

BS 7371-7:2010



BSI Standards Publication

Coatings on metal fasteners

Part 7: Specification for mechanically applied zinc and zinc based coatings

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Summary of pages

This document comprises a front cover, an inside front cover, pages i to iv, pages 1 to 14, an inside back cover and a back cover.

Foreword

Publishing information

This part of BS 7371 is published by BSI and came into effect on 30 April 2010.

It was prepared by Subcommittee FME/9/1, *Mechanical properties of fasteners*, under the authority of Technical Committee FME/9, *Fasteners*. A list of organizations represented on this committee can be obtained on request to its secretary.

Supersession

This part of BS 7371 supersedes BS 7371-7:1994, which is withdrawn.

Relationship with other publications

Other published Parts of BS 7371 are as follows.

- BS 7371-1, *Specification for general requirements and selection guidelines*¹⁾.
- BS 7371-2, *Specification for torque/clamping force relationship*.
- BS 7371-3, *Specifications for electroplated zinc coatings*.
- BS 7371-4, *Specification for electroplated nickel, nickel/chromium and copper/nickel/chromium coatings*.
- BS 7371-6, *Specification for hot dipped galvanized coatings*.
- BS 7371-8, *Specification for sheradized coatings*.
- BS 7371-9, *Specification for phosphate or phosphate and oil coatings*.
- BS 7371-10, *Specification for organic coatings*.
- BS 7371-11, *Specification for zinc flake non-electrolytically applied cured coatings*.
- BS 7371-12, *Requirements for imperial fasteners*.

Information about this document

This is a full revision of the standard, and introduces the following principal changes.

- Change to Figure B.1.
- Inclusion of hexavalent-chromium-free-type conversion coatings.
- Inclusion of higher thicknesses of coatings.

Hazard warnings

WARNING. This British Standard calls for the use of substances and/or procedures that can be injurious to health if adequate precautions are not taken. It refers only to technical suitability and does not absolve the user from legal obligations relating to health and safety at any stage.

¹⁾ This is supplementary to all other parts of BS 7371.

Presentational conventions

The provisions of this standard are presented in roman (i.e. upright) type. Its requirements are expressed in sentences in which the principal auxiliary verb is “shall”.

Commentary, explanation and general informative material is presented in smaller italic type, and does not constitute a normative element.

Contractual and legal considerations

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

Compliance with a British Standard cannot confer immunity from legal obligations.

Attention is drawn to the restriction placed on the use and supply of hexavalent chromium containing substances by ECC Directive 2000/53/EC of 18th September 2000 on End of Life Vehicles [1] and the amendment of Annex II by Commission Decision of 27th June 2002 (Document No. C(2002) 2238) [2], which prohibits its use on Motor Vehicles less than 3.5 tonnes, marketed after July 2007.

The Waste Electrical and Electronic Equipment (WEEE) Directive (2002/96/EC) [3] also has similar restrictions which came into force on 31st December 2006.

Introduction

BS 7371 deals with the performance and selection of coatings on metal fasteners and accessories. This part of BS 7371 specifies the requirements for mechanically applied zinc and zinc based coatings.

Mechanically applied zinc and zinc based coatings covered by this part of BS 7371 are for use on fasteners and accessories where the following apply.

- a) A coating giving galvanic protection is required for ferrous fasteners.
- b) A base treatment is required to improve the corrosion resistance of subsequent coatings on ferrous fasteners, e.g. organic (see BS 7371-10).
- c) Avoidance of the risk of hydrogen embrittlement of high tensile steel fasteners is required (see Note to 4.1).

The coating has a matt silver appearance which can be modified to yellow, olive green or black by a hexavalent chromium conversion (passivation) treatment or an iridescent/silver appearance by a tri-valent or chromium-free treatment applied to improve corrosion resistance. The latter finishes are often supplied with a seal coat to improve damage resistance, corrosion or lubricity.

Additional coatings are available to further modify colour, but these might influence coating performance, e.g. lubricity or electrical conductivity.

Mechanical coating can only be applied by bulk processing.

The shape and size of certain parts may create difficulties in the application of a coating of uniform thickness and reference to the coater is recommended to enquire if a difficulty exists or if it can be overcome by the use of specialized processing methods.

Typically, difficulties arise when bulk processing:

- a) parts longer than 150 mm and heavier than 0.5 kg;
- b) parts liable to sustain damage when tumbled together;
- c) parts with recesses which retain the compacting media (example media: glass beads);
- d) parts with shapes that induce nesting and interlocking;
- e) the internal surfaces of hollow parts.

1 Scope

This part of BS 7371 specifies requirements for coatings applied by mechanically impacting zinc powder, or zinc based powder on to the component surface in an aqueous medium. The coating is not applied by using impact media accelerated by compressed air or centrifuge methods. The coatings consist principally of zinc and can be lubricated to give controlled torque/clamping force properties when required.

NOTE 1 See, for example, BS 7371-2.

In addition to the requirements in this part of BS 7371, the requirements in BS 7371-1 which are applicable to mechanically applied zinc based coatings apply.