

Product and Systems Technology

Job Use of Accelerator in Plaster and Setting-Type Joint Compound

PM8

Accelerator is an additive that shortens the setting time of gypsum plaster or setting-type joint compound. Adding an accelerator to the mix causes gypsum crystals to form at a much faster rate; and the formation of these crystals is the setting process.

Manufacturers add accelerator to plaster to stabilize the setting time so that it stays within the manufactured range when subjected to normal job conditions. These conditions may vary due to: plaster exposure to moisture prior to mixing; contaminated or poorly graded aggregate; dirty mixing water; length of mixing time; varying climatic conditions; and improper ventilation after application. However, the primary use for accelerator on the job is to quicken the setting time when the journeyman encounters a slower set than required.

An accelerator is an essential tool for applicator tradespeople. There is nothing wrong in using such an additive when it is essential to speed up the set of plaster or setting-type joint compound to meet specific job conditions. If required, use accelerators in dry form to shorten gypsum setting times, or alum catalyst solution to overcome "dry-out" of gypsum plastering, or in treating gypsum base which has become faded due to excessive exposure to ultraviolet light conditions, before the application of lime-containing plasters.

Types of Accelerators

USG™ accelerators are processed under strict guidelines for use by the professional. They are available in three types:

- **USG™ Standard Strength Gypsum Plaster Accelerator**

For use when a slight adjustment (10 to 30 mins.) in set is required. Recommended with veneer and conventional plasters.

- **USG™ Accelerator—Alum Catalyst**

Used to correct dry-out conditions and sun-faded IMPERIAL® gypsum base.

Guidelines for Use

Following are guidelines for use of USG accelerators:

Accelerator should be sprinkled in dry form into the mixer after plaster has been added. For hand-mixing, dry accelerator can be added either to the dry mix or the plaster slurry.

Caution: Never add USG standard strength gypsum plaster accelerator or USG high strength gypsum accelerator directly to the water or mix it with water to form a solution before adding it to the plaster mix. When used in this manner, its ability to accelerate is significantly reduced.

Use of alum catalyst is always as a solution.

When using USG accelerators to quicken setting time, be sure to allow adequate working time so that the plaster can be mixed, applied and finished before the set starts to take place. Failure to comply with this recommendation may require working the plaster through the set.

This additional troweling can cause retempering of the plaster and result in both poor bond and reduced strength. Prior to the use of any additive, good job practice involves mixing a trial batch of formulated product and determining the set time. Once the set time is known, a measured amount of USG accelerator is added to adjust the set.

Determining how much accelerator to use to achieve desired results

Used in proper amounts, USG accelerators ensure uniform, reliable results. It is difficult, however, to select the specific quantity of accelerator to use without knowledge of the product, problem or condition to be encountered. Laboratory testing (which simulates actual job applications) has revealed the following:

- **USG Standard Strength Gypsum Plaster Accelerator**

Four ounces (4 oz.) USG accelerator (STD) reduces the set time 30 minutes per bag of veneer plaster product.

- **USG Accelerator—Alum Catalyst**

For correction of dry-out conditions and use in treating sunfaded IMPERIAL gypsum base when a lime-containing plaster is to be applied to it. Applications for dry-out conditions and use in treating sunfaded gypsum base are described here.

Guidelines for using USG Accelerator—Alum Catalyst to correct “dry-out” conditions

Mix approximately 1/2 to 1 pound of powdered USG accelerator—alum catalyst to 3 gallons of water. This solution is adequate to correct all surface dry-out conditions.

Dry-out conditions can be corrected by either of the following methods:

1. Fog-spraying the plaster with water: spray with a garden hose until beads of moisture remain on the surface and the plaster is totally saturated. (If dry-out shrinkage fissures have developed in the plaster, fill them by floating the surface with a wooden float after spraying.)
2. Spraying the damp plaster surface with the prepared solution of alum (aluminum sulfate) and water using a hand-held pressure-type garden sprayer (3 to 5 gal. size). The application of alum solution used in combination with rewetting the affected areas will quicken the setting reaction and assist in preventing a recurrence of the dry-out condition.

Guidelines for using USG Accelerator—Alum Catalyst to treat sunfaded IMPERIAL gypsum base

When used with lime-containing plaster, such as DIAMOND® veneer finish, sunfaded IMPERIAL gypsum base brand face paper should be treated with USG accelerator—alum catalyst or USG™ plaster bonder (see publication P729). This precaution is unnecessary when applying products that do not contain lime (IMPERIAL® veneer finish, IMPERIAL® veneer basecoat and DIAMOND® veneer basecoat).

For alum catalyst solution treatment, pour 3 pounds of alum catalyst slowly into one gallon of water and mix thoroughly. Allow solution to stand until any undissolved material has settled, then strain solution into tank type sprayer (such as garden sprayer). Spray solution onto faded IMPERIAL gypsum base brand base face paper so that it is wet but not soaked. One gallon of solution should treat 750 sq. ft. of IMPERIAL gypsum base. Begin finish plaster application before face paper treated with alum solution is completely dry. **Caution:** Alum treatment shortens setting time of DIAMOND veneer finish.

Set Time Chart For the Addition of USG™ Standard Strength Gypsum Accelerator To Setting-Type Joint Compounds

Accelerator Amounts		Approximate Set Time (minutes)		
Tbls. per Bag	Tbls. per Mud Pan	EASY SAND™/ DURABOND® 90 Joint Compound	EASY SAND™/ DURABOND® 45 Joint Compound	EASY SAND™/ DURABOND® 20 Joint Compound
1.0	0.22	40	20	10
2.0	0.44	30	10	—
6.0	1.33	20	—	—

Trademarks

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