EUROQCHARM Interlaboratory Study on the Analysis of Microplastics in Environmental Matrices

(collaboration with Quasimeme/Wepal and Norman)

INVITATION

Open to all laboratories with an interest in microplastics analysis worldwide

Introduction

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. One of the challenges analytical scientists face with microplastics analysis is how to check and demonstrate analytical proficiency. The interlaboratory study (ILS) initiative for microplastics analysis described in this flyer is organized in collaboration with QUASIMEME (www.quasimeme.org), and has been designed to answer the need of laboratories working on analytical quality control of their microplastics analyses. This initiative is dedicated to the development and collaborative improvement of microplastic analytical proficiencies, involving a large number of laboratories worldwide working towards common analytical goals.

The ILS will focus on the analyses of plastics in more complex environmental realistic contaminated test materials. The ILS is combined with the third round of a stepwise ILS study design organized by QUASIMEME, NIVA and VU. The results of the ILS will be presented and discussed in a workshop in Amsterdam on **14 September 2022.**

Stepwise ILS Study Design

The ILS study is a result of a workshop on microplastics was organized in Amsterdam, the Netherlands, in November 2018. During this workshop it was generally agreed that an open ILS on microplastics was needed, preferably designed as a stepwise approach.

Two rounds of the ILS have taken place in 2019 and 2020 where laboratories use their in-house methods, as currently no standard or harmonized methods exist. To further improve harmonization the third round of the ILS is organised in collaboration with EUROqCHARM (www.euroqcharm.eu). It is anticipated that the first results of EUROqCHARM will be of guidance for the analytical methodologies and procedures for the third

round. It is further planned that microplastics will be included in the routine proficiency testing scheme of QUASIMEME (www.quasimeme.org). The ILS initiative is strengthened by feedback from the community of participants via workshops and bilateral communications, taking lessons learned from the opening round to future rounds.

- First Workshop (completed in 2018) Ca. 110 participants discussed analysis on microplastics in environmental matrices in Amsterdam, the Netherlands in November 2018.
- ILS Round 1 (completed in 2019) The first round focused on the identification of microplastics with pre-production pellets and identification and quantification of microplastics in tablets of eleven different tests. The results and outcome of the first workshop and ILS round 1 have been described in a report, which has been sent to all participants of the first round.
- ILS Round 2 (completed in 2020) The second round focused besides tablets (as in first round) also on the extraction of microplastics from more complex samples (sediment and fish).
- Second Workshop (completed in 2021) Ca. 65 participants discussed the results of Round 1 and 2 in an online workshop, 20 and 21 May 2021.
- **ILS Round 3 (2022) will focus on the analyses of plastics in more complex environmental realistic contaminated test materials. Samples include 'soda' tablets simulating water samples with the different polymers in the seize region of 50-300 µm, and three sediment samples.**
- **Third workshop (14 September 2022). The results of the third round will be discussed in a workshop in at the VU-University in Amsterdam.**

The reports of both workshops and of Round 1 and 2 can be send to you on request (steven.crum@wur.nl).

Test materials

Participants will receive four test materials, which include 'soda' tablets simulating water samples, and three sediment samples.

How to participate in the ILS

Results can be reported as number of particles and/or mass and is not restricted to any specific detection technology. We therefor specifically encourage laboratories using Py-GC-MS to apply as well.

NB. The study is not restricted to only laboratories participating in the first two rounds of study.

Participation of laboratories of the first two round through QUASIMEME, NORMAN network members and associated laboratories to the EUROqCHARM project is free of charge. For other participants we will charge the operating costs (500€) for participation and attendance of the workshop.

Participants should register on or before **1 April 2022**. To register, please send the attaches registration form by email to ike.vander.veen@vu.nl, and bert.vanbavel@niva.no.

Upon receipt of your application form you will receive a confirmation of your participation. Due to the limitations of the test materials, there will be a maximum for the number of participants. The registration will follow the first come – first served rule.

Participation Fee

Participation of laboratories of the first two round through QUASIMEME (www.quasimeme.org), NORMAN network members (www.norman-network.net) and associated laboratories to the EUROqCHARM project (www.euroqcharm.eu) is free of charge. For other participants we will charge the operating costs (500€) for participation and attendance of the workshop.

Timeline

1 April 2022	*Deadline registration*
12 April 2022	*Dispatch of test materials*
1 July 2022	*Deadline for returning results*
5 September 2022	*Draft Report sent to participants*
14 September 2022	*Workshop to discuss the results*
15 October2022	*Final Report*

ILS Initiators

This study is being coordinated by Mrs. Ike van der Veen (MSc) of the Dept. of Environment and Health at the Vrije Universiteit (VU), Prof. Bert van Bavel of the Norwegian Research Institute for Water Research (NIVA, also coordinator of the EUROqCHARM project) and Prof. Wim Cofino, Steven Crum and Esther van de Brug of WEPAL-QUASIMEME Laboratory Performance Studies (Quality Assurance of Information in Marine Environmental Monitoring in Europe). The ILS initiative is supported and promoted by the NORMAN network and the NORMAN working group on nano-and micro scale particulate contaminants. The four institutions have joined forces to set up a program to address the quality of microplastic analyses. QUASIMEME operates Proficiency Testing Studies for institutes making chemical measurements in the aquatic environment worldwide. As part of the improvement program, QUASIMEME co-operates with centers of excellence to provide workshops for discussion, and "hands on" experience to complement the development programs in Laboratory Performance Studies.

Questions or feedback? Please contact us by email at ike.vander.veen@vu.nl, and bert.vanbavel@niva.no.