

Carbon Dioxide capture using biphasic solvents

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With increasing population, there is an abundant rise in energy demands which is subsequently leading to an increase in generation of Carbon Dioxide gas in the atmosphere. Total emission in 2014 amounts to 6870 Million Metric Tonnes of CO₂ equivalent. Carbon dioxide also known as greenhouse gas is a leading contributor of global climate change and thus most industries are facing problem to alleviate its level. Industries have tested various technologies over all these years that give them cost effective and efficient solution to the problem of carbon dioxide capture. Absorption, Adsorption, Physical Separation and Hybrid Solutions are some techniques that are researched upon. Out of these, chemical absorption is one such method that is widely accepted by industries. Chemical Absorption processes using conventional amines like monoethanolamines as solvents are costly and is energy intensive. Therefore, a lot of research has been done in order to reduce the energy costs of this process. Carbon Dioxide removal using biphasic solvents is one such method. Biphasic solvents have huge potential in reducing energy requirements. This process features liquid-liquid separation of the solvent, one rich and one lean in CO₂. The CO₂ rich phase is used for stripping thus reducing the solvent required for stripping and facilitating the attainment of a higher stripping pressure. As a result, both the heat use for CO₂ stripping and the CO₂ compression work is required to deliver to a storage site is reduced. This work provides a brief analysis on removing carbon dioxide using biphasic solvents.