

SULFUR-RITE® SYSTEM

SOLID SCAVENGER SYSTEM TO REMOVE
H₂S FROM NATURAL GAS



MOL is the national oil and gas company of Hungary. They have numerous oil and gas fields in Hungary that they handle, including many in the Lake Balaton region in the southwestern part of the country.

The Sàvoly gas field is a small field located just to the south of Lake Balaton. Associated gas is processed from wells in the region. As the field matured, MOL began seeing higher levels of H₂S in their natural gas than previously recorded. Due to local farmers complaining of odor and related environmental requirements, MOL was looking for a process to remove the H₂S safely. As MOL already had a LO-CAT regenerable system for H₂S removal at their Szeged refinery, they contacted Merichem to see if they could help MOL with H₂S removal at the Sàvoly location.

Based on the gas conditions and stream size, a regenerable process was not the best fit. However, the solid media SULFUR-RITE process was a good fit for what MOL needed. Merichem performed the engineering and design of the vessels, and MOL procured the vessels locally for ease of transportation and handling. The unit was installed and started up in late 2005/early 2006.

The SULFUR-RITE system runs continuously as it is in a lead/lag configuration. This layout allows for maximum usage of the media while providing continuous gas treatment. The gas



SULFUR-RITE® SYSTEM

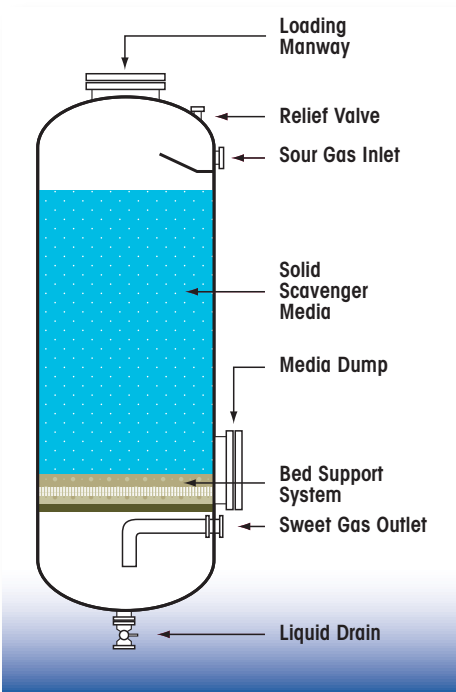
SOLID SCAVENGER SYSTEM TO REMOVE H₂S FROM NATURAL GAS



is mostly methane and CO₂, with over 900 ppm_v of H₂S. Outlet H₂S concentration was required to be less than 2.6 ppm_v H₂S.

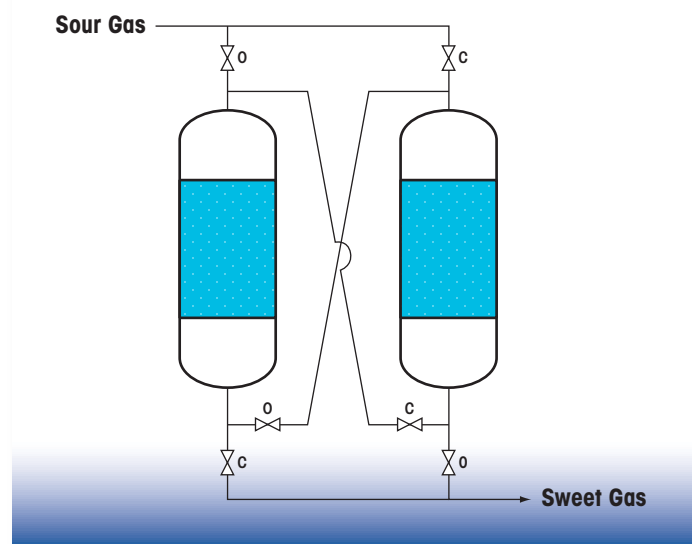
The SULFUR-RITE product is an iron-oxide media impregnated onto a ceramic base, with supplemental chemicals added to promote the reaction. It is a dry free-flowing granular material with the following properties:

- Non-hazardous both in fresh and spent form
- Low pressure drop
- Minimal operator attention required
- Predictable performance



Typical Solid Scavenger Bed Arrangement

The reaction is specific to H₂S and partially effective for methyl mercaptans. If O₂ is present in the gas stream, the efficiency of the process may be enhanced. The inlet gas must be water-saturated to maintain the moisture content of the media, except in aerobic cases in which the air can be dry.



Typical Solid Scavenger Lead-Lag Configuration

The general reaction for H₂S in the absence of O₂ is:



The primary reaction product is iron pyrite (fools gold) which is stable and completely non-hazardous. Disposal is handled at a local non-hazardous landfill.

SULFUR-RITE provides for a very flexible operation with turndown up to 100%. If H₂S loading is reduced due to lower concentrations or gas rate, the run length becomes longer. As H₂S loading increases, the media will require more frequent change-outs. Systems are designed for either batch processing (single vessel) or continuous operation (lead-lag).

MERICHEM COMPANY

846 East Algonquin Road
Suite A100
Schaumburg IL 60173
Phone: (847) 285-3850
Fax: (847) 285-3888/3889
www.merichem.com

Japan Office:

Phone: (81) 3-5289-4530
Fax: (81) 33-255-5181