

Description

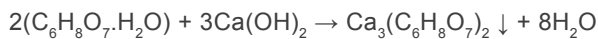
Citric Acid Monohydrate (C₆H₈O₇·H₂O) is a weak organic acid.

Typical Properties

Appearance : White, crystalline powder
pH (0.1N sol.) : 2.1 - 2.2
Specific Gravity : 1.54

Features and Benefits

Citric Acid Monohydrate reduces pH and removes soluble calcium ions by the reaction.



Soluble iron ion content greater than 40 mg/l causes rapid and severe cross-linking of xanthan gum such as KAR-ZAN D or KAR-ZAN DS leading to excess gelation. Citric Acid Monohydrate is considered an excellent sequestering agent for iron complexing. At pH values lower than 7, Citric Acid Monohydrate forms complex with iron (III) ions and consequently prevents fish eyes due to cross-linking of polymers.

Application

Citric Acid Monohydrate is used to treat cement contamination by removing soluble calcium and reducing pH.

Citric Acid Monohydrate is also utilized as iron sequestering agent to prevent polymer cross-linking particularly in non-dispersed polymer systems.

Limitations

Citric Acid Monohydrate is more expensive and used at higher concentration levels than to alternative chemicals.

Treatment

In removal of cement contamination amount of Citric Acid Monohydrate required is calculated as follows:

$$\text{Citric Acid (lb/bbl)} = 1.893 \times F_w \times \text{Excess Lime (lb/bbl)}$$

Where F_w is water fraction in the fluid.

One pound of Citric Acid Monohydrate removes 0.53 lb of excess lime which nearly equals 0.78 lb of cement. It is recommended to keep soluble iron content of 40 mg/l or less in polymer systems (KAR-PAY DRILL, KAR-POLY K+). Make-up water is pretreated with 0.25 to 0.5 lb/bbl of Citric Acid Monohydrate to chelate iron and to reduce pH to 4.0 to 5.0 range. Pretreatment will prevent cross-linking, excess gelation and fish eyes. 35 ppm Citric Acid Monohydrate sequesters about 10 ppm iron (III).

Citric Acid Monohydrate should be added slowly to the active system through hopper.

Packaging

Citric Acid Monohydrate is supplied in 25 kg (55 lb) moisture-proof, multiwall paper sacks.