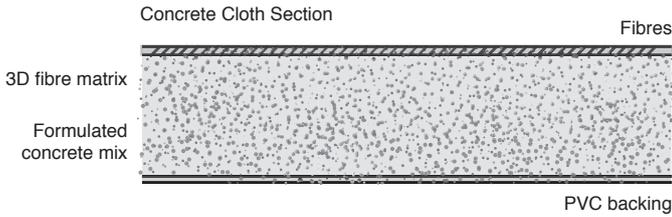


Concrete Cloth™

Concrete Cloth (CC) is a flexible cement impregnated fabric that hardens when hydrated, to form a thin durable water and fire proof concrete layer. CC consists of a 3-dimensional fibre matrix containing a specially formulated dry concrete mix. A PVC backing on one surface of the cloth ensures the material is water proof. Hydrophilic fibres on the opposite surface aid hydration by drawing water into the cement.

When water is added the material remains flexible for 2 hours and then sets rapidly. It can be hydrated either by spraying with water or by immersion. Once set, the fibres reinforce the concrete preventing crack propagation and providing a safe plastic failure mode.



The unique properties of CC make it suitable for the most demanding applications where the following properties may be required:

- Rapid strength gain within six to twenty-four hours.
- Heat resistant for high temperature or fire proofing applications.
- Concretes subject to severe chemical attack such as agricultural environments, industrial applications and drainage systems.

Quality

Strict quality control of the raw materials in CC ensures the finished product is of the highest possible standard.

Method of Hydration

CC can be hydrated using saline or non saline water. The minimum ratio of water:CC is 1:2 by weight. CC cannot be over hydrated, an excess of water is always recommended.

Spray the woven surface multiple times until the CC is saturated. The wet CC will first darken and then become lighter as it absorbs the water. CC is saturated when water pools on the surface or runs off.

CC should be re-wet at least once, between 1 and 2 hours after the initial hydration. This is essential in hot/arid environments, where evaporation can cause over-drying.

CC4 is the most prone to over-drying and must always be re-wet one or more times after 1 to 2 hours regardless of climate.

Do not use a jet of high pressure water directly onto the surface as this may wash a channel in the material.

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.

CC can also be used underwater, it will hydrate fully from immersion.

Patent Information

European Patent Application No 09001199
European Patent Application No 07732819.2
(Publication Number 2027319)

Physical Properties

Initial Set ≥ 120 min
Final Set ≤ 240 min

CC	Thickness (mm)	Batch Roll Size (sqm)	Bulk Roll Size (sqm)	Roll Width (m)
CC4	5	10	200	1.0
CC8	8	5	125	1.1
CC13	13	N/A	80	1.1

CC	Mass (unset) (kg/m ²)	Density (unset) (kg/m ³)	Density (set) (kg/m ³)
CC4	8.0	1500	+30-35%
CC8	12.0	1500	+30-35%
CC13	19.0	1500	+30-35%

Strength / Hardness

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

Compressive testing based on ASTM C473 – 07
10 day compressive failure stress (MPa) 40
10 day compressive Youngs modulus (MPa) 1500

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

Abrasion Resistance (ASTM C1353-8)
- CC lost 60% less weight than marble over 1000 cycles.

MOHS hardness 4-5

Reaction to Fire

CC has achieved Euroclass B certification: Passed

BS EN 13823 Single Burning Item (SBI) test Passed

Other

Freeze-thaw testing (BS EN 12467:2004 part 5.5.2) Passed

Soak-Dry testing (BS EN 12467:2004 part 5.5.5) Passed

Water impermeability (BS EN 12467:2004 part 5.4.4) Passed

Moisture vapour transmission rate
PVC Thickness 0.42 mm
PVC MVTR range 0.836 - 0.924 g.mm / (m².day)

CC Static Head < 3000mm

NATO Stock Numbers

CC4 8305-99-744-9263
CC8 8305-99-149-9728
CC13 8305-99-742-1679