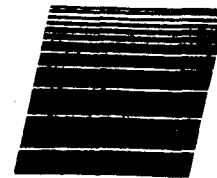


Soil Resources Fact Sheet



AGRICULTURAL LIME QUALITY

The quality of agricultural limestones depends on:

- a. Neutralizing power or the ability to decrease soil acidity.
- b. Fineness, or the percent of the material passing a 60 or 100 mesh sieve.
- c. Magnesium content.
- d. Moisture content.

a. NEUTRALIZING POWER

Neutralizing Power, also called calcium carbonate equivalent (CCE), is expressed in percentage units. Pure calcium carbonate or calcitic limestone is the standard and has a value of 100 percent, and all other liming compounds are compared with this standard. Here are some examples of the neutralizing value of common liming materials, provided they contain no impurities:

	<u>CCE</u>
CaCO_3 = calcitic limestone (fine or pulverized or coarse ground)	100
CaO = calcium oxide = burnt lime = quicklime	179
$\text{Ca}(\text{OH})_2$ = calcium hydroxide = slaked lime = hydrated lime	136
x. CaSiO_3 = basic slag (contains much P_2O_5)	60-70
x. CaSiO_3 = blast furnace slag (may contain much Mg)	75-90
x. CaSiO_3 = electric furnace slag (contains some P_2O_5)	65-80
$\text{CaMg}(\text{CO}_3)_2$ = magnesium limestone (under 12% Mg)	100-109
$\text{Ca}_{1/2}\text{Mg}_{1/2}(\text{CO}_3)_2$ = dolomite (= 12% Mg = 22% MgO)	109
MgCO_3 = magnesium carbonate (35% Mg)	119
MgO = magnesium oxide = magnesia (60% Mg)	263
Marl & Shells	Variable but usually high

The common commercial limestones are ground crystalline rock, either calcium carbonate (CaCO_3) in varying grades of purity, or dolomitic limestones in which up to half of the calcium may be replaced by magnesium. The other listed materials are processed or manufactured from the carbonates or they are industrial waste products. Most ground limestones contain up to 15% impurities and their neutralizing powers are reduced accordingly. Very impure limestone may drop the neutralizing power to as low as 60 percent. Each State Department of Agriculture has set minimum standards for commercial agricultural limestones. West Virginia regulations (under WVCode 19-15a) require a minimum of 85 percent for standard aglime, marl, slag, and shells; 110% for hydrated lime, and 140% for burnt lime. Many states require a minimum of 90 percent for standard aglime. Poorer grades of limestone can be equally effective

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