



Accelerators

Accelerators are admixtures used to speed the setting time of mortar and grout. By increasing the rate of hydration of the cement, accelerators increase the rate of early strength gain. The most common accelerators are inorganic salts such as calcium chloride, calcium nitrate, soluble carbonates, and some organic compounds. Any accelerator should be evaluated for deleterious effects on masonry strength and materials. Admixtures must not contribute to staining or efflorescence or cause corrosion of metal accessories used in construction of masonry.

Indiscriminate use of accelerators can adversely affect the in-place performance of the completed masonry.

Accelerators alone are not suggested treatment for cold weather construction problems. Mortar and grout containing accelerators must still be protected from freezing.

Calcium chloride, while highly effective as an accelerator and widely used in the past, causes corrosion of metals used in masonry due to the chloride content. For this reason, chlorides should not be used in mortar or grout in contact with metals (i.e. ties, anchors, and reinforcement).

Also, the incidence of efflorescence may be increased when excessive salts are present. If a chloride accelerator is used, it is recommended that it be limited to amounts not to exceed two percent of the weight of Portland used in the mortar mix or one percent of the weight of masonry cement.

Calcium nitrite and calcium nitrate are inorganic nonchloride compounds also used as accelerators. These compounds require higher dosage by weight and are more costly than calcium chloride but will not corrode metals or contribute to efflorescence.

Antifreeze

An antifreeze lowers the freezing point of the substance to which it is added. Most commercial mortar “antifreeze” admixtures do not do this but are instead accelerators. However, some true antifreeze admixtures are available. These admixtures are alcohols or combinations of salts. If used in the quantities required to be effective, significant reductions in mortar compressive and bond strengths usually result. For this reason, use of antifreeze compounds is not recommended.