AS 1627.6—2003
Reconfirmed 2017

Australian Standard™

Metal finishing—Preparation and pretreatment of surfaces

Part 6: Chemical conversion treatment of metals

Standards Australia

This Australian Standard was prepared by Committee MT-009, Metal Finishing. It was approved on behalf of the Council of Standards Australia on 30 May 2003 and published on 11 July 2003.

The following are represented on Committee MT-009:

Australasian Institute of Metal Finishing

Australian Chamber of Commerce and Industry

Australian Industry Group

Australian Paint Manufacturer's Federation

Department of Defence

Galvanizers Association of Australia

Institute of Materials Engineering Australia

Powder Coaters Association

The Royal Australian Chemical Institute

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This Standard was issued in draft form for comment as DR 02425.

STANDARDS AUSTRALIA

RECONFIRMATION

OF

AS 1627.6—2003

Metal finishing—Preparation and pretreatment of surfaces

Part 6: Chemical conversion treatment of metals

RECONFIRMATION NOTICE

Technical Committee MT-009 has reviewed the content of this publication and in accordance with Standards Australia procedures for reconfirmation, it has been determined that the publication is still valid and does not require change.

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Approved for reconfirmation in accordance with Standards Australia procedures for reconfirmation on 20 March 2017.

The following are represented on Technical Committee MT-009:

Australasian Institute of Surface Finishing
Australian Chamber of Commerce and Industry
Australian Industry Group
Australian Steel Institute
Bureau of Steel Manufacturers of Australia
Galvanizers Association of Australia
Galvanizing Association of New Zealand
New Zealand Metal Roofing Manufacturers

NOTES

Australian Standard™

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Part 6: Chemical conversion treatment of metals

Originated AS CK9.6—1968.
Previous edition AS 1627.6—1994.
Third edition 2003.

Published by Standards Australia International Ltd
GPO Box 5420, Sydney, NSW 2001, Australia

ISBN 0 7337 5381 7

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—1994.

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 Standard is to specify procedures and requirements for chemical coatings on metals prior to the application of organic coatings.

During the preparation of this Standard cognizance was taken of the following documents issued by the International Organization for Standardization:

ISO

3892:2000 Conversion coatings on metallic materials—Determination of coating mass per unit area—Gravimetric methods

9717:1990 Phosphate conversion coatings for metals—Method of specifying requirements

10546:1993 Chemical conversion coatings—Rinsed and non-rinsed chromate conversion coatings on aluminium and aluminium alloys

This Standard is Part 6 of a series of Standards covering the preparation and pretreatment of metal surfaces used in metal finishing. The series is as follows:

AS
1627 Metal finishing—Preparation and pretreatment of surfaces
1627.0 Part 0: Method selection guide
1627.1 Part 1: Removal of oil, grease and related contamination
1627.2 Part 2: Power tool cleaning
1627.4 Part 4: Abrasive blast cleaning
1627.5 Part 5: Pickling
1627.6 Part 6: Chemical conversion treatment of metals
1627.9 Part 9: Pictorial surface preparation standards for painting steel surfaces

The terms ‘normative’ and ‘informative’ have been used in this Standard to define the application of the appendix 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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FOREWORD

Phosphate conversion coatings are produced by treatment with solutions containing the appropriate 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.

STANDARDS AUSTRALIA

Australian Standard

Metal finishing—Preparation and pretreatment of surfaces

Part 6: Chemical conversion treatment of metals

SECTION 1 SCOPE AND GENERAL

1.1 SCOPE

This Standard specifies requirements and procedures for the chemical conversion treatment of metals usually prior to the application of a suitable organic protective coating and includes the following processes:

(a) Phosphate conversion coatings for ferrous and non-ferrous metals.

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

Requirements on information to be supplied by the purchaser at the time of enquiry or order are contained in Appendix A.

This Standard does not include requirements for conversion coatings applied to electroplated work (see AS 1789).

Chromium free coatings are outside the scope of this Standard. Refer to supplier.

1.2 REFERENCED DOCUMENTS

The following documents are referred to in this Standard:

AS	
1319	Safety signs for the occupational environment
1470	Health and safety at work—Principles and practices
1580	Paints and related materials—Methods of test
1580.408.4	Method 408.4: Adhesion (cross-cut)
1627	Metal finishing—Preparation and pretreatment of surfaces
1627.1	Part 1: Removal of oil, grease and related contamination
1789	Electroplated coatings—Zinc on iron or steel
2331	Methods of test for metallic and related coatings
2331.3.1	Method 3.1: Corrosion and related property tests—Neutral salt spray (NSS) test
2483	Metal finishing—Recommended sampling plans for the inspection and testing of coatings
2508	Safe storage and handling information cards
3780	The storage and handling of corrosive substances
4108	Metal finishing—Glossary of terms used in electroplating and related processes