

aetec

Asociación para el Estudio de las Tecnologías de Equipamiento de Carreteras, S.A
(Association for the development of technologies for road equipment, S.A)

Quality control of road marking materials. Durability test.
Road markings: Evaluation of the performance in use.

C/ Isaac Peral, n°1 (nave 4). E-28914 Leganés (Madrid) - Spain - Tel. +34 916 800 160 - Fax. + 34 916 886 001 - aetec@aetec.es

ROAD MARKING MATERIALS

(Durability against abrasion: EN 13197: 2009)

DURABILITY CERTIFICATE

Nº

2318/P-RW-II

Delivered to:

MEGACHIM AD
123 Lipnik blvd.
7013 RUSE - Bulgaria

Issue date:

February 28th, 2011

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

The CERTIFIED TEST RESULTS (type, intended use, durability level and technical classes) are only valid when the same materials (same trade marks and dossages) are applied as a system (**CERTIFIED ROAD MARKING SYSTEM**).

A) IDENTIFICATION OF THE CERTIFIED ROAD MARKING SYSTEM

MATERIALS IDENTIFICATION		PRODUCER(S)	Thickness µm	Dosage g/m ²
Nature:	White alkyd paint	MEGACHIM AD	500	800
Trade mark ¹ :	XPERT ACRYLC ROAD			
Applied by:	Spray			
Nature:	Glass beads	SWARCO		450
Trade mark ² :	150-850H			
Applied by:	Drop-on			

- 1) The sample of the tested material complies with the relevant requirements specified in prEN 1871: 2010. The resulting classes and the identification parameters can be supplied by the manufacturer or by this Laboratory with authorization of the manufacturer.
- 2) The tested material is identified by means of its CE Declaration of Conformity and their accompanying documents.

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

TYPE OF MATERIAL: (general class in accordance to its nature and the application instructions)							
White alkyd paint without premix glaas beads applied by spray and with drop-on glass beads.							
INTENDED USE	P-RW	ROUGHNESS	RG2	TYPE		II	
DURABILITY LEVEL		RELEVANT TECHNICAL CLASSES					
		dry R _L	rain RR	wet RW	β	Qd	SRT
INITIAL	P0	R5	NPD	RW2	B5	Q5	S1
RETAINED	P4	R5	NPD	RW2	B5	Q5	S1
	P5	R5	NPD	RW2	B5	Q5	S1
	P6	R4	NPD	RW2	B5	Q5	S1
	P7	R4	NPD	RW1	B4	Q5	S1
DRYING TIME (informative)		< 45					

Date of commencement of the test: **January 24th, 2011** Date of end of the test: **February 21th, 2011**

aetec	REF.	Issue date	Technical Director	Document reference
DURABILITY CERTIFICATE	2318/P-RW-II	February 28th, 2011		
This certificate is identical to the original spanish version.				
This CERTIFICATE cannot be partially reproduced without permission of AETEC S.A. The details of the test are given in an informative annex to this certificate				



aetec	INFORMATIVE ANNEX TO THE DURABILITY CERTIFICATE	MEGACHIM AD	Issue date	REF. 2318/P-RW-II
			February 28th, 2011	

1.- Test conditions

in accordance with the specifications given in EN 13197: 2009

Test plates	1	Roughness	RG2	Size	G
Test plates orientation	Parallel to the movement of the loading wheels				
Test conditions during application	T _{amb} : 15°C	HR: 48%	Material temperature (thermoplastic) °C		
Materials applied, % deviation on requested	Film maker material: 9,1%	Glass beads: 0,00	Antiskid aggregates:	x	Mixture: x
Test Tyres	Pirelli CINTURATO P6 205/60 R15 91V				
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 prEN 13197: 2009				
Periodicity of measurements	0,01; 0,05 (optional); 0,1; 0,2; 0,5; 1,0; 2,0; 3,0 y 4,0 x 10 ⁶				

2.- Pass/fail criteria

in accordance with the minimum values and classes specified for the different characteristics in EN 1436: 2009+A1

PERFORMANCE REQUIREMENTS (EN 1436: 2009+A1)			DURABILITY LEVEL - REQUIRED N° OF ROLL-OVERS AND INTENDED USE		
CHARACTERISTIC		CLASSES and THRESHOLD VALUES in accordance with EN 1436: 2009	LEVEL	roll-over x 10 ⁶	INTENDED USE
Night-time visibility under ... conditions: R _L , mcd·m ⁻² ·lx ⁻¹	DRY	R2 (100) ¹ - R1 (80) ²	P0	<0,05	
	RAIN	RR1 (25)	P1	0,05	Not qualified road marking
	WET	RW1 (25)	P2	0,1	Temporary road marking
Day-time visibility	(x,y)	inside the relevant polygon	P3	0,2	Temporary road marking
	β	B2 (0,3) ¹ - B1 (0,2) ²	P4	0,5	Permanent road marking
	Qd	Q2 (100) ¹ - Q1 (80) ²	P5	1,0	Permanent road marking
Skid resistance	SRT	S1 (45)	P6	2,0	Permanent road marking
Erosion: % retained	%	not required ³	P7	4,0	Permanent road marking
1) for white colour			2) for yellow colour		
3) On wear simulator test, some minimum value can be specified for this characteristic.					

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

in accordance with EN 1436: 2009+A1

CHARACTERISTIC		value and technical class 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	476	R5	384	R5	356	R5	302	R5	321	R5	285	R4	240	R4	235	R4	
	rain RR	NPD	NPD	NPD	NPD	NPD	NPD	NPD	NPD	NPD	NPD	NPD	NPD	NPD	NPD	NPD	NPD	
	wet RW	46	RW2	37	RW2	38	RW2	40	RW2	44	RW2	36	RW2	35	RW2	28	RW1	
Day-time visibility	x	0,330		0,330		0,330		0,330		0,331		0,331		0,330		0,331		± 0,001
	y	0,350		0,350		0,349		0,350		0,350		0,350		0,350		0,350		± 0,003
	β	0,68	B5	0,67	B5	0,64	B5	0,63	B5	0,63	B5	0,60	B5	0,58	B4	0,58	B4	± 0,002
Skid resistance	Qd	247	Q5	255	Q5	242	Q5	234	Q5	240	Q5	219	Q5	213	Q5	208	Q5	
Skid resistance	SRT	43	S1	44	S1	43	S1	44	S1	44	S1	44	S1	42	S1	45	S1	
Erosion - % retained	%	100	*	99	*	90	*	90	*	90	*	85	*	85	*	85	*	

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 retroreflection in wet or rainy conditions

The level of durability is given by one of the traffic classes described in Table 4 of EN 13197: 2009 and it is determined by the number of roll-overs necessary until a value of any required characteristic goes under its relevant threshold value specified in EN 1436: 2009+A1 (see also clause 2 above: pass/fail criteria).

Each level of durability is also defined by their relevant technical classes (EN 1436: 2009+A1).

NPD Means Not Performance Determined for the characteristic.

FAIL Means that the value obtained for this characteristic does not comply with the minimum required in EN 1436: 2009+A1.

5.-

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 working life 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	Technical Director
INFORMATIVE ANNEX TO THE DURABILITY CERTIFICATE	2318/P-RW-II	February 28th, 2011	
This certificate is identical to the original spanish version			D. David Calvo

