

U. S. DEPARTMENT OF COMMERCE  
NATIONAL BUREAU OF STANDARDS  
WASHINGTON

PROVISIONAL CERTIFICATE OF ANALYSIS

OF

STANDARD SAMPLE 123a

18 CHROMIUM - 11 NICKEL STEEL

(COLUMBIUM-BEARING)

Columbium . . . . .	0.75 <sup>1</sup>
Tantalum . . . . .	.02
Tungsten . . . . .	.11
Titanium . . . . .	.002
Molybdenum . . . . .	.12
Vanadium . . . . .	.037
Silicon . . . . .	.46
Phosphorus . . . . .	.035

<sup>1</sup> Tungsten will interfere in both the hydrolysis method for the mixed oxides ( $Cb_2O_5 + Tb_2O_5$ ) and in the volumetric method for columbium. If tungsten is not separated from the earth oxides, the percentage of columbium as calculated from the weight of the ignited mixed oxides will average around 0.84 percent; and the value for columbium obtained by solution of the mixed oxides, reduction in the Jones reductor, and titration with permanganate will average about 0.78 percent.

(Signed) E. C. Crittenden, Acting Director

Washington, D. C.

June 3, 1943