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INSTITUTO DE CIENCIAS DE LA CONSTRUCCIÓN EDUARDO TORROJA

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European Technical Assessment

ETA 23/0130
of 03/05/2023

English translation prepared by IETcc. Original version in Spanish language

General Part

Technical Assessment Body issuing the ETA:	Instituto de Ciencias de la Construcción Eduardo Torroja (IETcc)
Trade name of the construction product:	**T-PLASTIC MOJAVE** White thermoplastic with premix glass beads, applied by screed box or extrusion, with drop-on material.
Product family to which the construction product belongs	ROAD MARKING PRODUCT
Manufacturer:	TPAINT B.V. Hurksestraat 64 5652 AL Eindhoven, Netherlands
Manufacturing plant(s):	New Works Road, Low Moor, Bradford, BD12 0RU, UK
This European Technical Assessment contains	9 pages
This European Technical Assessment is issued in accordance with regulation (EU) No 305/2011, on the basis of	European Assessment Document (EAD) 230011-00-0106 ROAD MARKING PRODUCTS

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

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SPECIFIC PARTS

1. Technical description of the product

T-Plastic Mojave 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: **T-Plastic Mojave**
Nature: Hot applied (screed box or extrusion) thermoplastic
Colour: White
Producer: Tpaint B.V.

Physical and chemical characteristics: see Table 1.1.

Table 1.1: Characteristics in accordance with EN 1871	
CHARACTERISTICS	DECLARED VALUE
Luminance factor	ß ≥ 0.80
Chromaticity co-ordinates	Inside white polygon
Ageing UV	Δß ≤ 0.05
Heat stability (Δβ)	Δß ≤ 0.1
Softening point	≥ 95 ºC

The product must be considered as the basis of a family. It may be used in different combinations (proportions) 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:

T-Plastic Mojave – System 1 defined by the installation instructions given in Table 1.2 (3 mm thickness of surface coating material layer), together with the Certificate of Constancy of Performance of the drop-on materials.

Table 1.2: Installation instructions of the **T-Plastic Mojave – System 1**		
Identification material and type of application		Dosage(s)
Surface coating material	Trademark: **T-PLASTIC MOJAVE** White thermoplastic with premix glass beads, applied by screed box or extrusion with drop-on material	6 000 g/m^2
Drop-on materials	Trademark: **75 %** glass-beads **710-125 (3) Echostar 5** **25 %** mixture antiskid agg./glass beads **Sili 12** [ECHOSTAR 5 TRM SRT – **DoP 67**] Certificate of Constancy of Performance**: 1137-CPR-0471/81**	350 g/m^2

T-Plastic Mojave – System 2 defined by the installation instructions given in Table 1.3 (2 mm thickness of surface coating material layer), together with the Certificate of Constancy of Performance of the drop-on materials.

Table 1.3: Installation instructions of the **T-Plastic Mojave – System 2**		
Identification material and type of application		Dosage(s)
Surface coating material	Trademark: **T-PLASTIC MOJAVE** White thermoplastic with premix glass beads, applied by screed box or extrusion with drop-on material	4 000 g/m^2
Drop-on materials	Trademark: **75 %** glass-beads **710-125 (3) Echostar 5** **25 %** mixture antiskid agg./glass beads **Sili 12** [ECHOSTAR 5 TRM SRT – **DoP 67**] Certificate of Constancy of Performance**: 1137-CPR-0471/81**	350 g/m^2

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

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

2.1 T-Plastic Mojave – Systems 1 and 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 2 million roll-overs.
- The substrate on which the RPM has provided satisfactory performances, in accordance with EN 1871, is bituminous asphalt.
- The maximum roughness of the test plate on which the RMP has been assessed for durability performance, in accordance with EN 13197, is 0.9 mm (roughness measured as 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 and 2.2 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 and accessibility 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 **T-Plastic Mojave - 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	**323**	**NPA**	**NPA**	**0.73**	**250**	always Inside white polygon (EN 1436)	**70**
	Retained	0.1	**255**	**NPA**	**NPA**	**0.74**	**244**		**67**
		0.2	**256**	**NPA**	**NPA**	**0.73**	**241**		**69**
		0.5	**265**	**NPA**	**NPA**	**0.75**	**240**		**67**
		1.0	**269**	**NPA**	**NPA**	**0.74**	**230**		**68**
		2.0	**205**	**NPA**	**NPA**	**0.55**	**171**		**71**
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**			**97.8 ºC**		**Δβ = 0.01**	

Table 2.2: Results for **T-Plastic Mojave - 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	**315**	**NPA**	**NPA**	**0.74**	**251**	always Inside white polygon (EN 1436)	**67**
	Retained	0.1	**325**	**NPA**	**NPA**	**0.74**	**240**		**66**
		0.2	**320**	**NPA**	**NPA**	**0.73**	**235**		**67**
		0.5	**247**	**NPA**	**NPA**	**0.66**	**196**		**66**
		1.0	**202**	**NPA**	**NPA**	**0.54**	**185**		**63**
		2.0	**102**	**NPA**	**NPA**	**0.49**	**132**		**63**
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**			**97.8 ºC**		**Δβ = 0.01**	

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 components shall correspond to the respective values laid down in Tables 2.1 and 2.2 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)

No Performance Assessed.

3.2.3 Retroreflectivity in conditions of rain (R_L)

No Performance Assessed.

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 UV 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 96/579/EC of the European Commission[1], system 1 of assessment and verification of constancy of performance (see EC delegated regulation (EU) N.º 568/2014 amending Annex V to Regulation (EU) N.º 305/2011) applies.

[1] Published in the Official Journal of the European Union (OJEU) L254 of 8.10.1996, p0052 -0055.

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 IETcc[2].

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 IETcc and the notified body.

Issued in Madrid on 2023 May 03

By

Ángel Castillo Talavera

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

See www.new.eur-lex.europa.eu/oj/direct-access.html
[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.