Brammer Standard Company, Inc.

Certificate of Analysis

B.S. 706A

Copper Alloy 706

Copper	87.80	Silicon	<0.005
Tin	0.011	Manganese	0.66
Lead	0.008	Phosphorus	0.006
Zinc	0.13	Arsenic	<0.0005
Iron	1.30	Antimony	0.0006
Nickel	10.18	Cobalt	0.007
Aluminum	(0.002)	Carbon	0.004
		Sulfur	0.012

(analysis listed as percent by weight)

Some of the co-operating laboratories were:

Brammer Standard Co., Inc., Houston, Texas
Colonial Metals, Columbia, Pennsylvania
J. Dirats and Co., Inc., Westfield, Massachusetts
Metals Analysis Inc., Huntington Park, California
Technical Service Laboratories Inc., Mississauga, Ontario, Canada
VHG Labs, Manchester, New Hampshire

See data on reverse side.

Certificate No. 706A-121691

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

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Analysis	Cu	Sn	Pb	Zn	Fe	Ni	Al
1	87.73	0.0096	0.0066	0.12	1.29	10.11	0.001
2	87.80	0.010	0.007	0.125	1.30	10.19	0.0023
3	87.80	0.011	0.008	0.13	1.30	10.19	0.003
4	87.85	0.014	0.008	0.132	1.30	10.23	
5			0.0089	0.137	1.31		
6			0.009		1.32		
Average	87.795	0.0112	0.0079	0.129	1.303	10.180	0.0021
Std. Dev.	0.049	0.0020	0.0010	0.007	0.010	0.050	0.0010
Certified	87.80	0.011	0.008	0.13	1.30	10.18	(0.002)

Analysis	Si	Mn	P	As	Sb	Co	C	S
1	0.0013	0.650	0.0046	0.0003	0.0004	0.0058	0.0035	0.010
2	0.0032	0.657	0.005	0.00034	0.00062	0.0075	0.004	0.010
3	0.004	0.661	0.006	<0.0005	0.00064	0.008	0.005	0.012
4	<0.002	0.665	0.0065					0.013
5		0.666						0.0131
6		0.68						
Average		0.663	0.0055		0.0006	0.0071	0.0042	0.0116
Std. Dev.		0.010	0.0009		0.0001	0.0012	0.0008	0.0015
Certified	<0.005	0.66	0.006	<0.0005	0.0006	0.007	0.004	0.012

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 54-80, E 62-89, E 478-89a, plus additional ICP, and AA spectrometric methods. The following Certified Reference Materials were used to validate the analytical data listed above: NIST SRM 394, 400, 871, 872, 874, 875; German BAM 227, 228, 361; Brasilian IPT 10a, 15; British BCS 183/4.

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 NIST Certified Reference Material SRM 1275.

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.
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Houston, Texas 77069 USA

Phone: (281) 440-9396
Fax: (281) 440-4432
Telex: 775376

Certified by _____ on December 16, 1991.
G. R. Brammer