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Research output

**Multiscale investigation of CO₂ hydrate self-sealing potential for carbon geo-sequestration**  

**Study on CO₂ Hydrate Formation Kinetics in Saline Water in the Presence of Low Concentrations of CH₄**  

**Giant Barocaloric Effect at the Spin Crossover Transition of a Molecular Crystal**  

**Determination of distribution factors for heavy n-alkanes (nC₁₂⁻nC₉₈) in High Temperature Gas Chromatography**  

**Establishing the Maximum Carbon Number for Reliable Quantitative Gas Chromatographic Analysis of Heavy Ends Hydrocarbons. Part 3. Coupled Pyrolysis-GC Modeling**  

**Experimental study to estimate CO₂ solubility in a high pressure high temperature HPHT reservoir carbonate aquifer**  
Fakrumie Zaidin, M., Priyatna Kantaatmadja, B., Chapoy, A., Ahmadi, P. & Burgass, R., 2019, SPE Middle East Oil and Gas Show and Conference, 18-21 March, Manama, Bahrain. Society of Petroleum Engineers , SPE-195003-MS

**Density, Speed of Sound, and Other Derived Properties of Ethanol at Pressures up to 65 MPa**  

**CO2 solubility in formation water under sequestration conditions**  

**Characterization of reservoir fluids: A predictive model for interfacial and bulk phase equilibrium properties**  

**Phase Equilibrium of Three Binary Mixtures Containing NO and Components Present in Ambient Air**  

**New Two-Dimensional Particle-Scale Model To Simulate Asphaltene Deposition in Wellbores and Pipelines**  
Gas Hydrate Equilibria in the Presence of Monoethylene Glycol, Sodium Chloride and Sodium Bromide at Pressures up to 150 MPa

Viscosity of CO₂-rich mixtures from 243 K to 423 K at pressures up to 155 MPa: new experimental viscosity data and modelling

Phase equilibrium properties aspects of CO₂ and acid gases transportation

Speed of sound measurements for a CO₂ rich mixture

New experimental density data and derived thermophysical properties of carbon dioxide – Sulphur dioxide binary mixture (CO₂ - SO₂) in gas, liquid and supercritical phases from 273 K to 353 K and at pressures up to 42 MPa

Phase Behavior of CO₂ in Monoethylene Glycol between 263.15-343.15 K and 0.2-40.3 MPa: An Experimental and Modeling Approach

pH of CO₂ saturated water and CO₂ saturated brines: Experimental measurements and modelling

Investigation into the effect of subcooling on the kinetics of hydrate formation

Measured densities and derived thermodynamic properties of CO2-rich mixtures in gas, liquid and supercritical phases from 273 K to 423 K and pressures up to 126 MPa

Transport of CO2: Presentation of New Thermophysical Property Measurements and Phase Diagrams

Impact of Aromatic Compounds on Acid Gas Injection: Experimental Measurements and Predictions with the GC-PR-CPA Equation Of State

Phase behaviour of methane in methanol, ethanol and aqueous solutions

Hydrate Phase Equilibria of Natural Gas Mixture plus Carbon Dioxide in the Presence of Thermodynamic Inhibitors: Experimental Measurements and Modelling

Integrated Wax-Hydrate Formation in Real Oil Mixtures: What Factors Are Important from Thermodynamic Modelling?
Comparative study of vapour-liquid equilibrium and density modelling of mixtures related to carbon capture and storage with the SRK, PR, PC-SAFT and SAFT-VR Mie equations of state for industrial uses

Interfacial Tension of CO$_2$ + Brine Systems: Experiments and Predictive Modelling

Glycols Partitioning At High Pressures in Gas Processing Systems

Density, speed of sound and derived thermodynamic properties of a synthetic natural gas

Experimental and modelling study of the densities of the hydrogen sulhide + methane mixtures at 253, 273 and 293 K and pressures up to 30 MPa

Mutual effects of paraffin waxes and clathrate hydrates: A multiphase integrated thermodynamic model and experimental measurements

A New Thermodynamic Model for Paraffin Precipitation in Highly Asymmetric Systems at High Pressure Conditions

Densities and derived thermophysical properties of the 0.9505 CO$_2$ + 0.0495 H$_2$S mixture from 273 K to 353 K and pressures up to 41 MPa

Solubility Measurement and Modeling of Methane in Methanol and Ethanol Aqueous Solutions
Wise, M., Chapoy, A. & Burgass, R. W., 8 Sep 2016, In : Journal of Chemical and Engineering Data. 61, 9, p. 3200–3207 8 p.

Carbon Dioxide Solubility in Triethylene Glycol and Aqueous Solutions

A New Thermodynamic Model for Paraffin Precipitation in Highly Asymmetric Systems at High Pressure Conditions
Ameri Mahabadian, M., Chapoy, A. & Tohidi Kalorazi, B., Jun 2016.

Measurement and Modelling of High Pressure Density and Interfacial Tension of (Gas + n-Alkane) Binary Mixtures

Vapour-liquid equilibria and density modelling of CO$_2$-rich systems with PC-SAFT and SAFT-VR Mie

Impact of Aromatic Compounds on Acid Gas Injection: Experimental Measurements and Predictions With the GC-PR-CPA Equation of State
Measurement and modelling of interfacial tension in methane/water and methane/brine systems at reservoir conditions

Thermophysical Properties, Hydrate and Phase Behaviour Modelling in Acid Gas-Rich Systems

Study of the impact of high temperatures and pressures on the equilibrium densities and interfacial tension of the carbon dioxide/water system

Water Content of CO2 rich Mixtures: Measurements and Modeling using the Cubic-Plus-Association Equation of State

Development of a multiphase flash in presence of hydrates: experimental measurements and validation with the CPA equation of state

Experimental Measurement and Modeling of the Solubility of Methane in Methanol and Ethanol

Impact of aromatic compounds on acid gas injection: Experimental measurements and predictions with the GC-PR-CPA equation of state

Prediction of methanol content in natural gas with the GC-PR-CPA model

Water content assessment in acid gas

Modeling of Transport Properties Using the SAFT-VR Mie Equation of State

Experimental study: the impact of dissolved water on the viscosity of reservoir fluids at HPHT conditions

Hydrate and phase behavior modeling in CO2-rich pipelines

Hydrocarbons - water phase equilibria using the cpa equation of state with a group contribution method
Hydrate and Phase Behavior Modelling in CO$_2$-Rich Pipelines

Hydrate inhibition in propylene glycol and glycerol systems


An Evaluation of Risk of Hydrate Formation at the Top of a Pipeline

Experimental water content measurements of carbon dioxide in equilibrium with hydrates at (223.15 to 263.15) K and (1.0 to 10.0) MPa

Thermophysical properties and phase behavior of a CO$_2$-rich natural gas

Vapor-liquid and liquid-liquid interfacial tension of water and hydrocarbon systems at representative reservoir conditions: Experimental and modelling results

Viscosity of binary and multicomponent hydrocarbon fluids at high pressure and high temperature conditions: measurements and predictions

Effect of impurities on thermophysical properties and phase behaviour of a CO2-rich system in CCS

Vapour-liquid equilibrium data for the hydrogen sulphide (H2S) + carbon dioxide (CO2) system at temperatures from 258 to 313 K

Establishing the maximum carbon number for reliable quantitative gas chromatographic analysis of heavy ends hydrocarbons. Part 2: migration and separation gas chromatography modeling

Clathrate hydrate equilibria in light olefins and mixed methane–olefins systems

Do we have new solutions to the old problem of gas hydrates?
A novel technique for monitoring hydrate safety margin

An evaluation of risk of hydrate formation at the top of a pipeline

Do we have new solutions to the old problem of gas hydrates?

Cathrate hydrate equilibria in mixed monoethylene glycol and electrolyte aqueous solutions

Developing a hydrate early detection system

Establishing the maximum carbon number for reliable quantitative gas chromatographic analysis of heavy ends hydrocarbons. Part 1: low-conversion thermal cracking modeling

Hydrates in high MEG concentration systems

On the phase behaviour of the (carbon dioxide + water) systems at low temperatures: experimental and modelling
Chapoy, A., Hooman, H., Burgass, R. W. & Tohidi Kalorazi, B., Apr 2012, In : Journal of Chemical Thermodynamics. 47, n/a, p. 6-12 7 p.

Effect of common impurities on the phase behavior of carbon-dioxide-rich systems: minimizing the risk of hydrate formation and two-phase flow

Phase inversion in water-oil emulsions with and without gas hydrates

Bimodal model for predicting the emulsion-hydrate mixture viscosity in high water cut systems

A novel technique for optimizing hydrate inhibitor injection rate

Controlling hydrate slurry transportability by optimizing anti-agglomerant usage in high water cut systems

Equilibrium water content in natural gas with hydrates or MEG solutions
Development of experimental techniques, equipment and thermodynamic modelling for investigating systems with high CO$_2$ concentrations

Separation and capture of carbon dioxide from CO$_2$/H$_2$ syngas mixture using semi-clathrate hydrates

A novel technique for monitoring hydrate safety margin

Establishing the maximum carbon number for reliable quantitative gas chromatography analysis of heavy ends hydrocarbons: part 1 (Low conversion thermal cracking modeling)

On the phase behaviour of the carbon dioxide-water systems at low temperatures

Prediction of gas-water interfacial tensions: a new approach using gas solubility

Measurement and modeling of CO2 frost points in the CO2-methane systems

Measurement and modeling of water content in low temperature hydrate-methane and hydrate-natural gas systems

A novel technique for monitoring hydrate safety margin

Pre-combustion capture of CO2 from synthesis gas mixture CO2/H2 using hydrate formation

Development of a hydrate inhibition monitoring system by integration of acoustic velocity and electrical conductivity measurements

Field evaluation of a new approach to monitor the hydrate safety margin

Generalized thermodynamic model for predicting the phase behaviour of gas hydrates in reservoir fluids

Experimental clathrate dissociations for the hydrogen + water and hydrogen + tetrabutylammonium bromide + water systems
Hydrates in High Inhibitor Concentration Systems

Gas hydrates in low water content gases: Experimental measurements and modelling using the CPA equation of state

Gas hydrates in low water content gases: experimental measurements and modelling using the CPA equation of state

A wet cold-flow technology for tackling offshore flow-assurance problems

Gas hydrates in sediments: research at Heriot-Watt University

Wet cold-flow technology for tackling offshore flow-assurance problems

Towards zero carbon emissions: novel low pressure molecular natural gas/CO2/H2 storage and separation using semi-clathrate hydrates

CO2 hydrates could provide secondary safety factor in subsurface sequestration of CO2

Developing a hydrate inhibitor monitoring system to improve flow conditions

Hydraflow: a wet cold flow solution

Hydrates in sediments and flow assurance

Effect of common impurities on the phase behavior of carbon dioxide rich systems: minimizing the risk of hydrate formation and two-phase flow

Gas hydrates in low water content gases: experimental measurements and modelling using the CPA equation of state

Modelling phase equilibria of complicated systems containing petroleum reservoir fluids

Binary ethanol-methane clathrate hydrate formation in the system CH4-C2H5OH-H2O: phase equilibria and compositional analyses
Experimental measurements and thermodynamic modelling of complex systems containing petroleum reservoir fluids

Hydrate monitoring: a novel approach in addressing gas hydrate and flow assurance problems

Novel technique for addressing gas hydrate and flow assurance: Coldflow and HYDRAFLOW

Sound velocity and interfacial tension measurements and predictions in petroleum reservoir fluids

Phase equilibria for petroleum reservoir fluids containing water and aqueous methanol solutions: Experimental measurements and modelling using the CPA equation of state

Developing a hydrate-monitoring system

Methane and water phase equilibria in the presence of single and mixed electrolyte solutions using the cubic-plus-association equation of State

Experimental and thermodynamic modelling of systems containing water and ethylene glycol: Application to flow assurance and gas processing

Experimental determination and prediction of methane hydrate stability in alcohols and electrolyte solutions

Effect of common impurities on the phase behaviour of carbon dioxide rich systems: Minimizing the risk of hydrate formation and two-phase flow

Modelling phase equilibria of complicated systems containing petroleum reservoir fluids

Developing gas hydrate monitoring and early warning systems

Can gas hydrates provide a solution to gas utilisation challenges in Russian oil fields?

Binary ethanol-methane clathrate hydrate formation in the system CH4-C2H5OH-H2O: experimental data and thermodynamic modelling

Effect of clathrate structure and promoter on the phase behaviour of hydrogen clathrates
Gas separation and storage using semi-clathrate hydrates

HYDRAFLOW: a novel approach in addressing flow assurance problems

Hydrate dissociation conditions at high pressure: experimental equilibrium data and thermodynamic modelling

Impact of sedimentary mineralogy on geophysical and geomechanical properties of hydrate-bearing sediments

Freezing point depression of electrolyte solutions: Experimental measurements and modeling using the cubic-plus-association equation of state

Development of a Henry's constant correlation and solubility measurements of n-pentane, i-pentane, cyclopentane, n-hexane and toluene in water

Development of a Henry's constant correlation and solubility measurements of n-pentane, i-pentane, cyclopentane, n-hexane, and toluene in water

Developing hydrate monitoring and early warning systems

HYDRAFLOW: a multiphase cold flow technology for offshore flow assurance challenges

Hydrate monitoring and early warning systems

Novel techniques in addressing gas hydrates and flow assurance: cold flow/Hydraflow

Can n-propanol form hydrate?

Methane/natural gas storage and delivered capacity for activated carbons in dry and wet conditions

Can gas hydrates provide a solution to gas utilisation challenges in Russian oil fields?

Thermodynamic conditions and kinetics of integrated methane recovery and carbon dioxide sequestration
Water and inhibitor distribution in gas production systems

Equilibrium data of hydrogen, methane, nitrogen, carbon dioxide, and natural gas in semi-Clathrate hydrates of tetrabutyl ammonium bromide

Predicting the hydrate stability zones of natural gases using artificial neural networks

Hydraflo: avoiding gas hydrate problems

Gas hydrates and flow assurance: 2005-2008 programme

Phase relations and binary clathrate hydrate formation in the system H2O-THF-H2O

Phase relations and binary clathrate hydrate formation in the system H2-THF-H2O

Low-pressure molecular hydrogen storage in semi-clathrate hydrates of quaternary ammonium compounds

Gas solubility: A key to estimating the water content of natural gases

Gas hydrates and flow assurance

Advances in estimating water content of natural gases

Experimental measurement and phase behavior modeling of hydrogen sulfide-water binary system

Estimation of water content for methane + water and methane + ethane + n-butane + water systems using a new sampling device

Experimental measurement and thermodynamic modelling of phase behaviour of hydrogen sulphide + water system at low temperatures
**Flow assurance: gas hydrates and wax**  

**Water content measurement and modeling in the nitrogen + water system**  

**Solubility measurement and modeling for the system propane-water from 277.62 to 368.16 K**  

**Vapour-liquid equilibria in the carbon dioxide-water system, measurement and modelling from 278.2 to 318.2K**  

**A semiempirical approach for estimating the water content of natural gases**  

**Experimental measurement and thermodynamic modeling of water content in methane and ethane systems**  

**Semiempirical approach for estimating the water content of natural gases**  

**Measurements and thermodynamic modeling of vapor-liquid equilibria in ethane-water systems from 274.26 to 343.08 K**  

**Gas solubility measurement and modeling for the nitrogen + water system from 274.18 K to 363.02 K**  

**Gas solubility measurement and modeling for methane-water and methane-ethane-n-butane-water systems at low temperature conditions**  

**Measurement and Modeling of Gas Solubility and Literature Review of the Properties for the Carbon Dioxide-Water System**  

**Development of a New Alpha Function for the Peng–Robinson Equation of State: Comparative Study of Alpha Function Models for Pure Gases (Natural Gas Components) and Water-Gas Systems**  

**Solubility measurement and modelling of water in the gas phase of the methane/water binary system at temperatures from 283.08 to 318.12 K and pressures up to 34.5 MPa**  

**Measurement of the Water Solubility in the Gas Phase of the Ethane + Water Binary System near Hydrate Forming Conditions**  