

# CANSOLV TGT+ System: Solution for Ultra High Sulfur Recovery

## ABSTRACT

by

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## **CANSOLV TGT+ System: Solution for Ultra High Sulfur Recovery**

Natural gas reservoirs brought into production in recent years have contained increasingly problematic quantities of COS, mercaptans, and other organic sulfur species in addition to H<sub>2</sub>S and CO<sub>2</sub>. More complex process lineups are required to manage these contaminants at the increased operating and capital costs. The further tightening of product specifications and stricter environmental emission standards have added additional levels of complexity.

Illustrated in this paper is Shell's Cansolv Tail Gas Treating Plus (Cansolv TGT+) system, an integrated sour gas treating solution that enables ultra high overall sulfur recovery efficiencies (99.9% of the overall sulfur present in the feed gas to the gas processing plant) from sour gas streams, while minimizing the complexity and cost of the process line-up. Cansolv TGT+ is centered on Cansolv SO<sub>2</sub> scrubbing technology. SO<sub>2</sub>, which is captured post combustion, is recycled back to the thermal stage of the Claus unit.

A comparison between a conventional line-up required to treat sour gas with trace sulfur species and the Cansolv TGT+ system is presented. The following aspects of the Cansolv TGT+ are addressed:

- 1) Line-up simplification: detailed comparison between the conventional and Cansolv TGT+ line-up is discussed illustrating a reduction in the number of units required and operational simplification.
- 2) Increased overall sulfur recovery efficiency: a comparison of the overall heat and material balance is made illustrating the increased overall sulfur recovery efficiency for the Cansolv TGT+ case.
- 3) CAPEX and OPEX implications: a relative comparison made between the CAPEX and OPEX figures for two cases is presented.

The presented integrated line-up could be customized for individual applications thus providing a cost effective solution to the challenges and opportunities posed by the undeveloped sour gas fields.