National Institute of Standards & Technology

Certificate of Analysis

Standard Reference Material 365

Electrolytic Iron

This Standard Reference Material (SRM) is in the form of chips sized between 16 and 35 mesh sieves. It is intended for use in chemical methods of analysis.[a]

Element	Percent by Weight
Carbon	0.0068 (± 0.0003)
Manganese	.0056
Phosphorus	.0011 (± .0001)
Sulfur	.0055 (± .0002)*
Silicon	$.008_0$
Copper	.0058
Nickel	.041
Chromium	$.007_2$
Vanadium	.0006
Molybdenum	.0050
Cobalt	$.007_0$
Titanium	(.0001)
Arsenic	(.0002)[b]
Boron	.00012
Lead	$.00001_9$
Iron (assay & by diff)	99.90 (± 0.02)

[a]This material also is available in the form of disks, SRM 1265a, 31 mm (1 1/4 in) in diameter and 19 mm (3/4 in) thick for optical emission and x-ray spectrometric analysis; rods, SRM 1099, 6.4 mm (1/4 in) in diameter and 102 mm (4 in) long for the determination of gases in metals by vacuum fusion and neutron activation methods of analysis; and rods, SRM 665, 3.2 mm (1/8 in) in diameter and 51 mm (2 in) long for application in microchemical methods of analysis such as electron probe microanalysis, spark source mass spectrometric analysis, and laser probe analysis.

[b]Value in parenthesis is not certified as it is based on the results from a single laboratory or analytical method.

CERTIFICATION: The value listed for a certified element is the present best estimate of the "true" value based on the results of the cooperative analytical program. The value listed is not expected to deviate from the true value by more than ± 1 in the last significant figure reported; for a subscript figure, the deviation is not expected to be more than ± 5. *Sulfur certification is based on results of SSMS-ID at NIST, and on results of IDMS at JAERI.

June 12, 1989
Gaithersburg, MD 20899
(Revision of certificates
dated 7-28-70,1-8-76,7-5-77,
and 2-24-81)

Stanley D. Rasberry, Chief
Office of Standard Reference Materials

(over)

The overall direction and coordination of the technical measurements at NIST leading to certification were performed under the direction of O. Menis, B.F. Scribner, J.I. Shultz and J.L. Weber, Jr.

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

ADDITIONAL INFORMATION ON THE COMPOSITION: Certification is made only for the elements indicated. This standard contains 40 elements and information on the elements not certified may be of importance in the use of the material. Although these are not certified, upper limit values are presented in the following tables for the remaining elements.

Elements Detected (percent by weight)

Element	Upper Limit	Method
W	(~0.00004)	Neutron activation
Sn	(~.0002)	Spark source mass spectrometry
Al (total)	(.0007)	Atomic absorption
Nb	(<.00001)	Spark source mass spectrometry
Ag	(~.000002)	Spark source mass spectrometry
Zn	(<.0001)	Spark source mass spectrometry
N	(.0013)	Distillation-photometric
O	(.0061)	Vacuum fusion
H	(<.0005)	Vacuum fusion
Ge	(~.0014)	Spark source mass spectrometry
Sr	(<.0005)	Spark source mass spectrometry

Elements Sought but Not Detected (percent by weight)

Element	Upper Limit	Method
Ta	[a]-(<0.00005)	Neutron activation
Zr	-(<.00001)	Spark source mass spectrometry
Sb	-(<.00005)	Neutron activation
Bi	-(<.00001)	Spark source mass spectrometry
Au	-(<.000002)	Neutron activation
Ca	-(<.00001)	Atomic absorption
Mg	-(<.00002)	Atomic absorption
Se	-(<.00001)	Spark source mass spectrometry
Te	-(<.00001)	Spark source mass spectrometry
Ce	-(<.000005)	Spark source mass spectrometry
La	-(<.000005)	Spark source mass spectrometry
Nd	-(<.000005)	
Pr	-(<.000005)	Spark source mass spectrometry
Hf	-(<.00002)	Spark source mass spectrometry

[a]Dash indicates "not detected." Value in parenthesis following the dash is the conservative "upper limit" of detection.

PLANNING, PREPARATION, TESTING, ANALYSIS: This standard should serve as a substitute for the NIST-SRM 55 series of ingot irons. Material from the same melt is available in a variety of forms to serve in checking methods of analysis and in calibrating instrumental techniques.

The material for this standard was vacuum melted and cast at the Carpenter Technology Corporation, Reading, Pennsylvania, under a contract with the National Institute of Standards & Technology. The contract was made possible by a grant from the American Iron and Steel Institute.