

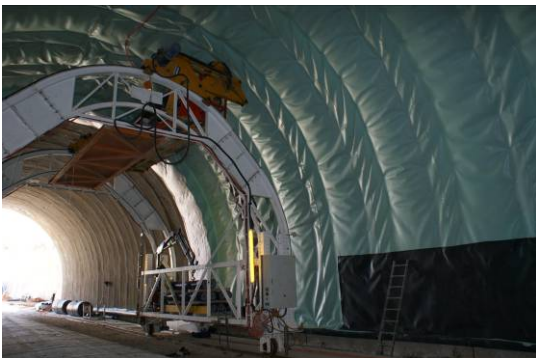
## FLAGON BSL 2.0 and 3.0 mm

TWO-COLOURED PVC-P MEMBRANE FOR UNDERGROUND WORKS

### USE - APPLICATION

FLAGON BSL is a two-coloured membrane used as a waterproofing layer in civil engineering and building structures, such as:

- Tunnels and buried galleries
- Cut and cover tunnels
- Underground works
- Coverings of buried structures
- Underground car parks



The waterproofing membrane FLAGON BSL includes a thin colored layer on the visible face of the membrane that allows a quick visual check of any damage occurred to the membrane during the application. This layer is called the "signal-to-layer".

FLAGON BSL membrane can be used as part of a single-layer waterproofing system, compartmentalised or not, and in Flag Vacuum system.

The sheets are welded together by applying hot air or using hot wedge, with manual or automatic welder. The welding can be made either with a track that with double track. The double track allow to perform a

pneumatic test with air.

### DESCRIPTION

FLAGON BSL membrane is a non-reinforced, synthetic PVC-P membrane made by co-extrusion. It is highly resistant to attack by micro-organisms and perforation by roots. It is a different colour on each side:

- the upper surface (light green), which accounts for less than 20% of the total thickness, forms the "signal layer".
- the underside (dark grey) is highly resistant to puncture and perforation by roots.

FLAGON BSL is not UV resistant.

It's also available FLAGON BSL/300, having a non-woven geotextile 300 g/m<sup>2</sup> coupled on the lower face of the membrane.

CIVILROCK attaches the highest importance to the quality of its products. This is why we operate a quality assurance system according to ISO 9001 BSI certified.

### MAIN ADVANTAGES

- Excellent weldability
- Includes a signal layer
- High resistance to attack by micro-organisms and perforation by roots
- Can be used in the Flag Vacuum system

### SUGGESTED INSTALLATION EQUIPMENT

- Manual welding with hot air
- Automatic welding machine with hot air
- Automatic welding machine with double track Saldamax Tremila

*CIVILROCK reserves the right, as technology and know-how progress, to modify without warning the composition and conditions of use of its materials, and subsequently their price. As a result, orders shall only be accepted on the basis of the terms and technical specifications applicable at the time of receipt.*



**FLAG S.p.A. – SOPREMA GROUP**

Via Industriale dell'Isola, 3 – 24040 – Chignolo d'Isola (BG) - Italia

Tel. : +39 035 095.10.11 - Fax : +39 035 494.06.49

[www.flag-on.com](http://www.flag-on.com)

e-mail: [tech-office@flag.it](mailto:tech-office@flag.it)

[www.soprema.it](http://www.soprema.it)

# Technical data sheet No. WPSIT00 I 3- I 4.04

Cancels and replaces WPSIT00 I 3- I 4.0 I (ENG)

## FLAGON BSL 2.0 and 3.0 mm

TWO-COLOURED PVC-P MEMBRANE FOR UNDERGROUND WORKS

### CHARACTERISTICS

	Standard	BSL 2.0	BSL 3.0
Thickness (mm)	EN 1849-2	2.0 (±5%)	3.0 (±5%)
Mass per unit area (kg/m <sup>2</sup> )	EN 1849-2	2.60	3.90
Tensile strength (N/mm <sup>2</sup> )			
Longitudinal	EN ISO 527-3	> 15	
Trasversal	EN 12311-2	> 14	
Elongation at break (%)			
Longitudinal	EN ISO 527-3	> 300	
Trasversal	EN 12311-2	> 280	
Water permeability after 6 hrs at 0.5Mpa	EN 1928 (B) EN 14150	Watertight < 10 <sup>-6</sup> m <sup>3</sup> m <sup>-2</sup> d <sup>-1</sup>	
Static puncture resistance (N) (kg)	EN ISO 12236 EN 12730	> 2 200 > 20	> 3 400 > 20
Tear strength (N) (N/mm)	EN 12310-1 ISO 34 sample fig.2	> 150 ≥ 45	> 225 ≥ 45
Cold bending (°C)	EN 495/5	≤ - 25	
Resistance to perforation by roots	CEN TS 14416	No perforation	
Resistance to oxidation variation in tensile strength (%)	EN 14575	≤ 25	
Reaction to fire	EN 13501-1	E	
Joint strength (N/50mm)	EN 12317-2	> 1 000	> 1 500
Resistance to impact (mm)	EN 12691	≥ 750	≥ 1 100
Durability			
After thermal ageing	EN 1296	Watertight at 2kPa and 60 kPa	
After immersion in chemicals	EN 1847	Watertight at 2kPa and 60 kPa	

### PRODUCTION STANDARD

	2.0mm	3.0mm
Thickness	2.0mm	3.0mm
Number of rolls on each pallet	18	11
Roll length / width	20ml (other lengths available on request) / 2.10ml	
Available colours	Light green (surface)/ Dark Grey (underside)	

### CE MARKING

Unique identification code of the product-type: WPSIT0013

FLAGON BSL membranes are produced by the FLAG Spa factory (SOPREMA group) in Chignolo d'Isola (Italy) and are CE marked in accordance with EN 13491:2013, certificate no. 1085-CPR-0012 and with EN 19367:2012, certificate no. 1085-CPR-0036.

### CERTIFICATIONS

FLAGON BSL is used for the following certifications:

**Russia:**

- NPO Fire Center Certification

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