

No. WPSIT0013  
Date: September, 27<sup>th</sup> 2016 – Rev. e

1 – Unique identification code of the product-type:

**WPSIT0013**

Commercial name(s):

**FLAGON BSL**

2 - Intended use(es):

- **PVC membrane for waterproofing of tunnels and underground structures (EN 13491:2013)**
- **PVC membrane for waterproofing for rising damp from the ground (EN 13967:2012)**

3 – Manufacturer:

**FLAG S.P.A**  
**Via Industriale dell'Isola, 3**  
**24040 CHIGNOLO D'ISOLA (BG)**  
**www.soprema.it – www.flag-on.com**

4 – Authorised representative:

**Not applicable**

5 – System(s) of assessment and verification of constancy of performance:

**SYSTEM 2+**

6a – Harmonised standard: **EN 13491:2013**  
**EN 13967:2012**

Notified body(ies):

**The ofi CERT (Notified Body No. 1085):**

- **has performed the verification of the system of factory production control according to the system 2+**
- **has issued the certificate of conformity of the factory production control no. 1085-CPR-0012 (EN 13491:2013) and no. 1085-CPR-0036 (EN 13967:2012).**

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7 – Declared performance:

Essential characteristics	Performance	Test method	Harmonised technical specification
Reaction to fire	<b>E</b>	EN 13501-1	<b>EN 13967:2012</b>
Water tightness at 2kPa and 60kPa	<b>watertight</b>	EN 1928 met. B	
Tear resistance (N) thickness 1,5 mm thickness 1,9 mm thickness 2,0 mm thickness 2,2 mm thickness 2,5 mm thickness 3,0 mm	<b>&gt; 375</b> <b>&gt; 475</b> <b>&gt; 500</b> <b>&gt; 550</b> <b>&gt; 625</b> <b>&gt; 750</b>	EN 12310-1	
Joint strength (N/50mm) thickness 1,5 mm thickness 1,9 mm thickness 2,0 mm thickness 2,2 mm thickness 2,5 mm thickness 3,0 mm	<b>&gt; 750</b> <b>&gt; 950</b> <b>&gt; 1100</b> <b>&gt; 1150</b> <b>&gt; 1250</b> <b>&gt; 1500</b>	EN 12317-2	
Resistance to impact (mm) thickness 1,5 mm thickness 1,9 mm thickness 2,0 mm thickness 2,2 mm thickness 2,5 mm thickness 3,0 mm	<b>≥ 450</b> <b>≥ 750</b> <b>≥ 750</b> <b>≥ 800</b> <b>≥ 900</b> <b>≥ 1200</b>	EN 12691	
Tensile properties: - Tensile strength (N/mm <sup>2</sup> ) longitudinal transverse - Elongation (%) longitudinal transverse	<b>&gt; 15</b> <b>&gt; 14</b> <b>&gt; 300</b> <b>&gt; 280</b>	EN 12311-2	
Resistance to static loading (kg)	<b>&gt; 20</b>	EN 12730	
Durability: - against ageing at 2kPa and 60 kPa - against chemicals at 2kPa and 60 kPa	<b>watertight</b> <b>watertight</b>	EN 1296 EN 1847	

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Essential characteristics	Performance	Test method	Harmonised technical specification
Tensile strength: - Longitudinal (MD) (N/mm <sup>2</sup> ) - Transversal (CMD) (N/mm <sup>2</sup> )	<b>&gt; 15,2</b> (-0,20 N/mm <sup>2</sup> ) <b>&gt; 14,2</b> (-0,20 N/mm <sup>2</sup> )	EN ISO 527-3	<b>EN 13491:2013</b>
Resistance to static puncture (kN) thickness 1,5 mm thickness 2,0 mm thickness 2,2 mm thickness 2,5 mm thickness 3,0 mm thickness 3,1 mm thickness 3,3 mm thickness 3,5 mm	<b>&gt; 1,70</b> (-0,10 kN) <b>&gt; 2,40</b> (-0,20 kN) <b>&gt; 2,60</b> (-0,20 kN) <b>&gt; 2,97</b> (-0,17 kN) <b>&gt; 3,60</b> (-0,20 kN) <b>&gt; 3,60</b> (-0,20 kN) <b>&gt; 3,80</b> (-0,20 kN) <b>&gt; 4,00</b> (-0,20 kN)	EN ISO 12236	
Water permeability:	<b>&lt; 10<sup>-6</sup>m<sup>3</sup>m<sup>-2</sup>d<sup>-1</sup></b>	EN 14150	
Durability: - Oxidation, variation in tensile properties (%) - Environmental stress cracking	<b>≤ 25</b> <b>not applicable</b>	EN 14575 ASTM D 5397	

## 8 – Appropriate Technical Documentation and/or Specific Technical Documentation:

### Not applicable

The performance of the product identified above is in conformity with the set of declared performance/s. This declaration of performance is issued, in accordance with Regulation (EU) No 305/2011, under the sole responsibility of the manufacturer identified above.

Signed for and on behalf of the manufacturer by:

Chignolo d'Isola, September, 27<sup>th</sup> 2016  
Managing Director, Mr. BROCCANELLO Bruno  
Flag S.p.A.

