iBMB MPA TU BRAUNSCHWEIG
Institut für Baustoffe, Massivbau und Brandschutz
Materialprüfanstalt für das Bauwesen

Assessment Report

- Translation -

Document number:	(1203/273/21) – Lau dated 14/06/2022
Client:	an.kox GmbH Junghansring 52 72108 Rottenburg, Germany
Order date:	27/07/2021
Order received:	29/07/2021
Subject of the order:	Examinations carried out on a fresh concrete waterproofing sheet with the designation "Polyfleece SX® 1000"
Test basis:	see Section 1 EAD 030378-01-0605
Samples received:	29/07/2021
Sampling:	by client
Sample marking:	see Section 1
Assessment period:	03/08/2021 to 30/05/2022

This assessment report consists of 3 pages, including the cover sheet, as well as 26 annexes.

Materialprüfanstalt f. Bauwesen MPA BS 5 Braunschweig

Materialprüfanstalt für das Bauwesen (MPA BS)
Beethovenstraße 52
38106 Braunschweig, Germany

Phone +49 (0)531-391-5400
Fax +49 (0)531-391-5900
info@mpa.tu-bs.de
www.mpa.tu-bs.de

Norddeutsche LB Hannover
IBAN: DE58 2505 0000 0106 0200 50
BIC: NOLADE2H
VAT ID no. DE183500654
Tax reg. no.: 14/201/22859

Notified body (0761-CPR) – Recognised and notified by the German building authorities for testing, monitoring, inspection and certification.

1 Commission and material

In its correspondence dated 27 July 2021, the company an.kox GmbH, Junghansring 52 in 72108 Rottenburg, Germany, commissioned the Civil Engineering Materials Testing Institute (MPA BS) in Braunschweig to carry out tests on a waterproofing sheet (sheet fully bonded in fresh concrete) with the product designation

"Polyfleece SX® 1000".

The order comprised the examinations listed in EAD 030378-01-0605 [1] and was supplemented by the identification of

- visible defects,
- dimensions and tolerances and
- thickness and mass per unit area.

The client supplied approx. 20 running metres of the "Polyfleece SX® 1000" waterproofing sheet for the implementation of the tests. In addition, three cartridges of SX® 100 polymer hydrophilic paste and a roll of the corresponding adhesive tape (see below) were also supplied.
The product "Polyfleece SX® 1000" is a multilayer waterproofing sheet with the following structure (from top to bottom):

- Upper side: LDPE flat film
- Functional layer: dual-component, silane-modified polymer coating with hydrophilic absorbers
- Underside: PP/PES nonwoven, weight per unit area approx. 150 g/m², colour white

This is used in the production of waterproofing in conjunction with the following components:

- Polyfleece SX® 1000 adhesive tape (adhesive on both sides): acrylate based, width 75 mm
- SX® 100 polymer hydrophilic paste: single-component MS polymer with hydrophilic absorbers, colour white

The waterproofing sheet is equipped with an approx. 75 mm wide self-adhesive edge strip on one lengthwise side. End joins or cross seams and any required cuts are glued using the "Polyfleece SX® 1000" adhesive tape in combination with the "SX® 100 polymer hydrophilic paste".

[1] European Assessment Document EAD 030378-01-0605

2 Testing and results

The results of the tests ordered are listed in table form in the attached annexes, together with details of the test standards and test conditions.

Braunschweig, 14/06/2022

This document is the translated version of the assessment report no. 1203/273/21 – Lau dated 14/06/2022. The legally binding text is the aforementioned German assessment report.

i.A.

Dr.-Ing. K. Herrmann
Head of Section

Materialprüfanstalt f. d. Bauwesen MPA BS 5 Braunschweig

i.A.

N. Meyer-Laurien
Engineer/Official in Charge

Table: Characteristics of the "Polyfleece SX® 1000" waterproofing sheet

The directions "lengthwise" and "across" relate to the direction of manufacture of the sheet
x = mean value, s = ± standard deviation, k = min. value, g = max. value

Properties/test (Section of EAD 030378-00-0605)	Test conditions	Test results
Reaction to fire (2.2.1)	DIN EN ISO 11925-2 EN 13501-1	Class E, see classification report no. K-2302/406/21-MPA BS
Tensile properties (2.2.2/2.2.3)	Procedure A v = 100 mm/min Free clamping length: 120 mm Test climate: DIN EN ISO 291-23/50-2	Maximum tensile force [N/50 mm] lengthwise x = 591 s = ± 8.62 across x = 397 s = ± 10.6 Expansion under tensile strength [%] = elongation at break lengthwise x = 22.7 s = ± 1.11 across x = 45.5 s = ± 1.84
	Procedure A (rectangular bar 15 mm) v = 5 mm/min Free clamping length: 120 mm Measured length: 100 mm Test climate: DIN EN ISO 291-23/50-2	Modulus of elasticity $_{1-2\%}$ [MPa] lengthwise x = 97.4 s = ± 6.23 across x = 43.2 s = ± 0.96
Resistance to static loads (2.2.4)	DIN EN 12730 Procedure B Substrate: concrete	Imposed load 20 kg: tight
Resistance to impact (2.2.5)	DIN EN 12691 Procedure A: Substrate: aluminium plate	250 mm drop height: tight
Water tightness (2.2.6)	DIN EN 1928 Procedure B Water pressure 60 kPa (0.6 bar) Test duration: 24 hrs Test climate: DIN EN ISO 291-23/50-2	tight
	also DIN EN 1928 Procedure B Water pressure 500 kPa (5 bar) Test duration: 72 hrs Test climate: DIN EN ISO 291-23/50-2	tight

Table: Characteristics of the "Polyfleece SX® 1000" waterproofing sheet

The directions "lengthwise" and "across" relate to the direction of manufacture of the sheet
x = mean value, s = ± standard deviation, k = min. value, g = max. value

Properties/test (Section of EAD 030378-00-0605)	Test conditions	Test results
Water tightness of the joint seams or adhesive seams and the T-joints (2.2.7/2.2.23) Adhesive seam positioned centrally under a pressure cylinder ∅ 30 cm	DIN EN 1928 Procedure A Water pressure 100 kPa (1 bar) Test duration: 72 hrs Test climate: DIN EN ISO 291-23/50-2	Integrated longitudinal seam strip: tight Seam with sealing: tight T-joint: tight
Durability against thermal ageing (2.2.8)	DIN EN 1296 Storage temperature: 23 °C Storage period: 4 weeks Conditioning 24 hrs 23/50	
Visible defects	DIN EN 1850-2	Free of visible defects
Tensile properties	Procedure A v = 100 mm/min Free clamping length: 120 mm Test climate: DIN EN ISO 291-23/50-2	Maximum tensile force [N/50 mm] lengthwise x = 575 s = ± 10.8 across x = 392 s = ± 7.49 Expansion under tensile strength [%] = elongation at break lengthwise x = 21.9 s = ± 0.71 across x = 46.3 s = ± 1.30
	Procedure BR (rectangular bar) v = 5 mm/min Free clamping length: 120 mm Measured length: 100 mm Test climate: DIN EN ISO 291-23/50-2	Modulus of elasticity 1–2% [MPa] lengthwise x = 85.3 s = ± 5.04 across x = 40.8 s = ± 1.59
Determination of the oxidation and induction time	DIN EN ISO 11357-6 Heat-up rate: 20 °C/min nitrogen atmosphere Isothermal temperature T = 180 °C Flow volume: 20 ml/min for nitrogen or synthetic air	x = 9 min

Table: Characteristics of the "Polyfleece SX® 1000" waterproofing sheet

The directions "lengthwise" and "across" relate to the direction of manufacture of the sheet
x = mean value, s = ± standard deviation, k = min. value, g = max. value

Properties/test (Section of EAD 030378-00-0605)	Test conditions	Test results
Durability against thermal ageing (2.2.8)	DIN EN 1296 Storage temperature: 23 °C Storage period: 8 weeks Conditioning 24 hrs 23/50	
Visible defects	DIN EN 1850-2	Free of visible defects
Tensile properties	Procedure A v = 100 mm/min Free clamping length: 120 mm Test climate: DIN EN ISO 291-23/50-2	Maximum tensile force [N/50 mm] lengthwise x = 604 s = ± 9.88 across x = 389 s = ± 9.37 Expansion under tensile strength [%] = elongation at break lengthwise x = 22.2 s = ± 0.21 across x = 45.8 s = ± 0.70
	Procedure BR (rectangular bar) v = 5 mm/min Free clamping length: 120 mm Measured length: 100 mm Test climate: DIN EN ISO 291-23/50-2	Modulus of elasticity 1–2% [MPa] lengthwise x = 89.7 s = ± 4.20 across x = 49.2 s = ± 0.99
Determination of the oxidation and induction time	DIN EN ISO 11357-6 Heat-up rate: 20 °C/min nitrogen atmosphere Isothermal temperature T = 180 °C Flow volume: 20 ml/min for nitrogen or synthetic air	x = 9.75 min

Table: Characteristics of the "Polyfleece SX® 1000" waterproofing sheet

The directions "lengthwise" and "across" relate to the direction of manufacture of the sheet
x = mean value, s = ± standard deviation, k = min. value, g = max. value

Properties/test (Section of EAD 030378-00-0605)	Test conditions	Test results
Durability against thermal ageing (2.2.8)	DIN EN 1296 Storage temperature: 23 °C Storage period: 16 weeks Conditioning 24 hrs 23/50	
Visible defects	DIN EN 1850-2	Free of visible defects
Tensile properties	Procedure A v = 100 mm/min Free clamping length: 120 mm Test climate: DIN EN ISO 291-23/50-2	Maximum tensile force [N/50 mm] lengthwise x = 589 s = ± 7.74 across x = 385 s = ± 4.38 Expansion under tensile strength [%] = elongation at break lengthwise x = 22.5 s = ± 0.53 across x = 45.8 s = ± 2.67
	Procedure BR (rectangular bar) v = 5 mm/min Free clamping length: 120 mm Measured length: 100 mm Test climate: DIN EN ISO 291-23/50-2	Modulus of elasticity 1–2% [MPa] lengthwise x = 90.8 s = ± 1.62 across x = 51.5 s = ± 0.87
Determination of the oxidation and induction time	DIN EN ISO 11357-6 Heat-up rate: 20 °C/min nitrogen atmosphere Isothermal temperature T = 180 °C Flow volume: 20 ml/min for nitrogen or synthetic air	x = 9.5 min

Table: Characteristics of the "Polyfleece SX® 1000" waterproofing sheet

The directions "lengthwise" and "across" relate to the direction of manufacture of the sheet
x = mean value, s = ± standard deviation, k = min. value, g = max. value

Properties/test (Section of EAD 030378-00-0605)	Test conditions	Test results
Durability against thermal ageing (2.2.8)	DIN EN 1296 Storage temperature: 23 °C Storage period: 24 weeks Conditioning 24 hrs 23/50	
Visible defects	DIN EN 1850-2	Free of visible defects
Tensile properties	Procedure A v = 100 mm/min Free clamping length: 120 mm Test climate: DIN EN ISO 291-23/50-2	Maximum tensile force [N/50 mm] lengthwise x = 572 s = ± 18.5 across x = 371 s = ± 7.94 Expansion under tensile strength [%] = elongation at break lengthwise x = 22.4 s = ± 0.41 across x = 45.2 s = ± 2.96
	Procedure BR (rectangular bar) v = 5 mm/min Free clamping length: 120 mm Measured length: 100 mm Test climate: DIN EN ISO 291-23/50-2	Modulus of elasticity 1–2% [MPa] lengthwise x = 94.7 s = ± 2.54 across x = 61.2 s = ± 2.58
Water tightness	DIN EN 1928 Procedure B Water pressure 60 kPa (0.6 bar) Test duration: 24 hrs Test climate: DIN EN ISO 291-23/50-2	tight
Determination of the oxidation and induction time	DIN EN ISO 11357-6 Heat-up rate: 20 °C/min nitrogen atmosphere Isothermal temperature T = 180 °C Flow volume: 20 ml/min for nitrogen or synthetic air	x = 11.5 min

Table: Characteristics of the "Polyfleece SX® 1000" waterproofing sheet

The directions "lengthwise" and "across" relate to the direction of manufacture of the sheet
x = mean value, s = ± standard deviation, k = min. value, g = max. value

Properties/test (Section of EAD 030378-00-0605)	Test conditions	Test results
Durability against thermal ageing (2.2.8)	DIN EN 1296 Storage temperature: 40 °C Storage period: 4 weeks Conditioning 24 hrs 23/50	
Visible defects	DIN EN 1850-2	Free of visible defects
Tensile properties	Procedure A v = 100 mm/min Free clamping length: 120 mm Test climate: DIN EN ISO 291-23/50-2	Maximum tensile force [N/50 mm] lengthwise x = 585 s = ± 14.3 across x = 377 s = ± 14.7 Expansion under tensile strength [%] = elongation at break lengthwise x = 23.1 s = ± 0.74 across x = 48.1 s = ± 3.34
	Procedure BR (rectangular bar) v = 5 mm/min Free clamping length: 120 mm Measured length: 100 mm Test climate: DIN EN ISO 291-23/50-2	Modulus of elasticity 1–2% [MPa] lengthwise x = 91.0 s = ± 3.95 across x = 47.9 s = ± 0.95
Determination of the oxidation and induction time	DIN EN ISO 11357-6 Heat-up rate: 20 °C/min nitrogen atmosphere Isothermal temperature T = 180 °C Flow volume: 20 ml/min for nitrogen or synthetic air	x = 8.25 min

Table: Characteristics of the "Polyfleece SX® 1000" waterproofing sheet

The directions "lengthwise" and "across" relate to the direction of manufacture of the sheet
x = mean value, s = ± standard deviation, k = min. value, g = max. value

Properties/test (Section of EAD 030378-00-0605)	Test conditions	Test results
Durability against thermal ageing (2.2.8)	DIN EN 1296 Storage temperature: 40 °C Storage period: 8 weeks Conditioning 24 hrs 23/50	
Visible defects	DIN EN 1850-2	Free of visible defects
Tensile properties	Procedure A v = 100 mm/min Free clamping length: 120 mm Test climate: DIN EN ISO 291-23/50-2	Maximum tensile force [N/50 mm] lengthwise x = 589 s = ± 18.5 across x = 370 s = ± 3.22 Expansion under tensile strength [%] = elongation at break lengthwise x = 22.7 s = ± 0.82 across x = 48.3 s = ± 2.76
	Procedure BR (rectangular bar) v = 5 mm/min Free clamping length: 120 mm Measured length: 100 mm Test climate: DIN EN ISO 291-23/50-2	Modulus of elasticity 1–2% [MPa] lengthwise x = 91.1 s = ± 6.23 across x = 46.3 s = ± 0.96
Determination of the oxidation and induction time	DIN EN ISO 11357-6 Heat-up rate: 20 °C/min nitrogen atmosphere Isothermal temperature T = 180 °C Flow volume: 20 ml/min for nitrogen or synthetic air	x = 7 min

Table: Characteristics of the "Polyfleece SX® 1000" waterproofing sheet

The directions "lengthwise" and "across" relate to the direction of manufacture of the sheet
x = mean value, s = ± standard deviation, k = min. value, g = max. value

Properties/test (Section of EAD 030378-00-0605)	Test conditions	Test results
Durability against thermal ageing (2.2.8)	DIN EN 1296 Storage temperature: 40 °C Storage period: 16 weeks Conditioning 24 hrs 23/50	
Visible defects	DIN EN 1850-2	Free of visible defects
Tensile properties	Procedure A v = 100 mm/min Free clamping length: 120 mm Test climate: DIN EN ISO 291-23/50-2	Maximum tensile force [N/50 mm] lengthwise x = 590 s = ± 10.7 across x = 390 s = ± 9.26 Expansion under tensile strength [%] = elongation at break lengthwise x = 22.4 s = ± 0.76 across x = 48.4 s = ± 2.76
	Procedure BR (rectangular bar) v = 5 mm/min Free clamping length: 120 mm Measured length: 100 mm Test climate: DIN EN ISO 291-23/50-2	Modulus of elasticity 1–2% [MPa] lengthwise x = 93.9 s = ± 2.51 across x = 47.2 s = ± 1.08
Determination of the oxidation and induction time	DIN EN ISO 11357-6 Heat-up rate: 20 °C/min nitrogen atmosphere Isothermal temperature T = 180 °C Flow volume: 20 ml/min for nitrogen or synthetic air	x = 8 min

Table: Characteristics of the "Polyfleece SX® 1000" waterproofing sheet

The directions "lengthwise" and "across" relate to the direction of manufacture of the sheet
x = mean value, s = ± standard deviation, k = min. value, g = max. value

Properties/test (Section of EAD 030378-00-0605)	Test conditions	Test results
Durability against thermal ageing (2.2.8)	DIN EN 1296 Storage temperature: 40 °C Storage period: 24 weeks Conditioning 24 hrs 23/50	
Visible defects	DIN EN 1850-2	Free of visible defects
Tensile properties	Procedure A v = 100 mm/min Free clamping length: 120 mm Test climate: DIN EN ISO 291-23/50-2	Maximum tensile force [N/50 mm] lengthwise x = 586 s = ± 16.8 across x = 395 s = ± 10.4 Expansion under tensile strength [%] = elongation at break lengthwise x = 23.3 s = ± 0.32 across x = 48.2 s = ± 1.03
	Procedure BR (rectangular bar) v = 5 mm/min Free clamping length: 120 mm Measured length: 100 mm Test climate: DIN EN ISO 291-23/50-2	Modulus of elasticity 1–2% [MPa] lengthwise x = 91.6 s = ± 3.90 across x = 58.8 s = ± 1.38
Water tightness	DIN EN 1928 Procedure B Water pressure 60 kPa (0.6 bar) Test duration: 24 hrs Test climate: DIN EN ISO 291-23/50-2	tight
Determination of the oxidation and induction time	DIN EN ISO 11357-6 Heat-up rate: 20 °C/min nitrogen atmosphere Isothermal temperature T = 180 °C Flow volume: 20 ml/min for nitrogen or synthetic air	x = 7.75 min

Table: Characteristics of the "Polyfleece SX® 1000" waterproofing sheet

The directions "lengthwise" and "across" relate to the direction of manufacture of the sheet
x = mean value, s = ± standard deviation, k = min. value, g = max. value

Properties/test (Section of EAD 030378-00-0605)	Test conditions	Test results
Durability against thermal ageing (2.2.8)	DIN EN 1296 Storage temperature: 70 °C Storage period: 4 weeks Conditioning 24 hrs 23/50	
Visible defects	DIN EN 1850-2	Free of visible defects
Tensile properties	Procedure A v = 100 mm/min Free clamping length: 120 mm Test climate: DIN EN ISO 291-23/50-2	Maximum tensile force [N/50 mm] lengthwise x = 581 s = ± 13.1 across x = 389 s = ± 5.39 Expansion under tensile strength [%] = elongation at break lengthwise x = 22.4 s = ± 1.05 across x = 51.1 s = ± 1.82
	Procedure BR (rectangular bar) v = 5 mm/min Free clamping length: 120 mm Measured length: 100 mm Test climate: DIN EN ISO 291-23/50-2	Modulus of elasticity 1–2% [MPa] lengthwise x = 93.3 s = ± 3.40 across x = 48.6 s = ± 2.34
Determination of the oxidation and induction time	DIN EN ISO 11357-6 Heat-up rate: 20 °C/min nitrogen atmosphere Isothermal temperature T = 180 °C Flow volume: 20 ml/min for nitrogen or synthetic air	x = 10.75 min

Table: Characteristics of the "Polyfleece SX® 1000" waterproofing sheet

The directions "lengthwise" and "across" relate to the direction of manufacture of the sheet
x = mean value, s = ± standard deviation, k = min. value, g = max. value

Properties/test (Section of EAD 030378-00-0605)	Test conditions	Test results
Durability against thermal ageing (2.2.8)	DIN EN 1296 Storage temperature: 70 °C Storage period: 8 weeks Conditioning 24 hrs 23/50	
Visible defects	DIN EN 1850-2	Free of visible defects
Tensile properties	Procedure A v = 100 mm/min Free clamping length: 120 mm Test climate: DIN EN ISO 291-23/50-2	Maximum tensile force [N/50 mm] lengthwise x = 581 s = ± 12.9 across x = 395 s = ± 14.7 Expansion under tensile strength [%] = elongation at break lengthwise x = 25.6 s = ± 0.60 across x = 50.5 s = ± 3.12
	Procedure BR (rectangular bar) v = 5 mm/min Free clamping length: 120 mm Measured length: 100 mm Test climate: DIN EN ISO 291-23/50-2	Modulus of elasticity 1–2% [MPa] lengthwise x = 92.4 s = ± 6.23 across x = 48.9 s = ± 0.96
Determination of the oxidation and induction time	DIN EN ISO 11357-6 Heat-up rate: 20 °C/min nitrogen atmosphere Isothermal temperature T = 180 °C Flow volume: 20 ml/min for nitrogen or synthetic air	x = 11.25 min

Table: Characteristics of the "Polyfleece SX® 1000" waterproofing sheet

The directions "lengthwise" and "across" relate to the direction of manufacture of the sheet
x = mean value, s = ± standard deviation, k = min. value, g = max. value

Properties/test (Section of EAD 030378-00-0605)	Test conditions	Test results
Durability against thermal ageing (2.2.8)	DIN EN 1296 Storage temperature: 70 °C Storage period: 16 weeks Conditioning 24 hrs 23/50	
Visible defects	DIN EN 1850-2	Free of visible defects
Tensile properties	Procedure A v = 100 mm/min Free clamping length: 120 mm Test climate: DIN EN ISO 291-23/50-2	Maximum tensile force [N/50 mm] lengthwise x = 566 s = ± 19.9 across x = 378 s = ± 24.9 Expansion under tensile strength [%] = elongation at break lengthwise x = 24.1 s = ± 0.69 across x = 50.2 s = ± 2.08
	Procedure BR (rectangular bar) v = 5 mm/min Free clamping length: 120 mm Measured length: 100 mm Test climate: DIN EN ISO 291-23/50-2	Modulus of elasticity 1–2% [MPa] lengthwise x = 90.1 s = ± 3.16 across x = 45.3 s = ± 1.96
Determination of the oxidation and induction time	DIN EN ISO 11357-6 Heat-up rate: 20 °C/min nitrogen atmosphere Isothermal temperature T = 180 °C Flow volume: 20 ml/min for nitrogen or synthetic air	x = 8.75 min

Table: Characteristics of the "Polyfleece SX® 1000" waterproofing sheet

The directions "lengthwise" and "across" relate to the direction of manufacture of the sheet
x = mean value, s = ± standard deviation, k = min. value, g = max. value

Properties/test (Section of EAD 030378-00-0605)	Test conditions	Test results
Durability against thermal ageing (2.2.8)	DIN EN 1296 Storage temperature: 70 °C Storage period: 24 weeks Conditioning 24 hrs 23/50	
Visible defects	DIN EN 1850-2	Free of visible defects
Tensile properties	Procedure A v = 100 mm/min Free clamping length: 120 mm Test climate: DIN EN ISO 291-23/50-2	Maximum tensile force [N/50 mm] lengthwise x = 587 s = ± 9.47 across x = 401 s = ± 3.10 Expansion under tensile strength [%] = elongation at break lengthwise x = 26.0 s = ± 1.27 across x = 56.5 s = ± 1.57
	Procedure BR (rectangular bar) v = 5 mm/min Free clamping length: 120 mm Measured length: 100 mm Test climate: DIN EN ISO 291-23/50-2	Modulus of elasticity 1–2% [MPa] lengthwise x = 103 s = ± 4.85 across x = 56.4 s = ± 0.63
Water tightness	DIN EN 1928 Procedure B Water pressure 60 kPa (0.6 bar) Test duration: 24 hrs Test climate: DIN EN ISO 291-23/50-2	tight
Determination of the oxidation and induction time	DIN EN ISO 11357-6 Heat-up rate: 20 °C/min nitrogen atmosphere Isothermal temperature T = 180 °C Flow volume: 20 ml/min for nitrogen or synthetic air	x = 9 min
Water vapour permeability (2.2.9)	DIN EN 1931 Procedure B Climate: 23-0/75	g: 2.44·10-9 kg/(m²·s) μ : 789000 sD = 170 m

Table: Characteristics of the "Polyfleece SX® 1000" waterproofing sheet

The directions "lengthwise" and "across" relate to the direction of manufacture of the sheet
x = mean value, s = ± standard deviation, k = min. value, g = max. value

Properties/test (Section of EAD 030378-00-0605)	Test conditions	Test results
Durability against alkaline environment (2.2.10)	DIN EN 1847 Storage temperature: (23 ± 2)°C Storage period: 28 days Test liquid: Ca(OH)2	
Tensile properties	Procedure A v = 100 mm/min Free clamping length: 120 mm Test climate: DIN EN ISO 291-23/50-2	Maximum tensile force [N/50 mm] lengthwise x = 596 s = ± 15.9 across x = 371 s = ± 5.60 Expansion under tensile strength [%] = elongation at break lengthwise x = 22.2 s = ± 0.76 across x = 83.1 s = ± 4.52
	Procedure BR (rectangular bar) v = 5 mm/min Free clamping length: 120 mm Measured length: 100 mm Test climate: DIN EN ISO 291-23/50-2	Modulus of elasticity 1–2% [MPa] lengthwise x = 72.7 s = ± 2.10 across x = 41.7 s = ± 0.84
Water tightness	DIN EN 1928 Procedure B Water pressure 60 kPa (0.6 bar) Test duration: 24 hrs Test climate: DIN EN ISO 291-23/50-2	tight

Table: Characteristics of the "Polyfleece SX® 1000" waterproofing sheet

The directions "lengthwise" and "across" relate to the direction of manufacture of the sheet
x = mean value, s = ± standard deviation, k = min. value, g = max. value

Properties/test (Section of EAD 030378-00-0605)	Test conditions	Test results
Durability against sulphurous acid (2.2.11)	DIN EN 1847 Storage temperature: (23 ± 2)°C Storage period: 28 days Test liquid: H2SO3	
Tensile properties	Procedure A v = 100 mm/min Free clamping length: 120 mm Test climate: DIN EN ISO 291-23/50-2	Maximum tensile force [N/50 mm] lengthwise x = 640 s = ± 9.75 across x = 389 s = ± 12.0 Expansion under tensile strength [%] = elongation at break lengthwise x = 24.6 s = ± 0.77 across x = 84.8 s = ± 5.63
	Procedure BR (rectangular bar) v = 5 mm/min Free clamping length: 120 mm Measured length: 100 mm Test climate: DIN EN ISO 291-23/50-2	Modulus of elasticity 1–2% [MPa] lengthwise x = 78.2 s = ± 2.04 across x = 41.4 s = ± 1.49
Water tightness	DIN EN 1928 Procedure B Water pressure 60 kPa (0.6 bar) Test duration: 24 hrs Test climate: DIN EN ISO 291-23/50-2	tight

Table: Characteristics of the "Polyfleece SX® 1000" waterproofing sheet

The directions "lengthwise" and "across" relate to the direction of manufacture of the sheet
x = mean value, s = ± standard deviation, k = min. value, g = max. value

Properties/test (Section of EAD 030378-00-0605)	Test conditions	Test results
Compatibility with bitumen (2.2.12)	DIN EN 1548 Storage temperature: 70 °C Storage period: 28 days	Bitumen samples
Tensile properties	Procedure A v = 100 mm/min Free clamping length: 120 mm Test climate: DIN EN ISO 291-23/50-2	Maximum tensile force [N/50 mm] lengthwise x = 659 s = ± 45.1 across x = 398 s = ± 8.88 Expansion under tensile strength [%] = elongation at break lengthwise x = 23.8 s = ± 0.81 across x = 75.4 s = ± 3.12
	Procedure BR (rectangular bar) v = 5 mm/min Free clamping length: 120 mm Measured length: 100 mm Test climate: DIN EN ISO 291-23/50-2	Modulus of elasticity 1–2% [MPa] lengthwise x = 86.0 s = ± 1.80 across x = 43.2 s = ± 1.99
Water tightness	DIN EN 1928 Procedure B Water pressure 60 kPa (0.6 bar) Test duration: 24 hrs Test climate: DIN EN ISO 291-23/50-2	tight

Table: Characteristics of the "Polyfleece SX® 1000" waterproofing sheet

The directions "lengthwise" and "across" relate to the direction of manufacture of the sheet
x = mean value, s = ± standard deviation, k = min. value, g = max. value

Properties/test (Section of EAD 030378-00-0605)	Test conditions	Test results
Compatibility with bitumen (2.2.12)	DIN EN 1548 Storage temperature: 70 °C Storage period: 28 days	Comparative sample heat storage
Tensile properties	Procedure A v = 100 mm/min Free clamping length: 120 mm Test climate: DIN EN ISO 291-23/50-2	Maximum tensile force [N/50 mm] lengthwise x = 581 s = ± 13.1 across x = 389 s = ± 5.39 Expansion under tensile strength [%] = elongation at break lengthwise x = 22.4 s = ± 1.05 across x = 51.1 s = ± 1.82
	Procedure BR (rectangular bar) v = 5 mm/min Free clamping length: 120 mm Measured length: 100 mm Test climate: DIN EN ISO 291-23/50-2	Modulus of elasticity 1–2% [MPa] lengthwise x = 93.3 s = ± 3.40 across x = 48.6 s = ± 2.34
Water tightness	DIN EN 1928 Procedure B Water pressure 60 kPa (0.6 bar) Test duration: 24 hrs Test climate: DIN EN ISO 291-23/50-2	tight

Table: Characteristics of the "Polyfleece SX® 1000" waterproofing sheet

The directions "lengthwise" and "across" relate to the direction of manufacture of the sheet
x = mean value, s = ± standard deviation, k = min. value, g = max. value

Properties/test (Section of EAD 030378-00-0605)	Test conditions	Test results
Shear resistance of joint seams (2.2.13)	DIN EN 12317-2 Test specimen 50 mm x 360 mm Seam width: 75 mm v = 100 mm/min Free clamping length: 200 mm Test climate: DIN EN ISO 291-23/50-2	<u>Integrated longitudinal seam strip</u> Shear resistance [N/50 mm] x = 334 s = ± 7.00 Shearing in the joint seam <u>Seam with sealing</u> Shear resistance [N/50 mm] x = 650 s = ± 33.2 Failure outside joint seam
Tear resistance (nail shank) (2.2.14)	DIN EN 12310-1 Test specimen 100 mm x 200 mm v = 100 mm/min Nail spacing: 50 mm Test climate: DIN EN ISO 291-23/50-2	Tear resistance [N] lengthwise x = 202 s = ± 26.5 across x = 246 s = ± 11.3
Tensile properties at low temperatures (2.2.15)	Procedure A v = 100 mm/min Free clamping length: 120 mm Test temperature: -45 °C	Maximum tensile force [N/50 mm] lengthwise x = 991 s = ± 20.4 across x = 719 s = ± 18.4 Expansion under maximum tensile force [%] lengthwise x = 17.8 s = ± 0.52 across x = 30.3 s = ± 1.09
Test of crack bridging ability (2.2.16)	- Substrate: concrete C30/37, F3 (28 d) Test pressure: 5 bar/28 days Joint expansion: 2 mm Sample quantity: 2	tight

Table: Characteristics of the "Polyfleece SX® 1000" waterproofing sheet

The directions "lengthwise" and "across" relate to the direction of manufacture of the sheet
x = mean value, s = ± standard deviation, k = min. value, g = max. value

Properties/test (Section of EAD 030378-00-0605)	Test conditions	Test results
Peel resistance (180°) (2.2.17)	- Substrate: concrete C30/37, F3 (28 d) Test specimen 50 mm x 500 mm v = 100 mm/min Test climate: DIN EN ISO 291-23/50-2	Peel resistance [N/50 mm] x = 79.2 s = ± 15.4
Peel resistance (180°) after water storage (2.2.18)	- Substrate: concrete C30/37, F3 (28 d) Test specimen 50 mm x 500 mm v = 100 mm/min Test climate: DIN EN ISO 291-23/50-2	<u>7 d water storage</u> Peel resistance [N/50 mm] x = 92.4 s = ± 14.8 <u>28 d water storage</u> Peel resistance [N/50 mm] x = 48.5 s = ± 16.9 <u>56 d water storage</u> Peel resistance [N/50 mm] x = 60.6 s = ± 7.98
Tensile properties at low temperatures (2.2.15)	Procedure A v = 100 mm/min Free clamping length: 120 mm Test temperature: -45 °C	Maximum tensile force [N/50 mm] lengthwise x = 991 s = ± 20.4 across x = 719 s = ± 18.4 Expansion under maximum tensile force [%] lengthwise x = 17.8 s = ± 0.52 across x = 30.3 s = ± 1.09
Test of crack bridging ability (2.2.16)	- Substrate: concrete C30/37, F3 (28 d) Test pressure: 5 bar/28 days Joint expansion: 2 mm Sample quantity: 2	tight

Table: Characteristics of the "Polyfleece SX® 1000" waterproofing sheet

The directions "lengthwise" and "across" relate to the direction of manufacture of the sheet
x = mean value, s = ± standard deviation, k = min. value, g = max. value

Properties/test (Section of EAD 030378-00-0605)	Test conditions	Test results
Peel resistance (180°) (2.2.17)	- Substrate: concrete C30/37, F3 (28 d) Test specimen 50 mm x 500 mm v = 100 mm/min Test climate: DIN EN ISO 291-23/50-2	Peel resistance [N/50 mm] x = 79.2 s = ± 15.4
Peel resistance (180°) after water storage (2.2.18)	- Substrate: concrete C30/37, F3 (28 d) Test specimen 50 mm x 500 mm v = 100 mm/min Test climate: DIN EN ISO 291-23/50-2	7 d water storage Peel resistance [N/50 mm] x = 92.4 s = ± 14.8 28 d water storage Peel resistance [N/50 mm] x = 48.5 s = ± 16.9 56 d water storage Peel resistance [N/50 mm] x = 60.6 s = ± 7.98
Peel resistance (180°) after water storage (see above) (2.2.18) Reference storage in air	- Substrate: concrete C30/37, F3 (28 d) Test specimen 50 mm x 500 mm v = 100 mm/min Test climate: DIN EN ISO 291-23/50-2	7 d air storage Peel resistance [N/50 mm] x = 84.7 s = ± 21.1 56 d air storage Peel resistance [N/50 mm] x = 69.1 s = ± 14.2

Table: Characteristics of the "Polyfleece SX® 1000" waterproofing sheet

The directions "lengthwise" and "across" relate to the direction of manufacture of the sheet
x = mean value, s = ± standard deviation, k = min. value, g = max. value

Properties/test (Section of EAD 030378-00-0605)	Test conditions	Test results
Peel resistance (180°) after thermal ageing (2.2.19)	- Substrate: concrete C30/37, F3 (28 d) - remove formwork after 24 hrs - then 27 d storage in humid conditions Test specimen 50 mm x 500 mm v = 100 mm/min Test climate: DIN EN ISO 291-23/50-2	<u>28 d thermal ageing</u> Peel resistance [N/50 mm] x = 58.5 s = ± 8.24 <u>56 d thermal ageing</u> Peel resistance [N/50 mm] x = 52.9 s = ± 7.15
Peel resistance (180°) after cleaning (2.2.20)	- Substrate: concrete C30/37, F3 (28 d) - remove formwork after 24 hrs - then 27 d storage in humid conditions Test specimen 50 mm x 500 mm v = 100 mm/min Test climate: DIN EN ISO 291-23/50-2	Peel resistance [N/50 mm] x = 67.8 s = ± 21.5
Test of prevention of water running behind in the event of damage (2.2.21)	Test based on DIN EN 12390-8 Damaged area positioned centrally under a pressure cylinder ∅ 30 cm; Test on 5 composite bodies Substrate: Concrete C 30/37 (28 d) Water pressure: 500 kPa Test duration: 7 d	Test duration 7 d: - tight, - no lateral water penetration into the boundary layer: tight - water penetration depth x = 12 mm
Test of prevention of water running behind in the event of damage after cleaning (2.2.22)	Test based on DIN EN 12390-8 Damaged area positioned centrally under a pressure cylinder ∅ 30 cm; Test on 5 composite bodies Substrate: Concrete C 30/37 (28 d) Water pressure: 500 kPa Test duration: 7 d	Test duration 7 d: - tight, - no lateral water penetration into the boundary layer: tight - water penetration depth x = 15 mm

Table: Characteristics of the "Polyfleece SX® 1000" waterproofing sheet

The directions "lengthwise" and "across" relate to the direction of manufacture of the sheet
x = mean value, s = ± standard deviation, k = min. value, g = max. value

Properties/test (Section of EAD 030378-00-0605)	Test conditions	Test results
Water tightness of the joint seams or adhesive seams and the T-joints (2.2.23) Adhesive seam positioned centrally under a pressure cylinder ∅ 30 cm	DIN EN 1928 Procedure A Water pressure 100 kPa (1 bar) Test duration: 72 hrs Test climate: DIN EN ISO 291-23/50-2	Integrated longitudinal seam strip: tight Seam with sealing: tight T-joint: tight
Pool test/functional test for joint bridging – water tightness (2.2.24)	Pool test Test pressure: 5 bar/28 days Proven joint expansion: 1 mm Test vertical to the joint with: - positioned self-adhesive seam (overlap seam) - positioned seam with seam securing	 tight tight

Table: Characteristics of the "Polyfleece SX® 1000" waterproofing sheet

The directions "lengthwise" and "across" relate to the direction of manufacture of the sheet
x = mean value, s = ± standard deviation, k = min. value, g = max. value

Properties/test (Section of EAD 030378-00-0605)	Test conditions	Test results
Adhesive strength waterproofing sheet/concrete (2.2.25)	EN 1542 Pull-off speed: 100 N/s Substrate: concrete C 30/37, F3	Sample age 2 d Adhesive strength x = 0.77 MPa k = 0.65 MPa g = 0.84 MPa 25% adhesion concrete/nonwoven 75% adhesion coating/nonwoven Sample age 7 d Adhesive strength x = 0.86 MPa k = 0.77 MPa g = 0.96 MPa 15% adhesion concrete/nonwoven 85% adhesion coating/nonwoven Water ageing 28 d Adhesive strength x = 0.34 MPa k = 0.27 MPa g = 0.44 MPa 100% cohesion in hydrophilic layer Water ageing 56 d Adhesive strength x = 0.28 MPa k = 0.20 MPa g = 0.32 MPa 100% cohesion hydrophilic layer/PVC Thermal ageing 28 d Adhesive strength x = 0.92 MPa k = 0.83 MPa g = 1.07 MPa 50% adhesion concrete/nonwoven 50% adhesion coating/nonwoven Thermal ageing 56 d Adhesive strength x = 0.84 MPa k = 0.75 MPa g = 0.88 MPa 100% adhesion concrete/nonwoven

Table: Characteristics of the "Polyfleece SX® 1000" waterproofing sheet

The directions "lengthwise" and "across" relate to the direction of manufacture of the sheet
x = mean value, s = ± standard deviation, k = min. value, g = max. value

Properties/test (Section of EAD 030378-00-0605)	Test conditions	Test results
Dimensional change (2.2.26)	DIN EN 1107-2 Storage period: 6 hrs Storage temperature: 80 °C	lengthwise x = - 0.27% across x = - 0.20%
Shear resistance of joint seams (2.2.27) after water ageing	DIN EN 12317-2 Test specimen 50 mm x 360 mm Seam width: 80 mm v = 100 mm/min Free clamping length: 200 mm Test climate: DIN EN ISO 291-23/50-2 Storage temperature: 50 °C Storage period: 7/28/56 d 24 hrs Conditioning 23/50	**7d water ageing** Integrated longitudinal seam strip Shear resistance [N/50 mm] x = 281 s = ± 11.7 Shearing in the joint seam Seam with sealing Shear resistance [N/50 mm] x = 413 s = ± 108 Shearing in the joint seam **28 d water ageing** Integrated longitudinal seam strip Shear resistance [N/50 mm] x = 247 s = ± 4.15 Shearing in the joint seam Seam with sealing Shear resistance [N/50 mm] x = 377 s = ± 68.7 Shearing in the joint seam

Table: Characteristics of the "Polyfleece SX® 1000" waterproofing sheet

The directions "lengthwise" and "across" relate to the direction of manufacture of the sheet
x = mean value, s = ± standard deviation, k = min. value, g = max. value

Properties/test (Section of EAD 030378-00-0605)	Test conditions	Test results
Shear resistance of joint seams (2.2.27) after water ageing	DIN EN 12317-2 Test specimen 50 mm x 360 mm Seam width: 80 mm v = 100 mm/min Free clamping length: 200 mm Test climate: DIN EN ISO 291-23/50-2 Storage temperature: 50 °C Storage period: 7/28/56 d 24 hrs Conditioning 23/50	**56 d water ageing** Integrated longitudinal seam strip Shear resistance [N/50 mm] x = 232 s = ± 12.6 Shearing in the joint seam Seam with sealing Shear resistance [N/50 mm] x = 239 s = ± 29.1 Shearing in the joint seam

Table: Supplementary properties of the "Polyfleece SX® 1000" waterproofing sheet

The directions "lengthwise" and "across" relate to the direction of manufacture of the sheet
x = mean value, s = ± standard deviation, k = min. value, g = max. value

Properties/test	Test conditions	Test results
Visible defects	DIN EN 1850-2	Free of visible defects
Dimensions and tolerances	DIN EN 1848-2	Length 20 m Width x = 1,013 mm k = 1,013 mm Straightness x = 20 mm/10 m
Thickness and mass per unit area	DIN EN 1849-2 Imposed load 20 kPa	Total thickness x = 1.69 mm k = 1.58 mm g = 1.86 mm Mass per unit area x = 1,280 g/m²