

# Proficiency Testing

## Definition

Proficiency testing is interlaboratory comparison that calibrates the performance of laboratory personnel and other relevant staff, who conduct microbiological, chemical, or physical analyses of ingredients, materials, work-in-progress, finished products and the processing environment.

## Applicable Code Requirements

1. 2.4.4.2

## Review Glossary Terms

1. Inspection Area
2. On-Site Labor
3. Validation
4. Verification

## Implementation & Audit Guidance

### What does it mean?

According to ISO/IEC 17043:2010, proficiency testing (PT) is the evaluation of participant performance against pre-established criteria by means of interlaboratory comparisons.

A proficiency test is a method used to demonstrate competency and validate a laboratory's measurement process by comparing the in-house results to the results of a reference laboratory and/ or other participant laboratories.

### Why is it in the Code & why is it important?

Proficiency testing is part of the SQF Code requirement for in-house laboratory testing. The SQF Code requires that when internal laboratories are used to conduct input, environmental, or product analyses, the sampling and testing methods are to be in accordance with the applicable requirements of ISO/IEC 17025, which includes annual proficiency testing. This means that a site that conducts laboratory tests, critical to food safety, is required to verify the accuracy and reliability of the testing methods used on site through a proficiency test. The applicable proficiency tests are to be conducted annually, at a minimum.

Proficiency testing is not about products but testing procedures. For example, tests critical to food safety such as Aw, pH, or pathogen testing use the same method across many different products.

The table below helps to explain some of the common misperceptions of what is and is not proficiency testing.

Proficiency Testing is <b>NOT</b>	Proficiency Testing <b>IS</b>
Training	Calibration
Intra-Laboratory Comparison	Inter-laboratory Comparison
For product quality testing (or sensory)	For food safety testing (product or environmental)
Conducted for testing sent to a 3 <sup>rd</sup> party	Conducted for testing completed on-site

Proficiency testing is a round-robin type of test in which duplicate samples are selected in identical fashion and tested via intra-laboratory. The proficiency test samples could either come from the site or the external laboratory. Regardless of the source of the sample, the goal of the proficiency test is to verify the testing methods conducted by the site. When developing a proficiency testing process consider the following:

1. Selection of the external laboratory.
  - a. The external laboratory is to be accredited to ISO/IEC 17025.
  - b. The laboratory should be able to demonstrate that they are able to conduct proficiency testing. This could be identified through accreditation to ISO 17043 or included in the scope of accreditation.
  - c. There are many 3<sup>rd</sup> party laboratories that conduct proficiency testing. Laboratory equipment providers or the CB may have suggestions.
2. Handling and testing of the materials
  - a. Follow the same methods as the identified in-house procedure.
  - b. Use the same equipment and personnel that routinely perform the task.
  - c. Determine the acceptability range of the test results. Depending on the test, the results may not be identical, and an acceptable difference should be identified to determine if the proficiency test results would be acceptable or unacceptable.
3. Proper submission of the test results
  - a. Evaluation should be conducted on the final, not presumptive, results.
  - b. Both the internal and external laboratories used should not forward or share the results of the tests until after the results have been finalized.
4. Review of the summary reports
  - a. A review of the results is to be compared to the level of acceptability.
  - b. Unacceptable results would warrant corrective action that may include:
    - i. Investigation of unacceptable, trending results.
    - ii. Review of the sampling and testing process.
    - iii. Repeat of the proficiency test.

See RIO Chart on following page.

### RIO Road to Audits (Records, Interviews, and Observations)

Records	Interviews	Observations
<p>The following are examples of records to assist in the implementation and review of this topic:</p> <ul style="list-style-type: none"> <li>Identified tests critical to food safety</li> <li>Testing methods</li> <li>Laboratory accreditation documentation for proficiency testing (for the tests conducted at the site)</li> <li>Proficiency testing program</li> <li>Proficiency testing results</li> </ul>	<p>The following are examples of people to interview to assist in the implementation and review of this topic:</p> <ul style="list-style-type: none"> <li>Laboratory staff</li> </ul> <p>The following are examples of questions to ask to assist in the implementation and review of this topic:</p> <ul style="list-style-type: none"> <li>What type of tests are conducted at this site?</li> <li>Explain the proficiency testing process.</li> <li>What is the corrective action when the proficiency testing results in a failed test?</li> <li>How was the external lab selected?</li> </ul>	<p>The following are examples of observations to assist in the implementation and review of this topic:</p> <ul style="list-style-type: none"> <li>Site staff conducting a test</li> </ul>

### Additional References

- June 2019 Learning Lunch Webinar: Proficiency Testing for your SQF Audit (Safe Quality Food Institute YouTube Channel).
- SQF Guidance document for Product Sampling, Inspection and Analysis
- Centers for Disease Control and Prevention (CDC): Clinical Laboratory Improvement Amendments (CLIA) Brochure #8: Proficiency Testing
- Search A2LA Directory of Accredited Organizations: <https://customer.a2la.org/index.cfm?event=directory.index>
- ISO/IEC: 17043:2010 – *Conformity assessment – general requirements for proficiency testing*
- ISO/IEC: 17025- *General requirements for the competence of testing and calibration laboratories*