

Certificate of Analysis

Standard Reference Material 339

17 Chromium-9 Nickel-0.2 Selenium Steel

ANALYST	C	Mn	P	S	Si	Cu	Ni	Cr	V	Mo	Co	Se
	Direct combustion	Persulfate-Arsenite	Photometric	Combustion Iodate titration	Perchloric acid dehydration	Photometric	Weighed as nickel dimethyl- glyoxime	FeSO ₄ -KMnO ₄ titration		Photometric		
1.....	0.052	^a 0.732	^b 0.135	^c 0.013	^d 0.652	^e 0.201	8.87	^f 17.41	^g 0.058	0.247	^h 0.099	ⁱ 0.248
2.....	{ .050 1.049 }	^k 7.737	^b .130	.014	^d .646	^l 1.197	8.92	^f 17.43		.24	^m .091	ⁿ .250
3.....	.052	^k 7.732		.014	.64	^o .195	8.88	^p 17.46		.252	^h .093	ⁱ .243
.....	{ .048 1.051 }	^k 7.739	^q .133	^r .014	.665	^s .198	8.93	^f 17.43	^t .063	.247	^h .100	ⁱ .246
5.....	.056	^k 7.740	{ ^u .128 .125 }	{ ^v .011 .013 }	^d .653	^w .198	8.87	^x 17.39	^y .061	.248	^z .099	ⁱ .247
6.....	.057	^{a'} 7.745	^{q-r} .121	^r .015	^d .665	^{b'} .204		17.42	^{o'} .052	.255		
Averages.....	0.052	0.738	0.129	0.013	0.654	0.199	8.89	17.42	0.058	0.248	0.096	0.247

^a Chromium removed by precipitation with NaHCO₃.
^b Molybdenum-blue photometric method. See J. Res. NBS 26, 405(1941) RP1386.

^c 1-g sample burned in oxygen at 1425 °C and sulfur dioxide absorbed in starch-iodide solution. Iodine liberated from iodide by titration, during the combustion, with standard KIO₃ solution. Titer based on 93 percent of the theoretical factor.

^d Double dehydration with intervening filtration.
^e Diethyldithiocarbamate photometric method. See J. Res. NBS 47, 380 (1951) RP2265.

^f Persulfate oxidation, potentiometric titration with ferrous ammonium sulfate.

^g Nitric acid oxidation, potentiometric titration with ferrous ammonium sulfate.

^h Nitroso-R photometric method.

ⁱ Sulfurous Acid-Iodometric titration method. ASTM method E30-56.

^j Conductometric method.

^k Periodate photometric method.

^l 2,2' biquinoline photometric method.

^m Tetraphenylarsonium chloride-cobalt complex photometric method.

ⁿ Selenium hydrolyzed with SO₂, filtered and weighed.

^o Neocuproine photometric method.

^p Persulfate oxidation, titration with ferrous ammonium sulfate using diphenylamine sulfonate indicator.

^q Alkali-molybdate method.

^r Titrating solution standardized by the use of a standard steel.

^s Diethyldithiocarbamate photometric method.

^t Vanadium oxidized with KBrO₃, potentiometric titration with ferrous ammonium sulfate.

^u Gravimetric method (weighed as Mg₂P₂O₇).

^v Gravimetric method (weighed as BaSO₄).

^w H₂S-electrolytic method.

^x Persulfate oxidation, potentiometric titration with FeSO₄-K₂Cr₂O₇.

^y Phosphotungstovanadate photometric method.

^z Ion-exchange—Nitroso R photometric method.

^{a'} NaHCO₃-NaBiO₃ oxidation-NaAsO₂ titration.

^{b'} H₂S-CuS-CuO.

^{c'} Ether—FeSO₄-(NH₄)₂S₂O₈-KMnO₄.

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

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