

TECHNICAL BULLETIN – M 530 B

ACIDSIL™

Acid Resistant Mortar

Product Description

ACIDSIL™ Acid Resistant Mortar is an improved silicate type, acid proof mortar. This mortar consists of a liquid binder and a finely divided, silica filler. The mortar hardens by internal chemical action, which produces an insoluble silica gel. ACIDSIL Mortar is resistant to most acids and salts, except those containing fluorine.

ACIDSIL Mortar is resistant to operating temperatures as high as 1600°F (871°C). ACIDSIL Mortar is not subject to crazing or growth in the joints which produces brickwork failures. The mortar contains no reactive chemicals which prevent its use in highly concentrated acids. Since this mortar is a 100% inorganic composition, it is entirely unaffected by strong oxidizing agents. ACIDSIL Mortar is totally inert to all organic solvents. It is not recommended for continuous service in alkaline solutions of greater strength than a pH of 10.

Application

Standard unit of ACIDSIL Mortar consists of one (1) 50 lb. (23 kg), Pail of ACIDSIL™ solution and two (2) 50 lb. (23 kg) bags of powder. ACIDSIL™ Solution can also be shipped in 600 lb. (273 kg) drums. ACIDSIL Mortar should be mixed in the ratio of 2 parts filler to 1 part binder by weight. The filler should be worked into the binder slowly to prevent air entrainment. This mixture produces a mortar of the proper consistency for laying brick. Thinning the mortar by addition of water or excess binder will interfere with the hardening action and lower the resistance of the finished mortar joint.

The working life of the ACIDSIL Mortar depends upon the temperature. Best results are obtained by mixing small batches of mortar. After mixing, the mortar should be spread evenly over the bottom of the pan. When the mortar fails to adhere to brick, it has begun to set and must be discarded. Nothing can be added to partially set mortar to renew its original consistency.

ACIDSIL Mortar is handled in the same manner as ordinary building cement. It never should be applied to wet or frozen brick, or to acid-soaked surfaces. Joints between brick should be made as thin as possible, preferably not over 1/8" (3 mm) wide. For corrosive services, the use of thin joints is more important than straight mortar lines. When working at temperatures below 50°F, the hardening action may be hastened by heating the brick and ACIDSIL Mortar components to about 80°F prior to installation. Maintain the temperature in the vessel at a minimum of 50°F until the mortar has set.

Safety

ACIDSIL™ Powder should be handled carefully to avoid excessive dust. Suitable respirators should be worn during the mixing operation. Since the ACIDSIL Solution is caustic, gloves, eye goggles, and long-sleeved shirts should be worn to protect the skin. Material Safety Data Sheets should be read before use.

NOTE: *Handling of acid solutions requires specific safety training and personnel protection equipment.*

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Treatment

ACIDSIL Mortar should be treated with acid solution before being placed in service. Water or concentrated acid should not be placed in the vessel prior to acid treatment since this may adversely affect the resistance of the finished mortar joints.

After the mortar has hardened for 48 hours, it should be treated with a 20% (by weight) solution of hydrochloric acid. This solution is made by adding 3 gallons of 20° Baume Muriatic Acid to 2 gallons of water. The acid solution should be applied by use of a sponge or mop to thoroughly wet all exposed mortar surfaces.

After acid treatment, the vessel should remain empty for 24 hours before being placed in service.

Typical Physical Data

Bulk Density	116 lb/ft ³	1,858 kg/m ³
Compression Strength	3,000 psi	2.1 MPa
Coefficient Thermal Expansion	6.5*10 ⁻⁶ in/in/°F	11.7*10 ⁻⁶ mm/mm/°C
Modulus of Rupture	1,000 psi	7 MPa
Tensile Strength	300 psi	2.1 MPa
Water Absorption	10 %	10 %
Apparent Porosity	15 %	15 %
Bond Strength	225 psi	1.6 MPa
Shrinkage	≤3 %	≤3 %
Color	White	White

The above physical data was derived by using ASTM Test Specifications C-905, C-579, C-580, C-307, C-143

Note

The information contained in this bulletin is believed to be accurate and reliable but is not to be construed as implying any warranty or guarantee of performance. Data are subject to reasonable variations and should not be used for specification purposes.

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