

Glassbond Sauereisen Low Expansion Cement No. 29

Characteristics

- Withstands temperatures to 1550°F (843°C)
- Insulates electricity
- Tolerant to cryogenic conditions
- Heat conductive and thermal shock resistant
- Small particle size allows for good flow characteristics
- Resists oil, solvents and most acids (except hydrofluoric)
- Adheres to metal, ceramics, glass and other surfaces
- Odourless
- Hardens by chemical set even in confined areas
- More economical than organics
- Safe to use/non-toxic

Recommended For

Assembling
Elements
Embedding
Insulating
Resistors
Sealing

Description

Low Expansion Cement No. 29 is an inorganic cement used for embedding heating elements, insulating thermocouples, coating resistors and coils, and mechanically sealing parts where high resistance to electricity, chemicals and thermal shock is required. A strong resistance to cryogenic conditions makes No. 29 a common product for aerospace applications. No. 29 adheres to glass, porcelain, ceramics, metals and other surfaces.

Physical Properties

Absorption	10-12%
Coefficient of thermal expansion	$4.60 \times 10^{-6}/F^{\circ}$ ($8.28 \times 10^{-6}/C^{\circ}$)
Colour	Tan
Compressive strength	3,900 psi (274 kg/cm ²)
Density	141 pcf (2.26 gm/cm ³)
Dielectric constant	5.0-7.0
Dielectric strength @ 70°F (21°C)	25.0 to 51.0 Volts/mil (980 to 2000 Volts/mm)
@ 750°F (398°C)	12.5 to 25.0 Volts/mil (490 to 980 Volts/mm)
@ 1475°F (801°C)	1.3 Volts/mil (51 Volts/mm)
Maximum service temperature	1550°F (843°C)
Shrinkage	0.50%
Tensile strength	300 psi (21.09 kg/cm ²)
Thermal conductivity at 500°F (260°C)	9.8-5.2 BTU.in/ft ² . hr.°F ($3.3 - 1.76 \times 10^{-3}$ Cal.cm/cm ² .sec.°C)
Volume resistivity @ 70°F (21°C)	$10^7 - 10^9$ ohm-cm
@ 750°F (398°C)	$10^4 - 10^6$ ohm-cm
@ 1475°F (801°C)	$10^2 - 10^3$ 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. Data should not be used for specification purposes.

Application/Instructions

MIXING - No. 29 is a two-part, chemical-setting cement consisting of a powder and liquid which are mixed together as used. No. 29 Powder should be thoroughly remixed before using. Weigh out 80% of No. 29 Powder and 20% of No. 29 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.

No. 29 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. Failure of cement to adhere indicates setting has begun - discard cement. Do not attempt to retemper by adding more liquid.

APPLICATION - Porous substrates may require dampening with No. 29 Liquid before applying the mixed cement.

Setting/Curing

Low Expansion Cement No. 29 hardens with an internal chemical-setting action in 18-24 hours at ambient temperatures. Working time of No. 29 when powder is mixed with liquid is approximately 30 minutes at 21°C (70°F). If it is desired to accelerate the cure, oven drying at 82°C (180°F) can be used. Avoid steaming while drying. If the cement will be exposed to elevated temperatures, contact Glassbond for appropriate drying schedule recommendations.

If high humidity resistance is required and it is impractical to fire 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 No. 29 cures. If removal is required after cure, consult Glassbond.

Packaging

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

Shelf Life

No. 29 powder has a shelf life of twelve (12) months when stored in unopened, tightly sealed containers in a dry location at 21°C (70°F). If there is doubt as to the quality of the material, consult 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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