Product Code: PCG

TECHNICAL DATA SHEET

CERAMIC SUPERGRADE

Epoxy Repair Paste

Description

Ceramic Supergrade is a silicon carbide-filled, two-part epoxy paste. It is applied with a hand tool to metal, plastic and other materials. It creates an ultra-smooth, low friction repair reinforced with ceramic which offers high resistance to abrasion.

The silicon carbide in Ceramic Supergrade gives the cured material ultimate hardness and an ultra-smooth finish. This smoothness ensures less friction when parts rub together, making Ceramic Supergrade ideal for the repair and maintenance of equipment in mills, mines and other industries where abrasion is commonplace.

Ceramic Supergrade rebuilds large sections of heavy damage to machine parts and surfaces, forming an extremely hard-wearing repair material which easily fills significant holes and cracks. It repairs silos, chutes, impeller blades, fans, metal castings, pumps, valves and tanks.

When applied over parts and surfaces as a protective measure, Ceramic Supergrade forms a toughened outer shell which takes the brunt of impact rather than the original substrate, extending the lifespan of machinery and equipment.

Ceramic Supergrade has a 60 minute work time, allowing large quantities to be mixed and carefully applied without the threat of premature curing. A full cure is achieved in 24 hours. Its light consistency makes it easier to mix than stiff, heavy traditional epoxy pastes. It is thixotropic, meaning it will not sag. Ceramic Supergrade is virtually odourless, with no unpleasant smell compared to other epoxy pastes. It is blue-coloured.

Applications

- Extending equipment lifespan of by protecting against abrasion, corrosion and chemical attack
- Rebuilding worn and damaged surfaces and machinery
- Repairing heavy damage to shafts, silos, chutes
- Repairing valves, fan blades, metal castings and tank

Advantages

- Ultra-smooth finish creates low friction surface
- Silicon carbide-filled for increased resistance to abrasion
- Moisture tolerant, easy to mix and apply with a long work time for larger applications

Technical Data

Minimum shelf life (months @ 24°C)	24
Mix ratio (weight)	2:1
Mix ratio (volume)	2:1
Gel time (minutes)	60
Recoat time (hours)	1-2
Full cure (hours)	24
Shore D hardness (full cure, 24 hrs.)	90
Lap shear tensile strength (Mpa)	
On Steel	14
Tensile strength (MPa)	30
Compressive strength (MPa)	100
Flexural strength (MPa)	70
Density (gm/cm^3)	1.6
Shrinkage (%)	<1
Non-volatile content (%)	100
Heat distortion	
Cured at room temperature (°C)	56
Post cured (°C)	100
Maximum service temperature (°C)	130

(values are typical and should not be used for specification purposes)

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Directions for Use

Surface Preparation

- Surfaces must be prepared prior to application, dry and free of grease. Clean and roughen for optimum adhesion.
- Remove all paint, rust and grime from the surface by abrasive blasting or with sandpaper.
- If applying to aluminium, remove oxidation from surface for optimal adhesion.
- Roughen the surface first, ideally by grit blasting (8-40 mesh grit) or through grinding with a coarse wheel or abrasive disc pad. An abrasive disc may be used provided white metal is revealed. Do not 'feather edge' - Ceramic Supergrade must be 'locked in' by defined edges and a good 3-5mm profile.
- Metal which has been in contact with seawater or other salt solutions should be grit blasted, high pressure water blasted and then left overnight to allow salts in the metal to 'sweat' to the surface. Repeat this process if necessary to 'sweat out' all of the soluble salts.
  - Test for chloride contamination before application.
  - The maximum soluble salts left on the substrate should be no more than 40 ppm.
- Use a solvent cleaner to remove all trances of sandblasting, grit, oil, grease, dust or other foreign substances.
- In cold working conditions, it is recommended the repair area is heated to 37ºC-43ºC prior to application. This will dry off any moisture, contamination or solvents for maximum adhesion.
- Apply Ceramic Supergrade as soon as possible after preparation to avoid oxidation or rusting.

Mixing Ceramic Supergrade

- Measure 2 parts resin to 1 part hardener by volume or weight. For convenience when mixing an entire kit, Ceramic Supergrade is supplied with Part A and Part B in the correct 2:1 mix ratio.
- Mix together with a trowel, other hand tool or stirrer until the epoxy is streak free and a uniform colour.

Application Method

- Ceramic Supergrade should be applied at room temperature between 13ºC and 52ºC.
- Spread Ceramic Supergrade over prepared surface with a putty knife. Press firmly to ensure maximum surface contact and avoid trapping air.
- To bridge large gaps or holes, use fibreglass, sheet metal or wire mesh.
- Ceramic Supergrade work time is 60 minutes. A full cure is achieved in 24 hours. Exact cure time is dependent upon the thickness of the application and temperature at the time of the repair.
- A hot air gun can be used to reduce the full cure time to 10-20 minutes at room temperature. Apply heat evenly over the epoxy and surrounding substrate. Keep the gun moving to ensure an even cure. This will also prevent the epoxy melting or running and prevent damage from overheating.
- When applying more than one coat, ensure previous coating has fully hardened. Recoat time is approximately 1-2 hours.

Post Curing

- Heat resistance can be as high as 130°C. To achieve max temperature resistance, post-curing should take place:
- Cure at room temperature for 24 hours.
- Heat at 80°C for 2 hours.
- Heat at 130°C for 3 hours.
- Allow to cool.

Packaging

Product Code	Pack Size
PCG-500g	500g
PCG-4x500g	4 x 500g
PCG-2kg	2kg
PCG-5kg	5kg
PCG-37.5kg	37.5kg

Storage

Ceramic Supergrade should be stored out of direct sunlight in dry, frost free conditions at temperatures between 15°C and 20°C. Under such conditions, shelf life will be two years from the date of manufacture.

Health & Safety

Ceramic Supergrade consists of epoxy resins and hardener systems. Please consult the individual Material Safety Data Sheet for hazard information. Wear eye protection and rubber or plastic coated gloves. Wash hands with soap and water immediately after use.