

**Typical physical properties**

CHARACTERISTIC	STANDARD	Test Method
Physical appearance	Light Brown liquid	----
pH (100% solution)	7-8	ASTM D-1172
Sp.Gr @25 °C (g/ml)	1.07±0.02	ASTM D-1298
Viscosity @ 25 °C (Cps)	< 50	ASTM D-445
Cloud point (5% in 15% NaCl solution)	90-94	ASTM D-2024
Flash Point (°C)	110 °C	ASTM D-92
Solubility in Water	Variable, according to cloud point curve	----

Applications

It is used in conjunction with an encapsulating polymer (PHPA) and brine phase KCL. It can meet various drilling challenges, ideal for use in high angle drilling, deep and sub salt applications.

ICC-Glycol HC is a high cloud point glycol designed for a salinity range. It can provide significant reductions in mud dilution rates, reduced friction coefficients, less mud related drilling problems and enhanced rates of penetration. It is particularly effective with common salts used in drilling fluids.

ICC-Glycol HC is compatible with most aqueous systems. When clouded out the glycol at the surface of troublesome swelling shales forming a water repellent barrier, thus minimizing the effects of troublesome water sensitive shales on the drilling process and mud properties. Excellent inhibition is observed in the presence of potassium ions which are recommended for optimum performance.

ICC-Glycol HC has application in poly- glycol systems in fresh to medium or high salinity make-up water, and can be used in wells with moderate formation of temperature. When used properly, this medium cloud point additive help to stabilize troublesome shales by plugging shale pores, preventing the equalization of hydrostatic pressure away from the wellbore.



Advantages

- It is effective and environmentally safe
- It is zero foam high cloud point glycol
- Improved wellbore stability and shale inhibition
- Reduced dilution rates and mud consumption
- Reduced bit balling potential
- It provides higher efficiency than conventional polymers and water based fluids
- It reduces torque and drag
- It is effective for well bore stability
- Enhanced inhibition and lubricity
- Higher rate of penetration
- Environmentally responsive
- Unaffected by contaminants
- Comparable dilution rates to invert emulsion systems
- Provides enhanced thermal stability to polymers
- Compatible with most salts
- Non-toxicity
- It helps in formulation of inhibited mud system

Packaging and Storage

ICC-Glycol HC store in dry, well-ventilated area. Keep container closed. Keep away from heat, sparks and flames. Store away from incompatibles. Follow safe warehousing practices regarding palletizing, banding. Shrink-wrapping and/or stacking.

ICC-Glycol HC is packaged in 200 kg net wt. polyethylene or steel drum.

Shelf Life

ICC-Glycol HC shelf life of at least one years from the data of manufacture when stored in the original sealed containers in a cool and dry place.



Safety and Handling

ICC-Glycol HC must be handled as an industrial chemical, wearing protective equipment and observing the precautions as mentioned in the MSDS.

Cloud Point: The temperature at which a solution of a surfactant or glycol starts to form micelles (molecular agglomerates), thus becoming cloudy. This behavior is characteristic of nonionic surfactants, which are often soluble at low temperature but “cloud out” at some point as the temperature is raised.

Glycols demonstrating this behavior are known as “cloud-point glycols” and are used as shale inhibitors. The cloud point is affected by salinity, being generally lower in more saline fluids.

The purported mechanism is that the glycol clouds out at higher down hole temperatures, coating the surface of clays and preventing hydration.

Cloud point glycol exhibit clouding behavior when used in salt solutions. Clouding behavior results from change in water or brine solubility of the glycol with temperature. Cloud formation is dependent upon salt concentration and concentration of the glycol itself, as well as temperature and the pressure.

The cloud point glycol series covers a range of **low**, **medium** and **high cloud point** temperatures suitable for brine salinities of seawater, to the most common 15 percent NaCl-based fluids to saturated salts.

ICC-Glycol HC is a water soluble high cloud point glycol of low toxicity and a multifunctional additive for drilling fluids. It is used in water based drilling fluids to improve lubricity and shale stability and extends the temperature stability. It can meet various drilling challenges, ideal for use in high angle drilling, extended rich drilling, deep and sub salt applications.

ICC-Glycol HC is a low toxic. Versatile, high cloud point additive designed for medium to high salinity water level systems and can be used in wells with moderate formation temperature. It can provide improved well bore stability, lubricity, high temperature filtration control and reduce dilution rates and bit balling.

This shale inhibitor intercalates and reduces the space between clay platelets so that water molecules will not penetrate and cause swelling.

ICC Manufactures the full range of cloud point glycols used as high performance shale stabilizers for drilling applications.