BS EN ISO 3613:2021



BSI Standards Publication

Metallic and other inorganic coatings — Chromate conversion coatings on zinc, cadmium, aluminium-zinc alloys and zinc-aluminium alloys — Test methods

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National foreword

This British Standard is the UK implementation of EN ISO 3613:2021. It is identical to ISO 3613:2021. It supersedes BS EN ISO 3613:2010, which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee STI/33, Electrodeposited and related coatings.

A list of organizations represented on this committee can be obtained on request to its committee manager.

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Revêtements métalliques et autres revêtements inorganiques - Couches de conversion au chromate sur zinc, cadmium et alliages d'aluminium-zinc et de zinc-aluminium - Méthodes d'essai (ISO 3613:2021)

Metallische und andere anorganische Überzüge - Chromatierüberzüge auf Zink, Cadmium, Aluminium-Zink- und Zink-Aluminium-Legierungen - Prüfverfahren (ISO 3613:2021)

This European Standard was approved by CEN on 9 May 2021.

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European foreword

This document (EN ISO 3613:2021) has been prepared by Technical Committee ISO/TC 107 "Metallic and other inorganic coatings" in collaboration with Technical Committee CEN/TC 262 “Metallic and other inorganic coatings, including for corrosion protection and corrosion testing of metals and alloys” the secretariat of which is held by BSI.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by November 2021, and conflicting national standards shall be withdrawn at the latest by November 2021.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

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Endorsement notice

The text of ISO 3613:2021 has been approved by CEN as EN ISO 3613:2021 without any modification.

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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This document was prepared by Technical Committee ISO/TC 107, *Metallic and other inorganic coatings,* in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 262, *Metallic and other inorganic coatings, including for corrosion protection and corrosion testing of metals and alloys,* in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

This fourth edition cancels and replaces the third edition (ISO 3613:2010), which has been technically revised. The main changes compared with the previous edition are as follows:

— Table 1 has been revised;

— analysis method described in 6.5 was aligned with the method described in IEC 62321-7-1;

— procedure for the preparation of test solution C 2 in 4.3.2 has been revised and a second standard solution has been added;

— limiting time has been amended in 6.1;

— procedure for testing with test solution C 2 has been revised in 6.5.2;

— description of the calibration of spectrophotometer has been added.

Any feedback or questions on this document should be directed to the user’s national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

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Introduction

This document specifies methods for the qualitative determination of the presence of chromate conversion coatings as well as the total chromium content of chromate conversion coatings.

The application of very thin, colourless, practically invisible chromate conversion coatings is frequently called “passivation”, while the application of thicker, coloured chromate conversion coatings is called “chromating”. The term “passivation” is not correct, as it does not conform to the ISO 2080 designation, and is therefore deprecated.

Chromate conversion coatings are based on a solution containing Cr(VI). Both the process solution and the coating contain hexavalent chromium. The term passivation is nowadays often used for Cr(VI)-free coatings replacing chromate conversion coatings. Products containing Cr(VI) are not allowed within EU and processes using Cr(VI) are strictly regulated.

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INTERNATIONAL STANDARD **ISO 3613:2021**

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WARNING — This document calls for the use of substances and/or procedures that can be injurious to health if adequate safety measures are not taken. This document does not address any health hazards, safety or environmental matters associated with its use. It is the responsibility of the user of this document to establish appropriate health, safety and environmentally acceptable practices and take suitable actions for any national and international regulations.

1 Scope

This document specifies methods for the determination of

— the presence of colourless chromate conversion coatings,

— the presence of hexavalent chromium in colourless and coloured coatings on zinc or cadmium or aluminium-zinc (mass fraction of aluminium: 55 %, within a range of 54 % to 56 % mass fraction) and zinc-aluminium (mass fraction of aluminium: 5 %) alloys,

— the total chromium content per unit area on zinc and cadmium,

— the mass per unit area of both colourless and coloured coatings,

— the satisfactory adhesion of chromate conversion coatings, and

— the quality of chromate coatings.

These methods are applicable to

— colourless and coloured chromate conversion coatings containing trivalent and hexavalent chromium in varying proportions and produced by either chemical or electrochemical processes, and

— chromate coatings that are free from any supplementary coatings, such as oil, water or solvent-based polymers or wax.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 3892, *Conversion coatings on metallic materials — Determination of coating mass per unit area — Gravimetric methods*

ISO 4520, *Chromate conversion coatings on electroplated zinc and cadmium coatings*

IEC 60068-2-30, *Environmental testing — Part 2-30: Tests — Test Db: Damp heat, cyclic (12 h + 12 h cycle)*

3 Terms and definitions

No terms and definitions are listed in this document.

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