

TEST REPORT FOR THE DURABILITY OF ROAD MARKING MATERIALS

TEST REPORT	REF.	3.274
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Delivered to: **PLASTIROUTE GmbH**
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Issue date: **Decembre 02nd, 2014**

A) IDENTIFICATION OF THE TESTED ROAD MARKING SYSTEM

BASE MATERIAL

Trade mark:	PlastiRoute® RollGrip® Braun Red 3011		
Nature:	Red paint		
Dossage:	3.900 g/m ²	Thickness	2250 µm
Producer:	PLASTIROUTE GmbH		
Applied by:	Manually (squeegee and roller)		

DROP ON MATERIALS

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

PREMIX GLASS BEADS

Trade mark:	X
Nature:	X
Dossage g/m ² :	X
Producer:	X

B) TEST RESULTS: initial and retained values and their technical classes, in accordance to UNE-EN 1436:2009+A1:2009

TYPE OF MATERIAL: Red cold plastic for manual application

CHARACTERISTIC OF THE ROAD MARKING: (in accordance to UNEEN 1436:2009+A1:2009) **Not structured**

CLASS OF ROUGHNESS **RG1** Roughness of the test plate on which the assembly has been tested

DURABILITY LEVEL		RELEVANT TECHNICAL CLASSES					
		dry R _L	rain RR	wet RW	β	Qd	SRT
INITIAL	P0	NPD	NPD	NPD	0,079	75	S5
	P4	NPD	NPD	NPD	0,75	87	S5
RETAINED	P5	NPD	NPD	NPD	0,08	71	S5
	P6	NPD	NPD	NPD	0,08	70	S5
	P7	NPD	NPD	NPD	0,078	74	S5
DRYING TIME (Informative)		X					

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: **October 20th, 2014** Date of end of the test: **Novembre 17th, 2014**

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1.- Test conditions

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

Test plates	1	Roughness	RG1	Size	P
Test plates orientation	Parallel to the movement of the loading wheels				
Test conditions during application	t* amb:	x	HR:	x	Material temperature (thermoplastic) °C
Materials applied, % deviation on requested	Film maker material:	x	Glass beads:	x	Antiskid aggregates: x Mixture: x
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 and + 10°C				
Drying cycle	In accordance to UNE-EN 13197:2012+A1:2014				
Deviation:	This kind of road marking (red, orange, black) is not include in the scope of the Standard UNE-EN 1436:2009+A1:2009, however we used test methods and expressed values in performance for classes (when it is possible) according to this standard. The measurement area doesn't complete the minimum required by the Standard UNE-EN 13197:2012+A1:2014 (800 cm ²).				
Periodicity of measurements	0,01; 0,1; 0,2; 0,5; 1,0; 2,0; 3,0 y 4,0 x 10 ⁶				

2.- Pass/fail criteria

PERFORMANCE REQUIREMENTS OF THE ROAD MARKING ASSEMBLY in accordance with UNE-EN 1436:2009+A1:2009			TRAFFIC CLASSES - REQUIRED N° OF ROLL-OVERS in accordance to UNE-EN 13197:2012+A1:2014	
CHARACTERISTIC		TECHNICAL CLASSES AND MINIMUM VALUES	TRAFFIC CLASS	N° roll-overs x 10 ⁶
Night-time visibility under conditions: (mcd·m ⁻² ·lx ⁻¹)	R _L DRY	R2 (100) ¹ - R1 (80) ²	P0	<0,05
	R _L RAIN	RR1 (25)	P1	0,05 (optional)
	R _L WET	RW1 (25)	P2	0,1
Day-time visibility	(x,y)	Inside the relevant polygon	P3	0,2
	β	B2 (0,3) ¹ - B1 (0,2) ²	P4	0,5
	Qd (mcd·m ⁻² ·lx ⁻¹)	Q2 (100) ¹ - Q1 (80) ²	P5	1,0
Skid resistance	SRT	S1 (45)	P6	2,0
			P7	4,0

1) for white colour
2) for yellow colour

3.- TEST RESULTS: initial and retained values and their technical classes

in accordance with UNE-EN 1436:2009+A1:2009

CHARACTERISTIC		value and for each number of wheel passages 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 , mcd·m ⁻² ·lx ⁻¹	dry R _L	NPD	NPD	NPD	NPD	NPD	NPD	NPD	NPD	± 8 %
	rain RR	NPD	NPD	NPD	NPD	NPD	NPD	NPD	NPD	± 7 %
	wet RW	NPD	NPD	NPD	NPD	NPD	NPD	NPD	NPD	± 7 %
Day-time visibility	x	0,474	0,471	0,463	0,464	0,461	0,466	0,461	0,462	± 0,003
	y	0,344	0,346	0,340	0,340	0,342	0,344	0,339	0,341	± 0,003
	β	0,079	0,078	0,082	0,075	0,080	0,080	0,079	0,078	± 0,015
	Qd (mcd·m ⁻² ·lx ⁻¹)	75	72	72	67	71	70	72	74	± 10 %
Skid resistance	SRT	70	70	80	69	75	80	80	70	± 5
	temperature water used in the test (°C)	21	19	19	18	17	15	14	15	± 1,2

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

The intended use is defined by three groups of key words.

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

P For permanent road marking.

T For temporary road marking.

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

R For road markings retroreflective under dry conditions

RW For road markings retroreflective under dry and wet conditions

RR For road markings retroreflective under dry, wet and rain conditions

NR For non retroreflective road markings.

The third key is to identify the type of road marking

I Conventional road marking

II Road marking with special properties to enhance the retro-reflection in wet or rainy conditions

5.- Interpretative note

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

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

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