Australian Standard™

Paints and related materials—Micaceous iron oxide pigment

STANDARDS AUSTRALIA

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.

The following are represented on Committee CH-003:

AUSTROADS
Australian Paint Approval Scheme
Australian Paint Manufacturers Federation
Building Research Association of New Zealand
Business New Zealand
Institution of Professional Engineers New Zealand
Master Painters Australia
Master Painters New Zealand Association
National Association of Testing Authorities Australia
New Zealand Abrasive Blasting Association
Surface Coatings Association Australia
Telstra Corporation
Water Corporation Western Australia

Australian Standard™

Paints and related materials—Micaceous iron oxide pigment

Originated as AS 2855—1986.
Second edition 2004.

Published by Standards Australia International Ltd
GPO Box 5420, Sydney, NSW 2001, Australia

ISBN 0 7337 5984 X

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.

CONTENTS

Page

FOREWORD

Micaceous iron oxide (MIO), also known as specular haematite, is a refined mineral ore consisting essentially of iron (III) oxide (Fe_2O_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 × 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 × 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.