

APPLICATIONS

The ADIP process is a regenerative process developed to selectively reduce H₂S in gas to very low concentrations in the presence of CO₂. The ADIP process uses an aqueous solution of diisopropanol amine (DIPA) or the aqueous solution of methyldiethanol amine (MDEA). MDEA is used for those applications in which high selectivity for H₂S is required. Depending on operating conditions 20-60% of the CO₂ is co-absorbed if DIPA is used as the ADIP solvent, while this can be reduced to 10%-30% if MDEA is used as the solvent.

The ADIP process can also be used for enrichment of acid gas feed to a sulfur recovery plant, to achieve a higher H₂S content. Integration of gas treating with the SCOT solvent system is an option.

DESCRIPTION

The H₂S-containing gas is contacted counter-currently in an absorption column with ADIP solvent. The regenerated solvent is introduced at the top of the absorber. The H₂S-loaded solvent (rich solvent) from the absorber is heated by heat exchange with regenerated solvent and is fed back to the regenerator, where it is further heated and freed of the acid gases with steam.

The acid gases removed from the solvent in the regenerator are cooled with air or water, so that the major part of the water vapor is condensed. The sour condensate is reintroduced into the system as a reflux. The acid gas is passed to the sulfur recovery plant (Claus plant) in which elemental sulfur is recovered from the H₂S.

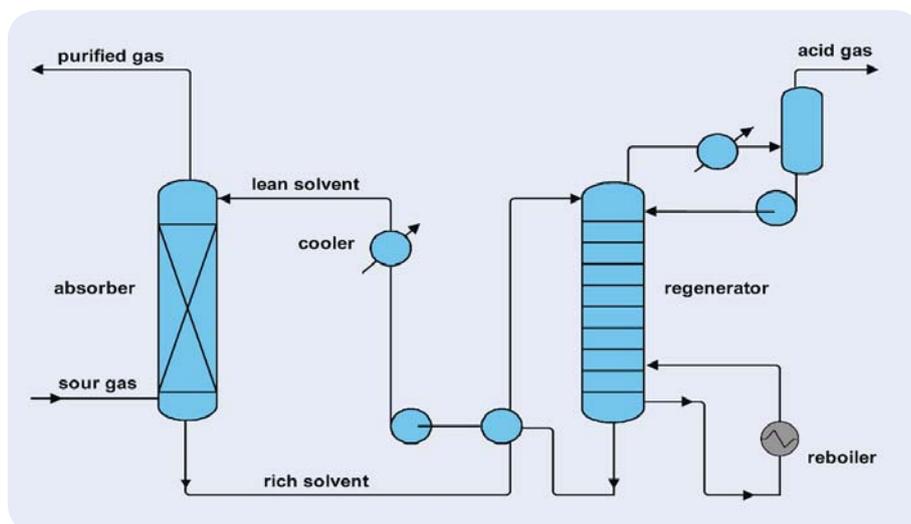
OPERATING CONDITIONS

Absorber operating pressure can be up to 150 bar. Gas temperature can vary from ambient up to 60°C.

Refinery gases e.g. from HDS and cracking units	H ₂ S
Natural gases	H ₂ S, CO ₂ (partly)
Reduced Claus tail gas (SCOT Process)	H ₂ S, CO ₂ (partly)
Gas from oil or coal gasification in combined-cycle power stations	H ₂ S, CO ₂ (partly)
Claus feed gas enrichment	H ₂ S, CO ₂ (partly)

UTILITIES

The estimated consumption varies widely with feed composition and product specification. LP steam consumption amounts to 0.4 - 2.8 ton per ton of acid gas removed.



FEATURES

- » Reduction of H₂S to very low concentrations
- » Low steam consumption and solvent circulation
- » Carbon steel equipment
- » Resistant against degradation (DIPA)
- » No reclaimer required
- » Good selectivity for H₂S in the presence of CO₂
- » Reduced investment and operating costs compared to conventional designs

REFERENCES

More than 490 ADIP units, ranging in capacity from 1,900 Nm³/d to 12,2 million Nm³/d and 19 t/sd to 7,700 t/sd of liquid hydrocarbons, are in operation throughout the world, demonstrating the reliability of the process.

LICENSOR

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