USG Boral Specialty Products Co., Ltd.

CASTING PLASTER
INDUSTRIAL PLASTER
THAILAND

DESCRIPTION

USG Boral casting plasters are formulated for use in ceramics to produce working molds for slip casting of sanitaryware, tableware and giftware. These products utilize high quality plaster and formulations to ensure high water aborption, superior absorption rate and quick drying ability while maintaining excellent firmness and a smooth surface throughout the mold life cycle.

PRODUCT TYPICAL PHYSICAL PROPERTIES

	Supercast NR	PEARL	REGULAR SP	DURACAST CM
Plaster to Water Ratio (%P/W)	150	125	135	140
Water to Plaster Ratio (%W/P)	67	80	74	71
Initial Setting Time by Knife Setting (minutes)	10 - 14	10 - 15	7 - 9	11 - 15
Final Setting Time by Shore A (minutes)	18 - 26	22 - 28	16 - 24	17 - 23
Fluidity by Schmidt Ring (mm)	180 - 220	250 - 290	210 - 230	170 - 230
Flexural Strength (MPa)	≥ 5.4	≥ 3.4	≥ 3.9	≥ 4.9

MIXING INSTRUCTIONS

MIX PREPARATION

Use potable water at temperture around 20-37 °C. Because variations in slurry (plaster and water mixture) temperature produce variations in set time, it is important to keep both USG Boral Plaster 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.

SOAKING

Weigh both the USG Boral Plaster and water prior to use for each mix. The water-to-plaster ratio is critical because it governs the strength and absorptivity of the mold.

Sift or strew USG Boral Plaster into the water slowly and evenly. Do not drop large amounts of USG Boral Plaster directly into the water as proper soaking of USG Boral Plaster may not occur. USG Boral Plaster should be fully dispersed in the water prior to mixing. Small batches require less soaking time than large batches.

MIXING

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

Mechanically mixed slurries develop uniform molds with optimal strengths. USG Boral Plaster can be mechanically mixed through both batch and continuous processes. Proper blade and bucket dimensions are important for obtaining the best batch mix.

Longer mixing times result in higher mold strength and shorter setting times.

POURING

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

DRYING

All Plaster 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 5-10 mps) of air with no "dead spots" having little or no air movement
2) equal temperatures throughout the entire area
3) provisions for exhausting a portion of the air while replacing it with fresh air.

High humidity surrounding the drying room or oven inhibits drying efficiency because the air pulled into the room is incapable of picking up much moisture from the molds.

The maximum temperature at which USG Boral Plaster molds are safe from calcination is 49 °C. With substantial free water in the mold, a higher drying temperature can be used without difficulty. As drying progresses, the temperature must be reduced to prevent calcination. Before removing molds from the dryer, the temperature should approach that of the area around the dryer to prevent thermal shock.

STORAGE AND USE

When properly used, USG Boral Plaster is safe to handle and easy to work with. Keep indoors in a dry, stable environment. Do not stack more than two pallets high. Keep from drafts. Rotate stock. Always follow handling and use directions and safety warnings on the package.

CAUTION
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. Dust from mixing may cause irritation to eyes, skin, nose, throat and upper respiratory tract. Use only in a well-ventilated area, wear a NIOSH/MSHA-approved respirator. Wear eye protection. If eye contact occurs, flush thoroughly with water for 15 minutes. If on skin: Wash with plenty of water. If swallowed and/or irritation persists, call physician.

KEEP OUT OF REACH OF CHILDREN.

SAFETY FIRST!
Follow good safety/industrial hygiene practices when using industrial plasters. Wear appropriate personal protective equipment. Read SDS and literature before use.

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USG BORAL
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