

Measurements of Thermophysical Properties for CCS

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In order to reach the global targets for mitigation of anthropogenic climate change, most studies agree that massive amounts of CO₂ will have to be captured, transported and stored (CCS). For realization of large-scale deployment of CCS, it is essential to lower costs, improve efficiency and ensure robustness and safety through optimization of the design and operations of the processes involved. Among other factors, such an optimization will depend on accurate and robust models and hence data for properties of relevant fluids and conditions. Currently, there are deficiencies in the data on fluid properties for mixtures of CO₂ and even rather basic impurities.

In 1986, the idea of storing CO₂ underground to mitigate global warming was conceived by the two SINTEF researchers Lindeberg and Holt. Since then, SINTEF has had a major role in developing CCS technology. Lately, the research centers BIGCCS (2008–2016) and NCCS (2016–) and the European Carbon Dioxide Capture and Storage Laboratory Infrastructure (ECCSEL) have been cornerstones in our efforts with other partners to bring CCS forward.

At the conference, an overview of SINTEF's research on fluid properties relevant for CCS will be provided, which includes development of new experimental infrastructure for phase equilibria, density and viscosity, measurements and modeling of CO₂-rich mixtures properties, and modeling and larger scale experiments on transient flow phenomena and low temperature separation.

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