

KNOCK OUT

HYDROGEN SULFIDE



COMPLETE PACKAGED SYSTEMS
FOR COST-EFFECTIVE HYDROGEN
SULFIDE REMOVAL

Gas Technology Products

Merichem Chemicals &
Refinery Services LLC

WINNING STRATEGIES

FOR COST-EFFECTIVE H₂S REMOVAL

THE CHALLENGE

Finding the right hydrogen sulfide (H₂S) removal process for your specific sour gas streams.

THE SOLUTION

A line-up of cost-effective, environmentally friendly, and powerful H₂S elimination systems that is adaptable to the needs of your application: today, tomorrow, and well into the future.

THE LINEUP

Gas Technology Products (GTP) has a complete portfolio of hydrogen sulfide (H₂S) removal products and processes; liquid or solid media, disposable or regenerable catalyst systems, for aerobic or anaerobic gas streams, to sweeten gas streams containing any concentration and amount of H₂S.

The GTP product lineup includes **The Eliminator™**, a fast-reacting water-based liquid scavenger that can be applied in a variety of ways; including direct injection, spray, or column configurations; **Sulfur-Rite®**, a solid media system, configured for one or two vessels, custom designed or prepackaged, and so simple to operate there are virtually no moving parts; **LO-CAT®**, a water-based, environmentally friendly, regenerable catalyst system that has been continuously improved since being introduced in the early 1970's. LO-CAT's are in service direct treating gas streams for H₂S removal, or operating in conjunction with amine systems and Claus tail gas applications.

GTP's H₂S removal solutions are applicable to all types of gas streams, including refinery fuel gas, natural gas, biogas, landfill gas, CO₂, and amine acid gas.

CONSULTING, ENGINEERING AND TECHNICAL SUPPORT SERVICES

Gas Technology Products group has more than 25 years of experience evaluating, analyzing, and researching hydrogen sulfide. The result is a well-conditioned, flexible team ready to tailor an H₂S removal solution for any application, flow rate, system capacity, or process condition – and to assist you in keeping it running smoothly, efficiently and profitably as your needs grow and change.

THE ELIMINATOR™ LIQUID SCAVENGER SYSTEM

The newest addition to the GTP lineup of H₂S removal solutions is The Eliminator, a liquid, water-based hydrogen sulfide and mercaptan removal system.



KNOW WHO'S IN YOUR CORNER

No where else will you find the depth and breadth of experience that GTP's team has accumulated by working together with plant management and operators to evaluate benefits, cost, and the ability to meet environmental regulations and corporate requirements. Since 1980, our hydrogen sulfide removal processes have been used successfully in diverse applications such as refineries, water treatment facilities, and sanitary landfills. Both in its own research and development facilities and in cooperation with Texas A&M University and Scotland's St. Andrews University, GTP is actively engaged in R&D efforts to continuously improve the hydrogen sulfide process chemistry and its application as well as in the development of new technology with the potential to dramatically and positively impact the gas processing industry in the years to come.

Gas Technology Products have solid, liquid and regenerable catalyst systems to custom tailor sulfur removal solutions up to 30+ tons per day.

Gas Technology Products operates as a wholly owned subsidiary of Merichem Chemicals & Refinery Services LLC based in Houston, TX.

Merichem Chemicals & Refinery Services LLC, a wholly owned subsidiary of Merichem Company, provides a diversified portfolio of products and services including naphthenic acids, copper naphthenate, sodium hydrosulfide, and process technology to the chemical, refining, and pulp and paper industries. Merichem Company is considered a world leader in the production of high specification chemical intermediates and the development of innovative process technology and engineering. Combined, Merichem and GTP offer over 75 years of experience in chemical services for diverse applications around the world including the refinery and chemical industries.



COST EFFECTIVE DESULFURIZATION

FOR EVERY APPLICATION: UP TO 30+ TONS/DAY H₂S



The Eliminator is designed to treat sour gas streams easily and quickly, with minimal capital investment. The water-based solution can be applied through any gas/liquid contacting technique, including direct injection into the gas stream with an in-line static mixer or spray nozzle; packed towers; or a batch operated liquid column. In its simplest form, the Eliminator can be the lowest capital cost and easiest solution to your hydrogen sulfide and mercaptan removal requirements. Typically, the Eliminator is very cost-effective for applications up to 200 kg per day sulfur removed.

The Eliminator is a high molecular weight hexahydrotriazine-based chemical, with high vapor pressure, specifically designed to treat H₂S and mercaptans. CO₂ is unreacted. The products of the reaction are also water-soluble. The reactant products create a non-corrosive, non-hazardous, biodegradable liquid that is very low in toxicity. The spent liquid has the additional benefit of being a mild corrosion inhibitor. Disposal of the reaction product is relatively easy given the low-toxicity and high level of biodegradability of the reaction products.

SULFUR-RITE® PACKAGED SYSTEMS

Sulfur-Rite® is a solid media hydrogen sulfide scavenger product. It is non-toxic, non-hazardous, non-pyrophoric and environmentally safe in both unreacted and reacted forms. While processing sour gas, the media does not produce any toxic or corrosive by-products or side reactions. The Sulfur-Rite process chemically changes H₂S into safe and stable iron pyrite (fool's gold).

The Sulfur-Rite process offers low capital costs. It has no moving parts, is quick and easy to install, and has no air emissions. In addition, the Sulfur-Rite process does not require expensive ancillary equipment or procedures, such as filters, additives, or flare gas make-up. Unlike many other systems, H₂S breakthrough in the Sulfur-Rite media is gradual and easily detected, providing advance notice of the need for media change out. When media change out is necessary, the change can be easily accomplished in a single shift. GTP can offer media change out services in most areas.

GTP can custom design your Sulfur-Rite system to fit your unique processing requirements, or provide a standard package for many applications. In the Sulfur-Rite system, saturated gas enters the top of the Sulfur-Rite vessel and exits the bottom. Lead-Lag installations can be provided for virtually 100% on-line performance and increased media efficiency. Standardized packages can be provided for low pressure gas streams up to 2500 SCFM, and are especially suited for vent applications, wet wells, landfill gas, municipal and industrial biogas, and geothermal NCG applications. The standardized packages also offer the benefits of reduced cost and reduced time between order and installation, relative to most hydrogen sulfide systems.



SULFURIZATION SOLUTIONS

LO-CAT® PROCESS SOLUTIONS

The flexible LO-CAT® product line offers a variety of liquid H₂S removal solutions for larger facilities with higher H₂S loads (200kg per day sulfur to 30+ tons per day sulfur). Flexible operation allows 100% turndown in gas flow and H₂S concentrations. LO-CAT units can be designed for better than 99.9% H₂S removal efficiency.

The patented LO-CAT liquid redox process does not use any toxic chemicals and produces no hazardous waste by-products. The environmentally safe catalyst is continuously regenerated in the process, resulting in lower operating costs. In addition, the LO-CAT technology is listed by the Environmental Protection Agency as Best Available Control Technology (BACT).

A complete LO-CAT program from Gas Technology Products includes ongoing technical service, analytical service, trouble-shooting assistance, operator training and refresher courses, an annual user's seminar, technical information exchange, and a patent grant-back program. Total packages are customized for each application and can include design, equipment or complete turnkey installation.



	The Eliminator™	Sulfur-Rite®	LO-CAT®
System Capacity*	Up to 200 kg/day sulfur removal	Up to 200 kg/day sulfur removal	200 kg/day sulfur removal to 30+ tons per day sulfur removal
Catalyst Media	Aqueous	Solid	Regenerable Aqueous
Selectivity	H ₂ S Mercaptans	H ₂ S Mercaptans (partial)	H ₂ S
Configurations	Direct Injection Spray Column Liquid full	Single vessel Dual "lead-lag" configuration	Conventional • Liquid-full • MBA • Venturi Autocirculation Aerobic

* System capacity figures are based on general economic trade-offs, not technical limitations. Particular circumstances and locations may affect economic trade-offs.



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