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Authorised and notified
according to Article 29 of the
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No 305/2011 of the European
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MEMBER OF EOTA



European Technical Assessment ETA-20/0912 of 2024/06/03

I General Part

Technical Assessment Body issuing the ETA and designated according to Article 29 of the Regulation (EU) No 305/2011: ETA-Danmark A/S

Trade name of the construction product:

Concrete Canvas® and CC Hydro™

Product family to which the above construction product belongs:

Geotextiles, geomembranes and related products

Manufacturer:

Concrete Canvas Ltd
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This European Technical Assessment contains:

8 pages including 1 annex which form an integral part of the document

This European Technical Assessment is issued in accordance with Regulation (EU) No 305/2011, on the basis of:

European Assessment document EAD 080009-00-0301
Geosynthetic Cementitious Composite Mats and Barriers

This version replaces:

The ETA with the same number issued on 2023-03-30

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1 Technical description of the product

1.1 General

Concrete Canvas[®] (CC) and CC Hydro[™] (CCH) Geosynthetic Cementitious Composite Mats and Barriers (see Figure 1) are flexible concrete impregnated fabrics for use in a range of geotechnical applications.

The products consist of a three-dimensional fibre matrix containing a high early strength gain concrete mix that hardens when hydrated to form a thin, durable and waterproof concrete layer.

The products are provided with a PVC backing to provide the waterproof capability, while the internal fibre matrix provides the tensile strength once the concrete is set and prevents any crack propagation.

Both products can be hydrated by either spraying or by being fully immersed in water.

Concrete Canvas[®] GCCM

The products comprise:

- A top polyester layer to contain the dry powder mix
- A three-dimensional fibre matrix containing a specially-formulated dry concrete mix which hardens on hydration
- A PVC backing bottom layer, to contain the dry concrete mix and provide a low permeability liner.

The products are available in three types: CCT1[™], CCT2[™] and CCT3[™] and their properties are given in Table 1.

Table 1 Typical properties of Concrete Canvas[®] products

Product type	Thickness (mm)	Bulk roll size (m ²)	Roll width (m)	Mass (unset) (kg·m ⁻²)	Density (unset) (kg·m ⁻³)	Change in density when set (%)
CCT1 [™]	5	170	1.0	8	1550-1750	15-25
CCT2 [™]	7	125	1.1	12	1550-1750	15-25
CCT3 [™]	11	80	1.1	19	1550-1750	15-25

CC Hydro[™] GCCB

The products comprise:

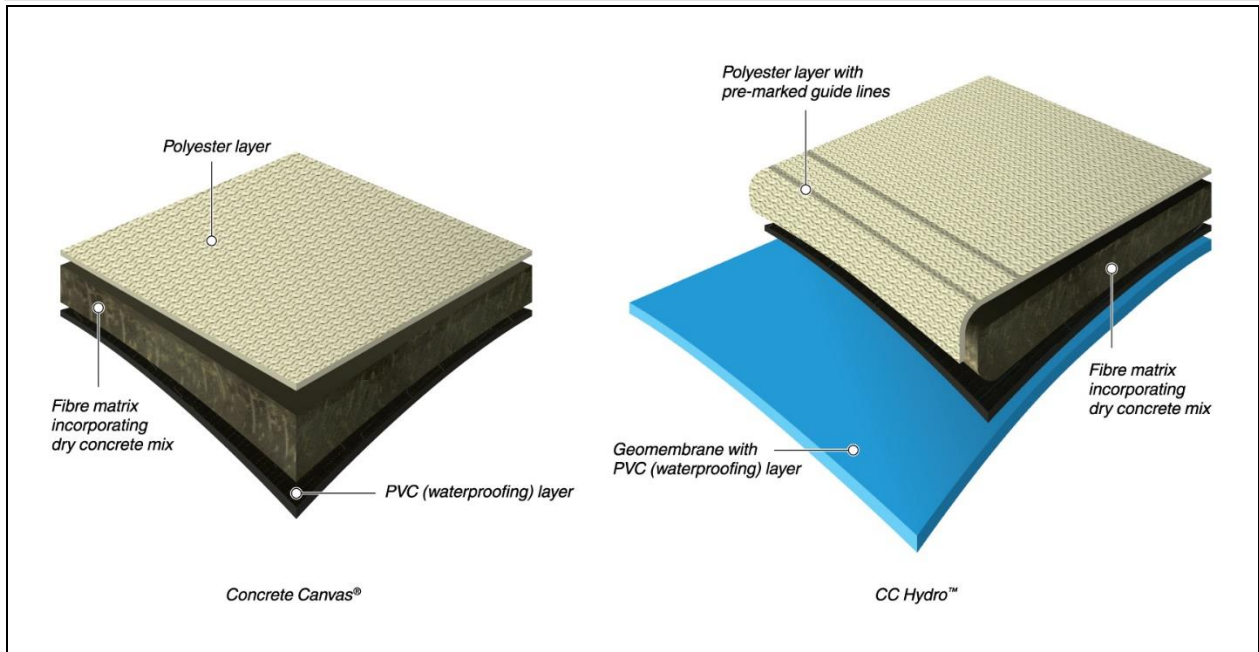
- A top polyester layer (incorporating pre-marked alignment guide) to contain the dry powder mix
- A three-dimensional fibre matrix containing a specially-formulated dry concrete mix which hardens on hydration
- A high impermeability, chemically-resistant PVC geomembrane backing bottom layer incorporating a high visibility welding strip allowing joints to be thermally-welded for on-site testing.

The products are available in two types: CCHT1[™] and CCHT2[™] and their properties are given in Table 2.

Table 2 Typical properties of CC Hydro[™] products

Product type	Thickness (mm)	Bulk roll size (m ²)	Roll width (m)	Mass (unset) (kg·m ⁻²)	Density (unset) (kg·m ⁻³)	Change in density when set (%)
CCHT1 [™]	6	150	1.0	9	1550-1750	15-25
CCHT2 [™]	8	100	1.0	13	1550-1750	15-25

Figure 1 Geosynthetic Cementitious Composite Mats and Barriers



2 Specification of the intended use(s) in accordance with the applicable European Assessment Document (hereinafter EAD)

2.1 Intended use

The products are for use as both erosion control (GCCM's) and containment applications (GCCB's) and the intended uses can be outlined as:

- Channel Lining
- Slope Protection
- Bund Lining
- Remediation
- Culvert Lining
- Weed Suppression
- Lagoon Lining.

Concrete Canvas® GCCM is intended for use in erosion control applications such as channel lining, slope protection, bund lining, remediation for existing concrete structures affected by environmental degradation and cracking, and culvert lining. The product acts as an effective weed suppressant and provides additional impermeability.

CC Hydro™ GCCB is intended for use as a combined impermeable liner and protection layer for containment applications, such as secondary containment bund lining, channel lining, lagoon lining, and other containment applications such as new-build or remediation of existing infrastructure.

2.2 Assumed working life

The provisions made in this ETA are based on an assumed intended working life of 50 years.

The indications given on the working life cannot be interpreted as a guarantee given by the producer or the Technical Assessment Body, but are to be used as a means for selecting the appropriate product in relation to the expected economically reasonable working life of the works.

2.3 Manufacture

The Manufacturer ensures that the manufacturing process is in conformance to ISO 9001 and is committed to manufacturing products to the highest quality standards to ensure all materials meet the stated material performance level.

2.4 Design

It is essential that Concrete Canvas® and CC Hydro™ lined projects are properly designed in accordance with the Manufacturers guidelines taking into account project specific requirements and site conditions. The Manufacturer can provide standard design details, case studies and installation guidelines on request to facilitate this process. The design is carried out under the responsibility of a suitably qualified and experienced individual.

2.5 Packaging, transport and storage

Concrete Canvas® is available in three roll formats: Bulk rolls, portable Batched rolls and Wide rolls. The quantity per roll differs between the various thicknesses of product. CC Hydro™ is available in Bulk rolls only.

Bulk rolls weigh between 1500 and 1600 kg and are supplied on 150 mm cardboard cores which can be hung from a spreader beam and unrolled using standard plant equipment. Batched rolls are supplied on 75 mm cardboard cores with carry handles. All product types and thicknesses can also be supplied to custom lengths.

Bulk and Batched rolls are individually wrapped and palletised on heat-treated wooden pallets measuring 1.2 by 1.0 m. Wide rolls are similarly supplied, individually wrapped in airtight polyethylene packaging for pole handling. All rolls are provided with a basic hydration guide in English. Details of typical container and truck loading quantities, weights and dimensions can be obtained from the manufacturer.

Concrete Canvas® and CC Hydro™ must be stored under cover in dry conditions away from direct sunlight and in the manufacturer's sealed packaging. It is not recommended to store in shipping containers in direct sunlight where temperatures may exceed 40°C for prolonged periods. If stored correctly, the products have a shelf life of 24 months.

2.6 Installation, maintenance and repairs

Concrete Canvas® and CC Hydro™ must be installed in accordance with the Manufacturer's installation guidelines. For details of sub-base preparation and on-site quality control and quality assurance procedures, a sample specification can be obtained from the Manufacturer.

In most instances, properly installed products will not require any cleaning or maintenance. However, applications which incorporate silt traps, baffling or for some site-specific conditions, some periodic maintenance will require the removal of accumulated silt. For all schemes, it is necessary to periodically inspect the lined asset for signs of structural or hydraulic compromise. Any maintenance or repair should be conducted in accordance with the Manufacturers guidelines.

3 Performance of the product and references to the methods used for its assessment

3.1 Essential characteristics of the product

Table 3 Essential characteristics of the product and product performance

No.	Essential characteristic	Product performance
Basic requirement for construction works 1: Mechanical resistance and stability ⁽¹⁾		
1	Thickness	Annex 1
2	Mass per unit area and Density	Annex 1
3	Flexural strength	Annex 1
4	Static Puncture resistance	Annex 1
5	Dynamic Puncture resistance	Annex 1
6	Pyramid puncture resistance	Annex 1
7	Strength of internal linking fibres	Annex 1
Basic requirement for construction works 4: Safety and accessibility in use		
8	Resistance to chemicals	For CC Hydro™ – Annex 1 For Concrete Canvas® - No performance assessed
9	Durability	Annex 1
10	Abrasion resistance	Annex 1
11	Freeze – Thaw	Annex 1
12	Water Permeability	For CC Hydro™ Geomembrane – Annex 1 For Concrete Canvas® - No performance assessed
13	Gas Permeability	For CC Hydro™ Geomembrane – Annex 1 For Concrete Canvas® - No performance assessed

3.2 Assessment methods

3.2.1 General

The assessment of the essential characteristics in Clause 3.1 for the intended use in the sense of the basic requirements for construction works No. 1, 4 and 7 of Regulation (EU) No 305/2011 has been made in accordance with European Assessment Document EAD 16-08-0009-03.01 *Geosynthetic Cementitious Composite Mats and Barriers*.

4 Assessment and verification of constancy of performance (hereinafter AVCP) system applied, with reference to its legal base

The applicable European legal act: 1998/214/EC as amended by Decision 2001/596/EC of the European Commission, the system of assessment and verification of constancy of performance [see Annex V to Regulation (EU) No 305/2011] is as follows:

System 2+

5 Technical details necessary for the implementation of the AVCP system, as provided for in the applicable EAD

Technical details necessary for the implementation of the AVCP system are laid down in the control plan deposited at ETA-Danmark A/S prior to CE marking.

Issued in Copenhagen on 2024-06-03 by



Thomas Bruun
Managing Director, ETA-Danmark A/S

