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Pigments and extenders — Methods of dispersion for assessment of dispersion characteristics —

Part 1: Introduction

*Pigments et matières de charge — Méthodes de dispersion pour évaluer
la dispersibilité —*

Partie 1: Introduction



Reference number
ISO 8780-1:1990(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 8780-1 was prepared by Technical Committee ISO/TC 35, *Paints and varnishes*.

ISO 8780 consists of the following parts, under the general title *Pigments and extenders — Methods of dispersion for assessment of dispersion characteristics*:

- *Part 1: Introduction*
- *Part 2: Dispersion using an oscillatory shaking machine*
- *Part 3: Dispersion using a high-speed impeller mill*
- *Part 4: Dispersion using a bead mill*
- *Part 5: Dispersion using an automatic muller*
- *Part 6: Dispersion using a triple-roll mill*

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International Organization for Standardization
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Pigments and extenders — Methods of dispersion for assessment of dispersion characteristics —

Part 1: Introduction

1 Scope

This part of ISO 8780 gives an introduction to the various methods, described in subsequent parts of ISO 8780, for dispersing pigments and/or extenders¹⁾ in a particular binder system in order to assess the dispersion characteristics.

Methods for assessing the characteristics of the dispersion so produced are described in ISO 8781.

The various procedures permit comparisons between similar pigments (for example between a test pigment and an agreed reference pigment). The results make it possible to draw inferences about the dispersion that may be obtained under manufacturing conditions, but only if the dispersion conditions for the test are appropriate.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this part of ISO 8780. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this part of ISO 8780 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 8780-2:1990, *Pigments and extenders — Methods of dispersion for assessment of dispersion characteristics — Part 2: Dispersion using an oscillatory shaking machine.*

ISO 8780-3:1990, *Pigments and extenders — Methods of dispersion for assessment of dispersion characteristics — Part 3: Dispersion using a high-speed impeller mill.*

ISO 8780-4:1990, *Pigments and extenders — Methods of dispersion for assessment of dispersion characteristics — Part 4: Dispersion using a bead mill.*

ISO 8780-5:1990, *Pigments and extenders — Methods of dispersion for assessment of dispersion characteristics — Part 5: Dispersion using an automatic muller.*

ISO 8780-6:1990, *Pigments and extenders — Methods of dispersion for assessment of dispersion characteristics — Part 6: Dispersion using a triple-roll mill.*

ISO 8781-1:1990, *Pigments and extenders — Methods of assessment of dispersion characteristics — Part 1: Assessment from the change in tinting strength of coloured pigments.*

ISO 8781-2:1990, *Pigments and extenders — Methods of assessment of dispersion characteristics — Part 2: Assessment from the change in fineness of grind.*

ISO 8781-3:1990, *Pigments and extenders — Methods of assessment of dispersion characteristics — Part 3: Assessment from the change in gloss.*

3 Definitions

For the purposes of ISO 8780 and ISO 8781, the following definitions apply.

1) For subsequent reference in all parts of ISO 8780 and ISO 8781 the word "pigment" only is used.

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3.1 mill base: Mixture of binders, solvents, pigments and additives.

3.2 level of dispersion: The extent to which pigment particles have been separated and stabilized by milling in a binder system under defined conditions.

3.3 dispersibility: The level of dispersion (see 3.2) when it has become constant under the defined conditions.

NOTE 1 The dispersibility of a pigment depends on the binder system in which it is dispersed, the method of dispersion and the mill base composition.

3.4 ease of dispersion: A measure of the rate at which a pigment achieves a given level of dispersion during its milling in a binder system.

NOTE 2 The ease of dispersion may be assessed in terms of, for example,

- tinting strength (see ISO 8781-1),
- fineness of grind (see ISO 8781-2),
- gloss (see ISO 8781-3).

3.5 aggregate: An assemblage of particles so joined together that it cannot be broken down during normal paint or ink-making processes.

3.6 agglomerate: An assemblage of primary particles, aggregates or a mixture of the two which may be broken down during normal paint or ink-making processes.

4 Methods of dispersion and methods of assessment

4.1 Preliminary agreements

Agreement between the interested parties has to be reached on

- a) the binder system to be used (see 4.2),

- b) the method or methods of dispersion (see 4.3),

- c) the method or methods of assessment (see 4.4), because all of these will affect the results.

4.2 Binder systems

In view of the multiplicity of binder systems with widely varying properties that are encountered in practice, it is not possible to specify in this part of ISO 8780 the binder system(s) to be used. However, depending on the method of dispersion selected, advice of a general nature is given in the other parts of ISO 8780 concerning the properties of the binder system.

4.3 Methods of dispersion

Many different types of machinery and milling conditions are used in practice for dispersing pigments. Thus, it is not possible to specify a single method for producing a dispersion for test purposes. The other parts of ISO 8780 describe methods of dispersion of pigments under conditions that can be related to the manufacturing method.

4.4 Methods of assessment

Several methods are available for assessing the dispersion characteristics of a pigment in a binder system. These methods are described in ISO 8781. An appropriate method or methods shall be selected for a particular dispersion.

5 Precision

Statements on precision of the methods of assessment, given in the various parts of ISO 8781, are not able to be given due to the dependence of the results on the choice of the binder system and the method of dispersion.

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Descriptors: paints, pigments, extenders, dispersibility, dispersing.

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