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सेन्ट्रल इंस्टिट्यूट ऑफ पेट्रोसायन इंजीनियरिंग एण्ड टेक्नोलॉजी

(रसायन एवं पेट्रोसायन विभाग, रसायन एवं उर्वरक मंत्रालय, भारत सरकार)

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No.: 0133299

Plastics Testing Centre

Test Certificate

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Date: 11.04.2022

Issued to: M/s. Lamifab Industries,
Plot No.4702,4703,4704, 4705 & 4604/05,
GIDC, (Plastic Zone),
Sarigam, Taluka Umargaon,
Dist. Valsad, Gujarat - 396155

Ref: Your Letter No. Lami/21-22/159& Date 02.02.2022

TEST REPORT AS PER: IS :15351:2015 with all latest Amend. REPORT NO:2205444

PART A: PARTICULARS OF SAMPLE SUBMITTED

- a) Nature of Sample : Laminated HDPE woven geomembrane for water proof lining, Colour- Black
- b) Grade/Variety/ Type/Size/Class etc : 250 GSM (0.25MM), Type I, Size-(LxW)-5450mm x 5450mm
- c) Declared values, if any : Nil
- d) Code No. : Nil
- e) Batch No. and Date of Manufacture : LFPL/Z/2021-22 and 25.01.2022
- f) Quantity : 1 no. , (with 100 mtrs tape & laminated fabric with different layer separated supplied extra.)
- g) Mode of Packing : Individual packs
- h) BIS Seal : Nil
- i) Any other information : Samples received on 18.02.2022
- j) Date of initiation of testing : 18.02.2022
- k) Date of completion of testing : 11.04.2022

PART B: SUPPLEMENTARY INFORMATION

- a) Reference to sampling Procedure : Nil
- b) Supporting documents for the measurement taken and result derived : Nil
- c) Deviation from the test method as prescribed: in relevant work instructions, if any : Nil
- d) Statement of conformity as per the test result obtained : As per Part-C
- e) Decision Rule applicable or not : Nil



Test Certificate

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Continuation Sheet

REPORT No. 2205444
PART - C

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TEST RESULTS
(As per : IS : 15351:2015)

| S.NO. | Clause No. | TEST | SPECIFIED REQUIREMENT | RESULT OBTAINED |
|-------|------------|--|--|---|
| | 3 | Materials | | |
| 1. | 3.1 | HDPE Tape | Tape shall be manufactured from HDPE Granules which shall be UV Stabilized | High Density Polyethylene (HDPE) Confirmed |
| | | Carbon Black Content (%) | 2.5 ± 0.5 | 2.56 |
| | | Carbon Black Dispersion | Shall be satisfactory | Satisfactory |
| | | Width of tape (mm) | Min. 1.20 | 2.54 |
| | | Linear Density of Tape (Denier) | Min. 800 | 860 |
| 2. | 3.2 | HDPE Fabric | | |
| | | Fabric Tape (Warp & Weft) (Tapes/dm) | Min. 40 | 41 (Both for warp and weft) |
| 3. | 5.1.1 | i) Lamination | The lamination of the fabric shall be done on both sides with LDPE film or combination of LDPE and LLDPE | Combination of LDPE & LLDPE Confirmed |
| | | ii) Coating Thickness (μ) | Min. 25 | 32 |
| | | iii) CBC of coating (%) | 2.5 ± 0.5 | 2.60 |
| | | iv) Carbon Black Dispersion | Shall be satisfactory | Satisfactory |
| 3. | 5.1.2 | HDPE Fabric | Shall be two or more layers of fabric | 2 Layers Confirmed |
| | | Sandwich Lamination coating thickness (micron) | Min. 35.0 | 46 |
| | 5.2 | Panel width | The minimum width of the laminated fabric panel to manufacture geomembrane shall be 1800mm. A combination of panel width may be used to obtain desired width of geomembrane. Narrow width panels not less than 900 mm in width may also be used but such pieces shall not exceed 1 piece per roll of finished material of specified width. | 1845 mm No narrow width panel used. |
| | 5.3 | Joint/Seams (cm) | Min. 2.5 | 3.5 (by heat sealing) |
| 4. | 6.1 | Workmanship | The geomembrane shall be uniform in colour, texture and finish. It shall be free from pin holes, undispersed raw material, particles of foreign matter etc. and the laminated film shall not peel off from the fabric | Satisfactory |



Test Certificate

No.: 0133299

Continuation Sheet

REPORT No.2105444
PART - C

Page 3 of 3

TEST RESULTS
(As per : IS :15351:2015)

| S.NO. | Clause No. | TEST | SPECIFIED REQUIREMENT | RESULT OBTAINED |
|-------|----------------|--|---|------------------------------|
| 5. | 6.2 Table 1 | (i) Thickness (mm) | Min 0.25 | 0.305 |
| 6. | | (ii) Mass (g/m ²) | Min 250 | 260 |
| 7. | | (iii) Dimensions | As declared +1% with no negative tolerance | |
| | | (a) Length (mm) | 5450 | 5465.0 (0.27) |
| | | (b) Width (mm) | 5450 | 5460.0 (0.18) |
| 8. | | (iv) Carbon Black Content (%) | 2.5 ± 0.5 | 2.65 |
| 9. | | (v) Breaking load before UV Exposure (N) | | |
| | | c) Warpway | Min 3300 N | 3610 |
| | | d) Weftway | Min 3000 N | 3340 |
| 10. | | (vi) Strain at max. load (%) | 20 ± 5 | 19.1 |
| 11. | | (vii) Breaking load after UV Exposure (N) | After 1000 hrs UV exposure - Minimum 80% of actual original value | |
| | | c) Warpway | | 3205 (88.8%) |
| | | d) Weftway | | 2985 (89.37%) |
| 12. | | (viii) Impact failure load at 1524 mm drop, min. gram force at 50% failure | Shall be no sign of failure at Min.1150 gf | 1510 gf Confirmed |
| 13. | | (ix) Tear Resistance (N) | Min 100 | 134 |
| 14. | | (x) Puncture Resistance (N) | Min 300 | 355 |
| 15. | | (xi) Bursting Strength (Ball burst) (N/cm ²) | Min.60 | 74 |
| 16. | | (xii) Seam Strength before UV Exposure (N/mm) | Min.15 | 20.5 |
| 17. | | (xiii) Seam Strength after UV Exposure (N/mm) | After 1000 hrs UV exposure - Minimum 80% of actual original value | 18.1 (88.3%) Confirmed |
| 18. | | (xiv) Hydrostatic Resistance | Shall be no leakage at 10.0 kg/cm ² | Confirmed |
| 19. | | (xv) Hydrostatic Resistance after UV exposure of 1000 h | Shall be 80% of actual original value | Confirmed |
| 20. | | (xvi) Ash Content (%) | Max.1.0 | 0.91 |

PART D : REMARKS : Nil

NB: 1. This Test Report/Certificate is issued only for the samples submitted to CIPET.

2. The results stated above related only to the items tested

3. The report shall not be reproduced in full/part without written approval of the laboratory.

4. The quality of the subsequent production lot has to be ensured by the purchaser.

5. Any anomaly/discrepancy in this report should be brought to the notice of CIPET within 30 days from the date of issue

AUTHORISED SIGNATORY