

*high purity ~ simple package ~ proven reliability*

# **gPur™ Series**

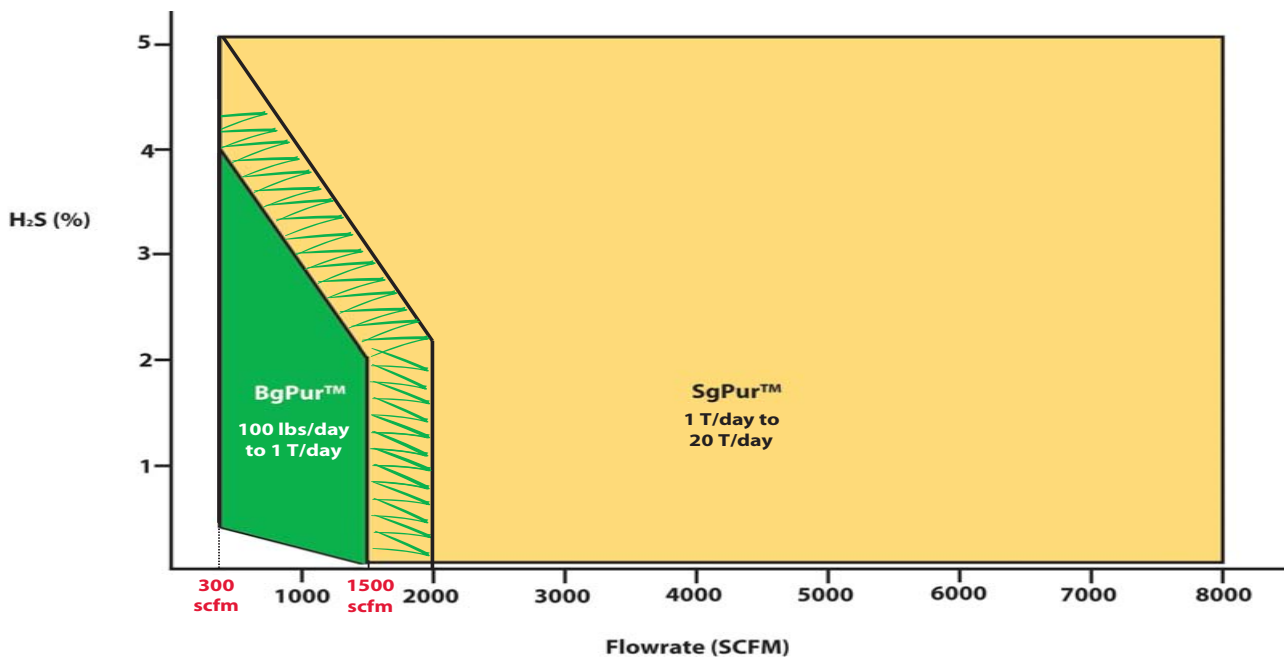
## **Biogas and Sour Gas Purification Systems**

### **BgPur™**

The biogas purification system, BgPur™, can purify methane generated from landfills, wastewater treatment plants, food processing plants as well as other industrial processes. By removing 99+% of hydrogen sulfide (H<sub>2</sub>S) in the gas, facilities are able to sell or use the gas for internal processes.

### **SgPur™**

The sour gas purification system, SgPur™, recovers and purifies industrial gases produced in the oil, chemical and steel industries. Gases such as Claus tail gas, refinery flare gas, and coke gas are recovered and purified of the hydrogen sulfide (H<sub>2</sub>S), while converting the H<sub>2</sub>S to elemental sulfur.



Energy recovery through industrial processes is now more economically achieved through the implementation of a BgPur™ system or the SgPur™ system. Both offer extreme efficiency and effectiveness in the purification of industrial gases. The chart depicts the scope of application between the BgPur™ and the SgPur™ based on H<sub>2</sub>S percentage and flowrate.



# BgPur™

## Biogas Purification System

### What are the Applications?

Biogas is a mixture of methane ( $\text{CH}_4$ ), carbon dioxide ( $\text{CO}_2$ ) and water. It is usually contaminated with highly corrosive levels of  $\text{H}_2\text{S}$ . Eco-Tec provides a biogas scrubbing process for the removal of  $\text{H}_2\text{S}$  and particulate matter from biogas as it is produced. Using a patented, high efficiency gas-liquid contacting process,  $\text{H}_2\text{S}$  is absorbed and the gas is purified for reuse in power generation, cogeneration, and heating applications.

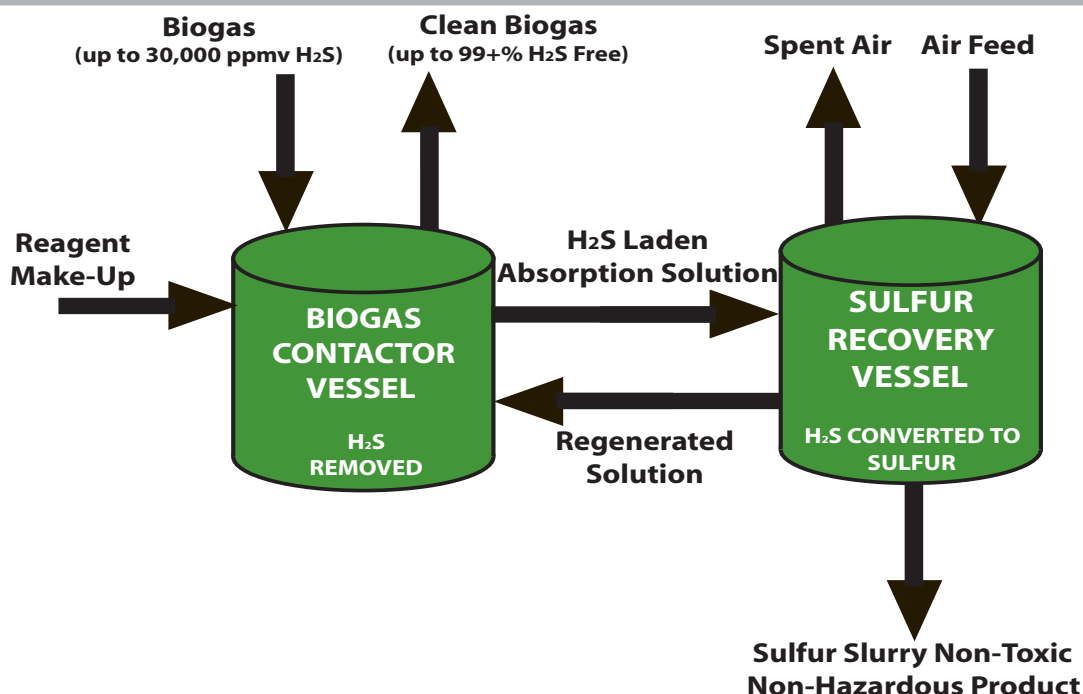
The following industry applications can easily incorporate Eco-Tec's product series for biogas purification:

- Municipal wastewater treatment plants
- Industrial wastewater treatment plants
- Industrial processing
- Pulp and paper mills
- Food and beverage processing
- Meat rendering plants
- Landfill gas
- Agriculture

### How does a BgPur™ work?

The Eco-Tec BgPur™ System is designed using patented technology based on absorption of  $\text{HS}^-$  ions in a gas absorption vessel. The spent scrubbing solution then flows into an air regeneration vessel where it is regenerated by oxygen from the air, forming water and elemental microcrystalline sulfur. The sulfur is floated to the surface as froth. The froth is broken down by sprays and a sludge thickening section to provide a 5% w/w sulfur slurry for the filter press. The slurry is pumped to a filter press for recovery, producing a 85% w/w filter cake. The clean filtrate is fed to the sprays, and the regenerated absorbant is then pumped back into the gas absorption vessel for a fully closed-loop process.

### Process Flow



# SgPur™

## Sour Gas Purification System

### What are the Applications?

The Eco-Tec SgPur™ System is an economic and effective alternative to the Claus process for the recovery and conversion of hydrogen sulfide to elemental sulfur. The SgPur™ is a compact, single vessel that efficiently and effectively removes sulfur without emitting any contaminants to the environment, and produces a marketable sulfur by-product.

The following industry applications can easily incorporate Eco-Tec's product series for sour gas purification:

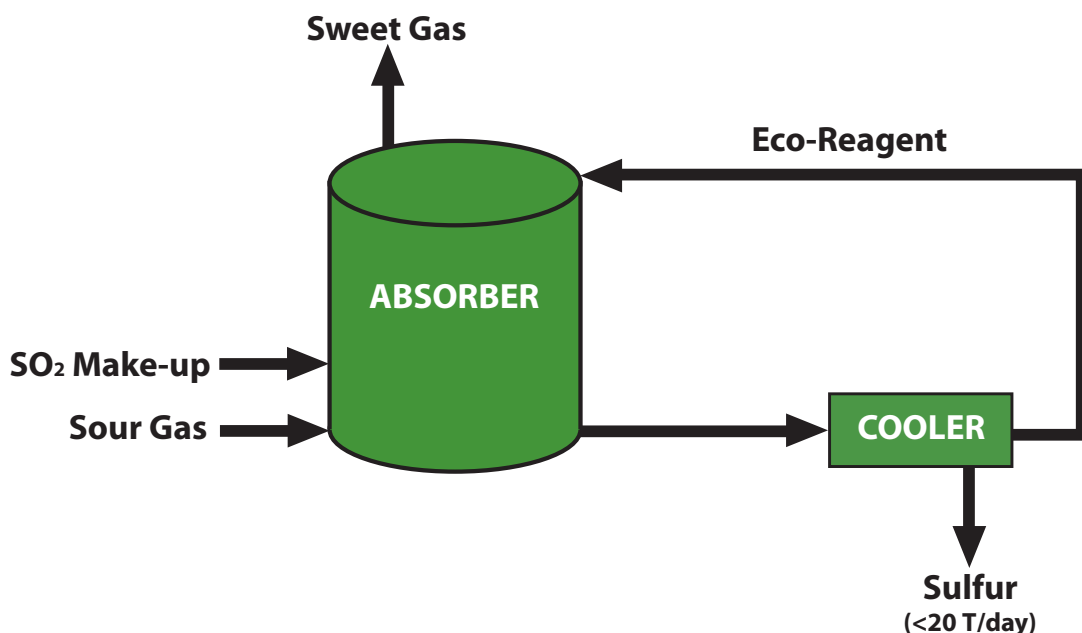
- Natural gas
- Claus process tail gas
- Associated solution flare gas
- Refinery flare gas
- Coke oven gas
- Carbon disulfide manufacture
- Specialty chemicals

### Advantages of an SgPur™?

In the economic sulfur removal range of 1 - 20 tons sulfur per day, the patented Eco-Tec SgPur™ System provides the following distinct advantages over alternative processes:

- Capital costs significantly lower than a conventional Claus Plant
- Operating costs are low
- Marketable elemental sulfur by-products
- Highly environmentally friendly

## Process Flow



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## Installations

Reduce sulfur emissions, equipment corrosion, and fouling by removing hydrogen sulfide (H<sub>2</sub>S). Eco-Tec's H<sub>2</sub>S removal systems offer cost savings and greater energy recovery for use in multiple applications.



Hampton Roads Municipal District  
Virginia, USA



GRD Minproc  
Sydney, Australia

Features	Benefits
Flexible Design	It is completely scalable, making it ideal for easy integration into facility processes.
Small Footprint	The system is skid-mounted and compact with a small footprint.
Automatic, Robust Design	The system is configured with automatic controls that adjust the system to respond to changes in the gas flow rate and H <sub>2</sub> S level fluctuations to optimize consistent performance.
Simple Operation	The patented process is simple to install, easy to operate and is fully automatic, all of which reduce operations and maintenance costs.
Economical Operation	The system requires minimal energy resulting in lower costs.
Environmentally Friendly	Agricultural chemicals used (absorbent), agricultural by-product produced, minimal energy consumption, maximum energy recovery.



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