

Get more from your **core**

H2 Laboratories Ltd.

H2 Laboratories is committed to providing innovative solutions for lab-based analysis of rock core via Nuclear Magnetic Resonance (NMR). Our product and services offer fast, accurate, non-destructive analysis of rock core samples used by the oil and gas industry in exploration and reservoir characterization.

H2 Laboratories is a subsidiary of Green Imaging Technologies (GIT), the world leader in lab based NMR rock core analysis. Building on GITs expertise in expanding the suite of measurements that can be done with NMR, H2 Laboratories has the goal of making NMR core analysis accessible to all oil companies, oil service companies and academic institutions, regardless of size.



Testing Services

H2 Laboratories offers a unique suite of commercial non-destructive NMR testing services in our fully equipped rock core analysis lab. H2 Laboratories lab staff are experts in NMR rock core analysis and are continually training on the latest techniques. We're constantly researching new ways of doing old measurements, as well as new measurements and techniques, with the goal of getting the most data possible from our client's rock cores.



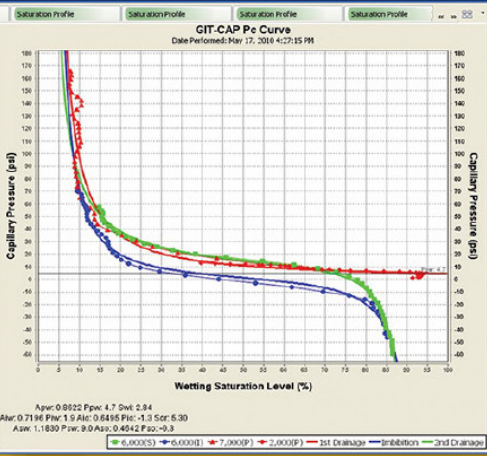
H2 Laboratories is able to test many different lithologies, including clastics and carbonates. Our lab specializes in unconventional plays; those with low permeability and low porosities. Our lab is equipped with the most advanced NMR instruments and all the equipment necessary for core preparation, from cleaning to saturation.

Advantages

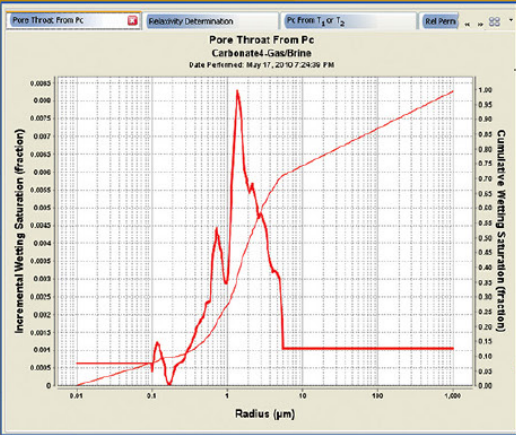
Our commercial testing services provide an opportunity to take advantage of the speed and data richness of NMR-based rock core analysis without setting up your own lab. In addition to traditional NMR analysis such as T_1 and T_2 cut-offs, H2 Laboratories offers advanced core analysis methods, including our patented capillary pressure measurement, GIT-CAP. We can perform NMR analysis 5 times faster, while getting up to 10 times as many data points per scan.

Our testing packages are non-destructive, and our methodologies have been vetted by NMR industry experts. No other lab matches our NMR rock core analysis expertise. H2 Laboratories offers custom testing solutions that will ensure you find the right solution for your difficult exploration regimes.

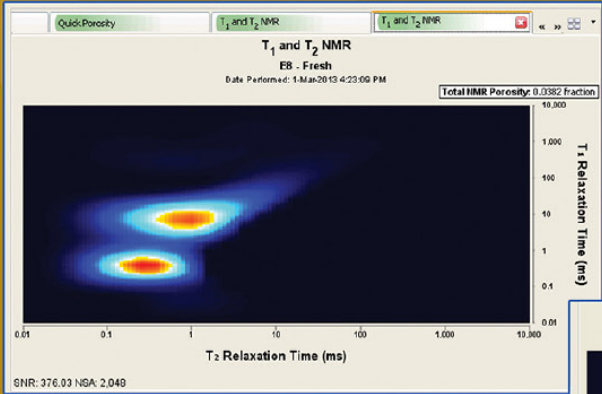
* Many of these measurements can now be done at reservoir conditions.



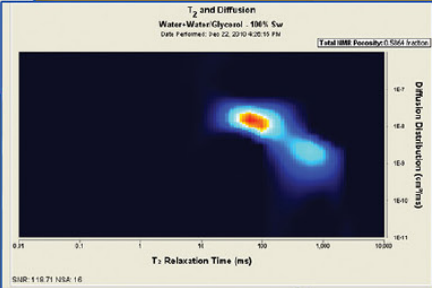
Our patented capillary pressure measurement (Pc) offers the same, or better, data accuracy as mercury injection, porous plate, or centrifuge measurements, but is faster, safer and provides more data.



Pore throat distribution derived from our GIT-CAP Pc measurement provides a key parameter to evaluate reservoir potential. Pore throat size ultimately affects the fluid saturation distribution, porosity, permeability and, to some extent, wettability.



Our exclusive 2D Maps provide valuable information for applications such as **fluid typing**, **quantification of organics**, and **pore conductivity**.



Wettability

Capillary Pressure

* EOR Studies

* Porosity

* Fluid Mobility

* NMR Permeability

* Well log Calibrations

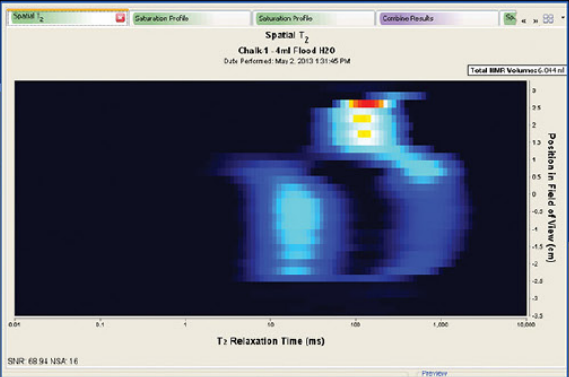
* Spatial Pore Size Mapping

* Pore Size Distributions T_1/T_2

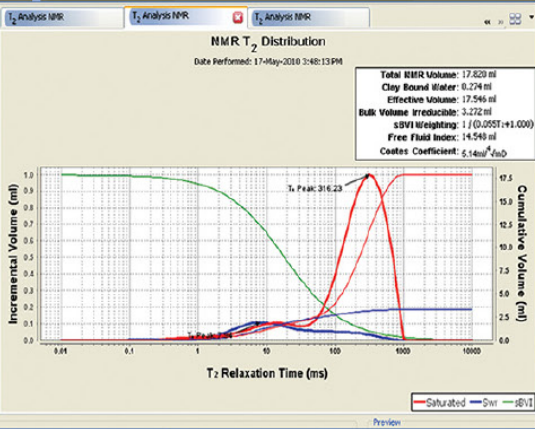
* Diffusion Distributions

Relative Permeability

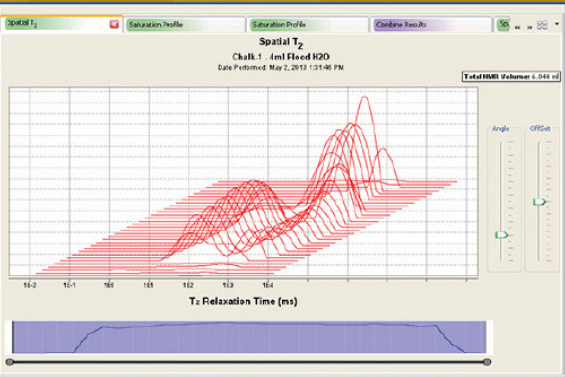
Pore Throat Distribution



NMR can be used for Enhanced Oil Recovery (EOR) studies; it is particularly well suited to fluid typing, flow studies and looking at wettability changes when different fluids are used to saturate the core sample. NMR is accurately able to measure fluids within the core samples and thus is a great fit for EOR.



Using two basic NMR pore distributions, we can calculate **Total Porosity**, **Bound Volume Index (BVI)**, **Free Fluid Index (FFI)**, **Clay Bound Water (CBW)**, and **Permeability**. A correct **T₂ cut-off** is then determined which is very important when estimating recoverable reserves.



Our exclusive Spatial T₂ mapping allows us to see the pore size distribution at any point along the length of the core. This measurement is especially useful in samples with heterogeneous environments.



Commercial Testing Packages

Standard-T₂ NMR:

- At ambient temperature and pressure
- Porosity measured by saturation and NMR
- Grain volume, grain density and pore volume
- NMR permeability modeling
- T₂ Pore size distribution at residual saturation (Swr) as well as 100% saturation
- FFI, BVI, CBW, effective porosity, T₂ cut-off
- 1D porosity profile at Swr and 100% saturation

Advanced- Air/Brine Pc:

- At ambient temperature and pressure
- All measurements included in Standard T₂ NMR package (T₁ package available upon request)
- Diffusion analysis using multiple (3) TE's
- GIT-CAP Air/Brine Capillary pressure
 - Primary drainage curve
 - Quick-CAP Pc modeling
 - Irreducible water saturation
 - Entry pressure

Advanced – Shale Analysis:

- Determine NMRT₂ cut-off dividing bound and mobile fluid
- * Determine NMR permeability model coefficients
- * Pore size distribution
- * Model capillary pressure from pore size distribution
- Quantify water and bitumen present
- Examine mobile pore space
- Investigate wettability by spontaneous imbibition of brine and decane

* = permeability and mercury intrusion data required

Advanced- Oil/Brine Pc:

- At ambient temperature and pressure
- All measurements included in Standard T₂ package (T₁ package available upon request)
- All measurements included in the Air/Brine Pc package
- GIT-CAP Oil/Brine Capillary Pressure
 - Primary drainage
 - Aging cores
 - Secondary drainage and imbibition curves
 - Quick-CAP Pc modeling
 - Irreducible water saturation and residual oil saturation
 - Entry pressure
 - Relative permeability
 - Pore throat distribution
 - Wettability

Additional Services:

- 2D Mapping:
 - T₂ – Diffusion
 - T₁ – T₂
 - T₂ – Store – T₂
 - Spatial T₂ Mapping
- Saturation profile

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**Don't see the testing package
that fits your needs?
Contact us for a custom testing package!**

