

## Thermodynamic and kinetic study of the reaction between carbon dioxide and highly efficient absorbent

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In this study, thermodynamic and kinetic study of the reaction between carbon dioxide and highly efficient absorbent named KoSol-2 were conducted for designing CO<sub>2</sub> absorption pilot plant. Some thermodynamic properties such as density, viscosity, surface tension, vapor pressure and heat capacity were measured in the temperature range of plant operating condition. Overall kinetic constants for the reaction between CO<sub>2</sub> and absorbent were measured using stirred-cell reactor. The kinetic constants were compared with those of some absorbents having similar concentrations. An equation for estimating solvent regeneration energy was formulated using some physical properties and kinetic data. All of the data measured in this study will be used for designing 2ton-CO<sub>2</sub>/day pilot plant.