

**CRYOGENIC SYSTEM FOR REMOVING ACID GASES FROM A
HYDROCARBON GAS STREAM, WITH REMOVAL OF HYDROGEN
SULFIDE**

ABSTRACT

A system for removing acid gases from a raw gas stream includes an acid gas removal system (AGRS) and a sulfurous components removal system (SCRS). The acid gas removal system receives a sour gas stream and separates it into an overhead gas stream comprised primarily of methane, and a bottom acid gas stream comprised primarily of carbon dioxide. The sulfurous components removal system is placed either upstream or downstream of the acid gas removal system. The SCRS receives a gas stream and generally separates the gas stream into a first fluid stream comprising hydrogen sulfide, and a second fluid stream comprising carbon dioxide. Where the SCRS is upstream of the AGRS, the second fluid stream also includes primarily methane. Where the SCRS is downstream of the AGRS, the second fluid stream is principally carbon dioxide. Various types of sulfurous components removal systems may be utilized.

Figure 1