

# National Bureau of Standards Certificate of Analysis Standard Reference Material 1267 Stainless Steel (AISI 446)

(In Cooperation with the American Society for Testing and Materials)

This Standard is in the form of annealed disks, 32 mm (1 1/4 in) in diameter and 12.7 mm (1/2 in) thick, intended for use in optical emission and x-ray spectrometric methods of analysis.<sup>1</sup>

Constituent	C	Mn	P	S	Si	Cr	V	N	Ni
Certified Value, % by wt. <sup>2</sup>	0.093	0.315	0.018	0.015	0.58	24.14	0.08	0.17	0.29
Estimated Uncertainty <sup>3</sup>	0.002	0.005	0.001	0.001	0.01	0.05	0.01	0.01	0.02
Method Lab	Combustion- Infrared	Persulfate- Arsenite	Photometric	Combustion- Infrared	Perchloric Acid Dehydration				Gravimetric
1	0.095	0.319	0.018	0.015	<sup>o</sup> 0.59	<sup>b</sup> 24.14	<sup>c</sup> 0.08	<sup>d</sup> 0.174	0.31
2	.085	<sup>e</sup> .320	.019	.016	.59	<sup>f</sup> 24.14	—	<sup>d</sup> .167	<sup>g</sup> .28
3	.094	.31	<sup>h</sup> .018	.018	.56	<sup>i</sup> 24.21	—	<sup>d</sup> .172	—
4	.091	<sup>j</sup> .311	.019	.014	<sup>o</sup> .57	24.13	—	<sup>k</sup> .158	—
5	.094	—	—	.014	—	<sup>l</sup> 24.14	<sup>m</sup> .08	—	.28

<sup>1</sup>This material also is available in the form of chips, SRM 367, intended for use in chemical methods of analysis.

<sup>2</sup>The certified value listed for a constituent is the *present best estimate* of the "true" value based on the results of the cooperative program for certification.

<sup>3</sup>The estimated uncertainty includes method imprecision, bias among methods, and material variability for samples 1.0 g or more.

<sup>a</sup>Double dehydration.

<sup>b</sup>Perchloric acid oxidation, potentiometric titration with standard Fe(NH<sub>4</sub>)<sub>2</sub>(SO<sub>4</sub>)<sub>2</sub>.

<sup>c</sup>Spectrochemical.

<sup>d</sup>Inert gas fusion - chromatographic.

<sup>e</sup>KIO<sub>4</sub> photometric method.

<sup>f</sup>Peroxydisulfate oxidation, titration with FeSO<sub>4</sub>-K<sub>2</sub>Cr<sub>2</sub>O<sub>7</sub>.

<sup>g</sup>Photometric.

<sup>h</sup>Color complex extracted with isobutyl alcohol.

<sup>i</sup>Perchloric acid oxidation, titration with FeSO<sub>4</sub>-KMnO<sub>4</sub>.

<sup>j</sup>Chromium separated with ZnO.

<sup>k</sup>Inert gas fusion - thermal conductivity.

<sup>l</sup>Peroxydisulfate oxidation, potentiometric titration with standard Fe(NH<sub>4</sub>)<sub>2</sub>(SO<sub>4</sub>)<sub>2</sub>.

<sup>m</sup>Nitric acid oxidation, potentiometric titration with standard Fe(NH<sub>4</sub>)<sub>2</sub>(SO<sub>4</sub>)<sub>2</sub>.