TNChE Asia 2025 Conference

" Accelerating Industrial Decarbonization: Digital-AI and Energy Transformation "

Presenter's Biodata & Abstract

Full Name : Binh Le

Organization : Merichem Technologies LLC

Current Position : Senior Technology Licensing Director

Title of Presentation : LOCAT and SULFURTRAP

Presentation Abstract:

LOCAT Technology The LO-CAT process is a patented liquid redox technology designed to convert hydrogen sulfide (H2S) into elemental sulfur using a proprietary chelated iron solution. This system avoids the use of toxic chemicals and the production of hazardous waste byproducts. The environmentally safe catalyst is continuously regenerated during operation. The LO-CAT process is applicable to a wide range of gas streams, including air, natural gas, carbon dioxide, amine acid gas, biogas, landfill gas, and refinery fuel gas. Its flexible design accommodates 100% turndown in gas flow rates and H2S concentrations. With over 35 years of operational advancements, LO-CAT units demonstrate high reliability and minimal operator requirements, achieving over 99% on-stream efficiency.

LO-CAT Direct Treatment Scheme For applications where the treated gas cannot be combined with air, the direct-treatment scheme employs separate absorber and oxidizer vessels. The absorber converts sour gas into sweet gas in a single pass, while the oxidizer regenerates spent catalyst and concentrates sulfur particles into slurry. The sulfur-rich slurry is processed using a proprietary filter system to produce a washed elemental sulfur cake.

LO-CAT AutoCirc Scheme When air-mixing is permissible, the AutoCirc design integrates the absorber and oxidizer into a single vessel, eliminating the solution circulation pump. This approach reduces electrical consumption, minimizes footprint, and provides cost savings in both capital and operating expenditures.

SULFURTRAP® EX SULFURTRAP® EX is an iron-based solid adsorbent for the removal of H2S and light mercaptans from water-saturated gas streams. It offers high sulfur loading capacity, low pressure drop, reliable operation, and easy cleanout. Unlike other solid adsorbents, SULFURTRAP® EX operates effectively without oxygen, making it suitable for treating low oxygen concentrations. The adsorbent is loaded into a vertical vessel (in single, series, lead-lag, or parallel configurations) where sour gas is fed from top to bottom. During operation, sulfur compounds react with the adsorbent to form stable, non-pyrophoric, and non-hazardous byproducts suitable for landfill disposal. Gas/liquid separators are recommended to remove excess liquids prior to bed entry, and proprietary process simulation ensures optimal configuration for specific applications.