

KNOW YOUR LIMING MATERIAL

All liming materials are not the same. Liming materials are used to raise soil pH and supply calcium or magnesium. The **quality of liming material** is dependent on

- Neutralising value (NV): is the lime's capacity to neutralise soil acidity.
 - Pure calcium carbonate has NV of 100.
 - Ideally, NV should be over 95.
- Fineness - the finer the particles of lime, the faster they react with soil. You should know the % of different-sized particles in their product.
- Calcium and Magnesium content.



1
Calcitic Limestone

Consists mainly of calcium carbonate.

- Increases soil pH
- Adds calcium to soil
- Reduces the solubility of Al and Mn in the soil
- Dissolves faster than dolomitic limestone
- Most beneficial for microbial population & diversity



2
Dolomite

Dolomite is 50% each of Calcium Carbonate & Magnesium Carbonate

- Increases pH of soil.
- Adds Ca and Mg to Soil
- Recommended for acid soils that are deficient in magnesium
- Dissolves slowly in the soil, resulting in longer term pH adjustment
- Beneficial for microbial growth



3 **Structural Limestone: Slaked & Quick Lime**

Calcium hydroxide/Calcium Oxide: "Mimics" soil biological processes and rapidly enhances soil aggregate structure, through process of cementing. These products are mainly used in fertiliser and concrete industry!

- Increases pH of soil quickly but for short duration only.
- Reacts quickly when mixed with moist soil to form soil aggregates.
- On application, heat is generated in soil which can have negative effects on microbial communities.
- Dehydrating effect on soil.
- Should be used only on recommendation from your advisor.

SNAPSHOT of RAL LAB REPORT FOR LIMING MATERIAL

Parameter	Sample Level	Parameter	Sample Level
Moisture %/ wt- maximum	0.90	pH	9.70
Moisture Factor-%	0.99	EC-ds/m	0.05
Fineness Factor	% Particle Size	The fineness factor is related to the particle size of a liming material. Fine particles react faster in soil than large particles, as they have greater surface area. Liming materials containing more fine particles will be more effective in neutralising the soil quicker. When rapid pH change is needed, very fine lime (100-mesh) can change pH in a few weeks or months.	
Fineness- 5 mesh	0.54		
Fineness- 10 mesh	9.27		
Fineness- 35 mesh	7.47		
Fineness- 60 mesh	4.85		
Fineness- 100 mesh	77.85		
Sample Fineness Factor	0.85		
Calcium-%	19.70	Magnesium-%	10.3
Calcium Oxide (CaO)%	0	Magnesium Oxide-%	0
Calcium Carbonate-%	0	Magnesium Carbonate-%	35.74
CaCO ₃ :MgCO ₃ Ratio	0.00	An ideal ratio for dolomite is > 1.	
CCE- Calcium Carbonate Equivalent	87.75	CCE is a measure to the amount of acid that the liming material will neutralize, compared to pure calcium carbonate. The higher the CCE, the more effective the material in neutralizing acidity. Pure calcium carbonate has a CCE of 100. Dolomite has a CCE of 80-110.	
ECCE- Effective Calcium Carbonate Equivalent	74.6	ECCE is the measure of the effectiveness of liming materials and is calculated as a function of the purity value (CCE) and the fineness factor.	
Lime Score	73.92	Lime score is a number between 0 and 125+. As lime score decreases, lime application rate must increase to obtain the same neutralizing potential as an application of 100-score material.	

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