International Standard 787/5

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General methods of test for pigments and extenders — Part 5 : Determination of oil absorption value

Méthodes générales d'essai des pigments et matières de charge — Partie 5 : Détermination de la prise d'huile

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards institutes (ISO member bodies). The work of developing International Standards is carried out through ISO technical committees. Every member body interested in a subject for which a technical committee has been set up 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.

International Standard ISO 787/5 was developed by Technical Committee ISO/TC 35, *Paints and varnishes*.

It was submitted directly to the ISO Council, in accordance with clause 5.10.1 of part 1 of the Directives for the technical work of ISO. It cancels and replaces Part 5 of ISO Recommendation R 787-1968, which had been approved by the member bodies of the following countries :

Australia	Czechoslovakia	Netherlands
Austria	Egypt, Arab Rep. of	Portugal
Belgium	India	Spain
Brazil	Iran	Switzerland
Canada	Ireland	United Kingdom
Chile	Israel	USSR
Colombia	Japan	Yugoslavia

No member body had expressed disapproval of the document.

Printed in Switzerland

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 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
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 6 : Determination of residue on sieve — Oil method
Part 7 : Determination of residue on sieve — Water method
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 12 : Visual comparison of hue of powdered white pigment (Hollow cone method)[1)]
Part 13 : Determination of water-soluble sulphates, chlorides and nitrates
Part 14 : Determination of resistivity of aqueous extract
Part 15 : Comparison of resistance of coloured pigments of similar types to light from a specified light source
Part 16 : Comparison of relative tinting strength (or equivalent colouring value) and colour on reduction in linseed stand oil using the automatic muller
Part 17 : Comparison of lightening power of white pigments
Part 18 : Determination of residue on sieve by a 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)

1) This part will be withdrawn as the specified method is no longer in use.

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General methods of test for pigments and extenders — Part 5 : Determination of oil absorption value

0 Introduction

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

1 Scope and field of application

This part of ISO 787 specifies a general method of test for determining the oil absorption value of a sample of pigment or extender. The oil absorption value is usually required to be compared with the value determined at the same time on an agreed sample of the product.

NOTE — When this general method is applicable to a given pigment or extender, only a cross-reference to it should be included in the International Standard relating to that pigment or extender, with a note of any detailed modification which may be needed in view of the special properties of the material in question. Only when this general method is not applicable to a particular material should a special method for determination of oil absorption value be specified.

2 References

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

ISO/R 385, *Burettes*

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

3 Definition

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

oil absorption value : The quantity of refined linseed oil that is absorbed under defined conditions by a sample of pigment or extender.

NOTE — The oil absorption value may be expressed either on a volume/mass basis or on a mass/mass basis.

4 Reagent

Refined linseed oil, complying with the requirements of ISO 150, and having an acid value of 5,0 to 7,0 mg KOH per gram.

5 Apparatus

5.1 Plate, of ground glass or marble, at least 300 mm × 400 mm.

5.2 Palette knife, with a tapered steel blade of the approximate dimensions 140 to 150 mm long, 20 to 25 mm wide at its widest point and not less than 12,5 mm wide at its narrowest point.

5.3 Burette, of capacity 10 ml, complying with the requirements of ISO/R 385.

5.4 Balance, with an appropriate accuracy.

6 Sampling

Take a representative sample of the material to be tested as described in ISO 842.

7 Procedure

Carry out the determination in duplicate.

7.1 Test portion

Weigh the appropriate quantity of the sample in accordance with the expected oil absorption value as indicated in the table below.

Table

Expected oil absorption value ml/100 g	Mass of the test portion g
less than 10	20
10 to 30	10
30 to 50	5
50 to 80	2
over 80	1

7.2 Determination

Place the test portion (7.1) on the plate (5.1). Add the linseed oil slowly, 4 or 5 drops at a time, from the burette (5.3). After each addition, rub the oil into the product with the palette knife (5.2), and continue the addition of oil at this rate until conglomerates of oil and product are formed. From this point, add the oil 1 drop at a time and follow each addition of oil by thoroughly rubbing with the palette knife. Cease the addition of oil when a paste of smooth consistency has been formed. This paste should just spread without cracking or crumbling and should only just adhere to the plate.

Read the burette and note the quantity of oil used. The time taken for the complete operation should be between 20 and 25 min and during this time, the whole product mass shall be manipulated with maximum effort by the operator.

Where a comparison is required with the oil absorption value of an agreed sample of product, repeat the test in exactly the same way using the agreed sample.

8 Expression of results

The oil absorption value, expressed either in millilitres of oil per 100 g of product or in grams of oil per 100 g of product, is given respectively by formulae (1) and (2) :

$$\frac{100\ V}{m} \qquad \ldots (1)$$

$$\frac{93\ V}{m} \qquad \ldots (2)$$

where

V is the volume, in millilitres, of oil required;

m is the mass, in grams, of the test portion.

Report the result to the nearest millilitre per 100 g or gram per 100 g.

9 Test report

The test report shall contain at least the following information :

a) the type and identification of the product tested;

b) a reference to this International Standard (ISO 787/5) or to a corresponding national standard;

c) the result of the test as indicated in clause 8;

d) any deviation, by agreement or otherwise, from the procedure specified;

e) the date of the test.