**Glassbond Sauereisen Electrical Insulating Cement No. 12**

**Characteristics**
- High dielectric strength
- Heat conductive and thermal shock resistant
- Withstands temperatures to 2,200°F (1,204°C)
- Oil and solvent resistant
- Chemical set
- Developed for potting and encapsulation
- Excellent bond strength
- Extremely hard surface upon setting
- Excellent abrasion resistance
- Odourless

**Recommended For**
- Embedding
- Resistors
- Assembling
- Resistors
- Encapsulating
- Elements
- Potting

**Description**
Sauereisen Electrical Insulating Cement No. 12 is an inorganic cement used for applications requiring high dielectric strength and volume resistivity through 2200°F. No 12 offers low shrinkage and coefficient of thermal expansion making it an excellent cement for bonding or potting high alumina ceramics. The material is supplied in powder form and mixes with No 12 liquid to form a cement paste.

**Physical Properties**

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
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<tbody>
<tr>
<td>Colour</td>
<td>Off white</td>
</tr>
<tr>
<td>Coefficient of thermal expansion</td>
<td>$3.1 \times 10^{-6}$/°F (5.58 x 10^{-6}/°C)</td>
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<tr>
<td>Compressive strength</td>
<td>4000 psi (281 kg/cm²)</td>
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<tr>
<td>Density</td>
<td>180 pcf (2.88 gm/cm³)</td>
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<tr>
<td>Modulus of rupture</td>
<td>510 psi (35 Kg/cm²)</td>
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<tr>
<td>Dielectric strength @ 70°F (21°C)</td>
<td>76-80 Volts/mil</td>
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<tr>
<td>Maximum service temperature</td>
<td>2200°F (1204°C)</td>
</tr>
<tr>
<td>Shrinkage</td>
<td>&lt;0.8%</td>
</tr>
<tr>
<td>Thermal conductivity</td>
<td>9.8-7.3 Btu.in/ft².hr.°F (3.3 – 2.46 x 10^{-3} Cal.cm/cm².sec.°C)</td>
</tr>
<tr>
<td>Tensile strength</td>
<td>290 psi (20Kg/cm²)</td>
</tr>
<tr>
<td>Volume resistivity @ 70°F (21°C)</td>
<td>$10^8 \times 10^{10}$ ohm-cm</td>
</tr>
</tbody>
</table>

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. Data should not be used for specification purposes.

**Application/Instructions**
MIXING - The cement powder should be thoroughly mixed before using. Weigh approximately 75% of powder into a clean mixing container and add 25% of No 12 liquid. Place liquid in a clean mixing container and gradually add powder while mixing. Continue mixing until a smooth, uniform consistency is obtained. Mixing may be done with a slow-speed mixer or by hand with a spatula.
N° 12 may be mixed to a thinner consistency by regulating the amount of liquid used; however, the use of excess liquid will reduce mechanical strength, increase shrinkage and delay set time.

APPLICATION - Porous substrates may require dampening with N° 12 liquid prior to cement application. Failure of cement to adhere indicates setting has begun - discard cement. Do not attempt to re-temper by adding more water.

Setting/Curing

Cement N° 12 hardens with an internal chemical-setting action after 18-24 hours at ambient temperature. Working time of Cement N° 12 when Powder is mixed with water is approximately 30 minutes at 70°F (21°C). If it is desired to accelerate the cure, low temperature oven drying at 180°F (82°C) can be used. Avoid steaming while drying. Proper curing of N° 12 is critical to developing maximum strengths. If the cement will be exposed to elevated temperatures, constant water immersion or steam environments, consult Sauereisen for an appropriate drying schedule recommendation.

For higher humidity resistance where it is impractical to fire the cement, a moisture resistant lacquer or silicone coating should be applied to the exposed surfaces.

Cleaning

All equipment should be cleaned with soap and water before N° 10 cures. If removal is required after cure, consult Glassbond for recommendations.

Packaging

This material is supplied in various types and sizes of containers. Please contact Glassbond Sales for further details.

Shelf Life

Cement N° 12 powder has a shelf life of twelve (12) months when stored in un-opened, tightly sealed containers in a dry location at 70°F (21°C). If there is doubt as to the quality of the material, contact Glassbond.

Caution

Consult the Material Safety Data Sheets and container label caution statements for any hazards in handling this material.

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.

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