



• **RAM II** FT-Raman Module

The RAM II module sets the highest performance and versatility standards for FT-Raman spectroscopy.

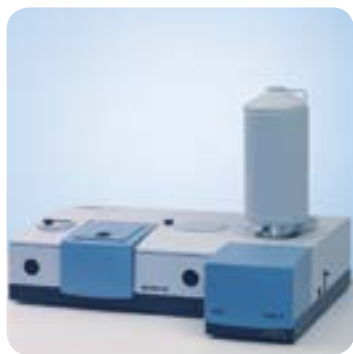
Key Features

- FT-Raman module for VERTEX Series FT-IR spectrometers
- Automatic Accessory Recognition (AAR) and Automatic Component Recognition (ACR)
- Can be upgraded with FT-Raman and dispersive Raman microscope
- Stokes shift down to 50 cm^{-1}
- Second excitation line available
- Full line of internal and external accessories
- 21 CFR Part 11 compliance and validation

Bruker Optics added FT-Raman capabilities to its product line shortly after the technique was first reported in late 1980s. Since then, continual hardware and software improvements, as well as the development of various sampling accessories, helped Bruker Optics maintain the tradition of innovation and excellence in this scientific instrumentation technique.

High Performance

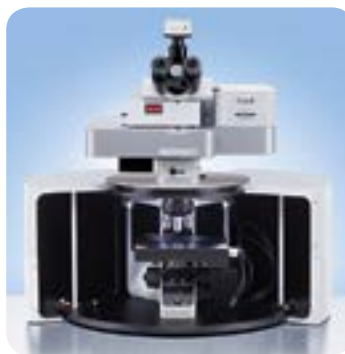
The RAM II module is the first dual-channel FT-Raman module. It is an add-on module that can be coupled to Bruker Optics' VERTEX Series multi range FT-IR spectrometers, utilizing the spectrometer's one input and one output port. It combines fast and easy sample handling and maximum suppression of disturbing fluorescence, expected from FT-Raman. Switching between the infrared and Raman is fully software controlled.



FT-Raman module RAM II connected to the VERTEX 70 FT-IR spectrometer.



HTS/Raman High Throughput Accessory for automated FT-Raman measurements using wellplates.



RamanScopeIII FT-Raman microscope accessory for Bruker FT-Raman spectrometers

The RAM II module is equipped with standard 1064 nm excitation for utmost suppression of fluorescence. The module can be configured with a dual channel option for additional excitation line.

Sensitivity

Bruker Optic's proprietary ultra-high sensitivity Ge detector with 5 days hold time of refrigerant, enhanced collection optics and the new dynamic 24 bit electronics provide unsurpassed sensitivity performance and long term stability.

Sampling Flexibility

RAM II's large sample compartment can house an extensive range of pre-aligned sampling accessories, designed to accommodate all types of sample formats; from powders to liquids in vials. Bruker Optics offers various accessories to enhance the performance of FT-Raman analysis.

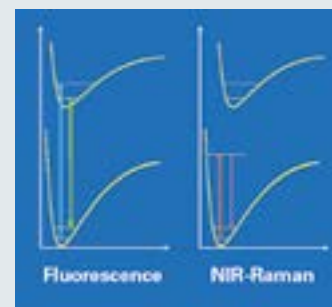
The Raman Effect

The Raman effect is based on the inelastic scattering of monochromatic light with matter. As the complementary vibrational technique of IR spectroscopy Raman provides detailed molecular structure information. Due to its non-destructive characteristic, Raman spectroscopy is ideally suited for in-situ analysis of macro and micro samples ranging from materials research to quality control. The Raman spectrum reveals valuable information about crystallinity, polymorphism and phase transitions. Raman spectroscopy combines high information content, no sample preparation and the use of fiber optic probes for remote sampling.

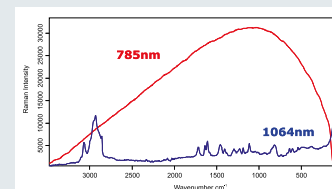
The Raman Effect



The Raman effect is based on an inelastic scattering of the monochromatic light.



Virtual suppression of fluorescence by long wavelength excitation in the NIR spectral range.



Comparison of Raman spectra of dental cement measured with a 785 nm excitation laser (red curve) as well as with the standard excitation line used for FT-Raman spectroscopy – 1064 nm (blue curve).

The measurement with 785 nm excitation line is completely masked by fluorescence!

Laser safety classification: LASER CLASS 1

Depending on accessories adapted the classification of the FT-Raman module RAMII may equal the classification of the exciting laser and exceed class 1.

Technologies used are protected by one or more of the following patents:
US 7034944; DE 19940981

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