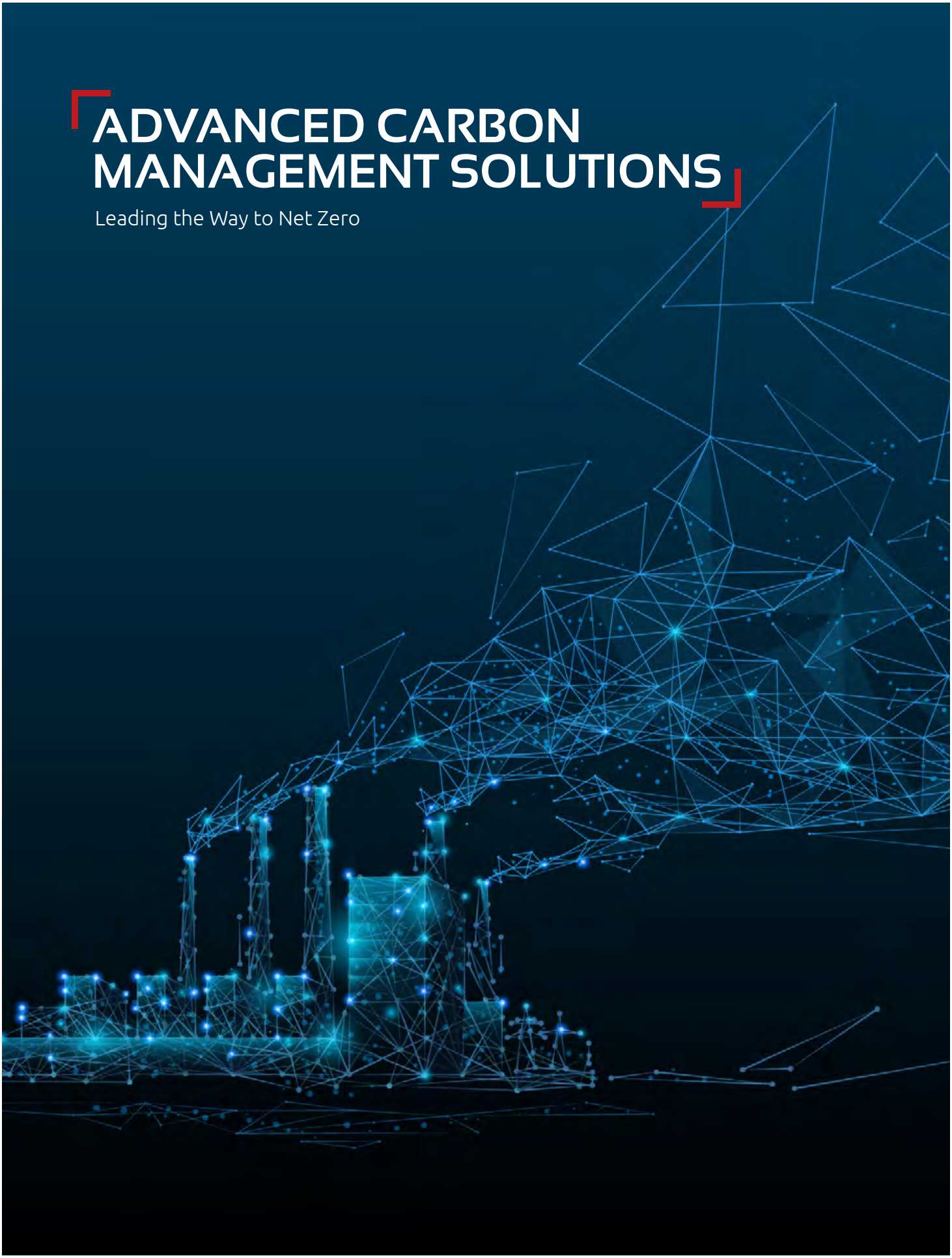
HOT

FluidicsLab

ADVANCED CARBON MANAGEMENT SOLUTIONS

Leading the Way to Net Zero



CARBON MANAGEMENT SOLUTIONS

Accelerating your Path towards Net Zero

The transition towards renewable energy sources is leading to significant changes in revenue streams and business models. Traditional fluid testing technologies, originally designed for the oil and gas sector, often fall short in meeting the stringent requirements of Cleantech applications like Carbon Management. With the Cleantech market for Net Zero rapidly expanding, operators are increasingly in need of quick and accurate data to minimise project risks and make informed investment decisions.

The unique thermodynamic properties of CO_2 and phase behaviour compared to natural gas present new challenges during operational events such as start-up, shutdown, depressurisation, fluctuating CO_2 supply, and potential leaks. Moreover, impurities will be present in CO_2 at various stages from capture to storage. FluidicsLab revolutionises the characterisation of CO_2 with new technology that requires less fluid volumes than traditional methods, reducing time-to-field deployment and ultimately reduce project risk.

LEVERAGING YEARS OF EXPERTISE, FLUIDICSLAB SPECIALISES IN COMPREHENSIVE CO_2 MANAGEMENT SOLUTIONS ACROSS THREE KEY AREAS:

CARBON MANAGEMENT

- CO_2 GEOLOGICAL STORAGE
- CO_2 ENHANCED HYDROCARBON RECOVERY
- CO_2 CAPTURE AND TRANSPORT

CO_2 GEOLOGICAL STORAGE

Solutions for Integrity and Performance Assessment

Carbon Capture and Storage (CCS) stands as a critical technology in the fight against global warming. However, ensuring the safe and effective implementation of CCS demands meticulous planning and testing. A thorough evaluation of all pertinent factors is crucial for successful deployment.

SERVICES ENSURING SAFE CO_2 GEOLOGICAL STORAGE

FLOW ASSURANCE

- Solid Precipitation
- Hydrate Formation
- Chemical Screening

ROCK-FLUID INTERACTION

- Contact Angle
- Gas Adsorption Test
- Specific Surface Area (BET)
- Batch Reactor

FLUID CHARACTERISATION

- Dynamic Viscosity
- Density
- Decomposition Test
- Recombination/Synthesis

SCAL

- Relative Permeability
- Capillary Pressure
- Core Analysis
- Injectivity test
- Core Flooding

PETROPHYSICAL PROPERTIES

- Reservoir Rock Mineralogy, Porosity, Permeability
- Cap Rock Mineralogy

PHASE BEHAVIOR/COMPATIBILITY

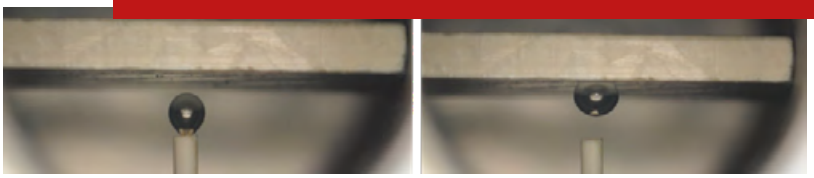
- Constant Composition Expansion (CCE)
- Constant Volume Depletion (CVD)
- Vapor-Liquid Equilibrium (VLE)
- Diffusion (Gas-Gas, Gas-Liquid)
- Solubility (CO_2 in Brine, Water in CO_2)
- Interfacial Tension (IFT)
- Dispersion Test

CAPROCK INTEGRITY

- Threshold Pressure

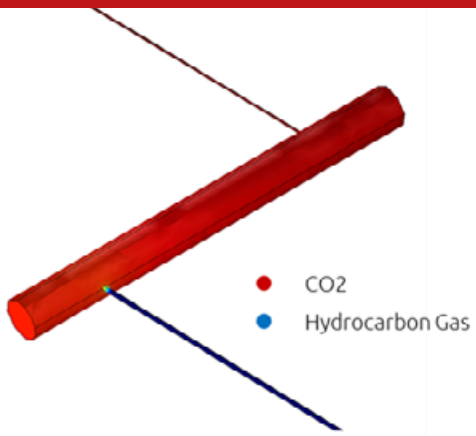
This is where FluidicsLab steps in. We offer a comprehensive suite of testing services, including Caprock integrity, SCAL (Special Core Analysis Laboratories), rock and fluid interaction assessments, phase behavior studies, and flow assurance analyses, fluid characterisation and petrophysical properties measurements. Our solutions minimise project risks and maximise the success of your CCS project.

FLUID-FLUID / FLUID-ROCK INTERACTION TEST



Interfacial Tension (IFT) Contact Angle

GAS DIFFUSION STUDY



CO_2 ENHANCED HYDROCARBON RECOVERY

Unlocking trapped Hydrocarbons while injecting CO_2

FluidicsLab is at the forefront of pioneering research, conducting a diverse range of laboratory tests like phase behavior, flow assurance, rock-fluid characterisation, petrophysical properties, fluid properties and SCAL aimed at utilising captured CO_2 for enhanced hydrocarbon recovery. Our cutting-edge experiments involve fluid and gas mixtures, including CO_2, and hydrocarbons, all while adhering to the highest health, safety, and environmental standards. These critical services contribute to maximising the benefits of the recovery process while minimising any potential risks.

DE-RISK CO_2-ENHANCED HYDROCARBON RECOVERY PROJECTS

FLOW ASSURANCE

- Asphaltene Onset Pressure / Temperature
- Wax Appearance Temperature
- Salt precipitation
- Chemical Screening

ROCK-FLUID INTERACTION

- Contact Angle
- Gas Adsorption
- Specific Surface Area (BET)
- Batch Reactor

FLUID CHARACTERISATION

- Composition
- Density
- Dynamic Viscosity
- Recombination/Synthesis

SCAL

- Relative Permeability
- Capillary Pressure
- Core Analysis
- Injectivity Test
- Core Flooding

PETROPHYSICAL PROPERTIES

- Reservoir Rock Mineralogy
- Cap Rock Mineralogy

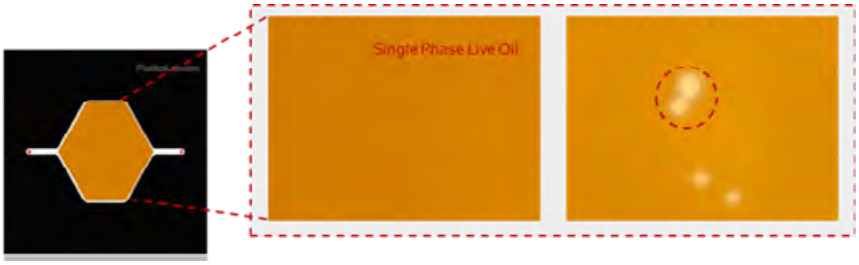
PHASE BEHAVIOR/COMPATIBILITY

- Constant Composition Expansion (CCE)
- Constant Volume Depletion (CVD)
- Differential Liberation Expansion (DLE)
- Swelling and Separator
- Minimum Miscibility Pressure (MMP) – Slim Tube*/ Rising Tube
- Multiple Contact
- Diffusion (Gas- Gas, Gas-Liquid)
- Solubility (CO_2 in Brine, Water in CO_2)
- Interfacial Tension (IFT)
- Dispersion Test

ASPHALTENE ONSET PRESSURE (AOP) DETERMINATION

4000 psia | AOP 2080 psia | 1790 psia

SATURATION PRESSURE DETERMINATION



CO2 – HC Gas Condensate Phase Behaviour (CCE Test)

CO_2 CAPTURE & TRANSPORT

Enable Efficient and Safe Operations

In carbon management, capturing CO_2 before its emission and transporting it via pipelines are crucial for optimising this complex process, necessitating thorough studies and analysis. Phase behaviour studies support pipeline design and predict potential issues like hydrate formation, ensuring safe and efficient transport. Corrosion studies guide material selection to prevent leaks and ensure pipeline integrity, safeguarding the environment. Flow assurance analysis guarantees smooth, reliable CO_2 flow by mitigating challenges like pressure drops and wax deposition and fluid properties analysis, which is crucial at every stage of CO_2 transport.

SUPPORTING YOUR CO_2 TRANSPORT AND CAPTURE TECHNOLOGIES

CARBON CAPTURE

Select the optimum liquid or solid adsorbent.

- Magnetic Suspension Balance (MSB)
- PVT Cell
- Wetted wall column and continuous flow system

FLOW ASSURANCE

We ensure smooth, efficient CO_2 flow by analysing potential flow challenges and designing solutions.

- Solid Precipitation
- Hydrates Formation Analysis

FLUID CHARACTERISATION

- Dynamic Viscosity
- Density
- Composition
- Recombination/Synthesis

DEW POINT MEASUREMENT

PHASE BEHAVIOUR

We help you design reliable pipelines by accurately predicting CO_2 behaviour under various conditions.

- Vapour-Liquid (VL) and Vapour-Liquid-Liquid (VLL) Phase Behaviour with impurities
- Solubility (CO_2 in Liquid / Liquid in CO_2)

CORROSION STUDIES

We identify the most suitable materials for your pipeline, preventing leaks and environmental damage.

- Pipe Material Studies

Partnering with FluidicsLab enables you to confidently address the complexities of CO_2 transportation, paving the way for a cleaner and more sustainable future

CONTACT US TODAY
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LOOKING FOR A PARTNER WHO'LL MAKE A DIFFERENCE?

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