

News Release

Hitachi High-Technologies Launches HM1000A screening equipment for phthalates

— Achieving even greater screening accuracy by adopting new measurement methods —

Tokyo, Japan, September 4, 2018—Hitachi High-Technologies Corporation (TSE: 8036, Hitachi High-Tech) announced today that its wholly owned subsidiary and analytical instrument manufacturer and marketer Hitachi High-Tech Science Corporation (“HHT Science”) has developed the HM1000A thermal desorption mass spectrometer to dramatically enhance screening accuracy for four types of phthalates (“Restricted Substances”) for amended RoHS directive*1. The use of four chemicals will be restricted in the European Union (EU) from July 2019. The HM1000A goes on sale in Japan and overseas on September 4.



HM1000A

Phthalates are widely used as plasticizers for softening plastic and rubber in vinyl chloride products such as wire sheaths, electrical insulation tape, and packing films. These materials are contained in a wide range of items, including toys, household appliances, electronic devices, and other consumer goods. The recent amendment of the RoHS directive has created the need for manufacturers to assess and manage the amounts of phthalates contained in parts and finished products, either as part of procurement or on the factory floor.

Since July 2017, HHT Science has sold the HM1000 thermal desorption mass spectrometer. Through simplification of conventional testing methods*2, the HM1000 enables each sample to be screened for phthalates in under 10 minutes. Through HM1000, HHT Science has not only helped customers to achieve compliance with the amended RoHS directive, but it has also provided customers with a screening solution designed to reduce environmental impact.

HM1000 identifies the Restricted Substances by ionizing phthalates and using a mass spectrometer to directly measure the ionized phthalates. However, there were some instances in which the screening accuracy of the Restricted Substances was impacted by alternative plasticizers*3 and lubricants and other polymers used in certain products.

HHT Science has dramatically improved the accuracy, with which the newly launched HM1000A can identify the Restricted Substances. This has been achieved through the development of a new calibration function that uses data from measurements of alternative plasticizers as a reference. Alternative plasticizers can potentially impact screening accuracy as they have a similar molecular structure to the Restricted Substances. In addition, the HM1000A is able to automatically recognize and remove the impact of lubricants and other polymers by simultaneously performing SIM*4 measurements to detect only the intensity of ions with specific masses and SCAN measurements to acquire the distribution of the intensity of ions with a wide range of masses. Through these new functions, the HM1000A will provide even more accurate screening results.

The HM1000A dramatically improves screening accuracy while maintaining the existing model's features, specifically high-speed measurement, simplified measurement, and low running costs. By supplying this new model, HHT Science will achieve further streamlining and simplification of a wide range of product testing processes for customers. Moreover, the new functions of the HM1000A can also be installed in the HM1000.

HHT Science will display an actual HM1000A model at JASIS 2018 scheduled to be held at the Makuhari Messe (Chiba City, Chiba Prefecture) from Wednesday, September 5, 2018 to Friday, September 7, 2018. In addition, HHT Science will present the HM1000A, including its new functions, at the new technology presentation session to be held in the N-3 Hall at Hotel New Otani Makuhari on Friday, September 7 from 11:45 to 12:35.

Under its Mid-Term Management strategy of aiming to become a global player in scientific equipment by 2020, Hitachi High-Tech Group will continue to promote development and sales expansion, and contribute to global manufacturing through testing and analysis equipment. In addition, the Group will consistently aim to "be Global Top in high-tech solutions," and respond swiftly to the needs of customers and markets, working from the customer's perspective as a fast-moving creator of cutting-edge businesses.

*1 Amended RoHS directive: The RoHS directive by the European Union (EU) restricts the use of specific hazardous substances included in electronics and electronic equipment. Effective from July 2019, the amended RoHS directive restricts the use of four new phthalates, specifically Bis(2-Ethylhexyl) phthalate (DEHP), Benzyl butyl phthalate (BBP), Dibutyl phthalate (DBP), and Diisobutyl phthalate (DIBP).

*2 Conventional methods: Including Soxhlet extraction via organic solvent and gas chromatograph mass spectrometry by thermal extraction and so forth, which generally takes 30 minutes to several hours for each sample.

*3 Alternative plasticizers: Plasticizers used as alternatives to the Restricted Substances

*4 SIM (Selected Ion Monitoring): A method of continuously detecting ions with a specified mass

【New Functions】

1. 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.

2. 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.

【Main Specifications】

Throughput	10 min/sample
Auto-sampler	Up to 50 samples
External dimensions	510 (W) x 615 (D) x 615 (H) mm
Power supply	AC200~240V
Carrier gas	Nitrogen (Can be used with a gas generator. Exhaust equipment not required)

【Price (excl. tax)】 : From 14 million yen

【Sales Target】 : 100 units/year

◆WEB Site

http://www.hitachi-hightech.com/global/product_detail/?pn=ana-hm1000a

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