

ADESILEX PG2 TG

Two-component thixotropic epoxy adhesive for structural bonding



WHERE TO USE

Structural repair, bonding and reinforcement of concrete elements, natural stone, mortar and brick.

Some application examples

- Structural reinforcement of beams and pillars by bonding steel (beton plaqué method) or composite material (e.g. **Carboplate**) plates to concrete.
- Bonding of segmental bridge elements.
- Non-flexible structural bonding of precast concrete elements.
- Sealing injectors and surface damage before injection of **Epojet LV** by low-pressure pump.
- Sealing large cracks and repairing joint corners in industrial flooring subject to traffic.
- Bonding fibre-reinforced cement slabs and pipes.
- Waterproofing large size joints by bonding TPE strips (e.g. **Mapeband TPE**) to concrete.

TECHNICAL CHARACTERISTICS

- **Adesilex PG2 TG** is a two-component product based on epoxy resins, selected fine-grain aggregates and special additives according to a formula developed in the MAPEI research laboratories.
- After mixing **Adesilex PG2 TG** (part A) with its hardener (part B), a thixotropic mix, easy to apply even on vertical structures in thicknesses up to 1 cm in a single layer, is obtained. Once prepared, **Adesilex PG2 TG** hardens by chemical reticulation alone without shrinkage. It becomes a compound with exceptional bonding and mechanical strength.
- **Adesilex PG2 TG** is especially suitable for applications in temperatures between +25°C and +50°C.

RECOMMENDATIONS

- Do not use **Adesilex PG2 TG** for sealing flexible joints or joints subject to movement.
- Do not use **Adesilex PG2 TG** for shrinkage joints between fresh and hardened concrete (use **Eporip**).
- Do not use **Adesilex PG2 TG** on wet surfaces.
- Do not use **Adesilex PG2 TG** on dirty or crumbling surfaces.
- Do not use **Adesilex PG2 TG** for bonding and grouting anti-acid ceramic tiles (use **Kerapoxy**).

APPLICATION PROCEDURE

Preparing the substrate

- To ensure good adhesion of **Adesilex PG2 TG**, special care must be taken for the preparation of surfaces to be bonded.

- The concrete, natural stone or brick substrate must be clean and sound. The substrate may be damp up to SSD (saturated-surface-dry) condition (no standing water). Sand-blasting is ideal to remove all loose and crumbling parts, efflorescence, cement laitance and traces of form-release oils. Then remove all dust with compressed air.
- All traces of rust, paint and oil must be removed from metal surfaces, preferably by means of sand-blasting (SA 2½) down to bright metal.
- With regard to fresh placed concrete, it is necessary that the concrete cures for at least 28 days before applying **Adesilex PG2 TG**. This is to avoid tensions induced by hygrometric shrinkage of the concrete concentrated in the interface of the bonding.
- The application temperature of **Adesilex PG2 TG** must not be below +25°C.

Preparing the mix

The two parts of **Adesilex PG2 TG** must be mixed together. Pour part B (white) into part A (grey) and mix at a slow speed with a drill fixed with an agitator until a uniform paste is obtained (a uniform grey). The product is already pre-dosed. To avoid incomplete hardening of **Adesilex PG2 TG**, do not use partial quantities. When partial quantities are necessary, use a precision electronic scale.

The mixing ratio is:

- 3 parts by weight of part A;
- 1 part by weight of part B.

Applying the mix

- **Adesilex PG2 TG** can be applied on concrete, stone, brick or metal with a flat trowel or float. For bonding of segmental bridge elements, **Adesilex PG2 TG** may be applied with a gloved hand
- To obtain good bonding, it is recommended to spread the adhesive on both surfaces that need bonding and let the product penetrate well, especially on irregular surfaces.
- After applying the adhesive, unite the two pieces that need bonding and keep firm until the adhesive has completely hardened. Because of the excellent thixotropic property, **Adesilex PG2 TG** can be also applied vertically or on ceilings without slipping.
- The environmental temperature has an effect on the hardening time of the product. At +50°C **Adesilex PG2 TG** remains workable for 20 minutes. After this time, the product begins the hardening process.
- **Adesilex PG2 TG** must be applied within the useful pot life time. It is therefore useful to plan the work within the time limit mentioned above.

Precautions to be taken before application

No particular precautions need to be taken with temperatures between +25°C and +50°C. Do not expose the product to sun light and carry out bonding during the cooler hours of the day in order to prevent the rapid hardening of the product which would make the application difficult.

Cleaning

Due to the high bonding strength of **Adesilex PG2 TG** even to metal, it is recommended to clean working tools with solvents (ethyl alcohol, toluol, etc.) before the product hardens.

TECHNICAL DATA (typical values)

PRODUCT IDENTITY		
	Component A	Component B
Consistency:	thick paste	thick paste
Colour:	grey	white
Density (kg/l):	1.70	1.80
Brookfield viscosity (mPa·s):	800000 (F shaft – rev.5)	700000 (D shaft – rev. 2.5)
APPLICATION DATA		
Mix Ratio:	component A : component B = 3 : 1	
Consistency of mix:	thixotropic paste	
Color of mix:	grey	
Mass density of mix (kg/l):	1.71	

Brookfield viscosity (mPa·s):	900000 (F shaft – rev. 5)
Application temperature range (°C):	from +25 to +50
Complete hardening time (days):	7
Pot life (preconditioning +50°C) (FIP Clause 5.1) (mins):	20
Open time (at +25°C for 24 hours and 100% R.H.) (FIP Clause 5.2) (mins):	> 60

FINAL PERFORMANCE

Performance characteristic	Test method	Requirement of FIP	Performance of product
Shrinkage (at +50°C for 7 days) (%):	FIP 5.7	≤ 0.4	0.2
Heat resistance:	FIP 5.10 (ASTM D 648 – Method B)	≥ 50°C	approx. 85°C
Compressive modulus of elasticity (7 days at +25°C and 50% R.H.) (MPa):	FIP Clause 5.13	8000	8500
- instantaneous		6000	7800
- deferred (1 hour):			
Shear modulus (at 25°C for 7 days) (MPa):	FIP Clause 5.16	≥ 1500	2900
- instantaneous		≥ 1200	2600
- deferred (1 hour):			
Thixotropy test at 10 minutes:	FIP Clause 5.3	≤ 30	0
- flow (mm):			
Creep in pure compression with maximum load 16 kN (at +40°C for 7 days) (MPa):	FIP 5.8 & 5.13	≥ 8000	10560
- instantaneous:		≥ 6000	10140
- deferred (1 hour):			
Creep in pure shear (at +50°C for 7 days) (MPa):	FIP Clause 5.8 & 5.16	≥ 1500	3590
- instantaneous:		≥ 1000	2095
- deferred (28 days):			
Water absorption and solvability of segmental bonding (at +50°C for 7 days) (%):	FIP Clause 5.9	≤ 0.5	0.03
- water absorption:		≤ 0.1	0.09
- solvability:			
Angle of internal friction (mm ²):	FIP Clause 5.4	≥ 3000	4350
- load 15 kg and average diameter 75mm:		≥ 7500	11830
- load 200 kg and average diameter 123mm:		≥ 10000	13220
- load 400 kg and average diameter 130mm:			
Tensile bending strength and bonding strength to concrete surfaces (20/40 concrete with brush hammered boarding faces) (+25°C and 100% R.H.):	FIP 5.5 & 5.14	100% failure of the concrete	100% failure of the concrete
Compressive strength at +25°C (MPa):	FIP Clause 5.6 & 5.12	≥ 20 (FIP 5.6)	35
- 12 hours:		≥ 40/60 (FIP 5.6/5.12)	82
- 24 hours:		≥ 75 (FIP 5.6 & 5.12)	89
- 7 days:			
Shear strength (at +25°C for 7 days) (MPa):	FIP Clause 5.15	≥ 12	27
Bond strength on damp concrete according to EN 12636 (N/mm ²):	EN 1542	Not required	Failure of concrete

CONSUMPTION

1.71 kg/m² per mm of thickness.

PACKAGING

6 kg kit (part A: 4.5 kg; part B: 1.5 kg).

STORAGE

24 months in its original, sealed packaging at a temperature of between +10°C and 40°C.

SAFETY INSTRUCTIONS FOR PREPARATION AND APPLICATION

When the product reacts it generates considerable heat. 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 SDS available from our website www.mapei.com.my

PRODUCT FOR PROFESSIONAL USE.

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.my


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