ADITYA BIRLA
GRASIM

September 21, 2024

Ref.: 1983/Env-SFD/PCB/BPL/Stmt

The Member Secretary,
M. P. Pollution Control Board,
Paryawaran Parisar,
E-5, Area Colony,
Bhopal

Sub: Environment Statement for the Financial Year Ending 31st March, 2024.

Dear Sir,

Kindly refer to Rule 14 of the Environment (Protection) Rules, 1986 as amended. We enclose here with Environmental Statement in respect of our Staple Fibre Division, 25 MW, 40 MW Thermal Power Plant and Excel Fibre Division and all other operations or processes requiring consent under Section 25 of the Water (Prevention & Control of Pollution) Act, 1974 (6 of 1974) or under Section 21 of the Air (Prevention & Control of Pollution) Act, 1981 (14 of 1981) or both or the Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016 issued under the Environment (Protection) Act, 1986 (29 of 1986) for the financial year ending 31st March 2024 in the prescribed format of Form V. Necessary annexures are also enclosed in order to give adequate emphasis to the different parts of the Environmental Statement.

If any further information is required in connection with the statement, we shall be happy to furnish the same.

Thanking you,

Yours faithfully,

Shantanu A Kulkarni
President & Unit Head

CC:

1. Regional Officer, M.P. Pollution Control Board, 17, Bharatpuri, Ujjain.
2. Director , MoEF&CC ,Regional Office (WZ), E-5, Kendriya Paryavaran Bhawan, E-5 Arera Colony, Link Road-3 Ravishankar Nagar, ,Bhopal –462016
3. Central Pollution Control Board, Zonal Office, Bhopal

Grasim Industries Limited
Staple Fibre Division
Birlagram - 456 331, Nagda (M.P.) INDIA Tele: +91 7366 246760-64 Fax : +91 7366 246024, 244114
CIN : L17124MP1947PLC000410 Website : www.adityabirla.com E-mail : grasim-sfd.nagda@adityabirla.com
Regd. Office : P.O. Birlagram, Nagda - 456 331 (M.P.)

ENVIRONMENTAL STATEMENT

for

GRASIM INDUSTRIES LIMITED

(For the financial year ending 31.03.2024)

ENVIRONMENTAL STATEMENT

for

STAPLE FIBRE DIVISION AND 25 MW & 40 MW THERMAL POWER PLANTS

(For the financial year ending 31.03.2023)

FORM - V

(See Rule 14)

Environmental Statement for the financial year ending the 31st March, 2024

PART -A

i) Name & address of the Owner/Occupier of the industry, operation or process	-	M/s. GRASIM INDUSTRIES LIMITED, Birlagram, Nagda (M.P.) 456 331.
ii) Industry category Primary :- (STC Code) Secondary:- (SIC Code)	-	Man-Made Viscose Staple Fibre Manufacturing Unit
iii) Production capacity:- Units	-	160600 TPA Viscose Staple Fibre
iv) Year of establishment	-	February 1954
v) Date of the last environmental statement submitted	-	15.09.2023

PART -B

Water & Raw Material Consumption

i) Water consumption - M^3/day

Process	-	1318
Cooling - (Staple Fibre Division)	-	5095
Cooling - (25 MW & 40 MW Power Plant)	-	3447
Domestic	-	2701

Name of products	Process water consumption per product output #	
	During the previous financial year 2022-2023 (1)	During the current financial year 2023-2024 (2)
Viscose Staple Fibre (Including Captive Power)	20.4 M^3/T fibre	19.7 M^3/T fibre

ii) Raw Material consumption

* Name of raw materials	Name of Products	Consumption of raw material per unit of output	
		During the previous financial year 2022-2023	During the Current financial year 2023-2024
1) Rayon grade pulp	V.S.F.	1.0078	0.9885
2) Zinc	V.S.F.	0.0022	0.0025
3) Caustic Soda	V.S.F.	0.4921	0.4888
4) Sulphuric acid	V.S.F.	0.7002	0.7164
5) Carbon disulphide	V.S.F.	0.1592	0.1573

* Industry may use codes if disclosing details of raw materials would violate contractual obligations, otherwise all industries have to name the raw materials used.

Water consumption per ton of product output includes process water and cooling water. Process Water consumption has decreased due recycle of process water .

PART-C

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

i) Pollutants		Quantity of pollutants discharged (mass/day) TPD except pH & Temp.	Concentrations of pollutants in discharges (mass/volume) mg/l except pH & Temp.	Percentage of variation from prescribed standard with reasons
a) Water	pH		-	Achieved ZLD in October'2021 No Pollutants are being discharged.
	S.Solids	-	-	
	Zinc	-	-	
	B.O.D.	-	-	
b) Air	Acid Plant SO_2	0.572 TPD	838 mg/Nm3	Values maintained within the prescribed limits
	Spg. stack emission: H_2S	8.2 TPD	299 mg/Nm3	Values maintained within the prescribed limits
	CS_2	25.0 TPD	912 mg/Nm3	Values maintained within the prescribed limits
	Power Plant PM			
	30 MW	0.306 TPD	43 mg/Nm^3	PM values maintained within the prescribed limits
	25 MW	0.528 TPD	83.0 mg/Nm^3	- do -
	40 MW	0.490 TPD	82.8 mg/Nm^3	- do -

Note : - 1. Boiler stack heights are sufficient to take care of SO_2 emissions.

2. 25 MW Power Plant commissioned on 18.11.1992.

3. 40 MW Power Plant commissioned on 04.08.1996.

4. Modernization of 16.5 MW Power Plant to 30 MW Power Plant on 25.04.2009

5. Use of Zinc as retardant started from 01.02.2013

Stack Detils:

30 MW : 2 Nos, 61 meter each

25 MW : 1 Nos, 71 meter

40 MW : 1 Nos, 76 meter

Spinning Stack : 3 Nos, 125 meter (commissioned on 20.08.99, 06.11.99 & 17.01.2000)

PART-D

Hazardous Wastes

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

Hazardous wastes	Total Quantity	
	During the previous financial year 2022-2023	**During the current financial year 2023-2024**
a) From Process Category		
5.1 Used Oil		
SFD+30 MW	2000 kgs	6562 kgs
25 MW TPP	500 kgs	1000 kgs
40 MW TPP)	500 kgs	1000 kgs
5.2 Wastes or residues containing oil	0 kgs	50 kgs
17.2 Spent Catalyst V2O5	6610 kgs	3000 kgs
17.1 Residue/ Filter (Hard Mass & Sulphur Sludge)	315380 kgs	295280 kgs
35.2 Used Resin SFD (Demin Plant/ WTP Resin)	0 kgs	0 kgs
b) From Pollution Control facilities		
35.3 Inorganic Sludge from ETP (Gypsum) & ZLD residue	5641410 kgs*	7855280 kgs*

Note: Chemical Sludge from ETP (Gypsum) & ZLD residue is being sent to Cement Industry for utilization in place of Natural Gypsum.

* Chemical sludge ZLD residue included.

PART -E

Solid Wastes

		Total Quantity	
		During the previous financial year 2022-2023	**During the current financial year 2023-2024**
a)	From Process Cellulosic Waste kgs	219903	236298
b)	From Pollution Control facilities Fly ash from Power Plant, MT	69804	116421
	ETP Sludge kgs	30258000	28140000
c)	1) Quantity recycled or re-utilized within the unit		
	2) Fly Ash Utilised MT	69804	116421
	3) Disposed MT	Nil	Nil

ETP Sludge analysis report exhibits that it is non hazardous in nature as per Authorization No. 1663/HSMD/MPPCB/UU-02/2009 dated 01.09.2009.

* Organic ETP Sludge generation on as such basis and it is being utilizing for energy recovery in existing coal fired boiler.

PART -F

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

i	Waste Disposal Practice	Annexure -1
ii.	Chemical Sludge ETP (Gypsum) & ZLD residue	Annexure -1A, 1B, 1C
iii.	Tow Waste	Annexure -1D
iv.	Fly Ash	Annexure - 1E
v.	Used Oil	Annexure - 1F
vi.	Used Resin	Annexure - 1G
vii	Hard Mass	Annexure - 1H
viii	Oil Soaked Cotton	Annexure - 1I
vii	Spent Catalyst	Annexure - 1J

PART -G

Impact of the pollution control measures on conservation of natural resources and on the cost of production.

Annexure -2

PART -H

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

Annexure -3

PART - I

Any other particulars for improving the quality of the environment.

Annexure -4

DISPOSAL PRACTICE

FLY ASH

Fly Ash is utilized in the cement industries and units manufacturing bricks, blocks and tiles.

Fly ash is collected in bulkers or trucks from silo. A separate arrangement for dustless loading of fly ash in bulkers or trucks is provided. This consists of a Telescopic Chute, fluidizing feeder and a hydromix dust conditioner to make the ash slightly damp and prevent it from flying during transit. 20% of dry fly is being made available free of charge to units manufacturing fly ash or clay-fly ash bricks, blocks and tiles on a priority basis

Chemical Sludge from ETP & ZLD

Organic ETP Sludge - The dewatered Effluent Treatment Plant Organic Sludge is sent to the Coal Storage area for mixing with coal. This Organic ETP Sludge mixed with coal is fed into coal fired boilers of existing Thermal Power Plant for energy recovery.

Inorganic ETP (Gypsum) & ZLD residue - The dewatered Effluent Treatment Plant and Zero Liquid Plant Inorganic Sludge (Gypsum) is stored in covered shed and sent to Cement Industries for utilization in cement in place of Natural Gypsum in their process.

TOW WASTE / CELLULOSIC WASTE

Tow waste generated during regeneration of cellulose is washed and collected in tractor trolleys and transported to Tow Shed for further processing. Waste Fibre is recovered and sold to low end fibre users and remaining short fibre is mixed with coal and fed into coal fired boilers of existing Thermal Power Plant or sent to cement industry for energy recovery .

USED OIL

Stored at isolated place, Storage capacity is 25.0 Tonne. Used Oil stored in drums and sold to CPCB /MPPCB authorized vender/ recycler.

HARD MASS & SULPHUR SLUDGE

Being sent to Madhya Pradesh Waste management Project, Pithampur for disposal

SPENT CATALYST (V2O5)

Being sent to Madhya Pradesh Waste management Project, Pithampur for disposal

USED RESIN (FROM WATER TREATMENRT PLANT)

Being sent to Madhya Pradesh Waste management Project, Pithampur for disposal.

WASTE OR RESIDUES CONTAINING OIL (FROM MAINTAINANCE ACTIVITY)

Being sent to Madhya Pradesh Waste management Project, Pithampur for disposal.

Hazardous waste is transported through MPPCB authorized Hazardous Waste Transporters only to Recyclers for recycling, Cement Industry for utilization and Madhya Pradesh Waste management Project, Pithampur for disposal.

DESCRIPTION AND PERFORMANCE OF EFFLUENT TREATMENT PLANT

Brief Description of ETP:

Effluents get generated in the process at several points and can be classified under three broad heads, i.e. alkaline, acidic and neutral. The contaminants from the various sources undergo changes when the effluent streams merge with one another. The merger of acidic and alkaline effluents results in partial neutralisation of acidity. Cellulose present in a dissolved state in the alkaline effluent is regenerated and remains as suspended matter in the above effluent. Our efforts in effluent treatment have been directed at removal of undesirable constituents from the sources before they merge so that the final effluent meets the prescribed specifications. Main emphasis to achieve the above has been to reduce the effluent waste load in various streams by in-plant measures, aimed at maximum possible recovery of chemicals and recycling of various streams. The effluent treatment process adopted by us involves the following steps:

i. **Free Acid Neutralization and Zinc Removal**

Acidic wash water is strained to remove any suspended fibre and fed to a lime dozing chamber where it reacts with 7-10 % lime slurry. Dozing of lime is regulated to maintain pH of 9.5 to 10.0. Calcium Sulphate and Zinc Hydroxide precipitate out in accordance with the following reactions.

$H_2SO_4 + Ca(OH)_2 = CaSO_4 + 2H_2O$

$ZnSO_4 + Ca(OH)_2 = Zn(OH)_2 + CaSO_4$

The Slurry containing precipitated Calcium Sulphate and Zinc Hydroxide goes to the lime sludge clarifier. Overflow from the lime sludge clarifier is allowed to mix with the balance factory effluent on the downstream side to Belt Press to yield cake which is chemical gypsum. The filtrate of is recycled to the lime dozing chamber for re-clarification. ETP Chemical Gypsum is shifted to covered shed for storage and then sent to cement industries for use in their process in place of Natural Gypsum. Neutralization of sulphuric acid is completed and efficiency of the zinc removal from acid wash water is greater than 98%.

The lime preparation station comprises a lime warehouse, strainer to trap PP bags and a pump to deliver the lime slurry to a settler, where heavy sand particles settle down

and are removed periodically. Overflow from lime settler constitutes the lime slurry dose for free acid neutralization and zinc precipitation.

ii. **Removal of Suspended Impurities**

Suspended impurities of the fibrous type are removed at source by straining the effluent through hessain bags. In addition, straining grids have been installed along the route of the effluent to trap the residual fibrous impurities. Further, the balance effluent is passed through a grit chamber to trap large-sized extraneous material impurities. The outlet from the grit chamber mixes with the overflow of the lime sludge clarifier before being routed to the primary clarifier for settling of suspended cellulosic particles.

iii. **BOD Reduction**

Effluent water from existing Primary Clarifier is taken to an Equalization Tank equipped with a powerful mixer. Main function of Equalization Tank is to dampen the variations of temperature, pH and BOD in water and also to act as a reaction chamber for adjusting pH in the range 6.5 - 8.5 by adding necessary quantities of Hydrochloric acid or lime. Strict control of pH in the range 6.5 - 8.5 is effected with the help of an automatic feed back pH controller.

Water with pH values between 6.5 - 8.5 and having nutrients in the ratio of BOD: N:P: (100:5:1) is fed to Biological Reactor. In Biological Reactor, maintaining desired food to microorganisms' ratio and dissolved oxygen concentration in water reduces BOD of wastewater. Required concentration of mixed liquor suspended solids is maintained by 100 % recalculation ratio and excess sludge is taken to Sludge Thickner. Oxygen for wastewater is supplied with the help of surface aerators. Outlet water from Biological Reactor is taken to Secondary Clarifier where suspended solids are allowed to settle, and overflow is passed through pressure sand filters and outlet of sand filters is sent to ZLD plant for recovery of salt and to ensure zero liquid discharge.

iv. **Sludge Thickening and Dewatering**

The precipitated sludge after mixing of acid and alkaline streams in Primary Clarifier is fed to Second Sludge Thickner. Underflow from Second Sludge Thickner is fed to First Sludge Thickner for further thickening. Excess solids from the Biological Reactor are mixed with Second Sludge Thickner slurry and fed to First Sludge Thickner.

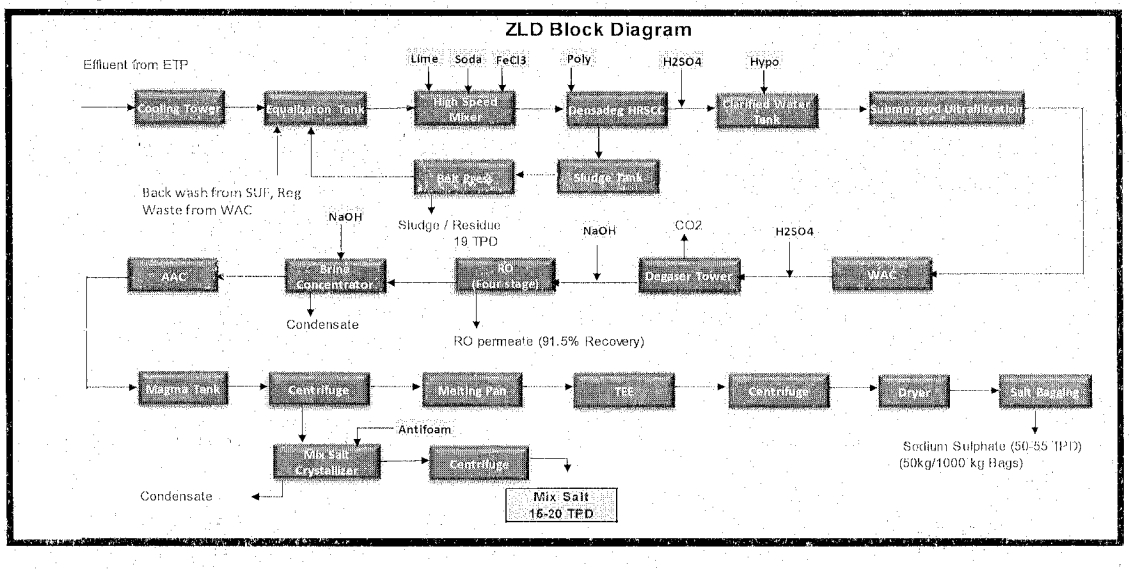
Concentration of solids in primary and secondary sludge is increased to 3.5 - 4.0 % by adding polyelectrolyte in First Sludge Thickner. Slurry from First Sludge Thickner is fed to Belt Press to obtain a cake of sludge with around 20% solids.

The dewatered Effluent Treatment Plant Sludge is collected in Trolleys and sent to the Power Plant for burning in existing coal fired Boilers.

PROCESS DESCRIPTION OF ZERO LIQUID DISCHARGE (ZLD) PLANT

Brief Description of ZLD:

Effluents get generated in the process at several points that is treated in ETP. After the treatment and conforming to the specified standard for ZLD requirement, outlet of sand filters is sent to ZLD plant for recovery of salt and to ensure zero liquid discharge.



(ZLD Process Flow Diagram)

The ZLD process consist of the following sub process:

1. **Pre Treatment:** Pre-treatment includes Cooling of Effluent, Hardness removal, Suspended Solid removal and pH corrections through dozing of chemicals at different stages. Pre-treatment includes Densadeg Clarifier, Sub Merged Ultra Filtration, WAC (Weak Acid Cationic Resin).

   a) **Densadeg Clarifier System:** The stabilized/ homogenized process effluent from equalization tank is taken to Densadeg system. First it is fed to the rapid mix tank to mix the chemicals i.e., Lime, Soda Ash & Ferric chloride with the Inlet water. Lime and soda ash shall be dosed for hardness removal purpose and ferric chloride is provided for coagulation.

   The water is then transferred into the reaction zone where polymer is injected to aid in the flocculation and settling ability of the coagulated particles. The thickened sludge of 10-15 % is periodically discharged from the hopper to Belt press through Sludge tank.

   b) **Sub Merged Ultra filtration:** SUF used to remove suspended solids. SUF system is with reinforced hollow-Fibre membrane. The rugged Fibres are held in modular cassettes that are immersed directly into the mixed liquor.

Each cassette has a permeate header that is connected to the suction side of a centrifugal pump, which applies a low-pressure vacuum to draw treated effluent through the microscopic pores of the fibres in an outside-in flow path. Periodically Back wash is done automatically to get desired permeate quantity and quality

c) **Primary WAC:** SUF treated water is fed to WAC system to reduce hardness with resin, it is possible to remove the temporary hardness as well as reduce the total dissolved solids.

d) **Polisher WAC:** A Polisher WAC of same operating principle as primary is provided in series. The Objective of the polisher is to capture any leakages from the primary WAC unit.

e) **Degasser Tower and Degassed Water storage tank:** It is for removal of CO2 for reducing scaling potential in RO. The water from WAC passes on to degasser tower. Feed to degasser pH adjusted through acid Dosing. The Degasser Tower treated water free of CO2 and neutral pH is collected in this tank. Caustic is added to the water to increase the pH before feed to High pH RO system.

2. **RO:** After treatment of effluent water, it enters to RO for filtering. Where dissolved solids separated out and Soft water produces for reuse. RO elements reduces chemical contaminants (metal ions, aqueous salts) from the feed water. It also helps in reducing volume by concentrating effluent from ETP. RO reduces total effluent volume by approx. 92% %.

3. **Brine Concentrator (BC):** High TDS reject water is adjusted, heated, and deaerated prior to feed to evaporator and is mixed with recirculating brine. Stream is evaporated through falling-film evaporator, compressor driven system. It is collected in to Crystallizer feed tank from where it moves to AAC for Sodium Sulphate recovery, Distillate moves to RO permeate tank.

4. **Acid Absorption Crystallization and Triple Effect Evaporator** (Salt System): Recovery of Sodium Sulphate through Adiabatic Crystallization-Concentrated liquid from Brine concentrator with Higher TDS enters to Acid Absorption Crystallizer, where Sodium Sulphate present in the liquid gets crystalized. Crystalized slurry is put-in to TEE through Melting Pan for Sodium Sulphate Recovery.

5. **Mixed Salt Crystallization**- Mother liquor from AAC moves to Mixed Salt Crystallizer to achieve Zero Liquid Discharge.

***

PART - E

TYPICAL ANALYSIS ETP SLUDGE

S.No.	Composition	Biomass- Sludge % Variation
I.	*As Such*	
1.	Moisture	72.9 - 74.2
2.	Total Solids	25.8 - 26.3
II.	*On Dry Basis*	
1	Calcium as Ca	5.8 - 6.1
2	Magnesium as Mg	0.6 - 0.7
3	Sulphate as SO_4	17.6 - 17.9
4	Organic Matter	43.6 - 46.9
5	Iron as Fe	0.8 - 0.9
6	Chloride as Cl	0.2 - 0.6
		Kcal/kg
III.	*Calorific Value*	3000 - 3200

TYPICAL ANALYSIS ZLD residue

S.No.	Composition	ZLD- Sludge % Variation
I.	*As Such*	
1.	Moisture	60 - 70
2.	Total Solids	30 - 40
II.	*On Dry Basis*	
1	Calcium as Ca	27.0 - 35.0
2	Magnesium as Mg	2.0 - 5.0
3	Sulphate as SO_4	1.0 - 2
4	(Loss on ignition (600 ^{O}C)	6.0 - 10.0
5	Iron as Fe	0.1 - 0.8
6	Chloride as Cl	0.1 - 0.3

Annexure 1C

J. M. ENVIROLAB PVT. LTD.

25 years of success

Approved from MoEF&CC & Certified - ISO 9001:2015, ISO 14001:2015, ISO 45001:2018

TEST REPORT

Sample Number:	**JME/GIL/SL/01**	Report No.:	**JME/SL/220321001/N**
Name & Address of Unit:	**M/s. Grasim Industries Ltd. Birlagram, Nagda, Madhya Pradesh**	Format No.:	**7.5 F-05**
		Party Reference No.:	**Nil**
Sample Description:	**ETP Gypsum Sludge**	Reporting Date:	**28/03/2022**
Client Representative : (Name & Designation)	**Mr. Ashish Khare**	Receipt Date:	**21/03/2022**
		Sampling Date:	**19/03/2022**
Sample collected by :	**JMELPL Team**	Sampling Type:	**Composite**
Sampling & Analysis Protocol :	**As per CPCB Guidelines**	Sample Quantity:	**2.0 litre**

TEST RESULTS

S. No.	Parameter	Protocol	Result	Unit
1.	pH (1:5 Ratio)	USEPASW486	9.05	-
2.	Moisture content at 105°C	USEPA3540C	8.13	%
3.	Specific Conductivity	USDA:1954-Reaffirmed 2010	2478	µmho/cm
4.	Nickel as Ni	USEPA3050B	ND	mg/kg
5.	Zinc as Zn	USEPA3050B	5942	mg/kg
6.	Total Chromium as Cr	USEPA3050B	ND	mg/kg
7.	Lead as Pb	USEPA3050B	ND	mg/kg
8.	Cadmium as Cd	USEPA3050B	ND	mg/kg
9.	Copper as Cu	USEPA3050B	ND	mg/kg
10.	Ca as CaSO4	USDA:1954-Reaffirmed 2010	84.27	mg/kg

Note: Heavy metals and calcium are analyzed on dry basis.

End of Report

Abhishek Tiwari
Tested by

Rajat Tandon
Checked by

Authorized Signatory

Note:
1. This test report has been at your request and test results pertain to the tested sample received.
2. This reports is for your reference only and not to be used for any legal purpose.
3. Any discrepancy in the test report or any remarks regarding the test results shall be brought to our knowledge within 7 days of the issue of this report.
4. Total liability or any claim in case of dispute is limited to the invoice raised by the laboratory.
5. The sample will be destroyed after retention time unless otherwise specified specially.
6. Endorsement of the product tested by the laboratory is neither inferred nor implied.
7. Report shall not be reproduce except in full without approval of the laboratory.
8. All disputes are subject to exclusive jurisdiction of Jaipur court only.

Reg. Office & Lab.
424, Ground Floor, Udyog Vihar,
Phase-IV, Gurugram-122015 (Haryana)
E-mail: jmenvirolab@hotmail.com | www.jmenvironet.org

Corporate Office
Emaar Digital Greens, Tower-B, Unit No.1517,
Golf Course Ext. Road, Sector-61,
Gurugram-122011(Haryana)

PART - F

TYPICAL ANALYSIS OF CELLULOSIC WASTE

S.No.	*Composition*	*% Variation*
1	H_2SO_4	Traces
2	$ZnSO_4$	Nil
3	Na_2SO_4	0.3 - 0.7
4	Cellulose	16.4 - 17.9
5	Moisture	81.8 - 82.9

THERAPEUTICS CHEMICAL RESEARCH CORPORATION
Shiv Industrial Estate, 2nd & 3rd Floor,
K. V. B. Marg, Chinchpokli (E), Mumbai - 400012, India.
Tel : +91-22-6787 9400
E-Mail : corporate@tcrcgroup.com

Annexure # 1E

TCRC
AN INSPECTION & TESTING COMPANY

72 YEARS TCRC

TEST REPORT

CERT. NO.: 2324C27SS04888 **DATE: 09.09.2023**

1. Name of the Customer with Address : M/s. Grasim Industries Limited
   Staple Fibre Division
   Birlagram, Nagda
   Madhya Pradesh. – 456331.
2. Description of the Sample : Fly Ash
3. Marks and Seal : E.C – 04 / Blr.No.2/ 05.08.2023
4. Condition of Sample : Approx. 1 kg powder sample packed in polythene packet
5. Sampling : Sample is not drawn by TCRC Mumbai Laboratory
6. Date of Receipt of the Sample : 05.09.2023
7. Customer's Reference : SO NO.: 4700271211 / 101 Dt.: 23.08.2023
8. Dates Of Analysis : 05.09.2023 to 09.09.2023

Results

Parameters	Basis	Value	Unit	Test Method
Silica as SiO_2	--	56.29	%	IS 1355 : 2019
Alumina as Al_2O_3	--	24.79	%	
Iron as Fe_2O_3	--	8.32	%	
Calcium as CaO	--	1.23	%	
Magnesium as MgO	--	0.88	%	
Sodium as Na_2O	--	0.97	%	
Potassium as K_2O	--	1.03	%	
Sulphur as SO_3	--	0.59	%	
Phosphorus as P_2O_5	--	0.24	%	
Titanium as TiO_2	--	1.41	%	
Manganese as MnO	--	0.13	%	
Loss on Ignition	--	3.48	%	IS 1727 : 1967 RA 2018

Prepared by
Swati Dighe
(Lab Receptionist)

Verified by
Trupti Dhumal
(Dy.Technical Manager)

Authorized Signatory
Preethi Prabhakaran
(Technical Manager)

+ The test result related only to the item(s) tested. The test report in full or part shall not be reproduced unless written permission is obtained from TCRC.
+ Submitted sample not drawn by TCRC.
+ "*" Data provided by customer

+ This test report which is issued reflects our findings at the time and place of inspection/testing only and does not relieve parties from their contractual obligations.
+ Samples will be retained by us for thirty days only.

***This document is issued by the Company under its General Conditions for Inspection and Testing Services printed overleaf

ANNEXURE # 1F

J.M. ENVIROLAB PVT. LTD.

25 years of success

Approved from MoEF&CC & Certified - ISO 9001:2015, ISO 14001:2015, ISO 45001:2018

TEST REPORT

Sample Number:	**JME/GIL/UO/01**	Report No.:	**JME/UO/220321001/N**
Name & Address of Unit:	**M/s. Grasim Industries Ltd. Birlagram, Nagda, Madhya Pradesh**	Format No.:	**7.5 F-05**
		Party Reference No.:	**Nil**
Sample Description:	**Used Oil**	Reporting Date:	**28/03/2022**
Client Representative : (Name & Designation)	**Mr. Ashish Khare**	Receipt Date:	**21/03/2022**
		Sampling Date:	**19/03/2022**
Sample collected by :	**JMELPL Team**	Sampling Type:	**Comosite**
Sampling & Analysis Protocol :	**As per CPCB Guidelines**	Sample Quantity:	**2.0 litre**

TEST RESULTS

S. No.	Parameter	Protocol	Result	Unit	Limits
1.	Polychlorinated biphenyls (PCBs)	As Per CPCB Guidelines	BDL (DL 0.01)	ppm	<2.0
2.	Lead	As Per CPCB Guidelines	14.98	ppm	100
3.	Arsenic	As Per CPCB Guidelines	0.16	ppm	5
4.	Cadmium + Nickel + Chromium	As Per CPCB Guidelines	23.56	ppm	500
5.	Poly Aromatic Hydrocarbon (PAH)	As Per CPCB Guidelines	1.24	%	6

Note: Limit as per Schedule V, Rule-3, part A of the Hazardous and other Wstes (Managemnet and Transboundary Movement) Rules, 2016

End of Report

Abhishek Tiwari
Tested by

Rajat Tandon
Checked by

ENVIROLAB PVT. LTD. Authorised Signatory
Rajkumar Yadav
Authorized Signatory

Note:
1. This test report has been at your request and test results pertain to the tested sample received.
2. This reports is for your reference only and not to be used for any legal purpose.
3. Any discrepancy in the test report or any remarks regarding the test results shall be brought to our knowledge within 7 days of the issue of this report.
4. Total liability or any claim in case of dispute is limited to the invoice raised by the laboratory.
5. The sample will be destroyed after retention time unless otherwise specified specially.
6. Endorsement of the product tested by the laboratory is neither inferred nor implied.
7. Report shall not be reproduce except in full without approval of the laboratory.
8. All disputes are subject to exclusive jurisdiction of Jaipur court only.

Reg. Office & Lab.
424, Ground Floor, Udyog Vihar,
Phase-IV, Gurugram-122015 (Haryana)
E-mail: jmenvirolab@hotmail.com | www.jmenvironet.org

Corporate Office
Emaar Digital Greens, Tower-B, Unit No.1517,
Golf Course Ext. Road, Sector-61,
Gurugram-122011(Haryana)

Certificate No. TC-5022

Madhya Pradesh Waste Management Project
(A Division of Ramky Enviro Engineers Ltd.)

ISO 9001:2015 C.No. : FS570487 | ISO 14001:2015 C.No. : EMS 570497 | OHSAS 18001 : 2007 C.No. : OHS 570500

REEL CIN - U74140TG1994PLC018833
Website : www.ramky.com

CERTIFICATE OF ANALYSIS

Issued from: Madhya Pradesh Waste Management Project , Pithampur

Issued to	M/s Grasim Industries Limited	Report No:	MPWMP/LAB/CA/164/20-21
Address	Birlagram, Dist. Nagda-456331	Issued Date :	21/12/2020
	Madhya Pradesh,	ULR No:	TC502218000000742P

Name of Contact Person	Mr. Ashish Khare		
Email Id & Contact No.	ashish.khare@adityabirla.com 9111109083		
Name of sample : Spent Resin			
Sample Received date	28/11/2020		
Analysis Starting Date	29/11/2020	Date of Completion of Analysis:	10/12/2020
Other References :			

Ref:1	Sample Quantity :	1 Kg	Ref:2	Categary No.: 35.2	
Ref:3	Sample Collected By :	Client	Ref:4	Ambient Temperature : 27°C	

TEST REPORT

Sl. No	Parameters	Unit	Method of Test	Result	CPCB limit for direct landfill disposal
1	PFLT(Paint Filter Liquid Test)	-	USEPA 1998, SW-846; 9095A	NA	Pass
2	Bulk Density	g/cc	APHA 23rd Edition; 2710 F	0.85	Not Specified
3	Calorific Value	cal/g	IS:1350 Part II – 1970	**3596.87**	<2500
4	Moisture Content	%	IS 326 (Part 21): 2001	NA	Not Specified
5	Loss on Drying @ 105^{0}C	%	APHA 23rd Edition, 2017; 2540 B	18.04	Not Specified
6	Loss on Ignition @ 550^{0}C	%	APHA 23rd Edition, 2017; 2540 E	**63.10**	<20
7	pH (At Room Temperature)	-	USEPA 1998, SW-846; 9045 C	7.61	4-12
8	Sulphate as $SO4^{--}$	mg/kg	APHA 23rd Edition; 4500 $SO4^{--}$ - E	7.41	Not Specified
9	Chloride as Cl^-	mg/kg	USEPA 1998, SW-846; 9253	222.04	Not Specified
10	Fluorides as F^-	mg/l	APHA 23rd Edition; 4500 F^- - D	<0.1	<50.0
11	Phosphate as $PO4^-$	mg/kg	APHA 23rd Edition; 4500 $PO4^{--}$ - D	0.42	Not Specified
12	Specific Gravity	g/cc	APHA 23rd Edition; 2710 F	0.85	Not Specified
13	Total Cyanide	mg/kg	USEPA 1998, SW-846; 9014	<1.00	Not Specified
14	Total Sulphide	mg/kg	USEPA 1998, SW-846; 9034	<10.00	Not Specified
15	Nitrate	mg/L	APHA 23rd Edition 2017, 4500 $NO3^-$ B	2.30	<30

Analysed By: Reviewed By: Authorized Signatory

16	Hexavalent Chromium as Cr^{6+}	mg/L	APHA 23rd Edi., 2017: 3500 Cr B	NA	<0.5
17	Copper as Cu-Total	mg/kg	USEPA 1998, SW-846; 7210	94.00	Not Specified
18	Copper as Cu- TCLP	mg/L	(USEPA1311) APHA 3111 B	NA	<25.0
19	Total Chromium as Cr- Total	mg/kg	USEPA 1998, SW-846; 7190	135.65	Not Specified
20	Total Chromium as Cr- TCLP	mg/L	(USEPA1311) APHA 3111 B	NA	<5.0
21	Iron as Fe Total	mg/kg	USEPA 1998, SW-846; 7380	318.9	Not Specified
22	Iron as Fe-TCLP	mg/L	(USEPA1311) APHA 3111 B	NA	Not Specified
23	Lead as Pb- Total	mg/kg	USEPA 1998, SW-846; 7420	60.69	Not Specified
24	Lead as Pb- TCLP	mg/L	(USEPA1311) APHA 3111 B	NA	<5.0
25	Manganese as Mn -Total	mg/kg	USEPA 1998, SW-846; 7460	57.12	Not Specified
26	Manganese as Mn -TCLP	mg/L	(USEPA1311) APHA 3111 B	NA	<10.0
27	Nickel as Ni- Total	mg/kg	USEPA 1998, SW-846; 7520	41.65	Not Specified
28	Nickel as Ni- TCLP	mg/L	(USEPA1311) APHA 3111 B	NA	<20.0
29	Zinc as Zn- Total	mg/kg	USEPA 1998, SW-846; 7950	21.42	Not Specified
30	Zinc as Zn- TCLP	mg/L	(USEPA1311) APHA 3111 B	NA	<250
31	Cadmium as Cd- Total	mg/kg	USEPA 1998, SW-846; 7130	1.19	Not Specified
32	Cadmium as Cd-TCLP	mg/L	(USEPA1311) APHA 3111 B	NA	<1.0

Note :

1	CPCB – Central Pollution Control Board
2	TCLP – Toxicity Characteristics Leaching Procedure
3	SW 846 – Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, , May 1997
4	APHA – Americal Public Health Association-Standard Methods for the Examination of Water & Wastewater, 23rd Edition,2017
5	IS – Indian Standard
6	NA – Not Analyzed, ND – Not Detected
7	The comprehensive analysis report refers only to the 'as received' sample of waste
8	The relevance vis-à-vis applicability of the report solely relates to the category no. as per the latest Hazardous Waste Rules as or as would be assigned by the concerned statutory authority
9	The report cannot be produced in part or in full without the permission of Madhya Pradesh Waste Management Project.

Analysed By: Reviewed By: Authorized Signatory:

Madhya Pradesh Waste Management Project
(A Division of Ramky Enviro Engineers Ltd.)
RAMKY GROUP
ISO 9001:2015 C.No. : FS570487 | ISO 14001:2015 C.No. : EMS 570497 | OHSAS 18001 : 2007 C.No. : OHS 570500
REEL CIN - U74140TG1994PLC018833
Website : www.ramky.com

CERTIFICATE OF ANALYSIS

Issued from: Madhya Pradesh Waste Management Project , Pithampur

Issued to :	M/s Grasim Industries Limited	Report No:	MPWMP/LAB/CA/164/20-21
Address	Birlagram, Dist. Nagda-456331	Issued Date :	21/12/2020
	Madhya Pradesh,		

Name of Contact Person	Mr. Ashish Khare
Email Id & Contact No.	ashish.khare@adityabirla.com 9111109083
Name of sample : Spent Resin	

Sample Received date	28/11/2020		
Analysis Starting Date	29/11/2020	Date of Completion of Analysis:	10/12/2020
Other References :			

Ref:1	Sample Quantity :	1 Kg	Ref:2	Categary No.: 35.2
Ref:3	Sample Collected By :	Client	Ref:4	Ambient Temperature : 27°C

TEST REPORT

Sl. No	Physical Observation	Result
1	Does the waste have strong Odor?	NO
2	Does the waste give fumes exposed to the atmosphere?	NO
3	Does the waste react with water?	NO
4	Is the waste incompatible with any material? If so specify	NO
5	Physical State	Solid
6	Color	Brown
7	Texture	Dry Granular

Sl. No	Parameters	Unit	Method of Test	Result	CPCB limit for direct landfill disposal
8	Flash Point	°C	USEPA 1998, SW 846; 1020 A	>60	Not Specified
9	Ash Content @ 900°C	%	APHA 23rd Edition, 2017; 2540	34.8	Not Specified
10	Organic Halogens	mg/l	SW-846; 5050 & 9253	2288.04	Not Specified
11	Carbon	%	CHNS Analyzer	45.1	Not Specified
12	Hydrogen	%	CHNS Analyzer	32.17	Not Specified
13	Nitrogen	%	CHNS Analyzer	0.56	Not Specified
14	Sulphur	%	CHNS Analyzer	0.19	Not Specified
15	Cobalt as Co- Total	mg/kg	USEPA 1998, SW-846; 7200	55.93	Not Specified
16	Cobalt as Co- TCLP	mg/l	(USEPA1311) APHA 3111 B	NA	<80.0
17	Arsenic as As-TCLP	mg/l	USEPA 1998 SW 846-7061 A	NA	<5.0
18	Arsenic as As-WLT	mg/l	USEPA 1998, SW-846; 7061 A	NA	<1.0
19	Cadmium as Cd-WLT	mg/l	APHA 23rd Edition 2017, 3111 B	NA	<0.2

Analyzed By: Reviewed By: Authorized By:

20	Total Chromium as Cr-WLT	mg/l	APHA 23rd Edition 2017, 3111 B	NA	Not Specified
21	Cobalt as Co-WLT	mg/l	APHA 23rd Edition 2017, 3111 B	NA	Not Specified
22	Copper as Cu-WLT	mg/l	APHA 23rd Edition 2017, 3111 B	NA	<10
23	Iron as Fe-WLT	mg/l	APHA 23rd Edition 2017, 3111 B	NA	Not Specified
24	Lead as Pb-WLT	mg/l	APHA 23rd Edition 2017, 3111 B	NA	<2
25	Manganese as Mn-WLT	mg/l	APHA 23rd Edition 2017, 3111 B	NA	Not Specified
26	Nickel as Ni-WLT	mg/l	APHA 23rd Edition 2017, 3111 B	NA	<3
27	Zinc as Zn-WLT	mg/l	APHA 23rd Edition 2017, 3111 B	NA	<10

Note :	
1	CPCB – Central Pollution Control Board
2	TCLP – Toxicity Characteristics Leaching Procedure
3	SW 846 – Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, , May 1997
4	APHA – Americal Public Health Association-Standard Methods for the Examination of Water & Wastewater, 23rd Edition,2017
5	IS – Indian Standard
6	NA – Not Analyzed, ND – Not Detected
7	The comprehensive analysis report refers only to the 'as received' sample of waste
8	The relevance vis-à-vis applicability of the report solely relates to the category no. as per the latest Hazardous Waste Rules as or as would be assigned by the concerned statutory authority
9	The report cannot be produced in part or in full without the permission of Madhya Pradesh Waste Management Project.

Analyzed By: Reviewed By: Authorized By:

Annexure # 14

Certificate No. TC-5022

Madhya Pradesh Waste Management Project
(A Division of Ramky Enviro Engineers Ltd.)

ISO 9001:2015 C.No..: FS570487 | ISO 14001:2015 C.No. : EMS 570497 | OHSAS 18001 : 2007 C.No. : OHS 570500

REEL CIN - U74140TG1994PLC018833
Website : www.ramky.com

CERTIFICATE OF ANALYSIS

Issued from: Madhya Pradesh Waste Management Project , Pithampur

Issued to	M/s Grasim Industries Limited	Report No:	MPWMP/LAB/CA/162/20-21
Address	Birlagram, Dist. Nagda-456331	Issued Date :	21/12/2020
	Madhya Pradesh,	ULR No:	TC502218000000740P

Name of Contact Person	Mr. Ashish Khare		
Email Id & Contact No.	ashish.khare@adityabirla.com 9111109083		
Name of sample : Hard Mass			
Sample Received date	28/11/2020		
Analysis Starting Date	29/11/2020	Date of Completion of Analysis:	10/12/2020
Other References :			

Ref:1	Sample Quantity :	1 Kg	Ref:2	Categary No.:	
Ref:3	Sample Collected By :	Client	Ref:4	Ambient Temperature : 27°C	

TEST REPORT

Sl. No	Parameters	Unit	Method of Test	Result	CPCB limit for direct landfill disposal
1	PFLT(Paint Filter Liquid Test)	-	USEPA 1998, SW-846; 9095A	Pass	Pass
2	Bulk Density	g/cc	APHA 23rd Edition; 2710 F	0.99	Not Specified
3	Calorific Value	cal/g	IS:1350 Part II – 1970	<500	<2500
4	Moisture Content	%	IS 326 (Part 21): 2001	NA	Not Specified
5	Loss on Drying @ 105°C	%	APHA 23rd Edition, 2017; 2540 B	12.70	Not Specified
6	Loss on Ignition @ 550°C	%	APHA 23rd Edition, 2017; 2540 E	2.42	<20
7	pH (At Room Temperature)	-	USEPA 1998, SW-846; 9045 C	9.51	4-12
8	Sulphate as SO_4^{--}	mg/kg	APHA 23rd Edition; 4500 SO_4^{--} - E	20.01	Not Specified
9	Chloride as Cl^-	mg/kg	USEPA 1998, SW-846; 9253	**60495.04**	Not Specified
10	Fluorides as F^-	mg/l	APHA 23rd Edition; 4500 F^- - D	<0.1	<50.0
11	Phosphate as PO_4^{---}	mg/kg	APHA 23rd Edition; 4500 PO_4^{---} - D	7.93	Not Specified
12	Specific Gravity	g/cc	APHA 23rd Edition; 2710 F	0.99	Not Specified
13	Total Cyanide	mg/kg	USEPA 1998, SW-846; 9014	<1.00	Not Specified
14	Total Sulphide	mg/kg	USEPA 1998, SW-846; 9034	<10.00	Not Specified
15	Nitrate	mg/L	APHA 23rd Edition 2017, 4500 NO_3^- B	7.95	<30

Analysed By: Reviewed By: Authorized Signatory:

Site Address : Plot No. 104, Industrial Area No. II Pithampur, Dist. - Dhar 454775 (M.P.) Ph. : 9109198111, 12, 13, 14 E-mail : mpwmp@ramky.com
Head Office : M/s. Ramky Enviro Engineers Ltd., Ramky Grandiose Floor 12th & 13th, Ramky Towers Complex, Opp. to Rolling Hills Anjaiah Nagar, Gachibowli, Hyderabad - 500032 Ph.: 040-23015000

16	Hexavalent Chromium as Cr^{6+}	mg/L	APHA 23rd Edi., 2017: 3500 Cr B	NA	<0.5
17	Copper as Cu-Total	mg/kg	USEPA 1998, SW-846; 7210	15.36	Not Specified
18	Copper as Cu- TCLP	mg/L	(USEPA1311) APHA 3111 B	1.91	<25.0
19	Total Chromium as Cr- Total	mg/kg	USEPA 1998, SW-846; 7190	246.39	Not Specified
20	Total Chromium as Cr- TCLP	mg/L	(USEPA1311) APHA 3111 B	0.99	<5.0
21	Iron as Fe Total	mg/kg	USEPA 1998, SW-846; 7380	301.59	Not Specified
22	Iron as Fe-TCLP	mg/L	(USEPA1311) APHA 3111 B	1.02	Not Specified
23	Lead as Pb- Total	mg/kg	USEPA 1998, SW-846; 7420	85.36	Not Specified
24	Lead as Pb- TCLP	mg/L	(USEPA1311) APHA 3111 B	0.58	<5.0
25	Manganese as Mn -Total	mg/kg	USEPA 1998, SW-846; 7460	23.36	Not Specified
26	Manganese as Mn -TCLP	mg/L	(USEPA1311) APHA 3111 B	0.58	<10.0
27	Nickel as Ni- Total	mg/kg	USEPA 1998, SW-846; 7520	21.04	Not Specified
28	Nickel as Ni- TCLP	mg/L	(USEPA1311) APHA 3111 B	0.89	<20.0
29	Zinc as Zn- Total	mg/kg	USEPA 1998, SW-846; 7950	29.36	Not Specified
30	Zinc as Zn- TCLP	mg/L	(USEPA1311) APHA 3111 B	1.21	<250
31	Cadmium as Cd- Total	mg/kg	USEPA 1998, SW-846; 7130	2.95	Not Specified
32	Cadmium as Cd-TCLP	mg/L	(USEPA1311) APHA 3111 B	0.05	<1.0

Note :

1. CPCB – Central Pollution Control Board
2. TCLP – Toxicity Characteristics Leaching Procedure
3. SW 846 – Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, , May 1997
4. APHA – Americal Public Health Association-Standard Methods for the Examination of Water & Wastewater, 23rd Edition,2017
5. IS – Indian Standard
6. NA – Not Analyzed, ND – Not Detected
7. The comprehensive analysis report refers only to the 'as received' sample of waste
8. The relevance vis-à-vis applicability of the report solely relates to the category no. as per the latest Hazardous Waste Rules as or as would be assigned by the concerned statutory authority
9. The report cannot be produced in part or in full without the permission of Madhya Pradesh Waste Management Project.

Analysed By: Reviewed By: Authorized Signatory:

CERTIFICATE OF ANALYSIS

Issued from: Madhya Pradesh Waste Management Project , Pithampur

Issued to :	M/s Grasim Industries Limited	Report No:	MPWMP/LAB/CA/162/20-21
Address	Birlagram, Dist. Nagda-456331	Issued Date :	21/12/2020
	Madhya Pradesh,		

Name of Contact Person	Mr. Ashish Khare		
Email Id & Contact No.	ashish.khare@adityabirla.com 9111109083		
Name of sample : Hard Mass			
Sample Received date	28/11/2020		
Analysis Starting Date	29/11/2020	Date of Completion of Analysis:	10/12/2020
Other References :			

Ref:1	Sample Quantity :	1 Kg	Ref:2	Categary No.:	
Ref:3	Sample Collected By :	Client	Ref:4	Ambient Temperature : 27°C	

TEST REPORT

Sl. No	Physical Observation	Result
1	Does the waste have strong Odor?	NO
2	Does the waste give fumes exposed to the atmosphere?	NO
3	Does the waste react with water?	NO
4	Is the waste incompatible with any material? If so specify	NO
5	Physical State	Solid
6	Color:	Grey
7	Texture	Solid

Sl. No	Parameters	Unit	Method of Test	Result	CPCB limit for direct landfill disposal
8	Flash Point	°C	USEPA 1998, SW 846; 1020 A	>60	Not Specified
9	Ash Content @ 900°C	%	APHA 23rd Edition, 2017; 2540	97.58	Not Specified
10	Organic Halogens	mg/l	SW-846; 5050 & 9253	NA	Not Specified
11	Carbon	%	CHNS Analyzer	NA	Not Specified
12	Hydrogen	%	CHNS Analyzer	NA	Not Specified
13	Nitrogen	%	CHNS Analyzer	NA	Not Specified
14	Sulphur	%	CHNS Analyzer	NA	Not Specified
15	Cobalt as Co- Total	mg/kg	USEPA 1998, SW-846; 7200	47.69	Not Specified
16	Cobalt as Co- TCLP	mg/l	(USEPA1311) APHA 3111 B	0.87	<80.0
17	Arsenic as As-TCLP	mg/l	USEPA 1998 SW 846-7061 A	ND	<5.0
18	Arsenic as As-WLT	mg/l	USEPA 1998, SW-846; 7061 A	<0.1	<1.0
19	Cadmium as Cd-WLT	mg/l	APHA 23rd Edition 2017, 3111 B	0.08	<0.2
20	Total Chromium as Cr-WLT	mg/l	APHA 23rd Edition 2017, 3111 B	0.18	Not Specified

Analyzed By: Reviewed By: Authorized By:

21	Cobalt as Co-WLT	mg/l	APHA 23rd Edition 2017, 3111 B	0.13	Not Specified
22	Copper as Cu-WLT	mg/l	APHA 23rd Edition 2017, 3111 B	<0.5	<10
23	Iron as Fe-WLT	mg/l	APHA 23rd Edition 2017, 3111 B	1.04	Not Specified
24	Lead as Pb-WLT	mg/l	APHA 23rd Edition 2017, 3111 B	0.18	<2
25	Manganese as Mn-WLT	mg/l	APHA 23rd Edition 2017, 3111 B	<0.1	Not Specified
26	Nickel as Ni-WLT	mg/l	APHA 23rd Edition 2017, 3111 B	0.15	<3
27	Zinc as Zn-WLT	mg/l	APHA 23rd Edition 2017, 3111 B	0.58	<10

Note :

1. CPCB – Central Pollution Control Board
2. TCLP – Toxicity Characteristics Leaching Procedure
3. SW 846 – Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, , May 1997
4. APHA – Americal Public Health Association-Standard Methods for the Examination of Water & Wastewater, 23rd Edition,2017
5. IS – Indian Standard
6. NA – Not Analyzed, ND – Not Detected
7. The comprehensive analysis report refers only to the 'as received' sample of waste
8. The relevance vis-à-vis applicability of the report solely relates to the category no. as per the latest Hazardous Waste Rules as or as would be assigned by the concerned statutory authority
9. The report cannot be produced in part or in full without the permission of Madhya Pradesh Waste Management Project.

Analyzed By: Reviewed By: Authorized By:

Annexure # 11

Madhya Pradesh Waste Management Project
(A Division of Ramky Enviro Engineers Ltd.)

ISO 9001:2015 C.No. : FS570487 | ISO 14001:2015 C.No. : EMS 570497 | OHSAS 18001 : 2007 C.No. : OHS 570500
REEL CIN - U74140AP1994PLC018833
Website : www.ramky.com

Certificate No: TC-5022

COMPREHENSIVE ANALYSIS REPORT

Report No.	MPWMP/Lab/CA/209/18-19	Report Date	23.03.2019

ULR No.	:	**TC502218000000102P**
Name of Client	:	**M/s. Grasim Industries Ltd.**
Contact Details	:	Mr. Abhay Nagar,
		(Staple Fiber Division), Birlagram,
		Nagda, Dist.Ujjain (MP)-456331
Telephone No.	:	9617774471 Fax No. : -
Email ID	:	Abhay.nagar@adityabirla.com
Membership No.	:	MPWMP-HzW-NGD-077

Name of Sample / Hazardous Waste	:	**Oil Soaked Cotton Waste**	
Description of Sample When Received	:	Solid	
Sample Reference Number	:	209/18-19	Sample Received Date: 11.03.2019
Sample Drawn By	:	Client	
Waste Category: **Schedule-I, Cat. 5.2**			
RAW Material List / Process Details Enclosed		☐ Yes	☑ NO
MSDS Provided by Client		☐ Yes	☑ NO
Sample Registration No: MPWMP/LAB/CA/209/18-19			
Confirmation Date: 11.03.2019		Confirmation by: MBD Dept., MPWMP	

Analysis start date	12.03.2019
Testing Period	10 Days

Authorized Signatory
(Saurabh Trivedi - Sr. Dy. Manager)

Site Address : Plot No. 104, Industrial Area No. II Pithampur, Dist. - Dhar 454775 (M.P.) Ph. : 9109198111, 12, 13, 14 E-mail : mpwmp@ramky.com
Head Office : M/s. Ramky Enviro Engineers Ltd., Ramky Grandiose Floor 12th & 13th, Ramky Towers Complex, Opp. to Rolling Hills Anjaiah Nagar, Gachibowli, Hyderabad - 500032 Ph.: 040-23015000

COMPREHENSIVE ANALYSIS REPORT

Report No.	MPWMP/Lab/CA/209/18-19		Report Date	2	3	.	0	3	.	2	0	1	9

Sr. No.	Particulars	Observation		Remarks (If any)
1*	Does the waste have strong Odor?	☐Y	☑N	
2*	Does the waste give fumes exposed to the atmosphere?	☐Y	☑N	
3*	Does the waste react with water?	☐Y	☑N	
4*	Is the waste incompatible with any material? If so specify	☐Y	☑N	

Towards sustainable growth

TEST REPORT

Sr. No.	Parameter	Unit	Method	Result	CPCB limit for direct landfill disposal
5*	Physical State	-	-	Solid	Not Specified
6*	Color	-	-	Black	Not Specified
7*	Texture	-	-	Cotton	Not Specified
8	PFLT(Paint Filter Liquid Test)	-	USEPA 1998, SW-846; 9095A	Pass	Pass
9	Bulk Density	g/cc	APHA 23rd Edition; 2710 F	0.37	Not Specified
10	Calorific Value	cal/g	IS:1350 Part II – 1970	**5918.67**	<2500
11*	Flash Point	^{0}C	USEPA 1998, SW 846; 1020 A	>60	>60
12	Moisture Content	%	IS 326 (Part 21): 2001	NA	Not Specified
13	LOD @ 105^{0}C	%	APHA 23rd Edition, 2017; 2540	9.16	Not Specified
14	LOI @ 550^{0}C	%	APHA 23rd Edition, 2017; 2540	**93.80**	<20
15*	Ash Content @ 900^{0}C	%	APHA 23rd Edition, 2017; 2540	6.16	Not Specified

Authorized Signatory
(Saurabh Trivedi – Sr. Dy. Manager)

Site Address : Plot No. 104, Industrial Area No. II Pithampur, Dist. - Dhar 454775 (M.P.) Ph. : 9109198111, 12, 13, 14 E-mail : mpwmp@ramky.com

Head Office : M/s. Ramky Enviro Engineers Ltd., Ramky Grandiose Floor 12th & 13th, Ramky Towers Complex, Opp. to Rolling Hills Anjaiah Nagar, Gachibowli, Hyderabad - 500032 Ph.: 040-23015000

COMPREHENSIVE ANALYSIS REPORT

Report No.	MPWMP/Lab/CA/209/18-19		Report Date	2	3	.	0	3	.	2	0	1	9

Sr. No.	Parameter	Unit	Method	Result	CPCB limit for direct landfill disposal
16	pH (At Room Temperature)	-	USEPA 1998, SW-846; 9045 C	7.68	4 -12
17*	Sulphate as SO_4^{--}	mg/kg	APHA 23rd Edition; 4500 SO_4^{--} - E	16.48	Not Specified
18	Chloride as Cl^-	mg/kg	USEPA 1998, SW-846; 9253	257.65	Not Specified
19*	Fluorides as F^-	mg/kg	APHA 23rd Edition; 4500 F^- - D	<0.1	Not Specified
20*	Phosphate as PO_4^{---}	mg/kg	APHA 23rd Edition; 4500 PO_4^{---} - D	2.19	Not Specified
21	Specific Gravity	g/cc	APHA 23rd Edition; 2710 F	0.37	Not Specified
22*	Organic Halogens	mg/kg	SW-846; 5050 & 9253	6427.16	Not Specified
23	Reactive Cyanide as HCN	mg/kg	USEPA 1998, SW-846; 9014	<1.0	<250
24	Reactive Sulphide as H_2S	mg/kg	USEPA 1998, SW-846; 9034	<10.0	<500
25*	Carbon	%	CHNS Analyzer	56.27	Not Specified
26*	Hydrogen	%	CHNS Analyzer	12.47	Not Specified
27*	Nitrogen	%	CHNS Analyzer	1.69	Not Specified
28*	Sulphur	%	CHNS Analyzer	0.24	Not Specified
29	Copper as Cu- Total	mg/kg	USEPA 1998, SW-846; 7210	15.84	Not Specified
30	Total Chromium as Cr- Total	mg/kg	USEPA 1998, SW-846; 7190	84.18	Not Specified
31	Iron as Fe- Total	mg/kg	USEPA 1998, SW-846; 7380	157.46	Not Specified
32	Lead as Pb- Total	mg/kg	USEPA 1998, SW-846; 7420	40.60	Not Specified
33	Manganese as Mn - Total	mg/kg	USEPA 1998, SW-846; 7460	137.65	Not Specified
34*	Nickel as Ni- Total	mg/kg	USEPA 1998, SW-846; 7520	52.39	Not Specified

Authorized Signatory
(Saurabh Trivedi – Sr. Dy. Manager)

Site Address : Plot No. 104, Industrial Area No. II Pithampur, Dist. - Dhar 454775 (M.P.) Ph. : 9109198111, 12, 13, 14 E-mail : mpwmp@ramky.com
Head Office : M/s. Ramky Enviro Engineers Ltd., Ramky Grandiose Floor 12th & 13th, Ramky Towers Complex, Opp. to Rolling Hills Anjaiah Nagar, Gachibowli, Hyderabad - 500032 Ph.: 040-23015000

COMPREHENSIVE ANALYSIS REPORT

Report No.	MPWMP/Lab/CA/209/18-19		Report Date	2	3	.	0	3	.	2	0	1	9

Sr. No.	Parameter	Unit	Method	Results	CPCB limit for direct landfill disposal
35	Zinc as Zn- Total	mg/kg	USEPA 1998, SW-846; 7950	88.24	Not Specified
36*	Cobalt as Co- Total	mg/kg	USEPA 1998, SW-846; 7200	73.38	Not Specified
37	Cadmium as Cd- Total	mg/kg	USEPA 1998, SW-846; 7130	5.15	Not Specified
	(TCLP) Toxicity Characteristic Leaching Procedure				
38*	Arsenic as As	mg/L	USEPA 1998, SW-846; 7061 A	<0.1	<1
39	Cadmium as Cd	mg/L	USEPA 1998, SW-846; 7130	<0.1	<0.2
40	Total Chromium as Cr	mg/L	USEPA 1998, SW-846; 7190	0.39	Not Specified
41*	Cobalt as Co	mg/L	USEPA 1998, SW-846; 7200	0.31	Not Specified
42	Copper as Cu	mg/L	USEPA 1998, SW-846; 7210	<0.5	<10
43	Iron as Fe	mg/L	USEPA 1998, SW-846; 7380	0.72	Not Specified
44	Lead as Pb	mg/L	USEPA 1998, SW-846; 7420	0.18	<2
45	Manganese as Mn	mg/L	USEPA 1998, SW-846; 7460	0.66	Not Specified
46	Nickel as Ni	mg/L	USEPA 1998, SW-846; 7520	<0.5	<3
47	Zinc as Zn	mg/L	USEPA 1998, SW-846; 7950	<0.5	<10
	(WLT) Water Leaching Testing	-	-	**Results**	**CPCB/HAZWAMS /TSDF Protocol/2010-2011**
48*	Nitrate	mg/L	APHA 23rd Edition 2017, 4500 NO_3^- - B	4.17	<30
49*	Arsenic as As	mg/L	USEPA 1998, SW-846; 7061 A	<0.1	<1.0
50*	Cadmium as Cd	mg/L	APHA 23rd Edition 2017, 3111 B	<0.1	<0.2

Authorized Signatory
(Saurabh Trivedi - Sr. Dy. Manager)

Site Address : Plot No. 104, Industrial Area No. II Pithampur, Dist. - Dhar 454775 (M.P.) Ph. : 9109198111, 12, 13, 14 E-mail : mpwmp@ramky.com
Head Office : M/s. Ramky Enviro Engineers Ltd., Ramky Grandiose Floor 12th & 13th, Ramky Towers Complex, Opp. to Rolling Hills Anjaiah Nagar, Gachibowli, Hyderabad - 500032 Ph.: 040-23015000

COMPREHENSIVE ANALYSIS REPORT

Report No.	MPWMP/Lab/CA/209/18-19		Report Date	2	3	.	0	3	.	2	0	1	9

Sr. No.	Parameter	Unit	Method	Results	CPCB/HAZWAMS/TSDF Protocol/2010-2011
51*	Total Chromium as Cr	mg/L	APHA 23rd Edition 2017, 3111 B	0.23	Not Specified
52*	Hexavalent Chromium as Cr^{6+}	mg/L	APHA 23rd Edi., 2017: 3500 Cr B	<0.1	<0.5
53*	Cobalt as Co	mg/L	APHA 23rd Edition 2017, 3111 B	0.18	Not Specified
54*	Copper as Cu	mg/L	APHA 23rd Edition 2017, 3111 B	<0.5	<10
55*	Iron as Fe	mg/L	APHA 23rd Edition 2017, 3111 B	0.48	Not Specified
56*	Lead as Pb	mg/L	APHA 23rd Edition 2017, 3111 B	0.11	<2
57*	Manganese as Mn	mg/L	APHA 23rd Edition 2017, 3111 B	0.42	Not Specified
58*	Nickel as Ni	mg/L	APHA 23rd Edition 2017, 3111 B	<0.5	<3
59*	Zinc as Zn	mg/L	APHA 23rd Edition 2017, 3111 B	<0.5	<10

Safety Instructions for Handling of Hazardous Waste (if any) –

Use PPE's during handling of Oil Soaked Cotton Waste.

ABBREVIATIONS

CPCB	–	Central Pollution Control Board
SW 846	–	Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, USEPA,1998
Std. Methods	–	Standard Methods for the Examination of Water & Wastewater, APHA 23rd Edition, 2017
TCLP	-	Toxicity Characteristic Leaching Procedure
WLT	-	Water Leaching Testing
LOD	–	Loss On Drying
LOI		Loss On Ignition
NA	–	Not Applicable
Y	–	Yes
N	–	No

"The tests marked with an * are not accredited by NABL"

Authorized Signatory
(Saurabh Trivedi - Sr. Dy. Manager)

Site Address : Plot No. 104, Industrial Area No. II Pithampur, Dist. - Dhar 454775 (M.P.) Ph. : 9109198111, 12, 13, 14 E-mail : mpwmp@ramky.com
Head Office : M/s. Ramky Enviro Engineers Ltd., Ramky Grandiose Floor 12th & 13th, Ramky Towers Complex, Opp. to Rolling Hills Anjaiah Nagar, Gachibowli, Hyderabad - 500032 Ph.: 040-23015000

COMPREHENSIVE ANALYSIS REPORT

Report No.	MPWMP/Lab/CA/209/18-19		Report Date	2	3	.	0	3	.	2	0	1	9

Towards sustainable growth

TERMS AND CONDITIONS

1. The analysis report refers only to the 'as received' sample of waste
2. The report cannot be produced in part or in full without the permission of Madhya Pradesh Waste Management Project
3. In the absence of specific request from the customer, MPWMP follows National/International standards specifications for conducting the tests. Alternatively, in the absence of these methods, MPWMP shall follow the operating procedures developed by MPWMP.
4. The laboratory, normally, will not offer any opinion/advise or recommendation with respect to the suitability or otherwise of the sample for any application or use. Conformities to a specification or Act will be mentioned as per the Act/specification, if required.
5. Under no circumstances MPWMP accepts any liability or loss or damage caused by use or misuse of the test report. Liability is limited to the testing fee charged, in case of proven negligence by the laboratory.
6. MPWMP shall not assume any responsibility for variation in test results of samples kept on hold for want of clarification.
7. Client may visit (If desired) our laboratory to witness the related tests.
8. **This Test report is valid for two years from the date of issue of report, if there is no change in processes, raw materials etc.**

Disposal Pathway/Opinions/Interpretations

Incineration

END OF REPORT

Authorized Signatory
(Saurabh Trivedi – Sr. Dy. Manager)

Site Address : Plot No. 104, Industrial Area No. II Pithampur, Dist. - Dhar 454775 (M.P.) Ph. : 9109198111, 12, 13, 14 E-mail : mpwmp@ramky.com
Head Office : M/s. Ramky Enviro Engineers Ltd., Ramky Grandiose Floor 12th & 13th, Ramky Towers Complex, Opp. to Rolling Hills Anjaiah Nagar, Gachibowli, Hyderabad - 500032 Ph.: 040-23015000

Annexure # 13

Certificate No. TC-5022

Madhya Pradesh Waste Management Project
(A Division of Ramky Enviro Engineers Ltd.)

ISO 9001:2015 C.No. : FS570487 | ISO 14001:2015 C.No. : EMS 570497 | OHSAS 18001 : 2007 C.No. : OHS 570500

REEL CIN - U74140TG1994PLC018833
Website : www.ramky.com

CERTIFICATE OF ANALYSIS

Issued from: Madhya Pradesh Waste Management Project , Pithampur

Issued to	M/s Grasim Industries Limited	Report No:	MPWMP/LAB/CA/163/20-21
Address	Birlagram, Dist. Nagda-456331	Issued Date :	21/12/2020
	Madhya Pradesh,	ULR No:	TC502218000000741P

Name of Contact Person	Mr. Ashish Khare		
Email Id & Contact No.	ashish.khare@adityabirla.com 9111109083		
Name of sample : Spent Catalyst			
Sample Received date	28/11/2020		
Analysis Starting Date	29/11/2020	Date of Completion of Analysis:	10/12/2020
Other References :			

Ref:1	Sample Quantity :	1 Kg	Ref:2	Categary No.: 17.2
Ref:3	Sample Collected By :	Client	Ref:4	Ambient Temperature : 27°C

TEST REPORT

Sl. No	Parameters	Unit	Method of Test	Result	CPCB limit for direct landfill disposal
1	PFLT(Paint Filter Liquid Test)	-	USEPA 1998, SW-846; 9095A	Pass	Pass
2	Bulk Density	g/cc	APHA 23rd Edition; 2710 F	0.64	Not Specified
3	Calorific Value	cal/g	IS:1350 Part II – 1970	<500	<2500
4	Moisture Content	%	IS 326 (Part 21): 2001	NA	Not Specified
5	Loss on Drying @ 105°C	%	APHA 23rd Edition, 2017; 2540 B	31.89	Not Specified
6	Loss on Ignition @ 550°C	%	APHA 23rd Edition, 2017; 2540 E	8.33	<20
7	pH (At Room Temperature)	-	USEPA 1998, SW-846; 9045 C	**2.85**	4-12
8	Sulphate as SO_4^{--}	mg/kg	APHA 23rd Edition; 4500 SO_4^{--} - E	3.66	Not Specified
9	Chloride as Cl^-	mg/kg	USEPA 1998, SW-846; 9253	1987.25	Not Specified
10	Fluorides as F^-	mg/l	APHA 23rd Edition; 4500 F^- - D	<0.1	<50.0
11	Phosphate as PO_4^-	mg/kg	APHA 23rd Edition; 4500 PO_4^{--} - D	1.25	Not Specified
12	Specific Gravity	g/cc	APHA 23rd Edition; 2710 F	0.64	Not Specified

Analysed By: Reviewed By: Authorized Signatory:

Site Address : Plot No. 104, Industrial Area No. II Pithampur, Dist. - Dhar 454775 (M.P.) Ph. : 9109198111, 12, 13, 14 E-mail : mpwmp@ramky.com
Head Office : M/s. Ramky Enviro Engineers Ltd., Ramky Grandiose Floor 12th & 13th, Ramky Towers Complex, Opp. to Rolling Hills Anjaiah Nagar, Gachibowli, Hyderabad - 500032 Ph.: 040-23015000

13	Total Cyanide	mg/kg	USEPA 1998, SW-846; 9014	<1.00	Not Specified
14	Total Sulphide	mg/kg	USEPA 1998, SW-846; 9034	<10.00	Not Specified
15	Nitrate	mg/L	APHA 23rd Edition 2017, 4500 NO_3^- B	4.98	<30
16	Hexavalent Chromium as Cr^{6+}	mg/L	APHA 23rd Edi., 2017: 3500 Cr B	NA	<0.5
17	Copper as Cu-Total	mg/kg	USEPA 1998, SW-846; 7210	121.71	Not Specified
18	Copper as Cu- TCLP	mg/L	(USEPA1311) APHA 3111 B	0.85	<25.0
19	Total Chromium as Cr- Total	mg/kg	USEPA 1998, SW-846; 7190	163.23	Not Specified
20	Total Chromium as Cr- TCLP	mg/L	(USEPA1311) APHA 3111 B	1.14	<5.0
21	Iron as Fe Total	mg/kg	USEPA 1998, SW-846; 7380	10667.24	Not Specified
22	Iron as Fe-TCLP	mg/L	(USEPA1311) APHA 3111 B	**75.0**	Not Specified
23	Lead as Pb- Total	mg/kg	USEPA 1998, SW-846; 7420	73.23	Not Specified
24	Lead as Pb- TCLP	mg/L	(USEPA1311) APHA 3111 B	0.51	<5.0
25	Manganese as Mn -Total	mg/kg	USEPA 1998, SW-846; 7460	1575.03	Not Specified
26	Manganese as Mn -TCLP	mg/L	(USEPA1311) APHA 3111 B	**11.0**	<10.0
27	Nickel as Ni- Total	mg/kg	USEPA 1998, SW-846; 7520	3579.61	Not Specified
28	Nickel as Ni- TCLP	mg/L	(USEPA1311) APHA 3111 B	**25.0**	<20.0
29	Zinc as Zn- Total	mg/kg	USEPA 1998, SW-846; 7950	22050.40	Not Specified
30	Zinc as Zn- TCLP	mg/L	(USEPA1311) APHA 3111 B	154	<250
31	Cadmium as Cd- Total	mg/kg	USEPA 1998, SW-846; 7130	1.43	Not Specified
32	Cadmium as Cd-TCLP	mg/L	(USEPA1311) APHA 3111 B	0.01	<1.0

Note :

1	CPCB – Central Pollution Control Board
2	TCLP – Toxicity Characteristics Leaching Procedure
3	SW 846 – Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, , May 1997
4	APHA – Americal Public Health Association-Standard Methods for the Examination of Water & Wastewater, 23rd Edition,2017
5	IS – Indian Standard
6	NA – Not Analyzed, ND – Not Detected
7	The comprehensive analysis report refers only to the 'as received' sample of waste
8	The relevance vis-à-vis applicability of the report solely relates to the category no. as per the latest Hazardous Waste Rules as or as would be assigned by the concerned statutory authority
9	The report cannot be produced in part or in full without the permission of Madhya Pradesh Waste Management Project.

Analysed By: Reviewed By: Authorised Signatory:

Madhya Pradesh Waste Management Project
(A Division of Ramky Enviro Engineers Ltd.)

ISO 9001:2015 C.No. : FS570487 | ISO 14001:2015 C.No. : EMS 570497 | OHSAS 18001 : 2007 C.No. : OHS 570500

REEL CIN - U74140TG1994PLC018833
Website : www.ramky.com

CERTIFICATE OF ANALYSIS

Issued from: Madhya Pradesh Waste Management Project , Pithampur

Issued to :	M/s Grasim Industries Limited	Report No:	MPWMP/LAB/CA/163/20-21
Address	Birlagram, Dist. Nagda-456331	Issued Date :	21/12/2020
	Madhya Pradesh,		

Name of Contact Person	Mr. Ashish Khare		
Email Id & Contact No.	ashish.khare@adityabirla.com 9111109083		
Name of sample : Spent Catalyst			
Sample Received date	28/11/2020		
Analysis Starting Date	29/11/2020	Date of Completion of Analysis:	10/12/2020
Other References :			

Ref:1	Sample Quantity : 1 Kg	Ref:2	Categary No.: 17.20
Ref:3	Sample Collected By : Client	Ref:4	Ambient Temperature : 27°C

TEST REPORT

Sl. No	Physical Observation	Result
1	Does the waste have strong Odor?	NO
2	Does the waste give fumes exposed to the atmosphere?	NO
3	Does the waste react with water?	NO
4	Is the waste incompatible with any material? If so specify	NO
5	Physical State	Solid
6	Color	Grey
7	Texture	Lumps

Sl. No	Parameters	Unit	Method of Test	Result	CPCB limit for direct landfill disposal
8	Flash Point	°C	USEPA 1998, SW 846; 1020 A	>60	Not Specified
9	Ash Content @ 900°C	%	APHA 23rd Edition, 2017; 2540	83.99	Not Specified
10	Organic Halogens	mg/l	SW-846; 5050 & 9253	NA	Not Specified
11	Carbon	%	CHNS Analyzer	NA	Not Specified
12	Hydrogen	%	CHNS Analyzer	NA	Not Specified
13	Nitrogen	%	CHNS Analyzer	NA	Not Specified
14	Sulphur	%	CHNS Analyzer	NA	Not Specified
15	Cobalt as Co- Total	mg/kg	USEPA 1998, SW-846; 7200	67.3	Not Specified
16	Cobalt as Co- TCLP	mg/l	(USEPA1311) APHA 3111 B	0.47	<80.0
17	Arsenic as As-TCLP	mg/l	USEPA 1998 SW 846-7061 A	<0.1	<5.0
18	Arsenic as As-WLT	mg/l	USEPA 1998, SW-846; 7061 A	<0.1	<1.0
19	Cadmium as Cd-WLT	mg/l	APHA 23rd Edition 2017, 3111 B	0.09	<0.2

Analyzed By: Reviewed By: Authorized By:

20	Total Chromium as Cr-WLT	mg/l	APHA 23rd Edition 2017, 3111 B	0.91	Not Specified
21	Cobalt as Co-WLT	mg/l	APHA 23rd Edition 2017, 3111 B	0.47	Not Specified
22	Copper as Cu-WLT	mg/l	APHA 23rd Edition 2017, 3111 B	0.51	<10
23	Iron as Fe-WLT	mg/l	APHA 23rd Edition 2017, 3111 B	63.0	Not Specified
24	Lead as Pb-WLT	mg/l	APHA 23rd Edition 2017, 3111 B	0.51	<2
25	Manganese as Mn-WLT	mg/l	APHA 23rd Edition 2017, 3111 B	10.0	Not Specified
26	Nickel as Ni-WLT	mg/l	APHA 23rd Edition 2017, 3111 B	14.0	<3
27	Zinc as Zn-WLT	mg/l	APHA 23rd Edition 2017, 3111 B	110.0	<10
Note :					
1	CPCB – Central Pollution Control Board				
2	TCLP – Toxicity Characteristics Leaching Procedure				
3	SW 846 – Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, , May 1997				
4	APHA – Americal Public Health Association-Standard Methods for the Examination of Water & Wastewater, 23rd Edition,2017				
5	IS – Indian Standard				
6	NA – Not Analyzed, ND – Not Detected				
7	The comprehensive analysis report refers only to the 'as received' sample of waste				
8	The relevance vis-à-vis applicability of the report solely relates to the category no. as per the latest Hazardous Waste Rules as or as would be assigned by the concerned statutory authority				
9	The report cannot be produced in part or in full without the permission of Madhya Pradesh Waste Management Project.				

Analyzed By: Reviewed By: Authorized By:

Part - G

Grasim Industries has always laid utmost emphasis on conservation of the environment. In addition to the sophisticated Effluent Treatment Plant, already operational since past many years, a sum of over crores of rupees was spent during the past year in the interest of pollution abatement. Some of the schemes completed during the last 3 years were :

A. Staple Fibre Division

1 Installation of 5th bed converter in AP#3

2 Utilization of waste water (Coloy Plantation etc)

3 Shed for storage of Gypsum Sludge

4 Adoption of VFD at Sand Filter Pump No 1 2

5 ETP Adoption of VFD at HP Pump of Sewage RO Plant

6 Zero Liquid Discharge Project - SFD Nagda Phase 1

7 Recycling of gland sealing water in Pc 1 & 2

8 CAMC of AAQMS (03 nos.)

9 Replacement of Acid Plant# 2 PHE

10 ETP- SS Railing for Biological reactors

11 Zero Liquid Discharge Project for SFD, Nagda

12 Stapped Ladder for VSF Stacks

13 Stack gas flow & temperature measurement as per MPPCB requirement.

14 CMC for CEMS, CEQMS and CAAQM

15 Stack Gas flow & temperature measurement

16 CAP-CS2 Recovery (PC2)

17 CMC for CEMS, CEQMS and CAAQM

18 ETP replacement of ST4A rail

19 ETP Online ,pH transmitted 05 nos for ETP

20 Spinning - Installation of filter & PHE for Sump Zone cooling for Spinning PC1 &2 (02 Sets)

21 Emission Control - Separate ventury scrubber system for CS2 Furnace deashing

22 Facility to achieve 2100 mg/ltr TDS in Effluent

23 Acid Plant - Installation of 5th bed converter in AP#3

24 Stepped ladder for VSF stacks (125 mtr Chimney) up to 40 mtr platform - 03 Sets

25 Centralize Chlorine Tonner Distribution System

26 Replacement of Belt press gear box (08 nos)

27 Adoption of Lime Scrubber in Jumbo Lime Section

28 Replacement of Acid Plant # 3 SO2 scrubber

29 CMC for CEMS, CEQMS and CAAQM

30 MSFE Heaters & Vessels for M# 6,11 , 15 & 17

31 AMC for H2S CS2 and Cl Gas Detector & spare

32 Action plan for HAZOP - VISCOSE (Phase -1)

33 Repl. of 50 mtr Acid plant chimney for AP#1 &4

34 Auxiliary HAZOP Study Phase 2

35 Conductivity Transmitter for Individual MSFE

36 Control valves for Fundabac Filters

37 RO Plant UF unit actuator Valve

38 MSFE RO: Vibro screen

39 CMC for CEMS, CEQMS, CAAQM & internet lease line

40 Distribution of Cloth bags with message Beat Plastic Pollution

41 H2S treatment via EDTA

42 CAP - CS2 Recovery (PC2)

43 EDTA-CAP for Mill#1 Phase-3

44 Road Sweeping Machine

45 MSFE replacement & Other works

46 Klaus kiln flaring chimney 50 mtr replacement

47 Bag filter for Hybrid ESP of PF boiler 3

48 CMC for CEMS, CEQMS, CAAQM & internet lease line

B Thermal Power Plants

1 AMC for CEMS for all Ecs

2 Replacement of ESP Rectiformers of Boiler No.1

3 AMC for CEMS for EC-1

4 Rennovation of Chimney#1 (Phase-1)

5 AMC for CEMS for EC-1, EC-2 and EC-4

6 AMC for CEMS for EC-1, EC-2 and EC-4

7 AMC for CEMS for EC-1, EC-2 and EC-4

8 EC1- Dust suppression system for Ash Silo

9 AMC for CEMS for EC-1, EC-2 and EC-4

10 AMC for Air gas Purification System for EC1_EC5

11 AMC for CEMS for EC-1, EC-2 and EC-4

The impact of our continuous efforts towards environmental conservation are apparent from the lush green landscape in and around our campus, the daily migration of thousands of birds for whom our gardens are a place of rest for the night, and the extensive farms irrigated with treated factory effluent. The cost of pollution abatement is difficult to quantify accurately, but works out to approximately Rs. 13.35 per kg fibre.

Part - H

We have a list of investment proposals/schemes in the pipeline for abatement/prevention of pollution. The estimated investment in various schemes in various stages of implementation is nearly Rs. 7.62 crore. Some of these schemes are :

A. **Staple Fibre Division**

1 H2S treatment via EDTA

2 CAP - CS2 Recovery (PC2)

3 EDTA-CAP for Mill#1 Phase-3

4 Road Sweeping Machine

5 MSFE replacement & Other works

6 Klaus kiln flaring chimney 50 mtr replacement

7 Bag filter for Hybrid ESP of PF boiler 3

10 CMC for CEMS, CEQMS, CAAQM & internet lease line

Thermal Power Plant

1 AMC for CEMS for EC-1, EC-2 and EC-4

Annexure - 4

Part- I

The schemes/plans described in sections G and H above, are aimed at suitable treatment of unavoidable discharges/emissions.

At Grasim Industries, however, our constant endeavour is to go one step further and reduce effluent waste load/gaseous emissions at source by adopting modern equipment/processes. Zero liquid discharge is maitained and no treated effluent is being discharged out the premises.

We are thus trying to make our technology as "clean" as possible, in spite of the constraints of running a set up in early 1950's, and expended from 15 TPD to 440 TPD. Through we have done a great deal, we are always open for innovative, viable techniques for pollution abatement.

ENVIRONMENTAL STATEMENT

for

Excel Fibre Division

(For the financial year ending 31.03.2024)

FORM - V

(See Rule 14)

Environmental Statement for the financial year ending the 31st March, 2024

PART -A

i)	Name & address of the Owner/Occupier of the industry, operation or process	-	M/s. GRASIM INDUSTRIES LIMITED, Birlagram, Nagda (M.P.) 456 331.
ii)	Industry category Primary :- (STC Code) Secondary:- (SIC Code)	-	Solvent Spun Cellulosic Fibre Manufacturing U
iii)	Production capacity:- Units	-	16425 TPA Solvent Spun Cellulosic Fibre 1241 TPA Non Woven Rolled Goods
iv)	Year of establishment	-	23.01.2007
v)	Date of the last environmental statement submitted	-	15.09.2023

PART -B

Water & Raw Material Consumption

i) Water consumption - M^3/day

Process	-	338
Cooling	-	79
Domestic	-	2.3

Name of products	Process water consumption per product output #	
	During the previous financial year 2022-2023 (1)	During the current financial year 2023-2024 (2)
Solvent Spun Cellulosic Fibre	16.7 M^3/T fibre	14.7 M^3/T fibre

ii) Raw Material consumption

* Name of raw materials	Name of Products	Consumption of raw material per unit of output	
		During the previous financial year 2022-2023	During the Current financial year 2023-2024
1) Rayon grade pulp	Solvent Spun Cellulosic Fibre	0.9831	0.9884
2) N-methyl-morpholine-n-oxide (@ 100%)		0.0138	0.0161
3) Propyl Gallate		0.0023	0.0023
4) Hydrochloric Acid		0.0077	0.0097
1) Viscose Staple Fibre	Non-Woven Rolled Goods	-	-
2) Solvent Spun Celluosic Fibre		-	-

* Industry may use codes if disclosing details of raw materials would violate contractual obligation otherwise all industries have to name the raw materials used.

$ 20 TPD Solvent Spun Cellulosic Fibre Expansion Comissioned on 28.12.2012

Water consumption per ton of product output includes process water and cooling water . Total consented fibre production increased from 30 TPD to 45 TPD through NIPL.

PART-C

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

i) Pollutants		Quantity of pollutants discharged (mass/day) TPD except pH & Temp.	Concentrations of pollutants in discharges (mass/volume) mg/l except pH & Temp.	Percentage of variation from prescribed standard with reasons
a) Water*	pH	-	-	'Achieved ZLD in October'2021.No Pollutants are being discharged.
	S.Solids	-	-	
	Zinc	-	-	
	B.O.D.	-	-	
b) Air		Not Applicable		

* Water details are of Effluent from common ETP outlet.

PART-D

Hazardous Wastes
(As specified under Hazardous Wastes (Management, Handling and Tranboundary Movement) Rules, 2008)

Hazardous wastes	Total Quantity	
	During the previous financial year 2022-2023	**During the current financial year 2023-2024**
a) From Process Category		
5.1 Used Oil	1882 kgs	2500 kgs
35.2 Used Resin	15010 kgs	0 kgs
b) From Pollution Control facilities	Not Applicable	Not Applicable

PART -E

Solid Wastes

	Total Quantity	
	During the previous financial year 2022-2023	**During the current financial year 2023-2024**
a) From Process Cellulosic Waste kgs	9869	10415
b) From Pollution Control facilities	Not Application	Not Application
c) 1) Quantity recycled or re-utilized within the unit	Not Application	Not Application

PART -F

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

i. Used Oil Annexure -1, 1F

ii. Used Resin Annexure -1, 1G

iii. Cellulosic waste contains 50% of Cellulose and 50% moisture.

Disposal Practice of Hazardous Waste and Solid Waste is enclosed as **Annexure-5**

PART -G

Impact of the pollution control measures on conservation of natural resources and on the cost of production.

Process requires very less chemical usage, fewer process steps, with no by product formation, less water consumption.

For achieving sustainable results, it is imperative to ensure involvement of all employees for resource conservation across each unit operation. The initiatives taken are categorized as under :

- Adoption of Cleaner Technologies
- Continuous Modernisation/Up-gradation of manufacturing facility for minimising/eliminating waste at source
- Recovery of Chemicals from Process Streams
- Installation of Equipment with higher Intrinsic Efficiency and Reliability

PART -H

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

Technology is under stabilisation phase

PART - I

Any other particulars for improving the quality of the environment.

Annexure - 4

Part- I

The schemes/plans described in sections G and H above, are aimed at suitable treatment of unavoidable discharges/emissions.

At Grasim Industries, however, our constant endeavour is to go one step further and reduce effluent waste load/gaseous emissions at source by adopting modern equipment/processes. Zero liquid discharge is maitained and no treated effluent is being discharged out the premises.

We are thus trying to make our technology as "clean" as possible, .

EFD plant was established in year 2007 with capacity of 10 TPD and later expanded from 10 TPD to 30 TPD. Through NIPL production capacity has been increased from 30 TPD to 45 TPD

Through we have done a great deal,we are always open for innovative, viable techniques for pollution at

DISPOSAL PRACTICE

CELLULOSIC WASTE

Cellulosic waste generated during regeneration of cellulose is washed and sold to waste fibre application or incinerated in existing coal fired boilers.

USED OIL

Stored at isolated place – In front of Old Weigh Bridge, Storage capacity is 25.0 Tonne. Used Oil stored in drums and sold to CPCB authorized vendor / recycler.

USED RESIN

Being sent to Madhya Pradesh Waste Management Project (Division of Ramky Enviro Engineers Ltd.), Pithampur for disposal.