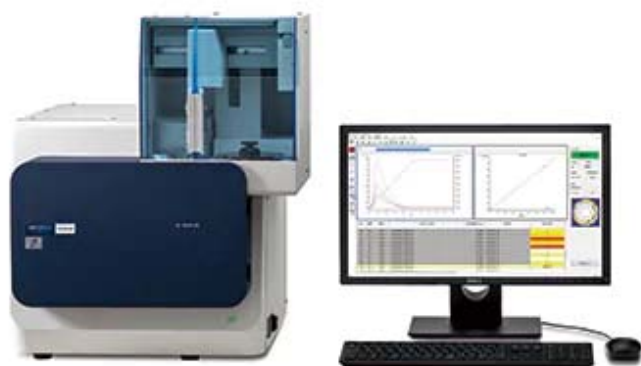


## Thermal Desorption MS (Screening Device for Phthalates)

### HM1000A



In July 2019, an amendment to the RoHS directive will add 4 phthalates to the list of restricted substances. These 4 chemicals are widely used for insulated coating materials, electrical insulation tapes and packing films.

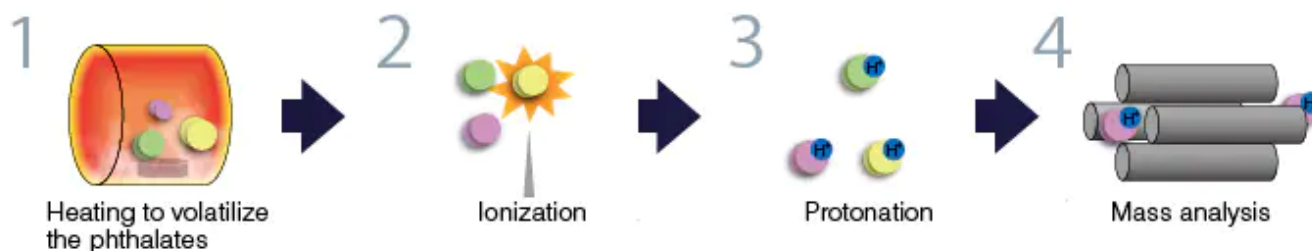
The HM1000A is a dedicated instrument designed for fast, easy, on-site screening of phthalates. In addition to easy operation, the HM1000A features high-throughput testing that achieves automated analysis of 50 samples in approximately 8 hours.

#### Features

#### High-speed measurement: Measurement at a rate of less than 10 minutes!

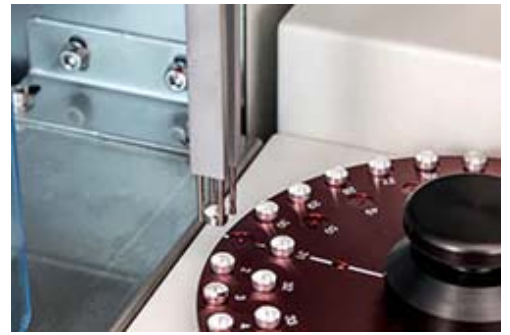
Vaporized compounds are ionized and directly analyzed by a mass spectrometer enabling high-speed measurement. (Separation column is not required)

[Outline]



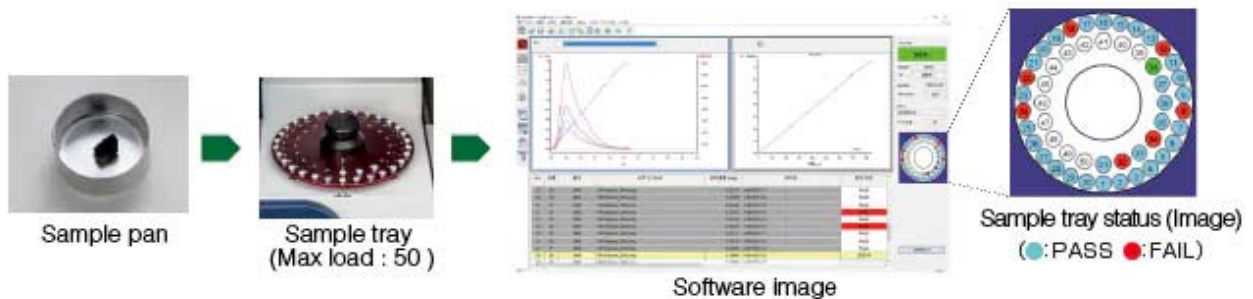
#### The auto sampler allows for continuous automated analysis of 50 samples in 8 hours

The accurate and smooth performance of the auto sampler (standard equipment) allows continuous automatic analysis of up to 50 samples. During the analysis, operators are free to engage in other tasks, resulting in a streamlined operation and reducing workloads.



## Easy operation from sample preparation to analysis!

Place the sample in the sample pan and position it on the sample tray. Next, by following simple software steps, measurements will be started by the auto sampler. The auto sampler diagram is displayed on the software and the progress of measurements and the results (PASS/FAIL judgment) can be verified easily.



## Low operating costs

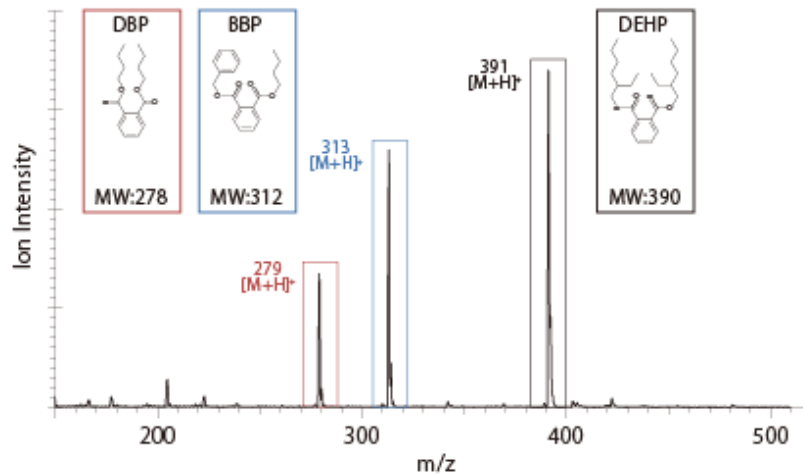
Nitrogen gas is used as the carrier gas. Using nitrogen gas generator (option available in Japan or locally sourced), a power source is the only utility required for operation. Helium gas and liquid nitrogen are not needed, which helps keep operating costs low.

## Data

### Measurement using scan mode

The  $m/z$  value obtained from analyzing the sample can be used to estimate the component that is contained in the sample.

Mass spectrum of sample containing 1000 mg/kg of Phthalates



A peak will appear at molecular weight +1 for each phthalate after protonation.

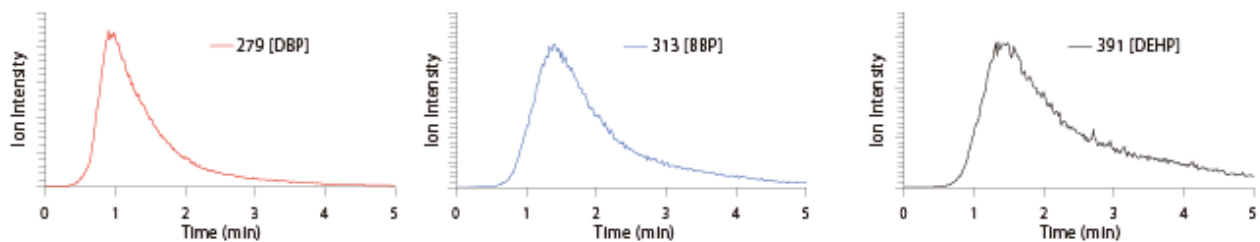
**\* Measurement of total Phthalates is required for DBP and DIBP (both are at  $m/z=279$ )**

### Measurement using SIM mode

The concentration of the Phthalates contained in the sample can be estimated using the ion intensity profile and can be compared to the regulations acceptable limit.

Ion intensity profiles of DBP, BBP, DEHP

The measuring sample :Certified Reference Material NMIJ CRM 8152-a

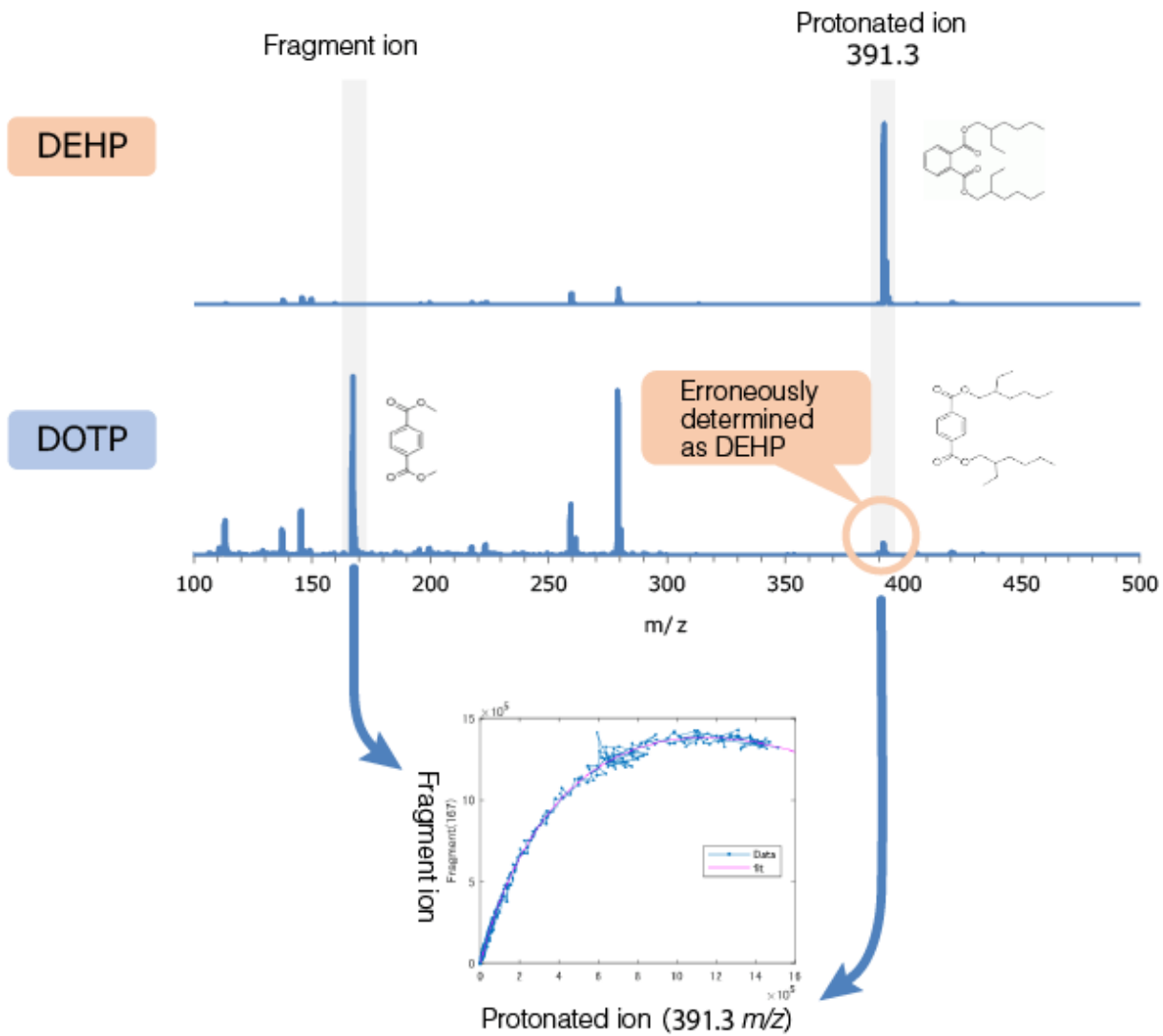


**\* Each protonated-Phthalate will be monitored using its  $m/z$  value.**

Enhanced Functions

### Calibration functions using data from measurements of alternative plasticizers as reference

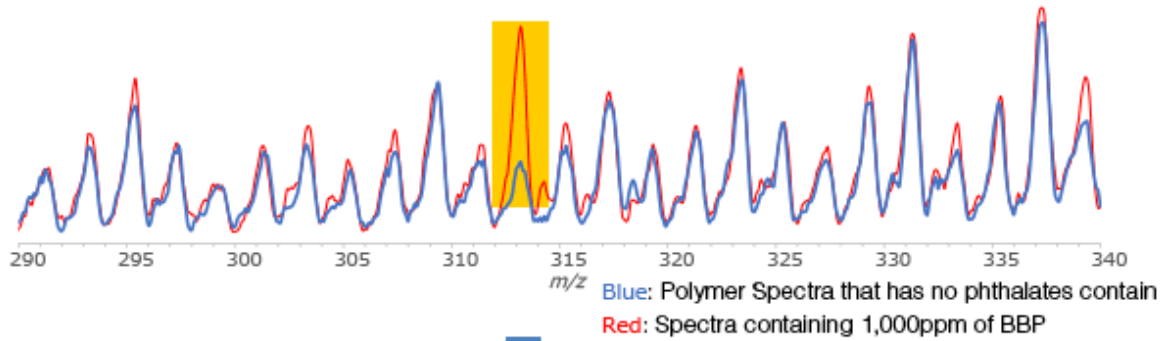
Di (2-ethylhexyl) terephthalate (DOTP) is included in alternative plasticizers used as replacements for the Restricted Substances. DOTP has a similar structure to the Restricted Substances. The HM1000A is calibrated for these substances that have similar structures based on ion intensity correlations. This has improved the identification accuracy of HM1000A, resulting in accurate measurements.



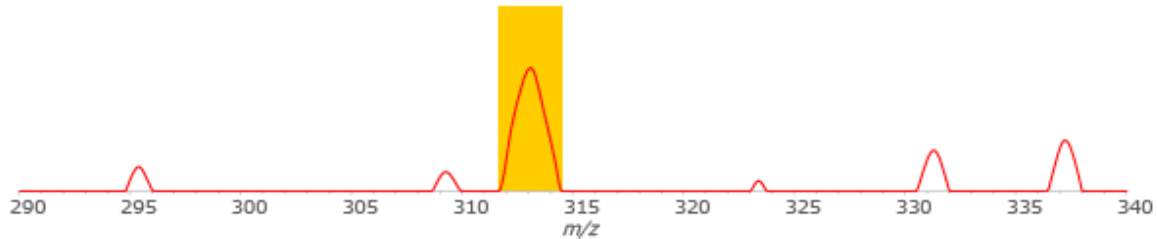
## Simultaneous SIM and SCAN measurements

The HM1000A achieves simultaneous SIM and SCAN measurements, thereby enabling measurements that reflect the periodicity in the mass spectrum. This improves the screening accuracy of samples that contain lubricants and other polymers.

- ① Detect signals derived from polymers.  
Recognizing their cyclic patterns in the signals.



- ② Correction  
Subtract the cyclic patterns so as to identify phthalates.



## Specifications

Configurations	Standard equipment	HM1000A (Main unit / Accessories)
General Specifications	Measuring object	Phthalate (DBP/DIBP, BBP, DEHP) Brominated flame retardants (DBDE)
	Sample weight	0.2 mg ± 0.04 mg
	Sample form	Solid, Powder
	Auto sampler	Max.50 samples
Mass detection	Ion source	APCI (Atomospheric Pressure Chemical Ionization)
	Mass spectrometer	Quadruple mass filter
	Measurement mode	Scan mode SIM (Selected Ion Monitoring) mode (Max. 20 channels)

Dimensions and weight	Main body	510 mm (W) ×615 mm (D) ×615 mm (H), 85 kg
	Rotary pump	160 mm(W)×490 mm(D)×265 mm(H), 29 kg
Electric specifications	Input supply voltage	AC200 V to 240V±10% single phase

Video

## HM1000A: the Fast and Easy screening device for Phthalates

Demonstrating operation of measurement with HM1000A. (1:19)



[View the video](#)

## Related Products



**XRF Analyzer  
EA1000AIII** 