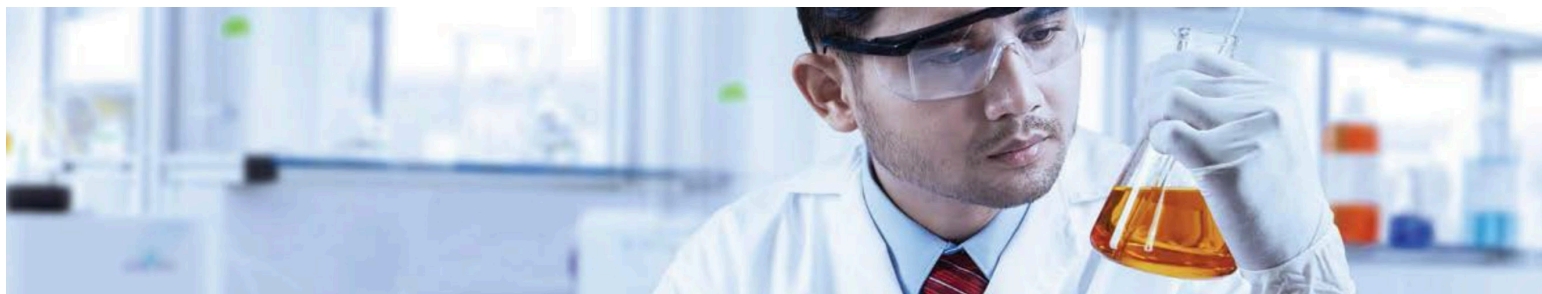


ExxonMobil laboratory quality standards



Quality standards

ExxonMobil has a long history of commitment to quality leadership. In 1989, following guidance provided in ISO Guide 25 (1978), "General requirements for the competence of calibration and testing laboratories," ExxonMobil Fuels & Lubricants introduced their Quality Practices and Guidelines (QP&G) standard addressing laboratory data quality. The guidance document identified the necessary elements of a quality system that must be effectively implemented to ensure data quality and integrity. ISO 17025:2005, the current international standard practice guide for laboratory quality, evolved from the original ISO Guide 25.



More recently, ASTM D6792-13 "Standard Practice for Quality System in Petroleum Products and Lubricants Testing Laboratories," first released in 2002, was developed by an ASTM committee of petroleum industry experts, including members from ExxonMobil.

ExxonMobil's QP&G standard is aligned with both ASTM D6792 and ISO 17025 and acknowledges the guiding principles

referenced in the "Guidance on development, implementation and improvement of quality systems in petroleum laboratories" published by the Energy Institute (formerly the Institute of Petroleum, IP) in January 2010.

Laboratories are assessed for compliance with the ExxonMobil standard by an independent team of qualified ExxonMobil assessors.

Components of a quality system

ExxonMobil operates modern laboratory facilities with state-of-the-art instrumentation and Laboratory Information Management Systems (LIMS) to record and report test data, and to track samples. In line with other quality assurance standards, QP&G recognizes that the key components of an effective quality system are:

- Management commitment
- Documentation of procedures and practices
- Document and record control
- Training and qualification of staff
- Equipment validation, calibration and maintenance
- Measurement traceability
- Recordkeeping and reporting
- Quality system assessments (audits)
- Corrective and preventive actions
- Customer and product specifications

The successful incorporation of these quality system components in our laboratories is essential to ensure the integrity and accuracy of product test data reported to our customers.

Implementation and assessment

ExxonMobil's QP&G standard was initially implemented at the company's lube oil blending and used oil testing facilities throughout the world. The standard is now used by all ExxonMobil affiliates to ensure data quality at over 600 company quality control laboratories, toll blenders, third-party suppliers, and contract petroleum and environmental testing laboratories that generate data for product and regulatory compliance. Laboratories are assessed for compliance with the ExxonMobil standard by an independent team of qualified ExxonMobil assessors.

ISO 17025 versus ExxonMobil's QP&G

While both standards agree on the components of a quality system, they differ in their approach to applying the standard. Agencies that accredit laboratories to the ISO 17025 standard focus on the individual tests that the laboratory conducts and accredits each test separately. This can result in misinterpretation of whether the entire lab or a limited number of tests conducted by the lab are within scope of the ISO 17025 accreditation.

ExxonMobil's QP&G standard covers all tests and also includes an additional focus on managing laboratory changes (e.g., change in test methods) as they can have a profound impact on the integrity and accuracy of test data.

ExxonMobil's QP&G standard has been continuously improved since it was first developed and is aligned with international laboratory quality standards such as ISO 17025 and ASTM D6792, as well as the broader manufacturing standards of ISO 9002, as applied to quality assurance laboratories. Two significant items that have been incorporated into QP&G, and which are not currently included in ISO 17025, are a data integrity or ethics policy requirement and periodic witnessing of testing conducted to ensure that testing does not deviate from the prescribed test method requirements. Independent reviews conducted at ExxonMobil laboratories confirm that our quality systems are favorably recognized within the quality assurance community.

