

Specification for

Testing zinc coatings on steel wire and for quality requirements

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The Iron and Steel Standards Committee, under whose direction this British Standard was prepared, consists of representatives from the following:

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- British Internal Combustion Engine Manufacturers' Association
- British Ironfounders' Association
- British Railways Board
- British Steel Corporation
- British Steel Industry*
- British Steel Industry (Wire Section)*
- Concrete Society Limited
- Council of Ironfoundry Associations
- Department of Industry (National Physical Laboratory)
- Electricity Supply Industry in England and Wales
- Engineering Equipment Users' Association
- Federation of Civil Engineering Contractors
- Institute of Quality Assurance*
- Institution of Production Engineers
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- International Tin Research Institute
- Lloyd's Register of Shipping
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- Oil Companies Materials Association
- Process Plant Association
- Royal Institute of British Architects
- Society of Motor Manufacturers and Traders Limited
- Steel Casting Research and Trade Association
- Water-tube Boilermakers' Association

The organizations marked with an asterisk in the above list, together with the following, were directly represented on the Technical Committee entrusted with the preparation of this British Standard:

- British Wire Netting Association
- Fencing Contractors' Association
- Society of Chain Link Fencing Manufacturers

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Foreword

This British Standard has been prepared under the direction of the Iron and Steel Standards Committee. This edition has been technically up-dated in detail although the major technical concepts have not been altered significantly. BS 443:1969 is now withdrawn.

With the emphasis on adoption of international standards in national standards, there is the future possibility that some British Standards may not refer to the standard values for coating thickness given in section three of this standard, or may not require the dip test. Ease of cross-reference will, therefore, be improved by separation of test methods and general quality requirements.

The standard coatings specified in section three are intended for a wide variety of wire applications in which medium/long term protection of the steel against corrosion is desired. It is emphasized that the protection afforded by the zinc is sacrificial and the duration of the protection is therefore dependent on the conditions in which the zinc coated wire will be expected to function.

The dip test has been retained as a standard requirement but it is not intended as an indirect measurement of the mass of coat. It is intended only to reveal any serious eccentricity of a coating that could lead to failure over a portion of the circumference, even though the total mass of coat may be in accordance with the standard.

Following international practice which is becoming established, the term “zinc coated” rather than “galvanized” has been adopted in this standard. The terms are synonymous.

Factors for converting coating mass from imperial to metric units and for converting coating mass to coating thickness are included in appendix A.

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 8, an inside back cover 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.

Section 1. General

1 Scope

This British Standard specifies the methods of testing zinc coated steel wires and products fabricated from them to determine the nominal mass of the zinc coating, its uniformity and its adhesion.

In addition, requirements are specified (see section three) for mass, uniformity and adhesion of coating on steel wires of circular section in diameters from 0.23 mm to 10.0 mm. These requirements are not applicable to articles made from wire which have been coated after fabrication.

NOTE Coatings in accordance with section three are not necessarily available in every combination of wire size and tensile strength grade and reference should be made to the appropriate British Standard for the type of wire.

2 Reference

The title of the standards publication referred to in this standard is given on the inside back cover.

3 Metallurgical quality of coating

The metallurgical quality of the coating is dependent on the quality of the zinc used. Wire shall be coated in a bath using zinc of purity not less than grade Zn 3 of BS 3436.

4 Test pieces

4.1 The number and basis of selection of test pieces shall be that specified in the standard for the product. In the absence of such a standard the degree of sampling shall be agreed between the manufacturer and the purchaser.

4.2 In removing the test pieces care shall be taken to avoid surface damage. Portions of wire which are obviously damaged shall not be used.

4.3 For all the tests a piece of total length of at least 500 mm will usually be needed (see 8.2.2, 8.3.4, 9.4 and clause 10).

5 Test pieces from fabricated wire products

If the test pieces have been taken from a product fabricated from zinc coated wires, then unless otherwise stated in the product standard, the specified minimum coating mass shall be reduced by 5 % and the specified dips shall be reduced by one half-minute dip.

6 Surface condition

The coating on wire shall be continuous and reasonably smooth. It is recognized that thick coatings produced by the final hot dip process may exhibit some surface irregularities, but the coating shall be free from imperfections, such as gross dross contamination, not consistent with good coating practice.

7 Uniformity and adherence

The coating on wire shall be reasonably uniform, as judged by the copper sulphate solution dip test, and shall be adherent to the steel under the conditions of the adhesion wrap test (see clause 10).