

Economy evaluation and analysis of CO₂ absorption process with conventional and new solvents

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The CO₂ absorption process using amine solvents has been considered as the powerful candidate among CO₂ capture options. Many research groups have been trying to develop the innovative solvents for CO₂ absorption process. The innovative solvents are required to have low regeneration energy, fast CO₂ absorption, big CO₂ capacity, low solvent price, low degradation and thermal stability etc. All characteristics mentioned eventually affect total CO₂ capture cost including CAPEX and OPEX. In this study, economy of CO₂ absorption process was evaluated as several solvents, MEA, MDEA, and new solvent candidates A & B. Global relationship between the characteristics of solvents and cost parameters was investigated and each effects were analyzed. It is expected that this study gives the insight for the development direction of the innovative solvents in terms of total CO₂ capture cost.