GeoSpec™ NMR Rock Core Analysers

Benchtop NMR systems for Rock Core Analysis, suitable for use in both routine and research applications

Contact us to discuss your applications

Studies on rock cores are important because they can help to assess the hydrocarbon content of rock strata as well as the ease with which the oil can be recovered from the reservoir. NMR studies are typically used to obtain information on the fluids in oil and water saturated rock, in particular: porosity and fluid distributions; permeability; free fluid porosity (or index); oil viscosity; and clay bound water.

The Oxford Instruments **GeoSpec** range is designed specifically for studies of core samples from oilfield reservoirs and is the industry standard, with installations in most major oil producers and core analysis laboratories worldwide.

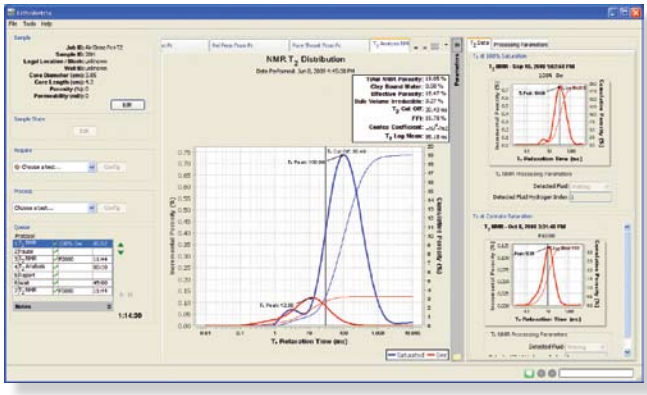
The standard operating frequency is 2MHz to minimise the effect of high magnetic susceptibility gradients present in rocks and to complement the operating frequency of downhole well logging tools.

A range of magnets and sample probes is available to cover all routine core analysis and research applications.

To improve signal to noise ratio for low porosity cores, and to reduce echo times when measuring "tight" rocks, Oxford Instruments now offers a passive Q-switched probe and reactive feedback preamplifier.

Features of the GeoSpec Range

- Advanced, digital, PC based NMR spectrometer
- Sample probe sizes up to 150mm diameter (100mm with magnetic field gradients)
- Compatible with rock core holders for high temperature and pressure studies
- Built in porosity calibration
- Fully programmable for new application development
- Real time, interactive control of NMR parameters
- Multi distributed exponential analysis
- Pulsed magnetic field gradient options for viscosity, wettability, diffusion and imaging studies



*Acquire, view, and process NMR data through the intuitive tab-based display in the optional **LithoMetrix** application package. Real-time system feedback allows operators to monitor scan progress and display data as it is acquired. Scans can easily be stopped and restarted, while the built-in timer counts down remaining scan time.*

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For the routine user, automatic, menu driven routines are available as standard for measurements such as T_1s and T_2s. For more extensive measurements, the optional **LithoMetrix** application package developed exclusively for Oxford Instruments by Green Imaging Technologies takes full control of the GeoSpec instrument and automatically generates BVI, FFI, CBW, porosity and T_2 cutoff values.

For the expert or research user, complex experiments can be performed with full interactive control over the parameters, so that new applications can be developed without restrictions. Pulsed field gradient options allow 1, 2 or 3 dimensional diffusion experiments and imaging, and also allow measurement of capillary pressure using the GIT Systems application package from Green Imaging Technologies.

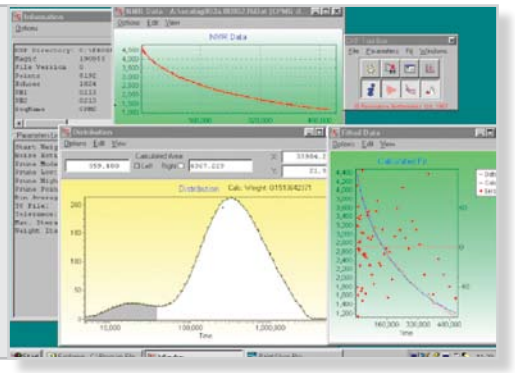
Hardware

- **Frequency:** 2MHz standard
- 7MHz and 12MHz magnets available for advanced studies including slice selection, profiling and MRI
- **Probe sizes:**
  - Up to 150mm diameter or 100mm with gradients fitted
  - Up to 100mm diameter or 75mm with gradients fitted
  - Up to 60mm diameter or 51mm with gradients fitted
  - 40mm diameter, or smaller, for shorter echo time, high sensitivity applications
- **Gradient options:** up to 3D depending on sample probe size
- Passive Q-switched probe and reactive feedback preamplifier (optional)

Software

- **Operating system:** Standard PC with Windows XP Professional
- **Application software options:** RINMR; WinDXP T_2 distribution software; **LithoMetrix** core testing application package; GIT Systems capillary pressure measurement software.

WinDXP is a software application for the **GeoSpec** range, providing a user-friendly tool to analyse CPMG echo trains as a distribution of T_2 components for assessing bound and producible fluid volumes in rock samples.



Oxford Instruments
Magnetic Resonance

For more information please email:
magres@oxinst.com

UK

Tubney Woods, Abingdon,
Oxon OX13 5QX, UK
Tel: +44 (0) 1865 393 200

visit **www.oxford-instruments.com** for more information

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