Introduction

The SeparALL process is an innovative solution, based on the commercially proven UOP SELEXOL™ process, that uses a physical solvent to remove acid gases from synthesis gas streams. The process efficiently removes these harmful contaminants to help you meet product specifications, protect downstream processing equipment and comply with environmental regulations.

The SeparALL process is often ideally suited to selectively remove sulfur compounds and/or carbon dioxide (CO₂) to very low levels in the treated gas. Sulfur levels below 1 ppmv can be achieved with variable CO₂ capture levels.

The process uses next generation SELEXOL™ MAX solvent from Dow Chemical. While SELEXOL MAX solvent is chemically similar and completely compatible with SELEXOL solvent, it offers higher overall efficiency than its predecessor. The optimized blend in SELEXOL MAX solvent results in higher acid gas capacity, while its lower viscosity at the same operating temperature helps to reduce operating costs.

Through its improved efficiency and next generation technology, the SeparALL process can reduce capital expenditures by up to 10 percent and operating expenditures by more than 20 percent. This translates into a total economic lifecycle cost savings of up to 17 percent to help improve your bottom line.

Applications

The SeparALL process helps meet the needs of clean power generation through integrated gasification combined cycle (IGCC) power generation or can be used in the gasification value chain to produce chemicals and syn fuels. There are two basic flow-scheme applications:

Sulfur removal only:
• Used typically for power applications
• Can reduce treated gas to any desired sulfur level
• Consists of one solvent absorber with solvent regeneration

Sulfur removal with separate CO₂ removal and capture:
• Used for applications where separate treated gas and CO₂ product streams are required, e.g. hydrogen, chemical, SNG, IGCC with carbon capture or coal to liquids applications
• Typically involves more stringent product specifications
• Consists of Integrated solvent absorbers and solvent regeneration

Features and benefits

• Proven technology with enhanced reliability
• Efficient and high overall sulfur recovery
• Greater than 99 percent availability
• Simple flow schemes with limited equipment
• Reduced capital and operating expenditures as a result of lower solvent circulation rate
• Low economic lifecycle cost
• Energy efficient regeneration
• Chemically stable at up to 350 degrees Fahrenheit
• Enhanced operational safety and maintenance

Products and feedstocks

Acid gas partial pressure is the key driving force for the SeparALL process. Typical feed pressure is greater than 350 psia with an acid gas composition of CO₂ plus H₂S of anything above 5 percent by volume. The product specifications achievable depend on the application and feed characteristics and can be as low as 1 ppmv total sulfur with greater than 95 percent CO₂ capture.

Technical service and solutions

UOP has the products, expertise and processes that our gas processing, refining and petrochemical customers demand for total solutions. From start to finish, our global sales, engineering, service and support staff is there to help ensure your process challenges are met with proven technology. Our extensive service offerings, coupled with our unmatched technical knowledge and experience, can help you focus on profitability.
For more information

For more information on the SeparALL process and technological services, please contact your UOP representative or visit us online at www.uop.com.

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