

ADESILEX PG1 RAPIDO

Two-component, ultra rapid-setting thixotropic epoxy adhesive for structural bonding



WHERE TO USE

Repairs, bonding and structural strengthening of concrete, reinforced concrete, natural stone, mortar and brickwork structures.

Some application examples

- Structural strengthening of beams and pillars by bonding steel plates (béton-plaqué technique) or composite material (such as **Carboplate**) to concrete.
- Rigid structural bonding of pre-cast concrete elements.
- Sealing injectors and surface cracks before injecting **Epojet** with a low pressure pump.
- Sealing cracks and repairing the corners of joints in industrial floors for vehicular use.
- Bonding fibre-reinforced cement plates and tubes.
- Bonding hooks used to carry out pull-off tests.
- Waterproofing large joints by bonding TPE membranes (such as **Mapeband TPE**) to concrete.

TECHNICAL CHARACTERISTICS

Adesilex PG1 Rapido is a two-component product, made from epoxy resin, selected fine-grained, aggregates and special additives, according to a formula developed in MAPEI's own Research & Development laboratories. After mixing (component A) of **Adesilex PG1 Rapido** with its catalyst (component B), a thixotropic paste is formed which is easy to apply, even on vertical surfaces, at a thickness of up to 1 cm in a single layer. After mixing, **Adesilex PG1 Rapido** hardens without shrinking in 1 hour (at +23°C) by chemical cure, forming a composite material with excellent bond strength and high mechanical strength.

Adesilex PG1 Rapido can be applied even on very damp surfaces as long as there is no standing water.

Adesilex PG1 Rapido is particularly suitable for application at temperatures between +5°C and +23°C.

Adesilex PG1 Rapido meets the requirements defined by EN 1504-9 (*"Products and systems for the protection and repair of concrete structures - Definitions, requirements, quality control and evaluation of conformity - General principles for the use of products"*) and the minimum requirements claimed by EN 1504-4 (*"Structural bonding"*).

RECOMMENDATIONS

- **Adesilex PG1 Rapido** must not be used to seal flexible joints, or joints subject to movement (use products from **Mapesil** or **Mapeflex** ranges).
- **Adesilex PG1 Rapido** must not be used for construction joints between hardened and new concrete (use **Eporip**).
- Do not use **Adesilex PG1 Rapido** on dirty or crumbly surfaces.
- **Adesilex PG1 Rapido** must not be used for bonding or grouting anti-acid ceramic tiles (use **Kerapoxy**).
- **Adesilex PG1 Rapido** must not be used to even out concrete surfaces before bonding carbon-fibre fabric (such as **MapeWrap C UNI-AX**, **MapeWrap C BI-AX** and **MapeWrap C QUADRI-AX**). Use **MapeWrap 11** or **MapeWrap 12**.

APPLICATION PROCEDURE

Preparation of the substrate

All surfaces must be prepared very carefully to guarantee that **Adesilex PGI Rapido** bonds well to the substrate. Concrete, natural stone and brickwork substrates must be clean, solid and dry.

Sandblasting the surface of the substrate is particularly recommended, to remove loose and flaky parts, efflorescence, cement laitance and all traces of stripping oil.

Remove dust from the substrate with compressed air.

In the case of metal surfaces, sandblast down to bare metal to remove all traces of rust, paint and oil (SA 2½).

Cure freshly-cast concrete for at least 4 weeks before applying **Adesilex PGI Rapido**, to avoid the formation of stresses induced by hygrometric shrinkage of the cementitious conglomerate at the interface with the bonded material.

Do not apply **Adesilex PGI Rapido** if the temperature is lower than +5°C.

Preparation of the product

The two components which make up **Adesilex PGI Rapido** must be blended together. Pour component B (white) into component A (grey) and blend together with a low-speed drill with a mixing attachment until thoroughly blended (a uniform grey colour). The contents of **Adesilex PGI Rapido** are pre-dosed. Do not use partial quantities of the components to avoid making dosage errors when mixing, otherwise the product may not harden completely. However, if partial quantities are required, use precision electronic scales to weigh out the components.

Mixing ratio:

- 3 parts in weight of component A;
- 1 part in weight of component B.

Application of the product

Adesilex PGI Rapido may be applied on concrete, brickwork and metal using a flat trowel.

To obtain a good bond, we recommend spreading the adhesive on both surfaces and to make sure it penetrates well into the areas with an irregular surface or shape.

After spreading, press the two parts firmly together until the adhesive has completely hardened. A layer of approximately 1 to 2 mm is required to obtain a good bond. Because of its thixotropic nature, **Adesilex PGI Rapido** may also be applied on vertical surfaces and ceilings without running or dripping.

The surrounding temperature has an effect on the time required for hardening: at +23°C, **Adesilex PGI Rapido** remains workable for approximately 10 minutes at +23°C. The hardening process starts after this period.

Adesilex PGI Rapido must be applied within this time. Therefore, organise work schedules so that the application process may be completed within the period mentioned above.

PRECAUTIONS TO BE TAKEN DURING AND AFTER APPLICATION

No special precautions need to be taken if the temperature is between +10°C and +30°C.

In hot weather, do not expose the product to direct sunlight, and apply the adhesive during the cooler parts of the day, so that it does not harden too quickly and make application more difficult.

In cold weather, if the product is to be applied outside and the temperature is lower than +10°C, heat the substrate for at least 24 hours before applying the adhesive and install suitable insulating systems, to avoid the risk of freezing. Thermal insulation must be used for at least 24 hours after application. Store the product in a warm place before use.

CLEANING

Adesilex PGI Rapido bonds extremely well, including to metal, so tools must be cleaned using solvents (such as ethanol, toluene, etc.) before it hardens.

CONSUMPTION

1.65-1.75 kg/m² per mm of thickness.

PACKAGING

Available in 6 kg kits (component A = 4.5 kg - component B = 1.5 kg).

STORAGE

24 months if stored in its original packaging. Keep the product at a temperature of at least +5°C.

SAFETY INSTRUCTIONS FOR PREPARATION AND APPLICATION

Adesilex PGI Rapido is irritant for the skin and for the eyes. **Adesilex PGI Rapido** component B is corrosive and it may cause burns. Both components A and B may cause sensitisation to the skin in those subjects sensitive to such substances. The product contains low molecular weight epoxy resins that may cause sensitization if cross-contamination occurs with other epoxy compounds.

During use, wear protective gloves and goggles and take the usual precautions for handling chemical products. If the product comes into contact with the eyes or skin, wash immediately with plenty of clean water and seek medical attention.

Do not use the product near pregnant women.

Furthermore, **Adesilex PGI Rapido** component A and B are also hazardous for aquatic life. Do not dispose of these products in the environment.

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

PRODUCT ONLY FOR PROFESSIONAL USE.

TECHNICAL DATA (typical values)			
PRODUCT IDENTITY			
	component A		component B
Consistency:	thick paste		thick paste
Colour:	grey		white
Density (kg/l):	1.72		1.50
Brookfield viscosity (Pa·s):	700 (rotor F - 5 rpm)		450 (rotor D - 2.5 rpm)
APPLICATION DATA OF PRODUCT (at +23°C - 50% R.H.)			
Mixing ratio:	component A : component B = 3 : 1		
Consistency of mix:	thixotropic paste		
Colour of mix:	grey		
Density of mix (kg/l):	1.70		
Brookfield viscosity (Pa·s):	550 (rotor F - 5 rpm)		
Workability time (EN ISO 9514): - at +10°C: - at +23°C:	20 minutes 10 minutes		
Setting time: - at +10°C: - at +23°C:	4 hours 1 hour		
Application temperature range:	from +5°C to +23°C		
Complete hardening time:	4 days		
FINAL PERFORMANCE			
Performance characteristic	Test method	Requirements according to EN 1504-4	Performance of product
Linear shrinkage (%):	EN 12617-1	≤ 0.1	0 (at +23°C) 0 (at +70°C)
Compressive modulus of elasticity (N/mm²):	EN 13412	≥ 2,000	6,000
Coefficient of thermal expansion:	EN 1770	≤ 100 × 10 ⁻⁶ K ⁻¹ (taken between -25°C and 60°C)	42 × 10 ⁻⁶ K ⁻¹

Class transition temperature:	EN 12614	$\geq +40^{\circ}\text{C}$	$> +40^{\circ}\text{C}$
Durability (freeze/thaw cycles and wet/dry cycles):	EN 13733	compressive shear load > tensile strength of concrete	meets specifications
		no failure of steel test sample	
Reaction to fire:	EN 13501-1	Euroclass	C-s2, d0
Bond strength to wet concrete according to EN 12636 (N/mm ²):	EN 1542	not required	> 3 (failure of concrete)
Concrete-steel bond strength (N/mm ²):	EN 1542	not required	> 3 (failure of concrete)
Concrete-Carboplate bond strength (N/mm ²):	EN 1542	not required	> 3 (failure of concrete)
BONDED MORTAR OR CONCRETE			
Bond strength to concrete:	EN 12636	failure of concrete	meets specifications
Sensitivity to water:	EN 12636	failure of concrete	meets specifications
Shear strength (N/mm ²):	EN 12615	≥ 6	> 10
Compressive strength (N/mm ²):	EN 12190	≥ 30	> 70
STRENGTHENING USING BONDED PLATE			
Shear strength (N/mm ²):	EN 12188	≥ 12	50° > 39 60° > 34 70° > 31
Bond strength: – pull out (N/mm ²):	EN 12188	≥ 14	> 18
Bond strength: – inclined shear strength (N/mm ²):	EN 12188	50° ≥ 50 60° ≥ 60 70° ≥ 70	50° > 80 60° > 80 70° > 98

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

374-4-2016-gb

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