Data Sheet

Pava Seal 250 SG

One-component water-proofing liquid-elastic polyurethane membrane

Composition

A one-component, liquid-elastomeric hydrophobic polyurethane-elastomeric membrane that is extremely elastic and cold applied; used for long-lasting waterproofing. It is based on hydrophobic and elastomeric polyurethane resins with excellent mechanical, chemical, thermal and UV resistance properties.

Real VOC < 200 g/l.

Fields of application

Waterproofing of new roofs and restoration of existing ones, i.e. roofs, balconies, terraces and verandas; also suitable as a membrane under tiles on bathrooms, kitchens, balconies, utility rooms, etc.

Effective for the protection of pedestrian and vehicular roofs (subject to specific design of the waterproof stratigraphy), roof gardens, flower and flower beds, bituminous membranes including PVC and EPDM, as well as old asphalt and acrylic coatings and for the protection of polyurethane foam insulation.

Protection and waterproofing of concrete structures such as bridges, tunnels, grandstands, car parks etc.

- Simple application with roller, spatula or airless on horizontal, sloping and vertical surfaces.
- Water resistant
- Frost-resistant
- Ponte di frattura statico
- Ponte di fessurazione dinamico
- Permeable to water vapour (breathable)
- UV-resistant
- Sunlight reflectivity characteristics and contribution to thermal insulation
- Application range -40° C+ 90 °C with ETAG 005 certified durability of 25 years.
- Suitable for foot traffic and the transit of wheeled vehicles with light loads.

Marking

CE EN 1504-2

Pava Seal 250 SG complies with the principles defined in EN 1504-9 ("Products and systems for the protection and repair of concrete structures: definitions, requirements, quality control and conformity assessment. General principles for the use of products and systems') and the requirements of EN 1504-2 coating (C) according to the principles PI, MC, PR, RC and IR ('Concrete surface protection systems').

Certifications

Pava Seal 250 SG is an EOTA (European Organisation for Technical Approval) certified membrane for use as a liquid roof waterproofing system in accordance with ETAG 005.

Quality

The product undergoes thorough and constant testing at our ISO 9001 and FPC laboratories. The raw materials used are rigorously selected and controlled according to internal MDQ protocols.

ADR hazard to be verified with relevant safety data sheet under item 14.

Technical specifications	Results	Method
Catalysis ratio	Ready-to-use material. All Pava Resine formulations must be mixed thoroughly before proceeding to the various application steps. Manual mixing is not permitted; incorrect mixing may result in incomplete hardening of the coating. For the coloured version, it is recommended to take care to mix all the coloured component well in order to evenly disperse the pigments.	13 IST 21

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Specific Weight	1,40 - 1,55 kg/lt.	ASTM D 1475 EN ISO 2811-1
Dilution	Ready to use. If dilution is required (during periods of low temperatures) contact Technical Department.	13 IST 21
Mixing duration	One-component.	13 IST 22 EN 9514
Drying and curing	Rain stability time: 5 hours Foot traffic time: 18 - 24 hours Final curing time: 7 days	ASTM D 1640 EN ISO 866
Covering	12-18 h (no more than 48 h). Depending on environmental conditions. Compatibility and overpaintability, consult Technical Department.	ASTM D 1640
Consumption and Yield	1.5-2.0 kg/m^2 applied in 2 or 3 layers on a smooth surface in excellent condition. Consumption increases with the inclusion of glass fibre TNT.	13 IST 03
Film Appearance	White and light grey.	-
Number of layers	In relation to the required thicknesses.	-
Tool washing	With nitro thinner.	-
Warehouse storage	The tins must be stored in a dry, cold place for a maximum of 8 months from the date of production (lot no. on the label with AAMMGG). The material must be protected from moisture and direct sunlight. Storage temperature 50-30°C.	-

Performance characteristics	**Test method EN 1504**	**Requirements**	**Product performance**
Water vapour permeability	**EN ISO 7783-1** **EN ISO 7783-2**	Class I: Sd<5m (water vapour permeable) Class II: 5m ≤ Sd ≤ 50m (permeable to non-water vapour permeable, e.g. interior paintwork) Class III: Sd > 50m (not permeable to water vapour).	Classe I 1,8-1,9 m
Capillary absorption and water permeability	**EN 1062-3**	w < 0,1 kg/m^2 x h^{0,5}	0,01 kg/m^2 x h^{0,5}
Permeability to CO_2	**EN 1062-6 (conditioning of samples before testing should be as per prEN 1062-11:2002,4.3)**	Permeability to CO_2 Sd > 50 m	> 50 m
Direct traction adhesion test Reference substrate: MC (0.40)	**UNI EN 1542** **UNI EN 1766**	flexible systems without traffic: ≥ 0.8 N/mm2 with traffic: ≥ 1.5 N/mm2.	> 2 Mpa (breaking of substrate)
Cracking capacity *	**EN 1062-7**	The required classes and test conditions are given in Table A. The required crack resistance must be selected by the designer according to local conditions (climate, crack width and crack movement). After testing the required class, no cracking is permitted.	Class A5

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Cracking capacity *	**EN 1062-7**	The required classes and test conditions are given in Table B. The required crack resistance must be selected by the designer according to local conditions (climate, crack width and crack movement). Once the required class has been tested, no cracking is permitted.	Class B4.1
Cracking capacity *	**UNI EN 14891**	Test Method A.8	10,7±0,1 mm
Impact resistance measured on MC (0.40) coated concrete specimens **	**EN ISO 6272-1**	No cracking and delamination after loading Class I: ≥ 4 Nm Class II: ≥ 10 Nm Class III: ≥ 20 Nm.	Class I
Resistance to thermal shock (1x)	**EN 13687-5**	Thermal cycles according to EN 13687-1 and EN 13687-2 are performed on the same sample, starting with the storm cycles. After the thermal cycles a) no swelling, cracking or delamination b) direct tensile adhesion test flexible systems without traffic: ≥ 0.8 N/mm^2 with traffic: ≥ 1,5 N/mmq.	no swelling, cracking or delamination 1.6 MPa
Abrasion resistance (Taber test) ***	**EN ISO 5470-1** **ASTM D 4060**	abrasive wheel H22 / rotation 1000 cycles/load of 1000 g at least 30% improvement in abrasion resistance compared to a non-impregnated specimen.	<150 mg (Cs10)
Exposure to artificial weathering ****	**EN 1062-11**	After 2000 h of artificial weathering: no swelling - according to EN ISO 4628-2 no cracking - according to EN ISO 4628-4 no spalling - according to EN ISO 4628-5 Slight colour change, loss of gloss and chalking may be acceptable but must be described.	no swelling, cracking or flaking
Resistance to severe chemical attacks	**EN 13529**	Hardness reduction of less than 50% when measured according to the Buchholz method of EN ISO 2815 or the Shore method of EN ISO 868, 24 h after removing the coating from immersion in the test liquid.	NaCl 20%: class II CH_3COOH 10%: class II H_2SO_4 10%: class II KOH 20%: class II CH_3OH: class I
Slip/skid resistance	**EN 13036-4**	Class I: >40 units with wet test (damp interior surfaces), Class II: >40 units with dry test (dry indoor surfaces), Class III: >55 units with wet test (outdoor).	Class II (add quartz)
Resistance to root penetration	**EN 13948**	-	No penetration
Reaction to fire after application	**EN 13501-1**	Euroclasses.	E

After 7 days at 25 ± 2°C (when necessary)
data obtained for a consumption of 2,500 kg/m²
The system is not self-supporting according to UNI10966, but conditioned by the substrate;
the specimens made not in film but according to the specifications listed in the respective test Method

** after conditioning according to EN 1062-11:2002: 4.1 - 7 days at 70°C for reactive resin systems; 4.2 - UV radiation and humidity for dispersion systems*

*** according to EN 1766 - Note: The thickness and impact of the load influence the choice of class*

**** Measured on a 10 mm slice taken from cubic test specimens of impregnated concrete C (0.70) side 100 mm according to EN 1766. Note: Relevant test methods for flooring systems according to EN 13813 are also acceptable.*

***** according to EN 1062-11:2002, 4.2 (UV radiation and moisture) for outdoor applications only. Only white and RAL 7030 shall be tested.*

Expected useful **W3** **25 years**

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duration		
Climate zone	M and S	All
Applied loads	P1 to P4	Very high (maximum load)
Roof pitch	S1 to S4	<5° to >30°
Minimum surface temperature	TL4	-30°C
Maximum surface temperature	TH4	+90°C
Reaction to fire	Class E, Broof t4, B2 according to DIN 4102-1, DIN 4102-7	Standard UE
Resistance to wind loads	≥ 50 kP a	Standard UE

Expected useful duration	**W2**	**10 years**
Climate zone	M and S	All
Applied loads	P1 to P3	High
Roof pitch	S1 to S4	<5° to >30°
Minimum surface temperature	TL3	-20°C
Maximum surface temperature	TH4	+90°C
Reaction to fire	Class E, Broof t4, B2 according to DIN 4102-1, DIN 4102-7	Standard UE
Resistance to wind loads	≥ 50 kP a	Standard UE

Characteristic	**Results**	**Testing method**
Elongation at break	> 900 %	**ASTM D 412 / DIN 52455**
Tensile strength	> 4 N/ mm^2	**ASTM D 412 / DIN 52455**
Static puncture resistance	High resistance (class P3)	**EOTA TR-007**
Dynamic puncture resistance	High resistance (class P3)	**EOTA TR-006**

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Hardness (Shore A scale)	65-70	**ASTM D 2240 (15")**
Sunlight reflection coefficient (SR)	0,87	**ASTM E903-96**
Sunlight emittance (ε)	0,89	**ASTM E408-71**
Accelerated UV ageing in the presence of moisture	Passed - no change	**EOTA TR-010**
Resistance after ageing in water	Passed	**EOTA TR-012**
Resistance to sparks and radiant heat	Passed	**DIN 4102-7**
Operating temperature	-30°C to +90°C	**Internal laboratory**

data obtained for a consumption of > 4,000 kg/m² and use of non-woven TNT fabric with a grammage > 100g/m²

Surface preparation

In order to carry out correct and optimal waterproofing work, careful surface preparation is necessary. The surface must be clean, dry, undamaged and cohesive, free of contaminants-concretions and mould that could impair the adhesion of Pava Seal 250 SG. The moisture content may not exceed 4 per cent. The minimum compressive strength of the substrate must be 25MPa and the tensile strength at least 1.5MPa. Newly built concrete structures must be allowed to dry for 28 days. Use a suitable sander, sandblaster and/or shot-peening machine to remove organic substances such as dust, oil, grease, dirt and pre-existing and/or damaged coatings. It is mandatory to sand any irregularities on the surfaces. All residues and debris must be completely removed before applying the waterproof coating.

WARNING: No hydro-washing cycle should be used for surface preparation.

Repair of cracks/fissures and joints: Carefully seal existing cracks and joints before application (extremely important for long-lasting results).

Clean cracks and fissures in the concrete from dust, residues and other contaminants. Apply Primer and wait 2-3 hours for it to dry. Fill all prepared cracks with PAVAFLEX Mono or PAVAELASTIC sealant. Then apply a 200 mm layer of PAVA SEAL 250 SG to the sides of the cracks and, while it is still wet, cover with a strip of suitably cut BANDELLA DI TNT. Press to impregnate it with product. Apply a sufficient quantity of PAVA SEAL 250 SG to the fabric to completely cover it. Wait 12 hours for it to harden.

Clean the expansion joints of the CLS and check them for dust, debris and other contaminants. If necessary, open and cut the joints deeper. The prepared joint must have a depth of 10-15 mm. The width to depth ratio of the expansion joints should be approximately 2:1. Apply Pavaflex Mono or Pava Elastic 570 sealant to the bottom of the joint only. Using a brush, apply a strip of PAVA SEAL 250 SG for 200 mm to the sides and inside of the joint. Place the fabric / TNT BANDELLA over the wet coating and push it into the joint until it is impregnated and the joint is completely covered from the inside. Then completely saturate the fabric with PAVA SEAL 250 SG. Place a polyethylene cord of the correct size inside the joint and press it onto the impregnated fabric. Fill the remaining space inside the joint with Pavaflex Mono or Pava Elastic 570 sealant. Do not cover. Wait 12 to 18 hours for it to harden.

Application

Apply cold according to the type of substrate by roller, brush, spatula or airless pump* and with temperatures not below 15°C. Apply PAVA SEAL 250 SG in several layers with a consumption of not less than 2 kg/sq.m. by interposition on the first layer of non-woven fabric in order to achieve the required performance.

CAUTION: Always use the fabric /TWISS BANDELLA as reinforcement in problem areas, such as joints between wall and floor, 90° corners, chimneys, pipes, gutters (drains), etc. For this purpose, apply a cut portion of BANDELLA DI TNT to the still damp PAVA SEAL 250 SG and press to impregnate it, then saturate with a sufficient quantity of PAVA SEAL 250 SG. Please contact our R&D department for detailed instructions on the application of TNT fabric. We recommend reinforcing the entire surface with the glass fibre TNT fabric. Overlap the fabric strips by at least 5-10cm. After 12-18 hours (no more than 48 hours), apply another layer of PAVA SEAL 250 SG. In more difficult cases, apply a third layer of PAVA SEAL 250 SG.

CAUTION: Do not apply more than 0.6mm thickness (dry) per layer of PAVA SEAL 250 SG. For best results, the temperature at the time of application and curing should be between 5°C and 35°C. Low temperatures slow hardening, while high temperatures accelerate it. High humidity may compromise the finish.

*In the case of airless applications we recommend the use of 421-423 nozzles, pressure of 200 bar, hose diameter of 1/2 inch

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(first 15 metres), 3/8 inch (next 15 metres), 1/4 inch (last 1-2 metres).

Finishing

If perfect colour stability is desired, the application of a final coat of coloured Ultrapol is recommended. If you want to achieve a surface that is resistant to abrasion and stress (e.g. public footpaths, car parks, etc.), we recommend a multilayer cycle with the coloured Pavaflex/E and Ultrapol systems with the insertion of a suitable glass fibre mesh of approx. 150 g; please refer to the specific technical instructions for the different Top-Coat application procedures, or contact our R&D department.

CAUTION: If the surface is wet, PAVA SEAL 250 SG may be as slippery as any other ceramic coating. To reduce the slipperiness of the surface, quartz granules should be sprinkled on the uncured coating to create an anti-slip surface or these aggregates should be included in the finishing layers described above. For more information, please contact our R&D department.

Colours and packs

In metal cans of 25kg, 6kg.

Supplied in white and light grey.

The white version can be pigmented in the colours of the RAL colour chart. It is recommended to use only Pava Resine colouring pastes in percentages of 5 to 10 % max.

It is important to remember that the addition of the paste and subsequent mixing of the product reduces its stability and the possibility of reusing an already opened bucket at a later date.

Only colour the amount of product you intend to use at the time.

In case of doubt, consult Technical Office.

Warnings

We do not recommend the use of products that, upon opening the container, should show signs of instability and/or degradation including thickening, crystallization, gelatinization, sedimentation, flotation, etc. due to improper storage of the material (temperature/humidity) either during transport or in the final storage or finally for use after the expiration date

It is highly recommended that, before using Pava products, you attend the applicator course. Anyone who uses these products without being licensed to do so does so at his or her own risk and without the responsibility of the manufacturer.

Technical Notes

With damp substrates or with counterthrust moisture ≥ 4% (measured with calcium carbide), blistering, blistering or detachment of the applied layers is possible.

In these cases, it is possible to manage the problem through the prior application of Trico Bar with a vapor brake function. Such a product should be applied in 2 coats for a total consumption of at least 1.5 kg/sqm. Consult the product's technical data sheet and the Technical Office for appropriate indications.

UNI Standard 11835

The UNI 11835 standard, in force since 2021, defines and certifies the figure of the applicators and commercial technicians of resin systems for horizontal and vertical interior and exterior surfaces, outlining their basic requirements, the set of knowledge, skills, autonomy and responsibilities that within the construction supply chain must distinguish and characterize these professional figures in their relations with public and private clients, companies, designers and specifiers.

The UNI 11835 standard incorporates the knowledge introduced by the new edition of the UNI 10966 standard and profiles the sector's operators more precisely, highlighting the sector's typical features. In addition, the standard delineates resin systems operators by dividing them into four professional figures (specialized resin systems installer, foreman resin systems installer, foreman decorative resin systems installer, and sales technician). For each professional figure, the relevant tasks are described, as well as the knowledge and skills required to perform them.

The field of resin coatings therefore requires, as described above, competence and professionalism. These can be certified according to UNI CEI EN ISO/IEC 17024 through a patent obtained through an exam (written, practical and oral test) taken with a third-party certified body, as defined by UNI 11835.

It is strongly recommended to join professionalizing activities in order to acquire the professional qualification license so as to possess the competences and skills listed in the prospectuses of the aforementioned UNI 11835 standard, which can be associated with level 4 as per the QNQ classification (Recommendation 2017/C189/03, Annex II). Therefore, no responsibility can fall on the manufacturer in case the operator is not in possession of the qualification license and the consequent validated skills, in case of improper use or flaws in the works carried out, as the products must be intended for strictly professional use.

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Product for professional use

Keep out of the reach of children. During use and drying, ventilate the premises well. Do not eat, drink or smoke during use. Wear protective gloves and goggles during use and use the usual precautions for handling chemicals. In case of contact with eyes or skin wash immediately with plenty of water and seek medical advice. In case of ingestion contact a poison control center or doctor immediately. Air the premises before staying there.

The above products are found to have a low environmental impact and make it possible to abate solvent pollution while improving quality, safety and hygiene for the user. We recommend scrupulous compliance with the hygiene regulations in use for handling resins (Circ. Min. Lav. 46/1979 and 61/1989). For info ns safety data sheet.

QR-CODE

The label of each product shows the relevant QR-CODE for viewing and downloading the data sheet. In case of failure to download, please contact the Technical Department.

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