

DEPARTMENT OF COMMERCE

# Bureau of Standards

## Certificate of Analyses

OF  
STANDARD SAMPLE NO. 6d  
CAST IRON

ANALYST*	C			Mn	P		S		Si	SILICON Sulphuric acid dehydration	COPPER H <sub>2</sub> S-CuS-CuO	NICKEL Weighed as nickel dimethylglyoxime	CHROMIUM FeSO <sub>4</sub> -KMnO <sub>4</sub> titration	VANADIUM	MOLYBDENUM	TITANIUM Determined colorimetrically in residue after HCl (sp. gr. 1.10) attack	ARSENIC
	CARBON 1. Total	2. Graphitic	3. Combined	MANGANESE	PHOSPHORUS 1. Alkali-Molybdate <sup>a</sup>	2. Gravimetric (Weighed as Mg <sub>2</sub> P <sub>2</sub> O <sub>7</sub> after removal of arsenic)	1. SULPHUR Gravimetric (Direct oxidation and final precipitation in reduced solution)	2. SULPHUR <sup>b</sup> Evolution with HCl (1:1) ZnS-Iodine (theoretical sulphur titre <sup>c</sup> )									
1	2.69	2.05	0.64	1.62 <sup>d</sup>	0.480	0.480	0.025	0.024	2.56	0.144	0.029	0.008 <sup>e</sup>	0.029 <sup>e</sup>	0.001 <sup>f</sup>	0.137	0.27	
2	2.77	2.10	.67	1.59 <sup>d</sup>	.48	.48	.027	.024	2.55	.166	.023	.010	.026	.019	.138	.25	
3	2.73	2.08	.65	1.59 <sup>g</sup>	.482	.482	.028	.028	2.55		.030	.012					
4	2.64	1.98	.66	1.59 <sup>g</sup>	.49	.49	.022	{.021 <sup>h</sup> .022	2.53		.024	.013			.145		
5	2.66	2.05	.61	1.62 <sup>d</sup>		.489	.022		2.56								
6	2.66	1.98	.68	1.59 <sup>d</sup>	.476	.477	.023	{.018 <sup>h</sup> .021	2.55	.158 <sup>i</sup>	.028	.014	.033		.147	.27	
7	2.66	1.99	.67	1.58 <sup>g</sup>	.485	.490	.028	.026	2.54	.150	.020	.011			.135		
8	2.76	1.99	.77	1.58	.485	.480	.025	.023	2.56	.133					.142		
9	2.67	2.01	.66	1.60 <sup>d</sup>	.490	.499	.025		2.51	.157	.019	.011		.006	.146	.26	
10	2.66	2.02	.64	1.59 <sup>d</sup>	.502	.500	.027	.025	2.50	.148		.008			.125		
Averages	2.69	2.03	.66	1.60	.486	.487	.025	.023	2.54	.151	.025	.011	.029	.008	.139	.26	
General Averages	2.69	2.03	.66	1.60	0.486		.025 <sup>†</sup>	.023	2.54	.151	.025	.011	.029	<.005	.139	.26	

† Recommended value.

<sup>a</sup> Precipitated at 40 °C., washed with a 1 per cent solution of KNO<sub>3</sub> and titrated with alkali standardized by the use of Bureau of Standards acid potassium phthalate and the 23:1 ratio.

<sup>b</sup> Sample annealed by wrapping it in filter paper and heating for 20 minutes in a tightly covered porcelain crucible at a bright red heat.

<sup>c</sup> Value obtained by standardization of titrating solution against sodium oxalate through KMnO<sub>4</sub> and Na<sub>2</sub>S<sub>2</sub>O<sub>8</sub>.

<sup>d</sup> Bismuthate (FeSO<sub>4</sub>-KMnO<sub>4</sub>).

<sup>e</sup> Electrometric titration.

<sup>f</sup> Colorimetric by developing color with KCNS and SnCl<sub>2</sub>.

<sup>g</sup> Bismuthate-arsenite.

<sup>h</sup> Unannealed.

<sup>i</sup> Na<sub>2</sub>S<sub>2</sub>O<sub>8</sub>-CuS-CuO.

### \* LIST OF ANALYSTS

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Director.