

Australian Standard™

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

Part 4: Abrasive blast cleaning of steel



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Australian Institute of Metal Finishing
Australian Chamber of Commerce and Industry
Australian Industry Group
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Galvanizers Associations of Australia
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**Metal finishing—Preparation and
pretreatment of surfaces**

Part 4: Abrasive blast cleaning of steel

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PREFACE

This Standard was prepared by the Australian members of the Joint Standards Australia/Standards New Zealand Committee MT-009, Metal Finishing, to supersede AS 1627.4—2002, *Metal finishing—Preparation and pretreatment of surfaces, Part 4: Abrasive blast cleaning*.

After consulting 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 revision is to include additional information on abrasives and to include Class classification, which was deleted in the last edition. This revision was the result of requests from Australian Industry who were not satisfied with the previous adoption of ISO 8504-2:2000.

This Standard is Part 4 of a series of Standards covering the preparation and pretreatment of metal surfaces used in metal finishing.

During the preparation of this Standard cognizance was taken of ISO 8504-2:2000, *Preparation of steel substrates before application of paints and related product—Surface preparation methods, Part 2: Abrasive blast-cleaning*.

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 of steel (this Standard)
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

Abrasive blast cleaning utilizes a stream of abrasive particles directed onto a metal surface to remove millscale, rust, corrosion products, process scales and foreign particles. The abrasive may be propelled by centrifugal force, or carried in an air or water stream, or both.

Abrasive propelled by centrifugal force using impeller wheels in closed recirculating systems is suited to production line work and other specialized applications. Airborne abrasive is projected through a nozzle and is suitable for open field or on-site conditions, enclosed blasting chambers and portable enclosed circulating systems.

The various forms of wet blasting are carried out with non-metallic abrasives sometimes with a corrosion inhibitor added to the water. The method serves to minimize dust levels. The high velocity of water, with or without abrasive, aids in removal of contaminants such as salts and process fallout, especially so in pitted steel.

There are two general classes of abrasive, i.e. metallic and non-metallic. Practitioners should be aware that a general dust hazard exists for all forms of dry abrasive blast cleaning, and that the use of silica abrasives in dry abrasive blast cleaning represents a specific health hazard to blasters and other people close by as this can cause silicosis. Abrasives containing free silica are therefore banned for dry blasting by many statutory authorities.

The texture and colour of the blasted surface may vary depending upon the type of abrasive and method used.

The surface roughness or profile achieved depends on several factors. These include metal substrate, blasting process, abrasive type, abrasive velocity at impact (affected by distance between the workface and nozzle, or wheel), and angle of the blast stream to the workface.

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Part 4: Abrasive blast cleaning of steel

SECTION 1 SCOPE AND GENERAL

1.1 SCOPE

This Standard specifies abrasive blast cleaning methods for the preparation of steel surfaces before coating with paints and related products. It also contains information on the effectiveness of the individual methods and their fields of application.

NOTES:

- 1 Information on purchasing guidelines may be found in Appendix A.
- 2 Information on abrasive blasting of surfaces other than steel is discussed in Appendix D.

This Standard is applicable to new and corroded steel surfaces and also to steel surfaces that are uncoated or have been previously coated with paints and related products.

These methods are essentially intended for the surface preparation of hot-rolled steel but could also be used for cold-rolled steel of sufficient thickness to withstand the deformation caused by the impact of abrasive.

Items considered as a part of surface preparation before coating are edge grinding, removal of grease and oil, removal of weld spatter, removal of burrs and other sharp edges, grinding of welds, filling of pits, porosity of welds and other surface imperfections and removal of water-soluble contaminants that may cause premature failure of the coating system (see AS 1627.0 for more information). Such defects cannot be satisfactorily treated by abrasive blast cleaning.

WARNING: THE PROCEDURES DESCRIBED IN THIS STANDARD ARE INTENDED TO BE CARRIED OUT BY SUITABLY TRAINED AND SUPERVISED PERSONNEL. THE SUBSTANCES AND PROCEDURES USED IN THESE METHODS MAY BE INJURIOUS TO HEALTH IF ADEQUATE PRECAUTIONS ARE NOT TAKEN. ATTENTION IS DRAWN IN THE TEXT TO CERTAIN SPECIFIC HAZARDS. THIS STANDARD REFERS TO THE TECHNICAL SUITABILITY OF THE METHODS AND DOES NOT ABSOLVE THE USER FROM STATUTORY OBLIGATIONS RELATING TO HEALTH AND SAFETY.

NOTE: For guidance on working place hazards refer to Appendix C.

1.2 REFERENCED DOCUMENTS

The following documents are referred to in this Standard.

AS

1627	Metal finishing—Preparation and pretreatment of surfaces
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1627.1	Part 1: Removal of oil, grease and related contamination
1627.2	Part 2: Power tool cleaning
1627.9	Part 9: Pictorial surface preparation standards for painting steel surfaces
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