Brammer Standard Company, Inc.

Certificate of Analysis

B.S. 825A

Nickel Alloy Type 825

Carbon	0.030	Molybdenum	2.93
Manganese	0.62	Vanadium	0.13
Phosphorus	0.017	Niobium	0.24
Sulfur	<0.001	Cobalt	0.25
Silicon	0.45	Titanium	1.05
Copper	2.32	Aluminum	(0.26)
Nickel	39.8	Iron	30.2
Chromium	21.39	Boron	(0.0020)

(analysis listed as percent by weight)

Some of the co-operating laboratories were:

Alpha Research Laboratories, Stevensville, MI
Allegheny Ludlum Steel Corp., Brackenridge, PA
Allegheny Ludlum Steel Corp., Lockport, NY
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 iron, chromium, molybdenum, copper, and titanium, care must be taken in its application. Corrections are likely to be necessary due to element interference and dilution effects.

See data on reverse side.

Certificate No. REC825A-080990

THIS CERTIFICATE OF ANALYSIS HAS BEEN RECREATED FOR POSTING ON THE WEB.

Brammer Standard Company, Inc., 14603 Benfer Road, Houston, TX 77069
Telephone (281) 440-9396 Telex 775376 Fax (281) 440-4432

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Analysis	C	Mn	P	S	Si	Cu	Ni	Cr	Mo	W
1	0.026	0.61	0.015	0.0001	0.44	2.24	39.65	21.32	2.92	0.025
2	0.027	0.612	0.016	0.0003	0.440	2.25	39.75	21.36	2.92	0.060
3	0.029	0.62	0.017	0.0003	0.46	2.25	39.76	21.41	2.92	0.07
4	0.030	0.62	0.017	0.0005	0.460	2.34	39.79	21.47	2.93	0.09
5	0.031	0.62	0.020	0.0005	0.471	2.35	39.90		2.94	
6	0.031					2.37			2.94	
7	0.032					2.42			2.94	
8	0.033									
Average	0.0299	0.616	0.0170	0.0003	0.454	2.317	39.770	21.390	2.930	0.061
Std.Dev.	0.0024	0.005	0.0019	0.0002	0.014	0.071	0.090	0.065	0.010	0.027
Certified	0.030	0.62	0.017	<0.001	0.45	2.32	39.8	21.39	2.93	

continued

Analysis	V	Co	Sn	Al	Nb	Ti	B	Mg	Fe
1	0.110	0.23	<0.005	0.21	0.23	1.02	0.0019	0.0007	30.10
2	0.120	0.24	0.007	0.22	0.23	1.04	0.0020	0.0009	30.10
3	0.13	0.25		0.23	0.24	1.06			30.12
4	0.135	0.25		0.29	0.24	1.06			30.17
5	0.14	0.27		0.29	0.24	1.06			30.29
6	0.140	0.27		0.30	0.26				30.43
7		0.27							
Average	0.129	0.254		0.257	0.240	1.048	0.0020	0.0008	30.202
Std.Dev.	0.012	0.016		0.041	0.011	0.018	0.0001	0.0001	0.133
Certified	0.13	0.25		(0.26)	0.24	1.05	(0.0020)	(0.0008)	30.2

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

Chemical analyses were made on millings from cross-sections of the bars. The individual values listed above are the average of each analyst's results.

Methods of analysis used were a combination of ASTM Standard Methods E 354, E 1019, plus additional ICP, and AA spectrometric methods. The following Certified Reference Materials were used to validate the analytical data listed above: NIST SRMs 866, 867, 1247; British CRM BCS 351, 387/1

This Reference Material was tested for homogeneity using ASTM Standard Method E 826 and found acceptable.

The bar stock used for this material was produced by hot-rolling billets. The entire depth of the disc may be used.

A Material Safety Data Sheet (MSDS) is not required for this material. This material will not release or otherwise result in exposure to a hazardous chemical, under normal conditions of use. Inquiries concerning this Reference Material should be directed to:

Brammer Standard Co., Inc. Phone: (281) 440-9396
14603 Benfer Road
Houston, Texas 77069-2895 USA Fax: (281) 440-4432

Certified by: _____ on August 9, 1990.
G. R. Brammer

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