

# Practice of Estimating Uncertainty When Calibrating a Viscometer

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**Citation:** Gorbachev P.A., Kutuyaykin V.G., Geyger E.Yu. Practice of Estimating Uncertainty When Calibrating a Viscometer, *Kompetentnost' / Competency (Russia)*, 2024, no. 5, pp. 42–46. DOI: 10.24412/1993-8780-2024-5-42-46

## key words

measurements, uncertainty, uncertainty budget, viscosity

Testing and calibration laboratories accredited in the national accreditation system must meet the requirements of GOST ISO/IEC 17025–2019. Among the requirements of this standard is the need to calculate the uncertainty of measurement and calibration results. The uncertainty calculation includes two approaches to assessing the factors that influenced the accuracy of the measurement procedure, and it is here that researchers will need to have certain knowledge and skills to choose the appropriate algorithm for processing this information – converting into standard uncertainty. Despite some simplification, the given example demonstrates a general approach to uncertainty assessment and can be used by testing and calibration laboratories in the practice of performing measurements, tests and calibrations.

## References

1. International dictionary of metrology: basic and general concepts and relevant terms, St. Petersburg, *SEO Professional*, 2010, 82 P.
2. GOST 34100.3–2017 Measurement uncertainty. Part 3. Guidance on expressing measurement uncertainty.
3. NTC.ED.VZ246.000 RE Viscometer NOVOTEST VZ-246. Manual.
4. GOST 33–2000 Petroleum products. Transparent and opaque liquids. Determination of kinematic viscosity and calculation of dynamic viscosity.
5. GOST R ISO 21748–2021 Statistical methods. Guidance on the use of repeatability, reproducibility and correctness estimates in assessing measurement uncertainty.
6. GOST R ISO 5725-6–2022 Accuracy (correctness and precision) of measurement methods and results. Part 6. Using accuracy values in practice.
7. RMG 115–2019 Calibration of measuring instruments. Algorithms for processing measurement results and estimating uncertainty.
8. GOST ISO/IEC 17025–2019 General requirements for the competence of testing and calibration laboratories.

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Учебное пособие. — М.: АСМС, 2023

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