MQC+

Easier, faster, more accurate spin finish measurement

Next generation benchtop NMR, today.

FAST, ACCURATE SPIN FINISH MEASUREMENT

The **MQC⁺** analyser measures spin finish content or oil pick up (OPU) on artificial fibres. The advantages of the **MQC⁺**, a benchtop NMR (Nuclear Magnetic Resonance) analyser over traditional wet chemistry methods are that it is fast, repeatable and does not use hazardous solvents as it is not necessary to extract the oil from the sample before measurement. Importantly **MQC⁺** measures all of the oil directly on the fibre. **MQC⁺** is also capable of measuring finish levels below those that can be accurately measured by traditional solvent extraction methods.

Over the years the fibres and textile industries have been developing a wider array of products using a variety of polymers and coatings and the performance of those products are optimised for a particular application. The **MQC⁺** methods have been developed to meet the requirements of those products which means they can be applied to a variety of products including, but not exclusively, yarn, monofilaments, staple fibre, textiles and non-wovens.

The **MQC⁺** is a compact benchtop Nuclear Magnetic Resonance (NMR) analyser. With over 35 years' experience in the benchtop NMR business, we understand that the most important qualities of a lab analyser in the textiles industry are ease of use, accuracy, reliability and serviceability. The **MQC⁺** has been designed to fully meet all these requirements.

OIL AND FIBRE TYPES MEASURED BY MQC⁺

Oil types

- Spin finish (SF)
- Finish on fibre (FoF)
- Oil pick-up (OPU)
- Carding lubricant
- Carding oil
- Staple fibre finish (SFF)
- Texturising oil
- Coning oil
- Finish on yarn (FoY)
- Lubricant on thread (LoT)
- Yarn lubricant (LY)
- Needle oil
- Agents d'avivage
- Avivagen

Fibre types

Synthetic fibres

- Polyester
- Polyethylene terephthalate (PET)
- Polybutylene terephthalate (PBT)
- Polyamide (nylon, Tactel®, Cordura®)
- Polypropylene (PP)
- Polyacrylonitrile (PAN, acrylic, dralon®, Orlon®, Acrilan)
- Elastane (spandex, Lycra®, polyurethane-polyurea copolymer)
- Polyvinyl Alcohol (PVA, PVOH)
- Aramid (Kevlar®, Twaron®, Nomex®)

Reconstituted fibres

- Rayon (viscose)
- Cellulose acetate
- Cellulose triacetate

The **MQC⁺** NMR analyser replaces wet chemistry methods, which use hazardous chemicals. It allows you to measure the total oil content in more samples much faster. Unlike wet chemical methods, the **MQC⁺** does not destroy the sample therefore it can be measured repeatedly, and subsequently by other techniques.

ADVANTAGES OF BENCHTOP NMR ANALYSIS

The **MQC⁺** benchtop NMR analyser offers several important advantages over other laboratory analytical techniques:

Accuracy

NMR signals are generated from all parts of the sample not just the surface, even if they are opaque, guaranteeing more accurate measurements.

Easy to use

MQC⁺ is designed to make the job of technicians working in QA/QC labs easier. It simplifies the analysis process and removes the need for extensive operator training.

Non-destructive

NMR measurements do not damage the sample in any way, so samples can be kept for repeat measurements or to be analysed using other techniques.

Cost-efficient

Low maintenance and running costs, just requires mains power.

Minimal sample preparation

Simply transfer the sample into a tube, condition it then analyse it. Grinding or other forms of sample preparation are rarely needed.

No hazardous solvents or chemicals involved

The NMR method doesn't require solvents or other chemicals, removing the need for fume cabinets, specially trained staff and expensive disposal procedures.

Rapid analysis

Analysis takes from a few minutes to a few seconds, which means you can process a high volume of samples in the lab quickly and efficiently.

WHY CHOOSE THE MQC⁺ ANALYSER?

Easy to use

The single biggest benefit of **MQC⁺** is that it is so easy to use. Lab technicians will be productive in no time as minimal training is required.

The software provides step by step operator guidance with clear on-screen prompts; there are also status indicator lights at the sample chamber entrance. Operator prompts can be customised, and displayed in any language.

MQC⁺ can be fitted with a variety of robust sample holders, commonly known as probes, to easily handle different applications and sample sizes. The sample holders can be changed easily in a matter of minutes.

MQC⁺'s space saving internal PC uses Windows-based software, a flat screen monitor and a standard PC keyboard. USB ports are provided for easy software upgrades and to allow data to be saved externally.

Every **MQC⁺** system is supplied with all software, hardware and sampling accessories required for the application.

Reliable and easy to maintain

MQC⁺ has been designed with the minimal number of component parts, making it easy to set up and maintain. Advanced electronics enables the spectrometer's firmware to be upgraded so the instrument can be kept up to date with the latest improvements. It also incorporates advanced self diagnostic routines so that any faults can be quickly localised to save time and money.

The spectrometer continuously logs all diagnostic parameters in a database which means that it is possible to monitor the history and health of the instrument indefinitely. Diagnostics data can be accessed either over the internet or saved to a file and emailed to a service engineer.

Low maintenance

MQC⁺ is easy to look after: the PC fan filter is easily accessible for cleaning. The robust sample holders are also easy to remove and all **MQC⁺**23 holders have open ended bottoms for easy cleaning. **MQC⁺** has an automatic magnetic field optimisation routine, which ensures the best results whilst also reducing costs and increasing uptime as it means a service visit is not required.

Easy to calibrate

MQC⁺ measurements are generally insensitive to colour, particle size and other physical properties of the sample. Calibrations are always linear so you only need a handful of samples. Once established, the calibrations are robust and rarely need to be repeated. However, synthetic Calibration Maintenance Samples (CMSs) are available to maintain the calibration in the longer term.

Saves space

Despite its small magnet size, **MQC⁺**23 has a large sample space and high field strength, so it can be used to measure larger samples as well as offering high sensitivity.

Fast and efficient

MQC⁺ can make over 100 measurements a day, which is up to 250 times faster than using wet chemical analysis. Switching to **MQC⁺** will save you time and money thanks to its speed and efficiency.

A platform for the future

The **MQC⁺** analyser builds on the success of its predecessor by retaining many of its features, including reliable easy-to-use quality control software. However **MQC⁺** has been designed with the potential for enhanced capability. It belongs to a new generation of magnetic resonance instruments incorporating a high performance spectrometer. This means it will benefit from future enhancements to the platform for years to come.

MQC⁺ SPIN FINISH ANALYSER OPTIONS

Choose the model:

Standard Package

MQC⁺23 with 18mm probe

(7ml sample volume)
Suitable for the majority
of applications.

–Or–

Advanced Package

MQC⁺23 with 26mm probe

(14ml sample volume)
Useful for applications where there is large sample
to sample variability, and also for textiles and
nonwovens (using the polymer sample tubes).

18mm and
26mm polymer
sample tubes
and holders

Choose either glass or polymer sample tubes:

Reusable non-glass accessories are available which are not
only safe but allow easy preparation of a variety of samples,
especially monofilaments and fabrics. Industry leading large
volume tubes are available for more representative samples
with the Advanced Package.

26mm
calibration
maintenance
samples

Optional Accessories

- **Calibration maintenance samples**

- **Balance** – if required, for weighing method only.

- **Sample conditioning equipment** – if required
  for the application.

OXFORD INSTRUMENTS SUPPORT & SERVICE

MQC⁺ users are often working in demanding, high pressure industries where every minute counts. To make sure our users get effective support when they need it, we have established a worldwide network of subsidiary companies and trained distributors who are there to help you.

As well as this network of local support, we also maintain a central email and telephone support function which can often provide immediate answers to common questions. Using the advanced diagnostic and control features of the **MQC⁺**, our engineers can log in directly to your **MQC⁺** and even operate it remotely to assist with set-up questions or to diagnose faults.

OiService®
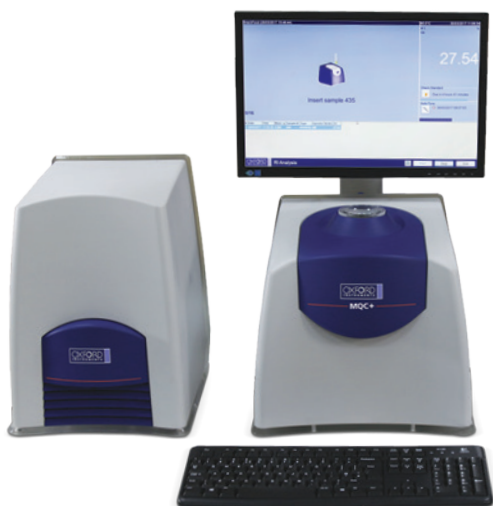
OXFORD INSTRUMENTS
The Business of Science®

We're here to help you!

OiService aims to keep your **MQC⁺** working as hard as you do. Our global network of service hubs provides a full range of technical support:

Consumables and accessories
Range of sample tubes and other accessories available.

Extended warranties
Avoid unplanned costs.

Online diagnostics
In-depth support over the internet.

Maintenance contracts
Ensures your analyser produces the right result every time.

Repairs
Fast and efficient turnaround.

Telephone help-desks
For a fast response to your problem.

Training
Understand your analyser and its features.

WHAT NEXT?

We're very proud of MQC⁺ and believe it delivers the ease of use, accuracy, reliability and serviceability that you are looking for.

The **MQC⁺** works much faster than wet chemical analysis methods, enables you to measure a larger number of samples and is non-destructive.

The analyser is easy to set up and maintain, simple to calibrate and won't take up much room in your lab. We believe it will prove to be an exceptional asset for any laboratory requiring easy, fast, accurate measurement of spin finish in a wide range of samples.

**Want to put MQC⁺ to the test?
Contact one of our experts in analysis and request a demo.**

ⓘ MORE INFORMATION

Contact one of our experts at: **www.oxford-instruments.com/mqc**
or you can email us at **mqc@oxinst.com**

OTHER PRODUCTS

MQC⁺

X-Pulse: high resolution, broadband benchtop NMR spectrometer

Part No: **MQC⁺** Textile Product Brochure MR/199/0421