

Australian Standard™

**Metal finishing—Preparation and
pretreatment of surfaces**

**Part 1: Removal of oil, grease and
related contamination**

This Australian Standard was prepared by Committee MT-009, Metal Finishing. It was approved on behalf of the Council of Standards Australia on 11 April 2003 and published on 2 June 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 Manufacturers 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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STANDARDS AUSTRALIA

RECONFIRMATION

OF

AS 1627.1—2003

**Metal finishing—Preparation and pretreatment of surfaces
Part 1: Removal of oil, grease and related contamination**

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NOTES

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pretreatment of surfaces**

**Part 1: Removal of oil, grease and
related contamination**

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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 1627.1—1989. 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.

This Standard was revised by Standards Australia Subcommittee MT-009-05 which decided to change the title from *Metal finishing, Part 1: Cleaning using liquid solvents or alkaline solution* to *Metal finishing, Part 1: Removal of oil, grease and related contamination* as the latter better reflects the content of the Standard.

The objective of this Standard is to specify the procedures for the removal of surface contaminants on metallic surfaces.

This Standard forms Part 1 of a series of Standards that deal with the preparation and pretreatment of metal surfaces in readiness for finishing processes.

The series comprises the following Parts:

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 term 'informative' has been used in this Standard to define the application of the appendix to which it applies. An 'informative' appendix is only for information and guidance.

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FOREWORD

This Standard describes methods and materials used to remove contaminants such as oil, grease and related contaminants from metal and previously coated surfaces prior to further surface preparation or coating.

Such methods are used prior to mechanical methods such as power tool cleaning or abrasive blasting. Methods included in the procedures are simple solvent wiping, immersion in solvent, solvent spray, vapour degreasing, emulsion cleaning and alkaline cleaning.

Solvent cleaning is not a suitable method for the removal of corrosive salts. These require treatment, according to the degree of contamination, by washing with suitable aqueous solutions, possibly utilizing high pressure water.

Liquid solvent cleaning seldom completely removes all oil and grease. Supplementary cleaning processes may be required to produce suitably clean surfaces for some coating systems. Solvent vapour degreasing is capable of removing all oil and grease deposits.

Successful coating of a metal component or structural items, whether with a paint system or another metal (such as zinc), lies in rendering its surface completely free of any foreign matter, notably dirt or greasy substances, that will interfere either with the coating operation itself or with the ultimate performance of the coating in service. The presence of unremoved contamination is likely to result in an unsatisfactory coating finish, such as blistering and bare areas, or in disbonding of an apparently satisfactory coating from the substrate with the passage of time.

A wide range of alkaline cleaning products and methods is available, and the nature of the final coating must be taken into account as the final performance may be affected by the cleaning method selected. It is also essential that residues of alkaline cleaning compounds and detergents be removed, as these can be detrimental to performance. Alkaline cleaning is suitable for removal of dirt, perspiration, light deposits of oil and some water wettable or soluble contaminants.

STANDARDS AUSTRALIA
Australian Standard
Metal finishing—Preparation and pretreatment of surfaces

Part 1: Removal of oil, grease and related contamination

SECTION 1 SCOPE AND GENERAL

1.1 SCOPE

This Standard sets out a variety of methods for eliminating dirt and organic residues such as oil, grease and related contaminants from metal surfaces, so as to facilitate the satisfactory application of finished coatings. Methods described for decontaminating surfaces include simple solvent wiping, immersion in solvent, solvent spray, vapour degreasing, emulsion cleaning, and alkaline cleaning. The process will usually remove loose adherent dirt from affected surfaces.

Depending on the nature of the finish coating to be applied, cleaning by any of the procedures described in this Standard may be followed by a more rigorous intermediate treatment, such as pickling or abrasive blast cleaning.

NOTE: Appendix A contains advice and recommendations of information which should be supplied by the purchaser at the time of inquiry or order.

1.2 REFERENCED DOCUMENTS

The documents below are referred to in this Standard.

| | |
|--------|--|
| AS | |
| 2661 | Vapour degreasing plant—Design, installation and operation—Safety requirements |
| 3894 | Site testing of protective coatings |
| 3894.6 | Method 6: Determination of residual contaminants |
| 4108 | Metal finishing—Glossary of terms used in electroplating and related processes |
| AS/NZS | |
| 1337 | Eye protectors for industrial applications |
| 1715 | Selection, use and maintenance of respiratory protective devices |
| 1716 | Respiratory protective devices |

1.3 DESIGNATION

The designations adopted for the various types of cleaning processes given in Table 2.1 are listed below:

- (a) *Neutral/Alkaline degreasing process (A)*
- AS..... Neutral/Alkaline spray process
 - AD Neutral/Alkaline dip or soak process
 - ADM.... AD process with mechanical and/or ultrasonic agitation
 - AE..... Alkaline electrolytic