

# USG® No. 1 Pottery Plaster



- The best material available for sanitaryware and dinnerware casting.
- Formulated for long life and reduced breakage (stronger molds).
- Available with or without thermal shock additive.

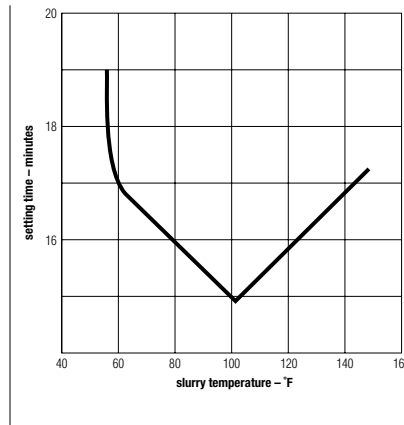
| Technical Properties   | English                 | Metric                 |
|--|-------------------------|------------------------|
| Use Consistency (parts of water by weight per 100 parts plaster) | 70                      | 70                     |
| 1 Hr. Compressive Strength                                       | 1,000 psi               | 6.8 MN/m <sup>2</sup>  |
| Dry Compressive Strength   | 2,400 psi               | 16.3 MN/m <sup>2</sup> |
| Total Absorption Capacity  | 36%                     | 36%                    |
| Maximum Setting Expansion  | 0.210%                  | 0.210%                 |
| Density Wet  | 99.0 lb/ft <sup>3</sup> | 1.58 g/cm <sup>3</sup> |
| Density Dry  | 69.0 lb/ft <sup>3</sup> | 1.10 g/cm <sup>3</sup> |
| Set Time (Machine Mix)*  | 14-24 min.              | 14-24 min.             |

\*Other set times may also be available. Call your sales representative for more information. Hand mix times will be longer.

**General Directions and Guidelines**

**Preparing the Mix**

Use potable water at temperatures between 70° and 100° F (21° and 38° C). Since variations in slurry (the plaster and water mixture) temperature produce variations in setting time, it is important to keep both the plaster and water in a stable temperature environment prior to use. The higher the temperature of the water, the shorter the set time. See the graph below.



Weigh both the plaster and water for each mix. The water-to-plaster ratio is critical because it governs both the strength and the absorptive capacity of the mold.

**Soaking**

Sift or strew the plaster into water slowly and evenly. Do not drop handfuls of plaster directly into the water. Allow soaking for 1-2 minutes. The plaster should be fully dispersed in the water prior to mixing. Small batches require less soaking than large batches. See bulletin IG503 for specific soaking instructions.

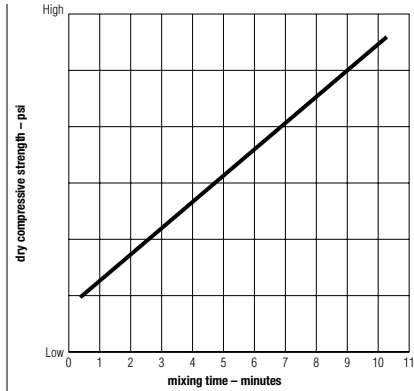
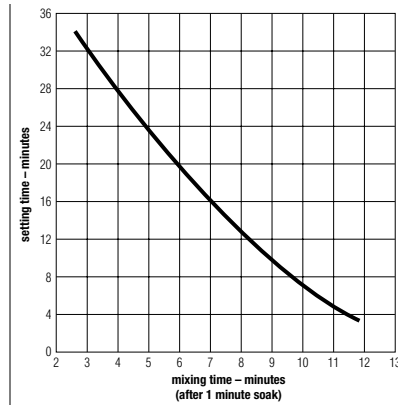
**Mixing**

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

Mechanically mixed plasters develop uniform molds with optimal strengths. Plasters can be mechanically mixed through both batch and continuous processes. Proper blade and bucket dimensions are important for obtaining the best batch mix (see IG503 for details).

**Mixing  
(continued)**

Longer mixing times result in higher mold strength and shorter setting times. The relationship between mixing time and both compressive strength and setting time is shown below.



**Pouring**

To prevent air entrainment and provide a uniform, smooth surface, careful pouring of the plaster 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 plaster slurry should be poured carefully in the deepest area so the slurry flows evenly across the surface of the case mold.

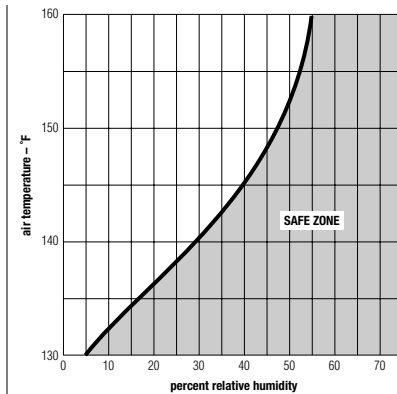
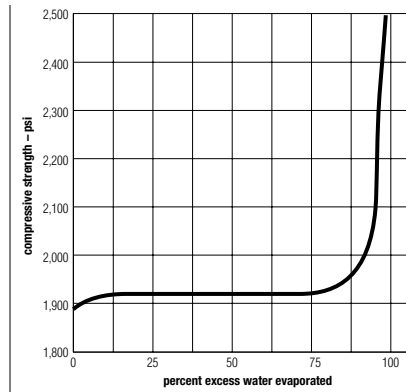
Pouring a large amount of slurry directly on the face of the case mold may result in slight densification of the plaster mold at the point where it strikes the surface of the case. This produces a hard spot, giving uneven absorption.

**Drying**

All pottery molds should be dried as quickly as is safely possible after manufacture so that maximum physical properties can develop. Dry to a constant weight.

The best drying rooms or ovens provide (1) uniform and rapid circulation (minimum of 15-30 fps) of air with no "dead spots" having little or no air movement, (2) equal temperatures throughout the entire area, and (3) provisions for exhausting a portion of the air while replacing it with fresh air. High humidity surrounding the drying room or oven inhibits the efficiency of the drying because the air pulled into the room is incapable of picking up much moisture from the molds.

The maximum temperature at which plaster molds are safe from calcination is 120° F (49° C). With substantial free water in the mold, higher drying temperatures can be used without difficulty. As drying progresses, the temperature must be reduced to prevent calcination. The safe drying zone is in the shaded area of graph (below, right). Before removing molds from the dryer, the temperature should approach that of the area around the dryer to prevent thermal shock.



**Storage**

Keep in a dry, stable environment indoors. Do not stack more than 2 pallets high. Keep from drafts. Rotate stock.

**Warning**

When mixed with water, plaster in these products hardens and then slowly becomes hot. DO NOT attempt to make a cast enclosing any part of the body using this material. Failure to follow these instructions can cause severe burns that may require surgical removal of affected tissue. Dust from products may cause

eye, skin, nose, throat, or respiratory irritation. Use eye, skin, and respiratory protection in accordance with good industrial hygiene practices. Read MSDS of product for specific details. Product safety information: 800-507-8899.  
**KEEP OUT OF REACH OF CHILDREN.**

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