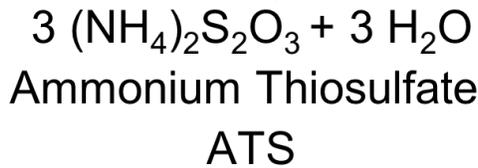
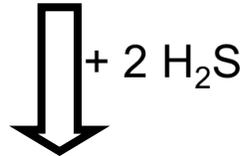


SimpliSWAATS Process for H₂S Removal

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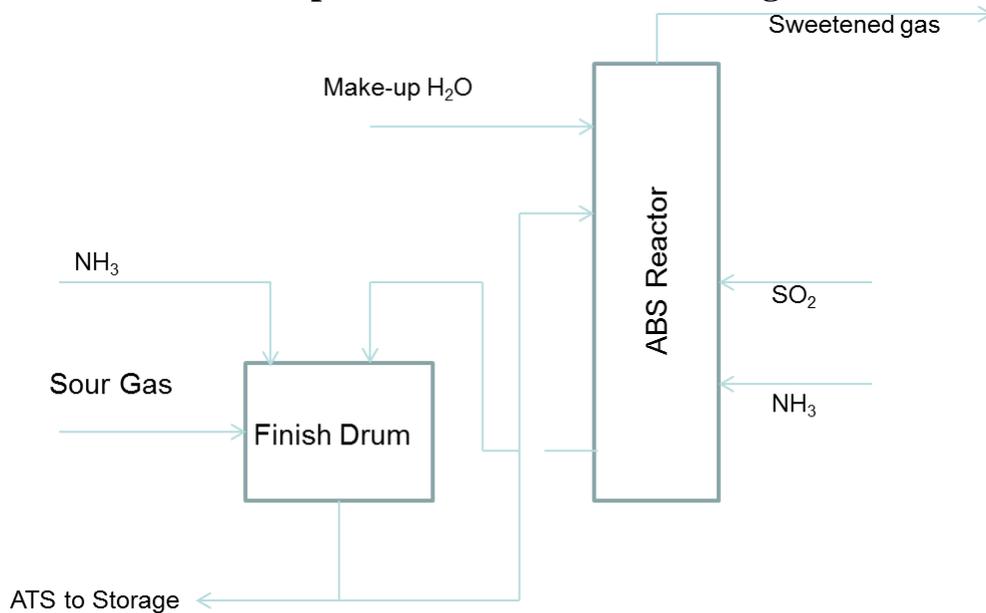
SimpliSWAATS is a process to remove small amounts of H₂S out of gas streams. It is particularly desirable if the gas stream contains ammonia. SimpliSWAATS units are comprised of circulating solutions containing ammonium bisulfate (“ABS”), either purchased as ABS or made within the process using ammonia and SO₂. The process reacts the H₂S with the ABS and additional ammonia to convert the components into ammonium thiosulfate (“ATS”), a liquid fertilizer.

The Process Chemistry



Sour gas path through the SimpliSWAATS unit travels through two successive contactors, scrubbing H₂S from sour gas by reaction with sulfite to produce ATS (NH₄)₂S₂O₃. The upper section of the process uses the required makeup water to wash sweetened gas to scavenge NH₃, SO₂, H₂S.

Basic SimpliSWAATS Block Flow Diagram



The SimpliSWAATS Process

The key to the process is contacting the gas containing H₂S with a solution containing ammonium sulfite and di-ammonium sulfite made within the unit at the correct ratio to react the H₂S to ammonium thiosulfate. The liquid circulation rates constant at all feed rates and is controlled by the amount of sulfites in the solution. Rates of makeup water, NH₃, SO₂, and product are proportional to H₂S in feed. High circulation to feed ratio provides a sulfite buffered chemical “flywheel” to soak up fluctuations in feed H₂S rate.

The process is always designed with redundant controls and pumps to allow for continuous operation.

Properties of the ATS Fertilizer

- 60 wt% salts in aqueous solution
- Density = 11.2 lb/gal, s.g. = 1.34
- Low toxicity
- No emission of H₂S or precipitation of sulfur
- Nearly odorless
- NFPA placard 0, 0, 0

The ATS Market

SimpliSWAATS applications are typically used where small amounts of H₂S need to be removed from gas streams. ThioSolv takes the ATS from the plant and provide the marketing services including sales, logistics, billing, credit and accounting providing a portion of the revenue back to the owner. US market is ~ 1.4 million T/Y and growing so the small volumes of ATS produced at the plant will not have an impact on the market place.