

# MQC<sup>+</sup>

**Easier, faster, more  
accurate quality assurance**

Next generation benchtop NMR, today.



# WHAT DOES THE MQC<sup>+</sup> ANALYSER DO?

The **MQC<sup>+</sup>** analyser measures oil, water, fluorine and solid fat in a variety of samples and is typically used for quality assurance and quality control. **MQC<sup>+</sup>** is available as three models: **MQC<sup>+</sup>23**, **MQC<sup>+</sup>5** and **MQC<sup>+</sup>F**. **MQC<sup>+</sup>23** is used for smaller samples and high sensitivity applications; for example it is used to measure small amounts of oil applied to artificial fibres and fabrics to enhance their properties. **MQC<sup>+</sup>5** is used for large samples, typically agricultural products; for example, it measures the oil, and moisture content in oilseeds. This is important because in some regions the higher the oil content, the more valuable the crop which affects the revenue received by farmers for their harvest. **MQC<sup>+</sup>F** is used to measure fluorine in toothpaste and minerals, for example.

The **MQC<sup>+</sup>** 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 are ease of use, accuracy, reliability and serviceability. The **MQC<sup>+</sup>** has been designed to fully meet all these requirements.



# WHERE IS IT USED?

Industry	Applications
Food	Oil in snack foods, total fat in chocolate, fat in foodstuffs and Solid Fat Content (SFC)
Agriculture	Oil and moisture in oilseeds and their residues, oil in dried olive paste and oil in dried palm mesocarp
Textile	Spin finish on fibre, also known as Oil Pick-Up (OPU), Finish on Yarn (FoY), lubricant and avivage
Consumer products	Lotion on fabric and fluorine in toothpaste
Petroleum	Hydrogen content in fuel, oil content in waxes and wax content in petroleum products
Polymers	Xylene solubles in polypropylene, plasticiser in PVC, polymer density & crystallinity, oil in rubber and fluorine content
Other	Fluorine in powders (e.g. fluorspar, alumina) and limestone filler in asphalt

The **MQC<sup>+</sup>** NMR analyser replaces wet chemical analysis, which uses hazardous chemicals. It allows you to measure more samples much faster. Unlike wet chemical methods, the **MQC<sup>+</sup>** doesn't destroy the sample being measured. It can also measure physical properties including crystallinity and density of polymers.





# ADVANTAGES OF BENCHTOP NMR ANALYSIS

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The **MQC<sup>+</sup>** 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.



## Cost-efficient

Low maintenance and running costs, just requires mains power.



## Easy to use

**MQC<sup>+</sup>** 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.



## 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.



## 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.



## 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<sup>+</sup> ANALYSER?

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## Easy to use

The single biggest benefit of **MQC<sup>+</sup>** 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<sup>+</sup>** 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<sup>+</sup>**'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<sup>+</sup>** system is supplied with all software, hardware and sampling accessories for the application it will be used for.

## Reliable and easy to maintain

**MQC<sup>+</sup>** 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<sup>+</sup>** 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<sup>+</sup>23** holders have open ended bottoms for easy cleaning. **MQC<sup>+</sup>** 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<sup>+</sup>** 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.

## Saves space

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

## A platform for the future

The **MQC<sup>+</sup>** analyser builds on the success of its predecessor by retaining many of its features, including reliable easy-to-use quality control software. However **MQC<sup>+</sup>** 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.



# OXFORD INSTRUMENTS SUPPORT & SERVICE

**MQC<sup>+</sup>** 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<sup>+</sup>**, our engineers can log in directly to your **MQC<sup>+</sup>** and even operate it remotely to assist with set-up questions or to diagnose faults.



## Choose the model

Model	Sample sizes recommended		Application
	Diameter	Volume	
<b>MQC<sup>+</sup>23</b>	5 mm	0.2 ml	Optimum configuration for many applications. High operating frequency gives best sensitivity, whilst large sample size gives good reproducibility.
	10 mm*	1 ml	
	18 mm*	8 ml	
	26 mm	14 ml	
<b>MQC<sup>+</sup>5</b>	40 mm	40 ml	Largest sample capacity for inhomogeneous samples, for example in agri-food industry.
	51 mm	80 ml	
	60 mm	100 ml	
<b>MQC<sup>+</sup>F</b>	26 ml	14 ml	Fluorine sensitive version for toothpaste and minerals.

\* liquid variable temperature option available





OiService®



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?



The Business of Science®

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

The **MQC<sup>+</sup>** 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 the lab. We believe it will prove to be an exceptional asset for any laboratory requiring easy, fast, accurate measurement of fat, oil, water and fluorine in a wide range of samples.

**Want to put MQC<sup>+</sup> 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](http://www.oxford-instruments.com/mqc)  
or you can email us at [mqc@oxinst.com](mailto:mqc@oxinst.com)

## OTHER PRODUCTS

# MQC<sup>+</sup>



Pulsar: high resolution benchtop NMR spectrometer

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