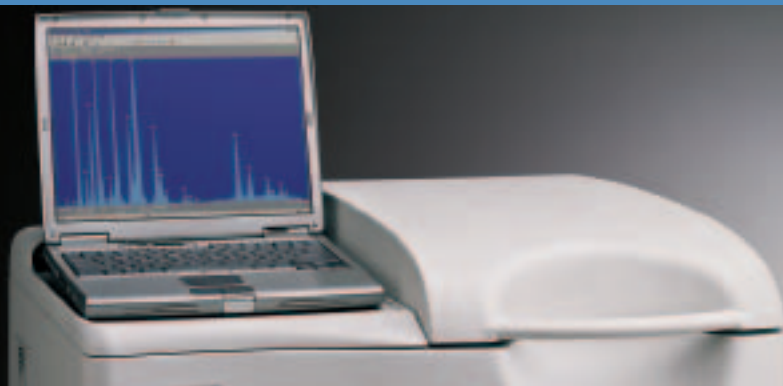


**ARL QUANT'X**  
**Energy-Dispersive XRF**  
**Spectrometer**



**Materials analysis without compromise**



Aerosol Particulate Filters



RoHS and WEEE Applications



Forensics and Trace Analysis



Slags and Ores



Nutritional Supplements



Magnetic Media and Semiconductors

## ARL QUANT'X

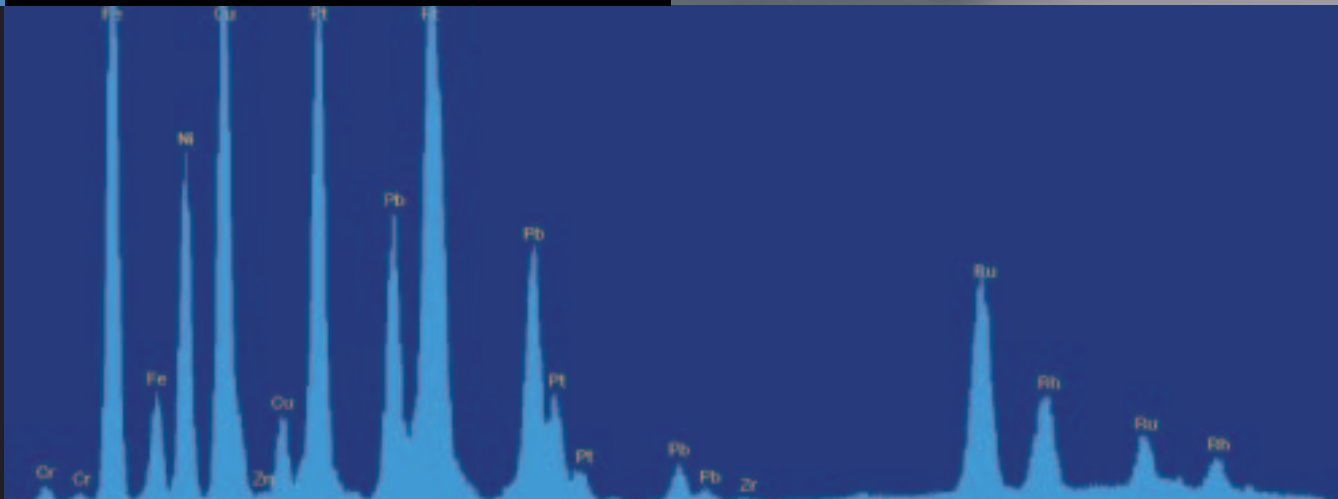
The peak of EDXRF performance

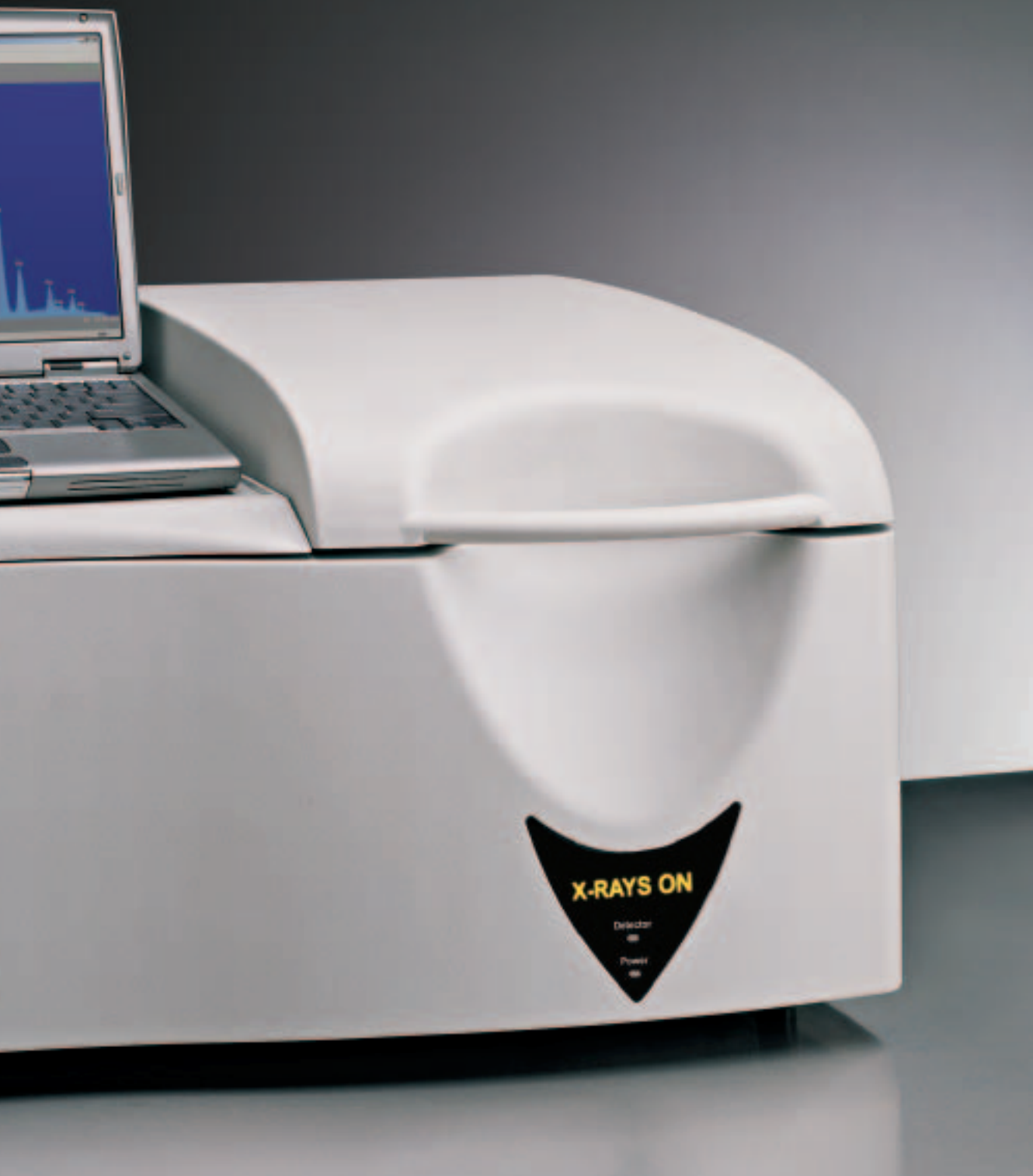
The ARL QUANT'X Energy-Dispersive X-Ray Fluorescence Spectrometer from Thermo Electron Corporation is a state-of-the-art elemental analyzer designed for the most challenging analytical tasks in laboratory and manufacturing environments. Its power and flexibility are indispensable for many elemental analysis applications. With the ARL QUANT'X, there is no reason to compromise on elemental range, analytical performance, sample type, convenience or reliability.

Any analyst can finally take advantage of:

- Unparalleled sensitivity for trace analysis from Na to U
- The highest measurement throughput for process control
- The most advanced analytical algorithms for atypical materials
- The greatest sample-handling flexibility
- Mechanical simplicity and reliability for a lifetime of service
- Compact footprint and ease of transport for field measurements
- Rapid, easy installation and complete on-site customization

And Thermo provides more than instrumentation: you get a complete laboratory package that includes proven hardware, all-inclusive software, on-site method development and technical support all backed by a responsive world-wide service organization armed with decades of expertise with hundreds of successful applications in X-ray fluorescence.





## Exclusive Technology for the Digital Age

After 20+ years and 3 generations of technical innovation, the Peltier-cooled Si(Li) detector (PCD) at the heart of the ARL QUANT'X has yet to find its equal in performance or convenience. Only the Silicon Lithium-drifted [Si(Li)] crystal inside the PCD is sensitive to X-rays from every element across the periodic table, including high-energy photons from elements such as Mo, Ag and Cd that slice through thinner crystals like a knife through butter. The proven reliability of Peltier-cooling provides the energy resolution of conventional liquid nitrogen detectors without the hassle of liquid nitrogen. With the ARL QUANT'X, you can keep your cool and focus on the analysis.

### Turn up the power

Thanks to an on-board Pentium chip with exclusive Digital Pulse Processing (DPP) technology, the ARL QUANT'X can record X-rays many times faster than conventional analog circuitry still prevalent in instrumentation. The best peak separation for any analysis can be selected with one simple software setting. Take full advantage of the close-coupled geometry and 50W air-cooled X-ray tube to complete even the most complicated measurements in a few minutes or less.



### Robust and maintenance-free

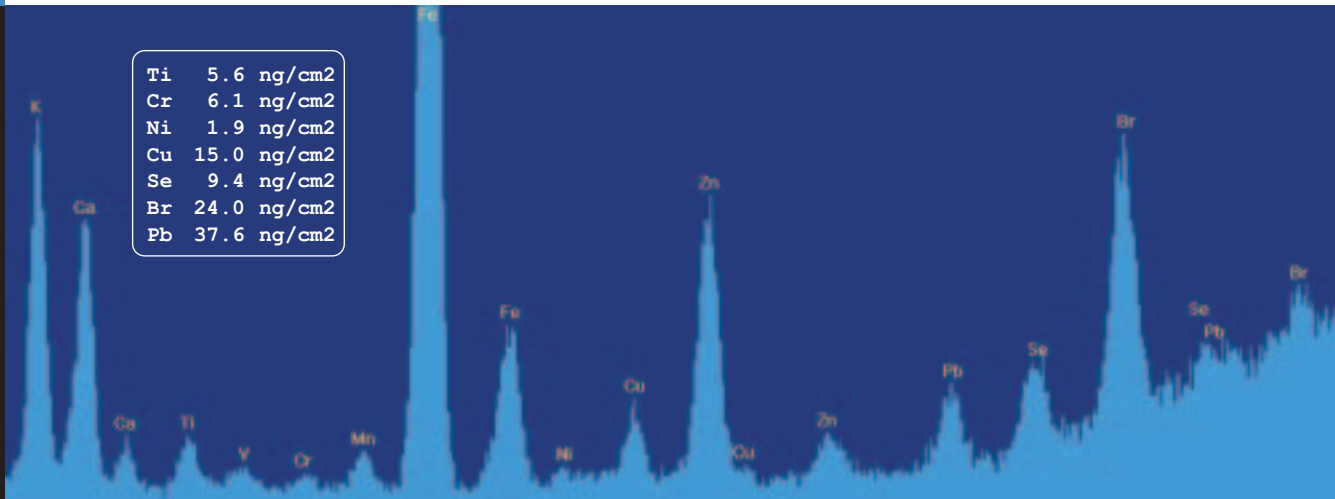
Advanced technology doesn't have to be complicated. In fact, with the Self-Installation Guide, installing the ARL QUANT'X is as easy as setting up a personal computer. With only one moving part inside the sample chamber and no external hardware controls, the possibility of mechanical problems is minimal. Careful attention to detail ensures that heat dissipation and air circulation are minimized, while replaceable filters on all vents protect the instrument in dusty environments. A self-test and auto-tuning are some of the many diagnostic tools intended to catch problems before they affect the results.

### High performance wherever it's needed

Advanced technology doesn't have to be bulky. The world's only EDXRF system to break the 1 nanogram detection barrier can fit on any lab counter and is equally at home in steel plants, high-throughput environmental monitoring laboratories or demanding cleanroom environments where space and utilities are at a premium. The optional integrated laptop computer further reduces the space requirements and makes the instrument completely self-contained and truly mobile.

### Future-proof technology

With ethernet technology on the inside and to the outside, the ARL QUANT'X does not require proprietary and finicky interface boards or multiple serial cables. Ethernet communication ensures long-term compatibility with ever-changing hardware and software architecture.



## Analyze without Compromise

Improve productivity with a wide range of performance and convenience options, which allow the ARL QUANT'X to analyze the most demanding or unusual samples. Modular instrument design allows any option to be added easily at the customer's location.

### Sample-handling

Automated 10- and 20-position sample trays are designed for industry standard powder and liquid cups, while the versatile single-sample stage is ideal for the occasional sample that defies description. Specialized stages are also available for the hard disk and semiconductor industries.

### Chamber extension

The Chamber'X option extends the non-destructive benefits of EDXRF to even the largest of samples. Blocks, boots or any sample up to 37 cm (14.6 in) high can be analyzed whole.

### Interchangeable LN detector

Although the PCD offers the optimal, no-compromises balance between performance and convenience, the larger Si(Li) crystal in the optional liquid-nitrogen cooled detector may provide higher sensitivity for certain applications.

### Sample spinner

Rotating the sample during analysis may help obtain a more representative result for materials that are not perfectly homogeneous or uniform.



### Beam collimators

The ability to control the X-ray spot size from 15 mm down to 2 mm may facilitate analysis of small samples or trace amounts.

### Inert gas flush for liquid analysis (He, Ar, N<sub>2</sub>)

The inert flush option is essential for analysis of light elements in volatile samples and simplifies the handling of air-sensitive materials.

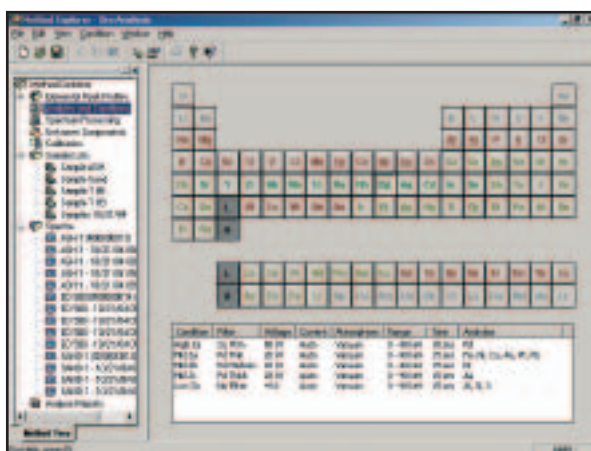


## Unlimited Performance and Ease of Use Combined

WinTrace software for the ARL QUANT'X opens the door to the limitless inherent flexibility of EDXRF, drawing on advanced algorithms and practices perfected through decades of research and field experience. For applications from ambient air filters to complex geological materials, you can specify any number of analytes, choose from seven analytical algorithms and use as many or as few calibration standards as necessary.

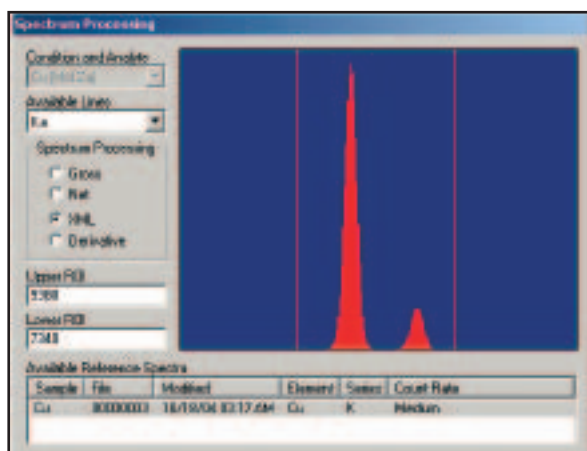
### Intuitive

Select elements by clicking on a periodic table. Quickly build customized methods using templates for many common applications. And let automatic current adjustment generate the optimal excitation for any sample.



### Flexible

Accurate extraction of peak intensities from the spectra is a critical step for any quantitative analysis. Rely on automatic settings to get the job done, or easily optimize them for the most difficult applications.



### Powerful

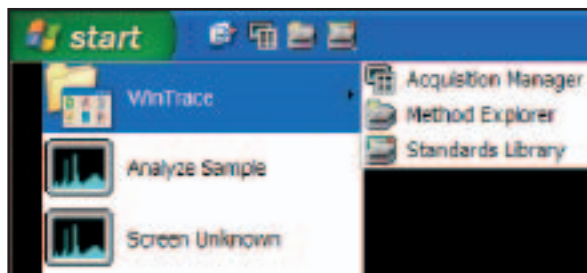
The comprehensive Fundamental Parameters algorithms for the ARL QUANT'X are the closest that practice ever came to theory. The industry's most powerful standardless and semi-standardless analysis, together with the ability to account for variable stoichiometry, unmeasured components and sample thickness, are just some of the features that extend the analytical realm of EDXRF.

### Secure

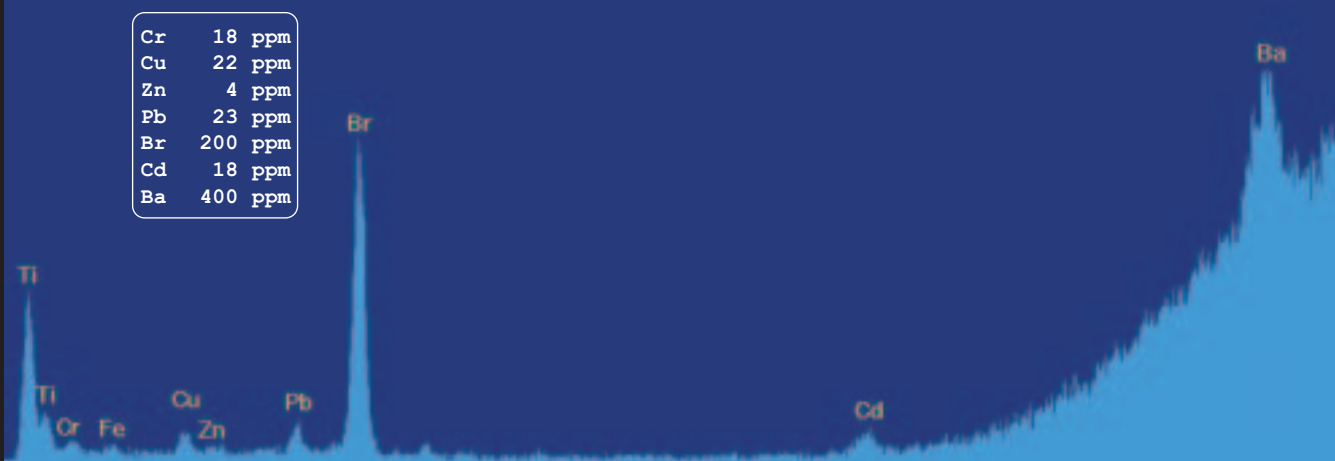
Password-protection in all critical areas of the software assures the security of important data and methods. Operators are only allowed to specify sample names and positions.

### Customizable

Simplify and organize the operator desktop environment with shortcuts that take the user directly to key analytical tasks.



3-minute analysis of plastic beads for RoHS certification



# Application-Specific Configurations

The ARL QUANT'X is designed to analyze any material straight out of the box. However, many applications are best performed with optional components for maximum accuracy and productivity. In addition, any configuration can be further customized to match your exact needs.



APPLICATION	TYPICAL ANALYTES	SAMPLE HANDLER	CHAMBER ENVIRONMENT	SOFTWARE OPTION
Aerosol Particulate Filters	48+ elements	10-position sample tray with sample spinner	Vacuum and Helium flush	FP Thickness analysis module
RoHS and WEEE	Cr, Pb, Cd, Hg, Br	10-position sample tray	Air	Standard
Forensics	Na-U	Extended chamber with single-sample holder	Vacuum and Helium flush	Standard
Steel Slags	Mg-Fe	10-position sample tray	Vacuum	Standard
Magnetic Media	Ti, Cr, Co, Ni, W, Ru	R-Theta stage for hard disks	Air	Magnetic Media Analyzer module
Semiconductors	Ti, Ni, Cu, Ge, Zr, Pd, Au, Pb	Y-Theta stage for wafers	Air	FP Thickness analysis module
Nutritional Supplements	Mg, Cr, Zn, Se	20-position sample tray	Vacuum	Standard
Coating Thickness	Ti, Cr, Fe, Ni, Cu, Zn	Single-sample holder	Air	FP Thickness analysis module



# X-ray Elemental Analysis Capabilities from Thermo

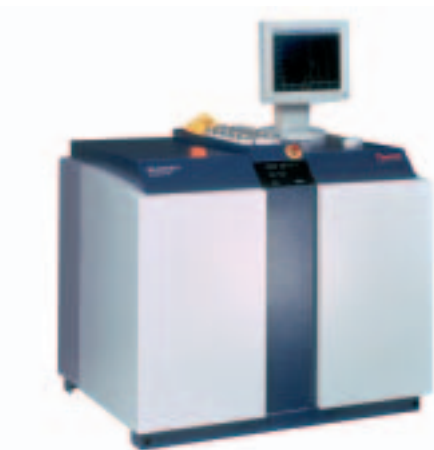
In addition to these offices, Thermo Electron Corporation maintains a network of representative organizations throughout the world.

X-ray spectrometry is a common and very powerful technique for fast, non-destructive, quantitative analysis of major, minor and trace components in all types of materials, including solids, powders, aqueous or organic solutions, and layered structures. It has numerous applications in every industry: pharmaceuticals, environmental monitoring, metals, cement, electronics, and mining, just to name a few.

Thermo Electron Corporation provides a full range of X-ray fluorescence and X-ray diffraction instrumentation (EDXRF, WDXRF, XRD, EDS, ESCA) that cover every aspect of X-ray spectrometry from routine to highly specialized research applications. From the versatile ARL QUANT'X to the ultra-precise ARL 9900, each instrument combines leading-edge technology with a long history of quality, durability and exceptional analytical performance.



ARL OPTIM'X compact XRF



ARL ADVANT'X sequential XRF series



ARL X'TRA powder diffractometer



ARL 9900 integrated XRF/XRD

## Australia

+61 2 8844 9500 • analyze.au@thermo.com

## Austria

+43 1 333 50340 • analyze.at@thermo.com

## Belgium

+32 2 482 30 30 • analyze.be@thermo.com

## Canada

+1 800 532 4752 • analyze.ca@thermo.com

## China

+86 10 5850 3588 • analyze.cn@thermo.com

## France

+33 1 60 92 48 00 • analyze.fr@thermo.com

## Germany

+49 6103 4080 • analyze.de@thermo.com

## India

+91 22 2778 1101 • analyze.in@thermo.com

## Italy

+39 02 950 591 • analyze.it@thermo.com

## Japan

+81 45 453 9100 • analyze.jp@thermo.com

## Netherlands

+31 76 587 98 88 • analyze.nl@thermo.com

## Nordic

+46 8 556 468 00 • analyze.se@thermo.com

## South Africa

+27 11 570 1840 • analyze.sa@thermo.com

## Spain

+34 91 657 4930 • analyze.es@thermo.com

## Switzerland

+41 21 694 71 11 • analyze.ch@thermo.com

## UK

+44 1442 233555 • analyze.uk@thermo.com

## USA

+1 800 532 4752 • analyze.us@thermo.com

[www.thermo.com](http://www.thermo.com)



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