



# CCHYDRO™

Concrete on a Roll

# CHEMICAL RESISTANCE



RAIL



ROAD



MINING



PETROCHEM



AGRO



UTILITIES



PUBLIC WORKS



DEFENCE



DESIGN



SHELTER



Winner  
 Technical Innovation Award



Innovation Award  
 ICE Wales Cymru Awards 2017



2014 Fast Track 100  
 16th fastest growing  
 company in the UK.



2014 Queen's Award  
 for Enterprise in  
 Innovation



2013  
 Macrobert Award  
 Finalist



2013 Innovation Award Winner  
 Ralltex Exhibition



2012 R&D 100  
 Award winner  
 R&D Magazine



2009 Winner  
 Material ConneXion Medium Award  
 Material of the Year



D&AD Yellow Pencil Award  
 Winner  
 Product Design

## Chemical Resistance

CC Hydro™ GCCB (Geosynthetic Cementitious Composite Barrier) products have been tested for their chemical resistance against a range of common industrial reagents. These tests were carried out alongside a selection of leading market competitors for comparison.

### Observational Testing

Testing was conducted on samples of membrane immersed for 28 days in the reagent at room temperature. Samples were visually and physically examined upon removal, and rated according to retention of their working properties after 24 hours and 28 days of exposure.

### Mechanical Testing to BS EN 14414: 2004

Testing was conducted on samples of the CC Hydro™ and CC Hydro™ membrane and immersed in the reagent at 50°C for a period of 3, 14 and 56 days, in conformance to BS EN 14414. Samples were then mechanically tested to failure using either a tensile test or 3-point flexural test to ASTM D5058. The residual strength and elongation was recorded against control specimens.

The data below is only intended to serve as a guide and not a performance warranty. Users should be aware that further testing should be undertaken based on the specific requirements of the application.

## Summary of Observational Results

24 hour / 28 day	CC Hydro™	Polypropylene	HDPE	PVC	Bitumenous Membrane
Acid <sup>▲</sup>	A / A	A / A	A / A	A / A	A / A
Diesel	B / B	B / X	A / A	B / X	X / X
Digestate	A / A	A / A	A / A	A / A	A / A
Ethanol	A / A	A / A	A / A	A / A	A / B
FAME (Biodiesel)	A / B	B / X	B / B	X / X	X / X
Leachate	A / A	A / A	A / A	A / A	A / A
Paraffin (Kerosene)	A / B	B / X	B / X	B / X	X / X
Petrol (Gasoline)	A / B	X / X	B / B	X / X	X / X
Sewage <sup>▲</sup>	A / A	A / A	A / A	A / A	A / A

Rating Key  
A – Fluid has little or no effect, B – Fluid has minor or moderate effect, X – Fluid has severe effect, <sup>▲</sup> 0.1M H<sub>2</sub>SO<sub>4</sub> pH1.2, <sup>▲</sup> Synthetic according to OECD 303

## Summary of Mechanical Testing Results

Reagent	Days Immersion	1st Crack Flexural Strength (Residual Strength %)	Ultimate Flexural Strength (Residual Strength %)	Ultimate Tensile Strength (Residual Strength %)	Maximum Tensile Elongation (Residual Strength %)
Petrol (membrane only)	14	N/A	N/A	93%	112%
Diesel (membrane only)	14	N/A	N/A	102%	135%
Crude Oil	3	88%	75%	92%	99%
	56	86%	88%	94%	104%
Aluminium Sulphate (8.3% AL <sub>2</sub> O <sub>3</sub> )	3	77%	99%	N/A	N/A
	56	64%	92%	N/A	N/A

Full test reports for the above are available on request