

UNITED STATES DEPARTMENT OF COMMERCE  
WASHINGTON 25, D. C.

National Bureau of Standards

Certificate of Analyses

Standard Sample 126B  
High-Nickel Steel

ANALYST	Ni	C	Mn	Si	Cu	Cr	Co	Mo	V
	Weighed as nicked dimethylglyoxime	Direct combustion	Persulfate-arsenite	Perchloric acid dehydration			Colorimetric Nitroso-R-salt	Colorimetric	
1.....	<sup>a</sup> 35.99	0.083	0.387	<sup>b</sup> 0.202	<sup>c</sup> 0.083	<sup>d</sup> 0.065	0.031	0.006	<sup>e</sup> 0.001
2.....	{ <sup>f</sup> 35.97 <sup>g</sup> 36.00 }	.090	{ <sup>h</sup> 376 <sup>i</sup> 378 }	<sup>b</sup> .203	<sup>j</sup> .084	<sup>k</sup> .068	<sup>l</sup> .031		
3.....	{ <sup>m</sup> 35.98 <sup>n</sup> 35.99 }	.092	<sup>i</sup> .376	<sup>b</sup> .201	<sup>j</sup> .084	<sup>o</sup> .063	.030		
4.....	<sup>p</sup> 35.97	.087	<sup>q</sup> .384	.201	<sup>j</sup> .087	<sup>d</sup> .063	.029		
5.....	35.96	.092	<sup>q</sup> .378	.199	{ <sup>r</sup> .079 <sup>s</sup> .078 }	<sup>n</sup> .065	.044		
6.....	<sup>t</sup> 36.04	.088	<sup>i</sup> .381	{ <sup>u</sup> .198 <sup>v</sup> .197 }	<sup>r</sup> .082	<sup>o</sup> .069	.027		
Average.....	35.99	0.090	0.380	0.200	0.082	0.066	0.032		

<sup>a</sup> 0.25-g sample and double precipitation. Precipitate dried at 155° C.  
<sup>b</sup> Double dehydration with intervening filtration.  
<sup>c</sup> Diethylthiocarbamate photometric method. See J. Research NBS 47, 380 (1951) RP2265.  
<sup>d</sup> Ether extraction on a 10-g sample. Chromium oxidized with persulfate and titrated potentiometrically with ferrous ammonium sulfate.  
<sup>e</sup> Vanadium separated as in (d), oxidized with HNO<sub>3</sub> and titrated potentiometrically with ferrous ammonium sulfate.

<sup>f</sup> 0.2-g sample aliquoted from a 2-g sample.  
<sup>g</sup> Photometric titration with cyanide. See Ind. Eng. Chem. Anal. Ed. 10, 175 (1938).  
<sup>h</sup> ZnO-Bismuthate-FeSO<sub>4</sub>-KMnO<sub>4</sub> method.  
<sup>i</sup> Periodate photometric method.  
<sup>j</sup> H<sub>2</sub>S-electrolysis method.  
<sup>k</sup> As in (d) except 5-g sample.  
<sup>l</sup> Ether-alpha-nitroso-beta-naphthol method. Weighed as Co<sub>2</sub>O<sub>3</sub>.  
<sup>m</sup> Single precipitation on a 0.5-g sample.  
<sup>n</sup> Finished by electrolysis.

<sup>o</sup> Diphenylcarbazide photometric method.  
<sup>p</sup> Single precipitation on a 0.2-g sample.  
<sup>q</sup> Titrating solution standardized with a standard steel.  
<sup>r</sup> Neo-cuproine photometric method.  
<sup>s</sup> Ether separation on 10-g sample, persulfate oxidation, FeSO<sub>4</sub>-KMnO<sub>4</sub> titration.  
<sup>t</sup> 0.1-g sample aliquoted from a 1-g sample.  
<sup>u</sup> Double dehydration with H<sub>2</sub>SO<sub>4</sub>.  
Analyst 2 reported 0.003 percent nitrogen.

List of Analysts

- |  |   |
|--|---|
| <p>1. Ferrous Laboratory, National Bureau of Standards. J. I. Shultz in charge. Analysis by E. June Maienthal, J. R. Spann, R. E. McIntyre, E. J. Meros.</p> <p>2. M. J. Noll, A. L. Sloan, J. O. Strauss, The Carpenter Steel Co., Reading, Pa.</p> <p>3. A. D. Middleton and W. J. Moore, The International Nickel Co., Inc., Huntington Works, Huntington, W. Va.</p> | <p>4. T. L. Fluck, Driver-Harris Co., Harrison, N. J.</p> <p>5. K. H. Storcks, J. F. Jensen, Mary E. Campbell, F. W. Ryan, Bell Telephone Laboratories, Inc., Murray Hill Laboratory, Murray Hill, N. J.</p> <p>6. J. Penkrot, R. Pristera, S. Oliverio, Materials Engineering Department, Chemical Laboratory, Westinghouse Electric Corp., East Pittsburgh, Pa.</p> |
|--|---|

The steel for the preparation of this standard sample was furnished by the Carpenter Steel Company.

WASHINGTON, D. C., August 20, 1957

A. V. ASTIN, Director.