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DE LA CONSTRUCCIÓN  
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## European Technical Assessment

## ETA 17/0142 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 URBAN**  
**Cold plastic without premix glass beads not 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

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

**BELLATRIX URBAN** 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, not requiring drop-on materials.

Trademark: BELLATRIX URBAN  
Nature: Cold plastic  
Colour: White  
Producer: CANDELA – Produtos Sinalização Rodoviária

Physical and chemical characteristics: see Table 1.1.

CHARACTERISTICS	DECLARED VALUE
Luminance factor, $\beta$	<b>0.82</b>
Chromaticity co-ordinates (x, y)	<b>Inside white polygon</b>
Storage stability	<b><math>\geq 3</math></b>
Ageing UV-B	<b><math>\Delta\beta \leq 0.05</math></b>
Alkali resistance	<b>No deterioration of the surface</b>

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 URBAN – 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.

Identification of materials and type of application		Dosage(s)
Surface coating material	Trademark: <b>BELLATRIX URBAN</b> Cold plastic without premix glass beads, applied by screed without drop-on materials	2 500 g/m <sup>2</sup>

*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 URBAN – 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 visibility 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 URBAN – 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 2.1: Results for <b>BELLATRIX URBAN – System 1</b>									
<b>Basic Works Requirement: Safety in use</b>									
<b>Durability</b>			<b>Night and day visibility and skid resistance for each durability level</b>						
Test method used	Number of roll-over $\times 10^6$		Night-time visibility			Day-time visibility			Skid resistance
			R <sub>L</sub> in $\text{mcd}\cdot\text{m}^{-2}\cdot\text{lx}^{-1}$ under conditions of			$\beta$ luminance factor	Q <sub>d</sub> in $\text{mcd}\cdot\text{m}^{-2}\cdot\text{lx}^{-1}$	Chromaticity Co-ordinates CIE (x, y)	SRT units
			dry	wetness	rain				
<b>Method B wear simulator EN 13197</b>	Initial	0.01	<b>NPA</b>	<b>NPA</b>	<b>NPA</b>	<b>0.81</b>	<b>268</b>	always Inside white polygon (EN 1436)	<b>70</b>
	Retained	0.1	<b>NPA</b>	<b>NPA</b>	<b>NPA</b>	<b>0.79</b>	<b>250</b>		<b>68</b>
		0.2	<b>NPA</b>	<b>NPA</b>	<b>NPA</b>	<b>0.78</b>	<b>248</b>		<b>65</b>
		0.5	<b>NPA</b>	<b>NPA</b>	<b>NPA</b>	<b>0.77</b>	<b>237</b>		<b>62</b>
		1.0	<b>NPA</b>	<b>NPA</b>	<b>NPA</b>	<b>0.76</b>	<b>241</b>		<b>62</b>
		2.0	<b>NPA</b>	<b>NPA</b>	<b>NPA</b>	<b>0.75</b>	<b>241</b>		<b>56</b>
		4.0	<b>NPA</b>	<b>NPA</b>	<b>NPA</b>	<b>0.74</b>	<b>245</b>		<b>57</b>
	<b>General aspects in relation to the intended use</b>								
Retroreflection		Alkali resistance			Bleeding resistance		Test plates roughness		
<b>Type I</b>		<b>PASS</b>			<b>Not applicable</b>		<b>0.8 mm</b>		
Indentation		Colour			Softening point		ageing UV		
<b>Not applicable</b>		<b>White</b>			<b>Not applicable</b>		$\Delta\beta < 0.05$		

### 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<sub>L</sub>): No Performance Assessed.

- 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 ( $\beta$ ):** according to the applicable part of EN 1436.
- 3.2.6 **Luminance coefficient under diffuse illumination ( $Q_d$ ):** 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<sup>1</sup>, 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.

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<sup>1</sup> 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](http://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 IETcc<sup>2</sup>.

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, 17<sup>th</sup> January 2018

**Marta Mª Castellote  
Director**

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<sup>2</sup> 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.