

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

National Bureau of Standards
Certificate of Analyses

Standard Sample 162 A
Nickel—Copper Alloy

(64 Ni-31 Cu)

ANALYST	NICKEL Weighed as nickel dimethylglyoxime	COPPER Electrolytic	IRON	MANGANESE Persulfate-arsenite	SILICON Perchloric acid dehydration	ALUMINUM	COBALT ¹ Photometric	CHROMIUM	TITANIUM Photometric	CARBON Direct combustion	SULFUR
1.....	63.99	30.60	^a 2.19	^b 1.60	^c 0.92	^d 0.50	^e 0.078	^f 0.043	0.004	^g 0.077	^h 0.005
2.....	64.00	30.60	ⁱ 2.20	1.58	^j .94	^k .49	1.076	^m .036	.007	.076	ⁿ .006
.....	{ ° 64.00 63.99	30.60	^a 2.18	{ ^p 1.59 ^q 1.60	^j .93	^r .50	1.075	^s .041	.005	.082	{ ^t .007 ^u .007 ^v .008 ^w .007
4.....	63.92	30.63	^a 2.18	^v 1.63	.94	^d .49	1.073	^w .040	.004	.079	^x .007
5.....	63.89	30.62	^y 2.18	1.60	.92	^d .50	1.077	^z .048	^{z1} .074	^{z2} .005
6.....	63.84	30.63	{ ^{z3} 2.19 ^y 2.20	1.62	{ . ^{z3} .93 ^j .93006	.085	{ ⁿ .007 ^{z4} .008
Average.....	63.95	30.61	2.19	1.60	0.93	0.50	0.076	0.042	0.005	0.079	0.007

^a SnCl₂-K₂Cr₂O₇ method.
^b Potentiometric titration.
^c Double dehydration with intervening filtration.
^d Mercury cathode-cupferron-Al₂O₃ method.
^e Copper removed electrolytically. ZnO, alpha-nitroso-beta-naphthol Co₂O₄ method.
^f Persulfate oxidation and potentiometric titration with ferrous ammonium sulfate.
^g Determination made by Edward J. Meros.
^h Meiske method. See ASTM method F38-56.
ⁱ Iron reduced with zinc and titrated with KMnO₄.
^j Sulfuric acid dehydration.

^k Mercury cathode-double NH₄OH precipitation, and Al₂O₃ corrected for TiO₂.
^l Nitroso-R salt-photometric method.
^m Persulfate oxidation and titration with ferrous ammonium sulfate-permanganate.
ⁿ Combustion-iodate method.
^o Dimethylglyoxime-electrolytic method.
^p Bismuthate method.
^q KIO₄-photometric method.
^r Mercury cathode-cupferron-Al₂O₃ method.
^s Diphenylcarbazide-photometric method.
^t Modified Meiske method on a 10-g sample.

^u Combustion method. Sulfur gases absorbed in neutral peroxide solution and titrated with NaOH.
^v Same value obtained by the bismuthate method.
^w Persulfate oxidation.
^x Gravimetric method.
^y Iron precipitated with NH₄OH and titrated with ceric sulfate.
^z Spectrographic analysis.
^{z1} Combustion-conductometric method.
^{z2} Distillation PbS photometric method.
^{z3} Orthophenanthroline photometric method.
^{z4} Combustion-iodate photometric method.

List of Analysts

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| <p>1. Nonferrous Laboratory, National Bureau of Standards, R. K. Bell, in charge. Analysis by E. E. Maczkowske.</p> <p>2. B. A. Stoltz and John Long, Ajax Metal Division, H. Kramer and Co., Philadelphia, Pa.</p> <p>3. A. D. Middleton, W. J. Moore, and Elaine B. Sharps, The International Nickel Co., Inc., Huntington, W.Va.</p> | <p>4. T. L. Fluck, Driver-Harris Co., Harrison, N.J.</p> <p>5. H. E. Johnson, J. F. Jensen, E. K. Jaycox, and F. W. Ryan, Bell Telephone Laboratories, Murray Hill, N.J.</p> <p>6. John Penkrot, Robert T. Pristera, and William K. Dunsworth, Westinghouse Electric Corp., East Pittsburgh, Pa.</p> |
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WASHINGTON 25, D.C., December 18, 1958

A. V. ASTIN, *Director*.