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# Organochlorine pesticides in water

## Proficiency testing scheme

### Scheme description

Issue date: 22 January 2018

## 1 FOREWORD

This is the official call for participation in the NMISA proficiency testing (PT) scheme for the determination of organochlorine pesticides (OCPs) in water. A confidential report will be issued to all participants after completion of the PT scheme. Dates for the registration, distribution and reporting of the OCPs in water PT scheme are listed in Table 1.

This forms part of a range of services offered by NMISA. Current PT schemes offered by the NMISA Organic Analysis Laboratory include:

- Organochlorine pesticides in water
- Aqueous ethanol (forensic blood alcohol analysis)
- Aqueous ethanol (alcohol content in beverages)
- Aqueous sodium fluoride (blood sample preservative)
- Pesticides in fruit

The NMISA can also assist with the preparation of traceable gravimetrically prepared spike solutions for benchmarking *ad-hoc* analyses for which commercial PT schemes are not available.

## 2 SCHEME AIMS

This scheme will assist laboratories that routinely analyse OCPs in water to monitor their laboratory performance. This covers aspects such as the accuracy and comparability of measurement results produced; the continued competency of analytical staff and the maintenance and effectiveness of the current quality assurance systems within the laboratory. In addition, this information may also be used to provide accreditation bodies or clients with objective evidence of laboratory performance.

A technical advisory forum, incorporating members from industry, will be established through the NMISA. The aim of this forum will be to provide guidance on measurement challenges, traceability and estimation of measurement uncertainty for this analysis.

## 3 PARTICIPATION FEES AND ADDITIONAL CHARGES

The cost of participation in the PT scheme is R 2 640 (0% VAT, please note that we are not a VAT registered company). This fee includes two 1 litre water samples that have been gravimetrically spiked with a selection of organochlorine pesticides listed in Table 2, together with a confidential report upon completion of the round. Please note, this cost excludes delivery fees.

Since many of the South African participants are located within close proximity to the NMISA, the option of collecting the PT scheme samples from NMISA premises is permitted.

***International laboratories will have test samples sent by courier and appropriately packaged to maintain sample integrity. International participants must provide NMISA with any import or quarantine permits that might be required to complete sample delivery well in advance of the shipment date. Please note, international participants are liable for any customs or import duties charged.***

Upon registration for participation an official quotation will be provided. A registration form can be found at the end of this document.

#### 4 SCHEME DISTRIBUTION DATES

**Table 1 Organochlorine pesticides in water PT scheme sample distribution dates**

Registration deadline	Dispatch date	Result submission deadline	Samples
31 July 2018	13 August 2018	03 September 2018	2 x 1 L water samples

#### 5 TEST SAMPLES

The PT scheme consists of two 1 litre samples of purified water spiked with a selection of OCPs that are listed in Table 2. No dilution of the samples is required.

The organochlorine pesticides listed in Table 2, are those which are currently being tested by laboratories in South Africa<sup>1</sup>. The listed concentration range encompasses the recommended WHO concentration limits for these analytes in drinking water<sup>2</sup>, the South African water standard for protection of aquatic ecosystems<sup>3</sup>, as well as the concentration ranges specified by laboratories who routinely participate in the scheme<sup>4</sup>. These levels should be achievable using analytical methods typically applied (GC-MS or GC-ECD) for quantification of OCPs<sup>1</sup>.

Sample preparation instructions will accompany the PT scheme samples. Participants should adhere to these instructions, particularly concerning sample storage conditions and time frames within which samples should be analysed.

#### 6 PROFICIENCY TESTING SCHEME ASSIGNED VALUE

The assigned value for the PTS will be the purity-corrected gravimetric values obtained during the formulation preparation.

<sup>1</sup> NMISA Survey: Water PTS for organic contaminants, *M. Fernandes-Whaley*, March 2012

<sup>2</sup> WHO Guidelines for drinking water quality, 2011, (4th Edition), ISBN 978 92 4 154815 1

<sup>3</sup> Department of Water Affairs and Forestry (1996b). *South African Water Guidelines. Vol. 7: Aquatic Ecosystems* (1<sup>st</sup> Edition). DWAF: Pretoria.

<sup>4</sup> NMISA Survey: OCP and OPP proficiency testing scheme survey, *D Prevoo-Franzsen*, December 2014

**Table 2 Organochlorine pesticides in water PT scheme list of analytes and expected concentration ranges**

Analyte	Concentration range		unit
	Max	Min	
Aldrin	500	10	ng/L
<i>cis</i> -chlordane	500	10	ng/L
<i>trans</i> -chlordane	500	10	ng/L
p,pqDDT	500	10	ng/L
o,p-DDT	500	10	ng/L
p,pqDDE	500	10	ng/L
p,pqDDD	500	10	ng/L
Dieldrin	500	10	ng/L
Endosulfan I (alpha-endosulfan)	500	10	ng/L
Endosulfan II (beta-endosulfan)	500	10	ng/L
Endosulfan sulphate	500	10	ng/L
Endrin	500	10	ng/L
Heptachlor	500	10	ng/L
Heptachlor epoxide	500	10	ng/L
Alpha HCH	500	10	ng/L
Beta HCH	500	10	ng/L
Delta HCH	500	10	ng/L
Gamma HCH (Lindane)	500	10	ng/L

## 7 ANALYSIS

Participants are encouraged to perform the analysis using their normal laboratory procedures.

An electronic result submission form will be sent to participants when samples are delivered/collected.

Participants are expected to submit **one result for each pesticide tested per sample**, and are encouraged to include an uncertainty estimate for each result obtained.

Where applicable, participants must report whether a recovery correction was applied.

## 8 REPORTING

The data will be processed according to ISO 13528:2005 (Statistical methods for use in proficiency testing by interlaboratory comparisons). A report will be issued to each participating laboratory within 1 month following the submission deadline.

Reports will be provided in electronic format only (Adobe Acrobat- pdf) files.

The scheme is fully confidential. Each participant will be issued with a unique identification number and the participating laboratory is required to identify its analysts by a code known only to the laboratory.



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Section Head: Organic Analysis

NMISA-PT-ORG33

**ORGANOCHLORINE PESTICIDES IN WATER  
PROFICIENCY TESTING SCHEME**

**REGISTRATION FORM**

PLEASE COMPLETE AND RETURN BY FAX OR E-MAIL TO [DPrevoo@nmisa.org](mailto:DPrevoo@nmisa.org)

**DEADLINE FOR REGISTRATION IS 31 July 2018**

Send test material to:	
Name	
Company	
Department / Laboratory	
Physical address	
Town/City	
Postal code	
Country	
Telephone	
Email	
Send PT report to:	
Name	
Email	
Please select one of the following for quotation (mark with an X)	
Delivery	<input type="checkbox"/>
Self-collection	<input type="checkbox"/>

I, \_\_\_\_\_ herewith confirm that a NMISA Customer Registration Information Form has been completed and submitted to NMISA for official quotation and invoicing purposes. It is understood that registration for the proficiency testing scheme will only be confirmed upon receipt of a purchase order. Customs clearance and duties for international participants is for the customer's account

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date