

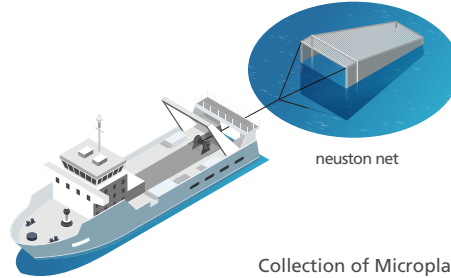
# Microplastics Monitoring in Environmental Epipelagic Water

Microplastics (MPs) are an increasing concern because they contaminate marine environments and are impacting ecosystems, so factual investigations and toxicity evaluations need to be performed. Shimadzu is taking measures to address environmental issues by providing the optimal solutions for issues in researching microplastics, utilizing our multifaceted analytical and measuring technologies.

STEP 1 Sampling

## »» Sampling

Ocean water is sampled from boats, and river water is generally sampled from bridges. Collection sites are determined in accordance with guidelines in each country. Note that a neuston net is generally used for sampling.



Collection of Microplastics from the Ocean

STEP 2 Preparation

## »» Preparation

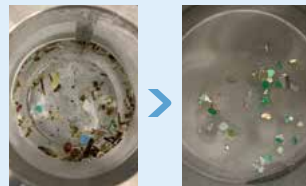
Microplastic Automatic Preparation Device

NEW

MAP-100



Simplifies tedious monitoring tasks by automating the sample preparation process for microplastics.



Contaminants are automatically digested and separated, to select for just the microplastics.

### Advantages of the MAP-100

- Labor savings** Significantly reduces the number of man hours.
- Reproducibility** Enables highly reproducible preparation by reducing manual tasks.
- Safety** Simplifies the handling of reagents by enabling the safe removal of contaminants.

STEP 3 Analysis and Measurement

## »» Analysis and Measurement

The size of microplastic fragments after preparation is found by observation and particle size measurements using a stereoscopic microscope and special software. In addition, the use of Plastic Analyzer, a special Fourier Transform Infrared Spectrophotometer (FTIR) system is effective for component analysis.

Stereoscopic Microscope  
STZ-171-TLED  
(Shimadzu Rika Corporation)



\*Only available as a package sale with MAP-100.

Software  
Motic Images Plus



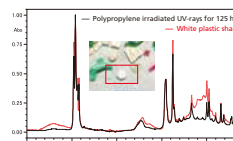
With its wide field of view and 7.5 to 50 x zoom, this is the optimal stereoscopic microscope for making observations while working. In addition, the size of the microplastic particles can be measured by combining the instrument with our special software.

Fourier Transform Infrared Spectrophotometer  
IRSpirit™ / QATR™-S



IRSpirit is a compact, high-performance FTIR system. A special program with an analysis wizard (IR Pilot™) is included as standard. With the QATR-S single-reflection ATR attachment, simply press the microplastics against the prism to perform a component analysis of the plastics easily.

### UV/Heat Degradation Database



Microplastics are degraded by UV rays, so qualitative analysis using commercially available databases is not easy. Plastic Analyzer includes the infrared spectra of UV and heat-degraded plastics, which dramatically improves the qualitative accuracy of microplastics analysis.

# Providing a Variety of Analyses and Measurements for Monitoring Microplastics in Environmental Epipelagic Water

Shimadzu provides a variety of instruments to meet the needs of our customers, covering a range of processes from preparation of microplastics to observation, particle size measurements, and component analysis.

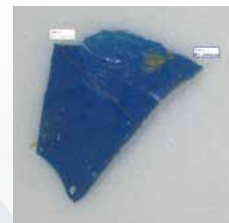


NEW

Microplastic Automatic Preparation Device  
MAP-100



Stereoscopic Microscope  
STZ-171-TLED  
(Shimadzu Rika Corporation)  
\*Only available as a package sale with MAP-100.



Software  
Motic Images Plus

## A Lineup to Suit Multifaceted Analytical Evaluations of Microplastics



NEW



Infrared Raman Microscope  
AIRsight™

NEW



Infrared Microscope  
AIMsight™



Fourier Transform Infrared Spectrophotometer  
IRSpirit™/QATR™-S

IRSpirit, QATR, IR Pilot, AIRsight and AIMsight are trademarks of Shimadzu Corporation or its affiliated companies in Japan and/or other countries.



Shimadzu Corporation  
[www.shimadzu.com/an/](http://www.shimadzu.com/an/)

**For Research Use Only. Not for use in diagnostic procedures.**

This publication may contain references to products that are not available in your country. Please contact us to check the availability of these products in your country.

Company names, products/service names and logos used in this publication are trademarks and trade names of Shimadzu Corporation, its subsidiaries or its affiliates, whether or not they are used with trademark symbol "TM" or "®".

Third-party trademarks and trade names may be used in this publication to refer to either the entities or their products/services, whether or not they are used with trademark symbol "TM" or "®".

Shimadzu disclaims any proprietary interest in trademarks and trade names other than its own.

The contents of this publication are provided to you "as is" without warranty of any kind, and are subject to change without notice. Shimadzu does not assume any responsibility or liability for any damage, whether direct or indirect, relating to the use of this publication.

© Shimadzu Corporation, 2023  
First Edition: August 2023\_3655-03304-PDFIK