millennium energy
Drilling Fluids & Chemicals

PRODUCTS TECHNICAL DATA

1. PRODUCT NAME : ME-MDEA H2S scavenger

COMPOSITION / INFORMATION ON INGREDIENTS AND APPLICATIONS

ME-MDEA is a water-soluble blend hydroxyl solution in a complex alcohol with an amine facing agent. This product is extremely effective in removing H_2S from gas, water, crude oil and fuel oils. Rather than 'scavenging' H2S, it converts H2S & RSH into a stable non-hazardous Sulphate salt. Benefits of ME-MDEA

ME-MDEA converts H_2S & RSH into a non-toxic sulphate salt and water:

1. ME-MDEA will chelate the H2S & RSH molecules
2. It then converts the molecules into a harmless liquid salt
3. This solution then attaches to the Amine molecule
4. The water-based molecule then mixes with the produced water
5. The result is a water salt with a very low COD
6. It does not decompose thermally within the operating temperature range up to 300˚C .
7. The product is 100% miscible with water and this is a SINGLE PHASE system only. In liquid hydrocarbon applications, the sulphates which are created by ME-MDEA stay in the water phase and are separated from hydrocarbons during normal separation.
8. The reaction with ME-MDEA and H_2S is instant once contact is made. RSH reaction time can take longer depending on the RSH species.

DOSAGE RATES

GAS: 1ppm of H_2S requires 0.2 ppm of ME-MDEA (measured in gas phase)

WATER: 1ppm of H_2S requires 1-3 ppm of ME-MDEA (measured in liquid phase)

CRUDE: 1ppm of H_2S requires 3–4 ppm of ME-MDEA (measured in liquid phase)

FUEL OILS: 1ppm of H_2S requires 3-4 ppm of ME-MDEA (measured in liquid phase)

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Application Case

ME-MDEA

Application function-- Oil & gas production & Treatment of crude,gas, etc

For oil and gas production, ME-MDEA can be injected down hole, at the tree or post separation. ME-MDEA is not affected by high temperatures.
For treatment of crude, condensates or fuels oils, ideally ME-MDEA should be injected at or near the inlet valve of the transfer pump as the product is being transferred from one tank to another. Alternatively, ME-MDEA can be added to a storage tank and circulated .

GAS Treatment:

ME-MDEAneeds to be injected under pressure to ensure good migration. The reaction is instantaneous in the gaseous phase and the separation of the newly formed Sulphate salts is very fast. Note that ME-MDEA cannot be used where there are high levels of CO_2 as ME-MDEA will treat the CO_2 simultaneous to the H_2S and RSH. When treating multi-phase lines, proper mixing is the key. With proper mixing ME-MDEA will remove H_2S from all phases and the by product will stay in the water phase.

Crude Oil & Fuels Treatment:

ME-MDEA converts the H_2S and Mercaptans into sulphate salts. The chemical then separates from the hydrocarbons due to the higher specific gravity. For extremely heavy crudes, adjustments to the chemical can be made to increase the specific gravity and speed up the separation process. ME-MDEA will not affect the hydrocarbons in any way. The amount of ME-MDEA required to remove H_2S from any system is typically around 30% less than that of a triazine based scavenger. The reaction is stable and the result is a nontoxic sulphate salt that can be easily handled.

WASTE WATER TREATMENT

ME-MDEA separates completely from hydrocarbons and typically the chemical remains quite clear. Often ME-MDEA can reduce water content of some crude after dosing, so this must be noted. The by-product will contain reacted ME-MDEA , sulphate salts, water and a portion of reacted chemical. The amount of unreacted chemical remaining will depend on the dosing rates used and the effectiveness of the mixing. The better the mixing – the less chemical required and the less unreacted chemical will remain.