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WASH PRIMER PRETREATMENT OF METAL SURFACES

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THE FOLLOWING SCIENTIFIC, INDUSTRIAL AND GOVERNMENTAL organizations and departments were officially represented on the committee entrusted with the preparation of this standard:

Australasian Corrosion Association

Australasian Paint Manufacturers Federation

National Association of Australian State Road Authorities

Defence Standards Laboratories

Department of the Navy

Oil and Colour Chemists Association

University of New South Wales

Firms specializing in surface preparation equipment and processing, and firms engaging in large scale surface preparation were also represented.

This standard, prepared by Committee CH/18, Preparation and Pretreatment of Metal Surfaces Prior to Protective Coating, was originally approved on behalf of the Council of the Standards Association of Australia on 16 April 1973.

In order to keep abreast of progress in the industries concerned, Australian standards are subject to periodical review. Suggestions for improvements, addressed to the head office of the Association, will be welcomed.

**AUSTRALIAN STANDARD CODE
OF PRACTICE**

**PREPARATION AND PRETREATMENT
OF METAL SURFACES
PRIOR TO PROTECTIVE COATING**

Part 8

**WASH PRIMER
PRETREATMENT
OF METAL SURFACES**

AS 1627.8—1978

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PREFACE

This code of practice for wash primer pretreatment of metal surfaces prior to protective coating is a re-issue and re-designation of AS CK9.8—1973, which it accordingly supersedes. It does not incorporate any revision other than the updating of references. It was originally drawn up by the Association's Committee on Preparation and Pretreatment of Metal Surfaces Prior to Protective Coating, as part of a general code for the preparation and pretreatment of metal surfaces.

In addition to this part, the following parts of AS 1627 have been published (including revisions and/or re-designations of the corresponding parts of AS CK9):

- 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
- 1627.3 Flame Cleaning 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
- 1627.9 Pictorial Surface Preparation Standards for Painting Steel Surfaces (endorsement of Swedish Standard SIS 05 59 00).

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STANDARDS ASSOCIATION OF AUSTRALIA

Australian Standard Code of Recommended Practice for WASH PRIMER PRETREATMENT OF METAL SURFACES

FOREWORD

Wash primers were developed by the Bakelite Corporation in the U.S.A. during the Second World War, in the course of development work on underwater paints for ships' hulls. Preparation of the surface by wire-brushing and phosphoric acid did not give a suitable surface for the application of vinyl underwater paints. To help overcome this deficiency, the phosphoric acid was dissolved in organic solvents to aid penetration and a polymer, polyvinyl butyral, was added to allow the application of an even film and to promote adhesion. Chromate pigments were added to impart a degree of rust prevention and to provide control of application by rendering the applied film visible. The primer proper was then applied after the application of the wash primer. Since then, wash primers of somewhat different compositions have been developed to assist in promoting the adhesion of paint films to aluminium, magnesium, galvanized steel, and other materials which are difficult to paint. Wash primers were developed, therefore, as pretreatment primers to be applied before the primer proper; but in certain circumstances they may be used as primers in their own right.

Wash primers may be one-pack or two-pack materials. They are also called pretreatment primers and etch primers, although the evidence for etching of the substrate is slight. Some manufacturers make several different types of wash primer, for example, for steel (particularly ships' hulls), for aluminium and aluminium alloys (particularly for aircraft use), for magnesium (containing less acid). Some years ago, the phenolic reinforced type was developed, in which some of the polyvinyl butyral is replaced with phenolic resin to improve water and weather resistance. This is probably the most popular modified type although a wide number of other materials such as melamine resin have also been used. Wash primers are now widely used in industry, particularly in the aircraft and ship-building industries.

Wash primers may be used as primers in their own right where conditions of service are mild, where the weight of the primer is important, or where some other form of protective coating is already present. Such uses include priming light alloys for aircraft use, priming galvanized steel, and as industrial coatings where chemical conversion treatments are not practicable.

SECTION 1. SCOPE AND DESCRIPTION

1.1 SCOPE. This code describes procedures for the application of wash primers as a pretreatment for metals such as ferrous metals, stainless steel, zinc-coated steel, aluminium and its alloys, cadmium, zinc, lead, and tin.

NOTE: Special grades of wash primer containing less acid than usual may be required for use on magnesium.

1.2 DESCRIPTION. Wash primers are priming coats designed to improve the adhesion of subsequently applied coatings which may include the primer proper. They are pretreatments which react with the underlying metal and, at the same time, form a mildly protective film which affords a good base for further coats of paint. They consist essentially of an alcoholic solution of polyvinyl butyral resin, inhibitive pigment and phosphoric acid. Wash primers may be one-pack or two-pack materials; two-pack materials consist of a base and an acid component, in which the base contains the vinyl resin and the pigment, and the acid component is an alcoholic solution of phosphoric acid.

NOTES:

1. AS....., Wash Primers*, describes the properties and characteristics of wash primers in greater detail.
2. The following information should be legibly and durably marked on each wash primer container or on a label fixed to the container:
 - (i) The words 'Wash Primer to AS.....', or appropriate manufacturer's description:
 - (ii) The manufacturer's name.
 - (iii) The batch identification.
 - (iv) The date of manufacture.

The containers of two-pack etch primers should be plainly marked to show the respective use one with the other and the relative volumes in which they are to be mixed as well as instructions regarding pot life and hazards in use.

*In course of preparation.