

1 YEAR
WARRANTY



Ω OMEGA® **User's Guide**

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CC Cement **High Temperature Cement**

General

OMEGA® CC High Temperature Cement is a zircon base, two-part ceramic cement which has many exceptional characteristics including:

- Resists temperatures to 1550°F (843°C) as well as cryogenic conditions (-200°C).
- Resists water, oil, electricity, most solvents and all acids (except hydrofluoric).
- Heat conductive and thermal shock resistant.
- Excellent electrical insulator.
- Adheres to metals, ceramics, glass, porcelain, and most other surfaces.
- Excellent mechanical strength.
- Ceramic-like body.

CC High Temperature Cement is an inorganic cement used for embedding heating elements; insulating thermocouples; coating resistors and coils; sealing and assembling parts which require high resistance to electricity, chemicals, and thermal shock.

Handling

CAUTION

- Avoid prolonged breathing of vapors - work in well ventilated area
- Protect skin against contamination
- Protect eyes against contamination
- Do not take internally

CC Cement Liquid Binder is an alkaline material and may irritate eyes and skin. Avoid contact with eyes and skin by wearing gloves and goggles or a face shield. CC Cement powder Filler is a harmful dust. Avoid breathing dust by wearing respirators. Wash thoroughly with soap and water after handling the liquid Binder and / or the powder Filler before eating and smoking.

Shelf Life

The CC High Temperature Cement has a shelf life of one (1) year when stored in closed, tightly sealed containers in a dry location at 70°F.

Application

The CC High Temperature Cement is supplied in two containers-one being the powder, Zirconium Silicate, the other being the liquid, Sodium Silicate. These two components are mixed together as needed. **The usual mixture is 80% powder Filler to 20% liquid Binder by weight.** CC Cement may be mixed to a thinner consistency by regulating the amount of liquid Binder used; however, the use of excess liquid will reduce mechanical strength, increase shrinkage and delay the set time. CC may be used in a vacuum, depending on application, without out-gasing. The mixture may be applied by brushing, dipping, pouring molding or by mechanical dispenser.

Curing

CC Cement hardens with an internal chemical-setting action with an initial set in approximately 30 minutes. The final set is reached in 18 to 24 hours when cured at room temperature. If it is desired to accelerate the curing time, set the drying oven to 65°C (150°F) and the cement will cure in 4 hours. If the drying oven is set to 104°C (220°F), the cement will cure in 3 hours.

Solvent

To remove cured cement, soak it with Sodium Hydroxide. The cement should soften with time. Wipe clean with cloth.

NOTE

Material safety information (in the Material Safety Data Sheet) can be obtained by contacting OMEGA Engineering and asking for MSDS-0103.

Specifications

Color:	Tan
Maximum Service Temperature:	843°C (1550°F)
Thermal Conductivity (K Factor) at 260°C (500°F):	8 Btu·in/ft ² ·hr·°F
Curing Time:	(2.7 x 10 ³ Cal·cm/cm ² ·sec·°C)
At Room Temperature:	18 to 24 hours
At 65°C (150°F):	4 hours
At 104°C (220°F):	3 hours
Absorption (Water):	10 to 12%
Shrinkage:	0.50%
Coefficient of Thermal Expansion:	4.6 x 10 ⁻⁶ in/in/°F
Density:	141 lb/ft ³ (pcf) 2.26 g/cm ³
Specific Gravity:	1.92 ±0.05g/cc
Dielectric Strength ASTM D-149	
At 21°C (70°F):	25.0 to 51.0 Volts/mil (980 to 2000 Volts/mm)
At 399°C (750°F):	12.5 to 25.0 Volts/mil (490 to 980 Volts/mm)
At 801°C (1475°F):	≤1.3 Volts/mil (51 Volts/mm)
Compressive Strength:	3900 PSI (274 kg/cm ²)
Tensile Strength:	425 PSI (29 kg/cm ²)
Volume Resistivity ASTM D-1829	
At 21°C (70°F):	10 ⁷ to 10 ⁹ ohm·cm
At 399°C (750°F):	10 ⁴ to 10 ⁶ ohm·cm
At 801°C* (1475°F):	10 ² to 10 ³ ohm·cm
Dielectric Constants:	5.0 to 7.0



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WARRANTY/DISCLAIMER

OMEGA ENGINEERING, INC. warrants this unit to be free of defects in materials and workmanship for a period of **13 months** from date of purchase. OMEGA's WARRANTY adds an additional one (1) month grace period to the normal **one (1) year product warranty** to cover handling and shipping time. This ensures that OMEGA's customers receive maximum coverage on each product.

If the unit malfunctions, it must be returned to the factory for evaluation. OMEGA's Customer Service Department will issue an Authorized Return (AR) number immediately upon phone or written request. Upon examination by OMEGA, if the unit is found to be defective, it will be repaired or replaced at no charge. OMEGA's WARRANTY does not apply to defects resulting from any action of the purchaser, including but not limited to mishandling, improper interfacing, operation outside of design limits, improper repair, or unauthorized modification. This WARRANTY is VOID if the unit shows evidence of having been tampered with or shows evidence of having been damaged as a result of excessive corrosion; or current, heat, moisture or vibration; improper specification; misapplication; misuse or other operating conditions outside of OMEGA's control. Components in which wear is not warranted, include but are not limited to contact points, fuses, and triacs.

OMEGA is pleased to offer suggestions on the use of its various products. However, OMEGA neither assumes responsibility for any omissions or errors nor assumes liability for any damages that result from the use of its products in accordance with information provided by OMEGA, either verbal or written. OMEGA warrants only that the parts manufactured by the company will be as specified and free of defects. OMEGA MAKES NO OTHER WARRANTIES OR REPRESENTATIONS OF ANY KIND WHATSOEVER, EXPRESSED OR IMPLIED, EXCEPT THAT OF TITLE, AND ALL IMPLIED WARRANTIES INCLUDING ANY WARRANTY OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE HEREBY DISCLAIMED. LIMITATION OF LIABILITY: The remedies of purchaser set forth herein are exclusive, and the total liability of OMEGA with respect to this order, whether based on contract, warranty, negligence, indemnification, strict liability or otherwise, shall not exceed the purchase price of the component upon which liability is based. In no event shall OMEGA be liable for consequential, incidental or special damages.

CONDITIONS: Equipment sold by OMEGA is not intended to be used, nor shall it be used: (1) as a "Basic Component" under 10 CFR 21 (NRC), used in or with any nuclear installation or activity; or (2) in medical applications or used on humans. Should any Product(s) be used in or with any nuclear installation or activity, medical application, used on humans, or misused in any way, OMEGA assumes no responsibility as set forth in our basic WARRANTY/DISCLAIMER language, and, additionally, purchaser will indemnify OMEGA and hold OMEGA harmless from any liability or damage whatsoever arising out of the use of the Product(s) in such a manner.

RETURN REQUESTS / INQUIRIES

Direct all warranty and repair requests/inquiries to the OMEGA Customer Service Department. **BEFORE RETURNING ANY PRODUCT(S) TO OMEGA, PURCHASER MUST OBTAIN AN AUTHORIZED RETURN (AR) NUMBER FROM OMEGA'S CUSTOMER SERVICE DEPARTMENT (IN ORDER TO AVOID PROCESSING DELAYS).** The assigned AR number should then be marked on the outside of the return package and on any correspondence.

The purchaser is responsible for shipping charges, freight, insurance and proper packaging to prevent breakage in transit.

FOR **WARRANTY** RETURNS, please have the following information available **BEFORE** contacting OMEGA:

1. Purchase Order number under which the product was PURCHASED,
2. Model and serial number of the product under warranty, and
3. Repair instructions and/or specific problems relative to the product.

FOR **NON-WARRANTY** REPAIRS, consult OMEGA for current repair charges. Have the following information available **BEFORE** contacting OMEGA:

1. Purchase Order number to cover the COST of the repair,
2. Model and serial number of the product, and
3. Repair instructions and/or specific problems relative to the product.

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