AS 1627.3—1988

Australian Standard®

Metal finishing—Preparation and pretreatment of surfaces

Part 3 — Flame descaling

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Aluminium Development Council

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Bureau of Steel Manufacturers of Australia

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Department of Defence

Metal Trades Industry Association of Australia

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PREFACE

This Standard was prepared under the direction of the Association's Committee on Metal Finishing to supersede AS 1627.3–1975, *Code of practice for preparation and pretreatment of metal surfaces prior to protective coating – Flame cleaning steel surfaces.*

This Standard is one in 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 — *Degreasing of metal surfaces using solvent or alkaline solutions*

1627.2 — *Power tool cleaning of steel surfaces*

1627.4 — *Abrasive blast cleaning of steel surfaces*

1627.5 — *Pickling steel surfaces*

1627.6 — *Phosphate treatment of iron and steel surfaces*

1627.7 — *Hand cleaning of steel 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).*

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FOREWORD

Flame cleaning is applicable to new steel, steel that has never been painted and previously painted steel. For new steel the technique is quite different from that used for old or painted steel which often requires slow speed of traverse of the flame cleaning head or else requires multiple passes. On new steel or steel which has been weathered partially to remove the mill scale, one traverse of the flame cleaning head may be all that is required. Badly rusted or heavily scaled steel may require slow traverse to pip off heavy rust scale.

Flame cleaning is a method of surface preparation which is suitable for use in shops or locations where it is impossible to blast clean, but where a method of surface preparation marginally better than hand or power tool cleaning is desired.

Flame cleaning of steel should not be considered as the equivalent of blast cleaning to a Class 2 finish. Flame cleaning removes only a part of the mill scale. To be fully effective, the flame traverse should be followed by very thorough wire brushing, removal of loose debris, and priming while the steel is still warm. Tests on flame cleaned steel which has been allowed to cool and stand prior to priming have shown it to be little or no better than power wire brushed steel. However, it is difficult to follow the flame cleaning and wire brushing operations by priming, while the steel is still warm.

At best, flame cleaning will give results somewhere between power wire brushing and Class 2 blast cleaning; however, the cost is quite high. For maintenance work, flame cleaning may result in considerable economy due to the ease of removal of thick layers of old paint which cannot be tolerated because of their poor adhesion.

STANDARDS ASSOCIATION OF AUSTRALIA

Australian Standard
METAL FINISHING—PREPARATION AND PRETREATMENT OF SURFACES

PART 3: FLAME DESCALING

SECTION 1. SCOPE AND GENERAL

1.1 SCOPE. This Standard sets out procedures for flame cleaning and descaling of steel surfaces to remove visible and loose rust, and loose, flaky or adherent paint, prior to protective coating. Requirements for the desired degree of cleanliness are stated.

NOTE: Appendix A contains advice and recommendations on 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
1337 Eye protectors for industrial applications

1627 Code of practice for preparation and pretreatment of metal surfaces prior to protective coating

Part 1: Degreasing of metal surfaces using solvent or alkaline solutions (AS 1627.1)

1715 Selection, use and maintenance of respiratory protective devices

1716 Respiratory protective devices

Z5 Glossary of metal welding terms and definitions

1.3 SURFACE REQUIREMENTS. The work shall be carried out to achieve over the whole of the specified surface, a degree of surface preparation equal to the standard required.

NOTE: The degree of cleanliness for the surface is preferably illustrated by means of a sample, which may be a patch on the work face, or a plate, suitably protected, or a photograph or other visual standard.

In the process the surface shall become free of paint and other detrimental foreign matter and shall leave a warm, dry surface to which a priming coat of paint shall be applied before the surface cools to ambient temperature, thus ensuring good penetration and bond to the metal.

All the rust scale shall be removed, and only a small quantity of powdered rust may be left on the surface. The surface shall be at least as clean as the visual standard.

NOTE: For normal service tightly bonded mill scale which has not been removed by the high temperature flames may be tolerated.