



Amine Filtration

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Amine Carry-Over Losses & Recovery

Amine carry-over losses have become an area of great interest lately due to the considerable economic costs of amine replacement. Not only does the amine have to be purchased, it has also to be stored and physically added to the amine unit. Additionally and often overlooked, the lost amine will end-up in a downstream unit, process, equipment, or waste water treatment facility. This aspect also has significant economic impacts on equipment reliability and downstream process stability.

A number of avenues have been put in place to recover any amine that is lost from the amine unit with the treated gas. These options vary from using knock-out drums with mesh pads or vane packs, water washes, and other more specialized technologies. Removal of amine in liquid hydrocarbon streams is perhaps more important due to the emulsification of the amine in addition to solubility. In this case, water washes and extractive separation systems have been implemented with varying degrees of success. Conventional water washes tend to use large amounts of water and have low amine recovery efficiencies. More technologically advanced extraction separation systems are capable of recovering amines in a much more effective way.

Possible amine solvent losses mechanisms include:

- Amine solvent vaporization (given by the amine itself and process conditions)
- Amine solubility and emulsification carry-over in LPG (Liquefied Petroleum Gas)
- Mechanical amine solvent entrainment (entrainment carry-over)
- Maintenance related (amine solvent losses caused by filter change-outs)
- Constant carry-over caused by foaming (inlet contaminants or high solids in lean amine)
- Amine solvent slugging (related to foaming but in a severe scenario, for a short period of time)
- High gas velocity into absorber (caused also by absorber fouling or deposits in the internals)
- Amine unit absorber tower flooding
- Amine absorber in “spray mode” at the top section of the absorber
- Transfer and cleaning losses during shutdowns (this can be very high depending on the facility)
- Amine solvent degradation
- Amine disposal and/or make up to:
 - Reduce heat stable salts concentration
 - Reduce other contaminants (i.e. presence of “Shoe Polish” sludge)
 - Reduce foaming tendency of the amine solvent

For more information, please contact **Amine Filtration** at Help@AmineFiltration.com