AS 1627.2—1989

Australian Standard®

Metal finishing—Preparation and pretreatment of surfaces

Part 2: Power tool cleaning

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Aluminium Development Council

Australasian Institute of Metal Finishing

Bureau of Steel Manufacturers of Australia

Confederation of Australian Industry

Department of Defence

Metal Trades Industry Association of Australia

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PREFACE

This Standard was prepared under the direction of the Standards Australia Committee on Metal Finishing to supersede AS 1627.2–1975, *Code of practice for preparation and pretreatment of metal surfaces prior to protective coating, Part 2: Power tool cleaning of steel surfaces*.

This Standard is one of a series of Standards covering the preparation and pretreatment of metal surfaces used in metal finishing. Others in the series are as follows:

AS
1627.0 — *Method selection guide for preparation and pretreatment of steel surfaces.*
1627.1 — *Cleaning using liquid solvents and alkaline solutions*.
1627.3 — *Flame descaling.*
1627.4 — *Abrasive blast cleaning*.
1627.5 — *Pickling steel surfaces*.
1627.6 — *Phosphate treatment of iron and steel surfaces*.
1627.7 — *Hand tool cleaning of metal surfaces*.
1627.8 — *Wash primer pretreatment of metal surfaces*.
1627.9 — *Pictorial surface preparation standards for painting steel surfaces.*
1627.10 — *Cleaning and preparation of metal surfaces using acid solutions (non–immersion).*

The methods described in this Standard apply to metal prior to painting where the paint system is suitable for short term and medium term exterior protection as defined in AS 2312, *Guide to the protection of iron and steel against exterior atmospheric corrosion.*

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FOREWORD

Power tool cleaning may be satisfactorily employed where the nature of the work does not demand the removal of all millscale and rust on steel and corrosion products. In such cases the specifying authority may require the removal only of loose millscale and rust—all rust, scale and paint which is not firmly adherent. Tightly adhering millscale and rust in deep pits will not normally be removed by this method, and where complete removal of millscale is required, abrasive blast cleaning or pickling should be used. However, it is possible by means of a combination of tools to remove all visible rust, welding scale and paint from a surface.

Power tool cleaning is particularly suitable where for reason of size and location of steel structures limitations exist on the use of other methods of surface preparation. There is no restriction on the use of the method prior to painting where steel structures are used internally in buildings. Light metal surfaces require careful power tool cleaning to avoid undue removal of metal. Nevertheless, these processes should not be used for surface preparation of such structures as boilers or pipelines, due to the possibility of damaging the surface.

Care is necessary in the use of power tools. Excessive roughening of the surface should be avoided because ridges and burrs with sharp edges may not be protected by a proper thickness of paint film and early failure results. Excessive wire brushing may createa burnished, smooth slick surface to which paint will not adhere. Excessive use of needle guns on steel surfaces may burr over the edges of corrosion pits, entrapping the corrosion products and making subsequent early failure of the paint system likely. Needle guns should not be used on light metal surfaces.

Power tool cleaning is usually less expensive than hand tool cleaning and, if properly carried out, provides a better foundation for paint. Normally, only short to medium term protection can be afforded by painted surfaces prepared by power tool cleaning or hand tool cleaning.

STANDARDS AUSTRALIA

Australian Standard

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SECTION 1. SCOPE AND GENERAL

1.1 SCOPE. This Standard sets out procedures and equipment recommended for the removal by use of power driven tools of visible rust, millscale, corrosion products and loose or flaky paint prior to painting or repainting. The Standard also sets out standards of surface preparation.

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

1.2 REFERENCED DOCUMENTS. The documents below are referred to in this Standard.

AS
1337 Eye protectors for industrial applications
1627 Code of practice for preparation and pre-treatment of metal surfaces prior to protective coating
1627.1 Part 1: Cleaning using liquid solvents and alkaline solutions
1627.8 Part 8: Wash primer pretreatment of metal surfaces
1627.9 Part 9: Pictorial surface preparation standards for painting steel surfaces
1715 Selection, use and maintenance of respiratory protective devices
1716 Respiratory protective devices
2312 Guide to the protection of iron and steel against exterior atmospheric corrosion

1.3 DEFINITIONS. For the purpose of this Standard, the definitions below apply.

1.3.1 Bright steel—steel which has a smooth surface free from scale and harmful imperfections.

1.3.2 Detrimental burnishing—the polished or glossy surface appearance produced by excessive or prolonged use of a power wire brush.

NOTE: Such a surface does not provide a good anchor for paint. A slight burnishing or polishing is unavoidable, and generally can be tolerated.

1.3.3 Power tool cleaning—a method of preparing metal surfaces prior to painting by removing loose millscale, rust corrosion products and paint using power impact tools, power grinders, power sanders, power wire brushes or a combination of these tools.

1.3.4 Visible millscale—mill oxide scale which can be seen with normal or corrected vision.

1.3.5 Visible rust—rust or corrosion products which can be seen with normal or corrected vision.

1.4 SURFACE REQUIREMENTS. Rust, paint, millscale, welding scale, slag and corrosion products shall be removed to meet the required class of surface preparation specified in Table 1.1 and Table 1.2.

NOTE: It is recommended that the metal be primed as soon as possible after cleaning and preferably on the same day.

Accessible parts of all partially enclosed metal members shall be cleaned. Special attention should be given to rivet heads, cracks, crevices, lap joints, fillet welds and re-entrant angles using a combination of equipment as required.

NOTE: Where metal surfaces will be inaccessible after assembly, provision should be made to effect cleaning prior to assembly.