Concrete Canvas® GCCM Material Data

**Post Set Concrete Canvas® GCCM Properties**

**Based on Concrete Canvas GCCM® hydrated in accordance with the Concrete Canvas® Hydration Guide.**

**Strength**

Very high early strength is a fundamental characteristic of CC. Typical strengths and characteristics are as follows:

- **Compressive tests based on ASTM C109 – 02 (initial crack)**
  - 10 day compressive failure stress (MPa) **40**

- **Bending tests based on BS EN 12467:2004 (initial crack)**
  - 10 day bending failure stress (MPa) **3.4**
  - 10 day bending Youngs modulus (MPa) **180**

**Tensile data (initial crack)**

<table>
<thead>
<tr>
<th>Product</th>
<th>Length direction (kN/m)</th>
<th>Width direction (kN/m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CC5™</td>
<td>6.7</td>
<td>3.8</td>
</tr>
<tr>
<td>CC8™</td>
<td>8.6</td>
<td>6.6</td>
</tr>
<tr>
<td>CC13™</td>
<td>19.5</td>
<td>12.8</td>
</tr>
</tbody>
</table>

**Reaction to Fire**

CC has achieved Euroclass B certification: BS EN 13501-1:2007+A1:2009 Passed

CC has achieved MSHA approval: B-s1, d0

**Age Testing**

- **Freeze-Thaw testing (ASTM C1185)** 200 Cycles Passed
- **Freeze-Thaw testing (BS EN 12467:2004 part 5.5.2)** Passed
- **Soak-Dry testing (BS EN 12467:2004 part 5.5.5)** Passed
- **Heat-Rain testing (BS EN 12467:2004 part 7.4.2)** Passed
- **Water impermeability (BS EN 12467:2004 part 5.4.4)** Passed**

**Other**

- **Abrasion Resistance (DIN 52108)**
  - Similar to twice that of OPC Max 0.10 g/cm²
- **Manning’s Value (ASTM D6460)**
  - n = 0.011
  - Passed
- **Chemical Resistance (BS EN 14414)**
  - Acid (pH 4.0) (56 day immersion at 50°C) Passed
  - Alkaline (pH 12.5) (56 day immersion at 50°C) Passed
  - Hydrocarbon (56 day immersion at 50°C) Passed
  - Sulfate Resistance (28 day immersion at pH 7.2) Passed

**Impact Resistance of Pipeline Coatings**

ASTM G13 (CC13™ only) Passed

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**Pre-Set Concrete Canvas® GCCM Properties**

**Setting**

- **Working Time**
  - 1-2 hours subject to ambient temperature
  - CC will achieve 80% strength at 24 hours after hydration.

**Method of Hydration**

- **Spray the fibre surface with water until it feels wet to touch**
- **Concrete Canvas** will achieve 80% strength at 24 hours after hydration. Do not move the material once it has begun to set.
- **Working time** will be reduced in hot climates.
- **CC will set hard in 24 hours but will continue to gain strength for years.**
- **If CC is not fully saturated, the set may be delayed and strength reduced.** If the set is delayed, re-wet with a large excess of water.

**Notes:**

- CC cannot be over hydrated and an excess of water is always recommended.
- Minimum ratio of water:CC is 1:2 by weight.
- Do not jet high pressure water directly onto the matting as this may reduce. If the set is delayed, re-wet with a large excess of water.
- CC will hydrate and set underwater.
- CC has a working time of 1-2 hours after hydration. Do not move the material once it has begun to set.
- **Working time** will be reduced in hot climates.
- **CC will set hard in 24 hours but will continue to gain strength for years.**
- If CC is not fully saturated, the set may be delayed and strength reduced. If the set is delayed, re-wet with a large excess of water.

**Contact Concrete Canvas® Ltd.**

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**Web:** www.concretecanvas.com

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**Concrete Canvas® GCCM Physical Properties**

<table>
<thead>
<tr>
<th>Product</th>
<th>Thickness (mm)</th>
<th>Batch Roll Size (sqm)</th>
<th>Bulk Roll Size (sqm)</th>
<th>Roll Width (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CC5™</td>
<td>5</td>
<td>10</td>
<td>200</td>
<td>1.0</td>
</tr>
<tr>
<td>CC8™</td>
<td>8</td>
<td>5</td>
<td>125</td>
<td>1.1</td>
</tr>
<tr>
<td>CC13™</td>
<td>13</td>
<td>N/A</td>
<td>80</td>
<td>1.1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Product</th>
<th>Mass (unset) (kg/m²)</th>
<th>Density (unset) (kg/m³)</th>
<th>Density (set) (kg/m³)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CC5™</td>
<td>7</td>
<td>1500</td>
<td>+30-35%</td>
</tr>
<tr>
<td>CC8™</td>
<td>12</td>
<td>1500</td>
<td>+30-35%</td>
</tr>
<tr>
<td>CC13™</td>
<td>19</td>
<td>1500</td>
<td>+30-35%</td>
</tr>
</tbody>
</table>