OMEGABOND® OB-600

HIGH TEMPERATURE CHEMICAL SET CEMENT

INSTRUCTION SHEET

M1239-0217

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GENERAL DESCRIPTION

The OMEGABOND® OB-600 High Temperature Chemical Set Cement is a one-part ceramic cement which has many exceptional characteristics including:

- Resists temperatures to 1426°C (2600°F)
- Resists oil, solvents and most acids (except hydrofluoric)
- Heat conductive and thermal shock resistant
- Excellent electrical insulator
- Adheres to metals, ceramics, glass, porcelain and most other surfaces
- Excellent mechanical bonding characteristics
- Ceramic-like body

OMEGABOND® OB-600 cement is an electrical refractory cement used where high levels of electrical insulation and thermal conductivity are needed. It is ideal for potting applications that are subject to high temperature and/or thermal shock. The cement provides heavy-duty electrical insulation for appliances, nickel chromium resistance heating elements, pyrometers and resisters.

HANDLING INFORMATION

CAUTION

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

OMEGABOND® 600 Cement Powder is a harmful dust. Avoid breathing dust by using respirators. Avoid contact with eyes or skin by wearing gloves and goggles or a face shield. Wash thoroughly with soap and water after handling. Keep containers closed.

SHELF LIFE

OMEGABOND® 600 Cement Powder has a shelf life of 1 year when stored in unopened, tightly sealed containers in a dry location at 70°F.

SOLVENT

A 10% caustic or alkaline solution such as 10% NaOH (Sodium Hydroxide) will break down the OB-600 cement after it has cured. However, care should be exercised as far as the compatibility of the caustic solution with any other components involved in the application, such as the material or surface that the cured cement has been applied to.

DIRECTIONS FOR USE

OMEGABOND® OB-600 cement is a one-part cement and is supplied as a powder. Weigh out 100 parts of OMEGABOND® 600 powder and 13 parts of water. First place the powder into a clean mixing container. Then add water to the powder all at one time while mixing - DO NOT ADD WATER GRADUALLY! Continue mixing with a slow-speed mixer or with a hand spatula until smooth, uniform consistency is obtained. Avoid using excess amounts of water. Excess water reduces the mechanical strength, increases the amount of shrinkage and delays the setting time of the cement. Failure of the cement to adhere indicates setting has begun - in this case discard the cement (do not attempt to retemper by adding more water).

Porous substrates should be dampened with OMEGABOND® Cement Thinning Liquid (Part No. OB-TL), prior to application of the mixed cement.

CURING

OMEGABOND® 600 cement cures with an internal chemical-setting action in 18-24 hours at ambient temperature. Cure time can be accelerated by low temperature oven drying at 180°F. If the cement is to be exposed to elevated temperatures, cure for 18-24 hours at ambient temperature, then oven dry for 4 hours at 180°F and for an additional 4 hours at 220°F This helps to prevent flaking and chipping. The working time of mixed OMEGABOND® 600 cement is approximately 30 minutes when the powder is mixed with water at 70°F.

CLEAN-UP

All equipment should be cleaned with soap and water before OMEGABOND 600 cures. If removal is required after cure, consult MSDS or OMEGA for recommendations.

PHYSICAL PROPERTIES*

Coefficient of Thermal Expansion:	2.6 x 10^{-6}/°F (4.68 x 10^{-6}/°C)
Color:	Off white
Compressive Strength:	3000 psi (210 kg/cm^2)
Density:	160 pcf (2.56 gm/cm^3)
Dielectric Constant:	3.0 to 4.0
Dielectric Strength:	
@70°F (21°C)	76.0 to 101.5 Volts/mil (2900 to 3900 Volts/mm)
@750°F (398°C)	25.0 to 38.0 Volts/mil (980 to 1490 Volts/mm)
@1475°F (801°C)	12.5 to 25.0 Volts/mil (490 to 980 Volts/mm)
Maximum Service Temperature:	2600°F (1426°C)
Mix Ratio (Powder: Water, by Weight):	100:13
Modulus of Rupture:	900 psi (63 kg/cm2)
Tensile Strength:	400 psi (28 kg/cm2)
Thermal Conductivity:	6.7-8.3 Btu-in/ft^2.hr.°F (2.8 -2.3 x 10^{-3} Cal.cm/cm^2.sec.°C)
Volume Resistivity:	
@ 70°F (21°C)	10^{10}-10^{11} ohm-cm
@ 750°F (398°C)	10^{9}-10^{10} ohm-cm
@ 1475°F (801°C)	10^{8}-10^{9} ohm-cm

*Physical properties were determined on specimens prepared under laboratory conditions using applicable ASTM procedures. Actual field conditions may vary and yield different results; therefore, data are subject to reasonable deviation.

NOTE

The Material Safety Data Sheet (MSDS) for the OMEGA® OB-600 cement is shipped with the product. Additional copies can be obtained by contacting OMEGA Engineering and asking for MSDS-0138.

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U.S.A. Headquarters: Omega Engineering, Inc.
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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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