

U. S. DEPARTMENT OF COMMERCE
 WASHINGTON 25, D. C.
 NATIONAL BUREAU OF STANDARDS
 PROVISIONAL CERTIFICATE OF ANALYSIS
 HIGH-TEMPERATURE ALLOY STANDARDS
 FOR
 OPTICAL EMISSION AND X-RAY FLUORESCENCE ANALYSIS

NBS No. ^{1/}	1191	1192
Designation	Waspaloy	Waspaloy Modified
Element	Percent	
C	0.020	0.018
Mn	.02	.17
Si	.26	.47
Cr	19.4 ₈	17.8 ₈
Ni	55.1 ₅	57.2 ₅
Co	13.6 ₅	11.4 ₀
Mo	4.6 ₂	7.3 ₃
W	(0.05) ^{2/}	(<0.01)
Nb	(<0.01)	(<0.01)
Ti	3.10	2.72
Al	1.55	1.07
Fe	2.04	1.58
Cu	0.033	0.056
Ta	(<0.01)	(<0.01)
B	.0040	.0015
Zr	.050	.027

^{1/} Size: Disks 1 1/4 in. in diameter and 3/4 in. thick.

^{2/} Values in parenthesis are not certified, but are given for information on the composition.

OVER

The material for each standard was vacuum melted and cast into ingot form, and processed at Allvac Metals Co., Monroe, N. C. Each ingot was processed by forging to a slab having one dimension of the cross section about four times that of the other dimension. After cropping top and bottom, one fourth of the slab at the center was cut lengthwise to discard (corresponding to the center of the original ingot). The two retained slab portions were hot-rolled to oversize rods and centerless ground to size.

Homogeneity of the standards was investigated by optical emission, X-ray fluorescence, and chemical analyses at the National Bureau of Standards both in slab form and in finished sample form and was found satisfactory for the elements certified.

Samples for chemical analysis were prepared by milling the cross section of the finished rods. Chemical analyses were made by the National Bureau of Standards, Washington, D. C.; Armco Steel Corp., Research Laboratory, Middletown, Ohio; Cannon-Muskegon, Muskegon, Mich.; Carpenter Steel Co., Reading, Pa.; Crucible Steel Co. of America, Syracuse, N. Y.; General Electric Co., Schenectady, N. Y.; Ladish Co., Cudahy, Wisc.; Ledoux and Co., Teaneck, N. J.; and U. S. Steel Corp., Applied Research Laboratory, Monroeville, Pa.

Additional high-temperature alloy standards are in preparation and announcements of availability for these and other standards will appear in the technical literature.

(Signed) Edward Wichers, Acting Chief
Division of Chemistry

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