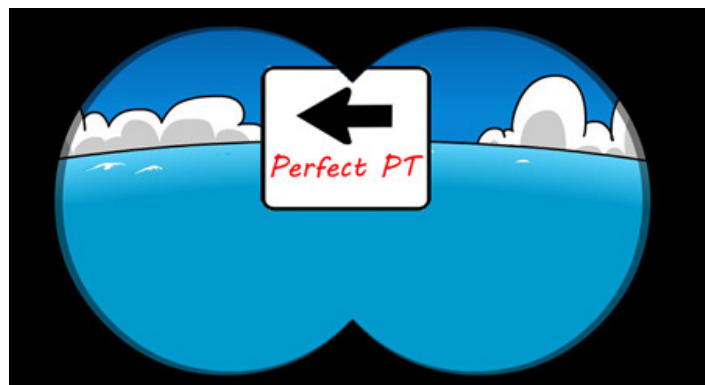


Selecting the right proficiency testing scheme for my laboratory

Introduction

Participation in Proficiency Testing (PT) is an important part of assuring the quality of test results in a laboratory. The time and effort required can be costly, especially for laboratories performing many different tests, so selecting the most appropriate PT scheme is very important. Several PT schemes are often available for the same area of testing, so this leaflet focuses on key questions that can help laboratories choose those PT schemes that are best suited for their needs.



Parameters included in the PT

Are the matrices, analytes, and/or concentration levels of the test items offered by the PT scheme similar to those of samples encountered in the everyday practice of the laboratory? For example:

Example 1: *The levels of contaminants in a PT scheme for drinking water will be quite different from those expected in industrial wastes.*

A laboratory testing industrial wastes could:

- Participate, taking into account the limitations;
- Not participate at all.

Example 2: *PT schemes for sequencing of DNA may offer either tissue samples or DNA extracts.*

Depending on its choice, the laboratory's competence will be assessed for:

- The whole test;
- The sequencing step only.

Strategies for data collection and analysis

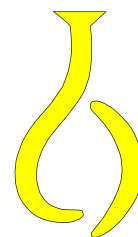
Are the strategies applied by the PT provider suitable for the needs of the laboratory?

Factors to be considered include:

- Description of the statistical design applied;
- Number of test items to be analysed and/or number of replicates requested;
- Procedures for data collection from participants (e.g. submission by fax, e-mails or web-portals);
- Procedures for comparison of results obtained by different measurement procedures;
- Number and origin of participants;
- Number of participants using the same measurement procedure as the laboratory; and
- Methods and criteria used for performance assessment.

The laboratory should also consider whether its customers, accreditation bodies and/or regulatory bodies have any specific requirements on statistical design.

Example 3: *A laboratory determines the fat content in milk powder, cereals and feed using three operationally defined measurement procedures (Röse Gottlieb, direct fat extraction, and fat determination by hydrolysis). Each measurement procedure could give different results for each matrix. It is important for the laboratory to check whether the different measurement procedures are taken into consideration for each matrix in the PT scheme.*



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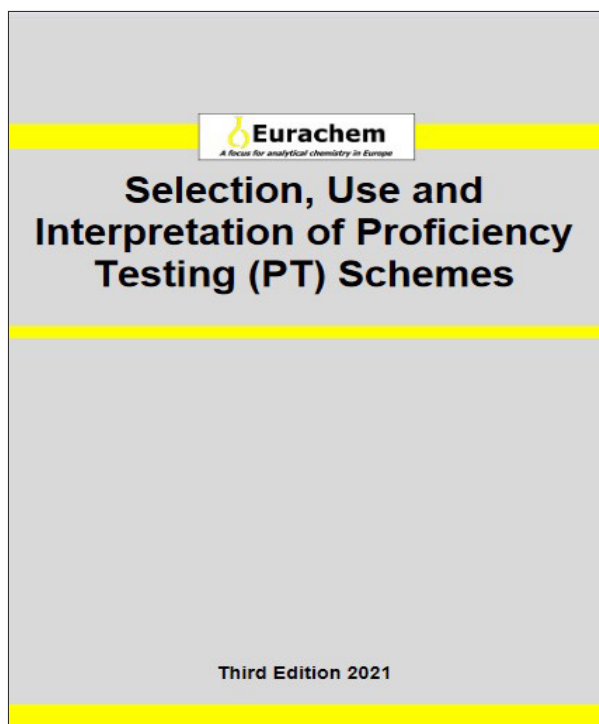
Evaluation of performance

Is the method used for assessing the participants' performance (e.g. z score) clearly described by the PT provider and understood by the laboratory?

Example 4: *A laboratory may be interested in reporting the measurement uncertainty on its PT results so this can be taken into account in the performance evaluation, but the approach of the PT provider does not include this.*

Are the criteria used by the PT provider for performance evaluation compatible with the type of work undertaken by the laboratory and/or the relevant legislation?

Example 5: *A laboratory performing confirmatory analyses may look for more restrictive criteria for performance evaluation than laboratories using simpler screening techniques.*



Trust in the PT provider

How can a laboratory assess the competence of a PT provider? Consider:

- Compliance with the requirements of ISO/IEC 17043, e.g. accreditation;
- Experience;
- Reliability of the assigned values; and
- Fitness for purpose of criteria for proficiency assessment.

Communication

Is the interaction between the PT provider and the participant suitable? Consider:

- Language used;
- Accessibility and clarity of information;
- Reports provided in a timely manner;
- Regular communications, e.g. annual user meetings;
- Level of support provided; and
- Implementation of the customer's wishes for PTs.

Practical guidance for the selection of PT schemes is provided in Annex A of the Eurachem Guide [1].

More information / further reading

[1] B. Brookman and I. Mann (eds.) Eurachem Guide: Selection, Use and Interpretation of Proficiency Testing (PT) Schemes (3rd ed. 2021). Available from www.eurachem.org.

Information about PT providers and schemes can be obtained from your national accreditation body, from the EPTIS website (www.eptis.org) or from other national or international organizations.