d) From pollution control facility	ETP Sludge (Organic)	Aerobic biomass and regenerated hemi cellulose with calorific value >2500 kcal/kg	Used as fuel in boilers after natural drying.
	Gypsum Sludge in ETP	Calcium Sulphate	Sold to Cement Block Manufacturers

PART-G

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

The Following Activity Completed in FY 2021 .

- ✓ Industry has taken fugitive smell reduction initiative by providing the shutters to both the production lines in Spinning dept.
- ✓ Upgradation of Existing AFBC & IJT-3 ESP Panels and Retrofitting of Controllers to control stack emission.
- ✓ Replaced 100 No's of damaged diffuser in Biological reactor.
- ✓ Around 100 No's mercury Bulbs replaced with LED to minimize power consumption.
- ✓ Around 3000 different species of plantation done surrounding to Factory Premises.

The Following Activity Completed and Sustained.

- ✓ Industry has installed lime injection system for CFBC Boiler to reduce the SOx emission into the atmosphere.
- ✓ Industry has installed advanced Wagon Tippler System in the coal yard for unloading coal from Railway Wagons to minimize fugitive emission during coal unloading from Wagon and it also eliminates human intervention for coal unloading.
- ✓ Around 1000 m3/day Grasilene effluent reusing for filter press cloth washing and for sprinkler at Coal yard to reduce fugitive emission. Hence, discharge of treated effluent load has been reduced.
- ✓ At Viscose Section, unit has adopted Centrifuge technology in place of Plate and Frame type filtration system thereby reducing around 400 m3/day effluent generation as well as water consumption.
- ✓ At ETP Section, all membranes of the # 3 Diffused aeration system were replaced with new membranes resulting in improved efficiency of Biological reactor.
- ✓ All high noise generating equipment's covered with Shed. As a result, noise level has been reduced in the unit.
- ✓ The industry has constructed new Water reservoir with built-up area 1,80,000 Sq.m to harvest and store the rain water and excess runoff water from Tungabhadra River during monsoon season, thereby facilitating groundwater recharge. (common for both Harihar Polyfibers and Grasilene division).

Online Monitoring Details:

- ✓ As per the directions of CPCB, the unit has installed online continuous monitoring system for Treated effluent, stack emission and Ambient Air. The details are as follows;

  - **For Treated Effluent:**

Sl. No.	Location	Parameters	Analyzer Model	Make	Service Provider	Online connectivity
1	Mixed Treated Effluent sampling point	pH, BOD, COD, TSS and Temperature	CarboVis 70xIQ TS	WTW (A Xylem brand)	M/s. Nevco Engineering Ltd.	CPCB Server
		Flow (Grasilene Division)	VEGA64	VEGA		

  - **For Stack Emission:**

Sl. No.	Online monitoring facility Attached to	Parameters	Analyzer Model	Make	Service Provider	Online connectivity
1	Spinning Stack	Flow	HFM-200	Teledyne	Environment -SA	CPCB Server
		H_2S &CS_2	AF22M	Environment -SA	Environment -SA	
2	Sulphuric Acid Plant Stack	Flow	HFM-200	Teledyne	Environment -SA	
		SO_2	AF22M	Environment -SA	Environment -SA	
3	Power Plant Stack	Flow	HFM-200	Teledyne	Environment -SA	
		SOx, NOx	MIR 9000	Environment -SA	Environment -SA	
		PM	SPM-380	PCME (envea)	Environment -SA	

  - **For AAQM:**

Sl. No.	Location	Parameters	Analyzer Model	Make	Service Provider	Online connectivity
1	Intake well	PM2.5 and PM10	MP101M	Environment-SA	Environment-SA	CPCB Server
		CS_2, H_2S, SO_2,	AF22M			
		NO_X,	AC32M			
2	ETP	PM2.5 and PM10	MP101M	Environment-SA	Environment-SA	
		CS_2, H_2S, SO_2,	AF22M			
		NO_X,	AC32M			
3	Guest House	PM2.5 and PM10	MP101M	Environment-SA	Environment-SA	
		CS_2, H_2S, SO_2,	AF22M			
		NO_X,	AC32M			

- **The details of Environmental improvement Projects completed in the FY 2020-21 with Expenditure cost are as follows;**

Sl No	Name of the Project and Its Impacts	Expenditure Cost Rs. (Lakhs)	Photos
1	Spinning Machines covered with the side shutters to reduce the Fugitive Smell .	200.00	
2	100 No's Old diffuser membranes replaced with new diffuser in Biological Reactor for better air dispersion and improves the Biological Reactor performance.	5.00	
3	Strengthening of Process Drain to avoid drain blockages.	8.6	
4	Acid tank - acid resistant tile laying to avoid the leakage.	20	--
5	Handling of Plastic Waste as per PWM rule -2016 .	12.13	--
6	Stack and AAQMS monitoring and Calibration.	23.00	--
7	Upgradation of Existing AFBC & IJT-3 ESP Panels and Retrofitting of Controllers to	42.75	--
	Total Expenses	**311.48**	

PART-H

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

Proposed projects for the financial year 2021-22

Project Name	Approx. Cost Rs. (Lakhs)
One 60 HP Jet aerator as for COD reduction	28.78
Desilting & pitching work of lagoon	11.32
Installation of flow meter at Biological Reactor (BR) inlet.	1.76
Replacement of R22 Gas with R407 and R 302 gas for AC's Environment sustainability requirement	11.02
Damaged diffusers and membrane replacement	7.0
Quantitative Exposure Analysis	11.51
AR Tile work for Acid tank	3.25
Reduction of Hydraulic load on BR by diverting MSFE condensate & excess scrubber water to Clarifier after Heat Recovery	28.5
Total	**133.14**

Strategies & techniques applied for continuous monitoring of environment and feedback mechanism for correcting/ preventing any run-away operations for achieving stable operations.

1. Alternative power supply is provided to Effluent Treatment Plant (ETP) so that in case of failure of one supplies the stand by resumes automatically for the ETP. A similar arrangement is provided for air pollution control equipment's.

2. Sensitive effluent streams are monitored round the clock at influent stage itself by providing simple visual monitoring aids for easy and quick qualitative monitoring for taking timely corrective action.

3. Stand by arrangements have been provided for all critical air and water pollution control equipment's.

4. All equipment's critical to environment are identified & subjected to preventive maintenance and condition based monitoring as per a pre-drawn schedule to prevent unforeseen stoppages.

5. All process operating personnel have been trained to notice and inform any untoward incident that could lead to 'out of control' situation, to the operatives at the ETP so that the relevant stream can be diverted to a 'guard pond' which has a capacity to hold a day's effluents.

6. All input chemicals and raw materials are carefully and closely monitored daily against preset norms per unit weight of product so that all wasteful practices that would result in emission to air or discharge to environment is eliminated.

7. Operation cost of the ETP per day is as follows;

Sl. No.	Particulars	Unit cost (INR/Kg)	UoM	Daily consumption	Total Cost in Rs.
1	**Chemicals**				
a	Hydrated Lime	5.30	Kg	7000	37,100
b	Urea	39.5	Kg	100	3950
c	DAP	62.5	Kg	50	3125
d	Defoamer	135	Kg	10	1,350
e	Poly Electrolyte (Praestol-2620)	222	Kg	12	2,664
2	**Maintenance**				
a	Electricity (0.5 KWH/m^3)/	7	Units	6875	48,125
b	Accessories plate and frame clothes				600
c	Belt presses top and bottom Nylon Cloths				450
	Diffusers + Membranes				3,600
d	Spares and Maintenance				3,800
3	**Salary and Wages (**including staff, workmen, contract labors)				39,181
	Total				**143,945.00**

PART-I

Any other particular for improving the quality of the environment

- ✓ The unit has aligned itself with Environmental Management Systems ISO 14001:2015 and Occupational Health and Safety Management System in accordance with ISO 45001:2018.
- ✓ The unit is continuously adopting cleaner technologies as an ongoing exercise with several projects under formulation and implementation to further enhance its environmental performance by avoiding human errors, improving work environment & controlling pollution at source.
- ✓ Staff and workmen are exposed environmental awareness training by in-house faculty and external agencies.
- ✓ All activities in the unit, which have an interaction with the environment, have been identified. Aspects and impacts related to these activities are listed out. Based on this data environmental objectives and targets have been set against the significant environmental impacts. Aspects and impacts are being reviewed & updated periodically.
- ✓ As a step towards afforestation, green coverage is extended to degraded lands with free distribution of seedlings and post plantation services to ensure maximum survival rate. Following plantation activities have been taken up under 'Operation Green' campaign. This activity will be a continuous exercise to improve the greenery in and around the industry :
    - Industry has already developed 245 acres of own land (by considering total plant area includes HPF and Grasilene) under "Operation Green Project" planting around 153000 Nos. of different tree species. (Around 3000 Plantation done in FY 21)
- ✓ Various varieties of birds and flower species in & around factory premises are found due to availability of greenery in the premises and they were protected by industry. Lots of peacocks are found in the premises and special care is taken to protect them.

Awards

- Unit has emerged as one of the Top Performers at the National Level getting an award of three leaves in the Green Rating Award by Centre, New Delhi for Science and Environment. Also the unit is recognized with a special award for the best performance in fiber sourcing for striving towards raw material self-sufficiency by promoting farm and social forestry Certificate.
- Unit's achievements of attaining the global distinction of high chemical recovery efficiency was appreciated and the technical paper presented in this regard during IPPTA Seminal was adjusted as the best and awarded the first prize.
- Unit was awarded 2nd prize amongst large industries in the State of Karnataka for Safety from Dept. of Factories & Boilers.
- Unit received Ünnatha Suraksha Puraskara" from the National Safety Council, for the year 2005, in recognition of outstanding safety performance and management system in paper and pulp category of industries during 2003-05.
- Technical paper titled "Two stage oxygen for Bleaching Dissolving Grade Pulp" presented during IPPTA Seminar was adjusted as one of the best Technical paper.
- IMC Ramakrishna Bajaj National Quality Special Award for Performance Excellence - 2007 in the manufacturing category.
- Aditya Birla Group's Chairman's Platinum Award for Manufacturing Excellence in 2009.
- Harihar Polyfibers has received the Gold Award from Green Tech Foundation in 2010 for Outstanding Achievement in Environmental Performance.
- Harihar Polyfibers has own the "Most Innovative Environmental Project" award at the CII – Godrej Green Business Centre on 28 & 29 January 2011 at CII – Sohrabji Godrej Green Business Centre, Hyderabad.
- Unnatha Suraksha Puraskar 2013 by National Safety Council, Karnataka Chapter.
- Unit has awarded 4 star ratings for the Commitment to EHS practices in the CII-SR ESH Excellence awards in 2018.
- Unit has own "Golden Peacock Award" for Environmental management by Institute of Directors and world Environmental Foundation, New Delhi in 2018.

- Unit was awarded 1st prize for installation of "Color Removal Plant" in Project Recognition Program conducted by "Frost and Sullivan"at Mumbai in 2019.
- Unit has own the CII-ITC Sustainability award -2019 for "Excellence in Environment Management".

- Unit has own "Best Skill Development Award-2020" from Bangalore chamber of Industry & Commerce.
- Unit has own National Award for Energy Efficient unit from CII in 2020.