SINCE 1958

IRMRA

INDIAN RUBBER MANUFACTURERS RESEARCH ASSOCIATION

An Autonomous Institute Under DPIIT, Ministry of Commerce & Industry, Government of India
E-mail : info@irmra.org • **Website :** www.irmra.org

DEVELOPMENTAL EVALUATION REPORT

ULR No : TC771922000001465	29.07.2022 Page 1 OF 2

--- CUSTOMER DETAILS ---

Customer Name & Address :	
M/s.Sunflex Recycling Pvt. Ltd., Gujarat Block No.184, Village-Chhatral, Chhatral-Isand Road, Ta. Kalol. Dist.Gandhinagar, Pincode-382729, Gujarat, INDIA	
Contact Person & Telephone No :	**MILIND PATEL -**
Period of Testing:	**22 Jul 2022 to 01 Aug 2022**
Customer Letter Ref No with Date :	**Email Dated 19 Jul 2022**
Date of Receipt :	**22 Jul 2022**
Any Other Information like witness / third party	Crumb Rubber Powder

--- SAMPLE DETAILS ---

Sample Code / Description	Crumb Rubber Powder
Product Specification	**NIL**

--- REPORT DETAILS ---

Description of Report	Page Nos
TC771922000001465 - M & R -	--
TC771922000001465 - C & I -	2 OF 2

Terms and Conditions

1. Sample was not drawn by IRMRA, unless otherwise stated.
2. The result enclosed are only related to the sample submitted to us.
3. The report shall not be reproduced except in full without prior written permission of laboratory.
4. Information contained in this letter / or enclosed reports is/are purely meant for your guidance and should not be used for litigation/evidence/advertisement, without prior permission from laboratory.

Prepared and Checked By

I.R.M.R.A. INDIA THANE

भारतीय रबड़ निर्माता अनुसंधान संघ
Indian Rubber Manufacturers Research Association

HOD Customer Service Cell
सुचिस्मिता साहू
Suchismita Sahoo

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E-mail : info@irmra.org • **Website :** www.irmra.org

TECHNICAL REPORT / C & I

ULR No : TC771922000001465

29 JUL 2022

Sample : Crumb Rubber Powder **Specn. NIL**

Test (Condition)	Method	Unit	Specified Value	Observed Value
Volatile Matter (@220°F/2hrs)	Work inst-102023147 M-I TM-0101	%	-	+0.6

भारतीय रबड़ निर्माता अनुसंधान संघ
Indian Rubber Manufacturers Research Association

Prepared and Checked By

Authorised Signatory

सुचिस्मिता साहू
Suchismita Sahoo

I.R.M.R.A. INDIA THANE

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TC-7719

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DEVELOPMENTAL EVALUATION REPORT

ULR No : TC771922000001465	29.07.2022	Page 1 OF 2

--- CUSTOMER DETAILS ---

Customer Name & Address :	
M/s.Sunflex Recycling Pvt. Ltd., Gujarat Block No.184, Village-Chhatral, Chhatral-Isand Road, Ta. Kalol. Dist.Gandhinagar, Pincode-382729, Gujarat, INDIA	
Contact Person & Telephone No :	**MILIND PATEL -**
Period of Testing:	**22 Jul 2022 to 01 Aug 2022**
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Any Other Information like witness / third party	Crumb Rubber Powder

--- SAMPLE DETAILS ---

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Prepared and Checked By

I.R.M.R.A. INDIA THANE

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E-mail : info@irmra.org • Website : www.irmra.org

TECHNICAL REPORT / C & I

ULR No : TC771922000001465

Sample : Crumb Rubber Powder **Specn. NIL** 29 JUL 2022

Test (Condition)	Method	Unit	Specified Value	Observed Value
Ash Content	ASTMD-297	% by wt.	-	6.8
Density	ISO 2781 [Method B]	gm/cc	-	1.17
Total Rubber Hydrocarbon	ASTM E 1131	% by wt	-	55.0

ENCL:TGA GRAPH

भारतीय रबड़ निर्माता अनुसंधान संघ
Indian Rubber Manufacturers Research Association

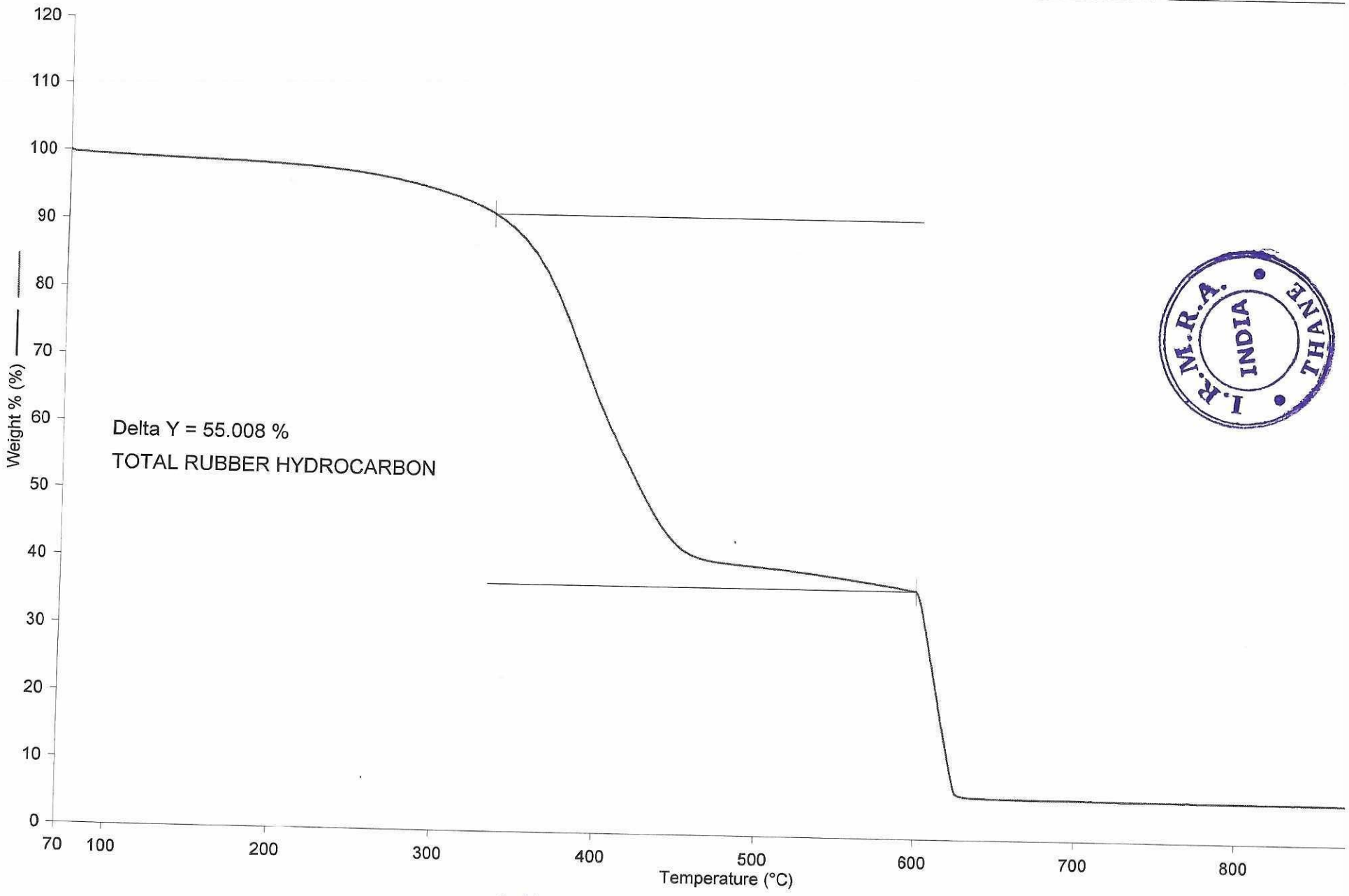
Prepared and Checked By

Authorised Signatory

सुचिस्मिता साहू
Suchismita Sahoo

I.R.M.R.A. INDIA THANE

Filename: D:\2022\JULY\JOB-1465.t6d
Operator ID:
Sample ID: JOB-1465
Sample Weight: 5.978 mg
Comment:



I.R.M.R.A. INDIA THANE

1) Heat from 70.00°C to 900.00°C at 20.00°C/min

7/26/2022 4:35:1

Prüfbericht - Nr.: *Test Report No.:*	IND/BLR/CH/2019/7014	**Seite 1 von 5** *Page 1 of 5*

Auftraggeber: *Client:*	**SUNFLEX RECYCLING PVT LTD** Plot no 274/4, Opposite Gujarat High court, B/h Satyamev Complex, Sg highway, sola 380060 India		
Gegenstand der Prüfung: *Test item:*	Crumb Rubber		
Bezeichnung: *Identification:*	-	**Serien-Nr.:** *Serial No./* Document Submitted*:*	TRF Date : 31.08.2019
Wareneingangs-Nr.: *Receipt No.:*	03092019	**Eingangsdatum:** *Date of receipt:*	03.09.2019
Order No.:	166173813	*Testing Period:*	03.09.2019 to 20.09.2019
Prüfort: *Testing location:*	TÜV Rheinland India Pvt Ltd, Plot No.27B, 2nd cross Electronic City Phase I Bangalore - 560 100, Karnataka, India.		
Prüfgrundlage: *Test Parameters:*	Customer's Requirement: Particle Size Distribution.		
Prüfergebnis: *Test Result:*	Refer Page No.2 to 2		

Prüflaboratorium/ Testing Laboratory:

zusammengestellt/ *compiled by*: **kontrolliert/** *checked by:*

20.09.2019	Vijetha CSE, Material Testing Laboratories, Industry Services		20.09.2019	Rajesh Jain B Technical Head, Material Testing Laboratories, Industry Services	
Datum *Date*	**Name** *Name*	**Unterschrift** *Signature*	**Datum** *Date*	**Name** *Name*	**Unterschrift** *Signature*

Sonstiges/ Other Aspects: NIL

Abkürzungen:	***ok / P***	***= entspricht Prüfgrundlage***	***Abbreviations:***	***ok / P***	***= passed***
	fail / F	***= entspricht nicht Prüfgrundlage***		***fail / F***	***= failed***
	n.a. / N	***= nicht anwendbar***		***n.a. / N***	***= not applicable***

Dieser Prüfbericht bezieht sich nur auf das o.g. Prüfmuster und darf ohne Genehmigung der Prüfstelle nicht auszugsweise vervielfältigt werden. Dieser Bericht berechtigt nicht zur Verwendung eines Prüfzeichens.

This test report relates to the a. m. test sample. Without permission of the test center this test report is not permitted to be duplicated in extracts. This test report does not entitle to carry any safety mark on this or similar products. Test item submitted by client. Sampling not done by TUVRI

TEST RESULTS

Sample Description	Crumb rubber
Sampling : 1. Submitted Sample drawn by the laboratory : No (If yes please provide the sampling reference)	

1. Particle Size Distribution:

Sl. No	Test / Parameter	Unit	Result	Test Method
1	Particle Size below 10%	microns	206.590	Malvern Mastersizer 2000
	Particle Size below 50%	microns	360.039	
	Particle Size below 90%	microns	578.059	
	Particle Size below 99%	microns	756.449	
	Average Particle Size	microns	360.039	

Note:
Data & Chromatogram is attached as Annexures
Range of analysis for Particle Size Distribution 0.02 to 2000 microns

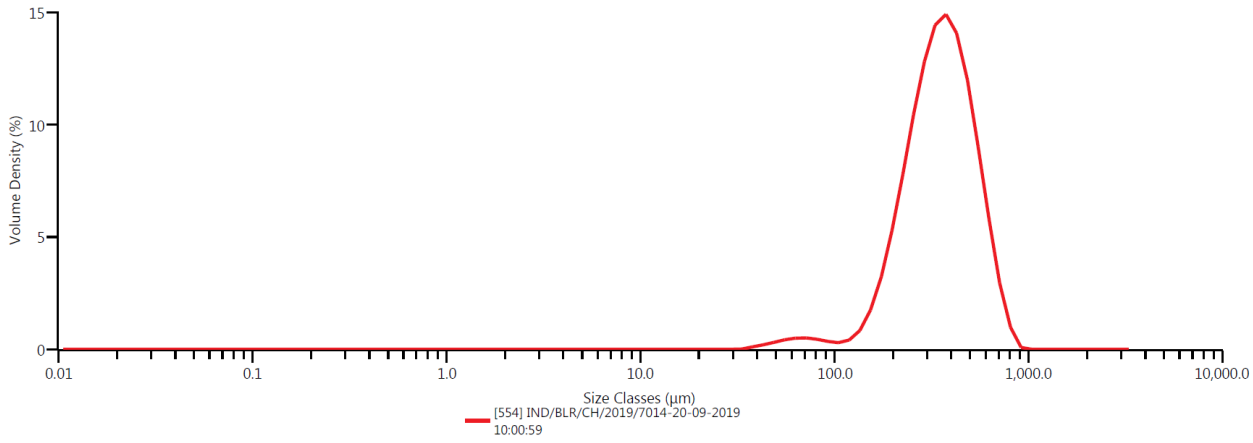
Analysis

Particle Name	Particle
Particle Refractive Index	1.900
Particle Absorption Index	1.000
Dispersant Name	Dry dispersion
Dispersant Refractive Index	1.000
Scattering Model	Mie
Analysis Model	General Purpose
Laser Obscuration	0.71 %

Result

Concentration	0.0271 %
Span	1.045
Uniformity	0.326
Specific Surface Area	19.37 m^2/kg
D [3,2]	295.051 µm
D [4,3]	367.076 µm
Dv (10)	198.880 µm
Dv (20)	244.975 µm
Dv (50)	351.303 µm
Dv (90)	566.014 µm
Dv (95)	633.672 µm
Dv (100)	859.166 µm
Volume Below (10) µm	0.00 %
Volume Below (20) µm	0.00 %

Frequency (compatible)



Result

Size (µm)	% Volume Under	Size (µm)	% Volume Under	Size (µm)	% Volume Under	Size (µm)	% Volume Under	Size (µm)	% Volume Under	Size (µm)	% Volume Under	Size (µm)	% Volume Under	Size (µm)	% Volume Under
0.010	0.00	0.060	0.00	0.357	0.00	2.131	0.00	12.726	0.00	76.006	1.70	453.960	74.45	2711.357	100.00
0.011	0.00	0.068	0.00	0.405	0.00	2.421	0.00	14.458	0.00	86.355	2.07	515.772	84.50	3080.544	100.00
0.013	0.00	0.077	0.00	0.460	0.00	2.750	0.00	16.427	0.00	98.114	2.37	586.001	92.05	3500.000	100.00
0.015	0.00	0.088	0.00	0.523	0.00	3.125	0.00	18.664	0.00	111.473	2.60	665.793	96.86		
0.017	0.00	0.100	0.00	0.594	0.00	3.550	0.00	21.205	0.00	126.652	2.92	756.449	99.26		
0.019	0.00	0.113	0.00	0.675	0.00	4.034	0.00	24.092	0.00	143.897	3.58	859.450	100.00		
0.022	0.00	0.128	0.00	0.767	0.00	4.583	0.00	27.373	0.00	163.490	5.00	976.475	100.00		
0.024	0.00	0.146	0.00	0.872	0.00	5.207	0.00	31.100	0.00	185.752	7.65	1109.435	100.00		
0.028	0.00	0.166	0.00	0.991	0.00	5.916	0.00	35.335	0.00	211.044	12.04	1260.499	100.00		
0.032	0.00	0.188	0.00	1.125	0.00	6.722	0.00	40.146	0.08	239.780	18.53	1432.133	100.00		
0.036	0.00	0.214	0.00	1.279	0.00	7.637	0.00	45.613	0.25	272.430	27.26	1627.136	100.00		
0.041	0.00	0.243	0.00	1.453	0.00	8.677	0.00	51.823	0.50	309.525	37.99	1848.692	100.00		
0.046	0.00	0.276	0.00	1.651	0.00	9.858	0.00	58.880	0.86	351.670	50.10	2100.416	100.00		
0.053	0.00	0.314	0.00	1.875	0.00	11.201	0.00	66.897	1.27	399.555	62.63	2386.415	100.00		

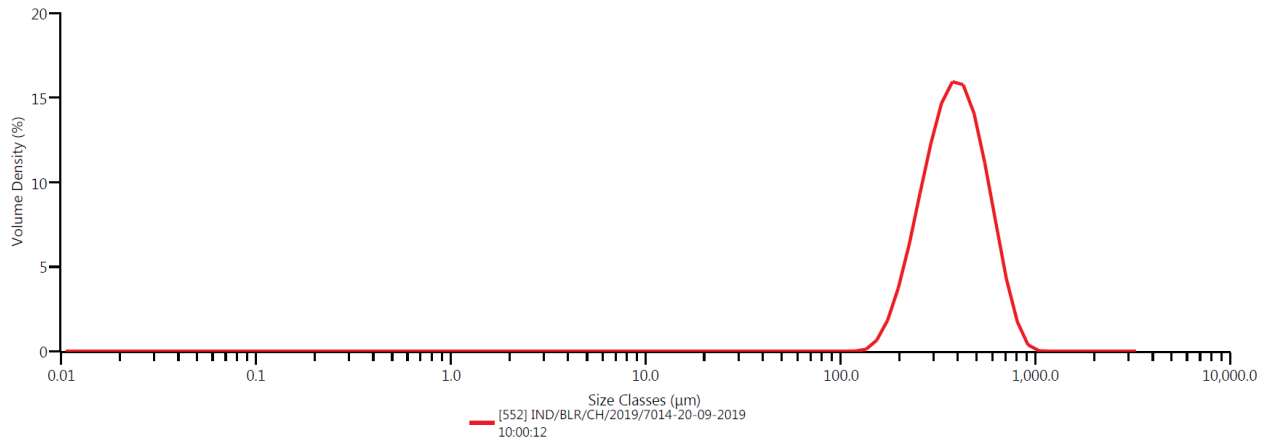
Analysis

Particle Name	Particle
Particle Refractive Index	1.900
Particle Absorption Index	1.000
Dispersant Name	Dry dispersion
Dispersant Refractive Index	1.000
Scattering Model	Mie
Analysis Model	General Purpose
Laser Obscuration	0.33 %

Result

Concentration	0.0151 %
Span	0.952
Uniformity	0.293
Specific Surface Area	15.96 m^2/kg
D [3,2]	357.936 µm
D [4,3]	404.813 µm
Dv (10)	237.901 µm
Dv (20)	278.977 µm
Dv (50)	384.311 µm
Dv (90)	603.839 µm
Dv (95)	668.903 µm
Dv (100)	974.040 µm
Volume Below (10) µm	0.00 %
Volume Below (20) µm	0.00 %

Frequency (compatible)



Result

Size (µm)	% Volume Under	Size (µm)	% Volume Under	Size (µm)	% Volume Under	Size (µm)	% Volume Under	Size (µm)	% Volume Under	Size (µm)	% Volume Under	Size (µm)	% Volume Under	Size (µm)	% Volume Under
0.010	0.00	0.060	0.00	0.357	0.00	2.131	0.00	12.726	0.00	76.006	0.00	453.960	67.34	2711.357	100.00
0.011	0.00	0.068	0.00	0.405	0.00	2.421	0.00	14.458	0.00	86.355	0.00	515.772	79.16	3080.544	100.00
0.013	0.00	0.077	0.00	0.460	0.00	2.750	0.00	16.427	0.00	98.114	0.00	586.001	88.50	3500.000	100.00
0.015	0.00	0.088	0.00	0.523	0.00	3.125	0.00	18.664	0.00	111.473	0.00	665.793	94.87		
0.017	0.00	0.100	0.00	0.594	0.00	3.550	0.00	21.205	0.00	126.652	0.00	756.449	98.39		
0.019	0.00	0.113	0.00	0.675	0.00	4.034	0.00	24.092	0.00	143.897	0.07	859.450	99.76		
0.022	0.00	0.128	0.00	0.767	0.00	4.583	0.00	27.373	0.00	163.490	0.56	976.475	100.00		
0.024	0.00	0.146	0.00	0.872	0.00	5.207	0.00	31.100	0.00	185.752	2.03	1109.435	100.00		
0.028	0.00	0.166	0.00	0.991	0.00	5.916	0.00	35.335	0.00	211.044	5.09	1260.499	100.00		
0.032	0.00	0.188	0.00	1.125	0.00	6.722	0.00	40.146	0.00	239.780	10.32	1432.133	100.00		
0.036	0.00	0.214	0.00	1.279	0.00	7.637	0.00	45.613	0.00	272.430	18.09	1627.136	100.00		
0.041	0.00	0.243	0.00	1.453	0.00	8.677	0.00	51.823	0.00	309.525	28.37	1848.692	100.00		
0.046	0.00	0.276	0.00	1.651	0.00	9.858	0.00	58.880	0.00	351.670	40.68	2100.416	100.00		
0.053	0.00	0.314	0.00	1.875	0.00	11.201	0.00	66.897	0.00	399.555	54.08	2386.415	100.00		

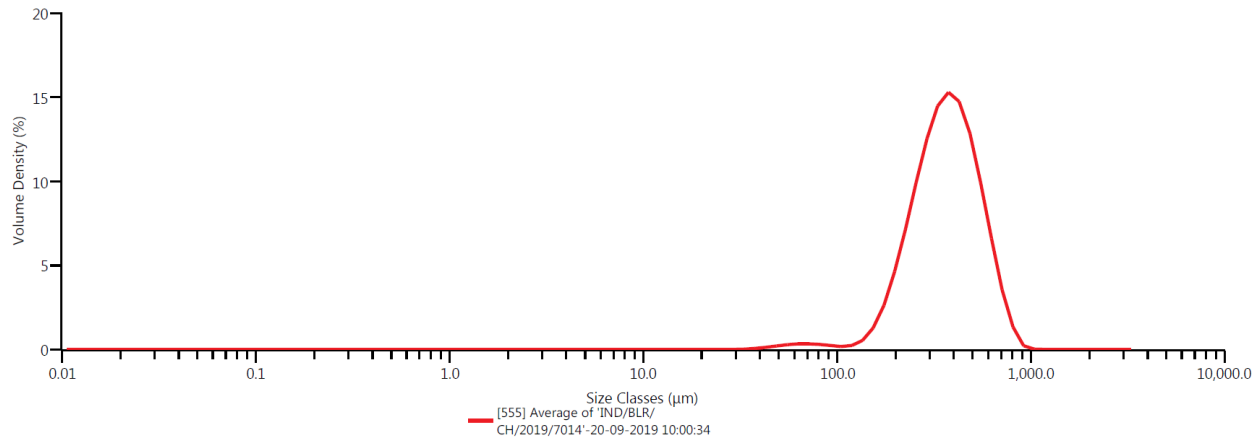
Analysis

Particle Name	Particle
Particle Refractive Index	1.900
Particle Absorption Index	1.000
Dispersant Name	Dry dispersion
Dispersant Refractive Index	1.000
Scattering Model	Mie
Analysis Model	General Purpose
Laser Obscuration	0.53 %

Result

Concentration	0.0212 %
Span	1.005
Uniformity	0.314
Specific Surface Area	18.05 m^2/kg
D [3,2]	316.571 µm
D [4,3]	382.886 µm
Dv (10)	214.395 µm
Dv (20)	258.121 µm
Dv (50)	365.376 µm
Dv (90)	581.771 µm
Dv (95)	651.174 µm
Dv (100)	971.982 µm
Volume Below (10) µm	0.00 %
Volume Below (20) µm	0.00 %

Frequency (compatible)



Result

Size (µm)	% Volume Under	Size (µm)	% Volume Under	Size (µm)	% Volume Under	Size (µm)	% Volume Under	Size (µm)	% Volume Under	Size (µm)	% Volume Under	Size (µm)	% Volume Under	Size (µm)	% Volume Under
0.010	0.00	0.060	0.00	0.357	0.00	2.131	0.00	12.726	0.00	76.006	1.11	453.960	71.39	2711.357	100.00
0.011	0.00	0.068	0.00	0.405	0.00	2.421	0.00	14.458	0.00	86.355	1.36	515.772	82.17	3080.544	100.00
0.013	0.00	0.077	0.00	0.460	0.00	2.750	0.00	16.427	0.00	98.114	1.55	586.001	90.47	3500.000	100.00
0.015	0.00	0.088	0.00	0.523	0.00	3.125	0.00	18.664	0.00	111.473	1.69	665.793	95.95		
0.017	0.00	0.100	0.00	0.594	0.00	3.550	0.00	21.205	0.00	126.652	1.86	756.449	98.85		
0.019	0.00	0.113	0.00	0.675	0.00	4.034	0.00	24.092	0.00	143.897	2.27	859.450	99.88		
0.022	0.00	0.128	0.00	0.767	0.00	4.583	0.00	27.373	0.00	163.490	3.30	976.475	100.00		
0.024	0.00	0.146	0.00	0.872	0.00	5.207	0.00	31.100	0.00	185.752	5.45	1109.435	100.00		
0.028	0.00	0.166	0.00	0.991	0.00	5.916	0.00	35.335	0.00	211.044	9.27	1260.499	100.00		
0.032	0.00	0.188	0.00	1.125	0.00	6.722	0.00	40.146	0.05	239.780	15.21	1432.133	100.00		
0.036	0.00	0.214	0.00	1.279	0.00	7.637	0.00	45.613	0.15	272.430	23.50	1627.136	100.00		
0.041	0.00	0.243	0.00	1.453	0.00	8.677	0.00	51.823	0.32	309.525	34.00	1848.692	100.00		
0.046	0.00	0.276	0.00	1.651	0.00	9.858	0.00	58.880	0.55	351.670	46.15	2100.416	100.00		
0.053	0.00	0.314	0.00	1.875	0.00	11.201	0.00	66.897	0.83	399.555	59.00	2386.415	100.00		

---- End of Test Report ----

Prüfbericht - Nr.: *Test Report No.:*	**IND/BLR/CH/2019/7012**	**Seite 1 von 2** *Page 1 of 2*

Auftraggeber: *Client:*	**SUNFLEX RECYCLING PVT LTD** Plot no 274/4, Opposite Gujarat High court, B/h Satyamev Complex, Sg highway, sola 380060
Gegenstand der Prüfung: *Test item:*	Crumb Rubber Powder 40 Mesh

Bezeichnung: *Identification:*	-	**Serine-Nr.:** *Serial No./* Document Submitted*:*	TRF Date: 31.08.2019
Wareneingangs-Nr.: *Receipt No.:*	03092019	**Eingangsdatum:** *Date of receipt:*	03.09.2019
Order No.:	166173813	*Testing Period:*	04.09.2019 to 04.09.2019

Prüfort: *Testing location:*	TÜV Rheinland India Pvt Ltd, Plot No.27B, 2nd Cross Road, Electronic City Phase I, Bangalore - 560 100, Karnataka, India
Prüfgrundlage: *Test specification:*	Customer's requirement : Bulk Density
Prüfergebnis: *Test Result:*	Refer pages 2 to 2

Prüflaboratorium/ Testing Laboratory:

zusammengestellt/ *compiled by*:

Datum *Date*	**Name** *Name*	**Unterschrift** *Signature*
04.09.2019	Swapnil Ahire Asst. Manager - Polymer Section, Material Testing Laboratories, Industry Services	

kontrolliert/ *checked by:*

Datum *Date*	**Name** *Name*	**Unterschrift** *Signature*
04.09.2019	Ranabir Pal Sr. Manager - Polymer Section, Material Testing Laboratories, Industry Services	

Sonstiges/ Other Aspects: Nil

Abkürzungen:	***ok / P***	***=***	***entspricht Prüfgrundlage***	***Abbreviations:***	***ok / P***	***=***	***passed***
	fail / F	***=***	***entspricht nicht Prüfgrundlage***		***fail / F***	***=***	***failed***
	n.a. / N	***=***	***nicht anwendbar***		***n.a. / N***	***=***	***not applicable***

Dieser Prüfbericht bezieht sich nur auf das o.g. Prüfmuster und darf ohne Genehmigung der Prüfstelle nicht auszugsweise vervielfältigt werden. Dieser Bericht berechtigt nicht zur Verwendung eines Prüfzeichens.

This test report relates to the a. m. test sample. Without permission of the test center this test report is not permitted to be duplicated in extracts. This test report does not entitle to carry any safety mark on this or similar products. Sampling not done by TUVRI. Test item submitted by client.

TEST RESULTS

Discipline: Mechanical
Product Group: Density and Viscosity

Photograph of Sample as in Received Condition

Test Name: Bulk Density

Laboratory Environment: 23±2°C & 50±5% RH

Observation:

Trial No.	Bulk Density (kg/m^3)	Average (kg/m^3)
1	334	331
2	330	
3	328	

--- End of Report ----

Prüfbericht - Nr.: *Test Report No.:*	**IND/BLR/CH/2019/7013**	**Seite 1 von 2** *Page 1 of 2*

Auftraggeber: *Client:*	**SUNFLEX RECYCLING PVT LTD** Plot no 274/4, Opposite Gujarat High court, B/h Satyamev Complex, Sg highway, sola 380060
Gegenstand der Prüfung: *Test item:*	Crumb Rubber Powder 40 Mesh

Bezeichnung: *Identification:*	-	**Serine-Nr.:** *Serial No./* Document Submitted*:*	TRF Date: 31.08.2019
Wareneingangs-Nr.: *Receipt No.:*	03092019	**Eingangsdatum:** *Date of receipt:*	03.09.2019
Order No.:	166173813	*Testing Period:*	04.09.2019 to 04.09.2019

Prüfort: *Testing location:*	TÜV Rheinland India Pvt Ltd, Plot No.27B, 2nd Cross Road, Electronic City Phase I, Bangalore - 560 100, Karnataka, India
Prüfgrundlage: *Test specification:*	Customer's requirement : Ash Content
Prüfergebnis: *Test Result:*	Refer pages 2 to 2

Prüflaboratorium/ Testing Laboratory:

zusammengestellt/ *compiled by*:			**kontrolliert/** *checked by:*		
05.09.2019	Swapnil Ahire Asst. Manager - Polymer Section, Material Testing Laboratories, Industry Services		05.09.2019	Ranabir Pal Sr. Manager - Polymer Section, Material Testing Laboratories, Industry Services	
Datum *Date*	**Name** *Name*	**Unterschrift** *Signature*	**Datum** *Date*	**Name** *Name*	**Unterschrift** *Signature*

Sonstiges/ Other Aspects: Nil

Abkürzungen:	***ok / P***	***= entspricht Prüfgrundlage***	***Abbreviations:***	***ok / P***	***= passed***
	fail / F	***= entspricht nicht Prüfgrundlage***		***fail / F***	***= failed***
	n.a. / N	***= nicht anwendbar***		***n.a. / N***	***= not applicable***

Dieser Prüfbericht bezieht sich nur auf das o.g. Prüfmuster und darf ohne Genehmigung der Prüfstelle nicht auszugsweise vervielfältigt werden. Dieser Bericht berechtigt nicht zur Verwendung eines Prüfzeichens.

This test report relates to the a. m. test sample. Without permission of the test center this test report is not permitted to be duplicated in extracts. This test report does not entitle to carry any safety mark on this or similar products. Sampling not done by TUVRI. Test item submitted by client.

Prüfbericht - Nr.: *Test Report No.:* **IND/BLR/CH/2019/7013**

TEST RESULTS

Discipline: Mechanical
Product Group: Density and Viscosity

Photograph of Sample as in Received Condition

Test Name: Ash Content

Test Method: ASTM D297, Section 35

Condition: Temperature 550°C

Observation:

Sl. NO.	TEST	RESULT (%)	AVERAGE (%)
1	Ash Content	9.01	9.03
2		9.11	
3		8.97	

--- End of Report ----