

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-50179

Date: 06.02.2019

Valid until: 05.02.2021

Manufacturer: NAUE GmbH & Co KG

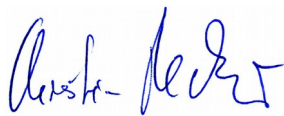
Product: Secugrid 40/40 Q6

Product Type: GGR

Raw material: PP

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: 06.02.2019

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Characteristic		Standard	Unit	Declared value	Max. tolerance	Certification value
Mass per unit area		EN ISO 9864	g/m ²	360	± 36	324 - 396
Dimension		NorGeoSpec 2012				
Tensile elements	MD	Annex F	Production width ¹	120	± 0	120
	CMD	Annex F	Elements/m	25	± 0	25
Grid apertures	MD	Annex F	mm	34	± 5.1	28.9 - 39.1
	CMD	Annex F	mm	34	± 5.1	28.0 - 38.0
Mechanical tests						
Nominal tensile strength	MD	EN ISO 10319	kN/m	40.00	- 0.00	40.00
	CMD	EN ISO 10319	kN/m	40.00	- 0.00	40.00
Tensile strain at nominal strength	MD	EN ISO 10319	%	4.0	± 0.8	3.2 - 4.8
	CMD	EN ISO 10319	%	4.0	± 0.8	3.2 - 4.8
Tensile stiffness at 2% tensile strain	MD	EN ISO 10319	kN/m	900	- 0	900
	CMD	EN ISO 10319	kN/m	900	- 0	900
Tensile stiffness at 5% tensile strain	MD	EN ISO 10319	kN/m	640	- 0	640
	CMD	EN ISO 10319	kN/m	640	- 0	640
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	<input type="checkbox"/> 25	<input type="checkbox"/> 50	<input type="checkbox"/> 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}	1.40	BBA - HAPAS Certificate 14/H218 - Product Sheet 1			
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						
Hydrolysis		1.01	BBA - HAPAS Certificate 14/H218 - Product Sheet 1			
Reduction factor for weathering	RF _W		Remarks:			
Or max. exposure time						
1 month		x				
2 weeks						
1 day						
Reduction factor for installation damage	RF _{ID,fine}	1.06	RF _{ID,medium}	1.08	RF _{ID,coarse}	1.09
Used test method	Procedure for installation damage test for BBA Assessments modified to conform with ASTM D5818 requirements					
Compaction	Ride-on steel-wheeled roller (4550 kg) + vibratory capability, compaction rd. 90 % modified proctor					
Particle size	RF _{ID fine} = sand D ₉₀ ≤ 32 mm RF _{ID medium} = sandy gravel D ₉₀ ≤ 8 mm RF _{ID coarse} = coarse gravel D ₉₀ ≤ 2 mm					