

In-house proficiency testing scheme among Messer specialty gas plants

For high quality, stable, accurate and reliable gas mixtures



Taking part in proficiency tests is recommended practice to keep improving production processes, thus maintaining and enhancing the accuracy of gas mixtures. In addition to the participation in proficiency tests organized by Proficiency Testing Providers (PTP), Messer performs annual interlaboratory comparisons between the laboratories located in the specialty gas plants in Europe. This helps to continuously improve the quality of the gas mixtures produced by non-accredited laboratories as well as gas mixtures beyond the scope of accreditation. This special approach has proven to be a reliable way to provide customers with highly accurate analysis and high quality individual gas mixtures.

Benefits of Messer in-house proficiency tests

- Flexible scope (components and concentration range)
- Identify deviation easily to take corrective actions
- Sharing the best practices within laboratories
- Continuous evaluation of laboratory performance
- Continuous improvement of the quality and accuracy of measurements

Messer, the world's largest family-owned industrial gas specialist offers an extensive portfolio of individual gas mixtures for a wide range of applications. In Europe, these products are manufactured in our specialty gas plants in Austria, Belgium, France, Hungary, Serbia and Switzerland. Four of the six laboratories are accredited according to ISO/IEC 17025 as calibration laboratory. The plant in Switzerland is also accredited according to ISO 17034 for the manufacturing of certified reference materials. This attests to the reliability of our processes, validates our technical expertise and shows our commitment to quality. Our long-term experience in manufacturing and analyzing individual gas mixtures and the skills of our teams enable us to offer highly accurate and traceable products to meet customer demands.

Proficiency tests for highly accurate and stable gas mixtures

Individual gas mixtures are mainly used to calibrate analytical equipment and therefore high quality products are essential to have a high level of accuracy.

Participation in proficiency testing, such as interlaboratory comparisons, is not only required by the ISO/IEC 17025, but is also crucial for maintaining a high level of quality and continuously improving production processes. The specialty gas plants take part in proficiency tests periodically to demonstrate our ability to produce and analyze individual gas mixtures that have specific compositions and levels of uncertainties (accuracy and traceability). This also ensures that Messer production facilities have the same level of proficiency, independent of the accreditation status.

External proficiency tests:

Interlaboratory comparisons are managed by accredited providers (PTP) in compliance with ISO/IEC 17043. Proficiency tests are offered by companies and institutes like the national meteorological institutes. These tests are advantageous as various companies are participating, thus the statistical results are significant. Messer specialty gas plants participate regularly in interlaboratory comparisons offered by PTP.

In-house proficiency tests:

In order to gain more flexibility on the scope of test mixtures and a shorter duration of the testing scheme, Messer carries out a supplemental in-house proficiency test program every year. With our laboratories in Europe, it is possible to perform a statistical evaluation of the data collected. This unique approach is adapted to the scope of the products manufactured. We include occasionally non-Messer accredited laboratories in the scheme. This assures that the results of all laboratories are traceable and comparable from the metrological point of view.



In-house proficiency tests using sequential participation scheme

Every year, the Messer Corporate Office (MCO) together with the specialty gas laboratories in Europe organizes the In-house proficiency test:

1. Selection of specific gas mixtures: At the beginning of each year, the Messer's specialty gas teams selects the components and the concentration range of the test mixtures.

2. Manufacturing the test mixtures: MCO specifies the composition of the test mixtures and sends the data to the specialty gas plant, which was chosen for manufacturing.

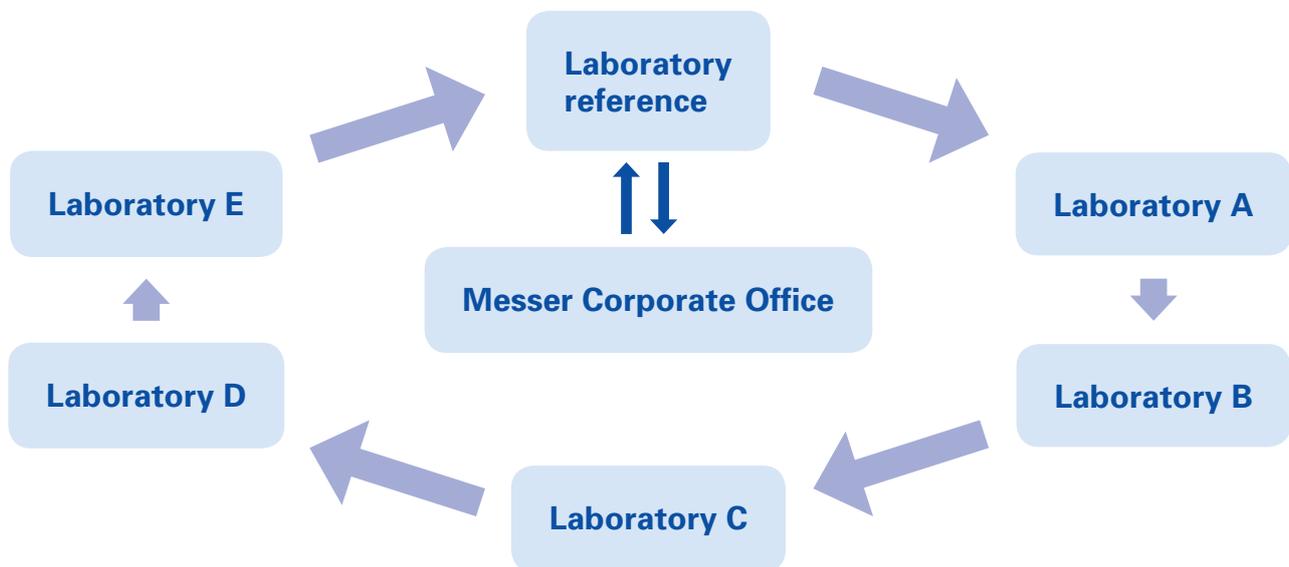
3. Initial analysis: The on-site laboratory analyzes the test mixtures and provides MCO with their exact composition. This information is not disclosed to the other participants.

4. Secondary analysis: The gas cylinders are then sent from one participating Messer laboratory to another for analysis. Each laboratory sends its results to MCO.

5. Final analysis: the gas mixtures are re-analyzed by the laboratory located in the specialty gas plant that produced them.



The analytical results from all participating laboratories are then taken for an evaluation of stability of the gas mixtures, identification of outliers and a robust statistical evaluation following ISO 13528 and the ISO 5725 series of standards.



Messer has carried out in-house proficiency tests since 2008. In each year, we focus on different gas mixtures (type of mixture and concentration of the components),

in accordance with the respective "Calibration and Measurement Capability" of Messer accredited laboratories.

Messer specialty gas plants in Europe



Messer Schweiz, Lenzburg, Switzerland

ISO/IEC 17025 and ISO 17034

Messer France, Mitry-Mory, France

ISO/IEC 17025

Messer Hungarogáz, Budapest, Hungary

ISO/IEC 17025

Messer Benelux, Zwijndrecht, Belgium

Messer Tehnogas, Belgrade, Serbia

ISO/IEC 17025

Messer Austria, Gumpoldskirchen, Austria



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