



GVM TEST HOUSE
AND RESEARCH CENTRE

23-24, Yashodeep Heights,
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ISO 9001:2015 Certified

TESTING | TRAINING | AUDITING

Test Order Ref: GVM/HDPE/05156-4/04/2024

Date of Receipt: 09.04.2024

Date: 08.06.2024

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GRASIM INDUSTRIES LTD.

P.O. Birlagram, Nagda-456331, District Ujjain,
Madhya Pradesh, India.

TEST REPORT ON RESISTANCE TO OXIDATION OF HDPE MEMBRANE

Source of Sample	: Sample Submitted by Customer
Number of samples Tested	: 01 (One only).
Customer's Reference	: PO No.- 4900003848, dt 22.03.2024
Lab Reference Number	: 2024/APR/05156-4
Condition of sample	: Satisfactory
Sample Identification #	: Birla Opus Prime HS12 (1.2 mm sand finish HDPE membrane)
Period of Test	: 12.04.2024 to 08.06.2024

INTRODUCTION:

This report describes the Resistance to Oxidation of HDPE Membrane test carried out at the request of "GRASIM INDUSTRIES LTD" on 22th Mar. 2024 at GVM Test House And Research Centre, Navi Mumbai. Testing for Resistance to Oxidation of HDPE Membrane was conducted according to guidelines of ISO 13438:2018 Procedure A "Screening test method for determining the resistance of geotextiles and geotextile-related products to oxidation" and EN 13251:2016 (E).

SAMPLE DESCRIPTION:

GVM Test House And Research Centre received sample of size of 1 m x 1 m. The sample was given unique sample identification (Birla Opus Prime HS12 (1.2 mm sand finish HDPE membrane)) for reference purpose.

BRIEF SUMMARY OF THE TEST:

1. Test specimens and control specimens were prepared in each direction in accordance with EN 12226: 2012.
2. **Conditioning for Control specimens** - All control specimens were stored in water at 80°C for 6 hrs. and then 6 h in an oven at $(100 \pm 1)^\circ\text{C}$. After exposure, specimens were kept in a dark room at room temperature.
3. **Conditioning for test specimens** - All test specimens were stored in water at 80°C for 28 days, the water was changed every seven days and moved once per day. The specimens were then exposed to an elevated temperature of 100°C in air for 28 days in a regulated laboratory oven.
4. The tensile strength is then carried out on test and control specimens. The mean results obtained are shown in the table.

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GSTIN: 27BPPB4090Q1ZM



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TEST RESULTS:

S. N.	Test Conducted	Unit	Test Results	Test Method
A	Control Specimens			
1	Tensile Strength- Longitudinal	N/mm ²	27.02	ASTM D 412: 2016
2	Tensile Strength- Transverse	N/mm ²	26.19	ASTM D 412: 2016
3	Elongation- Longitudinal	%	771	ASTM D 412: 2016
4	Elongation- Transverse	%	889	ASTM D 412: 2016
B	Test Specimens			
1	Tensile Strength - Longitudinal	N/mm ²	21.13	ASTM D 412: 2016
2	Tensile Strength- Transverse	N/mm ²	20.16	ASTM D 412: 2016
3	Elongation - Longitudinal	%	638	ASTM D 412: 2016
4	Elongation- Transverse	%	744	ASTM D 412: 2016
C	Retained Tensile Strength & % Elongation			
1	Retained Tensile Strength- Longitudinal	%	78	---
2	Retained Elongation - Longitudinal	%	77	---
3	Retained Tensile Strength- Transverse	%	83	---
4	Retained Elongation - Longitudinal	%	84	---

As furnished by the customer.

Interpretation of test results: The test results obtained are confirmed to the requirements of EN 13251:2016 for 25 Years of service life. (Retained strength more than 50 percent of control sample)

- Note:
1. The results relate only to the items tested.
 2. Report shall not be reproduced except in full, without the written approval of the lab.
 3. Any correction invalidates this report.

For GVM TEST HOUSE AND RESEARCH CENTRE



DINESH BURDE

[Signature]

Authorised Signatory



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