

# 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-50090

**Date:** 01.08.2017

**Valid until:** 31.07.2019

**Manufacturer:** TenCate Geosynthetics

**Product:** MIRAGRID GX 110/30

**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: 01.08.2017

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.

## Quality Product Certification Reinforcement

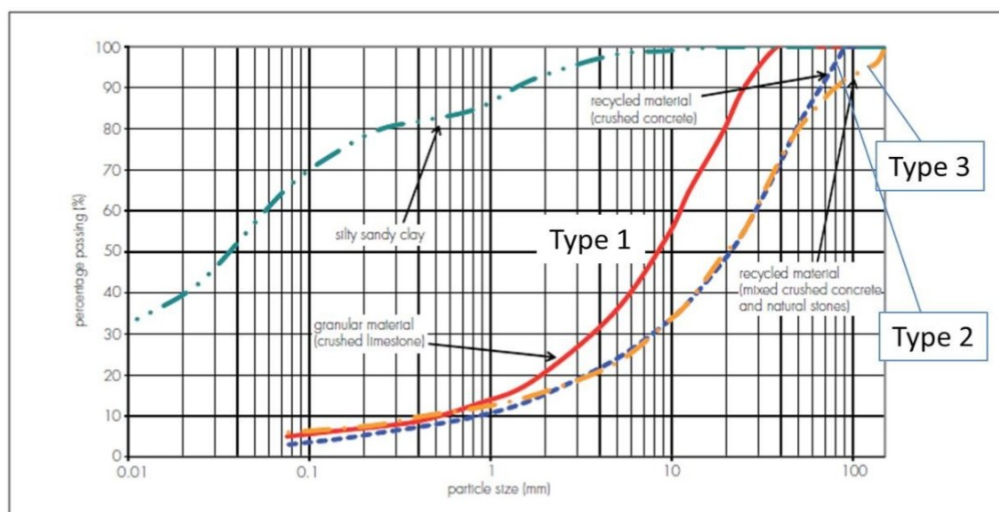
Characteristic		Standard	Unit	Declared value	Max. tolerance	Certification value
Mass per unit area		EN ISO 9864	g/m <sup>2</sup>	422	± 42.2	<b>389.9 – 464.2</b>
<b>Dimension</b>		NorGeoSpec 2012				
Tensile elements	MD	Annex F		210	0	<b>210</b>
	CMD	Annex F		210	0	<b>210</b>
Grid apertures	MD	Annex F	mm	19	± 2.9	<b>16.1 – 21.9</b>
	CMD	Annex F	mm	25	± 3.8	<b>21.2 – 28.8</b>
<b>Mechanical tests</b>						
Nominal tensile strength	MD	EN ISO 10319	kN/m	110.00	0.00	<b>110.00</b>
	CMD	EN ISO 10319	kN/m			
Tensile strain at nominal strength	MD	EN ISO 10319	%	10.1	± 2.0	<b>8.1 – 12.1</b>
	CMD	EN ISO 10319	%			
Tensile stiffness at 2% tensile strain	MD	EN ISO 10319	kN/m	1000	-200	<b>800</b>
	CMD	EN ISO 10319	kN/m			
Tensile stiffness at 5% tensile strain	MD	EN ISO 10319	kN/m	700	-140	<b>560</b>
	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			
<b>Durability (Declared value)</b>						
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.						

## Declared values Reinforcement

Declared values						
Reduction factor for creep rupture <sup>1) 2)</sup>	RF <sub>CR</sub>	1.56	Remarks: 114 years, tBU No. 1.6/22320/0910.0.1-2011e			
Reduction factor for environmental effects	RF <sub>CH</sub>		Remarks:			
Chemical			Application in natural soils at a pH-value between 4 and 9 and a soil temperature of <25°C			
Oxidation		n.r.				
Hydrolysis		1.05				
Reduction factor for weathering	RF <sub>W</sub>		Remarks:			
Or max. exposure time						
1 month						
2 weeks		x				
1 day						
Reduction factor for installation damage	RF <sub>ID,fine</sub>	1.10 (Type 3)	RF <sub>ID,medium</sub>	1.14 (Type 2)	RF <sub>ID,coarse</sub>	1.11 (Type 1)
Used test method	Baugrund Wien 10-2022-01					

Compaction: Min. compaction depth above geogrid 320mm; Ride-on steel-wheeled roller (12400kg); Relative density >95%

Particle size distribution:



<sup>1)</sup> product range

<sup>2)</sup> not required if used as base course layers

n.r. = not required

n/a = not applicable