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Research Article

## Comparison of Various Alkaline Solutions for H<sub>2</sub>S/CO<sub>2</sub>-Selective Absorption Applied to Biogas Purification

Biogas is a common renewable energy resource. A very important stage of biogas upgrading, studied in the present work, is its purification from H<sub>2</sub>S traces. The selective absorption of H<sub>2</sub>S and CO<sub>2</sub> into oxido-alkaline solutions containing hydrogen peroxide and into amine solutions was compared by performing absorption test runs in a cables-bundle scrubber at 293.15 K and atmospheric pressure. The absorption rate and selectivity for H<sub>2</sub>S over CO<sub>2</sub> were determined for various solute partial pressures, different alkaline absorbents and hydrogen peroxide concentrations in the scrubbing liquid, and different pH values. Higher H<sub>2</sub>S-selective absorption performances with oxido-alkaline solutions than with amine solutions could be observed provided that the solution is at a low pH value (9.5) and contains a sufficient hydrogen peroxide concentration.

**Keywords:** Absorption, Biogas, Carbon dioxide, Hydrogen peroxide, Hydrogen sulfide

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