

## CCX™ Properties

2203.01.EN

Pre-set (Uncured)	Test Method	Unit	Typical Values		
			CCX-U™	CCX-M™	CCX-B™
<b>ASTM D8364 'Standard Specification for GCCM Materials' Classification</b>					
GCCM/B Classification	ASTM D8364	Type	II	II	II
<b>Dimensions</b>					
Total Thickness	BS EN 1849-2	mm	10	10.3	11
Membrane Thickness		mm	N/A	0.3	1.0
Roll Sizes - W x L*		m	1.95 x 50	1.90 x 50	1.90 x 50
Area of CCX™ per Roll		m <sup>2</sup>	97.5	95	95
<b>Physical Properties</b>					
Mass per Unit Area	BS EN 1849-2	kg/m <sup>2</sup>	14.5 - 15.5		
Density	BS EN 1849-2	kg/m <sup>3</sup>	1500-1600		
Density Increase on Curing		% Increase	20-25		
Peel Strength - strength of internal linking fibres (MD**)	BS EN ISO 13426-2	kN/m	>3.0	>4.0	
<b>Other Properties</b>					
Working Time from Hydration - refer to the CCX™ Hydration Guide		Minutes	<30		

## Post-set (Cured) - at 28 Days from Hydration Unless Specified

(Hydrated by full immersion in accordance with ASTM D8030)

	Test Method	Unit	Typical Values		
			CCX-U™	CCX-M™	CCX-B™
<b>Mechanical Performance</b>					
Compressive Strength of Cementitious Mix (water/cementitious materials ratio to ASTM D8329)	ASTM D8329	MPa	>70		
Flexural Strength - at 24 Hours from Hydration (MD**)					
- Initial Breaking Load	ASTM D8058	N/m	>2500		
- Initial Flexural Strength	ASTM D8058	MPa	>4.0		
- Final Flexural Strength	ASTM D8058	MPa	>6	>10	
Dynamic Puncture Resistance (depth of perforation)	BS EN ISO 13433	mm	0***		
Pyramid Puncture Resistance	BS EN ISO 14574	kN	>15		
Differential Ground Movement (strain to exposure of geomembrane)		%	<10		
<b>Environmental Durability</b>					
Freeze - Thaw Resistance - retained Initial Flexural Strength after 100 cycles (MD**)	BS EN 12467	%	120		
Weathering (UV) Resistance - retained Initial Flexural Strength (MD**)	BS EN 12224	%	90		
Microbiological Resistance - retained Initial Flexural Strength (MD**)	BS EN 12225	%	87		
Chemical Resistance - retained Initial Flexural Strength (MD**)					
- Method A - Acid - 10% solution H <sub>2</sub> SO <sub>4</sub>	BS EN 14414	%	N/A	38	
- Method B - Alkaline - saturated suspension Ca(OH) <sub>2</sub>	BS EN 14414	%	N/A	100	
- Method C - Solvation & Swelling - 35% vol diesel, 35% vol paraffin, 30% vol lubricating oil HD30	BS EN 14414	%	N/A	83	
- Method D - Synthetic Leachate	BS EN 14414	%	N/A	103	
Root Resistance	DD CEN/TS 14416	-	Passed		
<b>Hydraulic Performance</b>					
Abrasion Resistance - cementitious barrier depth of wear	ASTM C1353	mm/1000 Cycles	<0.2		
Manning's Roughness Coefficient - refer to CCX™ Manning's test report	ASTM D6460	n	0.010-0.015		
<b>Impermeability - Geomembrane Barrier</b>					
Water Permeability	BS EN 14150	m/s	N/A	6 x 10 <sup>-12</sup>	
Gas Permeability	ASTM D1434	cm <sup>3</sup> .cm cm <sup>2</sup> .s.Pa	N/A	5 x 10 <sup>-13</sup>	

\*CCX™ Rolls are supplied by area so the listed length and width dimensions are typical values and tolerances are typically +5%/-2.5%. \*\* Machine direction. \*\*\*Probe did not make a full penetration through the product, therefore the depth of penetration is zero.

Information is provided based on current test data and may be subject to change as new information becomes available. The versatile nature of CCX™ means that all application conditions cannot be anticipated. Concrete Canvas Ltd makes no warranties and assumes no liability in connection with this information. Project specific testing may be required to determine the suitability for CCX™ material use in a particular application.

