OWL WATERPROOFING SOLUTIONS

LAVA 20

Date: 01. 12. 2022 - V. 22
TECHNICAL DATA SHEET

Single Component Polyurethane Liquid Waterproofing System

Product Description

Lava 20 is a high-quality, liquid-applied polyurethane membrane designed for durable waterproofing. It is made from pure elastomeric hydrophobic polyurethane resins, providing exceptional resistance to mechanical wear, chemicals, temperature changes, UV rays, and environmental factors.

Product Information

Chemical Base	Single-component, moisture-activated polyurethane that cures through ground and air exposure, applied and cured at low temperatures, and is solvent-based with an aromatic composition
Packaging	1, 6, 15, 25 kg metal pails
Colour**	White, Light Grey
Shelf Life	12 months from the date of production in a cool, dry place, away from moisture and direct sunlight. Always keep it in its original, unopened packaging with proper labeling.

Uses

- → Roofs, terraces, and balconies
- → Existing bitumen and asphalt felts, TPO, PP, EPDM, PVC membranes, and old acrylic coatings
- → Protection of polyurethane foam insulation
- → Green Roofs

Advantages:

- → Easy application using a roller or airless spray.
- → Forms a continuous, seamless membrane with no joints after application.
- → Resistant to standing water.
- → Withstands both freezing and high temperatures while maintaining mechanical properties.
- → Suitable for green roofs as it resists root penetration.
- → Bridges cracks up to 3mm, even at temperatures as low as -20°C.
- → Allows water vapor to pass through.
- → Offers excellent resistance to weather conditions and UV exposure.
- → Can waterproof old bitumen and asphalt felts by covering them without the need for removal.
- → Resistant to detergents, oils, seawater, and household chemicals.
- → If the membrane is damaged, it can be quickly and easily repaired in minutes.

Consumption

Consumption ranges from **1.4 to 2.5 kg/m²** when applied in two or three layers. The coverage depends on correct application using a roller on a smooth surface. Factors like surface porosity, temperature, and application method can affect consumption. Usage will increase if fabric reinforcement is applied.

OWL WATERPROOFING SOLUTIONS

Certifications

European Technical Approval: ETA 22/0640 Usage classifications according to ETAG005 for liquid-applied polyurethane waterproofing systems:

ETA SYSTEMS

SYSTEMS			PERFORMANCE						
							Service Temperature Range		
Lava 20	Lava 20 Topcoats	Reinforcement Fabric/ Matting	Applicable Substrate	Climate	Load Levels	Roof Slope Range	Low	High	Service Lifespan
1.80 kg/m²	0.15 kg/m²		Concrete / steel and PU	M & S	P1 to P3	S1 to S4	TL4	TH2-TH4	W3 (25 years)
2.30 kg/m²		60 gr	Concrete / steel and PU	M & S	P1 to P3	S1 to S4	TL4	TH2-TH4	W3 (25 years)
2.40 kg/m²		110 gr	Concrete	M & S	P3	S1 to S4	TL3	TH4	W2 (10 years)
4.10 kg/m²		110 gr	Concrete	M & S	P4	S1 to S4	TL4	TH4	W3 (25 years)

EN1504-2: Concrete surface protection (consumption of 1.4 kg/m²). Lava 20 is CE certified and compliant with EN 1504-2 as a "surface protection system for concrete" (consumption of 1.4 kg/m²), (Test Report No. 90-20-0273).

Property	EN1504-2 Class	Test Method
Permeability to CO2:	Sd>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

Fully compliant with the ASTM C836 specification. Compliant with BBA & ETA certification 22/ 0640
EPD Verified

ASTM INTERNATIONAL

BBA APPROVAL INSPECTION TESTING CERTIFICATION CERTIFICATE 20/5752

EOTA

EPD® ENVIRONMENTAL PRODUCT DECLARATION

OWL WATERPROOFING SOLUTIONS

Technical Data*

PROPERTY	RESULTS	TEST METHOD
Elongation at Break	600 %	ASTM D 412
Tear Strength	40 N/mm	ASTM D624 (type B)
Puncture Resistance	350 N	ASTM E154M (0.8mm film)
Tensile Strength	> 4 N/ mm2	ASTM D 412
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	ASTM E903-96
Solar Emittance (ε)	0.89	ASTM E408-71
Hydrolysis (5% KOH, 7days cycle)	No significant elastomeric change	Inhouse Lab
Service Temperature	- 30 to +90	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

1. **Ensure Cleanliness:**
   The surface must be entirely free of any contaminants that could affect the membrane's ability to adhere. This includes dust, dirt, oils, organic matter, and any old, loose coatings.
2. **Moisture Control:**
   The moisture content of the surface should not exceed 5%. Using a moisture meter is recommended to ensure the surface is dry enough for application.
3. **Substrate Strength:**
   The substrate's compressive strength should be at least 25 MPa, and its viscous bond strength should be a minimum of 1.5 MPa. This ensures the surface is strong enough to support the membrane and prevent future failure.
4. **New Concrete Structures:**
   Newly poured concrete must cure for at least 28 days before it is ready for waterproofing application. This allows the concrete to achieve sufficient strength and minimize moisture content.
5. **Grinding the Surface:**
   A grinding machine should be used to remove all contaminants, such as dust, grime, oils, fats, and old coatings. This also helps to smooth out any surface imperfections, ensuring the membrane can adhere properly.
6. **Remove Dust and Loose Particles:**
   After grinding, thoroughly clean the surface to remove any grinding dust and loose fragments that could prevent proper adhesion of the membrane.

OWL WATERPROOFING SOLUTIONS

WARNING: Do not wash the surface with water!
Washing with water can increase surface moisture, leading to poor adhesion and potentially compromising the effectiveness of the membrane. Always use dry cleaning methods.

Repair of Cracks and Joints:

1. **Prepare and Clean the Cracks:**
   Clear any debris, dust, residue, or other contaminants from cracks in the concrete. This step is crucial to ensure proper adhesion and effective long-term waterproofing.
2. **Prime the Area:**
   Apply Lava 20 Primer locally over the prepared cracks and let it dry for 2-3 hours to ensure proper bonding.
3. **Fill the Cracks:**
   Fill all the prepared cracks using Owl PU Mastic sealant to ensure a watertight seal.
4. **Apply Lava 20 and Reinforce the Cracks:**
   Apply a layer of Lava 20 over the sealed crack. While the layer is still wet, place a strip of polyester fabric (cut to 200mm wide) directly over the crack, centering it. Press the fabric into the wet Lava 20 until it is fully soaked and adheres properly. Apply another coat of Lava 20 over the fabric to ensure complete coverage. Allow 12 hours for curing.

Repair of Expansion and Control Joints:

1. **Clean the Joints:**
   Remove any debris, residue, or contaminants from the concrete expansion and control joints.
2. **Widen and Deepen the Joints (if needed):**
   If necessary, cut the joints open to widen and deepen them. The depth should be between 10-15 mm. The ratio of the width to depth of the joint should be approximately 2:1 for optimal performance.
3. **Seal the Joint Base:**
   Apply Owl PU Mastic Joint-Sealant only to the bottom of the joint to prevent water infiltration.
4. **Apply Lava 20 to the Joint:**
   Using a brush, apply a 200mm wide stripe of Lava 20 over and inside the joint. Place a strip of polyester fabric over the wet Lava 20, pushing it deep into the joint until it is saturated and the joint is fully covered.
5. **Saturate the Fabric with Lava 20:**
   Apply more Lava 20 to the fabric until it is fully soaked and completely covers the joint. Place a polyethylene cord of the correct size into the joint, pressing it firmly into the saturated fabric.
6. **Final Seal:**
   Fill the remaining open space in the joint with Owl PU Mastic sealant. Do not cover the joint with any additional material. Allow 12 to 18 hours for the joint to cure fully.

Priming
Concrete, cement screed, or wood should be primed with Lava 20 Fast Primer since they are particularly absorbent surfaces. Observe the primer's technical instructions and give it time to cure.

Waterproofing Membrane

1. **Apply Lava 20:**
   Before use, thoroughly stir the Lava 20 to ensure even consistency. Pour Lava 20 over the cleaned and primed surface. Spread it evenly using a roller, brush, or squeegee to cover the entire area. For labour efficiency, consider using airless spray equipment.
2. **Reinforce Problem Areas:**
   Reinforce key areas such as wall-to-floor connections, 90° angles, chimneys, pipes, and waterspouts by using polyester fabric. While Lava 20 is still wet, place a correctly cut piece of polyester fabric over the area and press it to absorb the coating. Apply more Lava 20 on top of the fabric to ensure complete saturation.

3. **Reinforce the Entire Surface:**
   For optimal results, reinforce the entire surface with polyester fabric. Overlap fabric strips by 5-10 cm to ensure strong connections between sections.
4. **Apply Additional Coats:**
   After 12 to 18 hours (but no later than 48 hours), apply a second coat of Lava 20. For demanding applications, apply a third layer of Lava 20.
   Application Guidelines:
   - → **Layer Thickness:** Do not apply layers thicker than 0.6 mm (dry film).
   - → **Temperature:** The ideal temperature for application and curing is between 5°C and 35°C. High temperatures speed up curing, while low temperatures slow it down.
   - → **Humidity:** Be cautious of high humidity as it can affect the final finish.
5. **Catalyst Addition (Optional):**
   For applications that require thicker layers or enhanced aesthetics, add up to 3% of Lava 20 Catalyst, depending on temperature and humidity conditions. For layers thicker than 0.900 kg/m², the addition of Lava 20 Catalyst is recommended for optimal results.

Finishing

1. **Apply Top Coat for Colour Stability:**
   If a colour-stable, chalk-free surface is required, apply one or two coats of Lava 20 Top Coat over the Lava 20 membrane. If a dark final colour is preferred, the application of Lava 20 Dark Grey Top-Coat is essential to achieve the desired result.
2. **For Heavy-Duty Surfaces:**
   For surfaces exposed to heavy use, such as public pedestrian decks or car parks, apply two layers of Lava 20 Clear Top Coat with Quartz to enhance abrasion resistance.

Consult Technical Instructions:
For detailed application procedures of the various top coats, refer to their respective technical instructions or contact the technical support team for guidance.

WARNING – Prevent Slippery Surfaces:
Lava 20 and Lava 20 SYSTEM should not be applied or used when wet, as this can cause slipperiness. To create an anti-slip surface, sprinkle appropriate aggregates onto the still-wet coating. For further information on creating slip-resistant surfaces or other concerns, contact the support team.

Limitations

Lava 20 is not recommended for use in areas with permanent water immersion. After extended UV exposure, minor chalking or color changes may occur on the surface.

Packaging

Lava 20 is supplied in 25 kg, 15 kg, 6 kg, 1kg metal pails and 250 kg barrels. 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°-30° C. Products should remain in their original, unopened containers, bearing the manufacturer name, product designation, batch number and application precaution labels.

Safety measures

Lava 20 contains isocyanates. See information supplied by the manufacturer. For details and guidance on the safe handling, storage, and disposal of chemical products, users should consult the latest Safety Data Sheet (SDS), which includes information on physical, ecological, toxicological, and other safety-related aspects.
PROFESSIONAL USE ONLY.

OWL WATERPROOFING SOLUTIONS

Our technical advice for use, whether verbal, written or in tests, is given in good faith and reflects 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 case 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. The new edition of the technical data sheet supersedes the previous technical information and renders it invalid. It is therefore necessary that you always must hand in the current code of practice. All values represent typical values and are not part of the product specification. In sample preparation, the lava 20 Catalyst was used as an acceleration additive. The applied coating might yellow and/ or fade upon UV Exposure.