AS 1627.6:2025

Australian STANDARD®

STANDARDS Australia

Metal finishing — Preparation and pretreatment of surfaces

Part 6: Phosphate and chromate conversion treatment of metals



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Australian Chamber of Commerce and Industry
Australian Industry Group
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Bureau of Steel Manufacturers of Australia
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Preface

This Standard has been prepared by the Australian members of the Joint Standards Australia/Standards New Zealand Committee MT-009, Metal Finishing, to supersede AS 1627.6-2003, *Metal finishing—Preparation and pretreatment of surfaces Part 6: Chemical conversion treatment of metals*.

After consultation with stakeholders in both countries, Standards Australia and Standards New Zealand decided to develop this Standard as an Australian Standard rather than an Australian/New Zealand Standard.

The objective of this document is to specify requirements and procedures for chemical coatings for ferrous and non-ferrous metals and for chromate conversion coatings for aluminium, magnesium, zinc and their alloys.

The major changes in this edition are as follows:

(a) Change of title to reflect the 2 types of conversion treatment covered in this document.

(b) General revision of text with minimal changes to technical requirements.

The terms “normative” and “informative” are used in Standards to define the application of the appendices to which they apply. A “normative” appendix is an integral part of a Standard, whereas an “informative” appendix is only for information and guidance.

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Introduction

Phosphate conversion coatings are produced by treatment with solutions containing the relevant dihydrogen orthophosphates. These coatings are applied principally to ferrous materials, aluminium and zinc. The coating mass per unit area and the apparent density are dependent on —

(a) the base material and its surface condition;

(b) the previous mechanical and chemical treatment of the base material; and

(c) the processing conditions for phosphating.

All phosphate conversion coatings are porous but can be sealed to a substantial degree by appropriate after-treatment.

Chromate and chromium-free conversion coatings are applied to aluminium, magnesium, zinc and their alloys to retard corrosion, as a base for organic films including paints, powder coatings, plastics and adhesives, and as a protective coating having a low electrical contact resistance.

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NOTES

Australian Standard®

Metal finishing — Preparation and pretreatment of surfaces

Part 6: Phosphate and chromate conversion treatment of metals

Section 1 Scope and general

1.1 Scope

This document specifies requirements and procedures for the chemical conversion treatment of metals usually before the application of a suitable organic protective coating.

This document covers —

(a) phosphate conversion coatings for ferrous and non-ferrous metals; and

(b) chromate conversion coatings for aluminium, magnesium, zinc and their alloys.

NOTE See Appendix A for information to be supplied by the purchaser at the time of enquiry or order.

This document does not cover —

(i) conversion coatings for electroplated work (refer to AS 1789);

(ii) chromium free coatings (refer to the supplier); or

(iii) conversion coatings based on chemistries other than phosphates and chromates.

1.2 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.

NOTE Documents referenced for informative purposes are listed in the Bibliography.

AS 1580.408.4, *Paints and related materials—Methods of test, Method 408.4: Adhesion (cross-cut)*

AS 2331.3.1, *Methods of test for metallic and related coatings, Method 3.1: Corrosion and related property tests—Neutral salt spray (NSS test)*

AS 2483, *Metal finishing—Recommended sampling plans for the inspection and testing of coatings*

1.3 Terms and definitions

For this document, the definitions given in AS 4108 and the following apply.

1.3.1
chromate coatings, non-rinsed
chromate coatings that are dried immediately after the chromating step without receiving a water rinse

Note 1 to entry: This type of coating is typically used on long coils of aluminium sheet stock or zinc-coated coil that receives an immediate subsequent paint or adhesive coating. It is sometimes referred to as coil coating.

1.3.2
chromate coatings, rinsed
chromate coatings that are rinsed in water before drying

Note 1 to entry: This type of coating is typically applied to extruded aluminium fabricated parts and castings and to zinc and magnesium fabricated parts and castings.

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