



TEST FOR THE DURABILITY OF ROAD MARKING MATERIALS

(Durability test according to EN 13197:2012+A1:2014)
 The tests marked with * are not covered by ENAC accreditation

TEST REPORT	REF. 5.700
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Delivered to: **GEVEKO MARKINGS**
 Rue du Bon Puits, 16
 49480 Verrières-en-Anjou (France)

Issue date: 19-07-2023

A) INFORMATION PROVIDED BY THE CUSTOMER

BASE MATERIAL

Trade mark:	MORPHEE GRANITE		
Nature:	Two components whith aggregates		
Dosage:	4.470	g/m ²	Thickness: - μm
Producer:	GEVEKO MARKINGS		
Applied by:	Manual		

DROP ON MATERIALS

	Glass beads	Antiskid aggregates	Glass beads - Antiskid aggregates
Trade mark:	-	-	-
Nature:	-	-	-
Dosage g/m ² :	-	-	-
Producer:	-	-	-
Applied by:	-	-	-
Certificate of Confor.	-	-	-

	Premixed materials	Other materials
Trade mark:	-	-
Nature:	-	-
Dosage g/m ² :	-	-
Producer:	-	-
Applied by:	-	-
Certificate of Confor.	-	-

Reference of test plate received
B178/7

TYPE OF MATERIAL: Two components whith aggregates

CHARACTERISTIC OF THE ROAD MARKING: (in accordance with EN 1436:2018) **Not Structured**

CLASS OF ROUGHNESS: (in accordance with EN 13197:2012+A1:2014) **RG2** Roughness of the test plate on which the assembly has been tested

1) AETEC is responsible for the whole information included in the certificate/report, except the information provided by the customer.

B) TEST RESULTS: initial and retained values and their technical classes, in accordance with EN 1436:2018

DURABILITY LEVEL expressed in TRAFFIC CLASSES, in accordance with EN 13197:2012+A1:2014		Traffic classes corresponding to each level of durability in accordance with EN 1436:2018					
		dry R _L	rain RR	wet RW	β	Q _d	SRT
INITIAL	P0	-	-	-	-	-	S5
	P4	-	-	-	-	-	S5
	P5	-	-	-	-	-	S4
	P6	-	-	-	-	-	S4
	P7	-	-	-	-	-	S3
DRYING TIME (in accordance with EN 13197:2012+A1:2014)		T3					

The TRAFFIC CLASSES have been assigned based on the measured mean values, without considering their measurement uncertainties.
 The decision rule is a binary statement for simple acceptance rule. AETEC informs the highest probability of false acceptance is PFA<50%

The results in this report relate only to the samples tested and can not be extended to other manufacturer's production.

Date of commencement of the test: **05-06-23** Date of end the test: **26-06-23**

1.- Test conditions

in accordance with the specifications given in EN 13197:2012+A1:2014

Test plates:	1	Roughness:	RG2	Size:	Large
Test plates orientation:	Parallel to the movement of the loading wheels	HR:	0%	Material temperature (thermoplastic) °C:	-
Conditions during application:	1° amb:	Glass beads:	-	Others materials:	-
Materials applied, % deviation on requested:	Film maker materi: -100,00	Mixture:	-	Premix:	-
Test Tyres:	Commercial tire 250/60 R15				
Number of wheels:	4				
Load on wheels (N):	3000 ± 300				
Tyre air pressure (Mpa):	0,25 ± 0,02				
Support angle (degrees):	0° ± 20°				
Steering angle (degrees):	alternating + 1° (± 10°) / - 1° (± 10°)				
Room temperature:	between + 5°C y + 10°C				
Drying cycle:	In accordance with EN 13197:2012+A1:2014				
Periodicity of measurements:	0,01; 0,1; 0,2; 0,5; 1,0; 2,0; 3,0 and 4,0 x 10 ⁶ wheel passages				
Deviations:	The application of the materials was not witnessed or verified by AETEC S.A. This kind of road marking is not included in the scope of the Standard EN 1436:2018, however we used test methods and expressed values in performance for classes (when it is possible) according to this standard.				

2.- Test results: initial and retained values and their technical classes

in accordance with EN 1436:2018

CHARACTERISTIC		value and for each number of roll-overs x 10 ⁶								Uncertainty
		0,01 (P0)	0,1 (P2)	0,2 (P3)	0,5 (P4)	1,0 (P5)	2,0 (P6)	3,0	4,0 (P7)	
Night-time visibility, R _n	dry (mcd·m ⁻² ·lx ⁻¹)	-	-	-	-	-	-	-	-	± 7 %
	rain (mcd·m ⁻² ·lx ⁻¹)	-	-	-	-	-	-	-	-	± 7 %
	wet (mcd·m ⁻² ·lx ⁻¹)	-	-	-	-	-	-	-	-	± 7 %
Day-time visibility	x	-	-	-	-	-	-	-	-	± 0,004
	y	-	-	-	-	-	-	-	-	± 0,004
	β	-	-	-	-	-	-	-	-	± 0,023
	Qd (mcd·m ⁻² ·lx ⁻¹)	-	-	-	-	-	-	-	-	± 9 %
Wear	Percentage of wear	100	100	100	100	100	100	100	100	± 5
	SRT coor.	103	85	78	69	64	64	56	58	± 5
Skid resistance	Temperature slider (°C)	20	20	19	18	19	20	21	23	± 3,0

3.- TESTS CARRIED OUT BY "CENTRO REGIONAL DE CONTROL DE CALIDAD DE JCYL" COVERED BY ENAC ACCREDITATION N°. 180 / LE444

TESTING	REFERENCE STANDARD	RESULTS	UNCERTAINTY
Chromaticity co-ordinates and luminance factor	UNE-EN 1871:2021 Anexo A - UNE-EN 1436:2018 Anexo C	x - y - β -	U _x =±0,0025 U _y =±0,0025 U _β =±0,02
Density at 23°C	UNE-EN ISO 2811-1:2016	-	U _ρ =±0,006 g/cm ³
Solids content	UNE-EN 12802:2012 Anexo A	-	U _ρ =±0,6 %
* Solvent content	UNE-EN 12802:2012 Anexo F	-	U _ρ =±0,6 %
Ash content	UNE-EN 12802:2012 Anexo H	-	U _ρ =±0,6 %
Binder content by combustion at 450°C	Internal procedure MECYL 2.107	-	U _ρ =±1 %
Binder content by combustion at 450°C	Internal procedure MECYL 2.107	-	% Solid U _ρ =±0,6 %
Binder content by extraction	UNE-EN 12802:2012 Anexo B	-	% Paint U _ρ =±0,6 %
* Inorganic compounds content	UNE-EN 12802:2012 Anexo C	-	% Paint U _ρ =±0,8 %
Organic compounds content	UNE-EN 12802:2012 Anexo B	-	% U _ρ =±1 %
Krebs-Stormer consistency at 25°C	UNE 48076:1992	-	U _ρ =±0,8 %
Titanium dioxide content	Internal procedure MECYL 2.105	-	U K U K U _ρ =±4 U K
* Hiding power, with 300 μm wet film	UNE-EN 1871:2021	-	% Paint U _ρ =±0,04c % TiO ₂
* Contained in glass beads and antiskid aggregates	UNE-EN 12802:2012 Anexo E	-	Rc U _ρ =±0,02

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4.- Key words for the identification of type of material, intended use and technical classes

There are three groups of key words:

A first key word to identify if is for permanent or for temporary purposes.

P For a permanent road marking assembly.

T For a temporary road marking assembly.

A second key to identify the retroreflective properties of the road marking assembly:

R For a road marking assembly retroreflective under dry conditions.

RW For a road marking assembly retroreflective under dry and wet conditions.

RR For a road marking assembly retroreflective under dry, wet and rain conditions.

NR For a road marking assembly not retroreflective.

A third key to identify the type of the road marking assembly:

I For a conventional road marking.

II For a road marking assembly with special properties to enhance the retroreflection on wet or/and rainy conditions.

5.- Interpretative note

The results in this report relate only to the samples tested and cannot be extended to other manufacturer's production.

The results achieved by a road marking assembly on the durability test, shall not be interpreted as being a guarantee for working life in practice. The later depends on many factors beyond the materials such as design, location (type of road surface, weather conditions, etc) and application conditions.

aetec	REF:	Issue date	Laboratory Manager
	5.700	19-07-2023	Eduardo Fernández-Torviso

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This report is identical to the original spanish version.

