

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 PG1 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 PG1 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 PG1 Rapido** if the temperature is lower than +5°C.

Preparation of the product

The two components which make up **Adesilex PG1 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 PG1 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 PG1 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 PG1 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 PG1 Rapido** remains workable for approximately 10 minutes at +23°C. The hardening process starts after this period.

Adesilex PG1 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 PG1 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

When the product reacts it generates considerable heat (or low amount, depending on the product). After mixing components A and B, we recommend applying the product as soon as possible and never leaving the container unattended until it is completely empty.

Instructions for the safe use of our products can be found on the latest version of the Safety Data Sheet, available from our website www.mapei.com.

PRODUCT FOR PROFESSIONAL USE.

TECHNICAL DATA (typical values)

PRODUCT IDENTITY

	component A	component B
Consistency:	thick paste	thick paste
Colour:	grey	white
Density:	1.72 kg/l	1.50 kg/l
Brookfield viscosity:	700 Pa·s (rotor F - 5 rpm)	450 Pa·s (rotor D - 2.5 rpm)

PRODUCT APPLICATION DATA (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:	1.70 kg/l
Brookfield viscosity:	550 Pa·s (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	Product performance
Linear shrinkage:	EN 12617-1	≤ 0.1%	0% (at +23°C) 0% (at +70°C)
Compressive modulus of elasticity:	EN 13412	≥ 2,000 N/mm ²	6,000 N/mm ²
Coefficient of thermal expansion:	EN 1770	≤ 100 x 10 ⁻⁶ K ⁻¹ (taken between -25°C and 60°C)	42 x 10 ⁻⁶ K ⁻¹
Glass transition temperature:	EN 12614	≥ +40°C	> +40°C
Durability (freeze/thaw cycles and wet/dry cycles):	EN 13733	compressive shear load > tensile strength of concrete no failure of steel test sample	meets specifications
Reaction to fire:	EN 13501-1	Euroclass	C-s2, d0
Bond strength to wet concrete according to EN 12636:	EN 1542	not required	> 3 N/mm ² (failure of concrete)
Concrete-steel bond strength:	EN 1542	not required	> 3 N/mm ² (failure of concrete)
Concrete-Carboplate bond strength:	EN 1542	not required	> 3 N/mm ² (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:	EN 12615	≥ 6 N/mm ²	> 10 N/mm ²
Compressive strength:	EN 12190	≥ 30 N/mm ²	> 70 N/mm ²

STRENGTHENING USING BONDED PLATE

Shear strength:	EN 12188	≥ 12 N/mm ²	50° > 39 N/mm ² 60° > 34 N/mm ² 70° > 31 N/mm ²
Bond strength: – pull out:	EN 12188	≥ 14 N/mm ²	> 18 N/mm ²
Bond strength: – inclined shear strength:	EN 12188	50° ≥ 50 N/mm ² 60° ≥ 60 N/mm ² 70° ≥ 70 N/mm ²	50° > 80 N/mm ² 60° > 80 N/mm ² 70° > 98 N/mm ²

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

LEGAL NOTICE

The contents of this Technical Data Sheet ("TDS") may be copied into another project-related document, but the resulting document shall not supplement or replace requirements per the TDS in force at the time of the MAPEI product installation.

The most up-to-date TDS can be downloaded from our website www.mapei.com.

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