Hygiene-Institut des Ruhrgebiets
Institut für Umwelthygiene und Toxikologie
Director: Dr. Thomas-Benjamin Seiler
Legal Entity: Verein des Hygiene-Instituts des Ruhrgebiets e.V.

Hygiene-Institut · PO Box 10 12 55 · DE 45812 Gelsenkirchen · Germany

Fibertex Nonwovens A/S
Mrs. Tina C. Larsen
Svendborgvej 16
9220 AALBORG ØST
DENMARK

Address:
Rotthauser Str. 21, DE 45879 Gelsenkirchen

Switchboard	+49 (0)209 9242-0
Direct	+49 (0)209 9242-230
Telefax	+49 (0)209 9242-222
E-Mail	c.schell@hyg.de
Internet	www.hyg.de

Our reference: W-371197ea-23-Sl/Krü
Contact person: Mrs. Dr. Ch. Schell

Gelsenkirchen, 27.04.2023

Test according to DVGW Technical Standard W 270 of Fibertex Formtex®

Your order dated 14.10.2022

Dear Mrs. Larsen,

please find enclosed the test report and test certificate **W-371197e-23-Sl/Krü** (each in English / German) for the material **Fibertex Formtex®.**

You already received the preliminary test certificate **W-371197ep-23-Sl/Krü** on 12.04.2023 via E-Mail.

The invoice has been sent directly to invoice@fibertex.com via e-Mail.

Best regards
The Director of the Institute
p.p.

Dr. Ch. Schell
Head of Department Microbiological Material and Hygiene Testings

Enclosure

Hygiene-Institut des Ruhrgebiets
Institut für Umwelthygiene und Toxikologie
Director: Dr. Thomas-Benjamin Seiler
Legal Entity: Verein des Hygiene-Instituts des Ruhrgebiets e.V.

Hygiene-Institut · PO Box 10 12 55 · DE 45812 Gelsenkirchen · Germany

Fibertex Nonwovens A/S
Svendborgvej 16
9220 AALBORG ØST
DENMARK

Address:
Rotthauser Str. 21, DE 45879 Gelsenkirchen

Switchboard +49 (0)209 9242-0
Direct +49 (0)209 9242-230
Telefax +49 (0)209 9242-222
E-Mail c.schell@hyg.de
Internet www.hyg.de

Our reference: W-371197e-23-Sl/Krü
Contact person: Mrs. Dr. Schell

Gelsenkirchen, 09.03.2023

TEST REPORT

Enhancement of Microbial Growth on Materials to Come into Contact with Drinking water
Test pursuant to DVGW Technical Standard W 270, November 2007

Client:	Fibertex Nonwovens A/S Svendborgvej 16 9220 AALBORG ØST DENMARK
Ordering date:	14.10.2022

Description of the material:

Test material:	**Fibertex Formtex®**
Composition:	recipe submitted and checked (12296 / 12708)
Processing instructions:	for specifications, consult the client
Field of application:	for specifications, consult the client
Quantity of material per area unit:	for specifications, consult the client

Test samples:

Nature and property:	6 plates of concrete, grey, 19.5 cm x 20.0 cm x 7.2 cm
Manufacturing:	carried out by the client (description submitted)
Processing conditions:	carried out by the client (description submitted)

Date of receipt of test samples: 18.11.2022

Storing conditions in the testing laboratory until start of test: at room temperature

This test report consists of 3 pages.

The test results refer exclusively to the examined test specimens and the current statutory regulations. The validity of the document expires in case of modifications in the composition of the material or the processing conditions.
Our accreditation certificate is available at http://www.hyg.de. Tests which do not fall within the accreditation are marked.
This document shall not be reproduced, except in full, without written approval of the Institute. Our general terms and conditions apply (http://www.hyg.de).

ilac-MRA DAkkS Deutsche Akkreditierungsstelle D-PL-13042-02-00

Test conditions:

The tests were performed in accordance with the recommendations contained in DVGW Technical Standard W 270 as of November 2007. Details regarding testing procedures, as well as testing conditions will be given in said Technical Standard. The surface of the examined test pieces totals to 780 cm^2 each. Using two test items per test period the following test scheme was applied:

- monthly sampling of surface biomass (test period 3 months altogether)
- sampling after 2 months (test period 2 months altogether)
- sampling after 3 months (test period 3 months altogether)

Prior to testing, the test specimens were placed in running tap water for 20 hours, followed by a disinfection procedure using 1% chlorine bleach for (30 ± 5) minutes and then rinsed with drinking water.

Time of exposure:

1-month samples	**1a:**	1st	test period from 07.12.2022 to 04.01.2023
	1b:	2nd	test period from 04.01.2023 to 31.01.2023
	1c:	3rd	test period from 31.01.2023 to 28.02.2023
2-month samples	**2a:**	1st	test period from 07.12.2022 to 31.01.2023
3-month samples	**3a:**	1st	test period from 07.12.2022 to 28.02.2023

The exposure took place in containers filled with ground water of drinking water quality at a continuous flow rate of approx. 20 l/h over a period of three months. The water temperature ranged from 8.3°C to 9.6°C.
After one, two and three months the surfaces of the test pieces, as well as the corresponding negative reference samples (stainless steel) and positive reference samples (paraffin) were scraped clean in order to examine for biofilm formation. Afterwards, the surface biomass was transferred to suitable centrifuge tubes. The subsequent centrifugation was carried out at 3.000 x g for 10 minutes followed by the determination of the volume of the sediment.

Test results:

The positive reference sample (pK) showed a pronounced formation of biofilm during all test periods. There was no formation of surface biomass on the negative reference sample (nK).

The results of the analyses of the single specimens of 780 cm^2 surface in total, pursuant to DVGW Technical Standard W 270 were as follows:

Volume of surface biomass

(single values and arithmetic mean of 2 test pieces, given in ml / referring to 800 cm²)

Start of test: 07.12.2022		1-month values		2-month values		3-month values
07.12.2022 – 04.01.2023	1a	(< 0.01 / 0.02)				
		-				
	nK	< 0.01	2a	(< 0.01 /< 0.01)		
	pK	> 1.5		-		
04.01.2023 – 31.01.2023	1b	(< 0.01 / 0.01)	nK	< 0.01	3a	(< 0.01 /< 0.01)
		-	pK	> 1.5		-
	nK	< 0.01			nK	< 0.01
	pK	> 1.5			pK	> 1.5
31.01.2023 – 28.02.2023	1c	(< 0.01 /< 0.01)				
		-				
	nK	< 0.01				
	pK	> 1.5				

Limiting values [ml / 800 cm²] pursuant to DVGW Technical Standard W 270 (11/2007)

General application: arithmetic means	≤ (0.05 + 0.02)	≤ (0.05 + 0.02)	≤ (0.05 + 0.02)
Large surface seals (D 1): arithmetic means	≤ (0.12 + 0.03) whereas 1c ≤ 1b	≤ (0.12 + 0.03)	≤ (0.12 + 0.03) whereas 3a ≤ 2a
Small surface seals (D 2): arithmetic means	≤ (0.20 + 0.03) whereas 1c ≤ 1b	≤ (0.20 + 0.03)	≤ (0.20 + 0.03) whereas 3a ≤ 2a
Negative Control:	< 0.01 ml	< 0.01 ml	< 0.01 ml
Positive Control:	≥ 1.5 ml	≥ 1.5 ml	≥ 1.5 ml

Assessment:

Provided that it is applied correctly, concrete produced using

Fibertex Formtex®

is suitable for the use in drinking water systems according to the results of the microbiological examinations pursuant to DVGW Technical Standard W 270 (11/2007).

The Director of the Institute
p.p.

HYGIENE-INSTITUT DES RUHRGEBIETS Institut für Umwelthygiene und Toxikologie

Dr. Ch. Schell
Head of Department Microbiological Material and Hygiene Testings

Hygiene-Institut des Ruhrgebiets
Institut für Umwelthygiene und Toxikologie
Director: Dr. Thomas-Benjamin Seiler
Legal Entity: Verein des Hygiene-Instituts des Ruhrgebiets e.V.

Hygiene-Institut · PO Box 10 12 55 · DE 45812 Gelsenkirchen · Germany

Fibertex Nonwovens A/S
Svendborgvej 16
9220 AALBORG ØST
DENMARK

Address:
Rotthauser Str. 21, DE 45879 Gelsenkirchen

Switchboard +49 (0)209 9242-0
Direct +49 (0)209 9242-230
Telefax +49 (0)209 9242-222
E-Mail c.schell@hyg.de
Internet www.hyg.de

Our reference: W-371197e-23-Sl/Krü
Contact person: Mrs. Dr. Schell

Gelsenkirchen, 09.03.2023

TEST CERTIFICATE

Enhancement of Microbial Growth on Materials to Come into Contact with Drinking water
Test pursuant to DVGW Technical Standard W 270, November 2007

Client:	Fibertex Nonwovens A/S Svendborgvej 16 9220 AALBORG ØST DENMARK
Test material:	**Fibertex Formtex®**
Test method:	Material test

Concrete, produced using **Fibertex Formtex®** showed conformity to the requirements of DVGW Technical Standard W 270 according to test report **W-371197e-23-Sl/Krü** of **09.03.2023**. Details regarding testing procedure and test results are itemized in the test report.
This test certificate is valid from the date of issue and, given that the conditions and legal requirements remain unaltered, expires on **09.03.2028**. The period of validity is 5 years and can be extended upon written request of the client once up to another 5 year term, provided that the specifications of Technical Standard W 270 are met.

The Director of the Institute
p.p.

Dr. Ch. Schell
Head of Department Microbiological Material and Hygiene Testings

The test results refer exclusively to the examined test specimens and the current statutory regulations. The validity of the document expires in case of modifications in the composition of the material or the processing conditions. This document is no DVGW certification. *This document shall not be reproduced, except in full, without written approval of the Institute. Our general terms and conditions apply (http://www.hyg.de).*

Legal Entity: Verein des Hygiene-Instituts des Ruhrgebiets e.V., **Register:** VR 519 Local Court Gelsenkirchen (Germany); **VAT ID:** DE125018356
Directorate: Prof. Dr. Jürgen Kretschmann (Head), Joachim Löchte, Dr. Dirk Waider, Dr. Frank Obenaus, Dr. Thomas-Benjamin Seiler (Executive Member).

Hygiene-Institut des Ruhrgebiets
Institut für Umwelthygiene und Toxikologie
Direktor: Dr. Thomas-Benjamin Seiler
Träger: Verein des Hygiene-Instituts des Ruhrgebiets e.V.

Hygiene-Institut · Postfach 10 12 55 · 45812 Gelsenkirchen

Fibertex Nonwovens A/S
Svendborgvej 16
9220 AALBORG ØST
DENMARK

Besucher-/Paketanschrift:
Rotthauser Str. 21, 45879 Gelsenkirchen

Zentrale	(0209) 9242-0
Durchwahl	(0209) 9242-230
Telefax	(0209) 9242-222
E-Mail	c.schell@hyg.de
Internet	www.hyg.de

Unser Zeichen: W-371197-23-Sl/Krü
Ansprechpartner: Frau Dr. C. Schell

Gelsenkirchen, den 09.03.2023

PRÜFZEUGNIS

Vermehrung von Mikroorganismen auf Werkstoffen für den Trinkwasserbereich
Prüfung gemäß DVGW Technische Regeln, Arbeitsblatt W 270, November 2007

Antragsteller:	Fibertex Nonwovens A/S Svendborgvej 16 9220 AALBORG ØST DENMARK
Werkstoff:	**Fibertex Formtex®**
Prüfungsart:	Werkstoffprüfung

Beton, hergestellt unter Verwendung von **Fibertex Formtex®** erfüllt gemäß Prüfbericht **W-371197e-23-Sl/Krü** vom **09.03.2023** die Anforderungen nach DVGW Arbeitsblatt W 270 für den Einsatz im Trinkwasserbereich. Details zum genauen Ablauf der Prüfung sowie die Einzelergebnisse sind dem Prüfbericht zu entnehmen.
Die Gültigkeit dieses Prüfzeugnisses beginnt mit dem Ausstellungsdatum und endet bei unveränderten Voraussetzungen am **09.03.2028**. Die Gültigkeitsdauer beträgt 5 Jahre und kann auf schriftliche Anfrage des Antragstellers einmalig um weitere 5 Jahre verlängert werden, sofern die Vorgaben des Arbeitsblattes W 270 erfüllt sind.

Der Direktor des Hygiene-Instituts
i.A.

Dr. Ch. Schell
Leiterin Abteilung Mikrobiologische Material- und Hygieneprüfungen

HYGIENE-INSTITUT DES RUHRGEBIETS Institut für Umwelthygiene und Toxikologie

Die Ergebnisse der Prüfungen gelten für die untersuchten Prüfgegenstände und die zum Zeitpunkt der Prüfung geltenden gesetzlichen Regelungen. Die Gültigkeit dieses Dokuments erlischt bei Veränderungen in der Zusammensetzung des Werkstoffs oder der Verarbeitungsbedingungen. Dieses Dokument stellt keine DVGW-Zertifizierung dar.

Dieses Dokument darf ohne unsere schriftliche Genehmigung nur vollständig und unverändert verwendet werden. Es gelten unsere AGB (http://www.hyg.de).

Träger: Verein des Hygiene-Instituts des Ruhrgebiets e.V., Vereinsregister: **VR 519** Amtsgericht Gelsenkirchen, USt.-ID: **DE125018356**
Vorstand: Prof. Dr. Jürgen Kretschmann (Vorsitzender), Joachim Löchte, Dr. Dirk Waider, Dr. Frank Obenaus, Dr. Thomas-Benjamin Seiler (geschäftsführ. Vorstand)