

Factors that Affect Joint Compound Setting Time

For Setting Type (SHEETROCK® or DURABOND®) Joint Compounds

Introduction

Setting-Type Joint Compounds, such as DURABOND and SHEETROCK, give contractors a choice. They can use a product with a short setting time for one-day finishing, or use an extended formulation with setting times of up to five hours. Whatever the formulation, contractors benefit by achieving *consistent* setting times and low product shrinkage on their projects. Certain factors, however, will alter the sets. These factors are water purity, water temperature, and mixing technique.

Water Purity

Pure water is best. If the jobsite water supply is drinkable, then it is probably suitable for mixing setting-type joint compounds—but caution is in order. Often, water for construction use is contaminated with impurities that accelerate the setting times.

It's natural to take things for granted until you get to a jobsite that has bad water and the joint compound suddenly sets very quickly. It's recommended to check the water supply.

Tip: Be wary of new housing developments that draw water from freshly drilled wells. Such unflushed well water often contains impurities. If pure water is unavailable, compensate by using a joint compound formulation with a different set time.

Water Temperature

Variations in water temperature affect the setting time and cause difficulty in mixing setting-type compounds. When the water temperature is cold, the setting time is lengthened. Hot water shortens the set time. Anything that adds energy, such as hot water, will accelerate the set. To produce consistent batches, use water at a uniform temperature for best results.

Tip: Put water in a 55-gallon drum or any large vessel before mixing. The standing water will equalize in temperature and generally vary less in temperature than tap water.

Mixing Technique

Mixing joint compound is the most important step in creating joints with maximum strength. Changes in the mixing procedure affect set times more than anything else.

Before mixing begins, determine whether the mixing pails are clean or soiled with a previously set joint compound residue. Pails with previously set joint compound will act as an accelerator on subsequent batches. Other contaminants, such as soap or oil, can affect the bond strength and setting time as well. All pails should be thoroughly washed.

Figure 1 shows how mixing time and set-time are inversely related. The longer the joint compound is mixed, the shorter the set time and vice versa. To mix setting-type joint compound properly: (1) measure water accurately and add the right amount of powder; (2) use an accurate interval timer to time soaking and mixing cycles; and (3) use a high-speed (max. 600 rpm), direct-drive propeller mixer with the shaft set at a 15° angle from vertical. Propeller rotation should force the mix downward.

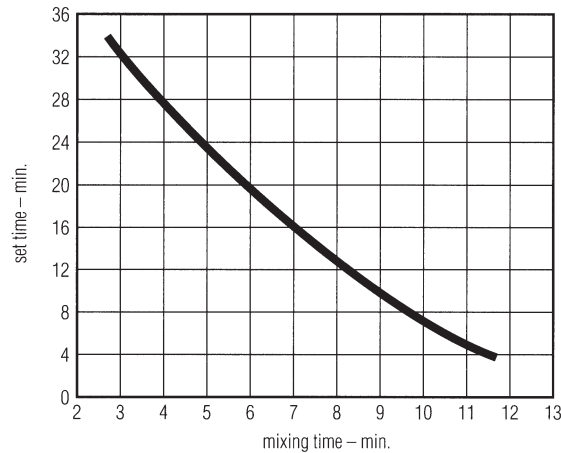


Fig. 1— Effect of mixing time on setting time

Tip: Mix consistently, and do not vary the procedure. A heavy initial mixture sets quickly. If, for example, a lightweight setting-type joint compound calling for 16 pints of water per 11-Kg bag is initially mixed with ten pints of water, then six pints of water are added later to smooth the mix, this batch will set faster than will a batch mixed at the start using all 16 pints of water. This is true even though the two batches ultimately contain the same amount of water. Varying the mixing technique from batch to batch alters the setting times.

Remember to follow good safety practices and wear the appropriate personal protective equipment as needed. For more information, call CGC at (800) 387-2690.

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