

SULFATREAT Direct Oxidation

for hydrogen sulfide removal of up to 25 tons per day

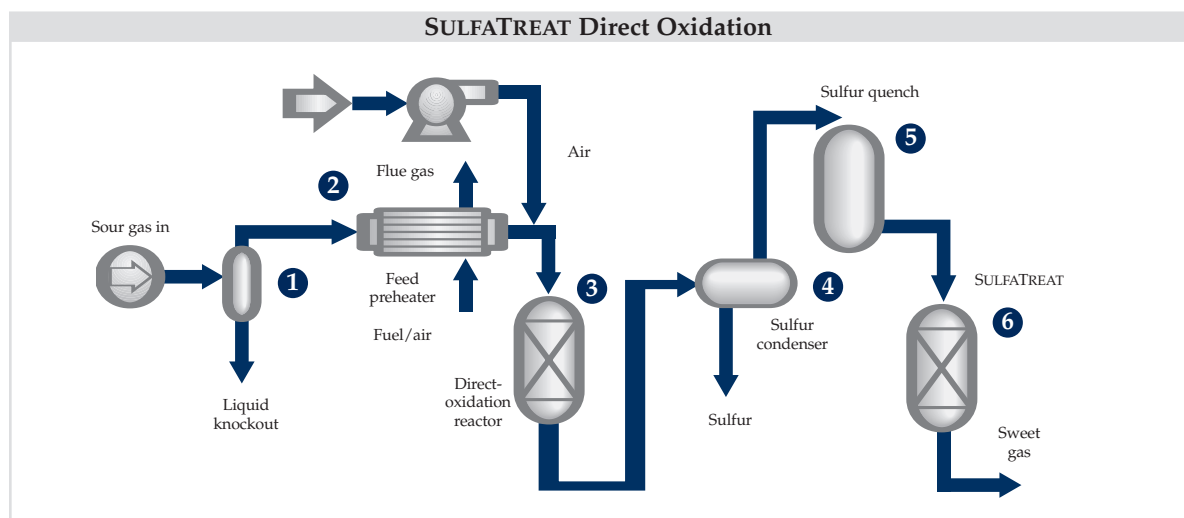


SULFATREAT Direct Oxidation is a process that will remove up to 30,000 ppm per stage (and up to 25 tons per day) of hydrogen sulfide from sour-gas streams. Its patented, dry catalyst eliminates the use of liquid chemicals, delivering the industry-recognized simplicity of the dry SULFATREAT scavenger. The process has the same capacity as liquid redox but none of the associated operational problems. The marketable, elemental sulfur produced by SULFATREAT Direct Oxidation is bright yellow in appearance and very high in quality.*

Process Description

① Sour gas first passes through a gas/liquid separator to eliminate any free liquids and particles in the inlet gas. ② It then moves through a small, efficient heater which brings the gas to a temperature of approximately 350°F (177°C) and above. ③ The heated gas then passes through a small bed of the patented Direct Oxidation catalyst which will remove 90% per stage of the hydrogen sulfide component of the gas stream by oxidizing it to elemental sulfur (still in the gaseous form) and water. ④ The gas stream exits the catalyst bed and passes through a standard sulfur condenser where the gaseous sulfur is cooled and converted to liquid sulfur and eventually to a solid form. The solid sulfur is then sold or landfilled per local requirements and conditions. ⑤ If treating sales gas, any remaining sulfur vapor is removed by a water quench which also cools the gas. ⑥ For sales gas, any remaining H₂S can be removed by an optional polishing process similar to the SULFATREAT scavenger.

Typical catalyst life is two to three years. In contrast, liquid redox suffers chemical loss in the treating process, not only requiring replacement but contaminating the sulfur as well.



Typical Physical Properties

Physical appearance Extrudates, white to gray in color
Odor None
Specific gravity 0.6 to 1.2

Advantages

- Non-toxic catalyst
- Elemental sulfur in gas phase
- No liquid chemicals
- High-quality sulfur produced
- Spent catalyst can be disposed of as an essentially non-hazardous waste subject to state, local and federal guidelines. Spent product should be tested for contaminants from the gas stream.

Limitations

- Oxygen content must be no more than about one-half of the concentration of H₂S
- 25 tons per day of sulfur

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17998 Chesterfield Airport Road
Suite 215
Chesterfield, MO 63005
Toll-Free: 1-800-726-7687
Tel: 636-532-2211
Fax: 636-532-2764
www.sulfatreat.com
E-mail: info@sulfatreat.com