



600



Purtop

Two-component, solvent free, hybrid polyurea membrane applied by spray with a high-pressure, bi-mixer type pump, to create watertight sheets for new and old roofs not suitable for car traffic, directly on site



WHERE TO USE

Thanks to its exceptional flexibility, resistance to chemicals and capacity to bond to a wide range of substrates, **Purtop 600** is suitable for application on horizontal, sloping and curved surfaces not subject to traffic on civil and industrial buildings. Also, because of its special characteristics, **Purtop 600** is suitable for waterproofing both new and old structures.

Purtop 600 is the waterproofing membrane used in **Purtop System Roof** for covering roofs (such as those subject to pedestrian use, inverted roofs and garden roofs).

Some application examples

- Waterproofing terraces and sun terraces.
- Waterproofing roof gardens and inverted roofs.
- Waterproofing metallic cladding, including sloping surfaces.
- Waterproofing terraces and stands in stadiums (with a suitable finishing product).

ADVANTAGES

Purtop 600 has excellent bonding power and may be applied on a wide range of surfaces (concrete, cementitious screeds, terrazzo, porcelain, klinker, bituminous membranes, metals, etc.) to form a continuous strong, flexible membrane.

Purtop 600 has the following advantages:

- solvent-free and no VOC (volatile organic compounds);
- excellent bonding power on various types of substrate;
- immediate waterproofing (after 2 minutes) and rapid set to foot traffic (15-20 minutes);
- excellent tensile and tear strength;
- high crack-bridging capacity both static and dynamic even at low temperatures;
- elongation capacity higher than 450% (ISO 37);
- excellent resistance to alkalis, diluted acids and detergents;
- quick laying (more than 1000 m²/day) including on complicated surfaces;
- no reinforcement required;
- does not form overloads on load-bearing structures;
- after reticulation, the product is completely inert.

TECHNICAL CHARACTERISTICS

Purtop 600 is a two-component, solvent-free, modified polyurea resin formulation developed in MAPEI's R&D laboratories.

Purtop 600



Application of Primer SN on a concrete floor slab with a roller



Sprinkling Quartz 0.5 on fresh Primer SN



Application of Purtop 600 on a vertical overlap by spray

Purtop 600 must be applied in layers at least 2 mm thick and its very short reaction time means it may also be applied on vertical surfaces.

Thanks to its exceptional tensile and tear strength and high crack-bridging properties, after reticulation (approximately 2 minutes) the product forms a continuous waterproofing layer which adapts to any shape of substrate without cracking.

Purtop 600 complies with the principles defined in EN 1504-9 (*"Products and systems for protecting and repairing 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 principles PI, MC, PR, RC and IR (*"Concrete surface protection systems"*).

RECOMMENDATIONS

- Do not apply **Purtop 600** on substrates polluted with oil, grease or dirt in general.
- Do not apply **Purtop 600** on substrates which have not been thoroughly cleaned or primed.
- Do not apply **Purtop 600** on substrates subject to rising damp.
- A primer for damp substrates must be used whenever the level of residual humidity in the substrate is higher than 4%, such as **Triblock P**.
- Do not dilute **Purtop 600** with water or solvents.
- Do not use **Purtop 600** on surfaces continually immersed in water (such as swimming pools, fountains, storage tanks, etc.).

APPLICATION PROCEDURE

Preparation of the substrate

Each type of substrate must be individually assessed to choose the most suitable surface-preparation method, such as sand-blasting, shot-blasting, scarifying, bush-hammering or other methods.

The substrate must then be treated with a suitable primer as described below.

1. Application on concrete substrates, cementitious screeds, terrazzo, porcelain tiles and klinker

Check the substrate to make sure it is suitable for the waterproofing system. The compressive strength and tear strength of the surface must be ≥ 25 MPa and ≥ 1.5 MPa respectively. Prepare all surfaces by sanding or shot-blasting to remove all traces of oil, grease, dirt in general and any other material or substance which could

compromise the bond of the waterproofing system. Then remove all dust and crumbling or detached parts from the substrate to leave a dry, porous, slightly rough surface free of contaminants.

Repair any hollows, cavities and detached portions in the substrate with products from the **Mapegrout** and **Planitop** ranges. Choose the most suitable product according to the thickness to be repaired, the time available and the operating conditions on site.

After preparing the surface as described above, apply a coat of **Primer SN**, fillerized two-component epoxy primer with a smooth spatula or rake and sprinkle the surface with **Quartz 0.5**.

The waterproofing membrane must be laid within 12-24 hours of applying the primer (at a temperature of between $+15^{\circ}\text{C}$ and $+25^{\circ}\text{C}$). If the level of residual humidity in the substrate is higher than 4% and it is not possible to wait until it drops to a lower value, apply a number of coats of **Triblock P**, three-component epoxy-cementitious primer according to the condition of the substrate, until the system is completely sealed. When the primer has sufficiently cured (3-7 days) apply a coat of epoxy primer (such as **Primer SN** or **Mapecoat I 600 W**); contact MAPEI Technical Services for further details.

2. Application on bituminous membranes

Clean the bituminous membrane to remove all traces of oil, grease, dirt and any other substance or material which could compromise the bond of the following coat of primer. Remove all dust with a vacuum cleaner or compressed air. The membrane must be perfectly dry before inspecting the surface and, if it is damaged in any areas, such as with blisters, tears or detached areas, repair it before applying the primer. Apply a ready-to-use, synthetic resin-based impregnating product in solvent on the horizontal surfaces and vertical overlaps, such as **Primer BI**, or alternatively, **Primer P3**, two-component solvent-based polyurethane primer.

The waterproofing membrane must be laid within 2 to 4 hours after applying the primer (at a temperature between $+15^{\circ}\text{C}$ and $+25^{\circ}\text{C}$).

3. Application on metallic surfaces

Check the condition of the substrate and then dry sandblast to grade SA 2½ (according to Swedish Standards).

If it is not possible to use dry sandblasting, the substrate must be prepared using another system, such as mechanical cleaning with a scraping tool (rotary steel brush or abrasive disks) or a percussion tool (such as a stripper, chipping hammer, flat chisel or needle chisel).

After treating the surface, apply a coat of **Primer EP Rustop** two-component epoxy

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TECHNICAL DATA (typical values)

PRODUCT IDENTITY

	component A	component B
Colour:	white	amber yellow
Consistency:	fluid	liquid
Density (g/cm ³):	1.03 ± 0.03	1.09 ± 0.03
Brookfield viscosity at +23°C (mPa-s):	1,130 ± 200 (rotor 3 - rpm 50)	1,800 ± 350 (rotor 3 - rpm 50)

APPLICATION DATA (A+B) (at +23°C - 50% R.H.)

A/B ratio (by weight):	100/72
A/B ratio (by volume):	100/68
Gel time at +23°C (seconds) after mixing by hand:	17-23
Gel time at +50°C (seconds) after mixing in a static mixer:	5-6
Ambient application temperature:	from +5°C to +40°C

PERFORMANCE ON FREE FILM (thickness 2 mm)

Mechanical characteristics after 7 days at +23°C: – tensile strength (ISO 37) (N/mm ²): – elongation at failure ((ISO 37) (%): – tear strength (ISO 34-1) (N/mm):	7 450 33
Modulus at 100% (ISO 37) (MPa):	3
Shore A hardness (DIN 53505):	70
Glass transition temperature (°C):	-50

FINAL PERFORMANCE DATA (thickness 2 mm)

Performance characteristics	Test method	Requirements according to EN 1504-2	Performance of product
Permeability to water vapour:	EN ISO 7783-2	Class I $s_p < 5$ m Class II $5 \text{ m} \leq s_p \leq 50$ m Class III $s_p > 50$ m	Class I (average $s_p = 0.67$ m)
Capillary absorption and permeability to water:	EN 1062-3	$w < 0.1 \text{ kg/m}^2 \cdot \text{h}^{0.5}$	average $w = 0.01 \text{ kg/m}^2 \cdot \text{h}^{0.5}$
Permeability to CO ₂ :	EN 1062-6	$s_p > 50$ m	$s_p = 100$ m
Direct traction adherence test:	EN 1542	Flexible systems with no traffic: $\geq 0.8 \text{ N/mm}^2$ with traffic: $\geq 1.5 \text{ N/mm}^2$	2.7 N/mm ²
Static crack-bridging at -10°C expressed as maximum width of crack:	EN 1062-7	from class A1 (> 0.1 mm) to class A5 (> 2.5 mm)	Class A5 (> 2.5 mm)
Dynamic crack-bridging at +23°C:	EN 1062-7	from class B1 to class B4.2	Class B4.1 (no failure of test sample after 10000 cracking cycles with movements in the crack of 0.2 to 0.5 mm)
Impact resistance:	EN ISO 6272-1	No cracks or delamination after loading Class I: ≥ 4 Nm Class II: ≥ 10 Nm Class III: ≥ 20 Nm	Class II
Resistance to thermal shock (1x):	EN 13687-5	After thermal cycles a) no swelling, cracking or delamination b) average direct traction adherence test (N/mm ²) Flexible systems with no traffic: $\geq 0.8 \text{ N/mm}^2$ with traffic: $\geq 1.5 \text{ N/mm}^2$	1.94 N/mm ²
Abrasion resistance (Taber test):	EN ISO 5470-1	Weight loss less than 3000 mg with a H22 abrasive disk/1,000 cycles/1,000 g load	weight loss < 700 mg
Exposure to artificial atmospheric conditions:	EN 1062-11	After 2,000 hours of artificial weather: no swelling according to EN ISO 4628-2 no cracking according to EN ISO 4628-4 no flaking according to EN ISO 4628-5 Slight colour variations, loss of brightness and crumbling may be acceptable	no swelling, cracking or flaking (colour change)
Resistance to severe chemical aggression:	EN 13529	Reduction of hardness less than 50% when measured according to the Shore method (EN ISO 868), 24 hours after removing the finish from immersion in the test liquid Class I: 3 days with no pressure Class II: 28 days with no pressure Class III: 28 days with pressure	NaCl 20%: class II CH ₃ COOH 10%: class II H ₂ SO ₄ 20%: class II KOH 20%: class II CH ₃ OH : class I
Reaction to fire:	EN 13501-1	Euroclass	D-s2,d0

primer with a brush, roller or airless spray on the metal. The waterproofing membrane must be laid within 6 to 24 hours after applying the primer (at a temperature between +15°C and +25°C). As an alternative **Mapedeck Primer 200**, adhesion promoter for polyurethane systems, can be applied. The application of the membrane on this primer must be carried out within 1-3 hours (at a temperature between +15°C and +25°C).

4. Application on wooden substrates and OSB panels

Clean the substrate to remove all traces of dust, dirt and other deposits. Calculate the width and pitch of the joints between the panels in order to select the best treatment to suit the surface.

Apply a coat of **Primer SN** two-component epoxy primer with fillers on the clean, dry substrate and dust the surface with **Quartz 0.5**. The waterproofing membrane must be applied within 12 to 24 hours after applying the primer (at temperatures between +15°C and +25°C).

For any other type of substrate, contact MAPEI Technical Services Department to define the most suitable preparation treatment.

Application of the waterproofing membrane

Purtop 600 must be applied at a temperature between +5°C and +40°C. Before applying **Purtop 600**, remove all dust from the surface with an industrial vacuum cleaner. The temperature of the substrate must be at least 3°C higher than the dew-point temperature, while the level of residual humidity must be no higher than 4%.

Component A must be mixed carefully before use until it has an even colour.

To apply **Purtop 600**, use a high pressure industrial bi-mixer unit with flow and temperature control, with a self-cleaning gun.

The application temperature of the two components must be between +65°C and +85°C and the pressure must be between 160 and 200 bar.

Purtop 600 must be applied continuously on all the horizontal surfaces and vertical overlaps and inside any drain collectors on the surfaces.

If the laying of **Purtop 600** has to be interrupted and then taken up again after the maximum covering time (2 hours), an overlap of at least 30 cm must be made after applying a coat of **Primer PU60**. Please note that the maximum covering time of the primer is 1 hour.

Finishing off the membrane

Purtop 600 gradually turns yellow if

exposed to UV rays. If the membrane is exposed to UV rays, apply a coat of **Mapecoat PU 20 N** two-component aliphatic polyurethane finish with a brush or roller to guarantee its durability.

Apply the finish onto the clean and dry substrate within 24 hours of applying Purtop 600 waterproofing membrane.

For further information regarding the aforementioned products, please refer to the relevant Technical Data Sheets.

Cleaning

Because of the high bond strength of **Purtop 600**, we recommend cleaning tools with solvent naphtha before the product starts to set. Once hardened, cleaning may only be carried out mechanically.

CONSUMPTION

The consumption of **Purtop 600** depends on the roughness of the substrate. The theoretical consumption for a smooth surface with a substrate temperature of between +15°C and +25°C is approximately 2.2 kg/m² every 2 mm of thickness.

If the surfaces are rougher, consumption increases. If the substrate is seriously damaged, we recommend applying a suitable skimming coat.

PACKAGING

Purtop 600 is available in metal drums:

- component A: 210 kg drums.
- component B: 220 kg drums.

STORAGE

When stored in its original packaging in a dry, covered area at a temperature between +15°C and +25°C, the shelf life of **Purtop 600** is 12 months.

SAFETY INSTRUCTIONS FOR PREPARATION AND APPLICATION

Purtop 600 component B irritates eyes, skin and the respiratory system. It can cause sensitization if it comes in contact with the skin of subjects sensitive to isocyanates and irreversible damages for a prolonged use. Furthermore, it may be harmful and cause sensitization if inhaled. During use wear protective clothing, gloves and safety goggles, protect the respiratory tract wearing a mask and always apply the product in well ventilated areas. If the product comes in contact with the eyes or skin, wash immediately with plenty of water and seek medical attention.

In addition, **Purtop 600** component A is hazardous for aquatic life; do not dispose of the product in the environment.

For further and complete information about the safe use of the product please refer to the latest version of the Safety Data Sheet.



Application of Purtop 600 on a flat roof by spray



Covering of an underground car-park waterproofed with Purtop 600

TYPE OF PRIMER ACCORDING TO TYPE OF SUBSTRATE

SUBSTRATE	PRIMER	CONSUMPTION (g/m ²)	MIN-MAX COVERING TIMES (approximate)
Concrete	Primer SN surface-dusted with Quartz 0.5	300-600	12-24 hours
	Triblock P	600-1200	2-7 days
Terrazzo, gres porcelain, clinker	Primer SN surface-dusted with Quartz 0.5	300-600	12-24 hours
	Triblock P	500-1000	2-7 days
Metals	Primer EP Rustop	approx. 200	6-24 hours
	Mapedek Primer 200	approx. 100	1-3 hours
Bituminous membrane	Primer BI	approx. 200	2-4 hours
	Primer P3	approx. 150-200	2-4 hours
Wood and OSB panels	Primer SN surface-dusted with Quartz 0.5	300-600	12-24 h
Purtop 600	no primer	-	30 mins-2 hours
	Primer PU60	approx. 50	1 hour

Note: covering times refer to temperatures between +15°C and +25°C and the consumption may vary according to the roughness of the substrate.

PRODUCT RESTRICTED TO PROFESSIONAL USERS.

WARNING

Although the technical details and recommendations contained in this product data sheet correspond to the best of our knowledge and experience, all the above information must, in every case, be taken as merely indicative and subject to confirmation after long-term practical application; for this reason, anyone who intends to use the product must ensure beforehand that it is suitable for the envisaged application. In every case, the user alone is fully responsible for any consequences deriving from the use of the product.

Please refer to the current version of the Technical Data Sheet, available from our website www.mapei.com

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