

# Product and Systems Technology

## Job Use of Retarder in Plaster

### PM7

When job conditions cause the plaster to set too rapidly, the alert journeyman uses retarder to adjust the setting time to allow for proper application and finishing.

Retarder is an additive or admixture that slows the setting time of gypsum plaster. Retarder is added to the plaster in specific amounts during manufacture to provide a setting time that meets product and job needs for each type of material, e.g., for basecoat, gauging plaster, veneer plaster, etc.

USG plaster products are designed to set in a specific amount of time under normal job conditions. However, the set of plaster is subject to variations encountered on the job.

The best retarders are USG™ retarders. The retarders are specially processed and finely ground for easy, dependable use.

USG retarders slow down the absorption of water in chemical combination that causes the gypsum plaster to set or harden.

#### **Caution must be used when retarding plaster.**

1. Excessive addition of retarder will drastically reduce strength, thereby impairing the integrity of the finish work.
2. Excessive amounts may produce "dry-out" or the inability of plaster to set before the water necessary for chemical reaction evaporates.
3. USG retarders should never be added directly to the plaster mix. While this practice may perform, it is not recommended. The addition of dry retarder does not provide controlled dispersion as quickly or uniformly as retarder pre-mixed with water.

The lengthening of setting time is not directly proportional to the amount of retarder added. A very small quantity is necessary to produce significant changes in the observed setting time of gypsum plasters. For example, a small amount might extend the set by 30 minutes; twice this small amount by 90 minutes; three times this amount by several hours.

### Types of Retarders

USG Retarders are processed under strict guidelines for use by the professional. They are available in two types:

- **Standard Strength**

For use with conventional or veneer type plasters where a slight to moderate correction in setting time is desired.

- **Retarder for Lime Containing Plasters**

For use with conventional lime-gauging finish plasters, DIAMOND® veneer finish, RED TOP® finish plaster and APEX™ veneer finish plaster.

### Guidelines for Use

Following are guidelines for use of USG retarders:

All USG retarders should be mixed with water before adding to plaster. Mix one pound of USG standard or high strength retarder per four gallons of water in a convenient size container. Slowly add retarder to the water and stir until retarder is dispersed. Screen out any retarder lumps that may have formed. These lumps will cause soft discolored spots in the plaster surface. Note that retarder is only dispersed in water and not dissolved, thus prolonged standing will allow the retarder to settle out. Always stir the retarder mixture before using. Poor dispersion increases the possibility of variable sets and soft unset spots in the plaster surface.

USG retarder for lime-containing plaster products should be added directly to the mixing water prior to the addition of plaster. Once the proper amount of retarder is added, the water should be stirred to dissolve the retarder.

As little as 1/4 to 1/2 tsp. will extend the setting time of a lime containing plaster mix 20 minutes per 50 lb. bag of product.

Prior to use of any additive, good job practice involves mixing a trial batch of formulated product and determining set time. Once the set time is known, a measured amount of USG retarder/water mixture is added to adjust the set.

Use a clean container (wax cup, coffee can, measuring cup, etc.) to measure the retarder/water mixture.

- **USG Standard Strength Retarder**

Five fluid ounces (one teaspoon dry retarder) of the prepared solution will extend the set time of 100 lbs. of gypsum plaster by 30 to 40 minutes or more.

It is difficult to select the specific quantity of retarder to use without knowledge of the product, problem, or condition to be encountered. It is best to determine the amount by the batch trial method.

An alternative method to preparing the retarder/water mixture is to introduce the dry retarder into the mixing water. Laboratory testing (which simulates actual job applications) has revealed the following:

- **USG Standard Strength Retarder**

1 teaspoon (tsp.) of retarder may extend the set time from 30 to 45 minutes per 100 lb. of veneer plaster product.

- **USG Retarder for Lime-Containing Plaster Products**

As little as 1/4 to 1/2 tsp. will extend the set of the lime containing plaster mix 20 min. per 50 lb. bag of product.

It is good practice to always keep mixing equipment clean between batches to prevent quick-setting action from occurring in subsequent mixes.

There is nothing wrong with using retarder when it becomes an essential tool to obtain proper performance of plastering materials. If required, use it as a liquid mixture and then only in the amount necessary to provide an adequate job set.

**Trademarks**

The following trademarks used herein are owned by United States Gypsum Company: APEX, DIAMOND, RED TOP, USG, USG in stylized letters.

**Note**

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**Safety First!**

Follow good safety and industrial hygiene practices during handling and installing products and systems. Take necessary precautions and wear the appropriate personal protective equipment as needed. Read material safety data sheets and related literature on products before specification and/or installation.

