

Brammer Standard Company, Inc.

# Certificate of Analysis

**BS H 1B**  
**Hastelloy Type B-2**

*(analysis listed as percent by weight)*

Carbon	0.006	Molybdenum	26.52
Manganese	0.81	Vanadium	<0.01
Phosphorus	0.003	Niobium	<0.005
Sulfur	0.0005	Cobalt	<0.02
Silicon	0.049	Titanium	0.11
Copper	(0.01)	Aluminum	0.12
Nickel	71.4 (by difference)	Iron	1.00
Chromium	<0.01	Boron	0.003

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., Inc., Houston, TX  
Crucible Specialty Metals, Syracuse, NY  
Jessop Steel Co., Washington, PA  
Midstates Analytical Laboratories, Tulsa, OK

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

See reverse side for more information.

**Certificate No. H1B-110189**

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

BS H-1B

Analysis	C	Mn	P	S	Si	Cu	Cr	Mo
1	0.005	0.79	0.0020	0.0003	0.040	0.004	0.003	26.46
2	0.0056	0.80	0.0024	0.0004	0.045	0.004	0.0041	26.49
3	0.0056	0.80	0.0029	0.0005	0.047	0.004	0.010	26.50
4	0.0059	0.806	0.003	0.0005	0.05	0.010	0.012	26.55
5	0.007	0.808	0.003	0.00055	0.050	0.011	<0.01	26.58
6	0.0089	0.81	0.003		0.052	0.011	<0.01	
7		0.82			0.054	0.017		
8		0.83			0.056	0.018		
9		0.84						
Average	0.0063	0.812	0.0027	0.0005	0.0492	0.0099		26.516
Std.Dev.	0.0014	0.016	0.0004	0.0001	0.0051	0.0056		0.048
Certified	0.006	0.81	0.003	0.0005	0.049	(0.01)	<0.01	26.52

continued

Analysis	Al	Ti	B	Fe	V	Co	Nb	W
1	0.09	0.097	0.0020	0.97	<0.01	0.002	<0.005	0.010
2	0.10	0.099	0.0030	0.98	<0.01	0.0036	<0.005	0.010
3	0.101	0.10	0.0034	0.99	<0.01	0.0043	<0.005	0.012
4	0.13	0.101	0.0036	1.00	<0.01	0.010	<0.005	0.040
5	0.13	0.112		1.00		0.002	0.010	0.05
6	0.142	0.12		1.00		0.0055		
7	0.15	0.13		1.018				
8	0.154			1.02				
9				1.03				
Average	0.120	0.114	0.0030	1.001				
Std.Dev.	0.023	0.020	0.0007	0.019				
Certified	0.12	0.11	0.003	1.00	<0.01	<0.02	<0.005	

Data in parentheses is 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 354, E 1019, and various ICP and AA spectrometric methods.

Inquiries concerning this Reference Material should be directed to:

Brammer Standard Co., Inc.  
14603 Benfer Road  
Houston, Texas 77069 USA

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

Certified by G. R. Brammer on November 1, 1989.

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