

# SCProbond™ HT-3 Cement

## High Temperature Potting Cement

### High Temperature Ceramic Cement for Bonding SCProbond™ SiC Grades & Ceramics to Metal Substrates

HT-3 Potting Cement is a 2-component sodium silicate mortar widely used throughout industry in the installation of abrasion and chemical-resistant brick and tile lining. Common applications include pulverized coal piping systems and higher temperature abrasion resistant tile linings.

### CHARACTERISTICS

- Adheres to practically all surfaces that are clean and free of oil and grease.
- Heat conductive and thermal shock resistant.
- Resists acids (except hydrofluoric).
- Fireproof and gas proof.
- Resists temperatures to 1750°F (954°C)

### AREA PREPERATION

#### Temperature of Working Area

Maintain a product temperature of 50-100°F (10-38°C) prior to mixing. At temperatures below 50°F, the application becomes more difficult and viscosity of mixed material increases. Above 80°F (26.6°C), the working time on the material decreases. This can be overcome by working in a cooler area, cooling the mixing equipment, and/or cooling the Powder & Liquid components prior to mixing.

#### Surface Preparation

All surfaces in contact with the SCProbond™ HT-3 Cement should be clean, dry, and free of dust, dirt, grease, oil, and other contaminants. Chemical cleaning is recommended. All welds must be continuous and free of flux. Welds should have a smooth, rounded radius without any sharp edges. It is recommended that metal surfaces should be sandblasted to SSPC-SP5 White Blast

### Physical Properties

Bond Strength	1.2 MPa	(170 psi)
Compressive Strength	15.2 MPa	(2,200 psi)
Coefficient of Thermal Expansion	$1.12 \times 10^{-5} \text{ cm/cm}^\circ\text{C}$	$(6.2 \times 10^{-6} \text{ in/in}^\circ\text{F})$
Density (Wet)	1.97 g/cc	(123 lb/ft <sup>3</sup> )
Density (Dry)	1.92 g/cc	(120 lb/ft <sup>3</sup> )
Maximum Service Temperature	954 °C	(1750 °F)
Mix Ratio (Powder : Liquid, By Weight)	2.5:1 – 2.7:1	
Shrinkage	1.0%	
Tensile Strength	2.76 MPa	(400 psi)

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

### APPLICATION

#### Mixing

SCProbond™ HT-3 Cement Powder should be thoroughly remixed before using. Weigh out the Powder and Liquid components separately. Place measured amount of Liquid into a clean mixing container and gradually add the Powder while mixing. Mixing should be done mechanically with a drill motor and paddle-type blade attachment. Mix for a minimum 3 to 5 minutes until a smooth consistency is obtained. Working time for material is approximately 45-60 minutes after mixing. Material that has begun to set cannot be re-tempered and must be discarded.

The cement may be mixed to a thicker or thinner consistency by regulating the mix ratio using the range above; however, the use of excess Liquid will reduce the mechanical strength and increase shrinkage and the use of excess Powder decreases working time.

#### Installation

Trowel on an average 1/16"–1/8" thick bed joint of the mixed SCProbond™ HT-3 Cement on the substrate. Apply the mortar by buttering one side and one head joint (if required) of each tile or unit. Set the tile in place and position by tapping to obtain uniform coverage on bed & side joints. Strike extruded mortar off the face of the tile or installed unit with a trowel.

### SETTING/CURING

SCProbond™ HT-3 hardens with an internal chemical-setting action in 18-24 hours at ambient temperatures.

For those applications that will be exposed to temperatures above 212°F (100°C), an additional drying schedule is recommended to ensure that all moisture is removed from the cement prior to placing the unit into service. The recommended drying schedule is as follows: after 24-hour ambient cure, raise temperature to 150°F (65°C) and hold for 4 hours. After 4 hours, increase temperature to 220°F and hold for an additional 4 hours. The temperature can then be raised



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To the unit's maximum service temperature at a rate not to exceed 100°F/hour. Avoid steaming while drying which can compromise the final material's properties.

## PACKAGING

Powder: 50-lb. plastic pails.  
Liquid: 50-lb. plastic pails

## CLEAN-UP

All equipment should be cleaned with soap and water before SCProbond™ HT-3 cures.

## SHELF LIFE

SCProbond™ HT-3 Powder and Liquid have a shelf life of one (1) year when stored in unopened, tightly sealed containers in a dry location at 70°F. If there is a doubt as to the quality of the materials, consult a Silicon Carbide Products, Inc. representative.

## CAUTION

Consult Material Safety Data Sheets and container label Caution Statements for hazards in handling these materials.

## WARRANTY

We warrant that our goods will conform to the description contained in the order, and that we have good title to all goods sold. WE GIVE NO WARRANTY, WHETHER OF MERCHANTABILITY, FITNESS FOR PURPOSE OR OTHERWISE, EXPRESS OR IMPLIED, OTHER THAN AS EXPRESSLY SET FORTH HEREIN. Users shall determine the suitability of the product for intended application before using, and users assume all risk and liability whatsoever in connection therewith regardless of any suggestions as to application or construction. In no event shall we be liable hereunder or otherwise for incidental or consequential damages. Our liability and your exclusive remedy hereunder or otherwise, in law or in equity, shall be expressly limited to our replacement of nonconforming goods at our factory or, at our sole option, to repayment of the purchase price of nonconforming goods.

q Information concerning government safety regulations available upon request.



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