

Australian Standard™

**Paints and related materials—  
Micaceous iron oxide pigment**

This Australian Standard was prepared by Committee CH-003, Paints and Related Materials. It was approved on behalf of the Council of Standards Australia on 16 April 2004 and published on 17 May 2004.

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## PREFACE

This Standard was prepared by the Standards Australia Committee CH-003, Paints and Related Materials, to supersede AS 2855—1986.

The Standard is republished without technical alterations.

Methods of test have been referred to or drawn from relevant Australian Standards where they exist. Otherwise, they consist of adaptations of the ISO methods referred to in ISO 1248—*Iron Oxide Pigments for Paints*, modified to only a minor extent in the technical sense. For purposes of future reference these ISO standards comprised the following:

ISO

787 General Methods of Test for Pigments and Extenders

Part 2: Determination of Matter Volatile at 105°C

Part 3: Determination of Matter Soluble in Water—Hot Extraction Method

Part 4: Determination of Acidity or Alkalinity of the Aqueous Extract

Part 7: Determination of Residue on Sieve—Water Method—Manual Procedure

Part 10: Determination of Density—Pyknometer Method

Part 13: Determination of Water-soluble Sulphates, Chlorides and Nitrates

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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## FOREWORD

Micaceous iron oxide (MIO), also known as specular haematite, is a refined mineral ore consisting essentially of iron (III) oxide ( $\text{Fe}_2\text{O}_3$ ). It is grey with a metallic sheen. The term 'micaceous' stems from the similarity between the structure of the particles and the crystalline structure of mica.

Depending on the location of the ore deposits, MIO may differ considerably in purity, size and shape.

The distinguishing feature of MIO is the tabular crystalline structure which can be easily fractured to give very thin platelets or lamellar fragments. When used as a pigment in paint, these thin platelets generally orientate themselves in overlapping layers with their thinnest cross-sections parallel to the coated substrate. This orientation produces an increase in resistance to water permeation through the paint film, reduces ultraviolet degradation of the vehicle and provides mechanical reinforcement to the paint film.

MIO pigmented paints have been widely and successfully used for many years to provide protection to steel from corrosion and long-term resistance to outdoor weathering.

## STANDARDS AUSTRALIA

### Australian Standard

## Paints and related materials—Micaceous iron oxide pigment

### 1 SCOPE

This Standard specifies requirements for micaceous iron oxide pigment (MIO) used primarily in paints for imparting corrosion resistance and long term durability to steel.

### 2 REFERENCED DOCUMENTS

The following documents are referred to in this Standard:

AS

2162 Verification and use of volumetric apparatus

2162.1 Part 1: General—Volumetric glassware

2831 Thermometers—Solid stem—Long and short—For precision use

AS/NZS

1580 Paints and related materials—Methods of test

1580.101.4 Part 101.4: Conditions of test—Temperature control

### 3 PROPERTIES

The properties of a representative sample of MIO shall be in accordance with specifications contained in Table 1.

### 4 FORM

#### 4.1 General

The form (i.e., structure, shape and size) of a representative sample of micaceous iron oxide shall be that of a grey iron oxide with a metallic sheen and of an essentially laminar nature complying with the requirements of Clauses 4.2 and 4.3.

#### 4.2 Structure

When a test portion of the pigment is viewed under a scanning electron microscope using a magnification of about  $\times 250$ , the structure of the particles shall correspond to the typical lamellar structure shown in Figure 1. It shall not correspond to the amorphous granular structure illustrated in Figure 2.

#### 4.3 Shape, size and colour

When a test portion of the pigment is viewed by means of an optical microscope using a magnification of about  $\times 200$  and transmitted light, the particles shall be seen to consist of sharply defined, angular, ruby red crystals with clearly defined fracture planes as shown in Figure 3. The particles shall not correspond to those illustrated in Figure 4.

### 5 PACKAGING AND LABELLING

#### 5.1 Packaging

The MIO shall be supplied in sound, sealed packages, and shall exhibit no damage by moisture or other agents.