

STARFLEX HR-S

TWO COMPONENT SOFT-EXTENDED SOLVENT FREE POLYUREA SYSTEM



CHARACTERISTICS

Rapid curing and achievement of the final characteristics of resistance and elasticity.

Also applicable **vertically** and on the **ceiling**.

High elasticity.

Waterproofing and good resistance to aggressive chemicals.

Contributes to obtaining credits for **LEED** certification.

It meets the requirements of the **1504-2** standard for coatings: moisture control product 2.2 (C), physical resistance 5.1 (C), chemical resistance 6.1(C), increased resistivity 8.2 (C).

APPLICATION TEMPERATURE

Applicable from **-20°C to +40°C** (substrate temperature), dew point > -5°C (in the absence of condensation).

OPERATING TEMPERATURE

Operating temperature **from -45°C to +90°C** in air.

FIELD OF APPLICATION

- Waterproofing of slabs of road, **motorway and railway bridges** and viaducts.
- Waterproofing of **underground structures** (foundations, retaining walls, hanging works, etc.).
- Waterproofing of **tunnel top surfaces**.
- Waterproofing of **civil and industrial roofs**.
- Waterproofing of **old coats in bituminous sheath, pvc etc.**
- Protection and waterproofing of insulated roofs with expanded polyurethane.
- Protection and encapsulation of fibre cement.

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SUBSTRATE PREPARATION

- The substrates to be treated must be **sound, compact, free from dust and pollution** from foreign substances (dirt, oil, grease, release agents, etc.).
- The **cement substrate**, after adequate mechanical preparation, must have a surface resistance to tearing greater than 1.5 MPA, measured using suitable instruments.
- In the case of **ceramic substrates** or **old resinous coatings**, after adequate mechanical preparation, their correct adhesion to the substrate and the absence of traces of pollutants must be checked.
- Damaged **joints, holes** and other **irregularities** must be adequately levelled and repaired with **STARCEMENT 385** type epoxy grout, or **DUROGLASS P1/2** type epoxy mortar suitably loaded with quartz or thickener **AD-DENSANTE NT2**.
- In the case of **vertical substrates** (bathtubs, swimming pools, tanks, etc..) the preparation can be carried out by dry or wet sandblasting, or high pressure hydro-washing (300 bar).

It is essential to **roughen** and/or **wash** the surface before laying. The choice of the mechanical preparation method (pressure washing, sandblasting, sanding, smoothing, shot peening or milling) is to be chosen on the basis of the conditions and type of substrate.

Based on the type of laying substrate and the application fields, it is necessary to provide the correct primer.

BITUMINOUS MEMBRANES: substrate preparation carried out using medium and high pressure water washing (> 300 bar), to have a clean surface free from any pollutant. Application of **PRIMER 0230**, polyurethane primer specially formulated for laying "moisture-curing" waterproofing membranes. Indicative product consumption 0.15 kg/m². Also available in the ultra-fast **PRIMER 0230R** version. As an alternative, application by roller or airless spray of **STARCEMENT 5/A** two-component epoxy resin-based primer in water dispersion, with a consumption of 0.1 kg/m² diluted in a 1:1 ratio with water, with the aim of consolidating the layer protective slate of the bituminous membranes.

TILES: thorough cleaning of the substrate with detergents and light sandblasting, smoothing or shot peening. Subsequent application by roller or airless spray of **DUROGLASS FF4416** two-component anti-corrosion primer with adhesion on metal surfaces and different materials, with a consumption of 0.2 kg/m². Alternatively, use **DUROGLASS P1/2**, two-component, solvent-free epoxy anchoring agent for thick skim coats (starting from 0.3 kg/m²).

CONCRETE: cleaning can be done by sandblasting, pressure washing, shot blasting. Application by roller or airless spray of **DUROGLASS FF4416** two-component corrosion resistant primer with adhesion on different types of surfaces, with a consumption of 0.2 kg/m².

Alternatively, use **PRIMER 0260**, a one-component, quick-solvent polyurethane (0.15-0.20 kg/m²). For thick smoothing, use **DUROGLASS P1/2**, two-component, solvent-free epoxy anchor (starting from 0.30 g/m²). Possibility of using **DUROGLASS P2 PRIMER** two-component epoxy primer with indicated consumption of 0.4 kg/m².

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WET SURFACES: substrate preparation carried out by high pressure water washing (> 250 bar) or sanding followed by vacuuming of the resulting dust. Application of two coats of special three-component primer based on epoxy resins for the preparation of damp concrete surfaces **DUROGLASS FU BIANCO TIX** diluted 15% with water, with an indicative consumption of 0.5 kg/m² per coat. Alternatively, application of a two-component, epoxy resin-based **DUROGLASS FU RAPID** primer, diluted 15% with water, with an indicative consumption of 0.50 kg/m² and subsequent dusting of quartz with a particle size of 0.1-0.3 mm .

WOOD: application of **PRIMER 0230**, a polyurethane anchor specially formulated for laying "moisture-curing" waterproofing membranes. Indicative product consumption 0.15 kg/m².

ALUMINIUM/IRON: on metal substrates (e.g. pre-painted sheet metal or aluminium) and carbon steel surfaces, they must be prepared by second sandblasting according to SSPC-SP10 to Sa 2 1/2 degree, followed by primer application by roller or airless spray two-component corrosion resistant with adhesion on different types of surfaces, **DUROGLASS FF4416**, with a consumption of 0.2 kg/m². If necessary, perform subsequent manual gluing of self-adhesive butyl band covered with non-woven fabric on the overlaps of the sheet metal in the direction perpendicular to the slope of the roof, with the aim of distributing the tensions. Alternatively, application of single-component primer based on polyurethane resins **PRIMER 0130**, with a consumption of 0.15 kg/m².

PVC/TPO/EPDM or OLD POLYURETIC/POLYURETHANE COATINGS: preparation of the substrates carried out by high pressure water washing (> 300 bar), to have a surface free from any pollutant, suitable for the subsequent application of the waterproofing system. Application of **PRIMER 0130** single-component, flexible adhesion promoter based on polyurethane resins, with a consumption of 0.15 kg/m². Alternatively, application of **DUROGLASS FF4416** two-component anti-corrosion primer with adhesion on different types of surfaces, with a consumption of 0.2 kg/m².

PRODUCT PREPARATION

Two-component product, applicable with high pressure bi-mixer type airless, better if controlled by PLC, in the dosing and flow functions, equipped with a suitable mixing gun for polyurea systems (reaction in gun).

The best performances are obtained by spraying the product at a temperature of 70-80°C and a pressure of 180-200 bar.

The equipment must be equipped with in-line heaters, tanks and heated pipes.

The components of **STARFLEX HR-S** must not be polluted with any chemical agent (solvents, oils, water or anything else) because the characteristics of the product would be seriously compromised.

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PRODUCT APPLICATION

STARFLEX HR-S can be applied by:

- Bi-mixer pump and special gun

The **STARFLEX HR-S** product can be applied with a minimum indicative consumption of **2.2 Kg/m²** based on the desired final thickness.

If you want to coat old polyurea or polyurethane membranes, you can proceed by applying **PRIMER0130** or **DUROGLASS FF 4416** as a primer with a possible dusting of quartz (however, it is advisable to proceed after checking).

OVER APPLICATION

If the membrane is to be exposed to solar radiation, colour changes may occur (yellowing phenomenon), and it will therefore be necessary to apply on the surface, according to the needs, aliphatic polyurethane finishes such as **POLISTAR E/P, POLISTAR E, POLISTAR E/2, POLISTAR E/3**.

The application must be carried out after a maximum of 3-4 hours from the application of **STARFLEX HR-S**.

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WARNINGS AND PRECAUTIONS

- In the event of interruption of work, apply a coat of **DUROGLASS FF4416** as Primer taking into account the overapplication window of the same which, in the case of coatings from the STARFLEX line, ranges from a minimum of 24 hours to a maximum of 7 days. If it rains during this time, apply a coat of **PRIMER 0230**, respecting the drying times of the primer (tack free) before the next application of the polyurea.
- If applied on roofs with insulation or other compressible surfaces, especially during the winter, wait about 6-8 hours until the product has completely cured before it can be walked on. Failure to comply with the indications could create micro-lesions that are not immediately visible, but which could lead to the development of passing lesions in the following months.
- **STARFLEX HR-S** exposed to UV rays may show color variations and slight chalking without compromising the mechanical characteristics. To avoid these variations, protection with an aliphatic polyurethane finish from the **POLISTAR** line is necessary.

SAFETY AND CLEANLINESS

When applying these products, it is recommended to use goggles, masks and rubber gloves and all the PPE required by current regulations.

The hardened product can be removed from the equipment by immersion in N-methylpyrrolidone, dimethylformamide or, less effectively, thinner **DILUENTE 6**.

For more information regarding the precautions for use, please refer to the safety data sheet.



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TECHNICAL DATA		
Colour		RAL palette
Specific weight	UNI EN ISO 2811-1	1.08 ± 0.03 Kg/l
Viscosity at 20°C	UNI EN ISO 2555	Component A 700 ± 100 mPa·s Component B 1300 ± 250 mPa·s
Pot life		10-12 seconds
Mix ratio		1: 1 in volume 110: 112 in weight
Non-volatile substances	UNI EN ISO 3251	> 99,9 %
Curing at 22°C, 50% R.H.		- track free: 20 seconds - fully cured: 10 minutes - walk over: 40 minutes - complete curing: 2 hours
Bond to concrete	UNI EN 1542	> 3.0 MPa
Metal bond	EN 13144	> 7.0 MPa
Cement-fibre bond	EN 1542	> 1.4 MPa
Determination of the degree of water vapour transmission	UNI EN ISO 7783-1	μ > 1500
Resistance to falling weights	UNI EN ISO 6272	Intact/Passes (height of fall 2 m)
Wear-resistance	UNI EN ISO 5470-1	< 40 m ² (Grinder H22 1000 g 1000 rpm)
Thermal-shock resistance	UNI EN 13687-05	> 3,3 MPa
Ozone resistance	EN 1844	Excellent
Chemical resistance	EN 13529	Mixture of hydrocarbons: Class II Sulphuric acid:10 % Class II Sulphuric acid 20 %: Class II Sodium Hydroxide 20 %: Class II Sodium chloride 20 %: Class I
Elongation to breakage	UNI EN 12311-2	> 600 %
Tensile strength	UNI EN 12311-2	> 16 MPa
Shore Hardness	ASTM D 2240	90 A 45 D
Storage		The product in its original sealed packaging kept in a dry and protected place at temperatures between +5°C and +35°C will keep for 12 months.

The data and instructions given in this sheet, based on the best practical and laboratory experiences, are to be considered in any case indicative. Considering the different conditions of use, and the intervention of factors independent of MPM (support, environmental conditions, technical laying direction, etc.) whoever intends to use it is required to establish whether or not the product is suitable for use. Our warranty obligation is limited to the quality and constancy of the finished product for the above data, only for technical sheets accompanied by stamp and countersignature by our delegated personnel. site. Furthermore, the customer is required to verify that these values are valid for their relevant batch of product and are not superseded and/replaced by subsequent editions and/or new formulations. The data contained may vary at any time without prior notice by MPM.