



F-Search MPs 2.0

F-Search MPs allows users to easily identify and quantify unknown microplastics (MPs) in the environment, and it consists of a sophisticated search program and mass spectral libraries of pyrolyzates. The software is used with the data obtained by pyrolysis-gas chromatography/mass spectrometry and the analytical process is very easy and straightforward.

Features



1) Identify Microplastics polymers by a sophisticated search algorithm

It enables to identify polymers accurately based on the pyrolyzates information.

2) Automatic creation of calibration curves and quick quantification

It enables to create calibration curves of the registered polymers (ISTD or ESTD) automatically based on the analytical results from the reference polymer mixture. Then, F-Search MPs automatically performs quantification and the results are instantly reported for the environmental MPs.

3) Cover twelve commonly used polymers

It enables to analyze twelve commonly used polymers (e.g. polyethylene, polypropylene)

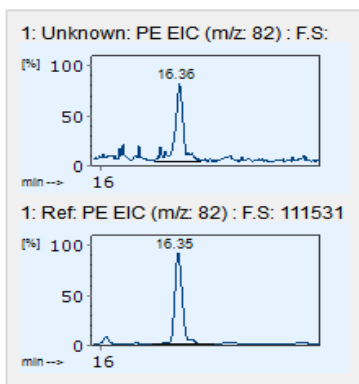
4) Establish user's own library

It has a feature to establish user's own library depending on the user's interest.

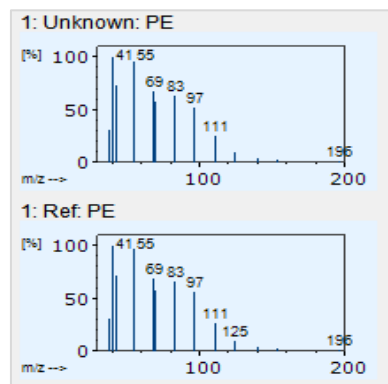
Polymer	Prob. [...]	Qty [ug]	Ratio [%]	Area	RT [min]
PE	99.9	11.47	67.1	31420	16.36
PVC	95.8	1.837	10.8	135185	10.57
SBR	10.5	0.983	5.75	12294	7.07
PP	93.8	0.723	4.23	4116	6.46
PS	99.6	0.578	3.39	75144	21.33
PET	88.0	0.474	2.78	2621	13.92
PMMA	99.9	0.360	2.10	38339	4.82
PU	99.8	0.282	1.65	78174	18.01
ABS	70.2	0.152	0.89	2697	18.02
N66	96.1	0.145	0.85	6349	6.23
N6	74.2	0.059	0.35	3745	11.50
PC	70.7	0.018	0.10	5019	11.24

PE	PVC	PP	PS
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Report example for each polymer identification (Prob), quantification (Qty), and the bar graph displays polymer compositions



EICs (extracted ion chromatograms) of unknown sample (top) and the reference polymer in the library (bottom)



Mass spectra of unknown sample (top) and the reference polymer in the library (bottom)

Specifications

Registered polymers (12 polymers)	Polyethylene, Polypropylene, Polystyrene, ABS (Acrylonitrile-butadiene-styrene resin), SBR (styrene-butadiene rubber), PMMA (Polymethyl methacrylate), Polycarbonate, Polyvinyl chloride, Polyurethane (MDI type), PET (Polyethylene terephthalate), Nylon-6, Nylon-66
Compatible GC/MS	Compatible with major GC/MS systems : Agilent (MassHunter, Chemstation), Shimadzu, and JOEL (AutoMass, GCMate, K9, Q1500) can directly be read. The data of other GC/MS vendors require conversion to AIA format.
Required specs of PC	OS : Windows 10, 8.1 (64bit or 32 bit), Hard disk space : minimum 200MB