International Standard 1513

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Paints and varnishes — Examination and preparation of samples for testing

Peintures et vernis — Examen et préparation des échantillons pour essais

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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 1513 was developed by Technical Committee ISO/TC 35, *Paints and varnishes*.

This second edition 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 the first edition (i.e. ISO 1513-1973), which had been approved by the member bodies of the following countries :

Australia	Iran	South Africa, Rep. of
Austria	Ireland	Spain
Denmark	Israel	Sweden
Egypt, Arab Rep. of	Italy	Switzerland
France	Netherlands	Turkey
Germany, F.R.	Peru	United Kingdom
Greece	Poland	USSR
India	Portugal	

No member body had expressed disapproval of the document.

Paints and varnishes — Examination and preparation of samples for testing

0 Introduction

This International Standard is one of a series of standards dealing with the sampling and testing of paints, varnishes and related products. The samples shall have been taken in accordance with ISO 1512.

1 Scope and field of application

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.

2 References

ISO 565, *Test sieves — Woven metal wire cloth and perforated plate — Nominal sizes of apertures.*

ISO 1512, *Paints and varnishes — Sampling.*

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 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, 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 (clause 10).

Remove all packing materials (for example sawdust) 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 its type, i.e. whether continuous, whether hard or soft, and whether thin or moderately or excessively thick. If any skin is present, detach it as completely as possible from the sides of the container and remove it, if necessary by sieving. 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[2)].

4.1.4 Separation of phases

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.

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

2) Both thixotropic and gelled paints and 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 paint or varnish cannot be reduced in this way.

4.1.7 Clarity

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.

5 Preliminary procedure for fluid products such as paints[1)]

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 its type, i.e. whether continuous, whether hard or soft, and whether thin or moderately or excessively thick. If any skin is present, detach it as completely as possible from the sides of the container and remove it, if necessary by sieving. 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 paint is thixotropic or whether gelling has taken place, taking care not to confuse gelling and thixotropy[2)].

5.1.4 Separation of phases

Record any separation of the sample into phases.

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, care shall be taken to ensure minimum loss of solvent. To this end, all the operations shall be carrried out as rapidly as practicable, consistent with satisfactory mixing.

5.2.3 Removal of skin

If the original sample contained skin, 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 (if the sample is small enough, a palette knife is suitable, but for a larger sample a stouter stirrer is needed), then firmly replace the lid of the container and thoroughly shake the contents, inverting the container as this is being done. Repeat the alternate stirring and shaking until the contents are completely homogeneous. As an added precaution, it is recommended that the mixing 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 container with a palette knife and mix thoroughly. When a uniform consistency has been achieved, return the 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.

1) These correspond to products of Type C in ISO 1512.

2) Both thixotropic and gelled paints and 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 paint or varnish cannot be reduced in this way.

6 Preliminary procedure for viscous products such as putties, mastics, etc.[1)]

Examine these products in general as for pigmented paints under clause 5. Where mixing appears to be necessary to ensure homogeneity, a small, heavy duty mixer may be required.

7 Preliminary procedure for products in powder form[2)]

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 have been taken from a homogeneous product, they may either be tested separately, or combined to produce a reduced sample as specified in 8.2 to 8.4.

8.2 Fluid products (of 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 (of 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 (of 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 size (1 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 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 particulars of the consignment;

e) the place of sampling; the date of sampling; 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; the name of the blender;

h) a reference to this International Standard or an equivalent national standard.

NOTE — If the sample is despatched to another laboratoy, a delivery note shall be sent with it repeating the details given on the label and also, if necessary, a report of the preliminary examination. (See clause 10.)

10 Report of preliminary examination

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 or an equivalent national standard;

c) appearance, clarity, etc.;

d) a description of the skinning observed, and of the sieving procedure adopted (if any);

e) a description of the settling observed, and of the mixing and reincorporation procedure adopted if any (see 4.2 and 5.2);

f) other preliminary observations, as indicated in clauses 3, 4, 6 and 7.

1) These correspond to products of Type D in ISO 1512.

2) These correspond to products of Type E in ISO 1512.