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epidermix® 395

LIQUID EPOXY GROUTING & CRACK REPAIRING COMPOUND

DESCRIPTION

Two-component, modified-epoxy liquid.

USES

As a grouting medium, either as supplied or converted into a mortar, for fixing starter bars, bolts and other similar items, vertically down into concrete or rock. As a flowable grout or bedding for areas of difficult access. As a fast-setting crack repairing compound.

epidermix® 395 exhibits good damp tolerance, provided that appropriate mechanical surface preparation has been carried out to ensure adequate mechanical bonding

ADVANTAGES

- Stronger than surrounding concrete and steel
- Easy pouring for upstanding bolts and concrete road/slab cracks
- Easy access to narrow gap horizontal areas

DESIGN CRITERIA

Given adequate concrete strength and provided that a bar of deformed or threaded steel, either mild or high tensile, is embedded to a depth of at least 15 diameters, it can be expected that any failure of the assembly will be due to tensile rupture of the steel.

epidermix® 395 grouting allows the steel and the concrete to operate at full design strength. Regarding the diameter ratio of hole to rod, it has been shown that the ultimate average bond strength is at its max at a ratio of 1.3:1. Ultimate average bond stress reduces as the hole:rod ratio increases to a value of 1.67:1. Thereafter it remains constant. An increase of diameter ratio from 1.3 to 1.67 will reduce the ultimate average bond strength by some 20%.

SURFACE PREPARATION

All surfaces must be clean, sound and dry or saturated surface dry (SSD). Cast concrete must be free of all laitance, dust and foreign matter.

Drilled concrete and rock must be free of dust and debris and if wet-drilled must be dry or saturated surface dry (SSD) and free of all traces of slurry. Any glaze caused by core drilling must be removed by mechanical roughening to ensure good bonding between the adhesive and the concrete/rock surface. Close-fitting burrs attached to a long shaft mounted in a power drill will aid in this respect. Pockets must be both free of standing water and surface dry. Smooth steel should be abrasive blast cleaned, and must be free of scale, rust and oily material. Deformed and threaded bars should be oil and grease free and must be free of rust and scale.

PROPERTIES OF WET MATERIAL	
Mixing ratio	Do not split kit
Density	1.09 g/cm^3
Colour: Base Activator Mixed	 Transparent, light amber Transparent, dark amber Clear amber
Flash point	> 100 °C
Dilution	Do not dilute
Consistency	Low viscosity liquid
Toxicity	Uncured material is toxic
Shelf life	2 years from date of manufacture
Storage conditions	Store under cover in cool place

BONDING/PRIMING

Self priming.

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TYPICAL PROPERTIES OF CURED MATERIAL

epidermix® 395 complies with EN 1504 3 (Class R4), EN 1504-5, and EN 1504-6.		
Compressive Strength (7 days) EN 12190	133 MPa avg	Exceeds EN 1504-3 Class R4 requirement (≥45 MPa)
Elastic Modulus EN 13412	28 GPa	Meets EN 1504- 3 Class R4 requirement (≥20 GPa).
Pull off Adhesion before cycling EN 12618-2	3.34 MPa	Meets EN 1504-3 / EN 1504-5 (≥2.0 MPa).
Pull off Adhesion after cycling EN 13687-3	3.15 MPa	
Injectability EN 1771	Yes	Into 0.3 mm cracks: continuous filling, no voids/leakage.
Glass Transition Temperature (Tg)EN 12614	57.76 °C	Meets EN 1504- 6 requirement (≥45 °C).
Working Time	70 minutes at 20 °C	
Pull Out Strength EN 1881 / EN 1504-6	91.56 kN avg	Displacement <0.6 mm at 75 kN.
Chloride Content EN 1015-17	0.0029%	Meets <0.05%.
Water resisitance	Good damp tolerance, provided that appropriate mechanical surface preparation has been carried out to ensure adequate mechanical bonding.	
Solvent resistance	Resists aliphatic solvents, vegetable and mineral oils and greases, petroleum fuels	
Compressive strength @ 25 °C (+1.5 vol silica filler)	90 MPa @ 7 days	
Tensile strength @ 25 °C (Modified Arizona Shear Test)	55 MPa @ 7 days (Prisms failed in concrete)	
Grouting test 15 diameter embedment, annulus 25% of diameter	12 mm HT bars fractured	
Shrinkage during curing	Neglible	

CONSUMPTION CALCULATION

The quantity of **c** required may be calculated from the formula:

$$\frac{0{,}8\,(D+d)(D-d)\,HN}{1\,000} = \text{Liters of grout required where:}$$

D = diameter of hole in cm
d = diameter of metal in cm
H = depth of hole in cm
N = number of holes

This gives a figure for liquid consumption without any allowance for wastage. A filled grout will require about 0.6 of this quantity of liquid when filled 1.5:1.

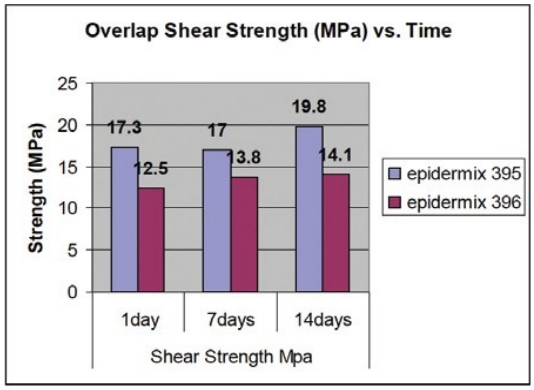
PROPERTIES DURING APPLICATION

Application by	Pouring or injection gun. As a flowable mortar by pouring
Work life (as mortar- 500 ml kit)	15 °C – 80 min 20 °C – 60 min 25 °C – 40 min 30 °C – 30 min 35 °C – 20 min
Work life (as mortar – 1 ℓ kit)	15 °C – 60 min 20 °C – 45 min 25 °C – 30 min 30 °C – 22 min 35 °C – 15 min
Volume solids	100%
Curing time @ 25 °C	Touch dry: 6 hrs Practical cure: 12 hrs Full cure: 7 days
Application temp range	10 °C to 40 °C Temperature of metal to be grouted should not exceed 25 °C at time of grouting. If application temperatures are above 30 °C consult **a.b.e.®**'s Technical Department for special precautions. 1 ℓ mixed, unfilled **epidermix® 395** will be sufficient for 1 ℓ annulus volume
Application rate	1 ℓ mixed **epidermix® 395** filled with dry silica grit will be sufficient for approx. 1.9 ℓ annulus vol. filled at a loading of 1.5:1 Approx 2 ℓ annulus vol. when filled at loading of 2:1. None of these figures allow for any wastage, which can run as high as 20% - 25%.
Max application rate	Do not grout unfilled **epidermix® 395** into a hole larger than 1,5 times bar diameter. When grouting with filled **epidermix® 395** , annulus width should be kept as small as possible.
Fire resistance of wet material	Non-flammable
Equipment clean-up	**abe® super brush cleaner**
Max service temperature	70 °C

MIXING

Stir both containers individually and ideally use a can opener to remove the lip of the containers. Add the entire contents of the activator tin to the base and stir with a flat paddle until an even streak-free mixture results. This takes at least five minutes. If a mortar is required, premix the base and activator and then add silica grit aggregate. Up to two volumes may be used and the whole mixture must be stirred until the aggregate is evenly wetted.

Overlap Shear Strength



APPLICATION

For best results mixed material should be poured into the hole to such a level that when the bar is inserted, material displaced just reaches the top of the hole. Bar should be inserted into the compound with a rotary motion to ensure full wetting of both bar and concrete faces. Do NOT merely drop the bar in as this can result in air entrapment. If the bar is already positioned, pour compound slowly into the annulus, punning with a piece of suitable wire to help release air bubbles. If it is important that the bar must remain vertical, a jig or template must be used until the compound has set. Where **epidermix® 395** mortar is being used to bed an object (i.e. fill a gap between horizontal surfaces) pouring must be done from one point only, to prevent air entrapment.

Provision must be made for any entrapped air to escape by venting, if necessary. If shuttering has to be provided to retain the grout whilst setting, shutters must be treated with a release agent or faced with plastic sheeting. It will be necessary to provide an inlet point into the shuttering so that a head of compound can be built up to promote flow. Again venting must be provided.

As a fast-setting crack repairing compound, full details are contained in the 'Crack Injection Data Sheet'.

Note: **epidermix® 395** is recommended for use in cracks from 0.10 to 0.05 mm. For wider cracks, see **epidermix® 365**.

CONSUMPTION REQUIRED CALCULATION:

Length of crack x Depth of crack x Width of crack (all in cm) divided by 1000 = litres of resin required.

CLEANING

abe® super brush cleaner before dried/cured.

PROTECTION ON COMPLETION

Against traffic and spillage until cured.

TEMPERATURE AND RELATIVE HUMIDITY

See "Properties of Cured Material" and "Properties During Application".

MODEL SPECIFICATION

Two component structural liquid epoxy grouting compound for fixing starter bars vertical down, holding down bolts etc. Low creep. The grouting compound shall be **epidermix® 395**, a two component, flowable structural liquid epoxy applied in accordance with the manufacturers recommendations, **a.b.e.®**

PACKAGING

epidermix® 395 is supplied in 500 ml, 1 ℓ and 5 ℓ metal containers.

HANDLING & STORAGE

This product has a shelf life of 24 months if kept in a dry cool place in the original packaging. In more extreme conditions this period might be shortened.

HEALTH & SAFETY

Product safety information required for safe use is not included. Before handling, read product and safety data sheets and container labels for safe use, physical and health hazard information. The safety data sheet is available from your local **a.b.e.®** sales representative.

IMPORTANT NOTE

This data sheet is issued as a guide to the use of the product(s) concerned. Whilst **a.b.e.®**endeavours to ensure that any advice, recommendation, specification or information is accurate and correct, the company cannot accept any liability for application – because **a.b.e.®**has no direct or continuous control over where and how **a.b.e.®** products are applied.

FURTHER INFORMATION

Where other products are to be used in conjunction with this material, the relevant technical data sheets should be consulted to determine total requirements.

a.b.e.® has a wealth of technical and practical experience built up over the years in the company's pursuit of excellence in building and construction technology.

Please consult our website for our latest data sheets.

DATE UPDATED: 20/04/2026

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