

LOCTITE[®] PC 7000™

October 2015

PRODUCT DESCRIPTION

LOCTITE[®] PC 7000™ provides the following product characteristics:

Technology	Inorganic Coating
Chemical Type	Water and silica based coating
Components	Three components - requires mixing
Appearance - Part A	Milky white liquid
Appearance - Part B	Light beige liquid
Appearance - Part C	Grey powder
Appearance (Mixed)	Grey paste
Main Component	Corundum
Chemical Analysis	Al ₂ O ₃ , % 76 SiO ₂ , % 10.5 Fe ₂ O ₃ , % 10
Installation Method	Troweling / Patching
Mix Ratio, by weight - Part A: Part B: Part C	1 : 3 : 17
Cure	Room temperature cure followed by heat cure
Application	High temperature abrasion resistance
Max Grain Size	3 mm (0.1 in)
Maximum Service Temperature	1,200°C, according to DIN EN ISO 1927
Specific Benefit	<ul style="list-style-type: none"> Superior abrasion resistance at high temperatures up to 1200°C Acts as protective barrier - sustaining boiler efficiency and prolonging equipment life

LOCTITE[®] PC 7000™ is a unique three component, rapid setting silica based composite coating system. It is designed to protect industrial processing equipment like coal tip burners in boilers and furnaces against harsh temperature and abrasion. LOCTITE[®] PC 7000™ is an environmentally friendly, water based system containing a resin and abrasion resistant filler mixture. It bonds well to inorganic substrates like concrete and refractory bricks with minimal surface preparation. Once cured to its fixture strength, LOCTITE[®] PC 7000™ coated parts can be subjected to high temperature conditions up to 1200°C (2190F), where it will increase in density and fuse in situ to a highly abrasion resistant ceramic coating. Typical applications may include baffle plates of coal tip burners, aluminum and steel smelter furnace repairs and coating of refractory brick structures of chimneys.

TYPICAL PROPERTIES OF UNCURED MATERIAL

Part A:

Weight per volume	kg/L	1.3
	(lbs/gal)	(10.9)

Part B:

Weight per volume	kg/L	1.38
	(lbs/gal)	(11.7)

Mixed:

Weight per volume	kg/L	2.8
	(lbs/gal)	(23)

Coverage	0.75 m ² @ 5 mm thick/10 kg
	(8.1 ft ² @ 200 mil thick/22 lb)

Flash Point - See SDS

TYPICAL CURING PERFORMANCE

Curing Properties

Pot life 5 kg mass, ISO 9514, minutes	20 to 30
Set time @ 25 C, hours	2 to 4
Cure Time @ 25 °C, hours, plus post cure	24
Post Cure: 4 hrs @ 100°C or 10 minutes @ 350°C	

Permanent Linear Change

Percentage Linear change (%) as a function of cure time and temperature

24 hours @ 110°C	-0.58
5 hours @ 800°C	-0.4
5 hours @ 1,200°C	-1.3

TYPICAL PROPERTIES OF CURED MATERIAL

Physical Properties:

Coefficient of Thermal Expansion, ISO 11359-2, K ⁻¹ :	
Temperature Range: 50 °C to 1,000 °C	8.8×10 ⁻⁶
Coefficient of Thermal Conductivity EN 993-15, W/(m·K):	
@ 192°C	2.82
@ 395°C	2.48
@ 596°C	2.41
@ 797°C	2.2
@ 999°C	2.15

Bulk Density (g/cm³):

24 hours @ 110°C	2.6
5 hours @ 800°C	2.61
5 hours @ 1,200°C	2.73

Cold Crushing Strength, DIN EN ISO 1927-6:

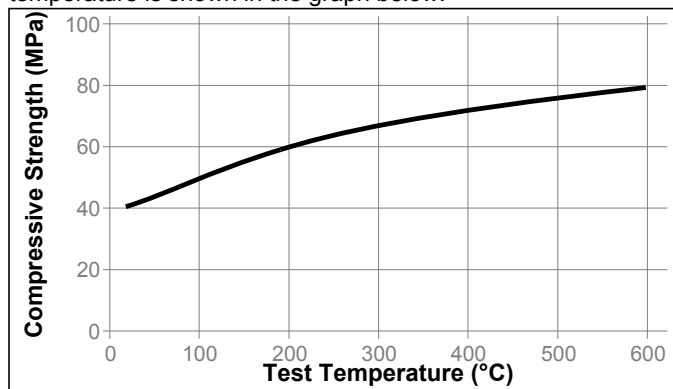
24 hours @ 110°C	N/mm ² 57.3 (psi) (8,310)
5 hours @ 800°C	N/mm ² 62.3 (psi) (9,035)
5 hours @ 1,200°C	N/mm ² 83.4 (psi) (12,095)

Cold Crushing Modulus, DIN EN ISO 1927-6:

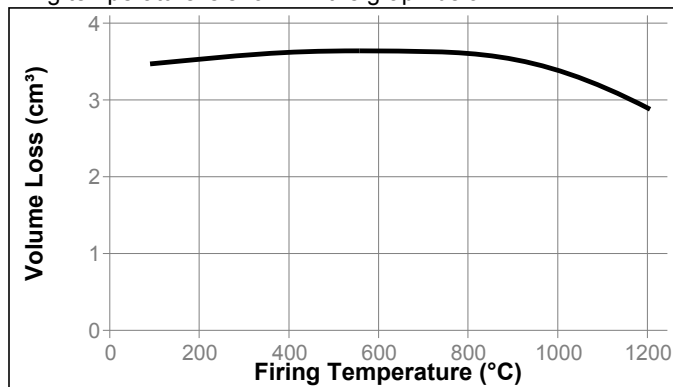
24 hours @ 110°C	N/mm ² 8.8 (psi) (1,275)
5 hours @ 800°C	N/mm ² 17.3 (psi) (2,510)
5 hours @ 1,200°C	N/mm ² 17.8 (psi) (2,580)

COMPRESSIVE STRENGTH

Compressive strength (ASTM D-695) data as a function of temperature is shown in the graph below.

**COLD ABRASION RESISTANCE**

Cold Abrasion Resistance (ASTM C-704) data as a function of firing temperature is shown in the graph below.

**GENERAL INFORMATION**

This product is not recommended for use in pure oxygen and/or oxygen rich systems and should not be selected as a sealant for chlorine or other strong oxidizing materials.

For safe handling information on this product, consult the Safety Data Sheet (SDS).

Directions for use:**Surface Preparation**

Proper surface preparation is critical to the long-term performance of this product. The exact requirements vary with the severity of the application, expected service life, and initial substrate conditions.

1. Clean, dry and abrade application surface with suitable hand tools.
2. Solvent cleaning with a residue-free solvent is recommended to improve adhesion.
3. Stainless steel metallic mesh of 1.8 mm wire diameter and diamond shaped openings as reinforcement is required and should be spot welded.
4. Solvent cleaning with a residue-free solvent is recommended as the final step to remove contaminants introduced during welding.

Mixing:

1. **It is strongly recommended to mix the complete kit at once.** The overall mixing ratio is 1:3:17, which is assured by using the complete kit .
2. Add Part A to Part B and mix vigorously for 1 to 2 minutes.
3. Premix part C and then add incrementally to the liquid mixture. Stir the mixture with a heavy duty mixing blade until a homogenous appearance is achieved.
4. All components should be mixed uniformly before application.

Application Method:

1. Apply fully mixed material within the 20 to 30 minute pot life to the prepared surface .
2. Use a plastic trowel to spread the product across the entire area evenly.
3. Apply a layer of approximately 5 mm on expanded metal. If required, more layers can be applied after 2 to 4 hours depending on temperature. Additional layers, or, in the case of no expanded metal, a maximum thickness of 3 to 4 mm should be applied.
4. Immediately clean any contaminated skin or clothing with soap and water.
5. Allow LOCTITE® PC 7000™ to cure for 24 hours at room temperature before post curing at elevated temperatures.

Not for product specifications

The technical data contained herein are intended as reference only. Please contact your local quality department for assistance and recommendations on specifications for this product.

Storage

Store product in the unopened container in a dry location. Material removed from containers may be contaminated during use. Do not return liquid to original container. Storage information may be indicated on the product container labeling. **Optimal Storage: 8 °C to 21 °C. Storage below 8 °C or greater than 28 °C can adversely affect product properties.** The product is frost sensitive.

Henkel cannot assume responsibility for product which has been contaminated or stored under conditions other than those recommended. If additional information is required, please contact your local Technical Service Center or Customer Service Representative.

Conversions

$(^{\circ}\text{C} \times 1.8) + 32 = ^{\circ}\text{F}$
 $\text{kV/mm} \times 25.4 = \text{V/mil}$
 $\text{mm} / 25.4 = \text{inches}$
 $\mu\text{m} / 25.4 = \text{mil}$
 $\text{N} \times 0.225 = \text{lb}$
 $\text{N/mm} \times 5.71 = \text{lb/in}$
 $\text{N/mm}^2 \times 145 = \text{psi}$
 $\text{MPa} \times 145 = \text{psi}$
 $\text{N}\cdot\text{m} \times 8.851 = \text{lb}\cdot\text{in}$
 $\text{N}\cdot\text{m} \times 0.738 = \text{lb}\cdot\text{ft}$
 $\text{N}\cdot\text{mm} \times 0.142 = \text{oz}\cdot\text{in}$
 $\text{mPa}\cdot\text{s} = \text{cP}$

Reference 0.0

Note:

The information provided in this Technical Data Sheet (TDS) including the recommendations for use and application of the product are based on our knowledge and experience of the product as at the date of this TDS. The product can have a variety of different applications as well as differing application and working conditions in your environment that are beyond our control. Henkel is, therefore, not liable for the suitability of our product for the production processes and conditions in respect of which you use them, as well as the intended applications and results. We strongly recommend that you carry out your own prior trials to confirm such suitability of our product.

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