

TEST FOR THE DURABILITY OF ROAD MARKING MATERIALS

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

TEST REPORT	REF.	5.082
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Delivered to: **GEVEKO Markings Germany GmbH**
 Renkenrungsstraße 16
 D-79379 Müllheim/Baden (Germany)

Issue date: 09-12-2020

A) INFORMATION PROVIDED BY THE CUSTOMER

BASE MATERIAL

Trade mark:	PlastiRoute SprayPlast 3020 Traffic Red				
Nature:	Red 2 components cold plastic				
Dossage:	1.500	g/m ²	Thickness:	800	µm
Producer:	GEVEKO MARKING GERMANY GmbH				
Applied by:	-				

DROP ON MATERIALS

	Glass beads	Antiskid aggregates	Glass beads - Antiskid aggregates
Trade mark:	-	-	-
Nature:	-	-	-
Dossage g/m ² :	-	-	-
Producer:	-	-	-
Applied by:	-	-	-

	PREMIXED MATERIALS	OTHER MATERIALS
Trade mark:	-	-
Nature:	-	-
Dossage g/m ² :	-	-
Producer:	-	-
Applied by:	-	-

Reference of test plate received

B44/3

TYPE OF MATERIAL:	-
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CHARACTERISTIC OF THE ROAD MARKING: (in accordance with EN 1436:2018)	Not structured
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CLASS OF ROUGHNESS: (in accordance with EN 13197:2012+A1:2014)	RG2	Roughness of the test plate on which the assembly has been tested
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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	Qd	SRT
INITIAL	P0	NPD	NPD	NPD	B0	Q0	S2
	P4	NPD	NPD	NPD	B0	Q0	S2
RETAINED	P5	NPD	NPD	NPD	B0	Q0	S2
	P6	NPD	NPD	NPD	B0	Q0	S2
	P7	NPD	NPD	NPD	B0	Q0	S2
		NPD	NPD	NPD	B0	Q0	S2
DRYING TIME (in accordance with EN 13197:2012+A1:2014)		-					

The TRAFFIC CLASSES have been assigned based on the measured mean values, without considering their measurement uncertainties.

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:	19-10-2020	Date of end the test:	10-11-2020
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1.- Test conditions

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

Test plates:	1	Roughness:	RG2	Size:	P
Test plates orientation:	Parallel to the movement of the loading wheels				
Conditions during application:	t ^a amb:	-	HR:	-	Material temperature (thermoplastic) °C:
Materials applied, % deviation on requested:	Film maker materia	0,00	Glass beads:	-	Others materials:
	Antiskid aggregates:	-	Mixture:	-	Premix:
Test Tyres:	NEUMÁTICO COMERCIAL 205/60 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				
Desviations:	The measurement area doesn't complete the minimum required by the Standard EN 13197:2012+A1:2014 (800 cm ²). This kind of road marking red is not include 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. The application (materials and dosages) of test plates was witnessed by GEVEKO MARKING GERMANY GmbH instead of AETEC S.A.				

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 _L	dry (mcd·m ⁻² ·lx ⁻¹)	NPD	NPD	NPD	NPD	NPD	NPD	NPD	NPD	± 9 %
	rain (mcd·m ⁻² ·lx ⁻¹)	NPD	NPD	NPD	NPD	NPD	NPD	NPD	NPD	± 8 %
	wet (mcd·m ⁻² ·lx ⁻¹)	NPD	NPD	NPD	NPD	NPD	NPD	NPD	NPD	± 8 %
Day-time visibility	x	0,567	0,566	0,565	0,564	0,568	0,566	0,565	0,564	± 0,002
	y	0,330	0,331	0,330	0,330	0,330	0,331	0,331	0,330	± 0,003
	β	0,136	0,134	0,134	0,132	0,136	0,127	0,128	0,132	± 0,827
	Qd (mcd·m ⁻² ·lx ⁻¹)	67	67	68	72	83	75	73	73	± 8 %
Skid resistance	SRT coor.	53	56	54	51	53	53	53	53	± 5
	Temperature slider (°C)	15	15	16	14	13	13	15	13	± 3

3.- Tests covered by ENAC accreditation N°. 180/LE444

TESTING	REFERENCE STANDARD	RESULTS	UNCERTAINTY
Chromaticity co-ordinates and luminance factor	UNE-EN 1436:2009+A1:2009 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	-	g/cm ³ U=±0,006 g/cm ³
Solids content	UNE-EN 12802:2012 Anexo A	-	% U=±0,6 %
* Solvent content	UNE-EN 12802:2012 Anexo F	-	% U=±0,6 %
Ash content	UNE-EN 12802:2012 Anexo H	-	% U=±1 %
Binder content by 450°C. Combustion	Internal procedure MECYL 2.107	-	% Solid U=±0,6 %
Binder content by 450°C. Combustion	Internal procedure MECYL 2.107	-	% Paint U=±0,6 %
Binder content by extraction	UNE-EN 12802:2012 Anexo B	-	% Paint U=±0,8 %
* Inorganic compounds content	UNE-EN 12802:2012 Anexo C	-	% U=±1 %
Organic compounds content	UNE-EN 12802:2012 Anexo B	-	% U=±0,8 %
Krebs-Stormer consistency at 25°C.	UNE 48076:1992	-	U.K. U=±4 U.K.
Titanium dioxide content	Internal procedure MECYL 2.105	-	% Paint U=±0,04c % TiO ₂
* Hidding power, with 300 μm wet film	UNE-EN 1871:2000	-	Rc U _p ±0,02
* Contained in glass beads and antiskid aggregates	UNE-EN 12802:2012 Anexo E	-	%

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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.

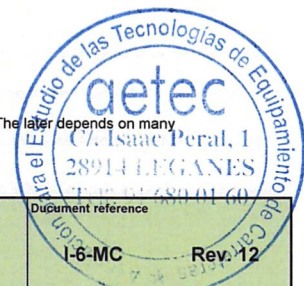
A third key to identify the type of the road marking assembly:

- 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 latter 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	Document reference
Page 2 of 2	5.082	09-12-2020	<i>Francisco J. Guerra</i>	I-6-MC Rev. 12
This report is identical to the original spanish version.			D. Francisco J. Guerra	