GSE HD Color Textured Geomembrane
(RAL 6003 Olive-Green)

GSE HD Color Textured is a co-extruded high density polyethylene (HDPE) geomembrane available on one or both sides. It is manufactured from the highest quality resin specifically formulated for flexible geomembranes. It has a UV stabilized green upper surface that improves the aesthetics for the community. GSE HD Color Textured provides an increased frictional resistance surface and is primarily used in exposed applications which can eliminate the need for cover soil and vegetative layers. Other colors (RAL-based) are available upon request. The UV-resistance as well as the color stability is variable in time dependent on the selected color.

### Product Specifications

These product specifications meet or exceed GRI GM13.

<table>
<thead>
<tr>
<th>Tested Property</th>
<th>Unit</th>
<th>Test Method</th>
<th>Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thickness (a) (Core Thickness)</td>
<td>mm</td>
<td>ASTM D 5994</td>
<td>1.0</td>
</tr>
<tr>
<td>Density (Minimum Average)</td>
<td>g/cm³</td>
<td>ASTM D 792</td>
<td>0.94</td>
</tr>
<tr>
<td>Tensile Properties (each Direction)</td>
<td>N/mm</td>
<td>ASTM D 638 / D 6693; Type IV</td>
<td>15</td>
</tr>
<tr>
<td>Elongation at Yield Strength at Yield</td>
<td>%</td>
<td>50 mm/min; Io = 33 mm</td>
<td>13</td>
</tr>
<tr>
<td>Elongation at Yield Strength at Break</td>
<td>%</td>
<td>200 mm/min; Io = 50 mm</td>
<td>10</td>
</tr>
<tr>
<td>Tear Resistance (Minimum Average)</td>
<td>N</td>
<td>ASTM D 1004</td>
<td>130</td>
</tr>
<tr>
<td>Puncture Resistance (Minimum Average)</td>
<td>N</td>
<td>ASTM D 4833</td>
<td>267</td>
</tr>
<tr>
<td>Dimensional Stability (each Direction)</td>
<td>%</td>
<td>ASTM D 1204 (120°C/1 h)</td>
<td>± 2</td>
</tr>
<tr>
<td>Melt Flow Index (b)</td>
<td>g/10 min</td>
<td>ASTM D 1238 (190°C / 5.0 kg)</td>
<td>± 3.0</td>
</tr>
<tr>
<td>Stress Crack Resistance (NCTL) (c)</td>
<td>h</td>
<td>ASTM D 5397; Appendix</td>
<td>≥ 400</td>
</tr>
<tr>
<td>Asperity Height (each Side)</td>
<td>mm</td>
<td>GRI-GM 12</td>
<td>0.25</td>
</tr>
<tr>
<td>Oxidative Induction Time (OIT)</td>
<td>min</td>
<td>ASTM D 3895 (200°C; Pure O₂ 1 atm)</td>
<td>≥ 100</td>
</tr>
</tbody>
</table>

### Reference Property

- **Low Temperature Brittleness** °C
  - ASTM D 746
  - - 77
- **Carbon Black Content** (black layer) %
  - ASTM D 1603
  - 2.0 – 3.0
- **Carbon Black Dispersion (black layer)** Category
  - ASTM D 5996
  - 1/2
- **UV Resistance** (d) HP-OIT retained after 1,600 hours %
  - GRI-GM 11
  - ≥ 50

### Surface

- **Roll Width (approx.)** m
  - ---
  - 6.95
- **Surface** ---
  - single-sided or double-sided textured

### Notes:

(a): Minimum average: - 5%, lowest individual for 8 out of 10: - 10%, lowest individual: - 15% - Special thickness available upon request.
(b): Standard test conditions: 190°C / 5.0 kg.
(c): NCTL is conducted on representative smooth geomembrane samples.
(d): 8 out of 10 readings must be ≥ 0.18 mm and lowest individual reading must be ≥ 0.13 mm.
(e): GSE HD Color Textured may have an overall ash content greater than 3% due to the colored layer.
(f): Dispersion only applies to near spherical agglomerates. 9 of 10 views shall be category 1 or 2. No more than 1 view from category 3.
(g): Test conditions: 20 hours UV cycle at 75°C followed by 4 hours condensation at 60°C, total: 1,600 hours.
(h): UV Resistance is based on percent retained value regardless of the original High Pressure - OIT value.
(i): Roll widths and lengths have a tolerance of ± 1%.