

# DRYSTONE™ Casting Media

## Mixing Procedures

Successful mixing and use of DRYSTONE™ Casting Media require the following specific standards and procedures. To obtain the full benefit of this product, shop practices and procedures must follow the following recommendations.

### DRYSTONE Casting Media-To-Water Ratio

The recommended ratio is 100 lb. of DRYSTONE Casting Media to 18-20 lb. of water. It is vitally important to always weigh the water and DRYSTONE Casting Media powder. Variations in the DRYSTONE Casting Media-to-water ratio will affect performance characteristics and physical properties.

### Water Purity

Water used in mixing DRYSTONE Casting Media should be as pure as possible. If water is drinkable, it probably is suitable for the mixing of DRYSTONE Casting Media. In many cases, water for industrial use is taken from contaminated sources and is high in organic impurities that will lengthen the setting time of DRYSTONE Casting Media. These and other contaminants could negatively affect the product and ultimately the finished cast.

### Water Temperature

Variations in water temperature will significantly affect setting time and workability, and can cause difficulty controlling mixing times. The rule of thumb is that cold water retards set and warmer water accelerates set. (Both temperature extremes thicken the mix.) It is highly recommended that the temperature of both the water and the DRYSTONE Casting Media be between 70 and 80 °F.

### Mixing

The uniform mixing of DRYSTONE Casting Media is very important in producing casts with maximum strength and hardness since there is a direct relationship between energy input during mixing and strength development of the cast. Changes in mixing procedures will have a great effect on the finished product.

An ideal mix is one in which the powder particles are completely dispersed in the water to produce a uniform, homogeneous slurry.

To mix DRYSTONE Casting Media properly for uniform casts, follow these easy steps:

1. Weigh the DRYSTONE Casting Media and water accurately for each mix, preferably with a digital scale.
2. Sift or strew ½ to ¾ of the DRYSTONE Casting Media into the water slowly and evenly. Use the proper mechanical mixer and mixing bucket (see Fig. 1).
3. Start mixing to incorporate this material into the water immediately.
4. Once incorporated, continue to add the remaining DRYSTONE Casting Media to the mix.
5. Continue mixing until all the powder is incorporated.
6. Mix for a total of 2-4 minutes until the proper fluidity is achieved.

Depending on actual batch size, adjustments can be made to the mixing cycles. Typically, larger batches may require slightly longer mixing cycles.

For best results use the recommended mixer/mixer motor combination as indicated in Figure 1. The mixing shaft should be maintained at an angle 15° from vertical. The shaft should be about half-way between the center and the side of the container. The propeller or JIFFY® mixer should clear the bottom of the

container by 1 to 2 inches, forcing the mix downward.

Generally only one propeller is necessary, but where this does not provide enough turbulence, use two per shaft or use a larger diameter propeller.

Keep all equipment clean to avoid acceleration of the reaction between the water and the DRYSTONE Casting Media.

### Pouring DRYSTONE Casting Media

DRYSTONE Casting Media can be used with most mold materials such as silicone, latex, or urethane-type molds.

To prepare the mold, make sure it is clean, then dip the mold or spray it with a suitable mold rinse. Using a steady rate, pour the DRYSTONE Casting Media slurry into one corner of the mold or on the highest point and allow the slurry to rise and seek its own level. To minimize air entrainment, mechanically vibrate or shake the mold or the surface onto which the mold is placed.

Pour the mold slightly less than full. Continue to vibrate the molds until no new air bubbles are seen rising. Help draw out trapped air by inserting and withdrawing a spatula, stirring stick, or brush into the DRYSTONE Casting Media slurry.

Top off the mold, slightly overfilling. Vibrate once more, then screen the surface smooth. Demold the DRYSTONE Casting Media cast material when it reaches peak heat.

To aid in the drying and cooling down process, remove the hardened DRYSTONE Casting Media cast from the mold, or loosen the mold walls and allow air to circulate the cast. DRYSTONE Casting Media products can be decorated approximately 2-4 hours after set time.

Figure 1. Mixer and mixing bucket recommendations

Batch Size		Bucket Dimensions		Mixing Blade-Size/Type	Mixing Motor
Pounds DRYSTONE	Total Mix Volume	h=height d=diameter	Volume		
<20 lb.	<1.8 gal.	h=10" d=8.5"	2.5 gal.	2-3" prop/JIFFY	¾", 2500 rpm drill
20-50 lb.	1.8 to	h=13" d=11"	5.4 gal.	4" prop/3.75" JIFFY	¾", 2500 rpm drill
	4.5 gal.	h=17" d=12"	11.8 gal.	4" prop/3.75" JIFFY	½", 1200 rpm drill
50-100 lb.	4.5-9 gal.	h=22" d=14"	14.7 gal.	4" prop/5" JIFFY	½", 1200 rpm drill

1. Mixing vessel should be appropriately sized to contain DRYSTONE Casting Media slurry volume, assuming that density of slurry is approximately 130 lb./ft.<sup>3</sup> at a water to DRYSTONE Casting Media ratio of 0.19 to 1.

2. Mixing vessel dimensions should maximize height and minimize diameter such that the height:diameter ratio is 1.2:1.6.

3. Either a JIFFY mixer or prop blade should be used for agitation. The blade diameter should be approximately ¼ the diameter of the mixing vessel.

4. Mixing motor should provide 1000-2000 RPM under load.

5. Prop Mixer should be a three blade, 25°-pitch propeller of appropriate diameter.

**NOTE:** Removing cast material in a cold area may result in thermal shock cracking. If this occurs begin demolding after material has started cooling.

**HEALTH AND SAFETY INFORMATION**

**WARNING:** When mixed with water, this material 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. Avoid dust. Dust may cause irritation to the eyes, skin, nose, throat, or upper respiratory system. Wear eye and respiratory protection to avoid irritation. Product safety information: (800) 507-8899.

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