

# Hydrogen Sulfide (H<sub>2</sub>S) TREATING WATER



## READ INSIDE

---

### PG. 1

OPENING: ABOUT ECOIL TECHNOLOGIES

---

### PG. 2

H<sub>2</sub>S IN WASTE WATER: THE PROBLEM STATEMENT

---

### PG. 2

CURRENT PRACTICES: ISSUE THAT LIMITS EFFECTIVENESS OF CURRENT PRACTICES

---

### PG. 4

WHAT ABOUT ECOIL PRODUCTS: WHY IS IT DIFFERENT AND SUITABLE FOR WATER TREATMENT

## OPENING

### ABOUT ECOIL TECHNOLOGIES

Ecoil Technologies is a knowledge-based company that was established in 2016 in United Arab Emirates. Ecoil Technologies is dedicated to develop and promote innovative breakthrough solutions for treatment of Hydrogen Sulfide (H<sub>2</sub>S) in oil & gas sector as well as waste water treatment sector.

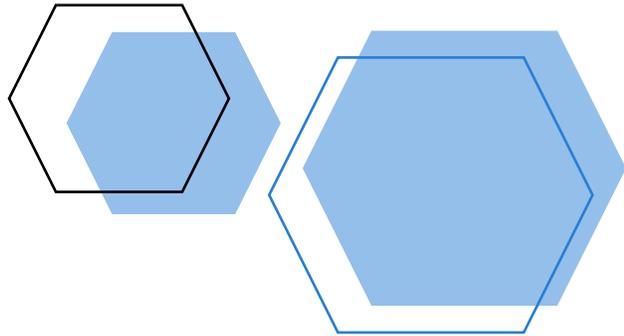
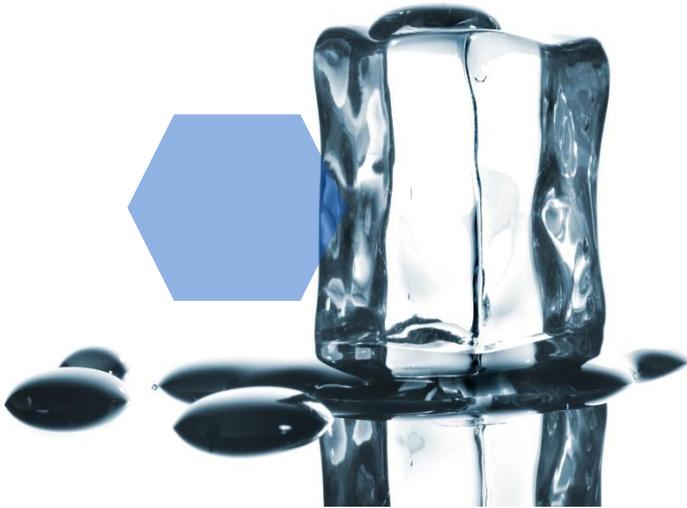
With its innovative products, Ecoil Technologies present an efficient, effective, and environmentally friendly solutions that enable customers to deal with H<sub>2</sub>S challenge while maintaining the productivity of the operations, enhancing the integrity of its assets, and retaining the competitiveness of the business.

# H<sub>2</sub>S IN WASTE WATER

## THE PROBLEM STATEMENT

H<sub>2</sub>S is a problem that apparently presented in the different types of water in different phase. It is presented in the oilfield produced water, waste water and sewage water. Wherever, H<sub>2</sub>S is presented, it brings around the same set of issues. H<sub>2</sub>S is toxic even in low concentrations. It is aggressive corrosion agent that affects facilities and assets, and it stimulate cruel odor that cause ascertain discomfort to the communities around facilities.

For all these reasons, and more, treatment of H<sub>2</sub>S is a process that is associated with almost all water handling facilities. The issue becomes more challenging, as treatment of water from H<sub>2</sub>S needs to take into consideration to achieve the required water specifications, after treatment, so that water can be used or stored in an economic and environmental viable manner.



## CURRENT PRACTICES

### ISSUE THAT LIMITS EFFECTIVENESS OF CURRENT PRACTICES

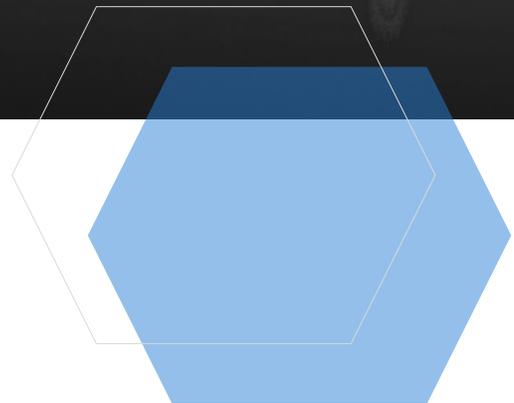
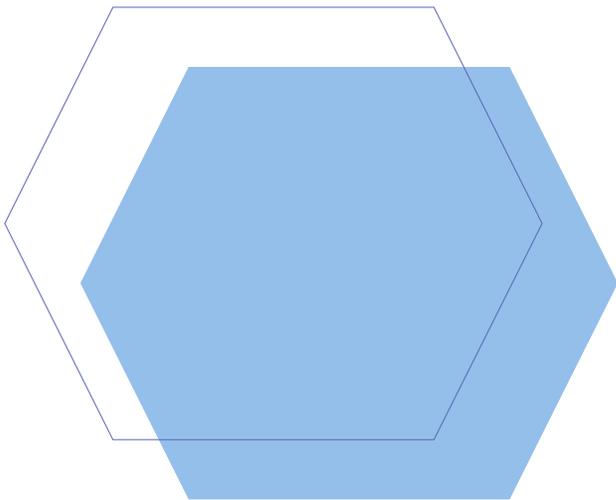
As H<sub>2</sub>S, in different water types, has been a challenge for long time, there has been several offerings in the market to deal with this issue. Despite chemical treatments would have been the suitable method of treatment, due to speed of treatment and scalability of application, it always had shortcoming that blocked it from being the suitable alternative. The most widely used chemical treatment products that are feasible to be used as H<sub>2</sub>S scavenger (and applied in the oil & gas sector) are Triazine based product. As triazines is a product of poly-condensation reactions of aldehydes, mainly formaldehyde (which high toxic, carcinogenic, and strong sterilizer), and amines, thus these products have been undesired for the use in water treatment. Apart from these triazines are not effective H<sub>2</sub>S scavengers in water environment. Finally, the latest researches have shown that various side reactions can occur when H<sub>2</sub>S is scavenged by triazines. Dithiazine can undergo further conversion to form polymer like amorphous substance and can contribute to deposition and equipment fouling. Triazine as a formaldehyde derivative also has a negative impact on useful bacteria in biological

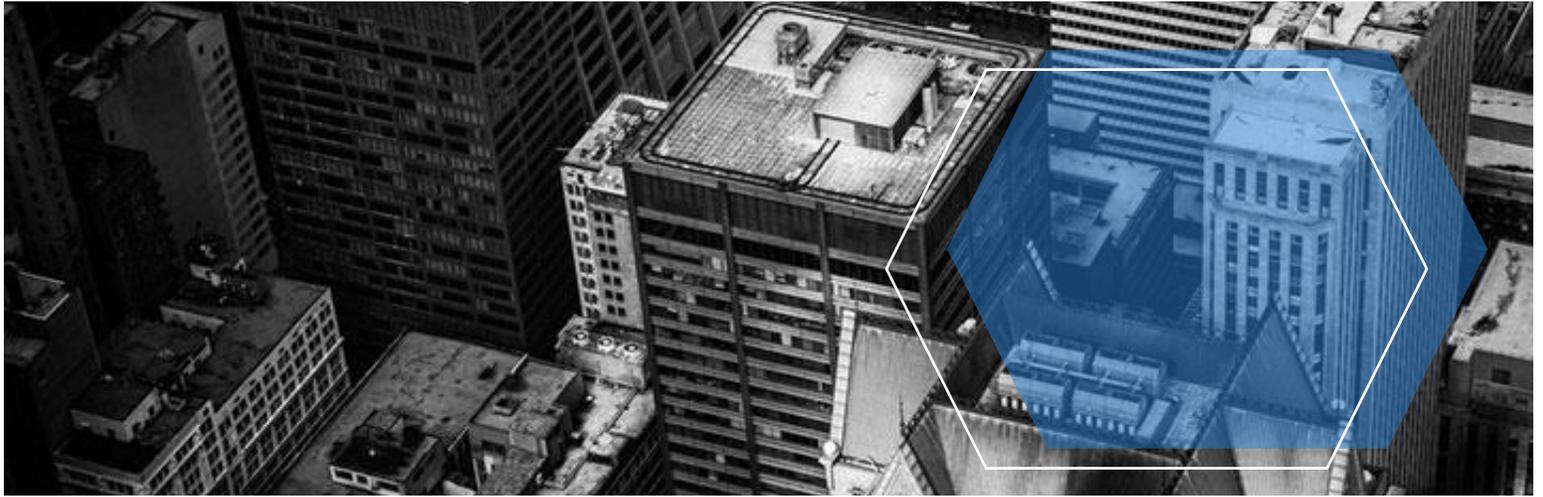


treatment plant, which makes it unsuitable in treatment of municipality waste water and sewage.

Other conventional methods for treating sour water to destroy the  $H_2S$  include using an oxidizing agent, which typically converts  $H_2S$  to a variety of nonhazardous sulfur compounds.

Conventional oxidizing agents include hydrogen peroxide, potassium permanganate, sodium persulfate, sodium hypochlorite and sodium perborate. Each of such conventional methods has drawbacks. For instance, hydrogen peroxide is typically dangerous because the reaction between  $H_2O_2$  and  $H_2S$  may be very exothermic, with the heat of reaction potentially causing a violent eruption of boiling water. Drawbacks to potassium permanganate include that the product of reaction with  $H_2S$  may be solid manganese dioxide, which is a solid and may add to sludge accumulation in the tank. Further drawbacks to potassium permanganate include that the manganese dioxide may accumulate in a tank in the presence of organics, which may lead to combustion. Drawbacks to sodium persulfate include that the reaction with  $H_2S$  may be very exothermic and also that its addition to a sulfide-laden water may result in an exotherm, which may cause a rapid rise in temperature. Drawbacks to sodium hypochlorite include that its use may release toxic chlorine gas. Drawbacks to sodium perborate include the amounts typically used to sufficiently destroy the  $H_2S$  may be impractical.





# WHAT ABOUT ECOIL PRODUCTS

## WHY IS IT DIFFERENT AND SUITABLE FOR WATER TREATMENT

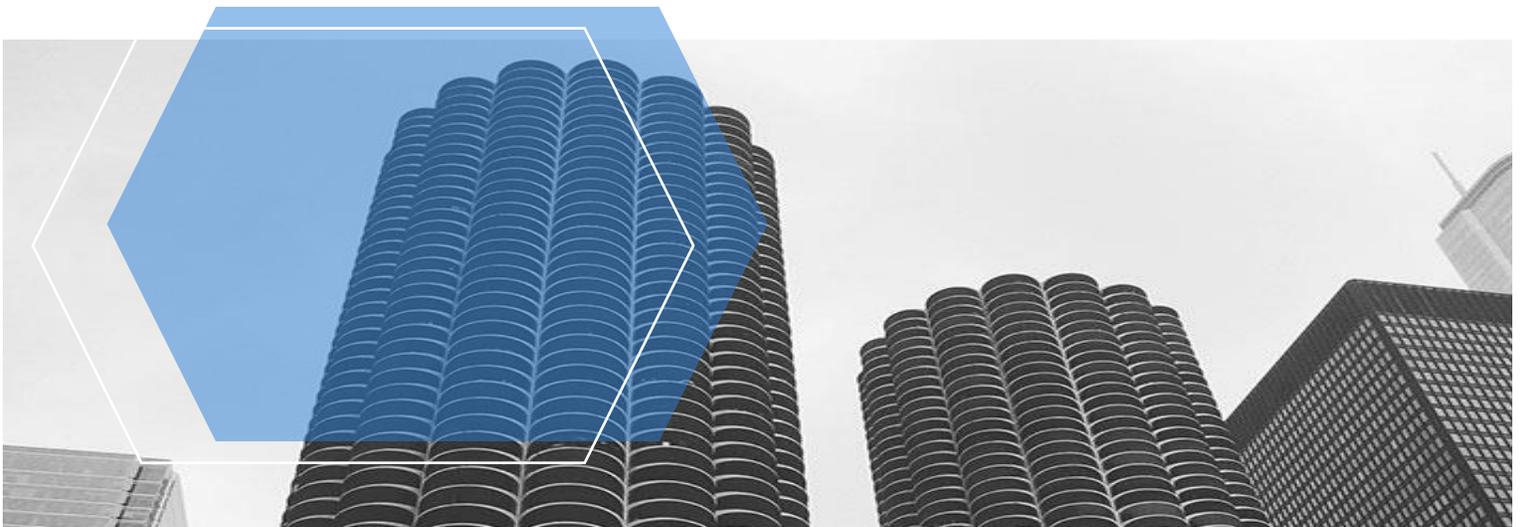
Whereas available H<sub>2</sub>S scavengers are not safe, feasible or acceptable for water treatment, Ecoil products are non-aldehyde, non-triazine based scavengers.

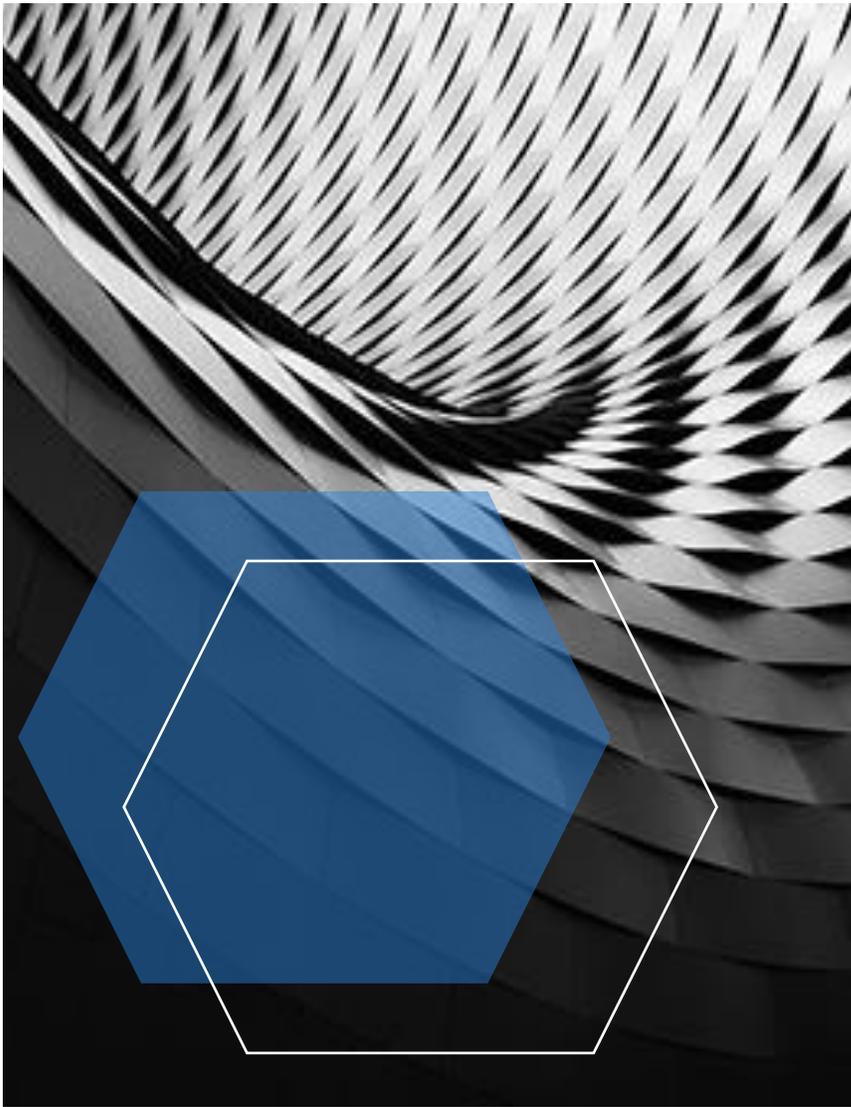
Ecoil products are chemicals that are easy to deal with. As these are safe chemicals, it will need only the compliance with the standard safety procedure, whilst handling the products or applying the treatment. Additionally, as Ecoil products are not formaldehyde based, the risk associated to toxicity or the carcinogenic threats are receded.

In addition, as Ecoil products are not antiseptic in nature, applying these products in treatment of H<sub>2</sub>S in different types of water will not affect the presence of the needed bacteria for further treatment of water in the different station of the process. It will not affect the physical or chemical specification of the water, and thus, it will not affect the process or the possible use of the treated water.

Furthermore, due to the high efficiency of Ecoil products and its long-lasting effect, minimum amount of scavenger addition is required in the treatment process. With the fast-acting capabilities of the scavenger, Ecoil products are able to resolve the bad smell problem associated to most of water treatment plants and facilities.

All of these features and facts qualify Ecoil products to be the solution to the challenge of H<sub>2</sub>S in water.





## ECOIL TECHNOLOGIES

Get in contact with us for more information about our services and products



Science Park - Dubai / UAE



+ 971 4511 788 50



info@ecoil.tech



www.ecoil.tech