FRONTIER LAB

NEW

Analytical Software for Microplastics Analysis

F-Search MPs 2.0

F-Search MPs 2.0 allows users to easily identify and quantify unknown microplastics (MPs) in the environment. It consists of a sophisticated search program with mass spectral libraries of pyrolyzates. The software is used with the data obtained by pyrolysis-gas chromatography/mass Spectrometry. The analytical procedures are very easy and straightforward.

Features

1) Quick identification of polymer types for unknown MPs

It enables identification of polymers accurately based on pyrolyzates information.

2) Automatic creation of calibration curves and quick quantification

It enables creation of calibration curves for the registered polymers (ISTD or ESTD) automatically based on the analytical results from the reference polymer mixture. Then, F-Search MPs 2.0 automatically performs quantification with the results instantly reported for the environmental MPs.

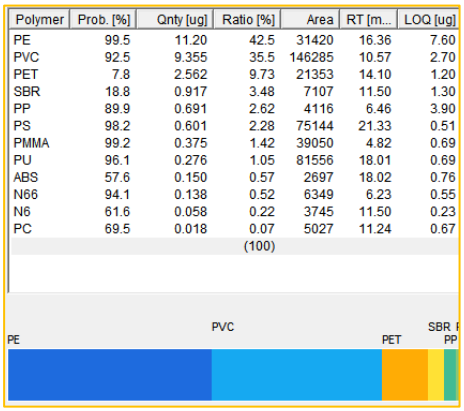
3) Library of twelve commonly used polymers

It enables the analysis of twelve commonly used polymers (e.g. polyethylene, polypropylene).

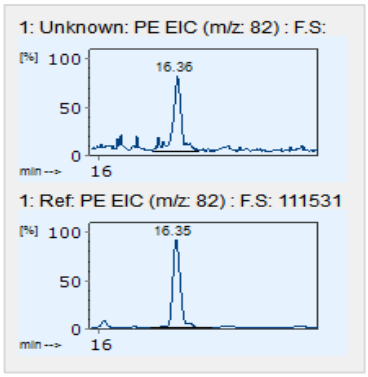
4) Easy integration of user's own library to F-Search MPs 2.0

Additionally, the user can create their own libraries depending on their interests.

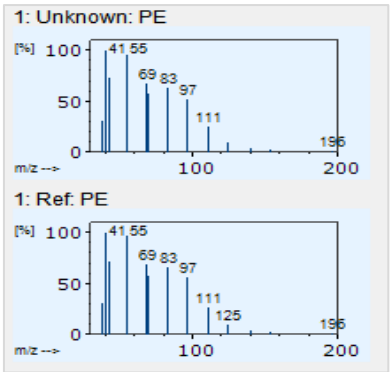
Polymer	Prob. [%]	Qnty [ug]	Ratio [%]	Area	RT [m...	LOQ [ug]
PE	99.5	11.20	42.5	31420	16.36	7.60
PVC	92.5	9.355	35.5	146285	10.57	2.70
PET	7.8	2.562	9.73	21353	14.10	1.20
SBR	18.8	0.917	3.48	7107	11.50	1.30
PP	89.9	0.691	2.62	4116	6.46	3.90
PS	98.2	0.601	2.28	75144	21.33	0.51
PMMA	99.2	0.375	1.42	39050	4.82	0.69
PU	96.1	0.276	1.05	81556	18.01	0.69
ABS	57.6	0.150	0.57	2697	18.02	0.76
N66	94.1	0.138	0.52	6349	6.23	0.55
N6	61.6	0.058	0.22	3745	11.50	0.23
PC	69.5	0.018	0.07	5027	11.24	0.67
			(100)			



Report example for each polymer identification (Prob), quantification (Qnty), and the bar graph displays MPs polymer composition



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 (PE), Polypropylene (PP), Polystyrene (PS), Acrylonitrile-butadiene-styrene resin (ABS), Styrene-butadiene rubber (SBR), Polymethyl methacrylate (PMMA) , Polycarbonate (PC), Polyvinyl chloride (PVC), Polyurethane (PU: MDI type), Polyethylene terephthalate (PET), Nylon-6 (N6), Nylon-6,6 (N66)
Compatible (major GC/MS)	Agilent Technologies (MassHunter, Chemstation), Shimadzu, and JEOL (AutoMass, GCMate, K9, Q1500). The data of other GC/MS vendors requires conversion to AIA format.
Required specs of PC	OS : Windows 10, 8.1 (64 bit or 32 bit), Minimum hard disk space : 200 MB
Number of Licenses	3 licenses for one serial number

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