

Specification for

Zinc anodes, zinc oxide and zinc salts for electroplating

Co-operating organizations

The Surface Coatings (other than paints) Industry Standards Committee, under whose supervision this British Standard was prepared, consists of representatives from the following Government departments and scientific and industrial organizations:

- Aluminium Federation
- Assay Offices Committee of Great Britain
- Association of Metal Sprayers
- British Bolt, Nut, Screw and Rivet Federation
- British Electrical and Allied Manufacturers' Association
- British Jewellers' Association
- British Non-ferrous Metals Research Association*
- British Steel Industry
- Chemical Industries Association*
- Cycle and Motor Cycle Association Limited*
- Department of Trade and Industry
- Electricity Council, the Central Electricity Generating Board and the Area Boards in England and Wales
- Electronic Engineering Association
- Engineering Equipment Users' Association
- Greater London Council
- Institute of Metal Finishing*
- Institute of Sheet Metal Engineers
- Institute of Vitreous Enamellers
- Metal Finishing Association*
- Ministry of Defence, Army Department
- Ministry of Defence, Navy Department
- Society of Motor Manufacturers and Traders Limited*
- Tin Research Institute*
- Vitreous Enamel Development Council
- Zinc Development Association*

The 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 Metal Finishing Suppliers' Association
- British Sulphate of Copper Association (Export)
- Institution of Chemical Engineers
- Royal Institute of Chemistry
- Scientific Instruments Manufacturers' Association
- Society of Chemical Industry
- United Kingdom Cutlery and Silverware Manufacturers' Association
- Individual firms

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Foreword

This standard makes reference to the following British Standards:

BS 612, *Nessler cylinders*.

BS 1752, *Laboratory sintered or fritted filters*.

BS 3630, *Method for the sampling and analysis of zinc and zinc alloys*.

BS 3630-1, *Sampling of ingot zinc and zinc alloy ingots*.

BS 3978, *Water for laboratory use*.

This British Standard is one of a series of standards that has been prepared to meet the requirements of electroplaters, others in the series being:

BS 558, BS 564, *Nickel anodes, anode nickel and nickel salts for electroplating*.

BS 622, *Cyanides for electroplating*.

BS 1468, *Tin salts for electroplating*.

BS 1561, *Silver anodes and silver salts for electroplating*.

BS 2657, *Fluoroboric acid and fluoroborates for electroplating*.

BS 2868, *Cadmium anodes and cadmium oxide for electroplating*.

BS 4493, *Copper salts for electroplating*.

Wherever appropriate, British Standard laboratory glassware should be used in the methods of test.

NOTE 1 The analytical reagents referred to in this standard are presented in accordance with BS 4245, *Recommendations for solutions used in chemical analysis. Terminology, presentation and concentration*.

A British Standard does not purport to include all the necessary provisions of a contract. Users of British Standards are responsible for their correct application.

Compliance with a British Standard does not of itself confer immunity from legal obligations.

Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, pages 1 to 10 and a back cover.

This standard has been updated (see copyright date) and may have had amendments incorporated. This will be indicated in the amendment table on the inside front cover.

1 Scope

This British Standard specifies requirements for zinc anodes, zinc cyanide, zinc oxide and zinc sulphate for electroplating.

NOTE The titles of British Standards referred to in this standard are listed on page ii.

2 Zinc anodes

2.1 Physical form. Zinc anodes shall be supplied in cast (preferably chill cast), rolled or extruded form, as specified by the purchaser.

2.2 Chemical composition. The material shall be zinc; any impurities present shall not exceed the following limits when the impurities are determined by the methods in the appropriate appendix:

Impurity	% max.	Appendix
Lead	0.003	A
Cadmium	0.003	A
Mercury	0.004	B
Lead + cadmium + mercury + iron	0.02	C

2.3 Sampling and preparation of sample. When an analysis is required, the sample shall be selected and prepared in the manner described in BS 3630-1.

3 Zinc cyanide

3.1 Physical form and appearance. Zinc cyanide for electroplating shall be in the form of a white or greyish-white powder, and shall correspond approximately to the formula $\text{Zn}(\text{CN})_2$.

3.2 Precautions. Zinc cyanide is extremely poisonous and must only be handled in accordance with the instructions given in Form 385 published by the Factory Department of the Ministry of Labour and obtainable from Her Majesty's Stationery Office. This form should be displayed wherever zinc cyanide is stored or handled.

3.3 Chemical composition. The material shall contain not less than 54 % of zinc calculated as metal and not less than 40 % cyanide calculated as CN when determined by the methods described in Appendix D and Appendix E respectively.

3.4 Impurities. Any metallic impurities present shall not exceed the following limits when determined by the method described in the appropriate appendix.

Impurity	% max.	Appendix
Lead	0.005	A
Cadmium	0.01	A
Mercury	0.002	B
Iron	0.05	C
Copper	0.05	F

3.5 Sampling and size of sample. A representative sample of the material weighing not less than 250 g shall be taken for the purpose of examination under this standard. The sample shall be taken from freshly opened packages and shall be packed in a clean, dry, airtight bottle and sealed.

4 Zinc oxide

4.1 Physical form and appearance. Zinc oxide for electroplating shall be in the form of a dry powder, and shall correspond approximately to the formula ZnO .