INTERNATIONAL STANDARD

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Paints and varnishes — Examination and preparation of test samples

Peintures et vernis — Examen et préparation des échantillons pour essai

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Foreword

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

This fourth edition cancels and replaces the third edition (ISO 1513:1992), which has been technically revised. It also incorporates the Technical Corrigendum ISO 1513:1992/Cor.1:1994. The main technical changes are:

a) the title has been changed to “Examination and preparation of test samples”;

b) the normative references have been updated;

c) a definitions clause with definitions of thixotropy and homogenization has been added;

d) the examination and mixing procedures for liquid and paste-like products have been combined into a single clause (Clause 5);

e) the type of sieve to be used for straining the sample is no longer specified.

Paints and varnishes — Examination and preparation of test samples

1 Scope

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.

NOTE The samples of the product to be tested are assumed to conform to ISO 15528.

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 4618, *Paints and varnishes — Terms and definitions*

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

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 4618 and the following apply.

3.1
thixotropy
decrease in the apparent viscosity of a liquid under shear stress followed by a gradual recovery when the stress is removed

NOTE The effect is time-dependent.

3.2
homogenization
process of combining components, particles or layers of the original samples (in the case of composite samples) or of pre-treated fractions of samples into a more homogeneous state in order to ensure equal distribution of the substances in, and properties of, the sample

4 Sample container

4.1 Condition of container

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

4.2 Opening of container

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

If such phenomena occur, they should be noted in the report (see Clause 9).

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.

5 Preliminary procedure for liquid products (e.g. paint) and paste-like products (e.g. putty)

5.1 Visual examination

5.1.1 Surface skin

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

For analytical test purposes, where skin is present, it might be necessary to disperse the skin and include it in the test sample.

5.1.2 Consistency

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

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

5.1.3 Separation into layers

Record any separation of the sample into layers.

5.1.4 Visible impurities

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

5.1.5 Clarity and colour

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

5.1.6 Sediment

Record the type of sediment (if any), for example soft, hard or hard-dry. If the sediment is hard and appears dry and crumbly inside a lump when cut with a clean palette knife, describe it as “hard-dry”.

5.2 Homogenization

5.2.1 Limitations

Samples which have gelled or show a hard-dry sediment (see 5.1.6) which cannot be effectively reincorporated shall not be used for test 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 through a sieve.

5.2.4 If no compact sediment is present

Mix the sample thoroughly until it is completely homogenous.

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 compact sediment is present

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

Pour all the liquid present 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 liquid to the original container, a small portion at a time, carefully incorporating each addition before the next is made. The sample shall be free from air bubbles before use.

6 Preliminary procedure for products in powder form

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 or the presence of foreign matter.

7 Blending and reduction of a series of samples

7.1 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 7.2 and 7.3.

7.2 Liquid and paste-like products

After thoroughly mixing each sample as specified in 5.2, 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 15528. Place the reduced sample in one or more clean, dry containers, allowing 5 % ullage, then close, label and, if necessary, seal the containers.

7.3 Products in powder form

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

8 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 size and other details of the consignment;

d) the place of sampling, the date of sampling and the name of the sampler;

e) the reference number or numbers of the batch, storage tank, drum, etc., from which the sample or samples were taken;

f) the date of blending and the name of the blender;

g) 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 (see Clause 9).

9 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 8);

b) a reference to this International Standard (ISO 1513);

c) the appearance, clarity, etc., of the sample;

d) a description of any skin observed and of the straining procedure adopted;

e) a description of any sediment observed and of the mixing and re-incorporation procedure adopted (see 5.1.1);

f) other preliminary observations, as indicated in Clauses 4 and 5.