



H₂S & THIOLS TREATMENT TECHNOLOGY THIOSCAV FE¹⁷

NON TRIAZINE OR FORMALDEHYDE COMPOUNDS

by Ecoil Technologies Lab.



ABOUT US

THE ECOIL TECHNOLOGIES COMPANY WAS ESTABLISHED IN 2016 AND LOCATED IN DUBAI SCIENCE PARK, UAE



A fast growing independent research company focused on the development of oilfield chemicals and bioorganic products with outstanding quality and potential.

The Ecoil Technologies is a multidisciplinary research company with a broad spectrum of research lines, services and products.

The company was established by a group of qualified professionals having extensive knowledge and experience in research and development in oil and gas industry, agriculture and ecology in close cooperation with academic experts.

The company aims at developing products technical know how and providing other contract services.

The company is also active in the area of technology consultancy.



ABOUT TECHNOLOGY

THIOSCAV Fe¹⁷ – is a technology researched and developed by Ecoil Technologies Lab. for the removal of hydrogen sulfide and thiols from different environments.

AREAS OF APPLICATION OF THIOSCAV Fe¹⁷ TECHNOLOGY:

- Crude oil and condensate treatment;
- Petroleum products treatment;
- Produced water treatment;
- Acid gases (including APG) treatment;
- Well products treatment before separation and dewatering unit.

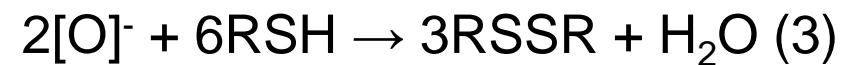
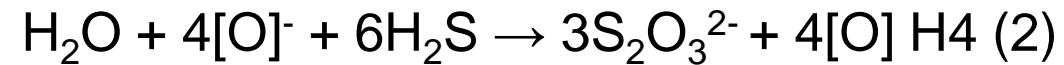
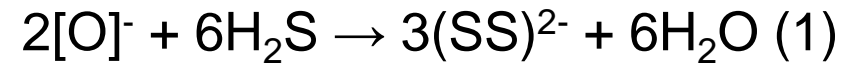


PROCESS DESCRIPTION

Technical

characteristic:

Reduction of the content of hydrogen sulfide and thiols (methyl and ethyl mercaptans) is provided by conversion to neutral disulfides:-



TECHNICAL ASPECTS OF THE OTHER TECHNOLOGIES IMPLEMENTATION

The following methods are used to remove hydrogen sulfide from oil and condensate:-

1. Stripping hydrogen sulfide with clean gas
2. Direct oxidation of hydrogen sulfide in the oil with atmospheric oxygen and the use of an ammonia complex catalyst
3. Absorbers and neutralizers based on triazine (formaldehyde)
4. Alkaline demercaptanization

The key disadvantage of the first two methods is a rather high level of losses of commercial oil, since, together with hydrogen sulfide, a significant amount of light fractions is blown out of the oil, which reduces the quality of the oil.

The disadvantages of the most commonly used scavengers-neutralizers is the presence of triazine (formaldehyde) in their composition, a chemical that is toxic and carcinogenic. Solid deposits as a reaction product make the use of these reagents not always justifiable.

For the removal of methyl and ethyl mercaptans, the most widely used are those or other options for alkaline treatment, in which large volumes of highly toxic sulfurous-alkaline wastewater that are difficult to dispose of are formed.





THIOSCAV Fe¹⁷ REAGENTS ADVANTAGES Part 1

- does not contain formaldehyde and its triazine derivatives (non-toxic, odorless, non-flammable, does not form insoluble reaction products);
- causes irreversible conversion of hydrogen sulfide and mercaptans the average consumption of THIOSCAV Fe¹⁷ scavengers is 1-3 ppm per 1 ppm of active sulfur;
- does not have a negative impact on the characteristics of the producing fuels;
- unlike other chemical reagents, THIOSCAV Fe¹⁷ scavengers does not have a negative effect on oil refining processes;
- the ability to carry out deep purification from hydrogen sulfide and thiols (up to 0 ppm of residual content);
- they do not have side effects in the form of deposits on pipelines and equipment;
- reducing the content of active sulfur occurs directly in the hydrocarbon medium, by direct catalytic conversion of mercaptans RSH and hydrogen sulfide H₂S into disulfides.



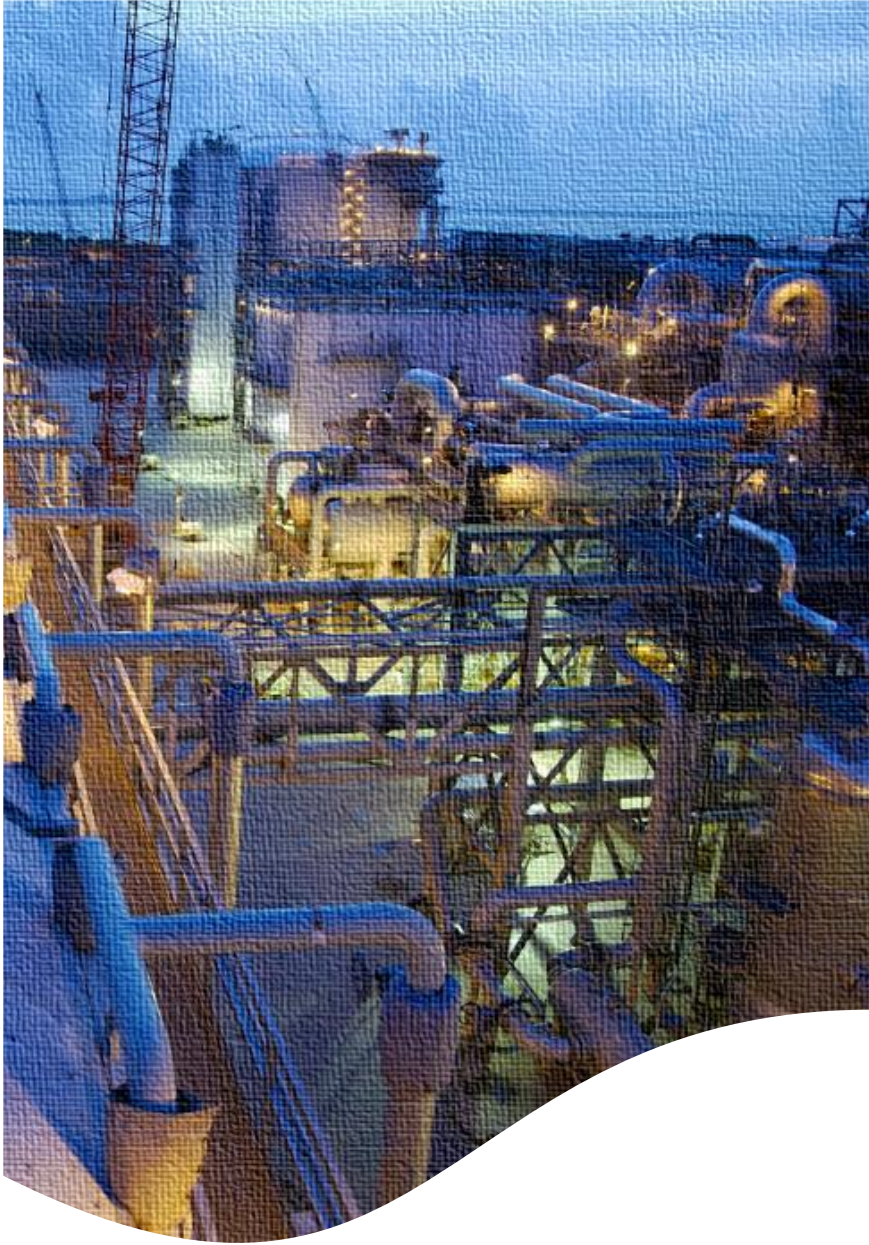
THIOSCAV Fe¹⁷ REAGENTS ADVANTAGES Part 2

- the removal of mercaptans when using the THIOSCAV Fe¹⁷ reagent occurs directly in the hydrocarbon medium, by dosing the reagent into the stream, unlike many known processes, it does not require the use of aqueous alkali, thus the process we offer is environmentally friendly and waste-free;
- the technology is based on the use of THIOSCAV Fe¹⁷ reagent, which has an advantage over such common processes as Merox (UOP), Mericat (Merichem);
- does not require changing the process parameters (temperature, pressure, etc.);
- does not require the use of air, which eliminates oil losses and flaring of the exhaust air of alkali regeneration with the release of acid gases (SO₂) into the atmosphere;
- the technology is waste-free, there are no problems with the disposal of the SSC;
- the THIOSCAV Fe¹⁷ reagents, unlike the existing alkaline demercaptanization processes, is able to remove not only hydrogen sulfide and light mercaptans, but also mercaptans in general, bringing purification to any required depth.

CASES

- ❖ **Rosneft- Krasnodar**, wellhead H₂S treatment in three- phase flow.
- ❖ **Gazprom Dobycha- Krasnodar**, wellhead H₂S treatment in three- phase flow.
- ❖ **Arkema Group, Iraq**, H₂S treatment in crude oil.
- ❖ **Uralnefteservice JSC** , Mercaptans treatment in crude oil.
- ❖ **JSC "TAIF NK"**, H₂S treatment of straight run gasoline.
- ❖ **Kazakhoil Aktobe LLP** , H₂S and mercaptans treatment in crude oil.
- ❖ **Karachaganak Petroleum Operating B. V.**, Mercaptans treatment in gas condensate.
- ❖ **Gazprom Dobycha Astrakhan LLC** , H₂S and mercaptans treatment in fuel oil.
- ❖ **Irkutsk Oil Company LLC** , H₂S and mercaptan treatment in crude oil and formation water.
- ❖ **Arris Petroleum Corp.**, H₂S treatment in APG





THANK YOU



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