

CONCURRENT SOUR GAS DESULFURIZATION AND WATER PURIFICATION



INVENTION

Metal-contaminated wastewater is used to remove H₂S from sour gas. Desulfurization of gas with a high H₂S removal efficiency occurs as a result of the sour gas being passed from the heavy metal-contaminated wastewater. The invention also includes a method for treating wastewater.

MARKET NEED AND GROWTH

The value of H₂S Scavengers Market size was USD 2.1 Billion in 2020¹. It is projected to reach USD 3.3 Billion by 2028. The crude oil and natural gas are continuously explored to serve increasing energy need. There is a need to remove hydrogen sulfide from energy sources. So, economical processes and materials for H₂S removal is always in demand.

APPLICATIONS

This invention has following three main applications.

- Sour gas desulfurization
- Wastewater treatment
- H₂ production

ADVANTAGES

- The ecofriendly invention uses wastewater to remove H₂S from sour gas.
- Economically viable process
- Easy to use the process

PROJECT STATUS

The performance of the H₂S scavenger was assessed in lab by measuring the concentration of H₂S in exit gas stream after passing through the contaminated water. 100% H₂S can be removed by applying the Hg²⁺ contaminated water depending on following two factors:

- (i) Concentration of Hg²⁺ in the contaminated water.
- (ii) Flow rate of the sour gas.

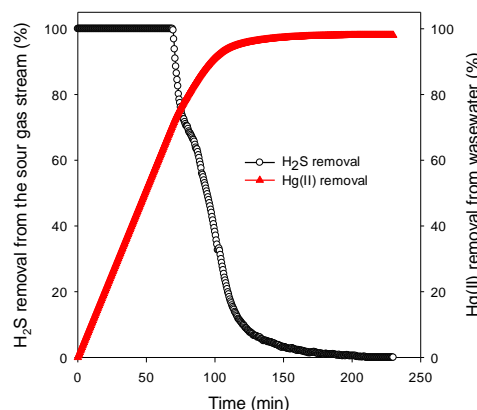


Fig. 1 Changes in concentrations of H₂S in exit gas stream and Hg²⁺ in water as a function of time.

LOOKING FOR DEVELOPMENT PARTNER

We are looking for industry feedback on testing the current invention with any benchmark. We are also looking for a company who can partner with us to develop the technology readiness level and scaling up the process. Our ultimate objective is to license the intellectual property (IP) to a company for commercialization.

PATENT PROTECTION

US17961318 patent application covers a process for simultaneous removal of H₂S and heavy metals from a mixture. The IP is owned by King Fahd University of Petroleum & Minerals (KFUPM).

ABOUT KFUPM

King Fahd University of Petroleum and Minerals (KFUPM) is located in Dhahran city of Saudi Arabia. KFUPM currently ranks at 160 in QS World University Rankings 2023. KFUPM's Innovation & Technology Transfer office strives for taking innovation from lab to market place.

For further information please contact
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¹Global Hydrogen Sulfide Scavengers Market Size by Process