



QUASIMEME Interlaboratory Study on the Analysis of Chlorinated Paraffins in Environmental Matrices – Phase II

Chlorinated paraffins (CPs), also known as Polychlorinated alkanes (PCAs), are complex mixtures of chlorinated n-alkanes with carbon chain lengths of 10 to 30 and a chlorination degree between 30% and 70% by mass. They are divided in three groups: short-chain (C_{10-13}) (SCCP), medium-chain (C_{14-17}) (MCCP) and long chain (C_{18-32}) (LCCP) CPs.

CPs are used in several industrial applications like flame-retardants in rubber, as high temperature lubricants and cutting fluids in the metal industry and as additives in liquids, paints and textile. The analysis of CPs is highly complicated. There are tens of thousands of congeners that make separation by GC and even by GCxGC hardly possible. Alternative methods are scarce and may suffer from false positive data. The data reported on CPs until now, therefore, include very high uncertainties (100% or more).

In March 2010, QUASIMEME organized a workshop on the analysis of chlorinated paraffines in Ostend, Belgium. It was generally agreed that there was a clear need for an interlaboratory study (ILS), preferably designed in a step-wise way. The Institute For Environmental Studies (IVM) has organized, in cooperation with the proficiency testing scheme of QUASIMEME, a first phase of an ILS on CPs. In that study participants were requested to quantify the total concentration of CPs and the concentration of three individual CPs in an iso-octane solution of CPs. Results of this study show that the majority of the laboratories obtained satisfactory z-scores for the analysis of the three individual CPs. The coefficients of variation varied between the compounds from 22 to 46% and 56% for total CP.

With this flyer we initiate the second step of this exercise. We kindly ask you to express your willingness to participate in the second phase of this study in which a clean-fish extract and an unknown solution will be provided to be quantified.

Design of the Study

The entire study consists of 4 phases, unless corrective actions or a repeat of one step are needed. After completion of the entire study the intention is to include the CPs in the routine proficiency testing scheme of QUASIMEME (www.quasimeme.org).

Phase 1 (completed, report has been sent out)

The first phase of the study focused on the analysis of CPs in a solution with an undisclosed concentration. Standards were provided.

The results are described in a report (Van der Veen et al., 2012), which has been sent to all participants and which is available for new participants upon request (ike.vander.veen@vu.nl).

Phase 2

The second phase of the study will focus on the analysis of CPs in a clean fish extract. The extract is to be analyzed and quantified with a known total CP standard solution and a solution of a new congener that has recently appeared on the market (1,5,5,6,6,10-Hexachlorodecane).

Materials:

- *Standard solution.* An ampoule with a standard solution containing CPs, with a known concentration.
- *Clean fish extract.* An ampoule with a cleaned fish extract.

The study will be described in a report, including preparation of the materials, methods of analyses, results, advice to participants, discussion and conclusions.

Phase 3

The third phase of the study would focus on the analysis of CPs in an uncleaned extract of a sediment or fish.

Phase 4

The fourth phase of the study focuses on the entire method: extraction, clean up and analysis of environmental samples. A fish sample and a sediment sample will be analyzed and quantified with a known standard solution.

Evaluation meeting

An evaluation meeting will be planned after phase 3.

Time Table

The tentative scheme for Phase II is:

15 September 2012	Announcement and invitation
1 November 2012	Deadline for registration
1 December 2012	Shipment of samples
1 March 2013	Deadline for returning results
15 May 2013	Draft report
1 August 2013	Final report

Coordination

This study will be coordinated by Ms. Ike van der Veen and Prof.Dr. Jacob de Boer, IVM, VU University, Amsterdam, The Netherlands.

Participation Fee

The fee for participation in the second phase of this study will be 880 Euro. The samples will be dispatched after receipt of the fee.

Registration

Participants should register before 1 November 2012. To register, please send the registration form by email to ike.vander.veen@vu.nl, stating 'confirmation CP ILS 2 participation'. Upon receipt of your email you will receive a confirmation of your participation and an invoice for the second phase

QUASIMEME and co-organisers

QUASIMEME (Quality Assurance of Information in Marine Environmental Monitoring in Europe) operates a series of Proficiency Testing Studies for institutes making chemical measurements worldwide. As part of the improvement programme, QUASIMEME co-operates with centres of excellence to provide workshops for discussion, and "hands on" experience to complement the development programmes in the Laboratory Performance Studies.

The Institute for Environmental Studies (IVM) of the VU University in Amsterdam, the Netherlands, acts as a centre of excellence for QUASIMEME. It contributes to biological test material testing for proficiency tests on organic contaminants. In addition, scientific advice is given to the annual QUASIMEME programmes through the Scientific Assessment Group. IVM assists in organizing workshops on specific analytical topics and in the organisation of specific interlaboratory studies (learning exercises). IVM combines knowledge on analytical chemistry and toxicology to address a broad range of environmental issues, with a focus on contaminants. More information can be found at www.vu.nl/ivm.