INTERNATIONAL STANDARD

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Micaceous iron oxide pigments for paints — Specifications and test methods

Pigments d'oxyde de fer micacé pour peintures — Spécifications et méthodes d'essai

Reference number
ISO 10601:1993(E)

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

International Standard ISO 10601 was prepared by Technical Committee ISO/TC 35, *Paints and varnishes*, Sub-Committee SC 2, *Pigments and extenders*.

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Introduction

Micaceous iron oxide pigments were previously included in ISO 1248:1974 and classified in the colour group "grey with metallic sheen". In this new International Standard, the requirements for micaceous iron oxide pigment have been defined more clearly and include assessment of particle shape.

Micaceous iron oxide pigments can vary in composition, particle size range, and particle shape depending on whether they are produced synthetically or, if a refined natural oxide, on the location where the ore was mined.

The primary use of micaceous iron oxide is in protective coatings for steelwork, and for optimum performance the pigment should have a high content of thin, flake-like particles. The protective action is ascribed to the close packing of pigment platelets within the paint film, forming overlapping layers that lie roughly parallel to the substrate. This impedes penetration of corrosion promoters, reduces ultra-violet degradation of the binder and improves film strength. For less critical requirements, micaceous iron oxide pigment with a lower content of thin flakes may be acceptable. Therefore in this International Standard, micaceous iron oxide pigments are classified into three groups according to their thin-flake content as determined by microscopic examination. (See table 1.)

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1 Scope

This International Standard specifies the requirements and corresponding test methods for manufactured and natural micaceous iron oxide (MIO) pigments, in dry form, used primarily in protective coatings for steelwork.

In accordance with current practice, the general requirements for micaceous iron oxide pigments have been sub-divided to give

a) those requirements that are essential (see table 2)

and

b) those requirements that are conditional upon prior agreement between the interested parties (see table 3).

In certain instances, reference may be made to an agreed reference pigment.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 150:1980, *Raw, refined and boiled linseed oil for paints and varnishes — Specifications and methods of test.*

ISO 787-2:1981, *General methods of test for pigments and extenders — Part 2: Determination of matter volatile at 105 °C.*

ISO 787-3:1979, *General methods of test for pigments and extenders — Part 3: Determination of matter soluble in water — Hot extraction method.*

ISO 787-5:1980, *General methods of test for pigments and extenders — Part 5: Determination of oil absorption value.*

ISO 787-7:1981, *General methods of test for pigments and extenders — Part 7: Determination of residue on sieve — Water method — Manual procedure.*

ISO 787-9:1981, *General methods of test for pigments and extenders — Part 9: Determination of pH value of an aqueous suspension.*

ISO 842:1984, *Raw materials for paints and varnishes — Sampling.*

ISO 1248:—[1], *Iron oxide pigments (except micaceous) — Specifications and methods of test.*

3 Definition

For the purposes of this International Standard, the following definition applies.

3.1 micaceous iron oxide pigment: A refined mineral (also known as specular haematite) or a manufactured product consisting essentially of iron(III) oxide, Fe_2O_3. It is grey in colour with a metallic sheen and has a more or less lamellar form.

4 Classification

In this International Standard, micaceous iron oxide pigments are classified by grades according to their thin-flake content as shown in table 1 and by types according to their residue on sieve as shown in table 2.

1) To be published. (Revision of ISO 1248:1974)