

BRAMMER STANDARD COMPANY, INC.

Provisional Certificate of Analysis BS 173A

Certified Reference Material for Cobalt Alloy CCM - UNS Number R30075

	Estimated Analysis ¹		Estimated Analysis ¹
Analysis listed as percent by weight			
Al	0.070	N	0.17
B	<0.005	Nb	0.003
C	0.057	Ni	0.11
Co	[64.4]	O	<0.05
Cr	27.9	P	0.003
Cu	0.024	S	<0.005
Fe	0.43	Si	0.65
H	<0.005	Ti	0.02
Mn	0.78	V	0.007
Mo	5.5	W	0.011

¹ 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 38mm in diameter and 19mm thick by Brammer Standard Company, Inc.

A detailed final certificate of analysis will be supplied by July 21, 2024.

173A	Al	As	B	Be	Bi	C	Ca	Ce	Co	Cr	Cu	Fe	H	Mg
CSONH						0.0431							0.0002	
BSC SAES	0.0636					0.0826			63.96	28.34	0.0358	0.431		
BSC GDS	0.0766		0.0009			0.0604			64.69	27.78	0.0271	0.437		
MTR	0.06					0.04			64.66	27.72	0.01	0.42		
Average	0.0667		0.0009			0.0565			64.437	27.947	0.0243	0.4293	0.0002	
Certificate	0.070		<0.005			0.057			[64.4]	27.9	0.024	0.43	<0.005	
173A	Mn	Mo	N	Nb	Ni	O	P	Pb	S	Sb	Si	Sn	Ta	Ti
CSONH			0.166			0.0011			0.00047					
BSC SAES	0.789	5.46		0.0021	0.09		0.0022		0.0007		0.698			0.0257
BSC GDS	0.77	5.37		0.0047	0.147		0.0027				0.617			
MTR	0.78	5.55	0.175		0.10		0.003		0.0005		0.63			0.008
Average	0.7797	5.46	0.1705	0.0034	0.1123	0.0011	0.0026		0.0006		0.6483			0.0169
Certificate	0.78	5.5	0.17	0.003	0.11	<0.05	0.003		<0.005		0.65			0.02
173A	V	W	Zn	Zr										
CSONH														
BSC SAES	0.0088	0.002												
BSC GDS	0.0054													
MTR		0.02												
Average	0.0071	0.011												
Certificate	0.007	0.011				0	0	0	0	0	0	0	0	0

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 — 111X12671J, 112X14943H; BS 170, 170A, 170B; ECRM 378-1D.

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 173A 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:

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Certified by: _____ on July 21, 2022.

Beau R. Brammer
President