HSO6869

H_2S REMOVAL

- High Efficiency H_2S Removal from Crude, Condensate and FO
- Cost reductions compared to Triazine of over 60%
- No Nitrogen & No Solid Formation

Product Description

HSO 6869 is a water-soluble multi-blend hydroxyl solution. This product is extremely effective in removing H_2S from hydrocarbon liquids.

HSO 6869 is **not** a scavenger in chemical terms. Rather than *'scavenging'* H_2S, it converts H_2S into a stable non hazardous sulphate salt (SO_4^{-2}). This eliminates several issues in the process system often associated with triazine based scavengers.

HSO 6869 will target H_2S and the reaction is instant on contact. The chemical will also remove many of the light end mercaptans from liquids in the same manner. The reaction time required to remove longer chain mercaptans is longer. (See CaptScav for mercaptan removal)

Product Characteristics

HSO 6869 converts H_2S into a non-toxic sulphate salt and water:

1. **HSO 6869** will chelate the H_2S molecules
2. It then converts the molecules into a water soluble salt – SO_4^{-2}
3. The water based molecule then mixes with the produced water
4. The result is a water salt with a very low COD
5. The water salt is stable and the reaction is irreversible

Dosage Rates

Crude: 1ppm of H_2S requires 0.15-0.30 ppm of HSO 6869 (measured in gas phase)
(H2S in gas phase from liquids ratio will vary between each different hydrocarbon)

Crude: 1ppm of H_2S requires 9-12 ppm of HSO 6869 (measured in liquid phase)

Fuel Oil: 1ppm of H_2S requires 9-12 ppm of HSO 6869 (measured in liquid phase)

(1 litre of HSO 6869 will scavenge 76 – 82 mg or H_2S)

Application

Like any chemical, application is the key. Applied with a good mixing mechanism, the performance of the chemical will be enhanced. For oil and gas production, **HSO 6869** is not affected by high temperatures. For treatment of crude, condensates or fuels oils, ideally **HSO 6869** should be injected at or near the inlet valve of the transfer pump, as the asset is being transferred from one tank to another. Alternatively, **HSO 6869** can be added to a storage tank and circulated; however, this may require longer time at possibly higher dosage rates depending on the capacity of the tank and the effectiveness of the circulation.

Crude & Fuels

HSO 6869 converts the H_2S and the light end mercaptans into sulphate salts. The chemical then separates from the hydrocarbons due to the higher specific gravity. For extremely heavy crude and FO, where mixing options are limited, **HSO 6869** can be diluted to increase the mixing potential. **HSO 6869** will not affect the hydrocarbons in any way.

The amount of **HSO 6869** required to remove H_2S from any system is substantially lower than that of a Triazine based chemistry. The reaction is stable and the result is a non toxic sulphate salt that can be easily handled.

Waste Treatment

HSO 6869 separates completely from hydrocarbons and typically the chemical remains quite clear. Often **HSO 6869** can reduce water content of some crude after dosing, so this must be noted. The by-product will contain reacted **HSO 6869**, sulphate salts, water and a portion of reacted chemical. The amount of un-reacted 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 un-reacted chemical will remain.

Typically the used chemical is taken from the bottom of a tank and injected into the waste water tank for disposal or to the waste water treatment plant for processing. The used or unused portion of the chemical will not adversely affect the bioreactors of waste water treatment plants.

Frequently Asked Questions

How fast is HSO 6869 able to removal of H_2S? The reaction with **HSO 6869** and H_2S is instant once contact is made. RSH reaction time can take longer depending on the RSH species.

What is the level of Effectiveness of HSO 6869 to remove H_2S in the liquid phase? No upper limit has been established.

How do you remove the used and unused HSO 6869 from Fuel Oil? 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 **HSO 6869** stay in the water phase and are separated from hydrocarbons during normal separation.

What is the effect of the scaling potential of the system? HSO 6869 will slightly increase the pH of the water, therefore, analysis has to be carried out to determine the effect of this increase in pH, particularly where there are high levels or suspended solids or calcium carbonates in the produced water.

What is the potential of scaling with the reacted or un-reacted HSO 6869? NONE. - No potential scaling in ordinary environments. The increase of SO_4^{-2} in the water phase will depend on the mole-mole equilibrium between quantity of H_2S / RSH and **HSO 6869**. Cat ions such as Barium, phosphorous and others associated SO_4^{-2} Cat ions may cause fouling or deposits once it has reached maximum solubility. Excess **HSO 6869** will not cause any deposits.

Do you use an air oxidiser? If so, how can you ensure that you have enough O_2 under anaerobic conditions? - No, enclosed system; hence no Oxygen ingress.

What is formed at higher temperatures? It does not decompose thermally within the operating temperature range up to 300 Deg. C

Did you find increased sulphate levels in the water after treatment? Yes - the amount of increase is directly related to the amount of H_2S / RSH treated by the chemical.

How effective does the mixing have to be? No special mixing tooling required with water – but for optimal results, it is recommended to always inject at the inlet of the inline / transfer pump. In gas lines, inject with sprayer nozzle under positive pressure. For heavy crudes and HSFO, it is recommended to inject as early as possible or at pump inlet to ensure efficient mixing.

How fast or complete is the phase separation afterwards? There is complete separation from the hydrocarbon phase due to the higher specific gravity of **HSO 6869.** The oil (hydrocarbon) separation is normally complete in 12 - 24 hours depending on the viscosity of the hydrocarbon in question.

Disclaimer