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European Technical Assessment

ETA 17/0143 of 17/01/2018

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:	**BELLATRIX SPRAY AB** Cold plastic without premix glass beads requiring drop-on materials to be used on trafficked areas
Product family to which the construction product belongs	ROAD MARKING PRODUCT
Manufacturer:	CANDELA – Produtos Sinalização Rodoviária Zona Industrial de Oiã 3770-068 Oiã – Aveiro PORTUGAL
Manufacturing plant(s):	CANDELA – Produtos Sinalização Rodoviária Zona Industrial de Oiã. Lote C31 3770-068 Oiã – Aveiro PORTUGAL
This European Technical Assessment contains	7 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, edition February 2017

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SPECIFIC PARTS

1. Technical description of the product

BELLATRIX SPRAY AB is a cold plastic (as defined in EN 1871) used as a surface coating material for signalisation purposes when it is applied on the road, requiring drop-on materials.

Trademark: BELLATRIX SPRAY AB
Nature: Cold plastic, applied by spray
Colour: White
Producer: CANDELA – Produtos Sinalização Rodoviária

Physical and chemical characteristics: see Table 1.1.

Table 1.1: Characteristics in accordance with EN 1871	
CHARACTERISTICS	DECLARED VALUE
Luminance factor, ß	**0.88**
Chromaticity co-ordinates (x, y)	**Inside white polygon**
Storage stability	**≥ 3**
Ageing UV-B	**Δß ≤ 0.05**
Alkali resistance	**No deterioration of the surface**

The product has to 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 the **BELLATRIX SPRAY AB – System 1** defined by the installation instructions given in Table 1.2, together with the Certificate of Constancy of Performance number of the drop-on materials.

Table 1.2: Installation instructions of **BELLATRIX SPRAY AB – System 1**		
Identification of materials and type of application		Dosage(s)
Surface coating material	Trademark: **BELLATRIX SPRAY AB** Cold plastic without premix glass beads, applied by spray without drop-on materials	1 000 g/m^2
Drop-on materials	Trademark: glass-beads **ECHOSTAR 20 BCP** Certificate of Constancy of Performance**: 0099/CPR/A72/0001**	500 g/m^2

NOTE: Other combination(s) than System 1 must be assessed and it can give rise to an addendum to this ETA

2. Specification of the intended use in accordance with the applicable European Assessment Document (hereinafter EAD).

2.1 BELLATRIX SPRAY AB – System 1

- 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 and skid resistance properties at initial and after 4 million roll-overs.
- The substrates on which it has provided satisfactory performances are bituminous asphalt and cement concrete 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 -40 °C to +70 °C for outside uses and from +5 °C to +70 °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 BELLATRIX SPRAY AB – System 1 shall correspond to the respective values laid down in Table 2.1 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>
<tr><td colspan="11">Table 2.1: Results for BELLATRIX SPRAY AB – System 1</td></tr>
<tr><td colspan="11">Basic Works Requirement: Safety in use</td></tr>
<tr><td colspan="3">Durability</td><td colspan="8">Night and day visibility and skid resistance for each durability level</td></tr>
<tr><td rowspan="2">Test method used</td><td colspan="2" rowspan="2">Number of roll-over x 10^6</td><td colspan="3">Night-time visibility</td><td colspan="3">Day-time visibility</td><td>Skid resistance</td></tr>
<tr><td colspan="3">R_L in mcd·m^{-2}·lx^{-1} under conditions of</td><td>β luminance factor</td><td>Qd in mcd·m^{-2}·lx^{-1}</td><td>Chromaticity Co-ordinates CIE (x, y)</td><td>SRT units</td></tr>
<tr><td rowspan="8">Method B wear simulator

EN 13197</td><td>Initial</td><td>0.01</td><td>510</td><td>142</td><td>74</td><td>0.71</td><td>260</td><td rowspan="7">always Inside white polygon (EN 1436)</td><td>54</td></tr>
<tr><td rowspan="7">Retained</td><td>0.1</td><td>505</td><td>158</td><td>60</td><td>0.71</td><td>250</td><td>53</td></tr>
<tr><td>0.2</td><td>492</td><td>123</td><td>56</td><td>0.70</td><td>256</td><td>53</td></tr>
<tr><td>0.5</td><td>429</td><td>119</td><td>47</td><td>0.70</td><td>256</td><td>53</td></tr>
<tr><td>1.0</td><td>373</td><td>96</td><td>44</td><td>0.70</td><td>252</td><td>53</td></tr>
<tr><td>2.0</td><td>320</td><td>92</td><td>37</td><td>0.69</td><td>246</td><td>53</td></tr>
<tr><td>4.0</td><td>289</td><td>65</td><td>31</td><td>0.67</td><td>259</td><td>50</td></tr>
<tr><td colspan="11">General aspects in relation to the intended use</td></tr>
<tr><td colspan="3">Retroreflection</td><td colspan="3">Alkali resistance</td><td colspan="3">Bleeding resistance</td><td colspan="2">Test plates roughness</td></tr>
<tr><td colspan="3">Type II</td><td colspan="3">PASS</td><td colspan="3">Not applicable</td><td colspan="2">0.8 mm</td></tr>
<tr><td colspan="3">Indentation</td><td colspan="3">Colour</td><td colspan="3">Softening point</td><td colspan="2">ageing UV</td></tr>
<tr><td colspan="3">Not applicable</td><td colspan="3">White</td><td colspan="3">Not applicable</td><td colspan="2">Δβ < 0.05</td></tr>
</table>

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 Table 2.1, checked by IETcc.

3.2.1 **Retroreflectivity in dry conditions (R_L):** coefficient of retroreflected luminance RL (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 RL (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 RL (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:** according to the applicable part of EN 1871 and the result expressed as pass/fail.

3.2.11 **Indentation (only for thermoplastics):** Not applicable.

3.2.12 **Softening point (only for thermoplastics):** Not applicable.

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 96/579/EC of the European Commission[1], system 1 of assessment and verification of constancy of performance (see EC delegated regulation (EU) No 568/2014 amending Annex V to Regulation (EU) Nº 305/2011) applies.

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.

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On behalf of Instituto de Ciencias de la Construcción Eduardo Torroja

Madrid, 17th January 2017

Marta Mª Castellote
Director

[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
[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.