

CAPE-OPEN at the IVC-SEP

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The IVC-SEP¹ is a research group within the Department of Chemical and Biochemical Engineering at the Technical University of Denmark.

The CAPE-OPEN research at the IVC-SEP is mainly focused on the implementation of thermodynamic models – such as CPA and PC-SAFT. That is, models designed for handling systems with a degree of hydrogen bonding. The models are said to contain an ‘associating’ term. This development is supported by an industrial consortium².

One of the conditions when designing power plants is to keep the CO₂ emissions as low as possible. Therefore we need the ability to model the CO₂ capture technology in the process simulators. In a recent PhD study³ and an on-going industrial research project⁴ on CO₂ capture, a unit operation (for the CO₂ absorption on in alkanolamine solution) based on the CAPE-OPEN technology has been developed.

This unit operation encapsulates the essential properties of most unit operations; thermodynamics, chemical reactions and mass transfer. The fundamentals of the unit operation have been validated using data obtained from a fully computerized pilot plant.

¹ www.ivc-sep.kt.dtu.dk

² Supported by Statoil (N), TOTAL (F), BP (GB/US), and Maersk Oil and Gas (DK).

³ Thesis available at above mentioned web site.

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