

# FLAGON GEOP 1.2, 1.5, 1.8, 2.0 and 2.4 mm

## REINFORCED TPO MEMBRANE FOR HYDRAULIC WORKS

### USE – APPLICATION

FLAGON GEOP is a TPO thermoplastic membrane dimensionally stabilized with a sheet of glass fibre, specifically designed for waterproofing basins, tanks, canals and similar structures.

This membrane lining can contain salt or fresh water and low-concentration liquid chemicals. To verify the compatibility with the specific chemical liquids, please contact the technical office CIVILROCK (tech-office@flag.it).

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 allows to perform a pneumatic test with air.

FLAGON GEOP is compatible with all the accessories and membranes in the FLAGON TPO range.



### DESCRIPTION

FLAGON GEOP membrane is a synthetic membrane made from TPO by co-extrusion. It has different physical-chemical properties on each side:

- the upper surface (light green) is treated against UV rays
- the underside (black) is highly resistant to puncture and perforation by roots

Any tears in the light green upper layer (signal-layer) of the membrane can be seen immediately due to the difference in colour between the two sides. A glass fibre sheet is positioned between the two layers.

The raw materials used to produce FLAGON TPO membranes are obtained by mixing modified polyolefins with different additives by means of a process that creates a paste which is later transformed into granules.

This combination gives the synthetic membranes the following advantages:

- High resistance to ageing and weathering
- The elastomer component provides suppleness and flexibility with high mechanical and chemical resistance

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

- High resistance to weathering and UV rays
- Includes a signal layer
- High mechanical resistance
- High puncture resistance
- Resistance to perforation by roots
- Environmentally-friendly and non-toxic

### SUGGESTED INSTALLATION EQUIPMENT

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

*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

e-mail: tech-office@flag.it

www.soprema.it

# FLAGON GEOP 1.2, 1.5, 1.8, 2.0 and 2.4 mm

REINFORCED TPO MEMBRANE FOR HYDRAULIC WORKS

## CHARACTERISTICS

ESSENTIAL CHARACTERISTIC	Standard	GEOP 1.2	GEOP 1.5	GEOP 1.8	GEOP 2.0	GEOP 2.4
Tensile strength (N/mm <sup>2</sup> )	EN 527-3	> 9				
Static puncture resistance (N)	EN 12236	> 750	> 1000	> 1200	> 1350	> 1550
Water permeability	EN 14150	< 10 <sup>-6</sup> m <sup>3</sup> m <sup>-2</sup> d <sup>-1</sup>				
Durability:						
Oxidation, variation in tensile properties (%)	EN 14575	≤ 25				
Weathering, variation in tensile properties (%)	EN 12224	≤ 25				

EN 13361 and EN 13362

ADDITIONAL CHARACTERISTIC	Standard	GEOP 1.2	GEOP 1.5	GEOP 1.8	GEOP 2.0	GEOP 2.4
Thickness (mm)	EN 1849-2	1.2 (±5%)	1.5 (±5%)	1.8 (±5%)	2.0 (±5%)	2.4 (±5%)
Mass per unit area (kg/m <sup>2</sup> )	EN 1849-2	1.26	1.58	1.89	2.10	2.52
Breaking strength (%)	EN 527-3	≥ 550				
Cold bending (°C)	EN 495-5	≤ -40				
Water permeability after 6 hrs at 0.5Mpa	EN 1928 (B)	Watertight				
Resistance to perforation by roots	CEN TS 14416	No perforation				
Tear resistance (N/mm)	ISO 34 sample fig.2	≥ 45				
Resistance to thermal ageing in water: variation in tensile strength (%) mass loss (%)	EN 14415 (A and B)	< 25 < 5				

## PRODUCTION STANDARD

	1.2 mm	1.5 mm	1.8 mm	2.0 mm	2.4 mm
Thicknesses	1.2 mm	1.5 mm	1.8 mm	2.0 mm	2.4 mm
Numbers of rolls on each pallet	23	23	18	18	14
Roll length / width	25 ml / 2.10 ml ; 20 ml / 2.10 ml (other lengths available on request)				
Colours available	Light green (surface) / Black (underside)				

## CE MARKING

Unique identification code of the product-type: WPSIT0033

FLAGON GEOP membranes are produced by the FLAG Spa factory (SOPREMA group) in Chignolo d'Isola (Italy) and are CE marked no. 1085-CPR-009 in accordance with EN 13361:2013 and EN 13362:2013.

## CERTIFICATION

FLAGON GEOP has obtained the following certifications:

### France:

- Mentioned in CPP (Technical specifications): Basins, Tanks, Canals, Water towers and similar structures, by DEKRA.
- Certification ASQUAL for FLAGON GEOP 1.2 mm.

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

e-mail: tech-office@flag.it

www.soprema.it