

**Typical physical properties**

| CHARACTERISTIC | STANDARD | Test Method |
|---------------------------------------|--|-------------|
| Physical appearance | brown liquid | ---- |
| pH (100% solution) | 8 | ASTM D-1172 |
| Sp.Gr @25 °C (g/ml) | 1.07±0.03 | ASTM D-1298 |
| Viscosity @ 25 °C (Cps) | < 50 | ASTM D-445 |
| Cloud point (5% in 15% NaCl solution) | 65-68 | ASTM D-2024 |
| Flash Point (°C) | 110 °C | ASTM D-92 |
| Solubility in Water | Variable, according to cloud point curve | ---- |
| Water Content | Max 2% | ---- |

Applications

ICC-Glycol MC is used in conjunction with an encapsulating polymer (PHPH) and brine phase KCl. It can meet various drilling challenges, ideal for use in high angle drilling, extended rich drilling, deep and sub salt applications. Medium cloud point Glycol is used in medium to high salinity polyglycol systems.

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

Polyglycol systems are generally low to medium density, non-dispersed polymer systems utilizing an Electrolyte to active the cloud point polyglycol. They have application where troublesome water sensitive shales are to be drilled, and can be used in lieu of oil base systems for certain applications.



ICC-Glycol MC Polyglycol can be used in thermally activated mud emulsion applications (near the cloud point) or in situation where it is insoluble (above the cloud point).

Advantages

- It is effective and environmentally safe
- It provides higher efficiency than conventional polymers and water based fluids
- It reduces torque and drag
- It is effective for well bore stability
- Improved wellbore stability and shale inhibition
- Improved lubricity
- Improved high temperature filtration control
- Reduced dilution rates and mud consumption
- Reduced bit balling potential
- Non toxicity
- Wide molecular weight range covers wide temperature range
- Environmentally responsive
- Compatible with most salts
- Compatible with all water based systems and can be combined with other glycols

Packaging and Storage

ICC-Glycol MC 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 MC is packaged in 200 kg net wt. Polyethylene or steel drum.

Shelf Life

ICC-Glycol MC has 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 MC 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 MC is a medium cloud point additive designed for medium to high salinity polyglycol systems.

ICC-Glycol MC is a water miscible medium 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 and high temperatures filtration control. It can be used in most water based mud systems.

ICC Manufactures a range of high performance polyglycol based shale stabilizers.

ICC-Glycol MC is medium grade cloud point glycol. It is a free flowing liquid, without dirt and other visible foreign suspended matter and has a mild odor. It is primarily used in KCL and PHPA muds.

ICC-Glycol MC polyalkylene glycol is a broad cloud point and wide molecular weight range additive designed for medium to low salinity polyglycol mud systems. It delivers improved shale stability, lubricity, high temperature filtration control, while reducing dilution rates and bit balling.



While polyglycols are most effective when used in conjunction with an inhibitive salt in non-dispersed polymer systems, they can be used as additives in most water based systems.

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