

# BRAMMER STANDARD COMPANY, INC.

## Provisional Certificate of Analysis BS 4820B

Certified Reference Material for Low Alloy Steel Grade 4820 - UNS Number G48200

	Estimated Analysis <sup>1</sup>		Estimated Analysis <sup>1</sup>
Analysis listed as percent by weight			
Al	0.038	Ni	3.3
As	0.006	O	0.003
B	<0.005	P	0.008
C	0.198	Pb	<0.005
Ca	<0.005	S	0.011
Co	0.012	Sb	0.003
Cr	0.12	Si	0.27
Cu	0.22	Sn	0.010
Fe	[98.86]	Ta	0.002
Mg	<0.005	Ti	0.001
Mn	0.67	V	0.002
Mo	0.25	W	0.003
N	0.008	Zr	0.002
Nb	0.002		

<sup>1</sup> The estimated value listed is the present best estimate of the true value. Values are given in weight percent.

**Form:** This CRM is machined in the form of a disc approximately 38 mm in diameter and 19 mm thick by Brammer Standard Company, Inc.

A detailed final certificate of analysis will be supplied by July 29, 2022.

**Homogeneity:** This Certified Reference Material (CRM) was tested for homogeneity using ASTM Standard Method E826 and found acceptable. It was also examined by spark atomic emission spectrometry and found to be compatible with the following Reference Materials — BS 11A, 4820, 9325; BAS 4-88, 409; CKD 182A; DSZU CA01A; ECRM 086-1, 327-2; IARM 259A; IMZ 1.84; KMS LCSON-001; LECO 501-676, 502-873; NCS NS 11035B, NS 20035B; SRM 291, 293, 346A, 1217, 2171; Y41340B.

**Validity statement:** ISO Guide 31 states that the certification should contain an expiration date for all materials where instability has been demonstrated or is considered possible, after which the certified value is no longer guaranteed by the certifying body. The certification of BS 4820B is valid indefinitely. The certification is nullified if this CRM is damaged, contaminated, or otherwise modified.

**Storage:** This CRM must be stored in a cool, dry, non-corrosive environment.

**Certified Area:** The entire depth of the CRM may be used.

Caution: As with any bar material, avoid spark atomic emission spectrometric burns in the center of the CRM (5 mm radius), as some segregation may be present.

**Sample Preparation:** For best analytical results, use the same method for preparing the analytical surface on all reference materials as used for production specimens. Avoid overheating the sample during surface preparation.

Caution: CRM contains significant insoluble soft metal inclusions. Surface smearing may occur. Spark atomic emission spectrometers may require extended preburns to compensate.

**Safety Notice:** A Safety Data Sheet (SDS) 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.**  
14603 Benfer Road  
Houston, Texas 77069-2895 USA

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

**Web: [www.brammerstandard.com](http://www.brammerstandard.com)**  
**Email: [contact@brammerstandard.com](mailto:contact@brammerstandard.com)**

Certified by: \_\_\_\_\_ on July 29, 2020.

Beau R. Brammer  
President