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Paints and varnishes — Examination and preparation of samples for testing

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ISO 1513:1992

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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.

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.

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International Standard ISO 1513 was prepared by Technical Committee ISO/TC 35, *Paints and varnishes*, Sub-Committee SC 9, *General test methods for paints and varnishes*.

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This third edition cancels and replaces the second edition (ISO 1513:1980), which has been technically revised.

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International Organization for Standardization

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Paints and varnishes — Examination and preparation of samples for testing

1 Scope

This International Standard is one of a series of standards dealing with the sampling and testing of paints, varnishes and related products.

This International Standard specifies both the procedure for preliminary examination of a single sample as received for testing, and the procedure for preparing a test sample by blending and reduction of a series of samples representative of a consignment or bulk of paint, varnish or related product, the samples of the product to be tested having been taken in accordance with ISO 1512.

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 565:1990, *Test sieves — Metal wire cloth, perforated metal plate and electroformed sheet — Nominal sizes of openings*.

1) These correspond to type A and B products in ISO 1512.

ISO 1512:1991, *Paints and varnishes — Sampling of products in liquid or paste form*.

3 Sample container

3.1 Condition of container

Record any defects in the sample container or any visible leakage. If it is possible that the contents have been affected, the sample shall be rejected.

3.2 Opening of a container

WARNING — Some paints and related products (such as paint removers) are prone to develop gas or vapour pressure during storage. Care, appropriate to the situation, shall be taken in opening containers, particularly if bulging of the lid or the bottom of the container is observed.

If such phenomena occur, they shall be noted in the report (clause 10).

Remove all packing materials and other debris from the outer surface of the container, particularly around the closure. Open the container carefully, taking care not to disturb the contents.

4 Preliminary procedure for fluid products such as varnishes, emulsions, thinners, etc.¹⁾

4.1 Visual examination

4.1.1 Ullage

Record the approximate ullage, i.e. the air-space above the contents of the container, expressed as a percentage of the total capacity of the container.

4.1.2 Surface skin

Record the presence of any surface skin and whether the skin is continuous, hard, soft, thin or moderately or excessively thick.

If skin is observed on the sample, it is preferable to discard the sample. If this is impractical, detach the skin as completely as possible from the sides of the container and remove it, if necessary by straining.

Record the ease of removal. For analytical control purposes, where skin is present, it may be necessary to disperse the skin and include it in the sample for testing.

4.1.3 Consistency

Record whether the sample is thixotropic or whether gelling has taken place, taking care not to confuse gelling and thixotropy.

NOTE 1 Both thixotropic and gelled varnishes have a jelly-like consistency but, whereas the consistency of the former is markedly reduced by stirring or shaking, the consistency of a gelled varnish cannot be reduced in this way.

4.1.4 Separation into layers

Record any separation of the sample into layers, for example water and oily or resinous matter.

4.1.5 Visible impurities

If there are any visible impurities, record their presence and remove them if possible.

4.1.6 Sediment

If there is any appreciable sediment, record its presence and appearance.

4.1.7 Clarity and colour

In the case of varnishes, thinners, catalyst solutions, etc., record the clarity and colour of the sample.

4.2 Mixing

Thoroughly stir the sample and incorporate any slight sediment.

2) These correspond to type C in ISO 1512.

5 Preliminary procedure for fluid products such as paints²⁾

5.1 Visual examination

5.1.1 Ullage

Record the approximate ullage, i.e. the air-space above the contents of the container, expressed as a percentage of the total capacity of the container.

5.1.2 Surface skin

Record the presence of any surface skin and whether the skin is continuous, hard, soft, thin or moderately or excessively thick. If skin is observed on the sample, it is preferable to discard the sample.

If this is impractical, detach the skin as completely as possible from the sides of the container and remove it, if necessary by straining.

Record the ease of removal. For analytical control purposes, where skin is present, it may be necessary to disperse the skin and include it in the sample for testing.

5.1.3 Consistency

Record whether the sample is thixotropic or whether gelling has taken place, taking care not to confuse gelling and thixotropy.

NOTE 2 Both thixotropic and gelled paints have a jelly-like consistency but, whereas the consistency of the former is markedly reduced by stirring or shaking, the consistency of a gelled paint cannot be reduced in this way.

5.1.4 Separation into layers

Record any separation of the sample into layers.

5.1.5 Settling

Record the type of settling, for example soft, hard or hard-dry. If the settling is hard and appears dry and crumbly inside a lump when cut with a clean palette knife, describe it as "hard-dry".

5.1.6 Extraneous matter

Record the presence of any extraneous matter in the paint and remove it as carefully as possible.

5.2 Mixing

5.2.1 Limitations

Samples which have gelled or show hard-dry settling (see 5.1.3 and 5.1.5) cannot be effectively reincorporated and shall therefore not be used for testing purposes.

5.2.2 General

During all the operations specified in 5.2.3 to 5.2.5, take care to ensure minimum loss of solvent. To this end, carry out all the operations as rapidly as practicable, consistent with satisfactory mixing.

5.2.3 Removal of skin

If the original sample contained skin, detach and remove any remnants by straining the incorporated sample, under its own weight, through a sieve complying with ISO 565, of nominal aperture 125 µm, unless otherwise specified.

5.2.4 If no hard settling has occurred

Mix the sample thoroughly, even if there is no perceptible settling.

NOTE 3 If the sample is small enough, a palette knife is suitable, but for a larger sample a stouter stirrer is needed.

Firmly replace the lid of the container and thoroughly shake the contents, inverting the container while this is being done. Alternately stir and shake the container in this way until the contents are completely homogeneous.

NOTE 4 As an added precaution, it is recommended that the mixing should be completed by pouring the contents into a clean container and back again several times.

At all times during the sample preparation, avoid, as far as possible, entrainment of air. The sample shall be free from air bubbles before use.

5.2.5 If hard settling has occurred

If it is required to complete the examination of a sample in which hard settling has occurred (but not hard-dry settling, see 5.2.1), proceed as follows.

Pour all the fluid medium into a clean container. Remove the settled pigment from the bottom of the original container with a palette knife and mix thoroughly. When a uniform consistency has been achieved, return the fluid medium to the original container, a small portion at a time, carefully incorporating each addition before the next is made. Complete the

reincorporation by pouring from one container to the other several times (see 5.2.4). The sample shall be free from air bubbles before use.

6 Preliminary procedure for viscous products such as putties, mastics, etc.³⁾

Examine these products in general as for paints under clause 5.

NOTE 5 If mixing appears to be necessary to ensure homogeneity, a small, heavy-duty mixer may be required.

7 Preliminary procedure for products in powder form⁴⁾

No special procedure is usually required for these products, but unusual features shall be recorded, such as abnormal colour, the presence of large or hard lumps, the presence of foreign matter, etc.

8 Blending and reduction of a series of samples

8.1 General

In cases where a series of samples has been taken from a homogeneous product, they may either be tested separately, or be combined to produce a reduced sample as specified in 8.2 to 8.4.

8.2 Fluid products (types A, B or C)

After thoroughly mixing each sample as specified in clauses 4 and 5, pour or otherwise transfer the samples into a clean, dry container of suitable size and thoroughly mix them by stirring, shaking, etc. When the mixed sample appears to be homogeneous, take a reduced sample in accordance with ISO 1512. Place the reduced sample in one or more clean, dry containers, allowing 5 % ullage, then close, label and, if necessary, seal the containers.

8.3 Viscous products (type D)

It is not possible to specify any single, generally applicable procedure. Treat each case on its merits, taking into account the mechanical aids available, the difficulty of mixing viscous materials, the possible loss of volatile constituents, etc.

8.4 Products in powder form (type E)

Empty the contents of the various sample containers into a clean, dry container of suitable size and mix thoroughly. Reduce the sample down to a suitable

3) These correspond to type D products in ISO 1512.

4) These correspond to type E products in ISO 1512.

size (1 kg to 2 kg) by quartering either manually or by means of a rotary sample divider (riffle divider), then place the reduced sample in one or more clean, dry containers. Close, label and, if necessary, seal the containers.

9 Labelling of sample containers

State the following particulars, if known, on the label of the sample container:

- a) the name of the manufacturer and a description of the product;
- b) the date of manufacture;
- c) the consignor;
- d) the size and other details of the consignment;
- e) the place of sampling, the date of sampling and the name of the sampler;
- f) the reference number or numbers of the batch, storage tank, drum, etc. from which the sample or samples have been drawn;
- g) the date of blending and the name of the blender;

- h) a reference to this International Standard (ISO 1513).

If the sample is despatched to another laboratory, a delivery note shall be sent with it repeating the details given on the label and also, if required (for example by the laboratory receiving the sample), a preliminary examination report (clause 10).

10 Preliminary examination report

The report shall contain at least the following information:

- a) a description of the sample, as indicated on the label (see clause 9);
- b) a reference to this International Standard (ISO 1513);
- c) the appearance, clarity, etc. of the sample;
- d) a description of the skinning observed, and of the straining procedure adopted (if any);
- e) a description of the settling observed, and of the mixing and re-incorporation procedure adopted, if any (see 4.2 and 5.2);
- f) other preliminary observations, as indicated in clauses 3 to 7.

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