



Drilling Fluids, Inc.

Commercial Chemical

Description

CITRIC ACID is a source of hydrogen ions (H^+) used to reduce the pH of a drilling fluid. Both liquid and powdered forms are available.

Uses

CITRIC ACID is primarily used as a pH buffer for GEO's KlayCon, a low solids, non-dispersed, low pH drilling fluid.

Benefits

CITRIC ACID is primarily used to quickly reduce the pH in KlayCon drilling fluid. One of the benefits of using Citric Acid is that it forms Sodium Citrate in the presence of Sodium based polymers such as DMA and OMNIPOL II. Sodium Citrate acts as a dispersant in water based fluids, helping to control the rheology. A third benefit of CITRIC ACID is the reduced hazard to personnel when compared to other acids normally used in drilling applications. CITRIC ACID will not reduce hardness levels in drilling fluids as will phosphoric acid.

Treatment

CITRIC ACID is added through the hopper when using the dry material, and added directly to the drilling fluid when using the liquid. A diaphragm-metering pump may be utilized with the liquid for continuous pH control.

Treatment levels vary with the concentration of salts, particularly hydrogen (H^+) and hydroxide (OH^-).

Function

CITRIC ACID provides a layer of hydrogen ions around active clays, reducing their zeta potential and thus reducing their ability to imbibe water. This function translates to fewer solids, less swelling of the solids in the drilling fluid, reduced wellbore swelling, and more efficient solids control equipment function. A secondary benefit of CITRIC ACID is the formation of sodium citrate, a thinner. This helps counteract the flocculating influence of the hydrogen ions on first being introduced to the drilling fluid system.



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Typical Physical Properties

CITRIC ACID (continued)

Physical Appearance.....white powder or clear liquid
Specific Gravity.....1.542
Bulk Density.....63 lb/ft³
Hygroscopic.....slightly
pH in water.....1.87

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

CITRIC ACID is packaged in 50 pound multi-wall bags and is also available in liquid form in 5 gallon plastic pails or 220 gallon totes.