

NMISA Organic Analysis Laboratory
Private Bag X34
Lynnwood Ridge
0040
South Africa

Tel: +27 12 841 4576
Fax: +27 (0) 86 509 5996

E-mail: DPrevoo@nmisa.org
www.nmisa.org

Organophosphate pesticides in water

Proficiency testing scheme

Scheme description

Issue date: 13 February 2015

1 Foreword

This is the official call for participation in the NMISA proficiency testing scheme (PTS) for the determination of organophosphate pesticides (OPPs) in water. A confidential report will be issued to all participants after completion of the PTS. Dates for the OPPs in water PTS are listed in Table 1.

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

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

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

2 Scheme aims

This scheme will assist laboratories that routinely analyse OPPs 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 each round of the PTS is R1 800.00 (0% VAT). This fee includes gravimetrically prepared samples, containing a selection of organophosphate 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 laboratories of many of the South African participants are located within close proximity to the NMISA, the option of collecting the PTS samples from NMISA premises will be 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 Organophosphate pesticides in water PTS sample distribution dates

Registration deadline	Dispatch Date	Result submission Deadline	Samples
03 August 2015	07 September 2015	28 September 2015	2 x 0.75 L water

5 Test samples

Two 0.75 L purified water samples, gravimetrically spiked with a selection of OPPs (Table 2) will be distributed. These samples will be packed to maintain a sample temperature below 10°C.

The organophosphate pesticides listed in Table 2, are those which are currently being tested by laboratories in South Africa¹. The measurement concentrations required to meet EU regulations², EPA guidelines³ as well as meet the needs of participating laboratories⁴, range from **0.1 µg/L to 10 µg/L**. These levels should be achievable using analytical methods typically applied (e.g. LC/GC-MS⁵) for quantification of OPPs.

The stability and homogeneity will be evaluated and any additional checks will be performed to detect any unforeseen problems that may arise during bottling and storage. This information will be included in the PTS report.

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

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

² Council Directive 98/83/EC of 3 November 1998 on the quality of water intended for human consumption

³ EPA 822-S-12-001, 2012 Edition of the drinking water standards and health advisories

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

⁵ EPA Method 525.3 on the determination of semivolatile organic chemicals in drinking water by SPE and GC-MS, Version 1.0, February 2012 (EPA/600/R12/010).

6 Proficiency testing scheme assigned value

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

Table 2 Organophosphate pesticides in water PTS sample list of analytes and expected concentration ranges

Analyte	CAS number	Concentration range		unit
		Max	Min	
Azinphos-methyl (Guthion)	86-50-0	10	0.1	µg/L
Chlorpyrifos (ethyl) (Dursban)	2921-88-2	10	0.1	µg/L
Dichlorvos (DDVP)	62-73-7	10	0.1	µg/L
Dimethoate (ethyl)	60-51-5	10	0.1	µg/L
Malathion/Mercaptothion	121-75-5	10	0.1	µg/L
Methyl parathion	298-00-0	10	0.1	µg/L
Mevinphos	7786-34-7	10	0.1	µg/L
Parathion	56-38-2	10	0.1	µg/L
Prothiofos (Tokuthion)	34643-46-4	10	0.1	µg/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 will be expected to include an uncertainty estimate for each result obtained, as well as report the recovery of the method and 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, which will change for every round. The participating laboratory is required to identify its analysts by a code known only to the laboratory.

A handwritten signature in black ink, appearing to read 'Desiree'.

Ms Desiree Prevoo-Franzsen

Section Head

Bio Analysis Laboratory

A handwritten signature in black ink, appearing to read 'Maria'.

Dr Maria Fernandes-Whaley

Section Head

Organic Analysis Laboratory

REGISTRATION FORM

PLEASE COMPLETE AND RETURN BY FAX OR E-MAIL TO DPrevoo@nmisa.org

DEADLINE FOR REGISTRATION IS 03 AUGUST 2015

Organophosphate pesticide (**NMISA-PT-ORG20**) in water proficiency testing scheme.

Send Test Materials to:	Send PTS Report(s) to:		
Contact name:	Contact name:		
Department:	E-mail:		
Company:			
Address:	Select registration options: (mark with an X)		
Town/City:	OPP PTS	<input type="checkbox"/>	R 1 980.00
Postal code:	Delivery	<input type="checkbox"/>	<i>Price determined by location</i>
Country:	Self-collection	<input type="checkbox"/>	
TEL:			
FAX:			
E-mail:			

I,

herewith confirm that a NMISA Customer Registration Information Form has been completed and submitted to NMISA for official quotation and invoicing. It is understood that registration for the proficiency testing scheme will only be confirmed upon receipt of a purchase order.

Signature

Date