



The Food and Environment Research Agency

## Protocol for Proficiency Testing Schemes

Version 2, January 2012

Part 2 – FAPAS<sup>®</sup>

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## PREFACE

This Protocol is a series of inter-related documents. This document, Part 2, sets out specific details for the Food Analysis Performance Assessment Scheme (FAPAS®). Although this document duplicates some of the text in Part 1 – Common Principles, it **cannot** be used in isolation. Part 2 must always be read in conjunction with Part 1 and vice versa.

## VERSION HISTORY

This Protocol was completely revised in 2009, superseding all proficiency testing scheme Protocols previously published by the Food and Environment Research Agency (previously, Central Science Laboratory), i.e. all previous editions of the separate FAPAS and FEPAS Protocols.

Version 2 of January 2012, this version, supersedes Version 1 of November 2009. The changes are as follows;

- 1.2 Amendments to reflect publication of standard ISO/IEC 17043 and compliance with its requirements
- 3.1 Additional clarification of test material preparation and homogeneity testing details
- 3.3 Amendments to reflect electronic documentation and issuing of instructions for test samples
- 3.4 Reference to website for QC sales and electronic report sales
4. Clarification of procedures in deriving assigned values and addition of qualitative assessments. References for standard deviations in Reports.

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# **1. INTRODUCTION**

## **1.1. Fera, Defra, PTG and FAPAS<sup>®</sup>**

The Food and Environment Research Agency (Fera) is an Executive Agency of the UK Government Department for Environment, Food and Rural Affairs (Defra). Fera provides a wide range of proficiency testing (PT) schemes.

The management of these PT schemes is the sole task of one of many teams within Fera. Known internally at Fera as the Proficiency Testing Group (PTG), this team provides Fera's PT schemes globally under the brand name of FAPAS PT. FAPAS<sup>®</sup> is itself one of these PT schemes and is an acronym for Food Analysis Performance Assessment Scheme.

For the purpose of part 1 of this Protocol we use FAPAS PT to mean Fera PTG. For the purpose of part 2 of this Protocol, i.e. this document, we additionally use FAPAS<sup>®</sup> to mean the Food Analysis Performance Assessment Scheme.

## **1.2. Accreditation**

FAPAS<sup>®</sup> is accredited by the United Kingdom Accreditation Service (UKAS). Accreditation is conferred in accordance with ISO/IEC 17043:2010 [1].

The formal schedule of the accreditation can be obtained from the United Kingdom Accreditation Service (UKAS) web site (Adobe PDF format) [2].

# **2. ORGANISATION OF FAPAS<sup>®</sup>**

## **2.1. Management System**

The scope of accreditation covers all aspects of the PTs organised by FAPAS<sup>®</sup>, and is listed in the UKAS schedule [2].

# **3. PARTICIPATION IN SCHEMES**

## **3.1. Test Material Preparation and Homogeneity**

Test materials are prepared for FAPAS<sup>®</sup> by subcontracting laboratories. The homogeneity testing may be done by the same laboratory or a different subcontracting laboratory. Details of test material preparation and homogeneity results are retained by FAPAS<sup>®</sup> but no longer published in the reports. Homogeneity testing procedures and evaluation of the results are in keeping with those recommended in the International Harmonized Protocol [3]. The identity of the subcontracting laboratories is confidential.

Participants may contact FAPAS PT to request details of test material preparation and homogeneity testing, where it is pertinent to their assessment. Such details may be released on request, except where this compromises data which is commercial in confidence or where such knowledge is scientifically invalid in the interpretation of assessments.

## 3.2. Dispatch and Receipt of Test Materials

FAPAS<sup>®</sup> test materials may be sent either by normal post, or by courier where time limitations are imposed. Such time limitations usually arise when an analyte/matrix combination is temperature sensitive or stable for only a limited period of time. Such test materials are indicated on the programme of PTs. To facilitate speedy delivery of samples, participants should make use of on-line tracking services. It is the responsibility of the customer to anticipate an email on the day of dispatch advising them of the tracking number and then to monitor the progress of their samples. It is particularly important for non-UK participants to track their samples to ensure a smooth transit through their country's Customs. FAPAS<sup>®</sup> cannot be held responsible for delays arising at Customs.

## 3.3. Analysis of Test Materials

It is the responsibility of participants to read the instructions (provided electronically, downloaded from the FAPAS PT website, [www.fapas.com](http://www.fapas.com)) and to follow them exactly, prior to conducting the actual analysis of the test material. FAPAS<sup>®</sup> cannot be held responsible for any problems arising from failure to comply with these instructions.

Examples of instructions are available on request from FAPAS<sup>®</sup>.

## 3.4. Follow-Up Services

After a PT has been completed and values for analyte concentrations assigned, surplus PT test materials may be purchased for use as "quasi-reference" quality control materials. It must be stressed that such test materials are *not* Certified Reference Materials. Certified Reference Materials for the food analysis sector, however, are not numerous and surplus FAPAS<sup>®</sup> test materials may be the only source of a suitable quality control material.

The PT report will indicate if surplus test materials are available. Alternatively, a list of surplus test materials that can be purchased after the test closing date is available from the website, [www.fapas.com](http://www.fapas.com).

Most reports issued since the launch of FAPAS<sup>®</sup> in 1990 are available for purchase, and prices are available on request. Participants in all of the FAPAS PT schemes have free access to an electronic copy of reports for those tests for which they have registered. Electronic copies of reports are available on request and a charge will be made for these.

If a participant wishes to obtain advice on any aspect of their performance, they should contact FAPAS PT by email ([info@fapas.com](mailto:info@fapas.com)) in the first instance. Participants must note that FAPAS PT may offer assistance in the form of a broker service whereby FAPAS PT will either anonymously or, subsequent to all parties agreeing to waive their confidentiality, pass on the participant's inquiry to an expert laboratory/external advisor.

## 4. PERFORMANCE ASSESSMENT

All FAPAS<sup>®</sup> PTs express participants' quantitative results as z-scores. Exhaustive details of the derivation of the assigned value are not included in Reports. Unless otherwise detailed in Reports, participants may assume that a full assessment of the assigned value by robust mean, median or mode has been carried out. The standard deviations for proficiency assessment may be derived either from the modified Horwitz equation [4], collaborative trial data, regulation, or a fitness-for-purpose RSD<sub>R</sub> provided by expert opinion. Relevant references will be detailed in Reports. For some tests (e.g. pesticides, vet drugs), if a participant fails to report an analyte and their limit of determination (or limit of quantification or CC $\beta$ ) is less than the level required to obtain a z-score of -2, the result will automatically be assigned to zero.

Qualitative results may be assessed either against the answer anticipated by formulation or against the majority consensus of participants' results. Where results are assessed against the formulation, they are expressed as either "satisfactory" or "not satisfactory". Where results are assessed against

the consensus, they are expressed as either "agree" or "disagree" with the consensus. For some tests (e.g. pesticides or colours), there will be an additional table in the report detailing analytes found by participants that were not part of the test (i.e., false positives).

## 5. REFERENCES

- 1 ISO/IEC 17043:2010, Conformity assessment – General requirements for proficiency testing.
- 2 <http://www.ukas.com/about-accreditation/accredited-bodies/proficiency-testing-organisations.asp>
- 3 Thompson, M., Ellison, S.L.R. and Wood, R., 2006, The International Harmonised Protocol for the Proficiency Testing of Analytical Chemistry Laboratories, *Pure Appl. Chem.*, **78** (1), 145–196.
- 4 Thompson, M., 2000, Recent trends in inter-laboratory precision at ppb and sub-ppb concentrations in relation to fitness for purpose criteria in proficiency testing, *Analyst*, **125**, 385-386.

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