

HORIBA Scientific: Your Lab Partner

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Molecular & Microanalysis

- Raman Spectroscopy & AFM
- Cathodoluminescence
- Fluorescence
- Surface Plasmon Resonance imaging

Optical Spectroscopy

- Diffraction Gratings
- Detectors
- OEM Spectrometers
- Monochromators

Surface & Thin Film Characterization

- Ellipsometry
- GD-OES
- PP-TOFMS™

Elemental Analysis

- ICP-OES
- C/S & O/N/H Analyzers
- S & Cl Analyzers in Petroleum Products
- Sample Preparation

Particle Characterization

- Laser Diffraction
- Light Scattering
- Zeta Potential

Forensics

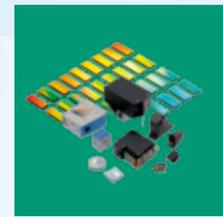
- Light Sources
- Image Treatment Software
- Databases



HORIBA Scientific: Your Lab Partner

Gratings, Original Equipment Manufacturer (OEM) Spectrometers, VUV

Diffraction gratings are the heart of spectroscopic instrumentation. We supply OEM gratings and miniature spectrometers for industrial volume customers who integrate these components into their own instruments. We also manufacture state-of-the-art customized gratings for scientific markets such as synchrotrons,



astronomy and high energy lasers. These gratings are installed on the VUV (Vacuum UV) spectrometers that we sell.

Optical Spectroscopy

From the simplest system to the most complicated custom configurations, HORIBA Scientific develops and manufactures optical spectroscopy solutions for research and industry. We offer a wide range of light sources, spectrometers, detectors, readout electronics and application-oriented software.



Typical applications:

Photoluminescence, transmission/reflection, laser pulse characterization, microscopy, imaging, plasma monitoring, NIR spectroscopy...



Inductively Coupled Plasma Spectrometry

Inductively Coupled Plasma Optical Emission Spectrometry (ICP-OES) is able to determine elements in virtually all types of samples. It is based on the detection of photons emitted by ions

and atoms after excitation by a plasma source.

Typical applications:

Agrochemistry, biology, chemistry, petrochemistry, environment, material science, metallurgy...



Sulfur and Chlorine Analyzers in Petroleum Products

These instruments measure sulfur and chlorine in various petroleum products. The analysis is done using energy dispersive X-ray fluorescence. The determination of Sulfur and Chlorine

from 1 ppm to 10 % is obtained by generating characteristics X-rays in liquid samples

Typical applications:

S & Cl in oil, diesel, biofuel, gasoline...



Carbon/Sulfur and Oxygen/Nitrogen/Hydrogen Analyzers

These analyzers determine the gases emitted during combustion of the sample by specific non-dispersive infra-red (NDIR) analyzers or thermal conductivity detectors (TCD). These

gases are CO, CO₂, SO₂, H₂ and N₂.

Typical applications:

Metallurgy, cement, ceramics, catalysts, battery, soils, solar cell, waste...

Raman Spectroscopy, Raman-AFM

Raman scattering provides both chemical composition and molecular structure information in a non-destructive way, without any need for sample preparation. Raman microscopes allow fast acquisition of spatially resolved Raman images.



Combining AFM with Raman spectroscopy enables true nanospectroscopy measurements.

Typical applications:

Pharmaceuticals, material science, biology, polymers, geology, Raman-AFM, TERS, SERS...

Fluorescence

Spectrofluorometry is a highly sensitive technique for the characterization of molecules, molecular interactions and materials. Both steady-state and dynamic (fluorescence lifetime) analysis supply information on concentration, shape and microenvironment of molecules or complex networks (e.g. binding process, membranes, aggregates, ...).



Typical applications:

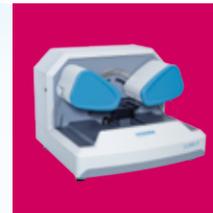
Biology, pharmaceuticals, material science, photovoltaics, environment, chemistry, polymers...

Spectroscopic Ellipsometry

Ellipsometry is a non-destructive optical technique allowing the accurate characterization of thin films, surfaces and interfaces. Spectroscopic ellipsometry is mainly used to determine thin film thickness (from 1 Å to 30 µm) and optical constants (n,k).

Typical applications:

Material science, photovoltaics, flat panel displays, nanotechnology, semiconductors, optoelectronics, optical coatings, surface characterization...



RF Glow Discharge Optical Emission Spectrometry

RF Glow Discharge Optical Emission Spectrometry (GD-OES) is a fast sputtering technique for applications involving surface and interface analysis of materials and coatings - conductive or non-conductive.

It provides quantitative depth profiles of all elements, including light ones with excellent depth resolution and sensitivity.

Typical applications:

Metallurgy, semiconductors, photovoltaics, plasma coating...



Plasma-Profiling Time-of-Flight Mass Spectrometry (PP-TOFMS™)

PP-TOFMS™ offers a powerful, fast and user-friendly characterization tool for advanced multi-layered materials. PP-TOFMS™ provides quantitative depth profiles of all elements (including isotopes) with nanometer depth resolution and ppm to sub-ppm sensitivity.

Typical applications:

Solid-state lighting, microelectronics, photovoltaics, nuclear, corrosion, retro-engineering...



CathodoLuminescence (CL) for SEM

CL is a fast and non-destructive materials characterization technique to analyze the structural composition and properties of luminescent or optical materials. With high spatial resolution and sensitivity, CL provides high resolution imaging and spectroscopic analysis which allows the detection of trace elements, defects and impurities from FUV to NIR.

Typical applications:

Semiconductors, optoelectronics, dielectrics, ceramics, geology, mineralogy, forensics, life sciences...



and molecule detection.

Typical applications:

Antibody screening, high-throughput protein interaction analysis, cell sorting, DNA point mutation investigation...

Surface Plasmon Resonance imaging (SPRi)

SPRi monitors label-free biomolecular interactions in real-time. It provides high-throughput information on kinetic processes (association & dissociation), binding affinity, analyte concentration

Particle Size Analysis

Laser diffraction and dynamic light scattering analyzers are able to determine size and size distribution of particles from 0.3 nanometer to 5 millimeters from samples in powder, suspension or emulsion state. These instruments can incorporate small volume pumping systems for precious materials, high throughput automation, dry powder dispersers and temperature controlled flow systems.



Typical applications:

Nanoparticles, ceramics, polymers, minerals, cement, food, inks, environment, cosmetics, pharmaceuticals...



Forensics

These instruments provide the tools to assist the police with the examination, capture, enhancement and comparison of all types of evidence. In addition to finger and palm prints, evidence can include fingerprints on

porous and non-porous surfaces, documents, biology, trace evidence, shoe prints, gun shot residue, bite marks/bruises, human bone fragments, etc.

Typical applications:

Criminology, security...

Sample Preparation

Whatever your analytical solutions include, whether it's ICP-OES, ICP-MS, AA, XRF, elemental analyzers..., HORIBA Scientific can provide you many sample preparation devices such as: automatic digestion stations, automatic sample dilution, electric fluxers, grinders, microwave, nickel capsules and pelletizing presses, furnace, heating blocks, and more.

Certified reference materials

Full range of single- or multi-element, inorganic or organic certified reference materials for AA, ICP-OES, ICP-MS, Cl... Available in catalogues or customized (matrix and analytes concentration).



HORIBA Scientific, Your Lab Partner for Every Application

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