MARISEAL® 250

Liquid-applied polyurethane waterproofing membrane

TECHNICAL DATA SHEET
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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.

Product Information

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

Packaging

- 1/6/15/25 kg metal pails

Color

- White / Light Grey

Shelf Life

- 12 months from date of production

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.

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 -30˚C to +90˚C).
- Resistant to root penetration, so it can be used in green roofs.
- Crack-bridging up to 3mm, even at -20ºC
- Provides water vapor permeability.
- Provides excellent weather and UV resistance.
- Waterproofs old bitumen, asphalt felts by covering them, without the need to remove them prior to application.
- Resistant to detergents, oils, seawater and domestic chemicals.
- Even if the membrane gets mechanically damaged, it can be easily repaired locally within minutes.

Uses

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

Consumption

- 1,4 - 2,5 kg/m² applied 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, consumption increases.

Certifications

European Technical Approval: ETA05/0197 DIBt & ETA21/0248 IETcc (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/m²)
MARISEAL® 250 is CE marked and certified according to EN 1504-2 as "surface protection systems for concrete (consumption 1.4kg/m²)" TEST REPORT No. 90-20-0273

PROPERTY	EN1504-2 Class	Test Method
Permeability to CO2:	S_d>50m	EN 1062-6
Water vapor permeability:	Class I: Sd < 5m	EN ISO 7783
Capillary absorption and permeability to water:	ω < 0,1 kg/m².h0,5	EN 1062-3
Adhesion strength by pull-off tests:	≥ 1,5 N/mm²	EN 1542

Compliant with ASTM C836 specification

Compliant with BBA certification **17/5443**

EPD verified

ASTM INTERNATIONAL C836

ISO 14001:2015
ISO 9001:2015

Technical Data*

PROPERTY	RESULTS	TEST METHOD
Elongation at Break	600 %	ASTM D 412
Tensile Strength	> 4 N/ mm²	ASTM D 412
Tear Strength	40 N/mm	ASTM D624 (type B)
Puncture Resistance	350 N	ASTM E154M (0.8mm film)
Crack Bridging Ability (23ºC)	4.4mm	EN 14891
Crack Bridging Ability (-5ºC)	3.7mm	EN 14891
Crack Bridging Ability (-20ºC)	3.6mm	EN 14891
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	-30˚C to +90˚C	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	Conditions: 20˚C, 50% RH
Final Curing time	7 days	Conditions: 20˚C, 50% RH
Chemical Properties	Good resistance against acidic and alkali solutions (5%), detergents, seawater and oils.	

Application

Surface Preparation

Careful surface preparation is essential for optimum finish and durability.
Concrete 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. For any other type of substrate contact technical support department.
WARNING: Do not wash surface with water!

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 the 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 the MARISEAL® Fabric. Press it to soak. Then saturate the 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 the 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.
For newly, up to 6 months, sprayed PU Foams without any surface irregularities MARISEAL® AQUA PRIMER is optional. Allow the primer to cure according to technical instructions.

Waterproofing membrane

Stir slightly before using. Avoid excessive stirring in order to prevent air entrapment. 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 problem areas, like wall-floor connections, 90˚ angles, chimneys, pipes, waterspouts (siphon), etc.
In order to do that, apply on the 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 Technical 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: For best results, the temperature during application and cure should be between 5ºC and 35ºC. Low temperatures retard cure while high temperature speed 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. For applications thicker than 0.900kg/m^2, the addition of Mariseal® Katalysator is recommended.

Finishing

If a color 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 color, 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 Technical Department.

WARNING: MARISEAL® 250 and/or MARISEAL® SYSTEM is slippery when wet. In order to avoid slipperiness during wet days, sprinkle suitable aggregates onto the still wet coating to create an anti-slip surface. Please contact our Technical Department for more details.

Limitations

MARISEAL® 250 is not suitable for permanent water immersion.
Slight chalking or color 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 & other safety-related data. PROFESSIONAL USE ONLY

Our technical advice for use, whether verbal, written or in tests, 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 technical 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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