

Easy Workflow for Identifying Microplastics in Water



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Agilent Positioning for Microplastics Complementary Tools



Handheld FTIR

In-Field/Portable

Rapid analysis

Price effective

Limitations in size
measurement and data
analysis (~500 μm)

LDIR

Lab-based

Complete SW workflow

Faster Analysis; larger area
imaging than FTIR

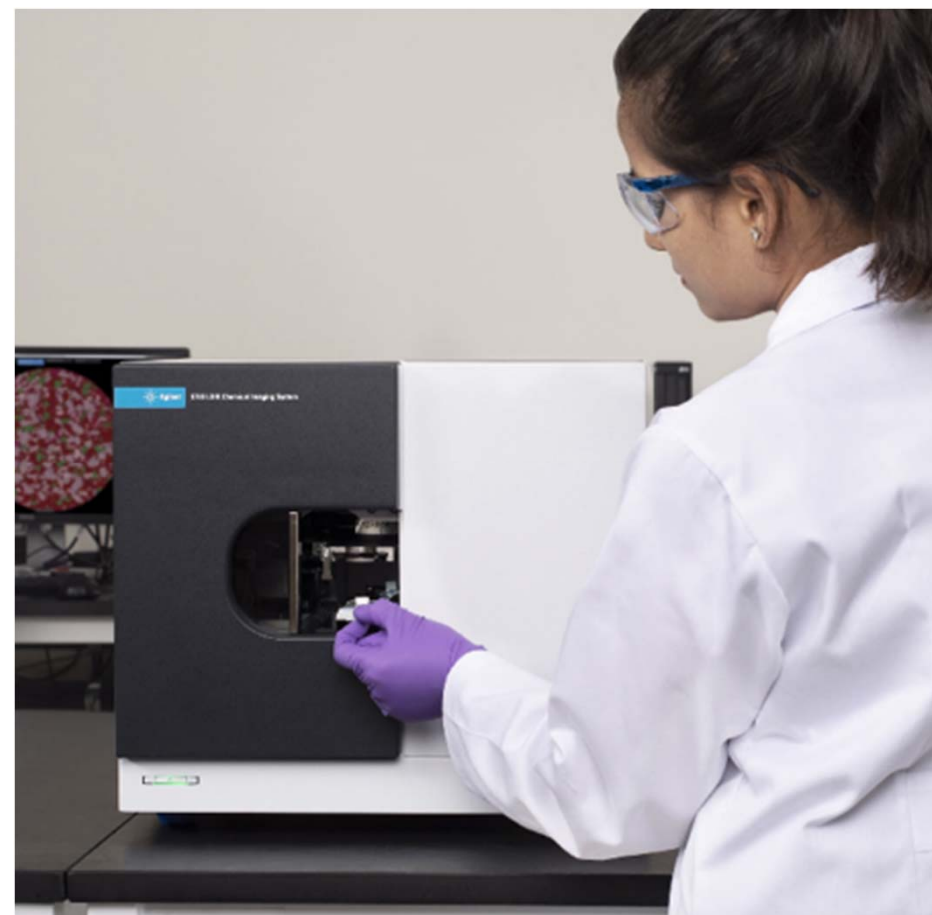
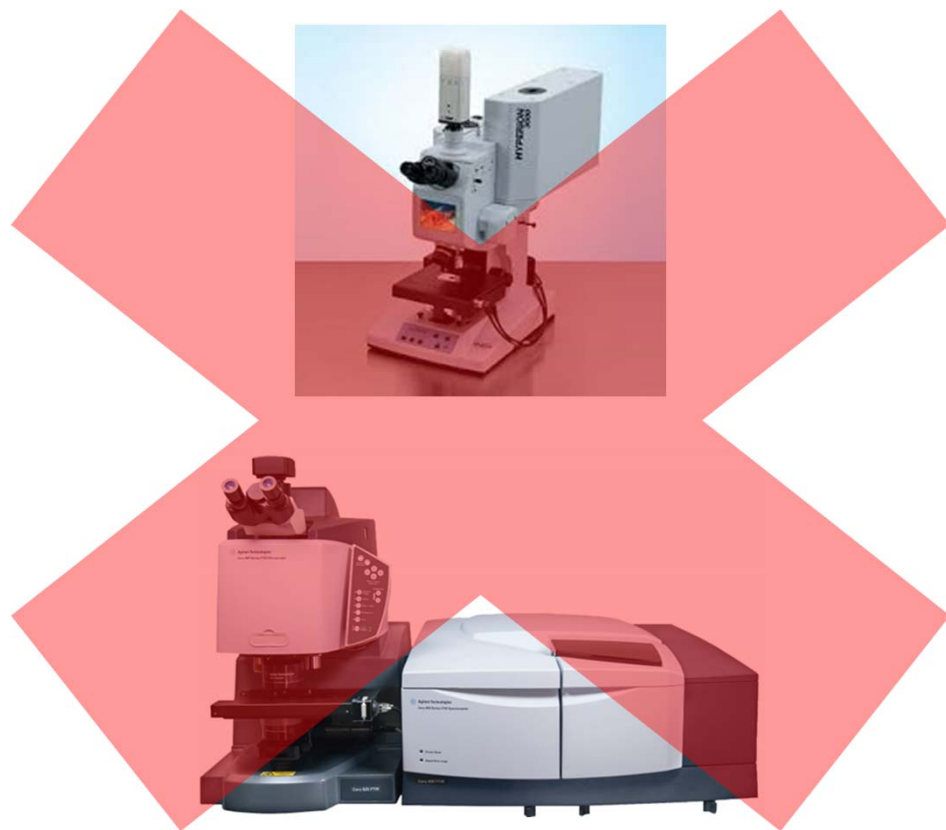
Suitable for 10-500 μm and
particle character

GC-MS

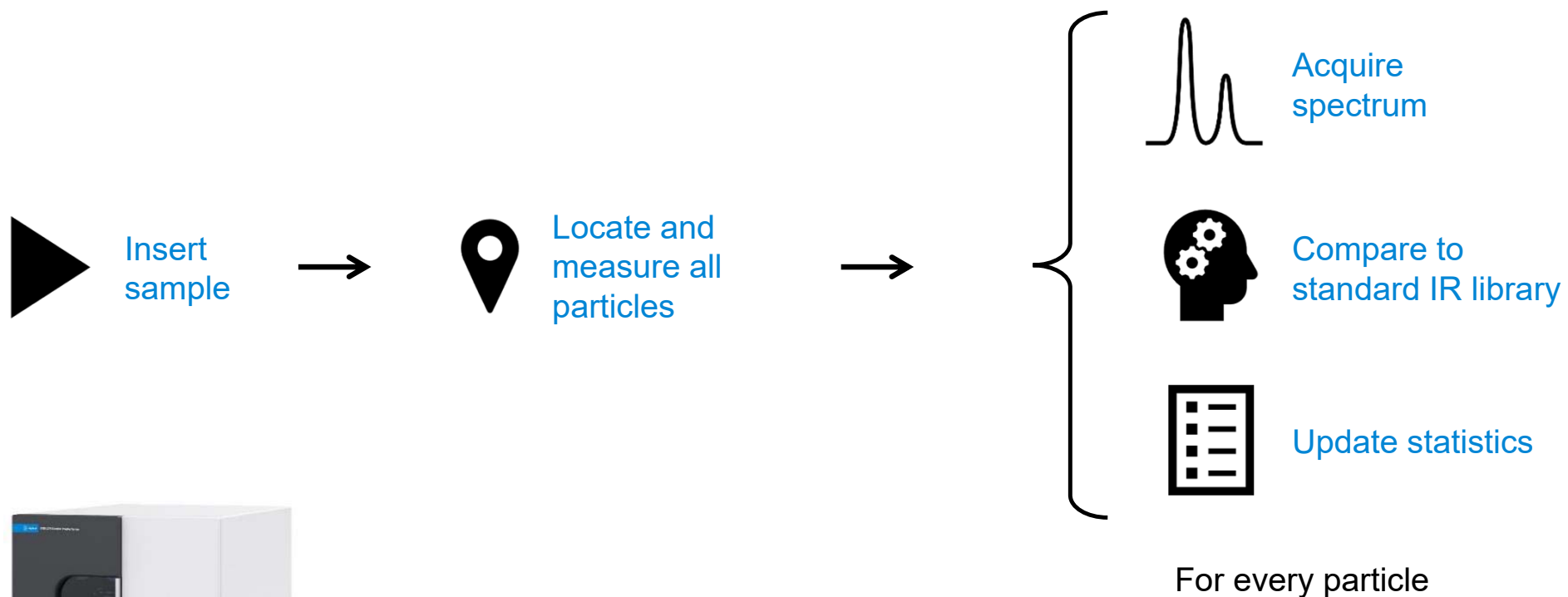
Well-known technology

Mass fraction
characterization

Eliminate complex manual microscope manipulations



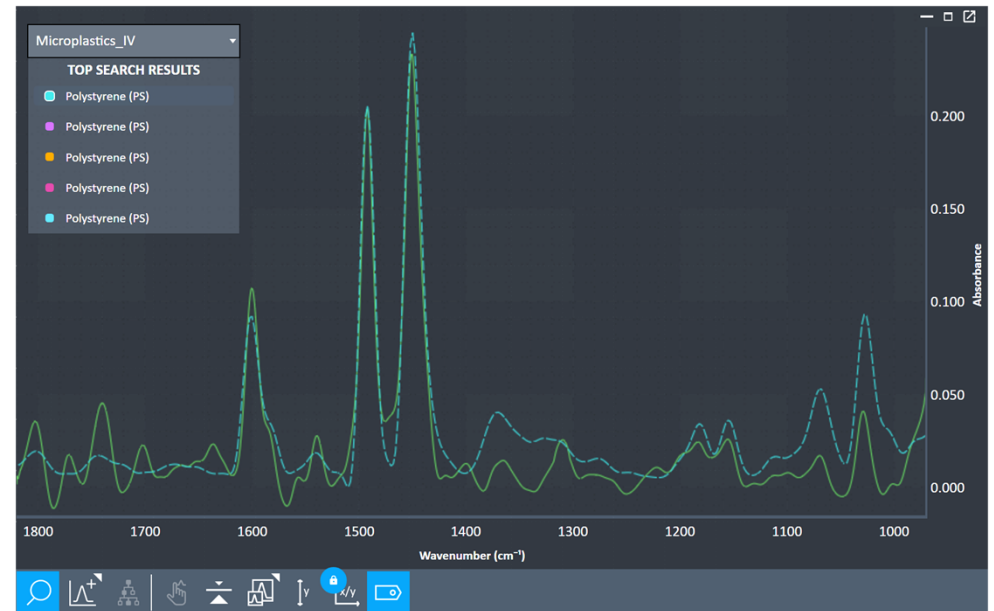
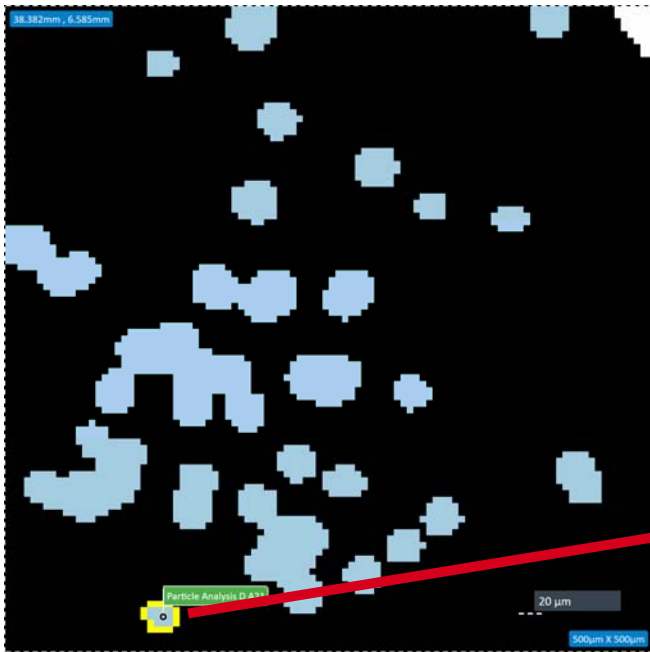
LDIR Microplastics Analysis Workflow



Locate each particle in X Y space

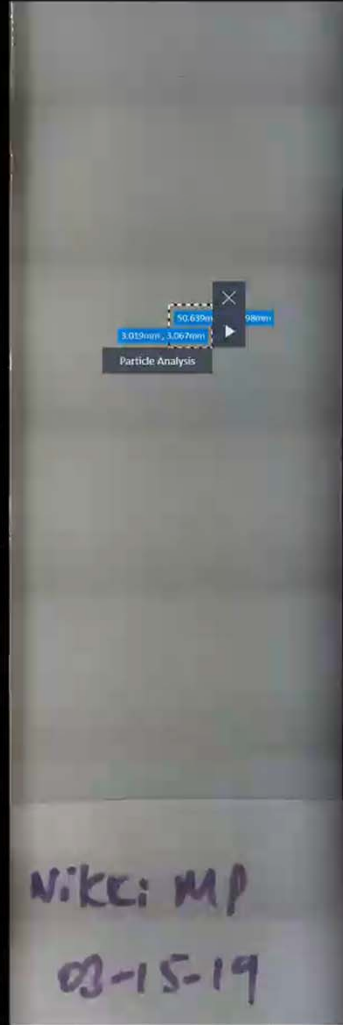


Spectrum xample



Spectrum from PS bead obtained from automated analysis; very good match with PS in library.

Particle Analysis



Particle Analysis

MPIs

Agilent

Reverse

Intensity

800.0%

400.0%

0.0%

Transparency 0.0%

Reported results

Particle breakdown and statistical analysis

	Diameter	Depth	Quality
1	51.34 μm	13.00 μm	0.829
	Polyethylene Terephthalate (PET)		
2	34.02 μm	6.00 μm	0.878
	Polypropylene (PP)		
3	32.11 μm	4.00 μm	0.822
	Poly(vinyl chloride), carboxylated		
4	28.12 μm	9.00 μm	0.839
	Polyamide (PA)		
5	26.44 μm	6.00 μm	0.876
	Polyacrylic esters		
6	25.56 μm	17.00 μm	0.911

Material	Percentage
Polyamide (PA)	43.6%
Polyacrylic esters	10.3%
Polystyrene (PS)	10.3%
Poly(vinyl chloride), carboxylated	7.7%
Polymethyl methacrylate (PMMA)	5.1%
Polyethylene Terephthalate (PET)	5.1%
Cellulose	5.1%
Polypropylene (PP)	2.6%
Polyacrylamide	2.6%
Polycaprolactone	2.6%
Poly(vinyl chloride)	2.6%
Cellulose	2.6%

