

## AMINE FILTRATION IN OIL REFINERIES



### APPLICATION:

Amine filtration in oil refineries, hydrocarbon gas plant and ammonia plants.

### BACKGROUND:

Amine is a term referring to aliphatic ammonia derivatives that when mixed with water, form an aqueous solution. This solution is used to purify hydrocarbon gas streams by removing two acid gases, hydrogen sulfide (H<sub>2</sub>S) and carbon dioxide (CO<sub>2</sub>). Amines used could be any of the following:

MEA – Monoethanolamine  
DEA – Diethanolamine  
TEA – Triethanolamine

MDEA – Methyldiethanolamine  
DGA – Diglycolamine  
DIPA – Diisopropanolamine

Of the above MEA, DEA and MDEA are the most commonly used amines to remove acid gases by adsorption and reaction. Amine selection is the end use of the gas and the economics of treatment in relation to the required purity. Natural gas for residential and commercial users must have CO<sub>2</sub> (reduces heat value) and H<sub>2</sub>S (toxic in high concentrations) removed. Plant gas which is a byproduct in refineries, is used to fire heaters or boilers. Government regulations require that the H<sub>2</sub>S be removed from the gas for plant use. However, it is not economical to remove CO<sub>2</sub> from the gas for plant use.

Since amines are corrosive, especially the reactive ones, the generated solids can cause a variety of problems in amine units. Solids entering the units can include:

- pipe scale, rust, iron sulfide and down hole sand
- mineral precipitates from makeup water
- charcoal fines from carbon filters

Iron sulfide particles and other solids can contribute to foaming in towers which can be a major concern due to various side reactions in downstream processes.



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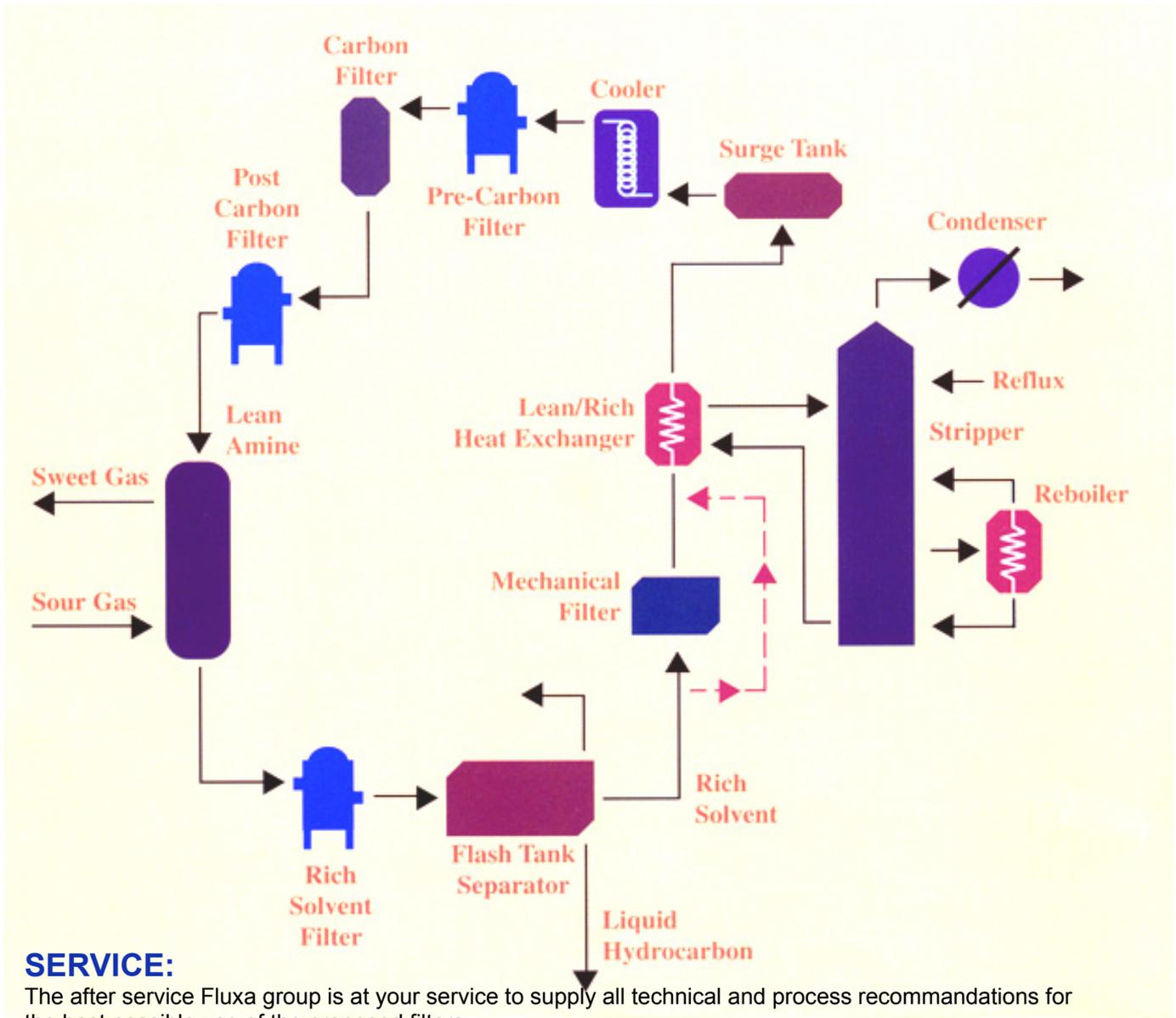
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**MEDIA:**

Wound Cartridge (polypropylene)  
Melt Blown Cartridge  
Poliflo Cartridge

Bag Filter Media (polypropylene)  
PXLH Bag Filter Media  
PMF Bag Filter Media

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