

ASTM-C51

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Standard Terminology Relating to Lime and Limestone (as used by the Industry)¹

This standard is issued under the fixed designation C 51; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ϵ) indicates an editorial change since the last revision or reapproval.

This standard has been approved for use by agencies of the Department of Defense.

INTRODUCTION

Where appropriate, the various terms defined below should be prefixed with one or other of the adjectives “high-calcium,” “magnesian,” or “dolomitic.” (Examples: dolomitic quicklime; high-calcium hydraulic hydrated lime; magnesian or dolomitic limestone.)

The composition of a limestone should be given in terms of a percentage of the carbonates present. In limestone of interest to the lime industry, it is usually assumed that the material consists almost entirely of carbonates. Where this assumption is not valid, the percentage of noncarbonate material should be determined, and the composition expressed in terms of the carbonate material present.

This terminology is as commonly used by the industry. For specific application of lime or a limestone product, see the appropriate ASTM specification.

agricultural lime—either ground quicklime or hydrated lime whose calcium and magnesium content is capable of neutralizing soil acidity.

agricultural limestone—ground or pulverized limestone whose calcium and magnesium content is capable of neutralizing soil acidity.

air-slaked lime—the product containing various proportions of the oxides, hydroxides, and carbonates of calcium and magnesium which results from the exposure of quicklime to the air in sufficient quantity to show physical signs of hydration (difficult to determine visually in pulverized quicklime).

alkaline earth solutions (AES)—an aqueous solution of the oxide or hydroxide of an element of group IIa in the periodic table, such as calcium or magnesium. These solutions may be strongly alkaline. See **pH**.

available lime index—those constituents of a lime which enter into a desired reaction under the conditions of a specific method or process.

building or construction lime—a lime whose chemical and physical characteristics and method of processing make it suitable for the ordinary or special construction uses of the product.

by-product lime—by-product limes include a variety of Calcium and/or Calcium/Magnesium compounds that are usable for specific applications but generally do not meet one or more specifications required of primary lime products. Examples include lime kiln dust and lime hydrator rejects. It

is advised that the specific compositions, physical properties, performance characteristics, and anticipated variabilities of such materials be evaluated for the service intended.

calcareous—originating from predominately calcium carbonate or one of its derivative forms.

calcia—the chemical compound calcium oxide (CaO).

chemical lime—a quicklime or hydrated lime whose chemical and physical characteristics and method of processing make it suitable for one or more of the many and varied chemical and industrial uses of the product.

DISCUSSION—The chemical forms of calcium oxide (CaO), calcium hydroxide (Ca(OH)₂), magnesium oxide (MgO), or magnesium hydroxide (Mg(OH)₂) alone or in combination may be produced either primarily or as a by-product of materials other than limestone, for example, Ca(OH)₂ formed by acetylene generation from calcium carbide (CaC₂), water treatment sludges, etc.

dead burned dolomite—dolomitic limestone that has been heated with or without additives to a temperature sufficiently high and for a long enough time to decompose the carbonate structure so as to form calcium oxide and periclase in a matrix that provides resistance to subsequent hydration and recombination with carbon dioxide.

dolomitic—indicates the presence of 35 to 46 % magnesium carbonate (MgCO₃) in the limestone from which the material was formed.

dolomitic limestone—see **limestone**.

di-hydrated or double hydrated lime—dolomitic lime which has been hydrated under greater than atmospheric pressure and contains less than 8 % unhydrated oxides.

finishing hydrated lime—hydrated lime suitable for use in the finish coat of plaster.

finishing quicklime—quicklime suitable (after slaking to a

¹ This terminology is under the jurisdiction of ASTM Committee C07 on Lime and is the direct responsibility of Subcommittee C07.08 on Nomenclature.

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