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SuperClaus® Process for enhanced sulfur recovery

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Abstract

The modern modified Claus process can remove up to 98% sulfur from Sulfur Recovery Unit (SRU) inlet streams. For greater Sulfur Recovery Efficiency (SRE) that is required by current regulations, a variety of add-on processes for further sulfur removal from the Claus tail gas have been developed.

This review addresses the technology and economics of one such process—the SuperClaus® process, licensed by Jacobs Comprimo® Sulfur Solutions.

This review presents a technical and economic evaluation of the SuperClaus® process, based on a typical refinery, which has processing capacity of 300,000 Barrels per day (b/d) of high sulfur 2 wt% crude. The selected SRU configuration has three trains of 300 Short Tons per Day (STPD) sulfur handling capacity.

This review provides insight into SuperClaus® plant process chemistry, technology, and economics. It can be used as a tool for cost estimation for different plant capacities. It will be beneficial for planners, producers, and designers who are looking for independent data for SuperClaus® plants.

It includes the process flow diagram, material balance, major equipment sizes, and specifications. Cost data, including battery limit and offsite costs, variable costs, CAPEX, OPEX, and overall production costs, is provided.

An interactive iPEP Navigator module of the process is included, which provides a snapshot of the process economics and allows the user to select the units and global region of interest.

The technological and economic assessment of the process is PEP's independent interpretation of a commercial process based on information presented in open literature (such as patents or technical articles) or in-house generated data (e.g. HYSYS simulation, equipment cost estimation). While this assessment may not reflect actual plant data fully, we do believe that it is sufficiently representative of the process and process economics within the range of accuracy necessary for economic evaluations of a chemical process design.

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