



Drilling Fluids, Inc.

Lost Circulation Material

Description

Calcium Carbonate (CaCO₃)

CALCIUM CARBONATE is used as a bridging agent and/or weighting material in oil base and water base drilling fluids, drill-in fluids, work over fluids, and completion fluids. CALCIUM CARBONATE comes in a wide variety of particle sizes ranging from 325 mesh (35 μ) to 30 mesh (550 μ). Custom sizing for particular applications is also available

Uses

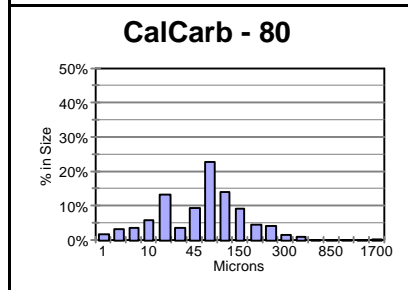
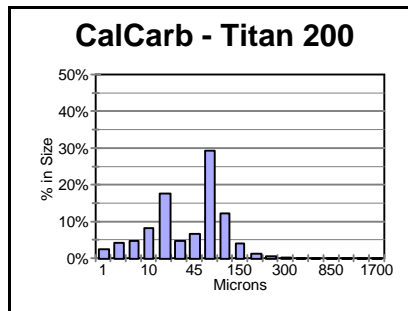
CALCIUM CARBONATE is used to prevent fluid invasion of permeable zones, and to prevent loss of circulation during drilling, workover, and completion activities. CALCIUM CARBONATE is applicable in all drilling fluids, aqueous and non-aqueous. It can be used to prepare a pill for spotting purposes.

CALCIUM CARBONATE is also used as an acid soluble weighting material for drill-in or workover fluids with a density of 14.0 ppg or less.

Benefits

CALCIUM CARBONATE is 98 to 99.5% soluble in 7.5-15% hydrochloric acid solution, thus minimizing permanent plugging of the producing formation. It is available in grades ranging from 325 mesh up 30 mesh to provide the particle sizes needed for effective bridging of the producing interval.

Particle Size Analysis



Mesh	Micron
400	35.56
75	190.80
60	250.00
50	300.00
40	425.00
30	600.00
20	850.00
14	1400.00
10	1700.00



**Lost Circulation
Material**

Calcium Carbonate (CaCO₃) (Continued)

Treatment

CALCIUM CARBONATE concentrations of 5 to 10 ppb are usually sufficient as a bridging agent to prevent fluid loss in work over systems. Concentrations of 20 to 40 ppb are used in the preparation of LCM pills.

As a weighting agent, CALCIUM CARBONATE can be added to increase fluid densities up to 14.0 ppg. The weight up formula for CALCIUM CARBONATE is:

$$\text{Required lb/bbl of CALCIUM CARBONATE} = \frac{945 (W_2 - W_1)}{22.5 - W_2}$$

Where:

W₁ = initial mud weight in ppg

W₂ = desired mud weight in ppg

Function

CALCIUM CARBONATE acts as a bridging agent like most solids but is used because of its acid soluble nature. As a weight material it is somewhat limited because of the low density, but this may be compensated for by the use of salt to increase the water phase density. In a water based system the pH of the drilling fluid needs to be above 7.0 since the CALCIUM CARBONATE is acid soluble. At a lower pH, it will begin to dissolve and contaminate the drilling fluid with calcium and will no longer be effective as a lost circulation material.

**Typical Physical
Properties**

Appearance:white powder

Specific Gravity:.....2.7

Hygroscopic:.....no

pH in water:neutral

Bulk density:63 pcf

**Safe Handling
Recommendations**

Utilize normal precautions for employee protection when handling chemical products. Use of appropriate respirator, gloves, goggles, and apron is recommended for employee comfort and protection. See Material Safety Data Sheet (MSDS) for this product prior to use.

Packaging

CALCIUM CARBONATE is packaged in 50 pound multiwall bags.