

# Pottery Plaster



INDUSTRIAL GYPSUM PRODUCTS



Used both as an important ingredient and a working mold medium, Georgia-Pacific Gypsum Pottery Plaster is an essential factor in the ceramic industry. From white ware and sanitary ware to art ware and statuary, from insulators and stoneware to special refractories, the versatility of gypsum is a valued resource. Without gypsum to shape and dewater the clay, slip casting, jiggering and pressing operations wouldn't be nearly as effective. To a lesser degree, the same could be said for our tooling plasters used in models, case molds and block molds – its secondary application.

**Georgia-Pacific Gypsum's Pottery Plasters** have a consistency that allows high-density molds to be produced, then poured without pinholes or loss of detail. There's no binding or warping. You're ensured proper fit on a jigger ring and an accurate size and shape. Whether you're concerned with purity, absorption or set time; life or strength — or any combination — there's a Georgia-Pacific Gypsum Pottery Plaster to fill your need. Plaster is a formulated hemihydrate plaster produced from a high-strength, high-density, alpha-based gypsum. Fast becoming the material of choice for manufacturers of GRG parts. When combined with glass-fiber mats (hand lay-up) or chopped glass-fiber strands (spray application), it creates thin, lightweight, high-strength shapes with ultra-smooth surfaces.

- K-55 Pottery Plaster**
- K-58 Pottery Plaster**
- K-59 Pottery Plaster**
- K-60 Pottery Plaster**
- K-62 Pottery Plaster**
- K-63 Pottery Plaster**

- Densite® K-13 Gypsum Cement**
- Densite® K-25 Gypsum Cement**
- Densite® K-33 Gypsum Cement**
- Densite® K-40 Gypsum Cement**
- Denscal® TL Gypsum Cement**

# Pottery Plaster

## K-55 Pottery Plaster

**Plasters Description:** This general-purpose product is ideally suited for producing large sanitary ware casting molds where high absorption is a top consideration. It is used in models, casting and jigger molds.

Use Consistency (cc/100gms)	Vicat Set Time (minutes)	% Set Expansion	Dry Density (lbs./ft <sup>3</sup> )	Expected Compressive Strength (PSI)
70 - 75	28 - 38	0.15	65 - 69	1500 - 2000

## K-58 Pottery Plaster

**Plasters Description:** Formulated with special ingredients to minimize cracking, our K-58 pottery plaster provides extra protection against the effects of temperature extremes.

Use Consistency (cc/100gms)	Vicat Set Time (minutes)	% Set Expansion	Dry Density (lbs./ft <sup>3</sup> )	Expected Compressive Strength (PSI)
70	25 - 35	0.15	69 - 71	2000 - 2200

## K-59 Pottery Plaster

**Plasters Description:** Designed for all types of potteries and sanitary ware. You cannot beat it for casts that are smooth and free of pinholes. Because K-59 contains Densite® plaster, the composition requires lower water to achieve high fluidity. The water:plaster ratio can be as low as 64:100 and the resulting cast is exceptionally strong and long-wearing.

Use Consistency (cc/100gms)	Vicat Set Time (minutes)	% Set Expansion	Dry Density (lbs./ft <sup>3</sup> )	Expected Compressive Strength (PSI)
70	20 - 25	0.18	69-70	1800 - 2200

### Compressive Strength, 1 hour after set = 1000 PSI

\*Recommended Use Consistency is GPG recommended lbs. of water per 100 lbs. of plaster for using this product.

## K-62 Pottery Plaster

**Plasters Description:** Our premium-grade pottery plaster, K-62 is carefully formulated with low fluidity - resulting in an exceptionally fine, smooth-working material having maximum strength and wear resistance. This product even contains additives to promote thermal shock resistance. Ideal for mechanical clay-forming applications, such as jigger molds, which are subject to the most wear.

Use Consistency (cc/100gms)	Vicat Set Time (minutes)	% Set Expansion	Dry Density (lbs./ft <sup>3</sup> )	Expected Compressive Strength (PSI)
66	20 - 30	0.20	71 - 73	2200 - 2400

# Pottery Plaster

## K-63 Pottery Plaster

**Plasters Description:** Density, strength and absorption properties make K-63 plaster an excellent choice for use in dinnerware. Our customers rely on the plaster's formulation to satisfy complex requirements and maximize productivity.

Use Consistency (cc/100gms)	Vicat Set Time (minutes)	% Set Expansion	Dry Density (lbs./ft <sup>3</sup> )	Expected Compressive Strength (PSI)
55 - 57	24 - 28	0.23 - 0.26	78 - 81	3300 - 3700

## Denscal® TL Plaster

**Plasters Description:** Medium-strength gypsum cement specially formulated to provide a long period of plasticity. Especially suited for loft template, splash cast patterns or models that require an extended working time. Denscal TL gypsum plaster provides the benefit of controlled setting expansion, and is particularly useful for tooling that involves close tolerances.

Use Consistency (cc/100gms)	Vicat Set Time (minutes)	% Set Expansion	Dry Density (lbs./ft <sup>3</sup> )	Expected Compressive Strength (PSI)
45	15 - 20	0.05 - 0.065	90	4000

## Densite® K-12 Low Expansion Plaster

**Plasters Description:** With a density well suited for industrial tooling, Densite K-12 gypsum cement features a short plasticity period. You will appreciate its low-expansion and high-strength characteristics.

Use Consistency (cc/100gms)	Vicat Set Time (minutes)	% Set Expansion	Dry Density (lbs./ft <sup>3</sup> )	Expected Compressive Strength (PSI)
36 - 37	20 - 30	0.025 - 0.040	101	7500 - 8000

## Densite® K-13 Plaster

**Plasters Description:** A high-strength, low-expansion gypsum cement with a medium range period of plasticity. Densite K-13 plaster is ideally suited for splash casting screeding applications and all types of tooling where a stronger material is needed.

Use Consistency (cc/100gms)	Vicat Set Time (minutes)	% Set Expansion	Dry Density (lbs./ft <sup>3</sup> )	Expected Compressive Strength (PSI)
36 - 38	15 - 20	0.18 - 0.23	99 - 102	6000 - 8000

# Pottery Plaster

## Densite® K-33 Plaster

**Plasters Description:** Regardless of application, material requirement or performance specifications, this product is suitable for all types of plaster tooling. According to many of our customers, you simply cannot go wrong with Densite K-33 gypsum cement.

Use Consistency (cc/100gms)	Vicat Set Time (minutes)	% Set Expansion	Dry Density (lbs./ft <sup>3</sup> )	Expected Compressive Strength (PSI)
36	15 - 20	0.025 - 0.04	102	8000

## Densite® K-40 Plaster (Ram Plaster)

**Plasters Description:** Specifically developed for use with the automatic clay-forming press process, Densite K-40 plaster is the finest gypsum cement available for die press applications. The quality is exceptional for situations where unflinching performance is essential.

Use Consistency (cc/100gms)	Vicat Set Time (minutes)	% Set Expansion	Dry Density (lbs./ft <sup>3</sup> )	Expected Compressive Strength (PSI)
36 - 40	15 - 20	0.035 - 0.05	96 - 102	6000 - 8000

### PLASTERS SPECIFICATIONS AT GLANCE

Pottery Plasters Description	Use Consistency (cc/100gms)	Vicat Set Time (minutes)	% Set Expansion	Dry Density (lbs./ft <sup>3</sup> )	Expected Compressive Strength (PSI)
K-55 Pottery Plaster	70 - 75	28 - 38	0.15	65 - 69	1500 - 2000
K-58 Pottery Plaster	70	25 - 35	0.15	69 - 71	2000 - 2200
K-59 Pottery Plaster	70	20 - 25	0.18	69-70	1800 - 2200
K-62 Pottery Plaster	66	20 - 30	0.20	71 - 73	2200 - 2400
K-63 Pottery Plaster	55 - 57	24 - 28	0.23 - 0.26	78 - 81	3300 - 3700
Denscal® TL Plaster	45	15 - 20	0.05 - 0.065	90	4000
Densite® K-12 Plaster	36 - 37	20 - 30	0.025 - 0.040	101	7500 - 8000
Densite® K-13 Plaster	36 - 38	15 - 20	0.18 - 0.23	99 - 102	6000 - 8000
Densite® K-33 Plaster	36	15 - 20	0.025 - 0.04	102	8000
Densite® K-40 Plaster	36 - 40	15 - 20	0.035 - 0.05	96 - 102	6000 - 8000

# Pottery Plaster

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## Pottery Mold Shop

The best insurance against trouble is using sound practices at all levels of production. Good mold shop practices can be summarized as follows:

- **Plaster stock is rotated. The oldest is used first.**
- **Plaster is stored in a dry and warm area.**
- **Uniform mold density is assured by maintaining careful control of consistency used by the shop. Plaster and water are both weighed.**
- **The soaking and mixing times are carefully controlled by time switches on the mixer.**
- **Only water fit to drink is used and it is always used at the same temperature.**
- **Molds are carefully dried at 125° F. with forced air before they are put into use.**
- **Mechanical mixers with properly designed buckets and propellers are used or a continuous mixer of proper size and design is used.**
- **Molds are treated as precision tools. They are handled with care and stored carefully.**
- **The casting shops keep close checks on each mold's performance.**

When trouble is experienced, the mold shop foreman should examine the problem to see which of the above conditions are being ignored. The best procedure is, of course, to see that the rules are not violated in the first place.

## Mixing: The Most Important Step in Mold Making

Mold strength, hardness, absorption and density are developed to a maximum during the mixing process. At this time, gypsum particles are dispersed in water and all air is removed from the resulting mixture.

Two different methods can be used. One is continuous mixing, a process by which custom-engineered equipment automatically meters and mixes exact proportions of plaster and water. In continuous mixing, the ingredients are blended together at high velocity, instantly forming a slurry without the need for soaking. The resulting mixture is then pumped through a hose to the point of use. The alternative method is called batch mixing, a process involving manual agitation of slurry produced in small amounts. Plaster is sifted into water and allowed to soak before it is hand mixed to the proper consistency. The slurry is then carried in buckets to the point of use. If batch mixing, follow these rules:

- **Avoid changing the mixing cycle.**
- **Accurately weigh plaster and measure water.**
- **Time the soaking period and mixing cycle (sift plaster into water, soak until all particles are wet).**
- **Use proper mixer size, container shape and propeller clearances as dictated by the batch size and the physical properties of the plaster; mix the slurry to a creamy state to avoid settling.**
- **Maintain a constant and proper temperature.**
- **Keep all equipment clean.**
- **When pouring, maintain a constant rate, keeping the lip of the bucket as close to the mold as possible.**

# Pottery Plaster

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## Drying Rooms

So that a mold's physical properties can develop to the maximum level, the mold should be dried as quickly, thoroughly and safely as possible. Drying is the evaporation of "free" water from the mold which can be either a natural or forced air process. When the center of the piece reaches the temperature of the air surrounding it, drying is complete.

To prevent calcination (soft, powdery surfaces), drying temperatures generally should not exceed 120°F. Drying times can be reduced by increasing air speed over plaster molds. The following conditions are present in the best drying rooms or ovens:

- **Rapid, consistent air circulation with no 'dead spots'**
- **A consistent temperature throughout the area**
- **An air transfer system that replaces exhausted, moist air with dry air**

## SUMMARY

### The Far-Reaching Benefits of Georgia-Pacific Quality

Georgia-Pacific pottery plasters have a consistency that allows high-density molds to be produced, then poured without pinholes or loss of detail. Uniform, moderate expansion characteristics mean proper release. There is no binding or warping. You are ensured proper fit on a jigger ring, and you can count on an accurate size and shape.

Thanks to the extended, consistent plasticity period of our pottery plasters, you also enjoy excellent workability. Mold variations are kept to a minimum. The dimensional stability resists abuse, prolongs usefulness, and promotes uniform water absorption.

Whether you are concerned with purity, absorption or set time; mold life or strength - or any combination - there is a Georgia-Pacific pottery plaster to fill your need. Chances are one of our industrial plaster products features the exact formulation that meets your requirements. If not, we will gladly customize a special formulation based on your specifications.



# Pottery Plaster

## Georgia-Pacific Gypsum Products, Always Ready to Help

You can depend on Georgia-Pacific Gypsum for the highest quality specialty plasters in the industry — and for all the technical information and hands-on experience you may need. For information on specific product lines please contact your Georgia-Pacific Gypsum representative at 1-800-695-6367.

We welcome the opportunity to serve you.

U.S.A. – Georgia-Pacific Gypsum LLC  
 Canada – Georgia-Pacific Canada LP  
**Sales Information & Order Placement**  
 U.S.A. and CANADA 1-800-695-6367

**Technical Information**  
 Georgia-Pacific Gypsum Technical Hotline  
 U.S.A. and Canada: 1-800-225-6119  
[www.gpgypsum.com](http://www.gpgypsum.com)



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### UPDATES AND CURRENT INFORMATION

The information in this document may change without notice. Visit our website at [www.gpgypsum.com](http://www.gpgypsum.com) for updates and current information.

### WARRANTIES, REMEDIES AND TERMS OF SALE

For current warranty information, please go to [www.gpgypsum.com](http://www.gpgypsum.com) and select the product for warranty information. All sales of this product by Georgia-Pacific are subject to our Terms of Sale available at [www.gpgypsum.com](http://www.gpgypsum.com).

**CAUTION: For product fire, safety and use information, go to [gp.com/safetyinfo](http://gp.com/safetyinfo).**

**HANDLING AND USE CAUTION** Heat develops as the product hardens (rehydrates) and may cause serious burns resulting in possible permanent injury. After mixing with water, do not allow prolonged contact with skin until the product has completely hardened and cooled.

Mixing or sanding this product after drying may generate dust which can irritate eyes, nose, throat, skin and upper respiratory tract. Use wet sanding to minimize dust generation and always maintain proper ventilation in the work area. Avoid breathing dust and minimize contact with skin and eyes. Wear long sleeve shirts, long pants and eye protection. Use a dust mask or NIOSH/MSHA approved respiratory protection during mixing dry materials, while sanding and during clean-up as appropriate. For Material Safety Data Sheet or additional information, call 1-800-225-6119 or go to [www.gpgypsum.com](http://www.gpgypsum.com).