

# Proven suite of gas treating technologies and absorbents.

## FLEXSORB™ technology

ExxonMobil's FLEXSORB technology enables customers to process increasingly sour gas streams while helping to meet stringent emission regulations and sulfur recovery objectives. This highly selective H<sub>2</sub>S removal process has been used in tail gas treating (TGT), acid gas enrichment (AGE) and high-pressure acid gas removal (AGR) units. The technology provides a cost-effective way to meet low H<sub>2</sub>S specifications while minimizing CO<sub>2</sub> co-absorption.

**ExxonMobil has developed and commercialized the FLEXSORB™ suite of gas treating technologies and absorbents and has applied them in petroleum refining, natural gas production, and petrochemical operations around the world.**

The FLEXSORB SE technology is designed for the selective removal of H<sub>2</sub>S in the presence of CO<sub>2</sub> and utilizes proprietary sterically hindered amines. The unique characteristics of the amine allow it to achieve high H<sub>2</sub>S cleanup selectively at low solvent circulation rates. This gas treating technology has been proven in over 100 commercial units worldwide and is considered the best available technology in many regions, enabling facilities to meet stringent emissions standards. FLEXSORB SE Plus can help to meet or exceed the World Bank Standard (WBS) SO<sub>2</sub> emission limit of 150 mg/Nm<sup>3</sup>, equivalent to approximately 99.98% sulfur recovery efficiency (SRE).

### Two variations:

#### FLEXSORB SE

is used for selective removal of H<sub>2</sub>S

#### FLEXSORB SE Plus

is used to meet ultra low H<sub>2</sub>S specifications (< 10 vppm) even at the low pressures.

### Key benefits



#### Proven technology

- Over 45 years of proven commercial experience



#### Low capital costs

- Smaller pumps and heat exchangers
- Smaller columns
- Uses standard gas treating equipment



#### Low operating costs

- Low circulation rate
- Low energy consumption
- Long solvent life and resistant to performance deterioration overtime
- Simple to operate

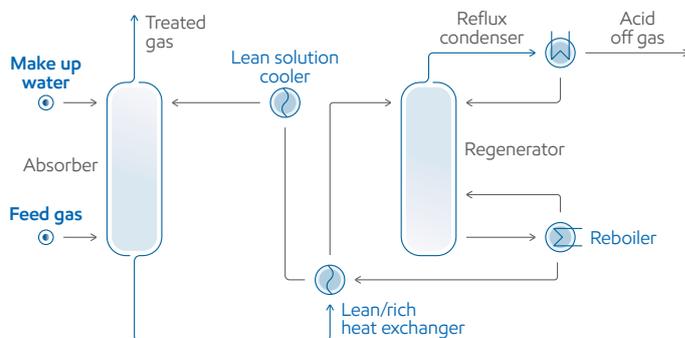


#### Environmental benefits

- Meets stringent H<sub>2</sub>S emissions targets to improve environmental performance
- Meets H<sub>2</sub>S standards even at low pressure or higher lean temperature

## Tail gas treating unit (TGTU)

In sulfur plant TGTU applications, FLEXSORB™ SE and SE Plus solvents require about half of the circulation rate and regeneration energy of other solvents based on methyl-diethanolamine (MDEA). CO<sub>2</sub> rejection is very high, typically above 90%. Lower circulation rate translates into smaller heat exchangers and a smaller regenerator tower, thereby reducing investments for grassroots projects. For existing units, FLEXSORB SE and SE Plus solvents allow the unit to be debottlenecked with few or no equipment modifications.



## High pressure natural gas treating

In natural gas treating, selective H<sub>2</sub>S removal from natural gas can be advantageous whenever a portion of the CO<sub>2</sub> can remain in the treated gas. In one natural gas treating facility, conversion to FLEXSORB SE solvent allowed the unit to increase gas production by 27% without modification of the existing hardware. At the same time, the circulation rate and reboiler duty was lowered to 65% and 78% of the design, respectively. FLEXSORB SE also improved the CO<sub>2</sub> slip and the operability of the unit by reducing the co-absorption of heavy hydrocarbons.

## Acid gas enrichment

ExxonMobil's FLEXSORB SE or SE Plus solvents are in use in a wide variety of Acid Gas Enrichment (AGE) designs around the world, enabling reserves that contain more CO<sub>2</sub> than H<sub>2</sub>S to be economically developed. As the name implies, an AGE unit enriches the H<sub>2</sub>S content of the acid gas stream, making it practical to recover sulfur in a conventional Claus SRU. In applications where acid gas injection instead of Claus is used, FLEXSORB technology can be used to minimize the volume of acid gas for re-injection.

## Onshore treating facility

	Conventional hybrid	FLEXSORB SE
Sour gas rate, MSCFD	X	127% of X
Pressure, psig	935	935
Temperature, °F	90	90
Feed composition, vol %		
H <sub>2</sub> S	0.064	0.064
CO <sub>2</sub>	1.0	1.0

Solvent rate, gpm	460	<b>300</b>
Reboiler duty, MBTU/HR	19.0	<b>14.9</b>
Treated gas		
H <sub>2</sub> S, vppm	4	<b>2</b>
CO <sub>2</sub> , mole %	0.70	<b>0.85</b>



Have a technical question?

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