Once dried, this mastic provides a hard, tough armor-like shell over the surface of the substrate material. The cured Silplate Mass surface is highly resistant to flame impingement, flue gas velocities and chemical attack from fluxing agents common in industrial furnaces and kilns.

At high temperatures (>1300°C/2372°F) Silplate Mass forms Mullite, creating a ceramic bond between the fibers and fillers in the material. This bond provides high physical stability to the lining surface and protects the backup material over which it is applied. The Mullite chemistry makes the coating extremely stable at high temperatures. This thermal stability protects the substrate material from thermal shrinkage and reduces maintenance to the hot face lining.

Installation Techniques

Silplate Mass high-temperature coating material may be installed using a variety of techniques. Typical installation techniques are outlined below:

- Placement through a furnace or vessel casing with a pneumatic pump to repair lining hot spots.
- Troweled on the surface of the refractory or fiber lining to increase service temperature.
- Pumped, troweled or gunned over existing linings to caulk cracks and extend lining life.
- Hot gunning over an existing furnace lining to replace lost or damaged refractory.
- Supplied as a “hard module” with factory-installed Silplate Mass coating for new furnace linings.
Typical Applications

Hot Spot Repair
Mineral wool is frequently used as backup insulation behind refractory brick or castable furnace linings. Over time, this backup insulation may degrade due to burnout of the organic binders, over compression or shrinkage of the material. The hot spots which result from the failure of the backup insulation are easily repaired without shutting down the unit. Silplate Mass may be pumped in through the casing or poured in place to stabilize the working lining.

Application Over Refractory Linings
Silplate Mass may be applied in thicknesses up to 1" over the refractory or fiber surface. The mastic coating can be placed by gunning or hand troweling over the new or existing linings. Application of Silplate Mass 1500 will increase resistance to gas velocity, protect the lining from direct flame impingement, and repair or eliminate cracking due to thermal shrinkage.

Hot Gunning Repair
To meet the challenges associated with the in-service repair of refractory, Unifrax has developed a hot gunning technique for installing Silplate Mass. Once access to the damaged area is established, a water-cooled lance is inserted in the furnace and Silplate Mass 1500 is gunned on to the lining. The proprietary binder system provides adhesion to the hot refractory surface while reducing rebound of the gunned material.

Shop Fabrication of Ducts, Incinerators and Stacks
Silplate Mass is troweled in place over the module face to provide a lining surface resistant to high gas velocities and resistant to chemical attack. The material is easy to install in the shop and does not require special dry out procedures. The construction technique is ideally suited to the fabrication of furnaces and vessels that must be shipped for field assembly.

Door for Heat Recovery Coke Oven
Installation of Silplate Mass 1500 has permitted the successful application of ceramic fiber linings in the severe environment of the heat recovery coke oven. The door lining pictured here features the “hard module” concept with a Silplate Mass 1500 layer protecting the fiber lining from high temperatures, chemical attack and mechanical abuse.

Doors for Aluminum Furnaces and Reheating Furnaces
Ceramic fiber module linings provide many operating benefits when used as a lining for a high-temperature furnace door. Operators have recognized that the use of ceramic fiber in steel reheat and aluminum melting furnace doors saves energy, reduces weight and eliminates damage due to thermal shock. To extend the service life of high-temperature doors, Silplate Mass 1500 was installed to protect the fiber from thermal shrinkage and provide a barrier to chemical attack from fluxes in the process.
Industries Served

Silplate Mass has been installed successfully over a wide range of applications. The material can be used to improve new linings or repair existing furnaces in the industries listed below:

- Iron and Steel
- Forging
- Aluminum
- Refining
- Chemical Processing
- Ceramic
- Power Generation
- Incineration
- Metals Processing

Silplate Mass Physical and Chemical Characteristics

<table>
<thead>
<tr>
<th>Description</th>
<th>1500</th>
<th>1500</th>
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<tbody>
<tr>
<td></td>
<td>°C</td>
<td>°F</td>
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<tr>
<td>Color</td>
<td>Orange</td>
<td>Orange</td>
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<tr>
<td>Class of Temperatures</td>
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<td>2732</td>
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<tr>
<td>Max temperature</td>
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<td>2732</td>
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<td>Btu in/h² ft°F</td>
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<tr>
<td></td>
<td>@ 662°F</td>
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<td></td>
<td>@ 760°C</td>
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<td></td>
<td>@ 1400°F</td>
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<td>Cold strain resistance</td>
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<td>Shrinkage @ 1500°C</td>
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<tr>
<td>Mass loss @ 1500°C</td>
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</tbody>
</table>

The test data shown are average results of tests conducted under standard procedures and are subject to variation. Results should not be used for specification purposes.

Main Characteristics

- Low thermal conductivity
- Excellent thermal shock resistance
- Strong adhesion to any surface
- Low thermal shrinkage
- Surface hardness
- Mechanical strength

Application Methods

- Trowel
- Gunning
- Pouring
- Molding
- Pump Injection

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Data are average results of tests conducted under standard procedures and are subject to variation.

Refer to the product Safety Data Sheet (SDS) for recommended work practices and other product safety information.