

Australian/New Zealand Standard®

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**Paints for steel structures**

**Part 14: High-build epoxy  
(two-pack)**

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This Joint Australian/New Zealand Standard was prepared by Joint Technical Committee CH/3, Paints and Related Materials. It was approved on behalf of the Council of Standards Australia on 11 July 1997 and on behalf of the Council of Standards New Zealand on 24 June 1997. It was published on 5 November 1997.

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Australian Chamber of Commerce and Industry  
Australian Paint Approval Scheme  
Australian Paint Manufacturers Federation  
AUSTROADS  
Building Research Association of New Zealand  
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STANDARDS AUSTRALIA/STANDARDS NEW ZEALAND

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**RECONFIRMATION**  
**OF**  
**AS/NZS 3750.14:1997**  
**Paints for steel structures**  
**Part 14: High-build epoxy (two-pack)**

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Technical Committee CH-003 has reviewed the content of this publication and in accordance with Standards Australia procedures for reconfirmation, it has been determined that the publication is still valid and does not require change.

Certain documents referenced in the publication may have been amended since the original date of publication. Users are advised to ensure that they are using the latest versions of such documents as appropriate, unless advised otherwise in this Reconfirmation Notice.

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Australasian Corrosion Association  
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Australian Paint Manufacturers' Federation  
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## NOTES

# Australian/New Zealand Standard<sup>®</sup>

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## Paints for steel structures

### Part 14: High-build epoxy (two-pack)

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Originated in Australia as AS 2364—1990.  
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## PREFACE

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee CH/3, Paints and Related Materials as part of a series of product Standards for paints referred to in AS/NZS 2312, *Guide to the protection of iron and steel against exterior atmospheric corrosion*.

The objective of this Standard is to revise and supersede the 1990 edition of AS 2364, *Paints for steel structures—High-build epoxy (two-pack)* by reformatting and taking account of revisions to Standards such as AS/NZS 2312 and the AS/NZS 1580 series of test methods.

The following Standards in this series have been published:

### AS

- 3750 Paints for steel structures
- 3750.1 Part 1: Epoxy mastic (two-pack)—For rusted steel
- 3750.2 Part 2: Ultra high-build paint
- 3884 Etch primers (single pack and two-pack) for pretreating metal surfaces
- 3885 Paints for steel structures—Galvanized and zinc primed—Latex
- 3887 Paints for steel structures—Coal tar epoxy (two-pack)

### AS/NZS

- 3750 Paints for steel structures
- 3750.0 Introduction and list of Standards
- 3750.3 Part 3: Heat-resisting—Exterior
- 3750.4 Part 4: Bitumen paint
- 3750.5 Part 5: Acrylic full gloss (two-pack)
- 3750.6 Part 6: Full gloss polyurethane (two-pack)
- 3750.7 Part 7: Aluminium paint
- 3750.8 Part 8: Vinyl paints—Primer, high-build and gloss
- 3750.9 Part 9: Organic zinc-rich primer
- 3750.10 Part 10: Full gloss epoxy (two-pack)
- 3750.11 Part 11: Chlorinated rubber—High-build and gloss
- 3750.12 Part 12: Alkyd/micaceous iron oxide
- 3750.13 Part 13: Epoxy primer (two-pack)
- 3750.14 Part 14: High-build epoxy (two-pack)

The terms 'normative' and 'informative' have been used in this Standard to define the application of the appendix to which they apply. A 'normative' appendix is an integral part of a Standard, whereas an 'informative' appendix is only for information and guidance.

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## STANDARDS AUSTRALIA/STANDARDS NEW ZEALAND

**Australian/New Zealand Standard****Paints for steel structures****Part 14: High-build epoxy (two-pack)**

## SECTION 1 SCOPE AND GENERAL

**1.1 SCOPE** This Standard specifies requirements for a two-component, high-build epoxy paint intended to be used for the protection of iron and steel against exterior atmospheric corrosion. It is intended primarily for paints applied by spraying (conventional pressure pot or airless). Paints specified in this Standard are described in AS/NZS 2312 as Paint Reference 13. This paint may be produced in a range of colours and may be pigmented with micaceous iron oxide pigments.

This Standard is applicable to paints intended for the protection of iron and steel against corrosion in damp and wet areas, and in those involving high humidity, coastal/marine and industrial fallout. It may be used as—

- (a) high-build, single coat or multicoat finish; or
- (b) intermediate, high-build coating under full-gloss epoxy paint complying with AS/NZS 3750.10 or full-gloss polyurethane paint complying with AS/NZS 3750.6.

**NOTES:**

- 1 This paint may be used with the appropriate primer in the following systems of AS/NZS 2312: MP5—A, B, D, E, F, H, I, J, K; MP9—A, B, C; LP1—A, E, I; LP2—A, C, D, F; LP4—A, LP6—A, B, GZLP—C, F, MSALP—C, MSZLP—C, and as one-coat protection in system MP1—C and GZLP—C, F.
- 2 Appendix A contains recommendations and advice on information which should be provided by the purchaser at the time of enquiry or order.
- 3 Additional information on the use and application of high-build epoxy paints is contained in Appendix B.
- 4 Alternative methods for determining compliance with this Standard are given in Appendix C.

**1.2 REFERENCED DOCUMENTS** A list of the documents referred to in this Standard is contained in Appendix D.

**1.3 DEFINITIONS** For the purpose of this Standard, the definitions given in AS/NZS 2310 and those below apply.

**1.3.1 Component**—the term used to describe each of two parts of the paint, which when mixed together form the pigmented epoxy paint.

**1.3.2 High-build epoxy paint**—a paint consisting essentially of epoxy resin base, polyamide or amine adduct or other hardener (excluding free, volatile amines) with appropriate pigments, solvents and additives, mixed together in the proportions recommended by the manufacturer, allowing normal application in one coat of 100–200 µm dry film thickness.

**1.4 SAFETY PRECAUTIONS** Epoxy paints contain epoxy resin and organic amines in chemical combination. During mixing and application, protective clothing and gloves should be worn to minimize skin contact and the area should be well ventilated.

NOTE: See Appendix B for further information on safety precautions.

The appropriate statutory requirements concerning packaging, labelling, mixing and use of the product shall be followed. The manufacturer's material safety data sheets (MSDSs) shall be followed.

## SECTION 2 MATERIAL REQUIREMENTS

**2.1 GENERAL** The paint shall comply with the requirements detailed in Clauses 2.3 to 2.5 inclusive. These properties and requirements are summarized in Table 1.

**2.2 CONDITIONS OF TEST** Unless otherwise specified in this Standard, the following test conditions shall apply:

- (a) The test panel material and its preparation shall be in accordance with Appendix E.
- (b) The type and size of test panels shall be as specified in Table 1.
- (c) Conditions for testing shall be in accordance with AS 1580.101.5.
- (d) The spreading rate of paint shall be such that when applied by spraying it shall result in a dry film thickness of 100 µm to 125 µm per coat as determined by either AS/NZS 1580.108.1 or AS 1580.108.2.
- (e) Conditions for air-drying shall be in accordance with AS 1580.101.1.

### 2.3 LIQUID PAINT

**2.3.1 Condition in container** When each component is tested in accordance with AS/NZS 1580.103.1 at the time of delivery from the manufacturer/supplier, it shall be free of gel, uncharacteristically coarse particles, skins and foreign matter.

**2.3.2 Volume solids** When determined in accordance with AS 1580.301.2, utilizing air-drying conditions of 7 d under routine conditions of AS 1580.101.1 in lieu of a 3 h drying period at 105°C, the volume solids of the mixed paint shall be within 5% of the manufacturer's specification.

**2.3.3 Consistency** Each component of the paint shall have a consistency, determined in accordance with AS 1580.214.1 or AS 1580.214.5, within 5% of the manufacturer's specification.

#### 2.3.4 Storage properties

**2.3.4.1 Degree of settling** When stored at 23 ±3°C in sealed, unopened containers for 12 months from the date of manufacture, the rating for the settling of either component, when determined in accordance with AS/NZS 1580.211.1, shall be not less than six.

**2.3.4.2 Re-incorporation after storage** When stored at 23 ±3°C in sealed, unopened containers for 12 months from the date of manufacture, and tested in accordance with AS/NZS 1580.211.2, the components shall be readily re-incorporated and, when mixed in the recommended proportions, shall produce a paint of uniform consistency free of lumps, gel and other defects.

### 2.4 APPLICATION PROPERTIES

**2.4.1 General** Application properties shall be assessed using vertical steel test panels prepared in accordance with Appendix E. When applied in accordance with the manufacturer's recommended methods of application and at 50% greater than the manufacturer's recommended maximum dry film thickness, the applied film shall not run, streak, sag or exhibit other undesirable defects when dry, when tested by the appropriate method (see Clauses 2.4.2 to 2.4.4).

**2.4.2 Brushing** When thinned, if necessary, and applied to a test panel (see Clause 2.2) in accordance with AS 1580.205.1, the test paint shall exhibit satisfactory brushing properties and freedom from defects.

**2.4.3 Rolling** When thinned, if necessary, and applied to a test panel (see Clause 2.2) in accordance with AS 1580.205.3, the test paint shall exhibit satisfactory rolling properties and freedom from defects.

**2.4.4 Spraying** When thinned, if necessary, in accordance with the manufacturer's instructions, and applied to a test panel (see Clause 2.2) in accordance with AS 1580.205.2 or AS 1580.205.4 as appropriate, the test paint shall exhibit good spraying properties and not clog the spray gun.

NOTE: The panels should be retained for assessment of finish (see Clause 2.5.5).

**2.4.5 Pot-life assessment** A four litre volume of the paint shall be tested in accordance with AS 1580.205.2 or AS 1580.205.4, when it is initially mixed and thinned as appropriate to the method of application, and again at the end of standing period equivalent to the manufacturer's stated pot-life. When applied at the manufacturer's maximum recommended thickness, it shall exhibit satisfactory spraying properties.

When dry, the film shall be free from sags, runs, pinholes, craters and any other film defects. A slight orange-peel effect is characteristic.

## 2.5 APPLIED FILM

**2.5.1 Hard-dry time** When applied to a tinplate test panel (see Clause 2.2) and tested in accordance with AS 1580.401.5, one coat of the test paint shall have a hard-dry time not exceeding 48 h.

**2.5.2 Curing properties** A coat of test paint shall have a scratch resistance greater than 1.5 kg, when applied to a tinplate test panel and tested in accordance with Appendix F.

**2.5.3 Recoating properties** A steel test panel, prepared in accordance with Appendix E, is coated with test paint and air-dried for 24 h and then recoated with a further coat of test paint and air-dried for a further 6 d.

When tested in accordance with AS 1580.404.1, the recoated panel shall show no evidence of wrinkling, patchiness or lifting of the previous coat and, when tested in accordance with AS 1580.408.2, the intercoat adhesion rating shall be 0.

**2.5.4 Colour** When a coat of test paint applied to a tinplate test panel is air-dried for a minimum of 24 h and assessed in accordance with AS/NZS 1580.601.1, the colour of the panel shall be an approximate match to that specified.

NOTE: AS 2700S and NZ/BS 4800 provide a range of colour standards which are suitable for specification purposes.

**2.5.5 Finish** When a coated test panel prepared in accordance with Clause 2.4.4 is air-dried for 24 h and examined in accordance with AS 1580.603.1, the film shall be of uniform colour and appearance and free from film defects.

**2.5.6 Flexibility and adhesion** When a coat of test paint is applied to a tinplate test panel, air-dried for 7 d, and then tested in accordance with AS 1580.402.1 using a 12 mm diameter mandrel, the paint shall not crack and shall firmly adhere to the metal panel.

### 2.5.7 Accelerated tests

**2.5.7.1 General** The tests in Clauses 2.5.7.2 to 2.5.7.4 shall be performed to demonstrate long-term resistance properties.

**2.5.7.2 Resistance to distilled water** When a steel test panel is prepared and tested in accordance with Appendix G, it shall meet the following requirements after the 30 d immersion period:

| Property of coating      | Method of test    | Requirements                   |
|--------------------------|-------------------|--------------------------------|
| Blistering and wrinkling | —                 | None present                   |
| Adhesion rating          | AS 1580.408.2     | 0                              |
| Colour                   | ISO 105-A02       | Rating $\geq 4$                |
| Gloss of immersed part   | AS/NZS 1580.602.2 | $\geq 80\%$ of unimmersed part |
| Scratch resistance       | AS 1580.403.1     | $\geq 1.5$ kg                  |
| Corrosion of substrate   | —                 | None visible                   |

**2.5.7.3 Resistance to mineral oil** When a steel test panel is prepared and tested in accordance with Appendix H, it shall meet the following requirements after the 24 h immersion period:

| Property of coating      | Method of test    | Requirements                   |
|--------------------------|-------------------|--------------------------------|
| Blistering and wrinkling | —                 | None present                   |
| Adhesion rating          | AS 1580.408.2     | 0                              |
| Colour                   | ISO 105-A02       | Rating $\geq 4$                |
| Gloss of immersed part   | AS/NZS 1580.602.2 | $\geq 80\%$ of unimmersed part |
| Scratch resistance       | AS 1580.403.1     | $\geq 1.5$ kg                  |

**2.5.7.4 Resistance to alkali/acid** When steel test panels are prepared and tested in accordance with Appendix I, they shall meet the following requirements:

| Property of coating      | Method of test  | Requirements  |
|--------------------------|-----------------|---------------|
| Blistering and wrinkling | AS 1580.481.1.9 | None present  |
| Adhesion rating          | AS 1580.408.2   | 0             |
| Scratch resistance       | AS 1580.403.1   | $\geq 1.5$ kg |
| Corrosion of substrate   | AS 1580.481.1.9 | None visible  |

NOTE: This test should not be carried out on aluminium pigmented paints.

**2.5.8 Resistance to weathering** When a test panel, prepared and coated in accordance with Appendix J, is continuously exposed, at a  $45^\circ$  angle for 48 months on an exposure rack complying with AS/NZS 1580.457.1 at a site with climatic conditions that comply with AS/NZS 2312 for a *marine environment*, and assessed with the appropriate methods, the paint system shall meet the acceptance rating requirements of Table 2.