SAUEREISEN

LOW EXPANSION CEMENT NO. 29

Zircon base cement for:

Assembling	**Insulating**
Elements	**Resistors**
Embedding	**Sealing**

Sauereisen 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.

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.
- ☐ Odorless.
- ☐ Hardens by chemical set even in con fined areas.
- ☐ More economical than organics.
- ☐ Safe to use/non-toxic.

PHYSICAL PROPERTIES

Absorption	10-12%
Coefficient of thermal expansion	4.60 x 10^{-6}/F° (8.28 x 10^{-6}/C°)
Color	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 (399°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 x 10^{-3} Cal·cm/cm^2·sec·°C)
Volume resistivity	
@ 70°F (21°C)	10^{7}-10^{9} ohm-cm
@ 750°F (399°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.

APPLICATION

Sauereisen 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. 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 70°F. If it is desired to accelerate the cure, oven drying at 180°F can be used. Avoid steaming while drying. If the cement will be exposed to elevated temperatures, contact Sauereisen 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.

PACKAGING

Powder:
1-qt. and 1-gal. cans;
50-lb. pails lined with a plastic bag

Liquid:
1-qt. and 1-gal. cans;
50-lb. pails; 600-lb. drums

CLEAN-UP

All equipment should be cleaned with soap and water before No. 29 cures. If removal is required after cure, consult Sauereisen for recommendations.

SHELF LIFE

Sauereisen No. 29 Powder and Liquid have a shelf life of one (1) year when stored in unopened, tightly sealed containers in a dry location at 70ºF. If there is a doubt as to the quality of the material, consult Sauereisen.

CAUTION

Consult 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. We are glad to offer suggestions or to refer you to customers using Sauereisen cements and compounds for a similar application. 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.

☐ **Information concerning government safety regulations available upon request.**

☐ **Sauereisen also manufactures products for corrosion resistance, electrostatic discharge protection and machinery grouting.**

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