U. S. Department of Commerce
Maurice H. Stans
Secretary

National Bureau of Standards
A. V. Astin, Director

Certificate of Analysis
Standard Reference Material 4j
Cast Iron

ANALYST	C		Mn	P	S	Si	Cu	Ni	Cr	V	Mo	Ti	As	N
	Total	Graphite	Peroxydisulfate-Arsenite		Combustion-Titration	Perchloric Acid Dehydration	Photometric	Photometric			Photometric	Photometric		
1	2.99	2.37	0.781[a]	0.172[b]	0.062[c]	1.31[d]	{0.235 .238[e]}	0.068	0.094[f]	0.030[g]	--	0.051[h]	0.028[b]	0.004[i]
2	2.99	2.39	.788[j]	.167[k]	.060[l]	1.32	.241[m]	.069[n]	.090[o]	.032	.080	.052[p]	.027[q]	.006[r]
3	3.01	2.39	.79[j]	.173[k]	.062	1.31[s]	.23[m]	.070	.097[t]	.027[u]	.086	.051[u]	--	--
Average	3.00	2.38	0.786	0.170	0.061	1.31	0.236	0.069	0.094	0.030	0.083	0.051	0.028	0.005

a Periodate photometric.
b Molybdenum blue photometric.
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 KIO_3 solution.
d Double dehydration with intervening filtration.
e Atomic absorption.
f $NaHCO_3$ hydrolysis - peroxydisulfate oxidation - $Fe(NH_4)_2(SO_4)_2$ titration.
g $NaHCO_3$ hydrolysis – HNO_3 oxidation – $Fe(NH_4)_2(SO_4)_2$ titration.
h Mercury cathode – Vanadium removed with $NaOH–H_2O_2$– photometric method.
i Distillation – indophenol photometric method.
j Peroxydisulfate – arsenite titration method.
k Alkalimetric method.
l Combustion gases absorbed in H_2O_2 solution, excess NaOH added and titrated with H_2SO_4.
m Neocuproine photometric method.
n Weighed as nickel dimethylglyoxime.
o Chromium oxidized with peroxydisulfate – $Fe(NH_4)_2(SO_4)_2$ – $Ce(SO_4)_2$ titration using orthophenanthroline as an indicator.
p H_2O_2 photometric method. Vanadium separated by Na_2CO_3 fusion.
q Distillation – H_2S-As_2S_3.
r Distillation-titration.
s H_2SO_4 dehydration.
t Diphenylcarbazide photometric.
u H_2O_2 photometric method.

List of Analysts

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J. P. Cali, Acting Chief
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