

USG CERAMICAL®

GYPSUM CEMENT

SOUTHARD, OK

DESCRIPTION

USG Ceramical® Gypsum Cement is a low consistency, smooth-wearing mold material for use in pressing clayware. It is specified for use with RAM automatic clay-forming process and has low absorption and high strength that resists abrasion and wear.

TYPICAL PHYSICAL PROPERTIES

Normal Consistency	30-32 lbs. water/100 lbs. product (13.6-14.5 kg/45 kg product)
Machine Mix Vicat Set, at normal	16-22 minutes
Compressive Strength, One Hour After Set (minimum)	4000 psi (27.6 MPa)
Compressive Strength, Dry (minimum)	10,000 psi (68.9 MPa)
1 Hr. Modulus of Rupture	825 psi (5.7 MPa)
Dry Modulus of Rupture	955 psi (6.6 MPa)
Density, Wet	113 lb/ft ³ (1.84 g/cc)
Density, Dry	96 lb/ft ³ (1.55 g/cc)
% Maximum Expansion	0.165%

Note The *Typical Physical Properties* in the above table were achieved under controlled laboratory conditions with freshly produced material, results may vary.

MIXING INSTRUCTIONS

MIX PREPARATION

Use potable water at temperatures between 70 °F (21 °C) and 100 °F (38 °C). Because variations in slurry (USG Ceramical Gypsum Cement and water mixture) temperature produce variations in set time, it is important to keep both the USG Ceramical Gypsum Cement and water in a stable temperature environment prior to use. The higher the temperature of the slurry, the shorter the set time. Conversely, the lower the temperature of the slurry, the longer the set time.

Weigh both the USG Ceramical Gypsum Cement and the water prior to use for each mix. The water-to-USG Ceramical Gypsum Cement ratio is critical because it governs the strength and the density of the final cast. It is suggested to start with a 40-consistency mixture (40 parts water to 100 parts USG Ceramical Gypsum Cement by weight) when using a standard RAM working die. Less water will increase the strength and hardness of the working die, but will decrease permeability. More water will yield a weaker and more permeable die or mold.

SOAKING

Sift or strew USG Ceramical Gypsum Cement into the water slowly and evenly. Do not drop large amounts of USG Ceramical Gypsum Cement directly into the water as proper soaking of the USG Ceramical Gypsum Cement may not occur. Allow to soak undisturbed for 2-5 minutes. USG Ceramical Gypsum Cement should be fully dispersed in the water prior to mixing. Small batches require less soaking than large batches. See USG IG503 *Plaster Mixing Procedures* for specific soaking instructions.

MIXING

Mixing USG Ceramical Gypsum Cement slurry is one of the most important steps in producing USG Ceramical Gypsum Cement molds with maximum strength, absorption, hardness and other important properties.

Mechanically mixed slurries develop uniform molds with optimal strengths. USG Ceramical Gypsum Cement and water should be mixed mechanically with a high-speed (1750 rpm) propeller-type mixer for about 10 minutes. The slurry should be poured within two or three minutes after mixing. Proper blade and bucket dimensions are important for obtaining the best batch mix (see USG IG503 *Plaster Mixing Procedures* for details). Longer mixing times result in higher mold strength and shorter set times.

POURING

To prevent air entrainment and provide a uniform, smooth surface, careful pouring of the USG Ceramical Gypsum Cement slurry is necessary. Agitation of the filled case mold is a further step used to prevent air at or near the mold surface. Whenever possible, the USG Ceramical Gypsum Cement slurry should be poured carefully in the deepest area so the slurry flows across the surface of the case mold.

Pouring a large amount of slurry directly on the face of the case mold may result in slight densification of the mold at the point where it strikes the surface of the case. This produces a hard spot, giving uneven absorption.

PURGING

USG Ceramical Gypsum Cement hardens and heats rapidly after the initial set. The purging operation should start when a temperature rise of 23 °F (13 °C) occurs from the initial slurry temperature. To properly measure the temperature rise, pour extra material into a Styrofoam cup during the die pouring. For complete details on this patented process, contact RAM, Inc., 1091 Stimmel Rd., Columbus, OH 43223, 614-443-4634.

STORAGE AND USE

When properly used, USG Ceramical Gypsum Cement is easy to work with and complies with the federal Labeling of Hazardous Art Materials Act, 12 U.S.C. Section 1277 and ASTM D4236. Keep indoors at temperatures between 65 °F - 75 °F (18 °C - 24 °C) and 45% - 55% RH. Do not stack more than two pallets high. Keep from drafts. Rotate stock. USG Ceramical Gypsum Cement should be used within 90 days of the manufacturing date located on the package. Always follow handling and use directions and safety warnings on the package.

PRODUCT INFORMATION

See usg.com for the most up-to-date product information.

DANGER

Causes skin irritation. Causes serious eye damage. May cause an allergic skin reaction. Wash thoroughly after handling. Wear protective gloves/protective clothing/eye protection. Use only in a well-ventilated area, wear a NIOSH/MSHA-approved respirator. If swallowed, inhaled, or skin irritation occurs get medical attention. If on skin: Wash with plenty of water. If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses and continue rinsing. Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before reuse. Dispose of in accordance with local, state, and federal regulations. When mixed with water, this material hardens and becomes very hot sometimes quickly. DO NOT attempt to make a cast enclosing any part of the body using this material. For more information call Product Safety: 800-507-8899 or see the SDS at usg.com.

KEEP OUT OF REACH OF CHILDREN.

TRADEMARKS

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SAFETY FIRST!

Follow good safety/industrial hygiene practices during installation. Wear appropriate personal protective equipment. Read SDS and literature before specification and installation.

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