

**Description**

LIME is a high-purity calcium hydroxide having the chemical formula  $\text{Ca}(\text{OH})_2$ .

**Typical Properties**

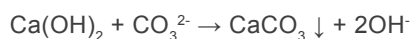
Appearance : White powder  
pH (1% solution) : 12.3 - 12.5  
Specific Gravity : 2.2

**Features and Benefits**

LIME is a common and an inexpensive source of soluble calcium for lime-base drilling fluids.

LIME is very effective in removing bicarbonate and carbonate contaminations from water-base drilling fluids.

The reactions are as follows:



LIME increases viscosities and gel strength of (spud mud) for better hole cleaning. This is particularly an important issue in top hole drilling.

LIME activates fatty acid based primary emulsifiers in oil based drilling fluids by converting them to calcium soap emulsifier in situ.

LIME reduces corrosion rate by maintaining high pH.

**Application**

LIME is used as a calcium source in lime-base systems.

LIME is also utilized as flocculant to increase viscosity of spud mud.

LIME is used to activate primary emulsifier in oil-base drilling fluids.

LIME is added to treat carbonate and bicarbonate contaminations in water-base drilling fluids.

**Limitations**

LIME is not suitable for treatment of carbonate contamination in high pH systems due to its low solubility in this environment.

**Treatment**

In removal of carbonate contamination, treatment levels of LIME are determined depending on the concentration of ions to be removed as follows:

To treat bicarbonates;

$$\text{Lime (lb/bbl)} = 0.00021 \times F_w \times \text{HCO}_3^- \text{ (mg/l)}$$

To treat carbonates;

$$\text{Lime (lb/bbl)} = 0.000425 \times F_w \times \text{CO}_3^{2-} \text{ (mg/l)}$$

Where  $F_w$  is water fraction in the fluid.

In low lime fluid formulation, LIME concentration ranges from 0.3 to 1.0 lb/bbl (0.86 to 2.85 kg/m<sup>3</sup>). Lime is normally added at concentrations of 5 to 10 lb/bb (14.3 to 28.5 kg/m<sup>3</sup>) as the primary emulsifier activator in oil-base drilling fluids.

**Packaging**

LIME is supplied in 25 kg (55 lb) multi-wall paper sacks.