CONSTRUCTION

Maris Polymers®
POLYURETHANE SYSTEMS

MARISEAL® 650

TECHNICAL DATA SHEET
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Liquid-applied polyurethane waterproofing membrane

Product description

MARISEAL® 650 is a liquid-applied, highly permanent elastic, cold applied and cold curing, bitumen extended, single component Polyurethane membrane used for long-lasting waterproofing. Solvent based.

The MARISEAL® 650 is based on pure elastomeric hydrophobic Polyurethane resins, and is extended with chemically polymerized virgin bitumen, which result in excellent mechanical, chemical, thermal and natural element resistance properties.

Cures by reaction with ground and air moisture.

Advantages

- Simple application.
- When applied forms seamless membrane without joints.
- Resistant to water.
- Resistant to frost.
- Provides excellent crack-bridging properties.
- Good water vapor blocking properties.
- Provides excellent thermal resistance, it never turns soft.
- Maintains its mechanical properties over a temperature span of -40°C to +90°C.
- Provides excellent adhesion to almost any type of surface.
- Resistant to domestic chemicals.
- Even if the membrane gets mechanically damaged, it can be easily repaired locally within minutes.
- Does not need the use of open flames (torch) during application.
- Positive feedback worldwide.

Uses

The MARISEAL® 650 is used for:

- Waterproofing of Foundations
- Waterproofing of Retaining Walls
- Under-tile Waterproofing in Bathrooms, Kitchens, Terraces,
- Waterproofing of Wet Areas
- Waterproofing of Roofs with inverted insulation
- Waterproofing of Asphalt- and Bitumen-felts, etc

Consumption

1,0 -1,5 kg/m^2 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.

Colors

The MARISEAL® 650 FLASH is supplied in black.

Technical Data *

PROPERTY	RESULTS	TEST METHOD
Elongation at Break	> 850 %	ASTM D 412 / DIN 52455
Tensile Strength	> 4,5 N/ mm^2	ASTM D 412 / DIN 52455
E-Modulus	~0,6 N/ mm^2	ASTM D 412 / DIN 52455
Tear Resistance	14,1 N/ mm	ASTM D 624
Puncture Resistance	150 N	ASTM E 154
Resistance to Hydrostatic pressure	No Leak @ 3 bar (30 m water column)	DIN 16726
Adhesion to concrete	>1,0 N/mm^2	ASTM D 903
Hardness (Shore A Scale)	35	ASTM D 2240 (15")
Thermal Resistance (80°C for 100 days)	Passed - No significant changes	EOTA TR-011
Hydrolysis (5% KOH, 7days cycle)	No significant elastomeric change	Inhouse Lab
Service Temperature	-40°C to +90°C	Inhouse Lab
Max. Temperature short time (15min shock)	250°C	Inhouse Lab
Tack Free Time	5 hours	Conditions: 20°C, 50% RH
Light Pedestrian Traffic Time	24 - 48 hours	
Final Curing time	7 days	
Chemical Properties	Good resistance against acidic and alkali solutions (5%), detergents, seawater and oils.	

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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!

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• 650, 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• 650, 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• 650, 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• 650. 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. The careful sealing of existing cracks and joints before the application is extremely important for long lasting waterproofing results.

Priming

On sound, high quality concrete surfaces no primer is necessary.
Prime very absorbent and brittle concrete or brittle cement screed surfaces with MARISEAL• 710 or with MARISEAL• AQUA PRIMER. Prime non-absorbent surfaces like metal, ceramic tiles and old coatings with MARISEAL• AQUA PRIMER. Allow the primer to cure according its technical instruction.

Waterproofing membrane

Stir well before using, with mechanical paddle drill, for at least 2-3 minutes . Apply the MARISEAL• 650 onto the surface by roller or brush, until all surface is covered. After 8-24 hours, apply another layer of the MARISEAL•650.
For demanding applications, apply a third layer of the MARISEAL•650.

Reinforce always with the 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• 650 a correct cut piece of MARISEAL• Fabric, press it to soak, and saturate again with enough MARISEAL• 650. For detailed instructions with the MARISEAL• Fabric, contact our R+D department.
If the MARISEAL• 650 is to be covered with ceramic tiles, fully saturate with oven-dry silica sand (corn-size 0,4-0,8mm) the last layer while still wet. This saturation will create an adhesion bridge to the tile adhesive that will follow.

For best results, the temperature during application and cure should be between 5°C and 35°C, RH50-70%. Low temperatures retard cure while high temperature speed up curing. High humidity may affect the final finish.
WARNING: The MARISEAL• 650 FLASH 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 details.

Protection /Thermoinsulation on Foundations/Retaining Walls

Protect the cured MARISEAL•650, with a drainage board before backfilling.
If an additional (optional) Thermoinsulation is required, stick a insulation board (XPS, EPS, PUR, PIR, etc) on the cured MARISEAL• 650. Use MARIFLEX PU40 as adhesive. Protect with a suitable drainage membrane / board.

Packaging

MARISEAL• 650 is supplied in 20kg, 5kg and 1kg metal pails. Pails should be stored in dry and cool rooms for up to 9 months. Protect the material against moisture and direct sunlight. Storage temperature: 5°-30°C. Products should remain in their original, unopened containers, bearing the manufacturers name, product designation, batch number and application precaution labels.

Safety measures

MARISEAL• 650 contains isocyanates. See information supplied by the manufacturer. Please study the Safety Data sheet. PROFESSIONAL USE ONLY