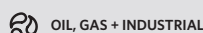
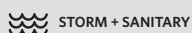


Milliken Infrastructure

# CC Hydro™

Geosynthetic Cementitious Composite Mat

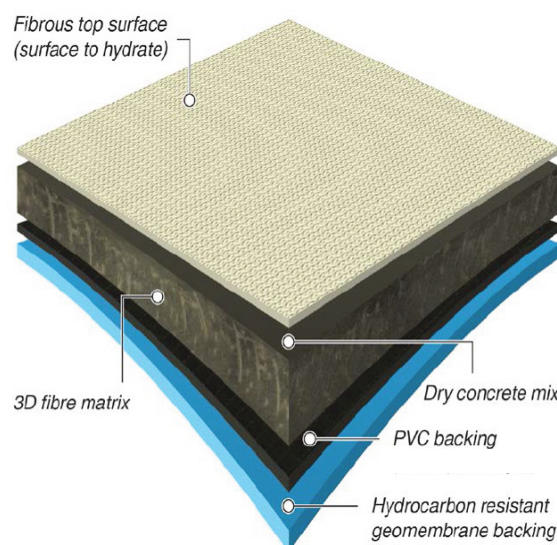


CC Hydro™ is the next evolution in all in one containment products. It combines the revolutionary Concrete Cloth Geosynthetic Cementitious Composite Mat (GCCM) with a high impermeability, chemically resistant geomembrane backing. The geomembrane provides a high performance liner with a testable joint for quality assured containment applications. The liner incorporates a hi-visibility welding strip allowing joints to be thermally bonded with a twin-track or triple-track air channel for on-site testing. The flexible concrete impregnated fabric, hardens on hydration to provide long term protection to the geomembrane from puncture, abrasion, weathering and UV.

## ROLL SPECIFICATIONS

| Product | Thickness in (mm) | Roll Width ft (m) | Roll Length ft (m) | Roll Area ft <sup>2</sup> (m <sup>2</sup> ) | Average Unset Roll Weight lb (kg) |
|---------|-------------------|-------------------|--------------------|---|-----------------------------------|
| CCH5    | 0.2 (5)           | 3.28 (1.0)        | 492 (150)          | 1614 (150)                                  | 3000 (1350)                       |
| CCH8    | 0.3 (8)           | 3.28 (1.0)        | 328 (100)          | 1076 (100)                                  | 3100 (1400)                       |

Standard production size information is subject to change without notice. Please contact your Milliken representative or distributor on exact roll size quotes (sales based on ft<sup>2</sup>). All test data are typical minimum values unless otherwise noted. Listed eights are minimum values, actual product weight may exceed these values. Set final install weight of products increase 30-35% on average over listed unset weights.



## APPLICATIONS

- Berm & Secondary Containment
- Channel and Irrigation Lining
- Pond / Lagoon Lining

## BENEFITS

### Provides All-In-One Solution:

Combines the impermeability of a containment liner with the hard armor protection and durability of concrete, reducing install times and simplifying logistics

### Eliminates Top Cover:

Does not require a protective top cover, removing the need for additional excavation, the treatment of contaminated soil and the use of costly fill materials

### Maintains Volume Capacity:

Can be laid directly onto existing profiles without loss of volume capacity for refurbishment projects, providing significant overall time and cost savings

### Reduces Life-Cycle Costs:

Provides effective weed suppression eliminating the ongoing maintenance cost of soil-covered systems.

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Concrete Cloth is a trademark of Concrete Canvas, Ltd.  
Concrete Cloth is protected by Granted US Patents 8,287,982; 8,343,609; 8,703,266 with additional Pending US Patents and Foreign Equivalents.

**MILLIKEN INFRASTRUCTURE**  
A Milliken COMPANY

## CC Hydro Composite Properties

### Puncture Resistance: ASTM D-6241

| Product | Puncture Strength<br>lb (kg) |
|---------|------------------------------|
| CCH5    | 350 (160)                    |
| CCH8    | 500 (225)                    |

### Tensile Strength: ASTM D-5035

| Product | Working Strength<br>lb/ft <sup>2</sup> (kg/m <sup>2</sup> ) |          | Ultimate Strength<br>lb/ft <sup>2</sup> (kg/m <sup>2</sup> ) |          |
|---------|---|----------|--|----------|
|         | Length  | Width    | Length   | Width    |
| CCH5    | 60 (10)   | 20 (3.5) | 140 (24)   | 50 (8.5) |
| CCH8    | 85 (15)   | 25 (4.4) | 190 (33)   | 100 (17) |

### Set Time: ASTM C-807

- Initial Set: 120 min
- Final Set: 240 min

### Flex Strength: ASTM D-8058-17

- 7 Day Minimum: 475 psi (3.3 MPa)

### Taber Abrasion: ASTM C-1353

- Approximately 7.5x Greater than 2500 psi OPC

### Freeze Thaw: ASTM C-1185

- 200 Cycles: Pass

### Flame Resistance

- CAN/ULC-S668-12: Pass

### Manning's n Value: ASTM D-6460

- n=0.011

### Permissible Shear & Velocity CC5: ASTM D-6460

- Shear <25 lb/ft<sup>2</sup> (1200 Pa)
- Velocity <35 ft/sec (10.7 m/s)

Product Exceeded Large Scale Testing Capabilities and was not tested to failure. To actually achieve these permissible values, the CC Hydro material must be properly anchored with a system designed to meet or exceed these values.

## CC Hydro Membrane Properties

### Membrane Specific Physical Properties

- Grab Tensile ASTM D751 (Section 12-15) - 270 lbs (1200N)
- Tear Strength ASTM D-751 (Section 28 B) - 40 lbs (180N)
- Seam Strength Grab ASTM D-751 (Section 66-71) 250 lbs (1100 N)
- Seam Strength Peel ASTM D-6392 - 20 lbs/in (3.5 N/mm)
- Cold Crack ASTM D-751 (Section 51-64) - Pass
- Heat Aging ASTM D-751 (Section 12-15) - No Loss
- Soil Burial ASTM G-160 - No Loss

### Membrane Specific Chemical Properties - CAN/ULC-S668-12

- Chemical Compatibility ASTM D-751 (Section 12-15)
  - Tensile Strength retention >75%
  - Mass Loss < 10%
  - Volume Change <20%
- Vapor Transmission ASTM D-814 <15 g/(h·m<sup>2</sup>)

*Tested versus Ethanol, Methanol, Fuel C, ASTM IRM 903, Saturated Na Cl, Sodium Bicarbonate & Dilute Sulfuric Acid.*

