



National Institute of Standards & Technology

Certificate

Standard Reference Material 1321

Certified Coating Thickness Calibration Standard (Nonmagnetic Coating on Steel)

This Standard Reference Material (SRM) consists of four 30 x 30 mm coating thickness plates mounted on a steel sheet which is sandwiched between two cardboard layers. This steel sheet appears to most instruments as an infinitely thick substrate. This standard is designed for calibrating magnetic type thickness gauges used to measure thickness of nonmagnetic coatings on steel. The coatings are electrodeposited copper with a thin layer of chromium for wear resistance on steel substrates, which have the magnetic properties of AISI 1010 steel. Magnetic type thickness gauges are often used to measure the thickness of paint and other organic coatings on steel, as well as zinc (galvanized) and other nonmagnetic metallic coatings. They can also be used to estimate magnetic properties of austenitic stainless steel weld metal. Because the magnetic properties of the weld metal are closely related to the ferrite content of the weld, these instruments are used to estimate the ferrite content.

The certified coating thickness of this calibration standard is certified to be within $\pm 5\%$ of the true thickness. The certified thicknesses are based on measurements made with instruments that were calibrated with NIST master standards #1321. To further ensure accuracy, the thickness of several plates statistically sampled from the lot was determined by gravimetric procedures.

CAUTION: Any modification to this calibration standard, e.g., altering or removing it from the card on which it is mounted, nullifies the certification of the SRM. This SRM should not be left unprotected in a corrosive laboratory environment. If corrosion occurs, the surface can often be restored with a non-abrasive polishing cream without affecting the certified thickness.

Overall direction and coordination of the technical measurements at NIST leading to certification were performed under the direction D.S. Lashmore, of the Metallurgy Division.

The technical and support aspects involved in the preparation, certification, and issuance of this Standard Reference Material were coordinated through the Standard Reference Materials Program by P.A. Lundberg.

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William P. Reed, Chief
Standard Reference Materials Program