

QUASIMEME/NORMAN Interlaboratory Study on the Analysis of Microplastics in Environmental Matrices

'Microplastic' is a catch-all phrase for plastic particles spanning six orders of magnitude in particle size (0.1–5000 μm) and a gigantic variety of chemical compositions: (co)polymers, chemical additives, residual monomers, fillers, catalysts, non-intentionally added substances (NIAS) etc. The diversity of this analyte class has resulted in a range of different analytical methodologies being applied thus far. A Microplastics Analysis Workshop was held in November 2018 in Amsterdam and was dedicated to the topic of microplastics analysis in environmental matrices. Based on the outcome of that workshop we now announce the first phase of an international microplastics interlaboratory study.

Design of the Study

The study will consist of three steps as a minimum, unless it would appear that corrective actions or a repetition of one step would be needed. It is anticipated that after the entire study analytical methodologies will be harmonized and the microplastics could be included in the routine proficiency testing scheme of QUASIMEME (www.quasimeme.org).

Study Design

Round 1

For the first round of this study participants will receive an aluminium strip with pills containing various types of plastics with the question to analyse these and report the outcomes through the website of QUASIMEME.

Content of pills:

1. Pre-production pellets, different sizes (range ca. 150 μm – 3 mm) and one blank (10 pills) main objective: (counting particles)
2. Fibers (2 pills) (main objective: identification of plastic)

The results will be described in a report, together with a description of the preparation of the materials, the methods of analysis used by the participants, a discussion including advice to the participating labs and conclusions.

The tentative scheme for this study is:

14 March 2019	Announcement and invitation
12 April 2019	Deadline for registration

15 April 2019 Dispatch of test materials
1 July 2019 Deadline for returning results
15 September 2019 Draft report
1 November 2019 Final report

Soon after November 2019 a second round will be organized in which we propose to focus on the extraction and destruction of microplastics from sediments and fish. Beach plastic identification may also be added to this second round. In the third round we will focus on the analysis of microplastics in realistic samples such as fish and sediment.

Second Workshop

A new workshop will be planned after the second round, probably around June or September 2020.

Coordination

This study will be coordinated by Dr. Louise van Mourik and Prof. Jacob de Boer, Vrije Universiteit, Amsterdam, The Netherlands. Both of them are highly experienced in the organization of large, international interlaboratory studies. Materials will be provided by the research group of Prof. Bert van Bavel, NILU, Oslo, Norway. Data management and statistics for this exercise will be developed and provided by QUASIMEME (Quality Assurance of Information in Marine Environmental Monitoring in Europe) (Prof. Wim Cofino, Steven Crum and Esther van de Brug). QUASIMEME operates Proficiency Testing Studies for institutes making chemical measurements in the aquatic environment worldwide. As part of the improvement programme, QUASIMEME co-operates with centers of excellence to provide workshops for discussion, and “hands on” experience to complement the development programmes in the Laboratory Performance Studies.

Participation Fee

The fee for participation in this study will be 750 Euro per round. In case a pre-payment is made for all three rounds, the fee will be 2000 Euro in total for all three rounds. The samples will be dispatched after receipt of the fee.

Registration

Participants should register before 12th April 2019. To register, please return the 2019 application form DE-17 Microplastics, containing all details necessary, by email to the Quasimeme office (quasimeme@wur.nl) Suggestions with regard to the design of the study and the type of test materials are also welcome and could be added to your email. Upon receipt of your email you will receive a confirmation of your participation and an invoice