

## MARISEAL® 250

TECHNICAL DATA SHEET

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### Liquid-applied Polyurethane Waterproofing Membrane

#### Product Description

MARISEAL® 250 is a premium, liquid-applied, highly permanent elastic polyurethane membrane used for long-lasting waterproofing

Based on pure elastomeric hydrophobic polyurethane resins, which result in excellent mechanical, chemical, thermal, UV and natural element resistance properties

#### Advantages

- Simple application (roller or airless spray)
- Seamless membrane without joints when applied
- Resistant to stagnating water
- Resistant to frost and high temperatures (maintains its mechanical properties over a temperature span of -40°C to +90°C)
- Resistant to root penetration, so it can be used in green roofs
- Crack-bridging up to 3mm, even at -20°C
- Provides water vapor permeability, so the surface can breathe
- Provides excellent weather and UV resistance
- Waterproofs old bitumen-, asphalt felts by covering them, without the need to remove them prior to application
- Provides high sun reflectivity, contributing to thermal insulation
- Resistant to detergents, oils, seawater and domestic chemicals.
- Even if the membrane gets mechanically damaged, it can be easily repaired locally within minutes

#### PRODUCT INFORMATION

**Chemical Base** One-component, ground & air moisture-cured, cold applied and cold curing, solvent-based, aromatic polyurethane

<b>Packaging</b>	1/6/15/25 kg metal pails
<b>Colour</b>	White / Light Grey
<b>Shelf Life</b>	12 months from date of production

#### Main Uses

- Roofs, Terraces and Verandas
- Green Roofs
- Old Bitumen felts, Asphalt felts, TPO, PP, EPDM and PVC membranes and old Acrylic coatings
- Protection of Polyurethane Foam Insulation

#### Consumption

1,4 – 2,5 kg/m<sup>2</sup> in two or three layers

This coverage is based on application by roller onto a smooth surface in optimum conditions. Factors like surface porosity, temperature and application method can alter consumption. In case of MARISEAL FABRIC reinforcement or application of specific certified system, consumption increases.

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# Maris Polymers®

## POLYURETHANE SYSTEMS

### Technical Data\*

PROPERTY	RESULTS	TEST METHOD
Elongation at Break	600 %	ASTM D 412
Tensile Strength	> 4 N/ mm 2	ASTM D 412
Tear Strength	40 N/mm	ASTM D624 (type B)
Puncture Resistance	350 N	ASTM E154M (0.8mm film)
Crack Bridging Ability (23°C)	4.4mm	EN14891
Crack Bridging Ability (-5°C)	3.7mm	EN14891
Crack Bridging Ability (-20°C)	3.6mm	EN14891
Water Vapor Permeability	12 g/m2/day	DIN EN 1931
Adhesion to concrete	>1.9 N/mm 2 (concrete surface failure)	EN 1542
Hardness (Shore A Scale)	>65	ASTM D 2240 (15")
Resistance to Root Penetration	Resistant	UNE CEN/TS 14416
Solar Reflectance (SR)	0.87 (Mariseal 250 White)	ASTM E903-96
Solar Emittance (ε)	0.89 (Mariseal 250 White)	ASTM E408-71
Hydrolysis (5% KOH, 7days cycle)	No significant elastomeric change	Inhouse Lab
Service Temperature	-30oC to +90oC	Inhouse Lab
Shock Temperature (20min)	200°C	Inhouse Lab
Rain Stability Time	3-4 hours	Conditions: 20°C, 50% RH
Light Pedestrian Traffic Time	18-24 hours	
Final Curing time	7 days	
Chemical Properties	Good Resistance to alkali solutions, detergents, seawater, oils, weak acidic solutions	

### Certifications

European Technical Approval: ETA05/0197, ETA21/0248 (EAD 030350-00-0402) .

Levels of use categories according to ETAG005, for liquid-applied Polyurethane waterproofing kits:



### ETA SYSTEMS

Systems			Performance						
Mariseal 250	Mariseal 400	Mariseal Fabric	Substrate	Climate	Imposed Loads	Roof Slopes	Low Service Temperatures	High Service Temperatures	Years of Service
1.80 kg/m2	0.15 kg/m2		Concrete/ steel and PU	M and S	P1 to P3	S1 to S4	TL4	TH2-TH4	W3 (25 years)
2.30 kg/m2		60gr	Concrete/ steel and PU	M and S	P1 to P3	S1 to S4	TL4	TH2-TH4	W3 (25 years)
2.40 kg/m2		110gr	Concrete	M and S	P3	S1 to S4	TL3	TH4	W2 (10 years)
4.10 kg/m2		110gr	Concrete	M and S	P4	S1 to S4	TL4	TH4	W3 (25 years)

### EN1504-2: Surface protection for concrete (consumption 1.4kg/m<sup>2</sup>)

	EN1504-2 Class	Result	Test Method
Permeability to CO2	S <sub>d</sub> >50m	137.7m	EN 1062-6
Water vapour permeability	Class I: S <sub>d</sub> < 5 m	1.75m	EN ISO 7783
Capillary absorption and permeability to water	ω < 0,1 kg/m2.h0,5	0.014 kg/m2.h0,5	EN 1062-3
Adhesion strength by pull-off test	≥ 1,5 (1,0) 1) N/mm2	1.9 N/mm2	EN 1542

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## Application

### Surface Preparation

Careful surface preparation is essential for optimum finish and durability.

The surface needs to be clean, dry and sound, free of any contamination, which may harmfully affect the adhesion of the membrane. Maximum moisture content should not exceed 5%. Substrate compressive strength should be at least 25MPa, cohesive bond strength at least 1.5MPa. New concrete structures need to dry for at least 28 days. Old, loose coatings, dirt, fats, oils, organic substances and dust need to be removed by a grinding machine. Possible surface irregularities need to be smoothened. Any loose surface pieces and grinding dust, need to be thoroughly removed.

**WARNING:** Do not wash surface with water! Do not apply Mariseal 250® on substrates with rising moisture.

### Repair of cracks and joints:

The careful sealing of existing cracks and joints before the application is extremely important for long lasting waterproofing results.

- Clean concrete cracks and hairline cracks, of dust, residue or other contamination. Prime locally with MARISEAL® 710 Primer and allow 2-3 hours to dry. Fill all prepared cracks with MARIFLEX® PU 30 sealant. Then apply a layer of MARISEAL® 250, 200mm wide centered over all cracks and while wet, cover with a correct cut stripe of MARISEAL® Fabric. Press it to soak. Then saturate MARISEAL® Fabric with enough MARISEAL® 250, until it is fully covered. Allow 12 hours to cure.
- Clean concrete expansion joints and control joints of dust, residue or other contamination. Widen and deepen joints (cut open) if necessary. The prepared movement joint should have a depth of 10-15 mm. The width:depth ratio of the movement joint should be at a rate of approx. 2:1.

Apply some MARIFLEX® PU 30 Joint-Sealant on the bottom of the joint only. Then with a brush, apply a stripe layer of MARISEAL® 250, 200mm wide centered over and inside the joint. Place MARISEAL® Fabric over the wet coating and with a suitable tool, press it deep inside the joint, until it is soaked and the joint is fully covered from the inside. Then fully saturate the fabric with enough MARISEAL® 250. Then place a polyethylene cord of the correct dimensions inside the joint and press it deep inside onto the saturated fabric. Fill the remaining free space of the joint with MARIFLEX® PU 30 sealant. Do not cover. Allow 12-18 hours to cure.

### Priming

Prime very absorbent surfaces like concrete, cement screed or wood with MARISEAL® 710 or with MARISEAL® AQUA PRIMER. Prime non-absorbent surfaces like metal, ceramic tiles and old coatings, with MARISEAL® AQUA PRIMER or with MARISEAL 750.

Prime surfaces like bitumen - asphalt felts & acrylic coatings, with MARISEAL® 730 or with MARISEAL® AQUA PRIMER.

Prime surfaces like TPO, PP and EPDM, with MARISEAL® TPO PRIMER.

For surfaces like PVC, activate with MARISOLV® 9010.

Allow the primer to cure according to its TDS.

### Waterproofing Membrane

Stir well before using. Pour MARISEAL® 250 onto the prepared/primed surface and lay it out by roller, brush or squeegee, until all surface is covered. You can use airless spray allowing a considerable saving of manpower.

**ATTENTION:** Reinforce always with MARISEAL® Fabric at problematic areas, like wall-floor connections, 90° angles, chimneys, pipes, waterspouts (siphon), etc. (MARISEAL® Detail can be also applied locally on its own, on these areas).

Apply on still wet MARISEAL® 250, a correct cut piece of MARISEAL® Fabric, press it to soak, and saturate again with enough MARISEAL® 250. For detailed application instructions with MARISEAL® Fabric, contact our R&D department.

We recommend reinforcement of the entire surface, with MARISEAL® Fabric. Use 5-10cm stripe overlapping.

After 12-18 hours (not later than 48 hours) apply another layer of MARISEAL® 250.

For demanding applications, apply a third layer of MARISEAL® 250.

**ATTENTION:** Do not apply MARISEAL® 250 over 0.6 mm thickness (dry film) per layer. For best results, the temperature during application and cure should be between 5°C and 35°C. Low temperature retards cure, while high temperature speeds up curing. High humidity may affect the final finish.

For applications that demand thicker layers or better aesthetic results, addition of Mariseal Katalysator up to 3% is recommended, depending on temperature and humidity.

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## POLYURETHANE SYSTEMS

### Finishing

If a colour stable and chalking-free surface is desired, apply one or two layers of MARISEAL® 400 Top-Coat over MARISEAL® 250. The application of MARISEAL® 400 Top-Coat, is especially required, if a dark final colour, is desired (e.g. red, grey, green).

If a heavy duty, abrasion resistant surface is desired (e.g. Public Pedestrian Deck, Car Parking, etc), apply two layers of MARISEAL® 420 Top-Coat **with silica sand**.

For the several Top-Coats application procedures, please consult their technical instructions or contact our R&D Department.

**WARNING:** MARISEAL® 250 and/or MARISEAL® SYSTEM is slippery when wet. In order to avoid slipperiness, sprinkle suitable aggregates onto the still wet coating to create an anti-slip surface. Please contact our R&D Dept. for more information.

### Storage Conditions

Pails should be stored in dry and cool rooms for up to 12 months. Protect the material against moisture and direct sunlight. Storage temperature: 5°-35°C. Products should remain in their original, unopened containers, bearing the manufacturers name, product designation, batch number and application precaution labels.

### LIMITATIONS

Mariseal® 250 is not suitable for permanent water immersion.

Slight chalking or colour alteration might appear at the surface, after prolonged UV exposure.

### Safety measures

MARISEAL® 250 contains isocyanates. See information supplied by the manufacturer. For information and advice on the safe handling, storage and disposal of chemical products, users shall refer to the most recent Safety Data Sheet (SDS) containing physical, ecological, toxicological and other safety-related data.

### PROFESSIONAL USE ONLY

Our technical advice for use, whether verbal or written, is given in good faith and reflect the current level of knowledge and experience with our products. When using our products, a detailed object-related and qualified inspection is required in each individual case in order to determine whether the product and /or application technology in question meets the specific requirements and purposes. We may guarantee only that our products are compliant with their technical specification; correct application of our products therefore falls entirely within your scope of liability and users are responsible, in any case, for complying with local legislation and for obtaining any required approvals or authorizations, when necessary, either for their purchase and/or for their use. Values in this technical data sheet are given as examples and may not be regarded as specifications. For product specifications contact our R&D department. The new edition of the technical data sheet supersedes the previous technical information and renders it invalid. It is therefore necessary that you always have to hand the current code of practice.

\*All values represent typical values and are not part of the product specification. In sample preparation MARISEAL KATALYSATOR (3%) was used as an acceleration additive. Properties may vary based on the quality of film formation which depends on relative humidity, application temperature and wet film thickness. The applied coating might yellow and/or fade upon UV exposure.

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