



Bonham Drive, Eurolink Industrial Estate
 Sittingbourne, Kent. ME10 3RY
 Tel 01795 427888 Fax 01795 479685
 Email sales@eurobondadhesives.co.uk

CERASTIL C4 FOR ELECTRIC INSULATING, BONDING, SEALING, ASSEMBLING AND EMBEDDING

Description

These are ready to use pastes of high fired ceramic based cements. All four cements produce strong bonds to most clean wettable surfaces. All good electrical insulators, acid and solvent resistant, fire proof, odourless will produce strong, 100% ceramic bonds with high mechanical strengths and dielectric properties at elevated temperatures.

These cements may be used to assemble electronic parts, insulate heater wires, seal thermocouples, bond refractories, repair cracks in furnaces, pot electrical components, cement porcelain, concrete, glass, metal, asbestos, coat resistors, bricks, pipes, etc. They are suitable for use on production lines with mechanical dispensers because they will not harden in the equipment.

The following table summarizes the major differences among the cements.

<u>Typical properties</u>	<u>Cerastil C4</u>
Base	SiO ₂
Maximum temperature	1000°C
Thermal Expansion Coefficient (in/in/°F)	7 x 10 ⁻⁶
Thermal Conductivity (BTU/ft ³ /hr/°F/in)	7
Compressive Strength N/mm ²	19.7
Density	2.1 g/cc
Colour	tan
Shrinkage/Expansion	0.4%
Dielectric Strength at 23°C (Volts/mil)	3 - 17

Directions

Cements should be thoroughly stirred with upward movement from bottom of containers as there is some settling during prolonged storage. When all ingredients are remixed and cement is creamy smooth, then it may be applied by syringe, brush, trowel, dipping, etc. to any clean surface above 10°C free from oil or grease. Roughening the surface of wood, metal and plastics by sanding or shot blasting will often produce improved bond strengths.

Porous ceramic bodies should be dampened with water or thinning liquid immediately before applying cement to prevent binder depletion at the bond interface caused by excessive wicking action of the pores.

Thinning

If the cements are too thick for certain operations, they should be thinned only with special solvents. For C4, use L-10 Thinning Liquid.

Curing

These cements harden by solvent loss from the surface. In assemblies where solvent loss is restricted, (i.e. small deep hole in metal tube) hardening will be excessively long unless baked at low temperatures to force dry.

Best results are usually obtained by allowing the assembly to air dry 24 hours at room temperature and then baking at 60 to 90°C until weight loss has stopped. If excessive solvent is present as the part is heated above the solvent boiling point (95°C), it will flash to steam and disrupt the bond. Once safely past 120°C the cements can be rapidly brought to desired operating temperature. It is important that once set-up begins, no movement or vibration of the parts is allowed to disrupt developing bonds.

Joints

Work the cement strongly into the surfaces to be joined. Add excess cement to the centre of a joint so that when surfaces are mated the cement squeezes to the edges filling the joint. Wipe away excess cement with a damp cloth. Only moderate pressure, if any, is necessary to ensure good bonding. Joints should be 0.75 - 1.5 mm thick for maximum strength.

Physical properties

Hardness, abrasion resistance, mechanical strength and dielectric properties are all improved by heat treatment to 200°C or above. All grades may be rendered permanently resistant to water by washing the completely cure cements with a dilute acid solution such as ammonium chloride, acetic acid or 10% hydrochloric (muriatic).

These cements are highly resistant to all common solvents and acids such as nitric, chromic, hydrochloric and sulphuric. Note that prolonged contact hydrofluoric acid or strong alkalines will weaken the cement.

For best dielectric properties the cements should be sealed with a dielectric or silicone varnish immediately after baking at 200°C for 4 hours.

The highest density and greatest gas imperviousness is obtained by a very slow drying schedule. Allow to air dry 2-3 days at room temperature, hold at 60°C for 2 hours then go to 5°C per hour to 120°C and allow to cool with oven. Careful mixing of cement to prevent entrapment of air, vacuum degassing and

vibration during filling, all greatly aid in producing gas tight bodies.

CERASTIL C4 FOR ELECTRIC INSULATING, BONDING, SEALING, ASSEMBLING AND EMBEDDING

Shelf life

Except for settling, all grades will remain in good condition for at least one year, if stored in the original sealed containers in which they were supplied. Replace covers as soon as possible after use to prevent hardening in the can.

Packaging

All cements are packaged in jars at 1, 5 and 20 kg and the thinning liquids in jars at 1 and 5 litres.

29.01.98

No liability is accepted for any injury, loss or damage arising directly or indirectly from the use of the Company's products or from the use of information given in our publications, which is intended to serve as a guide only. Customers should satisfy themselves by appropriate trials that the products are suitable for their intended use.

