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

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ISO copyright office
Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11
Fax + 41 22 749 09 47
E-mail copyright@iso.org
Web www.iso.org

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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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. 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.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

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

This second edition cancels and replaces the first edition (ISO 10601:1993), which has been technically revised.

The main technical changes are:

a) the description of the grades has been changed and the grade “non-lamellar” deleted;

b) the requirements for the residue on sieve have been changed.

Introduction

Micaceous iron oxide pigments were previously included in ISO 1248 (classified in the colour group “grey with metallic sheen”) but are explicity excluded from the revised edition published in 2006. In this revised edition of ISO 10601, the requirements for micaceous iron oxide pigment have been defined more clearly and relate to an essentially lamellar 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 two groups according to their thin-flake content as determined by microscopic examination (see Table 1).

For the purposes of this International Standard, pigments with a lamellar-particle content below 50 % are not considered to be “micaceous” or classified as “lamellar”.

Micaceous iron oxide pigments for paints — Specifications and test methods

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 referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

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

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

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

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

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

ISO 1248, *Iron oxide pigments — Specifications and methods of test*

ISO 3549, *Zinc dust pigments for paints — Specifications and test methods*

ISO 15528, *Paints, varnishes and raw materials for paints and varnishes — Sampling*