



**INSTITUTO DE CIENCIAS
DE LA CONSTRUCCIÓN
EDUARDO TORROJA**

C/ Serrano Galvache, 4. 28033 Madrid (Spain)
Tel.: (+34) 91 302 0440 www.ietcc.csic.es
gestiondit@ietcc.csic.es dit.ietcc.csic.es



European Technical Assessment

ETA 07/0229 of 13/10/2020

English translation prepared by IETcc. Original version in Spanish language

General Part

Technical Assessment Body issuing the Evaluación Técnica Europea:
Instituto de Ciencias de la Construcción Eduardo Torroja (IETcc)

Trade name of the construction product

RAISELINE (TP-505)

White thermoplastic with premix glass beads requiring drop-on materials to be used on trafficked areas.

Product family to which the construction product belongs

ROAD MARKING PRODUCTS

Manufacturer

MARCAS VIALES, S.A.
Vega del Tajo, s/n
Polígono Industrial n.º 1 de Quer
19209 Quer, Guadalajara, SPAIN
www.marcasviales-sa.es

Manufacturing plant(s)

MARCAS VIALES, S.A.
Vega del Tajo, s/n
Polígono Industrial n.º 1 de Quer
19209 Quer, Guadalajara, SPAIN

This European Technical Assessment contains

8 pages

This European Technical Assessment is issued in accordance with Regulation (EU) No 305/2011, on the basis of

EAD 230011-00-0106
ROAD MARKING PRODUCTS

This version replaces

ETA 07/0229 of 09/01/2018

Translations of this European Technical Assessment in other languages shall fully correspond to the original issued document and should be identified as such.

Communication of this European Technical Assessment, including transmission by electronic means, shall be in full (excepted the confidential Annex(es) referred to above). However, partial reproduction may be made, with the written consent of the issuing Technical Assessment Body. Any partial reproduction has to be identified as such.

SPECIFIC PARTS

1. Technical description of the product

RAISELINE (TP-505) is a road marking thermoplastic (as defined in EN 1871) used as a surface coating material for signalisation purposes when it is applied on the road requiring dropped-on materials. The thermoplastic is put on the market with indications on types and proportions of dropped-on materials.

Trademark: **RAISELINE (TP-505)**
Nature: Thermoplastic
Colour: White
Producer: MARCAS VIALES, S.A.

Physical and chemical characteristics: See Table 1.1.

CHARACTERISTICS	DECLARED VALUE
Luminance factor	$\beta = 0.81$
Chromaticity co-ordinates	Inside white polygon
Ageing UV-B	$\Delta\beta \leq 0.05$
Heat stability	$\Delta\beta \leq 0.1$
Softening point	$\geq 95 \text{ °C}$ and $< 110 \text{ °C}$

The product has to be considered as the basis of a family. It may be used in different combinations (proportions) and /or Installation instructions in order to reach different intended uses. Each of these combinations is identified as a System of the same family.

Identification of the Systems

This ETA concerns:

RAISELINE (TP-505) – System 1 defined by the installation instructions given in Table 1.2 together with the Certificate of Constancy of Performance of the drop-on materials.

Identification material and type of application		Dosage(s)
Surface coating material	Trademark: RAISELINE (TP-505) Hot-applied thermoplastic with premix glass beads, forming a continuous film and profiles (4 mm height and 50 mm length separated 200 mm gap between profiles) with drop-on material.	5 000 g/m ²
Drop-on materials	Trademark: glass-beads ECHOSTAR 20 TRM Certificate of Constancy of Performance: 0099/CPR/A72/0001	500 g/m ²

RAISELINE (TP-505) – System 2 defined by the installation instructions given in Table 1.3 together with the Certificate of Constancy of Performance of the drop-on materials.

Table 1.3: Installation instructions of the RAISELINE (TP-505) – System 2		
Identification material and type of application		Dosage(s)
Surface coating material	Trademark: RAISELINE (TP-505) Thermoplastic with premix glass beads, applied by spray with drop-on material	3 000 g/m ²
Drop-on materials	Trademark: glass-beads ECHOSTAR 5 Certificate of Constancy of Performance: 0099/CPR/A72/0001	500 g/m ²

RAISELINE (TP-505) – System 3 defined by the installation instructions given in Table 1.4 together with the Certificate of Constancy of Performance of the drop-on materials.

Table 1.4: Installation instructions of the RAISELINE (TP-505) – System 3		
Identification material and type of application		Dosage(s)
Surface coating material	Trademark: RAISELINE (TP-505) Thermoplastic with premix glass beads, applied by extrusion, forming a continuous film and profiles (4 mm height and 50 mm length separated 200 mm gap between profiles) with drop-on material.	4 600 g/m ²
Drop-on materials	Trademark: glass-beads ECHOSTAR 10 Certificate of Constancy of Performance: 0099/CPR/A72/0001	500 g/m ²

NOTE: Other combination(s) than Systems 1, 2 and 3 must be assessed and it (they) can give rise to an addendum to this ETA.

2. Specification of the intended use in accordance with the applicable EAD.

2.1 RAISELINE (TP-505), different systems

2.1.1 RAISELINE (TP-505) – Systems 1 and 3

- It is intended to be used for white permanent road markings in trafficked areas without presence of traffic with studded tyres.
- It is designed to give to the resulting road marking satisfactory day and night visibility on dry, wet and rainy conditions at initial and after 4 million roll-overs.
- This road marking provides, when rolled-over, acoustic and mechanical effects.
- The substrates on which it has provided satisfactory performances are bituminous asphalt with a maximum roughness of 0.9 mm (texture depth in accordance with EN 13036-1).
- It is intended to be used (not applied) at a temperature range from -20 °C to +50 °C for outside uses and from +5 °C to +50 °C for indoor uses. In addition, where relevant, the product has provided satisfactory performance for UV ageing.

2.1.2 RAISELINE (TP-505) – System 2

- It is intended to be used for white permanent road markings in trafficked areas without presence of traffic with studded tyres.

- It is designed to give to the resulting road marking satisfactory day and night visibility (on dry conditions) and skid resistance properties at initial and after 4 million roll-overs.
- The substrates on which it has provided satisfactory performances are bituminous asphalt with a maximum roughness of 0.9 mm (texture depth in accordance with EN 13036-1).
- It is intended to be used (not applied) at a temperature range from -20 °C to +50 °C for outside uses and from +5 °C to +50 °C for indoor uses. In addition, where relevant, the product has provided satisfactory performance for UV ageing.

2.2 Relevant general conditions for the use of the kits

The provisions made in this European Technical Assessment are based on an assumed working life of 1 year as minimum, according to EAD 230011-00-0106, provided that the conditions lay down for the installation, packaging, transport and storage as well as appropriate use, maintenance and repair are met. The indications given on the working life cannot be interpreted as a guarantee given by the producer, but are to be regarded only as a means for choosing the right product in relation to the expected economically reasonable working life of the works.

Installation should be carried out according to the ETA holder's specifications and using the specific application instructions of the product manufactured by the ETA holder or by suppliers recognized by the ETA holder. Installation should be carried out by appropriately qualified staff and under the supervision of the technical responsible of the site.

3. Performance of the product and references to the methods used for its assessment

3.1. Essential characteristics of the product

The identification tests and the assessment for the intended use of this road marking product according to the Basic Work Requirements (BWR) were carried out in compliance with the EAD 230011-00-0106 Road marking products.

The characteristics of each system shall correspond to the respective values laid down in Tables 2.1, 2.2 and 2.3 of this ETA, checked by IETcc.

Methods of verification and of assessing and judging are listed afterwards.

3.1.1. Mechanical resistance and stability (BWR 1)

Not relevant.

3.1.2 Safety in case of fire (BWR 2)

Not relevant.

3.1.3 Hygiene, Health and environment (BWR 3)

Not relevant.

3.1.4 Safety in use: (BWR 4)

For testing durability the manufacturer may choose either:

- method A: Road trial with an option according to EN 1824 (expressed as roll-over number) or

- method B: Wear simulator according to EN 13197 (expressed as traffic number).

For this ETA, the manufacturer has chosen for testing durability the method B “Wear simulator”. The option No Performance Assessed for method A “Road Trials” is used.

Table 2.1: Results for RAISELINE (TP-505) – System 1									
Basic Works Requirement: Safety in use									
Durability			Night and day visibility and skid resistance for each durability level						
Test method used	Number of roll-over x 10 ⁶		Night-time visibility			Day-time visibility			Skid resistance
			R _L in mcd·m ⁻² ·lx ⁻¹ under conditions of			β luminance factor	Qd in mcd·m ⁻² ·lx ⁻¹	Chromaticity Co-ordinates CIE (x, y)	SRT units
			dry	wetness	rain				
Method B wear simulator EN 13197	Initial	0.01	265	217	172	0.67	289	always Inside white polygon (EN 1436)	NOT APPLICABLE Structured road marking as defined in EN 1436:2018 clause 4.5
	Retained	0.1	174	107	88	0.66	292		
		0.2	212	140	94	0.65	279		
		0.5	244	123	87	0.65	271		
		1.0	211	110	84	0.63	253		
		2.0	245	111	93	0.65	276		
		4.0	194	102	87	0.56	242		
	General aspects in relation to the intended use								
Retroreflection			Alkali resistance			Bleeding resistance		Test plates roughness	
Type II - structured			NPA			Not applicable		0.8 mm	
Indentation			Colour			Softening point		ageing UV	
NPA			White			109 °C		Δβ = 0.04	

Table 2.2: Results for RAISELINE (TP-505) – System 2									
Basic Works Requirement: Safety in use									
Durability			Night and day visibility and skid resistance for each durability level						
Test method used	Number of roll-over x 10 ⁶		Night-time visibility			Day-time visibility			Skid resistance
			R _L in mcd·m ⁻² ·lx ⁻¹ under conditions of			β luminance factor	Qd in mcd·m ⁻² ·lx ⁻¹	Chromaticity Co-ordinates CIE (x, y)	SRT units
			dry	wetness	rain				
Method B wear simulator EN 13197	Initial	0.01	359	NPA	NPA	0.67	267	always Inside white polygon (EN 1436)	54
	Retained	0.1	382	NPA	NPA	0.65	256		48
		0.2	355	NPA	NPA	0.64	251		49
		0.5	359	NPA	NPA	0.64	242		47
		1.0	359	NPA	NPA	0.65	246		46
		2.0	322	NPA	NPA	0.63	241		45
		4.0	295	NPA	NPA	0.63	245		45
	General aspects in relation to the intended use								
Retroreflection			Alkali resistance			Bleeding resistance		Test plates roughness	
Type I			NPA			Not applicable		0.8 mm	
Indentation			Colour			Softening point		ageing UV	
NPA			White			109 °C		Δβ = 0.04	

Table 2.3: Results for RAISELINE (TP-505) – System 3									
Basic Works Requirement: Safety in use									
Durability			Night and day visibility and skid resistance for each durability level						
Test method used	Number of roll-over x 10 ⁶		Night-time visibility			Day-time visibility			Skid resistance
			R _L in mcd·m ⁻² ·lx ⁻¹ under conditions of			β luminance factor	Q _d in mcd·m ⁻² ·lx ⁻¹	Chromaticity Co-ordinates CIE (x, y)	SRT units
			dry	wetness	rain				
Method B wear simulator EN 13197	Initial	0.01	220	78	51	0.72	307	always inside white polygon (EN 1436)	NOT APPLICABLE Structured road marking as defined in EN 1436:2018 clause 4.5
	Retained	0.1	152	75	50	0.74	293		
		0.2	169	68	47	0.73	297		
		0.5	188	79	48	0.74	302		
		1.0	190	77	46	0.75	303		
		2.0	206	82	46	0.74	277		
		4.0	210	78	45	0.74	303		
General aspects in relation to the intended use									
Retroreflection		Alkali resistance			Bleeding resistance		Test plates roughness		
Type II - structured		NPA			Not applicable		0.8 mm		
Indentation		Colour			Softening point		ageing UV		
NPA		White			109 °C		Δβ = 0.04		

3.1.5 Protection against noise (BWR 5)

Not relevant.

3.1.6 Energy economy and heat retention (BWR 6)

Not relevant.

3.1.7 Sustainable use of natural resources (BWR 7)

Not relevant.

3.2 Methods of verification

The assessment for the intended use was carried out according to the Basic Work Requirements (BWR). The characteristics of the System shall correspond to the respective values laid down in Tables 2.1, 2.2 and 2.3 of this ETA, checked by IETcc.

3.2.1 Retroreflectivity in dry conditions (R_L): as coefficient of retroreflected luminance R_L (or retroreflectivity), according to the applicable part of EN 1436.

3.2.2 Retroreflectivity in conditions of wetness (R_L): as coefficient of retroreflected luminance R_L (or retroreflectivity), according to the applicable part of EN 1436.

3.2.3 Retroreflectivity in conditions of rain (R_L): as coefficient of retroreflected luminance R_L (or retroreflectivity), according to the applicable part of EN 1436.

- 3.2.4 **Chromaticity co-ordinates (x, y):** as chromaticity co-ordinates CIE (x, y), according to the applicable part of EN 1436.
- 3.2.5 **Luminance Factor (β):** according to the applicable part of EN 1436.
- 3.2.6 **Luminance coefficient under diffuse illumination (Qd):** according to the applicable part of EN 1436.
- 3.2.7 **Skid resistance (SRT):** according to the applicable part of EN 1436.
- 3.2.8 **Durability:** for this ETA, the manufacturer has chosen for testing durability the method B “Wear simulator” according to the specifications given in EN 13197. Test plates roughness: measured according to EN 13036-1 and the results expressed as the texture depth
- 3.2.9 **Bleed resistance (only for paints):** Not applicable.
- 3.2.10 **Alkali resistance:** No Performance Assessed.
- 3.2.11 **Indentation (only for thermoplastics):** No Performance Assessed.
- 3.2.12 **Softening point (only for thermoplastics):** according to the applicable part of EN 1871.
- 3.2.13 **UVB ageing:** according to the applicable part of EN 1871.

4 Assessment and verification of constancy of performance (hereinafter AVCP) system applied, with reference to its legal base

4.1 System of assessment and verification of constancy of performance

According to the Decision 1996/0579/EC of the European Commission¹, System 1 of assessment and verification of constancy of performance (see EC delegated regulation (EU) No 568/2014 amending Annex V to Regulation (EU) N° 305/2011) applies.

¹ Published in the Official Journal of the European Union (OJEU) L254 of 8.10.1996, p0052 -0055.
See www.new.eur-lex.europa.eu/oj/direct-access.html

5. Technical details necessary for the implementation of the AVCP system, as provided for in the applicable EAD

Technical details necessary for the implementation of the AVCP system are laid down in the control plan which is deposited at IETcc².

For type testing the results of the tests performed as part of the assessment for the European Technical Assessment shall be used unless there are changes in the production line or plant. In such cases, the necessary type testing has to be agreed between the ETE holder and the notified body.

Issued in Madrid on 2020 October 13

By



Director

on behalf of Instituto de Ciencias de la Construcción Eduardo Torroja (IETcc – CSIC)

² The Control Plan is a confidential part of the ETA and only handed over to the notified certification body involved in the assessment and verification of constancy of performance.