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## Experimental investigation of CO<sub>2</sub> removal from gas mixtures using membrane contactor system

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Several techniques have been used to minimize the emission of Carbon Dioxide (CO<sub>2</sub>) from Natural Gas. An alternative technique for the conventional gas absorption is Gas-liquid hollow fiber membrane contactors (HFMCs). Experiments were carried out to investigate the performance of high pressure modules containing polytetrafluoroethylene (PTFE) membranes, similar to shell and tube heat exchangers. The mixture of gas (5% CO<sub>2</sub> and 95% CH<sub>4</sub>) was fed to the tube side of the membrane module, whereas, different solvents (MEA, DEA, EDA, DETA and NaOH) were used in the shell side of the module in a counter current arrangement. The transport of CO<sub>2</sub> through the membrane modules was investigated as a function of gas and liquid flow rates, solvent types and concentrations. The results showed that CO<sub>2</sub> removal increased with increasing the liquid flow rates and decreasing gas flow rates. In addition, the CO<sub>2</sub> removal was enhanced with increasing the solvent concentration. DETA showed better removal efficiency among the solvents used.

### Biography

Farah O. S. Abu Hatab is a research assistant at UAE University who has been working on CO<sub>2</sub> capture using Gas-liquid hollow fiber membrane contactors (HFMCs).

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