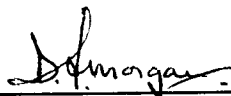


CERTIFICATE OF ANALYSIS**Reference Material Type** CORROSION RESISTANT CAST IRON (CHILL CAST)**Catalogue Section:** 11 X **Sample No:** S3CR 3 **Batch No:** B**Certified Values**

ELEMENT	C	Si	S	P	Mn	Ni	Cr	Cu
%	2.49	2.44	0.050	0.053	0.66	29.4	4.06	0.23

Form and Size: Disc 40mm diameter x 15mm thickness**Supplied by:** MBH Analytical Limited**Produced by:** British Steel (Technical) Limited**Date of Certification:** 8 June 1993 (Replaces Single page Certificate issued 28.3.1990)**Intended Use:** With Optical Emission and X-Ray Fluorescence Spectrometers.

Recommended Method of Use: Cast Irons are generally prepared by grinding. However, users are recommended to follow the calibration and sample preparation procedures specified by the relevant instrument manufacturer. Preparation should be the same for reference materials and the samples for test. When using O.E. a minimum of three consistent replicate analyses is recommended to optimise precision and accuracy. Users are advised to check against possible bias between reference materials and production samples due to difference in metallurgical history and be aware of possible inter-element effect.

MBH ANALYTICAL LIMITEDCERT. No.
0524

V.A.T. REGISTERED No. GB 421 3295 82

Registered in England. Registered No. 1875653

Directors: D. Moore D.J. Willis

Registered Office: Regency House, 33 Wood Street, Barnet, Herts. EN5 4BE

Method of Preparation: This Reference Material was produced from pure metals ferro alloys and master alloys. The discs are the product of one melt poured into moulds with feeding system designed to ensure sound discs. Metal was removed from the cast surface of the discs to minimise surface effect.

Sampling: Samples were taken relative to the beginning and the end of the pour. Two discs were used for chemical analysis and were checked for homogeneity

Chemical Analysis Data:

Sample	C	Si	S	P	Mn	Ni	Cr	Cu
1	2.55	2.42	0.048	0.052	0.66	29.4	4.06	0.22
2	2.45	-	0.054	0.051	-	-	4.06	-
3	-	-	-	0.053	0.65	-	-	0.23
4	-	-	-	0.056	0.66	-	-	0.23
5	-	-	-	0.054	0.67	-	-	0.23
6	2.47	2.45	0.048	-	-	29.4	-	-
Mean	2.49	2.435	0.050	0.053	0.66	29.4	4.06	0.228
Stand. Deviation:	0.052	0.021	0.003	0.001	0.008	-	-	0.005

Participating Laboratories:

Willan Metals Limited	Rotherham, England	NAMAS Approval 0014
Special Melted Products Ltd	Sheffield, England	NAMAS Approval 0638
Metals Tech. (Testing) Ltd	Sheffield, England	NAMAS Approval 0963
J B Elds Limited	Stoke-on-Trent, England	NAMAS Approval 1173

Analytical Methods Used:

Carbon	Combustion (IRD)	
Silicon	Gravimetric	Atomic Absorption
Sulphur	Combustion (IRD)	
Phosphorus	Colorimetric	
Manganese	Colorimetric	
Nickel	Atomic Absorption	
Copper	Volumetric	
Chromium	Atomic Absorption	

Note :

1. Some cast materials may exhibit shrinkage cavities on the back engraved surface of the disc. This does not effect the certified portion.

The material to which the Certificate of Analysis refers is supplied subject to our general conditions of sale.