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Make light work!

One of our family can help you solve your analytical problems

You may need to chemically analyse microscopic particles in your lab, bulk materials at-line or off-line, or product contamination material in your SEM.

Whatever your analytical needs, we can supply you with a fully customised Raman instrument to satisfy them, and provide the support to make light work of all your future analyses.

Make light work of your analyses. Call us now to find out more.

Renishaw plc, Spectroscopy Products Division, Old Town, Wotton-under-Edge, Gloucestershire, GL12 7DW, U.K.
T +44 (0)1453 844302 F +44 (0)1453 844236 E raman@renishaw.com

雷尼绍（香港）有限公司北京办事处 联系人：杨军涛
地址：中国北京市朝阳区左家庄一号
国门大厦2H室 邮编：100028
电话 +86 (10) 8448 5306 传真 +86 (10) 8448 1528
手机 +86 1391 060 2652 电子信箱 jt.yang@renishaw.com

www.renishaw.com

Renishaw continues to develop combined techniques

Scanning electron, infrared, scanning probe, and confocal laser scanning microscopies are all available combined with Raman spectroscopy.

These integrated systems enable users to perform two or more analytical techniques on the same sample region, under the same conditions, in a single instrument.

Time and money are saved by eliminating the need to transfer samples between instruments and relocate the same sampling point. One or more of these techniques can be integrated with any Renishaw Raman microscope as the user's requirements change.

Applications are diverse, and include component distribution determination in pharmaceuticals, imaging of biological samples, forensic analyses, nanotechnology research, and also contaminant location and identification in semiconductor failure analysis laboratories.

Structural and chemical analyser for SEM

Renishaw's structural and chemical analyser (SCA) combines the imaging capabilities of scanning electron microscopy (SEM) with the investigative power of Raman, photoluminescence (PL), and cathodoluminescence (CL) spectroscopies, in a single instrument.

The structural and chemical analyser fitted to an SEM column.

The SCA is fitted to the SEM column and provides the interface between the SEM and spectrometer, enabling secondary electron imaging (the principal SEM imaging mode) and Raman, PL, and CL spectroscopies from the same sample region inside the SEM chamber. Secondary electron imaging provides high spatial resolution, large depth of field, and good contrast, whilst Raman, PL, and CL spectroscopies provide chemical, physical, electronic, and structural information at the micrometre scale.

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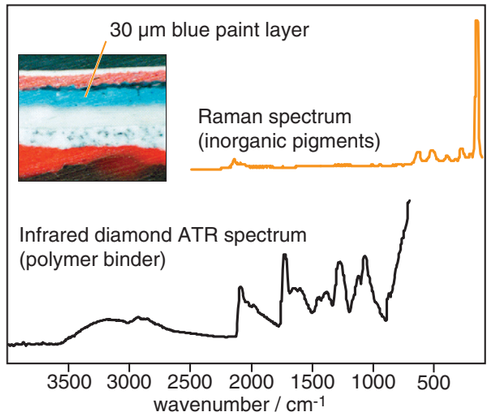
Combined FT-IR microscopy and Raman microscopy

Fourier transform infrared spectroscopy can now be combined with Renishaw's Raman microscopes to offer confocal Raman microscopy and infrared microscopy in a single instrument.

The FT-IR module can be fitted to Renishaw's Raman microscopes at any time: at the time of purchase, or retro-fitted in the field. Space and money are saved by eliminating the need to have two separate instruments, and users save time by performing both techniques on just one instrument.

Example application: paint analysis

Paints comprise several components, including pigments, binders and fillers. Since Raman is more sensitive to the inorganic metal oxides commonly used as pigments, and infrared is better suited for the organic constituents, Raman



and infrared microspectroscopies are ideal complements for analysing paints, both old and modern.

In this example, a cross section of an artwork sample with several micrometre-sized layers was analysed with the combined FT-IR/Raman system. Raman spectroscopy of the blue layer yields a strong Raman spectrum indicative of the inorganic pigments, Prussian blue and titanium dioxide, whereas the IR spectrum reveals the protein binder.

Please note that the FT-IR module is currently unavailable from Renishaw in the USA.

Award winning AFM-Raman

The award winning Nanonics NSOM / AFM-100 Confocal™ / Renishaw Raman microscope† brings together, in one commercial system, Raman, AFM and NSOM imaging techniques.

The user is able to co-ordinate tip movement with spectrum acquisition, and perform simultaneous and correlated Raman and scanned probe microscopy. All this is carried out without removing the sample from the micro-Raman spectrometer.

For more details, please contact us for **Application note SPD/PN/081, "Combining scanning probe microscopy and Raman microscopy".**

†Photonics Circle of Excellence Award 2002.
National Measurement Awards 2003, NPL Materials Award finalist.

Integrated Raman microscopy and confocal laser scanning microscopy

Renishaw's Raman microscope with additional confocal laser scanning microscope (CLSM) offers the imaging, resolution, contrast, and optical sectioning capabilities of CLSM together with the characterisation power of Raman spectroscopy.

The CLSM is coupled to the Raman microscope using Renishaw's RP10 fibre optic probe, which enables Raman spectra to be collected from the same sample position as the CLS data.