

Oil and Gas: Application Focus

Acid Gas Sweetening

Process Description

Acid gas removal processes utilize amines or specialty solvents to remove acid gases such as H₂S and/or CO₂ from sour natural gas in order to meet the gas quality specifications. The sour gas is contacted with lean amine in the contactor tower. An acid-base reaction occurs, binding the acid gases to the amine with a weak bond. The rich amine then flows to a regenerator, where heat breaks the weak bond between the amine and the acid gas, releasing the acid gas and regenerating the amine for re-use. The acid gases exit the top of the regenerator for further treatment while the lean amine is recirculated back to the contactor in a recirculating loop.

Gas Plant Needs

- Achieve or exceed natural gas production quotas via reliable treatment of acid gases
- Maintain process reliability for production consistency and minimization of downtime

Ensure your sweetening reliably meets your daily production quotas and environmental protection needs.

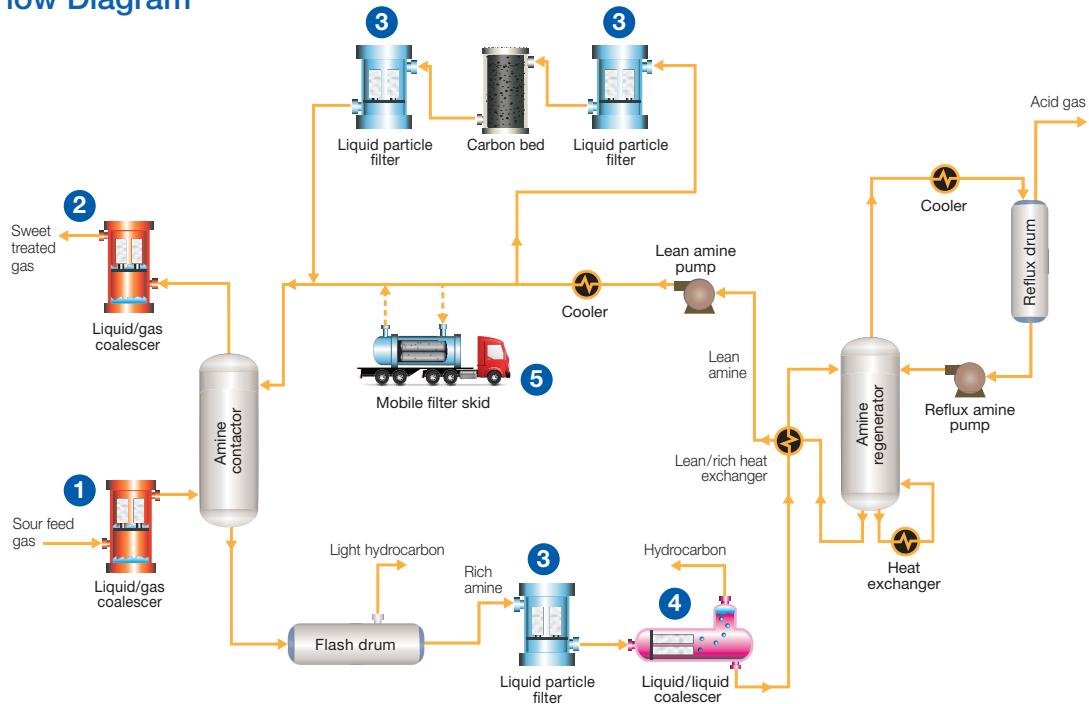


- Provide consistent sales gas specification quality for H₂S and CO₂ levels
- Minimize offgas emissions through effective acid contaminant removal from the sour gas
- Minimize operating and maintenance costs for fouling and corrosion control

Production Challenge/Pall Solution

Challenge	Solution
Foaming and reduced production rates due to hydrocarbon liquid and particulate ingress into the amine loop	Improve your productivity and reliability via effective liquid and solid removal upstream of the contactor to protect the amine loop. <ul style="list-style-type: none"> • KO pots, mesh pads, cyclonic devices and conventional filter-separators may not effectively remove aerosol-sized liquid hydrocarbon droplets or fine solids. • High efficiency SepraSol™ Plus liquid/gas coalescers and Medallion™ HP liquid/gas coalescers provide 99.999% removal at 0.3 microns per the DOP test and 1 ppb downstream per the modified ANSI/CAGI-400-1999 test. Both provide excellent foaming and fouling protection.
Foaming, process efficiency loss and increased maintenance due to fouling of the contactor, lean-rich exchanger, regenerator and reboiler due to dirty amine (green, brown, or black in color)	Reduce the gaps in productivity, reliability and maintenance cost through effective solids control in the amine loop. <ul style="list-style-type: none"> • Solid contaminants in amine systems are mostly very fine corrosion products that may not be adequately removed by filters that exhibit unloading, media migration, channeling or poor sealing. • A range of absolute and nominal rated filter elements is available to reduce suspended solids to <5 ppmw, keep the amine clear or pale yellow in color, and reduce related foaming and fouling issues. • For enhanced solids control, add filtration to the rich side. Total sour gas worker exposure will typically be lowered due to the reduced system maintenance on the rich side.
Rapid cleanup need	Apply mobile filter or liquid/liquid coalescer skids.

Process Flow Diagram



Key Applications/Filter Recommendations (other applications not shown)

Application	Pall Product	Advantages	Customer Benefits
1 Contactor inlet coalescer	SepraSol Plus liquid/gas coalescers Medallion HP liquid/gas coalescers	Efficient removal of total hydrocarbon and solids upstream of the loop	Productivity, reliability, freedom from slug upsets
2 Contactor outlet coalescer	SepraSol Plus liquid/gas coalescers Medallion HP liquid/gas coalescers	Specially formulated B grade coalescer media is compatible with amine	Amine-free sales gas, amine cost control
3 Amine filter (Add rich side for enhanced performance)	Ultipleat® High Flow filters, Coreless filters, Marksman™ filters, Profile® II filters, Nexis® filters, or a range of Pall FSI bag filters	High filtration efficiency, reproducible performance, easy changeout, and long filter life	Productivity, reliability, maintenance cost control
4 Liquid hydrocarbon removal from amine	PhaseSep® liquid/liquid coalescers	Proven performance for hydrocarbon liquids removal	Reduce upsets in downstream sulphur plant
5 Depollution/cleanup filter	Mobile filter or liquid/liquid coalescer rental skid	Fast, reliable cleanup of high solids or hydrocarbon liquids levels	Rapid recovery from upsets, return to productivity, reliability, cost control



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