MBH ANALYTICAL LTD

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CERTIFICATE OF ANALYSIS

81X PAs1 (batch A)

Reference Material Information

Type:	LEAD / ARSENIC BINARY ALLOY (CAST)
Form and Size:	Disc 40mm Diameter x 15mm Thickness
Manufactured by:	MBH Analytical Limited
Certified and supplied by:	MBH Analytical Limited

Composition

Percentage element by weight

Element	As	Bi	Sb	Pb
%	1.25	(0.03)	(0.02)	(rem)

Note: the stated values for Bi and Sb are based on OES data only

Usage

Intended use: With optical emission and X-ray fluorescence spectrometers.

Recommended method of use: Lead and its alloys are generally prepared by machining, avoiding the use of lubricants. 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, and should be done immediately prior to analysis to minimise the effects of surface oxidation.

When using OE, a minimum of five 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 differences in metallurgical history.

Certified by:

on 17th October 2003

MBH ANALYTICAL LIMITED _____

C Eveleigh

Method of Preparation

This reference material was produced from commercial-purity lead and arsenic. No other elements were deliberately added. The metal was cast into individual iron moulds. At least 1mm was machined from the upper and lower surfaces of each disc, to minimise surface effects.

Homogeneity

Discs from the start and end of the casting process were checked for vertical homogeneity using an optical emission spectrometer. No compositional trends were evident throughout the cast.

Chemical Analysis

Analysis was carried out on millings taken from samples representative of the product. It was performed by two laboratories operating within the terms of EN ISO/IEC 17025 - 2000, using documented standard methods of analysis. One of these laboratories used two different methods, and the results are reported separately..

Analytical Data

Percentage element by weight

Sample	Result (As, %)	Method
1	1.240	volumetric (bromate)
2	1.245	FAAS
3	1.255	FAAS
Mean	**1.247**	

Participating Laboratories

Universal Scientific Laboratory Pty Ltd	Milperra, NSW, Australia	NATA accreditation 0492
Rotech Laboratories Ltd	Wednesbury, England	UKAS approval 0366

Notes

The unidirectional solidification effects associated with semi-chill casting may lead to the formation of inhomogeneous segregates in the rear portion of the disc. The above certification is therefore only applicable from the front face of the disc to a depth of 10mm. Material to the rear of the disc, to a depth of ~5mm, is not certified.

This material is liable to superficial corrosion, and there is some possibility of microstructural changes due to recrystallisation; however, it will otherwise remain stable provided adequate precautions are taken to protect it from cross-contamination, extremes of temperature and atmospheric moisture. All production records will be retained for a period of 20 years from the date of this certificate. This certification will therefore expire in October 2023, although we reserve the right to make changes as issue revisions, in the intervening period.

This sample is also available in the form of chippings.

The manufacture, analysis and certification of this product were supervised by C Eveleigh, PhD, Technical Director, MBH Analytical Ltd.