NorGeoSpec 2012 Product Certificate

Quality Product Certification
Reinforcement

This product has been found to be fit for use in accordance with NorGeoSpec 2012 System for the above given function.

Certificate no.:	NGS-50348
Date:	08.05.2023
Valid until:	09.05.2025
Manufacturer:	Huesker Synthetic GmbH
Product:	FORTRAC® 35
Product Type:	GGR
Raw material:	PET
Function:	Reinforcement

Issued by

Christian Recker, SINTEF project manager

Approved by

Arnstein Watn, Head of the Technical committee

The products are regularly audited and tested to verify that the characteristics fulfil the NorGeoSpec 2012 Rev.: 01/14.12.2016 requirements.
Approved by the NorGeoSpec Technical committee: 02.11.2023

NorGeoSpec Certification body: SINTEF Building and Infrastructure · Forskningsveien 3B · 0373 Oslo

SINTEF is appointed Notified Body by the Norwegian Building Authority, related to Regulation (EU) No. 305/2011 – Construction Products. Notified Body No. 1071.

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Characteristic		Standard	Unit	Declared value	Max. tolerance	Certification value
Mass per unit area		EN ISO 9864	g/m²	185	± 19	**167 - 204**
Dimension		NorGeoSpec 2012				
Tensile elements	MD	Annex F	Production width[1]	170	± 0	**170**
	CMD	Annex F	Elements/m	34	± 1	**33 - 35**
Grid apertures	MD	Annex F	mm	26	± 3.9	**22.1 - 29.9**
	CMD	Annex F	mm	23	± 3.5	**19.5 - 26.5**
Mechanical tests						
Nominal tensile strength	MD	EN ISO 10319	kN/m	35.00	- 0.00	**35.00**
	CMD	EN ISO 10319	kN/m			
Tensile strain at nominal strength	MD	EN ISO 10319	%	8.3	± 1.7	**6.6 - 10.0**
	CMD	EN ISO 10319	%			
Tensile stiffness at 2% tensile strain	MD	EN ISO 10319	kN/m	385	- 0.00	**385**
	CMD	EN ISO 10319	kN/m			
Tensile stiffness at 5% tensile strain	MD	EN ISO 10319	kN/m	340	0	**340**
	CMD	EN ISO 10319	kN/m			
Tensile stiffness at 10% tensile strain	MD	EN ISO 10319	kN/m			
	CMD	EN ISO 10319	kN/m			
Static puncture test		EN ISO 12236	KN			
Dynamic perforation resistance		EN ISO 13433	mm			
Durability (Declared value)						
Service life			years	☐ 25	☐ 50	☒ 100
Information about reduction factors are given on page 3 of this certificate.						

[1] Production width – 5m

Declared values
Reinforcement

Declared values						
Reduction factor for creep rupture [1) 2)]	RF_{CR}	1.52	BBA asessment - HAPAS Certificate 13/H197, Product sheet 3			
Reduction factor for environmental effects	RF_{CH}					
Chemical			Application in natural soils at a pH-value between 4 and 9 and a soil temperature <25°C			
Oxidation		n.r.				
Hydrolysis		1.03	Test report No. 160501 - ISO/TR 20432 120 years, pH-value 4<ph< and soil temperature of 20°C			
Reduction factor for weathering	RF_{W}					
Or max. exposure time						
1 month						
2 weeks		x				
1 day						
Reduction factor for installation damage	$RF_{ID,fine}$	-	$RF_{ID,medium}$	1.15	$RF_{ID\ coarse}$	1.20
Used test method	BBA assessment					
Compaction	Compacted soil thickness: 200 mm, weight of vibrating roll: 4550 kg					
Particle size	$RF_{ID\ medium}$ = sandy gravel $D_{90} \leq 35$ mm $RF_{ID\ coarse}$ = coarse gravel $D_{90} \leq 10$ mm					