

Brammer Standard Company, Inc.

Certificate of Analysis

B.S. CC954

Copper Alloy 954

Copper	84.0	Silicon	0.092
Tin	0.061	Manganese	0.353
Lead	0.13	Phosphorus	0.013
Zinc	1.30	Arsenic	0.003
Iron	3.61	Antimony	0.004
Nickel	1.12	Carbon	(0.007)
Aluminum	9.28	Sulfur	(0.002)

(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
 American Centrifugal, Birmingham, Alabama
 VHG Labs, Manchester, New Hampshire

See data on reverse side.



Certificate No. REVCC954-062992

Brammer Standard Company, Inc., 14603 Benfer Road, Houston, TX 77069
 Telephone (713) 440-0306 Fax (713) 440-0306

BS CC954

Certificate No. REVC954-060992

Analysis	Cu	Sn	Pb	Zn	Fe	Ni	Al	Si
1	83.95	0.355	0.113	1.27	3.58	1.06	9.24	0.0899
2	84.02	0.357	0.124	1.27	3.58	1.10	9.27	0.092
3	84.08	0.063	0.125	1.32	3.66	1.13	9.29	0.093
4		0.0674	0.13	1.32		1.17	9.32	
5			0.136	1.33				
Average	84.017	0.0609	0.1256	1.302	3.610	1.120	9.280	0.0916
Std Dev	0.065	0.0054	0.0085	0.029	0.044	0.039	0.034	0.0016
Certified	84.0	0.061	0.13	1.30	3.61	1.12	9.28	0.092

Analysis	Mn	P	As	Sb	C	S
1	0.346	0.013	0.002	0.0031	0.0041	0.0011
2	0.349	0.013	0.0023	0.004	0.0069	0.0020
3	0.354	0.014	0.004	0.0041	0.010	0.0041
4	0.357			0.006		
5	0.357					
Average	0.3526	0.0133	0.0028	0.0043	0.0070	0.0024
Std Dev	0.0049	0.0006	0.0011	0.0012	0.0030	0.0015
Certified	0.353	0.013	0.003	0.004	(0.007)	(0.002)

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; German BAM 227, 228, 361; Brazilian IPT 10a, 15; British BCS 183/4.


This Reference Material was tested for homogeneity using ASTM Standard Method E 826 and found acceptable. NIST had no similar Certified Reference Materials procurable in solid form for spectrometric comparison during the testing of this material.

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:

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Telex: 775376

Certified by


G. R. Brammer

on June 29, 1992.