AS 1627.4—2002
ISO 8504-2:2000



Australian Standard™

# Metal finishing—Preparation and pretreatment of surfaces

## Part 4: Abrasive blast cleaning

[ISO title: Preparation of steel substrates before application of paints and related products—Surface preparation methods, Part 2: Abrasive blast-cleaning]

Standards Australia

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Australian Institute of Metal Finishing

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Australian Standard™

# Metal finishing—Preparation and pretreatment of surfaces

# Part 4: Abrasive blast cleaning

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# PREFACE

This Standard was prepared by Standards Australia Committee MT-009, Metal Finishing to supersede AS 1627.4—1989, *Metal finishing—Preparation and pretreatment of surfaces*, Part 4: *Abrasive blast cleaning*.

This Standard is identical with and has been reproduced from ISO 8504-2:2000, *Preparation of steel substrates before application of paints and related products—Surface preparation methods*, Part 2: *Abrasive blast-cleaning*.

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

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: | Cleaning using liquid solvents or alkaline solutions |
| 1627.2 | Part 2: | Power tool cleaning |
| 1627.5 | Part 5: | Picking, descaling and oxide removal |
| 1627.6 | Part 6: | Chemical conversion treatment of metals |
| 1627.9 | Part 9: | Pictorial surface preparation standards for painting steel surfaces |

As this Standard is reproduced from an International Standard, the following applies:

(a) Its number does not appear on each page of text and its identity is shown only on the cover and title page.

(b) In the source text, ‘this part of ISO 8504’ should read ‘this Australian Standard’.

(c) A full point substitutes for a comma when referring to a decimal marker.

References to International Standards should be replaced by Australian Standards, as follows:

| *Reference to International Standard* | | *Australian Standard* | |
|---|---|---|---|
| ISO | | AS | |
| 4628 | Paints and varnishes—Evaluation of degradation of paint coatings—Designation of intensity, quantity and size of common types of defect | — | |
| 4628-3 | Part 3: Designation of degree of rusting | | |
| 8501 | Preparation of steel substrates before application of paints and related products—Visual assessment of surface cleanliness | 1627<br>1627.9 | Metal finishing—Preparation and pretreatment of surfaces<br>Part 9: Pictorial surface preparation standards for painting steel surfaces |
| 8501-1 Suppl | Part 1: Rust grades and preparation grades of uncoated substrates and of steel substrates after the removal of all previous coatings | | |
| 8501-2 | Part 2: Preparation grades of previously coated steel substrates after localized removal of previous coatings | — | |
| 8501-3 | Part 3: Preparation grades of welds, cut edges and other areas with surface imperfections | — | |

| ISO | | AS | |
|---|---|---|---|
| 8502 | Preparation of steel substrates before application of paints and related products—Tests for the assessment of surface cleanliness | — | |
| 8502-1 | Part 1: Field test for soluble iron corrosion products | — | |
| 8502-2 | Part 2: Laboratory determination of chloride on cleaned surfaces | — | |
| 8502-3 | Part 3: Assessment of dust on steel surfaces prepared for painting (pressure-sensitive tape method) | — | |
| 8502-9 | Part 9: Field method for the conductometric determination of water-soluble salts | — | |
| 8502-10 | Part 10: Field method for the titrimetric determination of water-soluble chloride | — | |
| 8503 | Preparation of steel substrates before application of paints and related products—Surface roughness characteristics of blast-cleaned steel substrates | — | |
| 8503-1 | Part 1: Specifications and definitions for ISO surface profile comparators for the assessment of abrasive blast-cleaned surfaces | — | |
| 8503-2 | Part 2: Method for the grading of surface profile of abrasive blast-cleaned steel—Comparator procedure | — | |
| 8504 | Preparation of steel substrates before application of paints and related products—Surface preparation methods | — | |
| 8504-1 | Part 1: General principles | | |
| 8504-3 | Part 3: Hand- and power-tool cleaning | 1627 | Metal finishing—Preparation and pretreatment of surfaces |
| | | 1627.2 | Part 2: Power tool cleaning |
| 11124 | Preparation of steel substrates before application of paints and related products—Specifications for metallic blast-cleaning abrasives | — | |
| 11126 | Preparation of steel substrates before application of paints and related products—Specifications for non-metallic blast-cleaning abrasives | — | |

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# INTRODUCTION

The performance of protective coatings of paint and related products applied to steel is significantly affected by the state of the steel surface immediately prior to painting. The principal factors that are known to influence this performance are:

a) the presence of rust and mill scale;

b) the presence of surface contaminants, including salts, dust, oils and greases;

c) the surface profile.

International Standards ISO 8501, ISO 8502 and ISO 8503 have been prepared to provide methods of assessing these factors, while ISO 8504 provides guidance on the preparation methods that are available for cleaning steel substrates, indicating the capabilities of each in attaining specified levels of cleanliness.

These International Standards do not contain recommendations for the protective coating system to be applied to the steel surface. Neither do they contain recommendations for the surface quality requirements for specific situations even though surface quality can have a direct influence on the choice of protective coating to be applied and on its performance. Such recommendations are found in other documents such as national standards and codes of practice. It will be necessary for the users of these International Standards to ensure the qualities specified are

— compatible and appropriate both for the environmental conditions to which the steel will be exposed and for the protective coating system to be used;

— within the capability of the cleaning procedure specified.

The four International Standards referred to below deal with the following aspects of preparation of steel substrates:

ISO 8501 — *Visual assessment of surface cleanliness*;

ISO 8502 — *Tests for the assessment of surface cleanliness*;

ISO 8503 — *Surface roughness characteristics of blast-cleaned steel substrates*;

ISO 8504 — *Surface preparation methods*.

Each of these International Standards is in turn divided into separate parts.

The primary objective of surface preparation is to ensure the removal of deleterious matter and to obtain a surface that permits satisfactory adhesion of the priming paint to steel. It should also assist in reducing the amounts of contaminants that initiate corrosion.

This part of ISO 8504 describes abrasive blast-cleaning methods. It should be read in conjunction with ISO 8504-1.

Abrasive blast-cleaning is a most effective method for mechanical surface preparation. It is widely applicable because this method of surface preparation has a number of versatile features listed below.

a) The method allows a high production rate.

b) The equipment can be stationary or mobile and is adaptable to the objects to be cleaned.

c) The method is applicable to most types and forms of steel surface.

d) Many different surface states can be produced, for example different preparation grades and surface profiles.

e) Effects such as cleaning, peening, roughening, levelling and lapping can be produced.

f) It is possible to remove selectively partly failed coatings, leaving sound coatings intact.

AUSTRALIAN STANDARD

# Metal finishing—Preparation and pretreatment of surfaces

## Part 4:
## Abrasive blast cleaning

**WARNING — The procedures described in this part of ISO 8504 are intended to be carried out by suitably trained and/or 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 part of ISO 8504 refers only to the technical suitability of the methods and does not absolve the user from statutory obligations relating to health and safety.**

## 1 Scope

This part of ISO 8504 describes 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.

ISO 8504 is applicable to new and corroded steel surfaces and to steel surfaces that are uncoated or have been previously coated with paints and related products. For limitations, see note 2.

NOTE 1 These methods are essentially intended for hot-rolled steel to remove mill scale, rust, etc., but could also be used for cold-rolled steel of sufficient thickness to withstand the deformation caused by the impact of abrasive.

NOTE 2 There are several items that should be included in the purchaser's procurement documents to supplement this part of ISO 8504. Items that should be considered as a part of surface preparation before coating are edge grinding, removal of grease and oil, porosity of welds, removal of weld spatter, removal of burrs and other sharp edges, grinding of welds, filling of pits and other surface imperfections that may cause premature failure of the coating system (see ISO 8501-3 for more information) and the removal of water-soluble contaminants.

## 2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this part of ISO 8504. For dated references, subsequent amendments to, or revisions of any of these publications do not apply. However, parties to agreements based on this part of ISO 8504 are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references, the latest edition of the normative document referred to applies. Members of ISO and IEC maintain registers of currently valid International Standards.

ISO 4628-3:1982, *Paints and varnishes — Evaluation of degradation of paint coatings — Designation of intensity, quantity and size of common types of defect — Part 3: Designation of degree of rusting*.

ISO 8501-1:1988, *Preparation of steel substrates before application of paints and related products — Visual assessment of surface cleanliness — Part 1: Rust grades and preparation grades of uncoated steel substrates and of steel substrates after overall removal of previous coatings*.

ISO 8501-1:1988/Suppl:1994, *Preparation of steel substrates before application of paints and related products — Visual assessment of surface cleanliness — Part 1: Rust grades and preparation grades of uncoated steel*