Measurement needs for microplastics

19 October 2022

INRiM - Istituto Nazionale di Ricerca Metrologica

Strada delle Cacce 91, 10135

Torino, Italy

Background

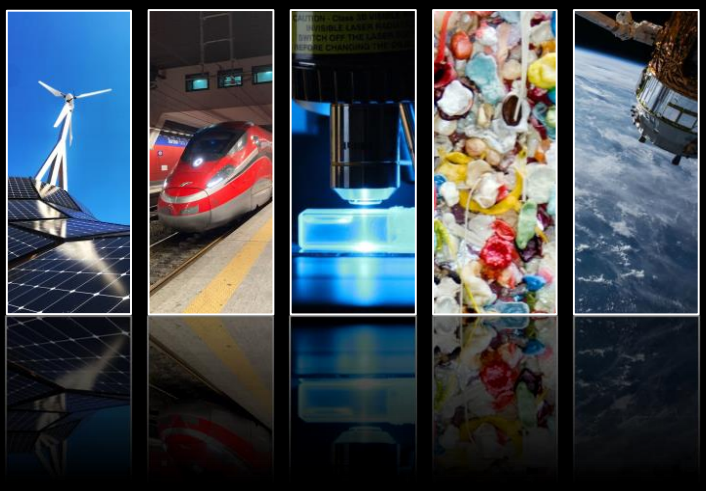
Micro and nanoplastics contamination in food and the environment are growing fast and there are concerns about the potential consequences for the environment and human health. To have reliable data are mandatory for the society, to meet regulatory requirements and, in particular, for the decision-makers.

International interlaboratory studies to validate and assess the protocols for the sampling, detection and modelling the phenomena is a priority for standardisation. In a wide-spread industrial and commercial reality, many aspects must be studied to manage the flow of waste material from different sectors and industries

Technical themes

Environmental and societal impacts
Harmonization of technologies, processes, policies
Civil society engagement to a circular economy
Waste resources information
Waste treatment technologies
Business models and coordination between value chain actors
Development of projects to measure the environmental impacts of materials in terms of

- Safety
- Energy
- Efficiency
- Recyclability



Objectives

VAMAS Technical Working Area 45, **'Micro and Nano Plastics in the Environment'** is offering the scientific community the platform to assess concerns and support the initiation of international projects in developing reliable protocols to support future standardisation.

The Versailles Project on Advanced Materials and Standards (VAMAS) was formed in 1982 with the mission of fostering world trade in products that depend on advanced materials through international collaborations that provide the technical basis for harmonization of measurement methods, codes of practice and standards.

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"Measurement needs for Microplastics",
VAMAS TWA45, INRiM Torino,
19thOctober 2022

The VAMAS Technical Working Area 45, "Micro and Nano Plastics in the Environment", in conjunction with the VAMAS 47th SC Meeting, organizes a technical workshop on "**Measurement needs for Microplastics**" at INRiM – Istituto Nazionale di Ricerca Metrologica, Strada delle Cacce 91, 10135 Torino, in the south area of Torino, on the 19th of October, with the following program.

Measurement Needs for Microplastics

Wednesday 19th October 2022

Seminar hall		
9:00 VAMAS Microplastics Workshop (hybrid)		
9:00-9:10 Welcome & Opening session		
Speaker		**Title**
9:10-9:35	Stefania Federici, University of Brescia, Italy	"COST Action CA20101 PRIORITY: enabling collaborative research on micro- and nanoplastics"
9:35-10:00	Dora Mehn, JRC, EU	"Analysis of microplastics in drinking water: path from directive to methodology"
10:00-10:25	Korinna Altmann, BAM, Germany	"Harmonisation efforts of the CUSP projects"
10:25-11: Discussion		
11:00 Coffee break		
Seminar hall		
11:30 VAMAS Microplastics Workshop (hybrid)		
11:30-11:55	Ulrike Braun, UBA, Germany	"Microplastics in international standardization" (ISO, CEN)
11:55-12:20	John Kucklick, NIST, USA	"An overview of NIST's efforts supporting the measurement of microplastics"
12:20-12:45	Bert Van Bavel, NIVA, Norway	"Development and Harmonization of analytical methods from nano to microplastics for a greener environment and assuring food safety"
12:45-13:10	Nontete Nhlapo, NMISA, South Africa	"An overview of South Africa's activities in microplastic measurements: NMISA's capacity building study"
13:10-13:30: Discussion		
13:30 End of the day		
13:35 Lunch		
14:30 Visit at INRiM Labs		

Measurement needs for Microplastics

19 October 2022 | 09:00 – 13:30 (CET)

Chairs: **Dr. Andrea M. Giovannozzi (INRIM) and Prof. Laura Eleonora Depero (UNIBS)**

COST Action CA20101 PRIORITY: enabling collaborative research on micro- and nanoplastics

Dr. Stefania Federici
University of Brescia & INSTM, Italy

The invasion of plastics in the form of micro- and nanoplastics has far-reaching impacts on all environmental compartments, requiring immediate management actions. The COST Action PRIORITY aims to develop an efficient global networking platform focused on researching, implementing, and consolidating ways to address the worldwide challenge of micro- and nanoplastics pollution in the environment.

Analysis of microplastics in drinking water: path from directive to methodology

Dr. Dora Mehn
Directorate General Joint Research Centre – Health, Consumers and Reference Materials, Ispra (VA), Italy

In order to address growing public concern about the presence of small plastic particles as contaminants in water intended for human consumption, provisions on microplastics were included in the 2021 recast of the Drinking Water Directive (Directive (EU), 2020/2184), which entered into force on the 12th January 2021. As a consequence, the European Commission has the obligation to adopt a methodology to measure microplastics by the 12th January 2024. Development and validation of methods are usually linked to the application of reference materials – on the other hand it is difficult to imagine reference material development without validated measurement methods. The presentation highlights the stepping stones of the process: summarises available data on microplastics contamination in drinking water, mentions the efforts of the Joint Research Centre in reference material development, refers to some outcomes of the JRC/BAM inter-laboratory study related to possible measurement methods, and comments on the activities of other regulatory and standardisation bodies aiming to set up a methodology for microplastics analysis in drinking water.

Harmonisation efforts of the CUSP projects

Dr. Korinna Altmann
Bundesanstalt für Materialforschung und –prüfung (BAM), Berlin, Germany

The presentation briefly introduces the European Commission's CUSP research focus and its harmonisation efforts. This includes the announcement of an international laboratory comparison study in 2023 and information on the production of reference materials at BAM.

Microplastics in international standardization (ISO, CEN)

Dr. Ulrike Braun
Umweltbundesamt (UBA), Dessau-Roßlau, Germany

The presentation will give an overview about the actual state of standardisation of microplastics. A special will be given on the scope and the work program of the Joint Working Group of ISO/TC 147, as well as the first outcome of standardized protocols.

An overview of NIST's efforts supporting the measurement of microplastics

Dr. John Kucklick

National Institute of Standards and Technology (NIST), Charleston (SC), United States

The National Institute of Standards and Technology (NIST) is actively engaged in the study of microplastics including providing measurement services, such as reference materials, and measurement science related to microplastic characterization. NIST's laboratories have complimentary programs in polymer measurement, particle characterization, particle counting, environmental fate of plastic, small particle toxicology, and small molecule analysis. The outputs of these efforts are directed to addressing stakeholder needs through the delivery of reference materials and improved measurement approaches at both the micro and nano scales. Providing metrology to inform and enable the Circular Economy is also a major goal for NIST's efforts. NIST and many other National Metrology Institutes around the world are working closely to inform CCQM as to its role in underpinning measurements for microplastics. This talk will also briefly describe what CCQM has done so far and its future plans in the area.

Development and Harmonization of analytical methods from nano to microplastics for a greener environment and assuring food safety

Prof. Bert Van Bavel

Norwegian Institute for Water Research (NIVA), Oslo, Norway

The presentation will focus on the harmonisation efforts and the metrological challenges for the standardization of measurement methods for micro and nanoplastics in both food and environmental matrices. This will include an overview of the main objectives and the early outcomes of the European projects EuroQCharm and PlasticTrace coordinated by NIVA and INRIM, respectively.

An overview of South Africa's activities in microplastic measurements: NMISA's capacity building study

Dr. Nontete Nhlapo

National Metrology Institute of South Africa (NMISA), Pretoria, South Africa

The presence of microplastics as contaminants in the ecosystem has gained considerable attention from academia, measurement laboratories and in the public arena. Due to improper management of plastic waste in many communities, plastic waste degrades and breaks down into smaller fragments over a period of time. Recently, a wide range of food products such as stable salt, fresh water, fish and mussels have been found to be contaminated with microplastics in South Africa and around the African continent, with potentially harmful effects on human health. Microplastics have also been found in South African wastewater. In general, microplastics are defined as pieces, particles or fibres with sizes less than 5 mm. In order to protect the environment, agencies such as ECHA have proposed restrictions on the use of microplastics. South African microplastic measurement activities are still in the inception stages. This has also hampered the progress on determining baseline contamination levels for microplastics in the Southern African environment. NMISA has considerable measurement capabilities and expertise that can be utilized to develop microplastic measurement capabilities in support of the microplastic contamination monitoring activities within South Africa and across the continent. The aim of the presentation is to give an overview of the microplastic research and development activities in South Africa, and the role NMISA aims to play in supporting the industry with their measurement needs.