

Calcium Carbonate

Calcium Carbonate is an acid-soluble, bridging and weighting agent used in drilling, drill-in and workover/ completion fluids.

Calcium Carbonate is available in three grind sizes: Fine (F), Medium (M) and Coarse (C).

Typical Physical Properties

Physical appearance	White powder
Specific gravity	2.70-2.80 SG
Acid Solubility.....	>98%

Applications

Calcium Carbonate is an acid-soluble bridging and weighting agent for controlling fluid loss and density. It can be used in fluids ranging from conventional oil-base and water-base drilling fluids to drill-in fluids, like FLOPRO* or NOVAPRO* fluids to workover and completion fluids. As a bridging agent and fluid loss additive, normal concentrations are in the 10 to 50 lb/bbl (29 to 143 kg/m³) range. Calcium Carbonate F (fine) is used as the standard weighting material. Calcium Carbonate M (medium) and Calcium Carbonate C (coarse) are used for bridging and seepage control or can be used as a weight material with a larger particle size.

The amount of Calcium Carbonate required to increase the mud density can be calculated with the following formulas:

Calcium Carbonate, lb/bbl = $(980 \times (w2 - w1)) / (23.3 - w2)$

Where:

w1 = Initial mud weight in lb/gal

w2 = Desired mud weight in lb/gal

Calcium Carbonate, kg/m³ = $(2,800 \times (w2 - w1)) / (2.8 - w2)$

Where:

w1 = Initial mud weight in specific gravity

w2 = Desired mud weight in specific gravity

Calcium Carbonate M and Calcium Carbonate C are generally used in fluid-loss-control situations requiring a larger particle size than Calcium Carbonate F. They are often used in lost-circulation and fluid-loss pills, with concentrations from 30 to 50 lb/bbl (86 to 143 kg/m³), to bridge highly permeable or fractured zones.

Calcium Carbonate can also be added on a periodic basis for seepage control to limit losses (lost circulation and leak-off) to high-permeability formations. It is particularly effective when drilling with high differential pressures caused by an overbalanced condition or when drilling depleted zones. Treatments range from 2 to 10 sacks per hour when used as a preventative measure. For depleted zone drilling applications, Calcium Carbonate is most effective when used in combination with a cellulose product such as Vinseal or M-I-X II* additive.

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Advantages

- Acid-soluble product which minimizes formation damage
- Available in Fine (F), Medium (M), and Coarse (C) grades, allowing the most appropriate particle size to be used
- Effective bridging agent, essentially inert and relatively insoluble, having a minimum effect on fluid properties
- Fine and medium grades that pass through most fine-mesh shale shaker screens
- Less viscosity and gels required for suspension than other weighting additives

Toxicity and Handling

Information on biological data can be provided upon request.

Handle in accordance with the Material Safety Data Sheet (MSDS) and general requirements for working with industrial reagents

Packaging and Storage

Calcium Carbonate Flakes is packaged in 25-kg, sacks. Calcium Carbonate F, M and C are packaged in 50-lb (22.7-kg), and 55- and 110-lb (25- and 50-kg) multi-wall, paper sacks and 1000 kg big bags.

Store in a tightly closed, original container in a dry, cool and well-ventilated place.

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