

National Bureau of Standards

Certificate

Standard Reference Material 1357

Certified Coating Thickness Calibration Standard

(Nonmagnetic Coating on Steel)

This Standard Reference Material (SRM) consists of four 30 x 30 mm coating thickness plates that are designed for calibrating thickness gages of the magnetic type used to measure thicknesses of nonmagnetic coatings on steel. The coatings are electrodeposited copper with a thin layer of chromium for wear resistance; the steel substrates have the magnetic properties of AISI 1010 steel. Magnetic type thickness gages 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 thickness values given for the coatings are certified to be within 5% of the true thicknesses. The card on which the four plates are mounted consists of a steel sheet sandwiched between two cardboard layers. The steel sheet gives the appearance to most instruments of an infinitely thick substrate, and removal of the plates from the card may change the response and calibration of some types of coating thickness gages.

The nominal coating thicknesses for this SRM are:

Plate 1	0 μm	(0.0 mil)
Plate 2	6 μm	(0.24 mil)
Plate 3	20 μm	(0.8 mil)
Plate 4	48 μm	(1.9 mils)

The certified coating thicknesses are printed on the card.

The coating thicknesses were determined from measurements made on instruments which were calibrated with NBS master standards. To further ensure accuracy, the thickness of one of every 25 plates is determined by gravimetric procedures.

CAUTION: This SRM should not be left unprotected in a corrosive laboratory environment for an extended period of time as some corrosion may occur. Corrosion products can often be removed with a non-abrasive polishing cream without affecting the certification.

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Office of Standard Reference Materials