LIME

Fact Sheet

The Versatile Chemical

Lime Terminology

Quicklime, the product of calcination of limestone, consists of the oxides of calcium and magnesium. The primary forms of quicklime are:

High calcium quicklime - derived from limestone containing 0 to 5 percent magnesium carbonate.

Dolomitic quicklime - derived from limestone containing 35 to 46 percent magnesium carbonate.

Hydrated lime is a dry powder obtained by treating quicklime with suffi cient water to satisfy its chemical affi nity for water, thereby converting the oxides to hydroxides. Depending upon the type of quicklime used and the hydrating conditions employed, the amount of water in chemical combination varies, as follows:

High calcium hydrated lime - high calcium quicklime produces a hydrated lime containing generally 72 to 74 percent calcium oxide and 23 to 24 percent chemically combined water.

Dolomitic hydrated lime (normal) - under atmospheric hydrating conditions only the calcium oxide fraction of dolomitic quicklime hydrates, producing a hydrated lime of the following chemical composition: 46 to 48 percent calcium oxide, 33 to 34 percent magnesium oxide, and 15 to 17 percent chemically combined water.

Dolomitic hydrated lime (pressure) - this lime is produced from dolomitic quicklime under pressure, which results in hydrating all of the magnesium oxide as well as all of the calcium oxide, producing the following chemical composition: 40 to 42 percent calcium oxide, 29 to 30 percent magnesium oxide, and 25 to 27 percent chemically combined water.

Quicklime is a white to gray solid having a crystalline structure. Quicklime is highly reactive with water, generating considerable heat in the hydration process. This material will react with the moisture in the air, and as such, it can be used as a desiccant. In the presence of moisture, lime reacts slowly with carbon dioxide in the air, reforming calcium carbonate. As a chemically active material it is desirable to reduce atmospheric exposure during handling and storage to a minimum. Hydrated lime, though only slightly soluble in water, forms suspensions easily; the resulting solution and suspension is strongly alkaline, possessing a pH of 12.4.

Quicklime is commercially available by pneumatic tanker truck, rail hopper car, or in bulk or in paper bags.