aetec

Asociación para el Estudio de las Tecnologías de Equipamiento de Carreteras, S.A

Control de calidad de:
- Materiales de señallzación vial horizontal
- Ensayos de durabilidad
- Marcas viales: auscultación en carretera

ilac-MRA ENAC ENSAYOS Nº 877/LE1781

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ROAD MARKING MATERIALS

(Durability against abrasion: EN 13197:2011+A1:2014)

CERTIFICATE OF DURABILITY TEST — REF. 4796/P-RR-II

Client: **METALBAC & FARBE S.A.**
DN 11, Magura, Bacau
ROMANIA Zip Code: 607305

Issue date: **July 26th, 2019**

Digitally signed by Caragheaur Fiodor
Date: 2022.06.21 07:52:16 EEST
Reason: MoldSign Signature
Location: Moldova

1.- TESTED ROAD MARKING SYSTEM

A) INFORMATION PROVIDED BY THE CUSTOMER

MATERIALS IDENTIFICATION, TRADE MARK NAME AND TYPE OF APPLICATION		MANUFACTURER(S)	Thickness (µm)	Dossage (g/m²)
Nature: White 2 components cold plastic Trade mark[1]: **FARBEPLAST FP MR PLAN** Applied by: Extrusion		**METALBAC & FARBE S.A.**	**3.000**	**5.550**
Nature: Glass beads and antiskid aggregates Trade mark[1]: **ECHOSTAR 30 BCP SRT** Applied by: Drop-on		**SOVITEC**		**365**
TYPE OF MATERIAL:	White cold plastic with premix glass beads applied by extrusion and with a mixture of drop-on glass beads and antiskid aggregates.			
CHARACTERISTIC OF THE ROAD MARKING:	(in accordance with EN 1436:2018)	**Not structured**		

1) The characteristics of identification of the material can be obtained from the own manufacturer or in this laboratory with his autorization.

2) The tested material is identified by its **CE Declaration of Conformity** and their accompanying documents.

B) TEST RESULTS: on roughness (in accordance with EN 13197:2011+A1:2014) — RG2

REQUIREMENTS OF THE ROAD MARKING SYSTEM in accordance with EN 1436:2018				DURABILITY expressed in TRAFFIC CLASSES, in accordance with EN 13197:2011+A1:2014				
According to the intended use of the road marking system, not all requirements are necesaries			Expressed in	P0	P4	P5	P6	P7
Night-time visibility	Coefficient of retro reflected luminance R_L	dry	Class (R)	R5	R5	R5	R5	R4
		rain	Class (RR)	RR4	RR4	RR4	RR3	RR3
		wet	Class (RW)	RW6	RW6	RW6	RW5	RW5
Day-time visibility	Luminance coeficient in diffuse illumination Qd		Class (Q)	Q5	Q5	Q5	Q5	Q5
	or luminance factor ß		Class (B)	B5	B5	B5	B5	B5
	Chromatcity coordinates (x - y)		Pass / Not Pass	pass	pass	pass	pass	pass
Skid resistence	SRT units		Class (S)	S3	S2	S2	S1	S1
Type	Type road marking system		Type I / II	II				
NO PICKUP-TIME:	In accordance with EN 13197:2011+A1:2014		Class (T)	N/A				

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

Date of start of the test:	June 10th, 2019	Date of end the test:	July 08th, 2019

2.- TEST CONDITIONS:

in accordance with the specifications given in EN 13197:2011+A1:2014

Test plates:		1	Roughness:	RG2	Size:	G
Conditions during application:	t^a amb:	23ºC	HR:	37%	Material temperature (thermoplastic) ºC:	-
Materials applied, % desviation on requested:	Film maker materia	-7,55	Glass beads:	-	Others materials:	-
	Antiskid aggregates:	-	Mixture:	9,59	Premix:	-
Test Tyres:	NEUMÁTICO COMERCIAL 205/60 R15					
Numer 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 + 5ºC y + 10ºC					
Dryving cycle:	In accordance with EN 13197:2011+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:						

3.- PASS/FAIL CRITERIA:

PERFORMANCE REQUIREMENTS OF THE ROAD MARKING ASSEMBLY in accordance with EN 1436:2018		
CARACTERISTIC		TECHINCAL CLASSES AND MINIMUM VALUES
Night-time visibility under conditions: ($mcd \cdot m^{-2} \cdot lx^{-1}$)	R_L DRY	R2 (100)[1] - R1 (80)[2]
	R_L RAIN	RR1 (25)
	R_L WET	RW1 (25)
Day-time visibility	(x, y)	inside the relevant polygon
	β	B2 (0,3)[1] - B1 (0,2)[2]
	Qd ($mcd \cdot m^{-2} \cdot lx^{-1}$)	Q2 (100)[1] - Q1 (80)[2]
Skid resistance	SRT	S1 (45)

1) For white colour.
2) For yellow colour.

TRAFFIC CLASSES AND REQUIRED Nº OF ROLL-OVERS in accordance with EN 13197:2011+A1:2014	
TRAFFIC CLASS	Nº ROLL-OVERS x 10^6
P0	<0,05
P1	0,05 (optional)
P2	0,1
P3	0,2
P4	0,5
P5	1,0
P6	2,0
P7	4,0

4.- TEST RESULTS: initial and retained values and their techical classes

in accordance with EN 1436:2018

CARACTERISTIC		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 ($mcd \cdot m^{-2} \cdot lx^{-1}$)	666	671	667	553	452	374	310	291	± 7 %
	rain ($mcd \cdot m^{-2} \cdot lx^{-1}$)	83	136	72	80	78	50	50	50	± 7 %
	wet ($mcd \cdot m^{-2} \cdot lx^{-1}$)	217	279	203	180	158	122	133	118	± 7 %
Day-time visibility	x	0,326	0,326	0,326	0,327	0,327	0,328	0,329	0,330	± 0,003
	y	0,342	0,343	0,342	0,344	0,345	0,346	0,346	0,348	± 0,008
	β	0,759	0,757	0,753	0,760	0,750	0,749	0,736	0,748	± 0,016
	Qd ($mcd \cdot m^{-2} \cdot lx^{-1}$)	257	247	246	242	240	245	240	239	± 8 %
Skid resistance	SRT coor.	55	55	52	53	50	45	45	45	± 5
	Temperature slider (ºC)	18	19	19	20	20	22	22	21	± 3,4

5.- KEY WORDS FOR IDENTIFICATION OF ROAD MARKING ASSEMBLY:

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 retrorreflective properties of the road marking assembly:

- **R** For a road marking assembly retrorreflective under dry conditions.
- **RW** For a road marking assembly retrorreflective under dry and wet conditions.
- **RR** For a road marking assembly retrorreflective under dry, wet and rain conditions.
- **NR** For a road marking assembly not retrorreflective.

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.

6.- 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.

CERTIFICATE OF DURABILITY TEST	Ref.	Issue date	Laboratory Manager	Document reference
This certificate is identical to the original spanish version.	4796/P-RR-II	July 26th, 2019	D. Francisco J. Guerra	I-7-MC (E) Rev.12