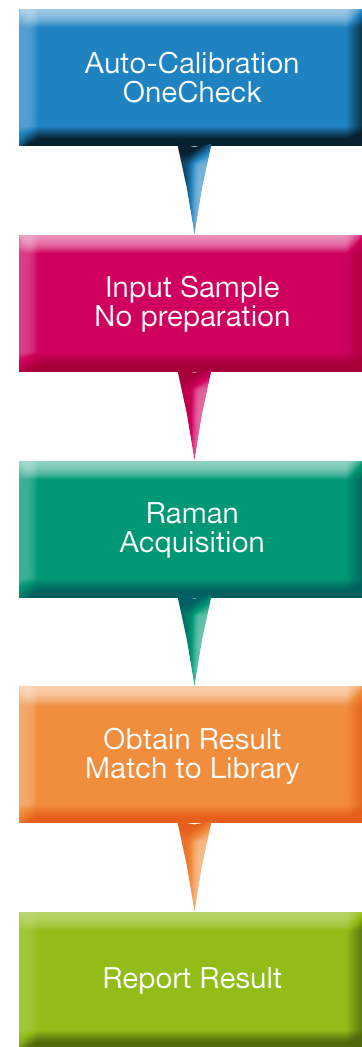
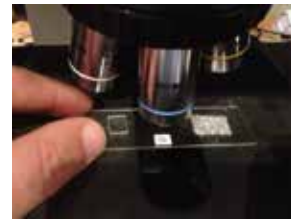




Easy & Simplified Workflow for Forensics



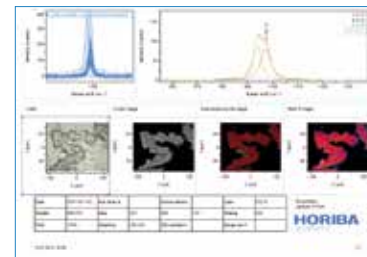
OneClick Raman Acquisition



Sample Positioning



Acquisition



Results

Validation

- ◆ NIST traceable calibration standards and Standard "SOP"s
- ◆ Patented autocalibration (focus free, ASTM, NIST traceable) ensures data is always correctly validated and its precision assured
- ◆ CFR 21 electronic records optional module provides data logging and authenticity



Advantages of HORIBA Forensic Raman

Raman is an ideal technique for Forensic science offering high quality data, reliability and significant speed advantages over other analytical techniques. Benefits for the analysis of trace samples not only include the range of samples that can be analysed but also in the non-destructive nature of the analysis. Raman microscopy enables easier comparative analysis, unknown chemical identification and improved value for money.

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- ◆ Enhanced multi-page analysis reports
- ◆ Sample methods for customised / controlled analysis routines
- ◆ User login accounts for system security
- ◆ HORIBA OneClick Raman: simple operator level use
- ◆ Automated FLAT fluorescence rejection
- ◆ True confocality: optimised analysis of thin coatings and particles
- ◆ Auto-calibration: validated results everytime
- ◆ Patented Standard PRO calibration tool - Focus Free
- ◆ Multi-laser options automated with PC control
- ◆ Remote fibre-optic probes - for sampling hazardous materials in fume cupboards/glove boxes
- ◆ HORIBA quality training and applications support programmes

XploRA Examina packages

Based System	10x Faster Raman SWIFT® Imaging	Confocal Imaging (Micron scale)	Routine QC Automation	Full Optical Microscope	Laser Options/Resolution
XploRA™ ONE	- Large area homogeneity analysis - Motorised XY and Z - < 1µm XY	- Confocal optics - Fixed for thin layer and particle analysis	Methods - OneClick - Customisable Methods - KIA database	- Illumination by reflection/transmitted light - Polarisation - Digital image capture	- 785 nm - Single shot standard resolution Raman - Class (I) safety frame
XploRA™ PLUS	Additional Resolution setting for < 500 nm XY resolution	Additional multiconfocal -settings	Additional Multi laser automation for 3 lasers and 4 gratings for high resolution	Additional Autoswitch function Trinoc with eyepieces	Additional - 532 nm laser - 638 nm laser - and high resolution Raman mode

Ordering Information	System include (note: customized configuration can also be provided)
XploRA™ ONE package <i>Ref. XP ONE-XPEF-1</i>	Research grade microscope, 10x, 50x objectives, macrosampler, 3MP top camera, reflected and transmitted light illumination, polarised light, motorised XY and Z motor, class (I) safety, computer with pre-installed LS6.3 software, spectral database, 785 nm 100 mW CLDS laser.
XploRA™ PLUS package <i>Ref. XP PLUS-XPEF-3</i>	Research grade microscope, 10x, 50x LWD, 100x objectives, macrosampler, 3MP top camera, trinoc with eyepieces reflected and transmitted light illumination polarised light, motorised XY and Z motor, class (I) safety, Computer with pre-installed LS6.3 software., spectral database, 532 nm, 638 nm, 785 nm CLDS lasers

Alternative custom configurations are also available, please ask for further information.



XP Examina
Forensics Package

XploRA PLUS / XploRA ONE
For Forensic & Analytical Testing Applications

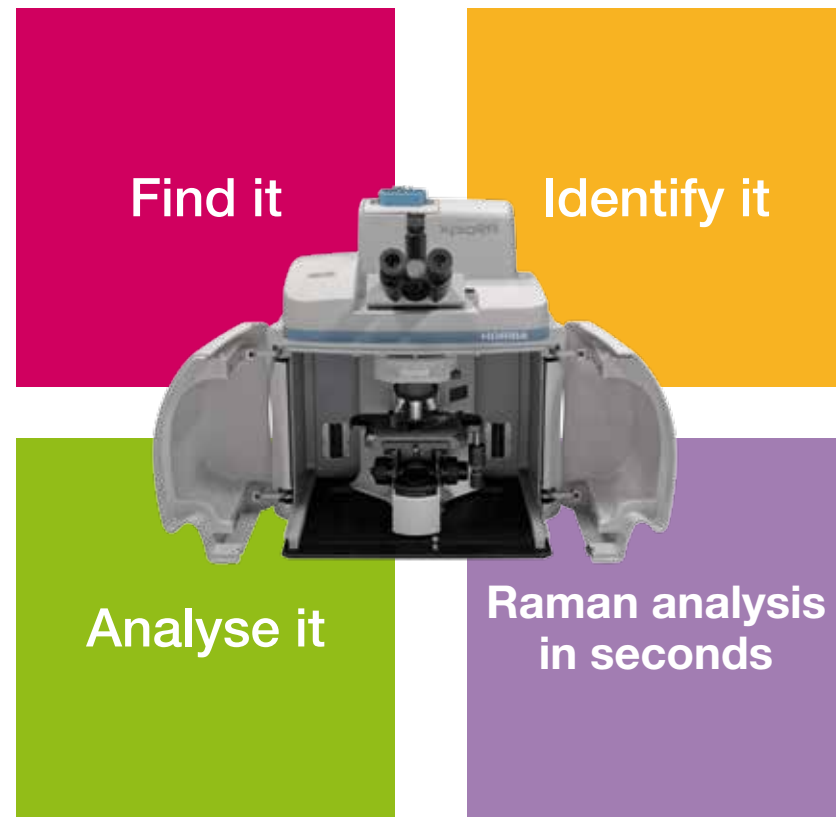
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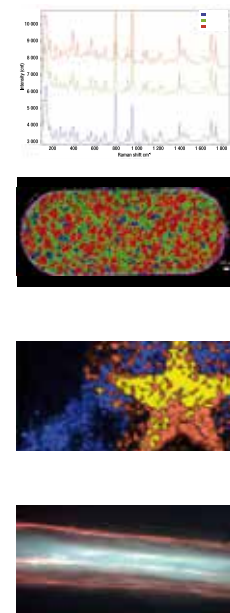
Fast, Detailed, Forensic Analysis

A forensic & analytical toolbox

- ◆ Microscopic trace analysis
- ◆ Light microscopy
- ◆ Raman chemical imaging
- ◆ Fluorescence imaging
- ◆ Automated Particle location



- ◆ **Raman spectroscopy**
Raman spectroscopic analysis gives chemical "fingerprint" identification of fibres, paint chips, explosives, GSR, Inks and narcotics/controlled drugs - virtually all types of trace analysis.
- ◆ **Raman chemical imaging**
Raman chemical imaging gives the ability to chemically image a sample to see layers, optical section samples, and to see sample homogeneity or contaminants.
- ◆ **Fluorescence imaging**
Fluorescence microscopy gives the ability to compare fluorescence markers and security features, locate "organics" and provide comparative images.
- ◆ **Light microscopy**
Complete light microscopy (transmitted/reflected light) gives visual identification of sample types, and the ability to locate trace material for analysis and Raman imaging. Polarised light gives the ability to compare fibre and polymer samples (synthetics from natural fibres) and to isolate crystalline materials, such as narcotics and mineral phases.

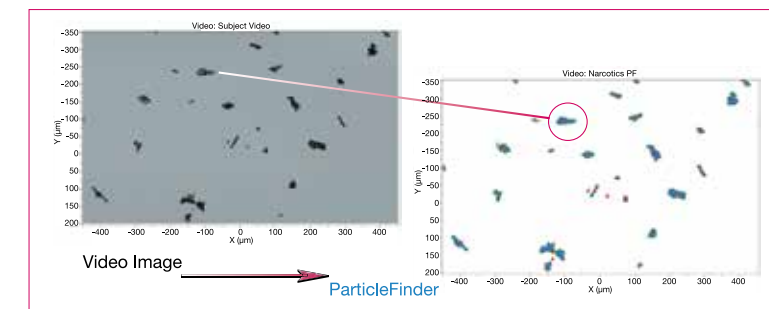


Find It

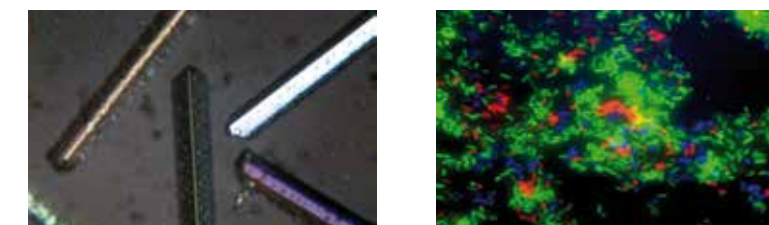
Find the trace evidence

The XploRA series Raman microscope has full extensive microscopy functions, necessary for the forensic analyst, including transmitted and reflected light illumination, polarised light microscopy, automated large area scanning and even automated sample location– It makes it easy to find trace evidence.

- ◆ **Automated large area microscopy**
High resolution video and Raman chemical images
- ◆ **Polarised transmitted light**
For locating crystals, minerals and fibres
- ◆ **Fluorescence imaging**
For locating organics and security markers
- ◆ **ParticleFinder**
Automated sample finding and analysis of trace samples and contaminants



Micron scale analytical ability!



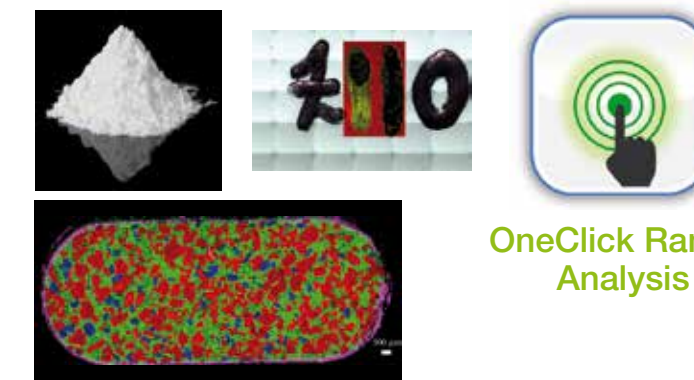
- | | |
|---|--|
| 1 | 1- Spectral image analysis of banknote |
| 2 | 2- Polarized transmitted light |
| 3 | 3- Bacteria samples with optional fluorescence filtering |



Analyze It

Analyze the trace

- ◆ Analysis of single sub-micron particles
- ◆ Macro sampling in plastic bags/bottles
- ◆ Documents / Paints / Pigments
- ◆ GSR / Explosives
- ◆ Narcotics and controlled drugs
- ◆ Fibres, polymers and thin films
- ◆ Gemstones and minerals

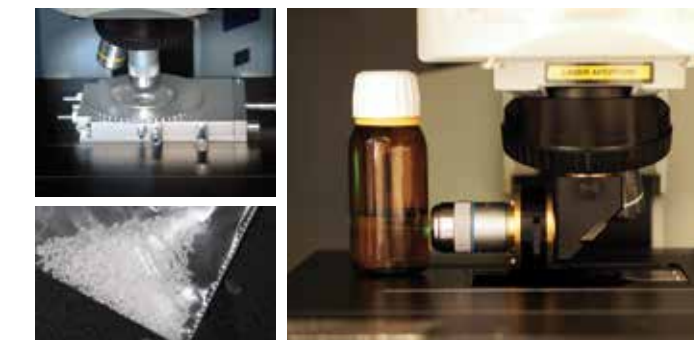


OneClick Raman Analysis

The XploRA series Raman microscope has the most sensitive range of deep cooled detectors– enabling improved limits of detection and the ability to use very low laser powers required for non-destructive sampling. Even the most delicate sample can be analysed without laser damage, preserving the sample and the chain of evidence.

Full confocal sensitivity enables sub-micron scale particles to be isolated from the background and analysed, whilst HORIBA's unique SWIFT Fast Raman imaging enables sample regions of interest to be spectroscopically located and analysed.

Minimal sample preparation and ease of in-situ analysis is ideal for the measurement of unknown and potentially hazardous samples.

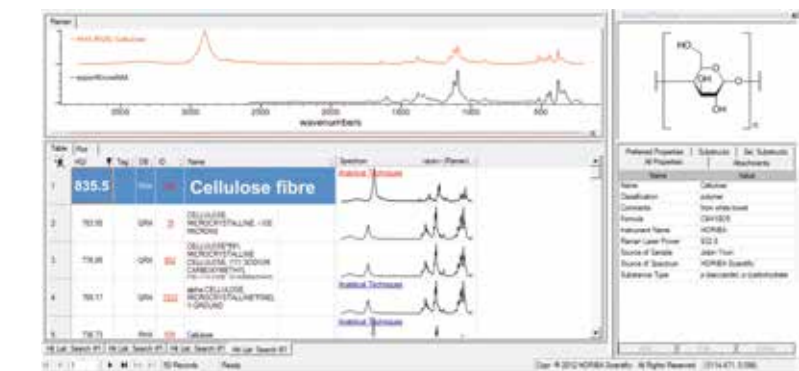


- | | |
|---|---|
| 1 | 1- Heating stage for Raman and melting point analysis |
| 2 | 2-3- "Baggies to bottles"– non invasive in-situ analysis through containers |
| 3 | |



Identify It

Match to spectral database-crimescene & trace evidence matching

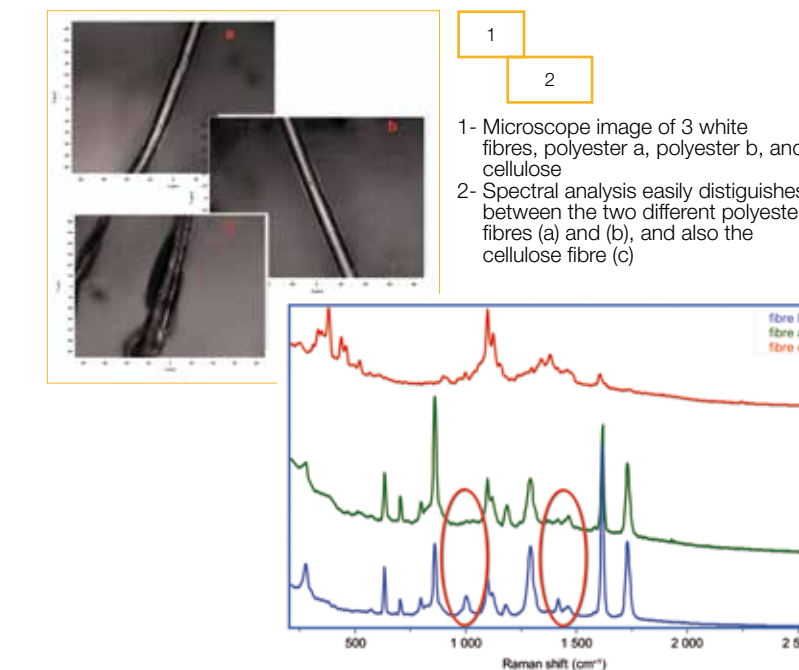


Spectroscopic databases

- ◆ Enable library searches and comparison matching against reference samples
- ◆ Enable operators to build their own databases
- ◆ Combine data entries for multiple analytical techniques
- ◆ A hit quality index helps users to determine quality of match and identification certainty

With more than 5000 samples in the optional spectral databases and additional commercial databases available, Raman identification becomes easy and reliable.

An advanced **Mixture analysis** module can cope with complex mixture of powders and liquid samples, whilst **functional group analysis** can help identify important "chemical markers".



- 1- Microscope image of 3 white fibres, polyester a, polyester b, and cellulose
- 2- Spectral analysis easily distinguishes between the two different polyester fibres (a) and (b), and also the cellulose fibre (c)