

Shimadzu to launch particle analysis system in Japan and overseas for analysis of microplastics

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World's first quick and accurate measurement of particle mass and volume with an infrared microscope and an infrared/Raman microscope



Shimadzu will launch a particle analysis system in Japan and overseas, specialising in the analysis of microplastics, at global scale. This system can quickly calculate the number of particles, area, volume, mass, and individual particle qualities of microplastics based on the measurement results from an infrared microscope or an infrared Raman microscope.

This is the first analytical instrument in the world that can automatically analyse the mass and volume of microplastics using an infrared microscope or an infrared/Raman microscope.

This system is based on an infrared/Raman microscope or an infrared microscope, and is used together with the dedicated software "AMsolution," which additionally includes a newly developed Particle Analysis Programme.

The theoretical formula for calculating the mass and volume from the measured particle area is based on research led by Associate Professor Tomoya Kataoka at the Graduate School of Science and Engineering, Ehime University.

Microplastics are plastic particles less than 5 mm in diameter that are broken into small pieces by waves or ultraviolet light. When organisms ingest these particles and accumulate them in their bodies, there are health concern about their impact on the entire ecosystem.

Analysis of various data on plastic particles is essential to understand their distribution. The infrared/Raman microscope "AIRsight" is the world's first microscope system that combines infrared spectroscopy and Raman spectroscopy. The infrared microscope "AIMsight" can automatically measure data related to microscopic objects by examining the reflection and transmittance of objects irradiated with infrared light. These analytical instruments have been used not only for contaminant analysis and quality control in chemistry, electronics, machinery and transportation equipment, but also for microplastics research in recent years.