

Brammer Standard Company, Inc.

Certificate of Analysis

B.S. 96A

Custom 455 Type Stainless Steel

Carbon	0.009	Molybdenum	0.021
Manganese	0.04	Vanadium	0.07
Phosphorus	0.007	Niobium	0.26
Sulfur	0.004	Cobalt	0.03
Silicon	0.06	Aluminum	0.08
Copper	2.07	Titanium	1.18
Nickel	8.38	Boron	(0.0017)
Chromium	11.62	Lead	(0.0009)

(analysis listed as percent by weight)

Some of the co-operating laboratories were:

Allegheny Ludlum Steel Corp., Brackenridge, PA
Allegheny Ludlum Steel Corp., Lockport, NY
Anderson Laboratories, Greendale, WI
Brammer Standard Co., Houston, TX
Crucible Specialty Metals, Syracuse, NY
J. Dirats and Co., Westfield, MA
Jessop Steel Co., Washington, PA

CAUTION: Because this Reference Material contains a high percent of chromium and nickel, care must be taken in its application. Make certain that corrections are made for possible element interference and dilution effects.

See data on reverse side.

Certificate No. 96A-080990

Brammer Standard Company, Inc., 14603 Benfer Road, Houston, TX 77069
Telephone (713) 440-9396 Telex 775376 Fax (713) 440-4432

Analysis	C	Mn	P	S	Si	Cu	Ni	Cr	Mo	W
1	0.007	0.036	0.005	0.0033	0.056	2.02	8.35	11.59	0.017	0.003
2	0.008	0.036	0.006	0.0040	0.058	2.03	8.37	11.61	0.019	0.014
3	0.009	0.039	0.007	0.0040	0.058	2.06	8.37	11.61	0.020	0.022
4	0.009	0.040	0.007	0.0040	0.060	2.07	8.39	11.61	0.020	0.045
5	0.009	0.042	0.008	0.0043	0.060	2.08	8.39	11.62	0.021	
6	0.0092	0.044		0.0045	0.071	2.09	8.43	11.65	0.025	
7		0.045				2.15			0.025	
8		0.050								
Avg	0.0085	0.0415	0.0066	0.0040	0.0605	2.071	8.383	11.615	0.0210	
Std.Dev.	0.0009	0.0048	0.0011	0.0004	0.0054	0.043	0.027	0.020	0.0030	
Certified	0.009	0.04	0.007	0.004	0.06	2.07	8.38	11.62	0.021	

continued

Analysis	V	Co	Sn	Al	Nb	Ti	B	Pb
1	0.063	0.020	0.003	0.070	0.256	1.16	0.0014	0.0008
2	0.064	0.025	0.004	0.072	0.260	1.18	0.0017	0.0010
3	0.073	0.026	0.006	0.076	0.26	1.18	0.0020	
4	0.075	0.028	0.014	0.077	0.262	1.18		
5	0.075	0.029		0.088	0.264	1.19		
6	0.075	0.030			0.27	1.19		
Average	0.0708	0.0263	0.0068	0.0766	0.262	1.180	0.0017	0.0009
Std.Dev.	0.0057	0.0036	0.0050	0.0070	0.005	0.011	0.0003	0.0001
Certified	0.07	0.03		0.08	0.26	1.18	(0.0017)	(0.0009)

Data in parentheses are not certified but provided for information only.

Chemical analyses were made on millings from cross-sections of the bars. The values listed above are individual laboratory analytical results.

Methods of analysis used were a combination of ASTM Standard Methods E 352, 353, 572, 1019, 1086, plus additional ICP, and AA spectrometric methods.

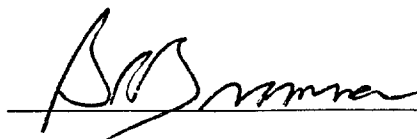
This Reference Material was tested for homogeneity using ASTM Standard Method E 826 and found acceptable. It was also examined by optical emission spectrometry and found to be compatible with currently available NIST Certified Reference Materials.

Inquires concerning this Reference Material should be directed to:

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Fax: (713) 440-4432
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Certified by: G. R. Brammer



8-9-90