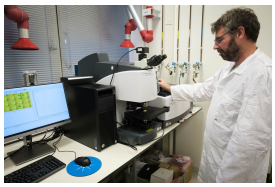
FT-IR Imaging microscope

https://search.researchequipment.wur.nl/SearchDetail.aspx?deviceid=999db073-a650-417e-ad13-4e0153128782



Brand

Agilent

Type

Cary 620/670

Contact

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Organisation

Environmental Sciences Group

Department

Aquatic Ecology and Water Quality Management

Description

IR spectroscopy measures the light energy required to start molecular vibrations in a sample. Functional groups have characteristic vibrations at different bands in the IR spectrum, and these can be used as a means of identification of compounds present in a sample. FTIR spectroscopy measures all frequencies of light simultaneously, and uses a Fourier transformation on the measured data, resulting in a high quality spectrum in much shorter times than when using traditional scanning IR techniques.

Technical Details

The Cary 620 is a Focal Plane Array (FPA) chemical imaging FTIR microscope, coupled with a Cary 670 FTIR spectrometer. The system can collect a full chemical image (containing up to 16,384 spectra per scan with a 128×128 FPA) simultaneously across a Field of View of up to 2.4×2.4mm, or in high magnification mode, can measure with a 1.1 micron pixel size. The system is available with 4x, 15x and 25x objectives. No cooling system is available for samples, samples are kept at room temperature during analysis.

Applications

-FTIR microscopy can be used for a wide range of applications in food science, environmental science, material science etc., and is in regular use at AEW for the identification of microplastics in environmental samples.

Publications

Automated FTIR Imaging Demonstrates Taxon-Specific and Selective Uptake of Microplastic by Freshwater Invertebrates, Chang-Gui Pan, Svenja M. Mintenig, Paula E. Redondo-Hasselerharm, Paula H. M. W. Neijenhuis, Ke-Fu Yu, Ying-Hui Wang, and Albert A. Koelmans, Environmental Science and Technology, https://doi.org/10.1021/acs.est.1c03119