
International Standard



787/16

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION • МЕЖДУНАРОДНАЯ ОРГАНИЗАЦИЯ ПО СТАНДАРТИЗАЦИИ • ORGANISATION INTERNATIONALE DE NORMALISATION

General methods of test for pigments and extenders — Part 16: Determination of relative tinting strength (or equivalent colouring value) and colour on reduction of coloured pigments — Visual comparison method

Méthodes générales d'essai des pigments et matières de charge — Partie 16: Détermination du pouvoir colorant relatif (ou valeur de coloration équivalente) et de la couleur dégradée des pigments colorés — Méthode de comparaison visuelle

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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.

Draft International Standards adopted by the technical committees are circulated to the member bodies for approval before their acceptance as International Standards by the ISO Council. They are approved in accordance with ISO procedures requiring at least 75 % approval by the member bodies voting.

International Standard ISO 787/16 was prepared by Technical Committee ISO/TC 35, *Paints and varnishes*.

This second edition cancels and replaces the first edition (ISO 787/XVI-1973), clauses 0, 1, 3, 4, 5, 10 of which have been technically revised.

Users should note that all International Standards undergo revision from time to time and that any reference made herein to any other International Standard implies its latest edition, unless otherwise stated.

The purpose of this International Standard is to establish a series of general test methods for pigments and extenders which are suitable for all or many of the individual pigments and extenders for which specifications might be required. In such cases, a cross-reference to the general method should be included in the International Standard relating to that pigment or extender, with a note of any detailed modifications which might be needed in view of the special properties of the product in question.

Technical Committee ISO/TC 35, *Paints and varnishes*, decided that all the general methods should be published as they become available, as parts of a single International Standard, in order to emphasize the relationship of each to the whole series.

The Technical Committee also decided that, where two or more procedures were widely used for determining the same or a similar characteristic of a pigment or extender, there would be no objection to including more than one of them in the ISO series. In such cases it will, however, be essential to state clearly in a specification which method is to be used and, in the test report, which method has been used.

Parts of the series already published are as follows:

- Part 1 : Comparison of colour of pigments
- 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 5 : Determination of oil absorption value
- Part 7 : Determination of residue on sieve — Water method — Manual procedure
- Part 8 : Determination of matter soluble in water — Cold extraction method
- Part 9 : Determination of pH value of an aqueous suspension
- Part 10 : Determination of density — Pyknometer method
- Part 11 : Determination of tamped volume and apparent density after tamping
- Part 13 : Determination of water-soluble sulphates, chlorides and nitrates
- Part 14 : Determination of resistivity of aqueous extract
- Part 15 : Comparison of resistance to light of coloured pigments of similar types
- Part 16 : Determination of relative tinting strength (or equivalent colouring value) and colour on reduction of coloured pigments — Visual comparison method
- Part 17 : Comparison of lightening power of white pigments
- Part 18 : Determination of residue on sieve — Mechanical flushing procedure
- Part 19 : Determination of water-soluble nitrates — Salicylic acid method
- Part 20 : Comparison of ease of dispersion — Oscillatory shaking method
- Part 21 : Comparison of heat stability of pigments using a stoving medium
- Part 22 : Comparison of resistance to bleeding of pigments
- Part 23 : Determination of density (using a centrifuge to remove entrained air)
- Part 24 : Determination of relative tinting strength of coloured pigments and relative scattering power of white pigments — Photometric methods

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General methods of test for pigments and extenders — Part 16: Determination of relative tinting strength (or equivalent colouring value) and colour on reduction of coloured pigments — Visual comparison method

0 Introduction

This document is a part of ISO 787, *General methods of test for pigments and extenders*.

This revision of ISO 787/16 has been carried out to align the presentation and procedures with those given in ISO 787/24, which describes a photometric method for comparing relative tinting strength and colour on reduction of coloured pigments. The title has been amended to differentiate between this part of ISO 787 and ISO 787/24.

The degree of development of tinting strength of a coloured pigment is dependent on the amount of work done in the preparation of the dispersion, so that in determining the relative tinting strengths of two coloured pigments it is necessary for the comparison to be carried out at the level of maximum development. In this method, which uses an automatic muller, the development of tinting strength is influenced by the force applied, the number of revolutions, the binder, the volume of the mix, and the rheology of the mix. The preliminary test described in 8.2 is used to establish the conditions under which a practical maximum of tinting strength may be obtained on the automatic muller. When these conditions are known for a particular pigment, the preliminary test is unnecessary and the procedure described in 8.3 to 8.5 is followed directly.

The complete test procedure consists of four parts:

- determination of the conditions for the preparation of the dispersion of the coloured pigment, and determination of the ratio of coloured pigment to white pigment (see 8.2);
- preparation of the dispersion of the coloured pigment (see 8.3);
- mixing of the dispersions of coloured pigment and white pigment (see 8.4);
- comparison of the colour on reduction of the two mixtures, one from the test sample and the other from the agreed reference pigment (see 8.5).

The method described is intended as a referee method. It is realized that other binders and white pigments may be used for control purposes in laboratories or by agreement between the interested parties.

For any particular application, the method of test described in this International Standard needs to be completed by the following supplementary information. This information should be derived, in part or totally, from an (inter)national standard or other document related to the product under test or, if appropriate, should be agreed between the interested parties.

- a) The binder that should be used (see 5.1).
- b) The volume (which should be about 2 ml) of the mix of pigment and binder.
- c) The ratio of pigment to binder.
- d) The ratio of coloured pigment to white pigment.
- e) The force (which should be the maximum available) that should be applied to the upper plate of the automatic muller.
- f) The number of revolutions of the automatic muller to be used.

1 Scope and field of application

This part of ISO 787 describes a general method of test for comparing the tinting strength and colour on reduction of two similar coloured pigments, the results being expressed either as "relative tinting strength" or as "equivalent colouring value".

ISO 787/24 describes a general method of test for determining the relative tinting strength of coloured pigments using a photometric method.

NOTES

- 1 When this general method is applicable to a given pigment, only a cross-reference to it should be included in the International Standard relating to that pigment, indicating any detailed modification which