

Traceability



What is Traceability?

Traceability is documentation—essentially a pedigree—showing a direct link to the official U.S. 1 kg weight standards housed at the National Institute of Standards and Technology (NIST) in Gaithersburg, MD. These NIST standards are in turn calibrated to the international 1 kg standard maintained at the BIPM lab in Sevres, France.

Traceability not only means that a weight or mass standard has links to the NIST 1 kg standard, but also that the measurements were appropriate for the accuracy class required for the application. Traceability also requires proof that all environmental factors affecting accuracy were considered at the lab doing the measurement.

There are two types of traceability: direct and indirect.

Direct Traceability

Direct traceability means a weight or mass standard has been tested by NIST. NIST then issues a report number to the organization for whom they have performed measurements. Because the report is valid only for the items tested by NIST, a calibration lab such as Rice Lake Weighing Systems must submit its set of mass standards to NIST for testing. This report provides direct traceability for the lab's mass standards, which can then be used in calibrating weights for clients.

Indirect Traceability

Indirect traceability exists when a client's weight or mass standard is tested by a metrology lab that has direct traceability and has the necessary measurement control program in place. An important aspect of this measurement control and testing program is the participation in a NIST-certified measurement assurance program, which reduces the possibility of errors.

To clarify the two types of traceability, remember that direct traceability comes directly from NIST. For example, Rice Lake Weighing Systems' Calibration Lab has direct traceability, as shown in the diagram above. The calibrations we perform for our customers provide indirect traceability. Likewise, when that customer uses its Rice Lake Weighing Systems calibrated test weights to calibrate a balance or scale, it is providing indirect traceability.

When is Traceability Necessary?

- Federal agencies require measurement traceability to national standards for contract work.
- Military contracts invariably require traceability.
- Pharmaceutical, scientific, and medical products manufacturers usually specify traceability.
- ISO-9000 registered companies nearly always require proof of traceability to the international standard.