## Biogas Separation, Alcohol Amine Solutions


#### Abstract

Authors : Jingxiao Liang, David Rooneyman Abstract : Biogas, which is a valuable renewable energy source, can be produced by anaerobic fermentation of agricultural waste, manure, municipal waste, plant material, sewage, green waste, or food waste. It is composed of methane (CH4) and carbon dioxide (CO2) but also contains significant quantities of undesirable compounds such as hydrogen sulfide (H2S), ammonia (NH3), and siloxanes. Since typical raw biogas contains $25-45 \% \mathrm{CO} 2$, The requirements for biogas quality depend on its further application. Before biogas is being used more efficiently, CO2 should be removed. One of the existing options for biogas separation technologies is based on chemical absorbents, in particular, mono-, di- and tri-alcohol amine solutions. Such amine solutions have been applied as highly efficient CO2 capturing agents. The benchmark in this experiment is N methyldiethanolamine (MDEA) with piperazine (PZ) as an activator, from CO2 absorption Isotherm curve, optimization conditions are collected, such as activator percentage, temperature etc. This experiment makes new alcohol amines, which could have the same CO2 absorbing ability as activated MDEA, using glycidol as one of reactant, the result is quite satisfying.


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