

Method for

The determination of lead and cadmium in zinc (grades Zn1 and Zn2) and zinc alloys (Polarographic method) —

Methods for the sampling and analysis
of zinc and zinc alloys

Co-operating organizations

The Non-ferrous Metals Industry Standards Committee, under whose supervision this British Standard was prepared, consists of representatives from the following Government departments and scientific and industrial organisations:

Aluminium Federation	Institution of Mechanical Engineers (Automobile Division)
Association of Bronze and Brass Founders	Institution of Mining and Metallurgy
Association of Consulting Engineers	Institution of Production Engineers
British Bronze and Brass Ingot Manufacturers' Association	Institution of Structural Engineers
British Electrical and Allied Manufacturers' Association	Lead Development Association
British Lead Manufacturers' Association	Light Metal Founders' Association
British Non-ferrous Metals Federation*	London Metal Exchange*
British Non-ferrous Metals Federation — High Conductivity Copper Group	Magnesium Industry Council
British Non-ferrous Metals Research Association*	Ministry of Defence, Army Department*
Copper Development Association	Ministry of Defence, Navy Department*
Crown Agents for Oversea Governments and Administrations	National Brassfoundry Association
Department of Trade and Industry (Marine Division)	Non-ferrous Metal Stockists
Electric Cable Makers' Confederation	Post office*
Institute of British Foundrymen	Royal Institute of British Architects
Institute of Metals*	Society of Motor Manufacturers and Traders Ltd.*
	Tin Research Institute
	Zinc Development Association*
	Individual manufacturers

The Government department and scientific and industrial organizations marked with an asterisk in the above list, together with the following, were directly represented on the committee entrusted with the preparation of this British Standard:

British steel industry	Institute of Sheet Metal Engineering
Department of Trade and Industry — Laboratory of the Government Chemist	Zinc Alloy Die Casters' Association
Institute of Iron and Steel Wire Manufacturers	Individual analysts

This British Standard, having been approved by the Non-ferrous Metals Industry Standards Committee, was published under the authority of the Executive Board on 22 October 1971

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Foreword

This standard makes reference to the following British Standards:

BS 1004, *Zinc alloys for die casting and zinc alloy die casting*.

BS 3630, *Methods for the sampling and analysis of zinc and zinc alloys — Part 1: Sampling of ingot zinc and zinc alloy ingots*.

BS 3978, *Water for laboratory use*.

This method for the determination of lead and cadmium in high purity zinc and zinc alloys is the eighth of a series of methods which will form a complete British Standard under the collective title “*Methods for the sampling and analysis of zinc and zinc alloys*”, each method being published as a separate part.

The preparation of this series of methods has been authorized by the Non-Ferrous Metals Industry Standards Committee as part of a general programme for the standardization of methods for the sampling and analysis of non-ferrous metals. Other methods in the series are as follows:

- *Part 1: Sampling of ingot zinc and zinc alloy ingots*;
- *Part 2: Determination of tin in ingot zinc and zinc alloys (photometric method)*¹⁾;
- *Part 3: Determination of magnesium in zinc alloys (gravimetric method)*;
- *Part 4: Sampling of ingot zinc, zinc alloy ingots and zinc alloy die castings for spectrographic analysis*;
- *Part 5: Determination of iron in ingot zinc and zinc alloys (photometric method)*;
- *Part 6: Determination of aluminium in zinc alloys (volumetric method)*;
- *Part 7: Determination of lead in zinc (grades Zn3 and Zn4) (polarographic method)*;
- *Part 9: Determination of copper in ingot zinc and zinc alloy A (photometric method)*;
- *Part 10: Determination of thallium in ingot zinc and zinc alloys (photometric method)*;
- *Part 11: Determination of indium in ingot zinc and zinc alloys (polarographic method)*;
- *Part 12: Determination of arsenic in ingot zinc and zinc alloys (photometric method)*;
- *Part 13: Determination of copper in zinc alloys (Alloy B) (electrolytic method)*¹⁾;
- *Part 14: Determination of cadmium in zinc (grades Zn3 and Zn4) (polarographic method)*¹⁾.

The complete British Standard methods will be found suitable for the grades of metals covered by BS 3436, “*Ingot zinc*” and BS 1004, “*Zinc alloys for die casting and zinc alloy die castings*”.

In the methods for determining impurities, sample weights and aliquots have been chosen to cover the range of impurity content usually found in commercial zinc ingots and zinc alloy ingots. For amounts of impurity outside this range, sample weights or aliquots should be adjusted accordingly.

The methods have been found to give reliable and reproducible results, and, while in some instances they may appear to be lengthy, it should be realized that they are put forward as “referee” methods to be used in cases of dispute.

This method is substantially the same as those included in ISO/R713²⁾ and ISO/R³⁾ prepared by ISO/TC18/SC1.

¹⁾ In course of preparation.

²⁾ ISO/R713, “*Chemical analyses of zinc. Polarographic determination of lead and cadmium*”.

³⁾ In course of preparation.