SLOVENSKI STANDARD
SIST EN ISO 3549:2003

01-januar-2003

Cinkovi pigmenti v prahu za barve - Specifikacije in preskusne metode (ISO 3549:1995)

Zinc dust pigments for paints - Specifications and test methods (ISO 3549:1995)

Zinkstaub-Pigmente für Beschichtungsstoffe - Anforderungen und Prüfverfahren (ISO 3549:1995)

Pigments a base de poussiere de zinc pour peintures - Spécifications et méthodes d'essai (ISO 3549:1995)

Ta slovenski standard je istoveten z: EN ISO 3549:2002

ICS:

87.060.10 Pigmenti in polnila Pigments and extenders

SIST EN ISO 3549:2003 **en**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN ISO 3549

September 2002

ICS 87.060.10

English version

Zinc dust pigments for paints - Specifications and test methods (ISO 3549:1995)

Pigments à base de poussière de zinc pour peintures - Spécifications et méthodes d'essai (ISO 3549:1995)

Zinkstaub-Pigmente für Beschichtungsstoffe - Anforderungen und Prüfverfahren (ISO 3549:1995)

This European Standard was approved by CEN on 21 July 2002.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Management Centre or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

Management Centre: rue de Stassart, 36 B-1050 Brussels

Ref. No. EN ISO 3549:2002 E

Foreword

The text of ISO 3549:1995 has been prepared by Technical Committee ISO/TC 35 "Paints and varnishes" of the International Organization for Standardization (ISO) and has been taken over as EN ISO 3549:2002 by Technical Committee CEN/TC 298 "Pigments and extenders", the secretariat of which is held by DIN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by March 2003, and conflicting national standards shall be withdrawn at the latest by March 2003.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

Endorsement notice

The text of the International Standard ISO 3549:1995 has been approved by CEN as a European Standard without any modifications.

NOTE Normative references to International Standards are listed in annex ZA (normative).

Annex ZA
(normative)

Normative references to international publications with their relevant European publications

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

NOTE Where an International Publication has been modified by common modifications, indicated by (mod.), the relevant EN/HD applies.

Publication	Year	Title	EN/HD	Year
ISO 594-1	1986	Conical fittings with a 6% (Luer) taper for syringes, needles and certain other medical equipment - Part 1: General requirements	EN 20594-1	1993
ISO 3696	1987	Water for analytical laboratory use - Specification and test methods	EN ISO 3696	1995

INTERNATIONAL STANDARD

ISO 3549

Second edition
1995-11-15

Zinc dust pigments for paints — Specifications and test methods

Pigments à base de poussière de zinc pour peintures — Spécifications et méthodes d'essai

Reference number
ISO 3549:1995(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 3549 was prepared by Technical Committee ISO/TC 35, *Paints and varnishes*, Subcommittee SC 2, *Pigments and extenders*.

This second edition cancels and replaces the first edition (ISO 3549:1976), which has been technically revised.

International Organization for Standardization
Case postale 56 • CH-1211 Genève 20 • Switzerland

Printed in Switzerland

Zinc dust pigments for paints — Specifications and test methods

1 Scope

This International Standard specifies the requirements and corresponding test methods for zinc dust pigments suitable for use in protective coatings.

NOTE 1 Zinc dust pigments for paints may vary in their metallic zinc content, chemical purity, particle shape, particle size distribution, mean and maximum diameter, etc. These variations are all likely to have an influence on the zinc dust behaviour in paints with regard to parameters such as dispersibility, fineness of grind, reactivity, electrical conductivity and packing properties.

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.*

ISO 594-1:1986, *Conical fittings with a 6 % (Luer) taper for syringes, needles and certain other medical equipment — Part 1: General requirements.*

ISO 842:1984, *Raw materials for paints and varnishes — Sampling.*

ISO 3696:1987, *Water for analytical laboratory use — Specification and test methods.*

3 Definition

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

3.1 zinc dust pigment: A fine grey powder of essentially spheroidal particles, mainly consisting of metallic zinc.

4 Required characteristics and tolerances

4.1 For zinc dust pigments complying with this International Standard, the essential requirements are specified in tables 1 and 2.

Table 1 — Composition of zinc dust pigment

Characteristic	Unit	Requirement	Test method
Total zinc content	% *(m/m)*	min. 98	See clause 7
Metallic zinc content	% *(m/m)*	min. 94	See clause 8
Lead (Pb) content	% *(m/m)*	max. 0,2	See clause 9
Cadmium (Cd) content	% *(m/m)*	max. 0,1	See clause 9
Iron (Fe) content	% *(m/m)*	max. 0,05	See clause 9
Arsenic (As) content	% *(m/m)*	max. 0,000 5	See clause 10
Chloride (Cl) content)	% *(m/m)*	max. 0,005	See clause 11
Matter insoluble in acid	% *(m/m)*	max. 0,05	See clause 12

NOTE — If the zinc oxide content is required, this can be calculated by multiplying the difference between the total zinc content and the metallic zinc content by 1,244 7.

Table 2 — Residue on sieve

Nominal size of sieve aperture µm	Residue on sieve % (*m/m*)	Test method
125	max. 0,01	See clause 6
90	max 0,1.	
45	max. 5	

4.2 Requirements for other physical properties (surface area, particle size distribution, etc.) and the choice of reference pigment to which these properties refer shall be the subject of agreement between the interested parties.

4.3 The reference pigment shall also comply with the requirements given in tables 1 and 2.

5 Sampling

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

WARNING — The sample shall on no account be dried before testing, and any portion of the sample not used shall not be returned to the sample container after having been manipulated.

6 Determination of residue on sieve

6.1 Principle

A suitable test portion of the sample is passed through an air-jet sieve apparatus having sieves with nominal mesh apertures of 45 µm, 90 µm and 125 µm. The residue on each of these sieves is determined.

6.2 Apparatus

6.2.1 Sieves, circular, with a sieving area of diameter 200 mm and with nominal mesh apertures of 45 µm, 90 µm and 125 µm, complying with ISO 565. A transparent lid shall be provided to cover the sieve during use.

6.2.2 Air-jet sieve apparatus (see figure 1), consisting of a cylindrical casing which contains a sieve (see 6.2.1). The base of the casing has an outlet (to which an extractor fan is connected) and an air inlet to permit the injection of air.

The air inlet is connected to a jet rotating at 20 r/min to 25 r/min and consists of a slot-shaped nozzle located beneath and very close to the sieve (see figure 1). When the jet rotates, it blows air continuously through the sieve, preventing the powder particles from settling. The air is extracted through the outlet, drawing the finer particles through the sieve. The flow of air is controlled by adjusting a slot at the outlet.

The vacuum obtained shall be 1 250 Pa or better.

6.2.3 Timer (for example a stopwatch), recording to the nearest 1 s or better. It may be equipped with a switch for stopping the motor of the sieve apparatus (6.2.2).

6.2.4 Analytical balance, capable of weighing at least 50 g to the nearest 1 mg.

6.2.5 Mallet, of light construction, with a plastic head, suitable for tapping the apparatus to dislodge powder adhering to the lid and sieve.

6.2.6 Clean brush.

6.2.7 Stainless-steel boat.

6.3 Checking and cleaning the sieve

Check that the sieve is clean and undamaged and is not blocked by material used in a previous determination. A magnifying glass of sufficient magnification is recommended to aid this inspection.

If cleaning of the sieve is necessary, an ultrasonic system is recommended for this purpose. It is also possible to clean the sieve by turning it upside down on a clean sheet of paper and tapping vigorously to eliminate any residual particles.

6.4 Procedure

Carry out the determination in duplicate.

6.4.1 Weigh, to the nearest 0,01 g, a test portion of approximately 50 g (m_0).

6.4.2 Secure the 45 µm sieve (6.2.1) in position in the sieve apparatus (6.2.2) and transfer the test portion to the sieve.

6.4.3 Cover the sieve with the transparent lid, switch on the extractor fan and sieve apparatus (6.2.2) and tap the lid and the sieve lightly from time to time with the mallet (6.2.5) to distribute the material and dislodge adhering particles.

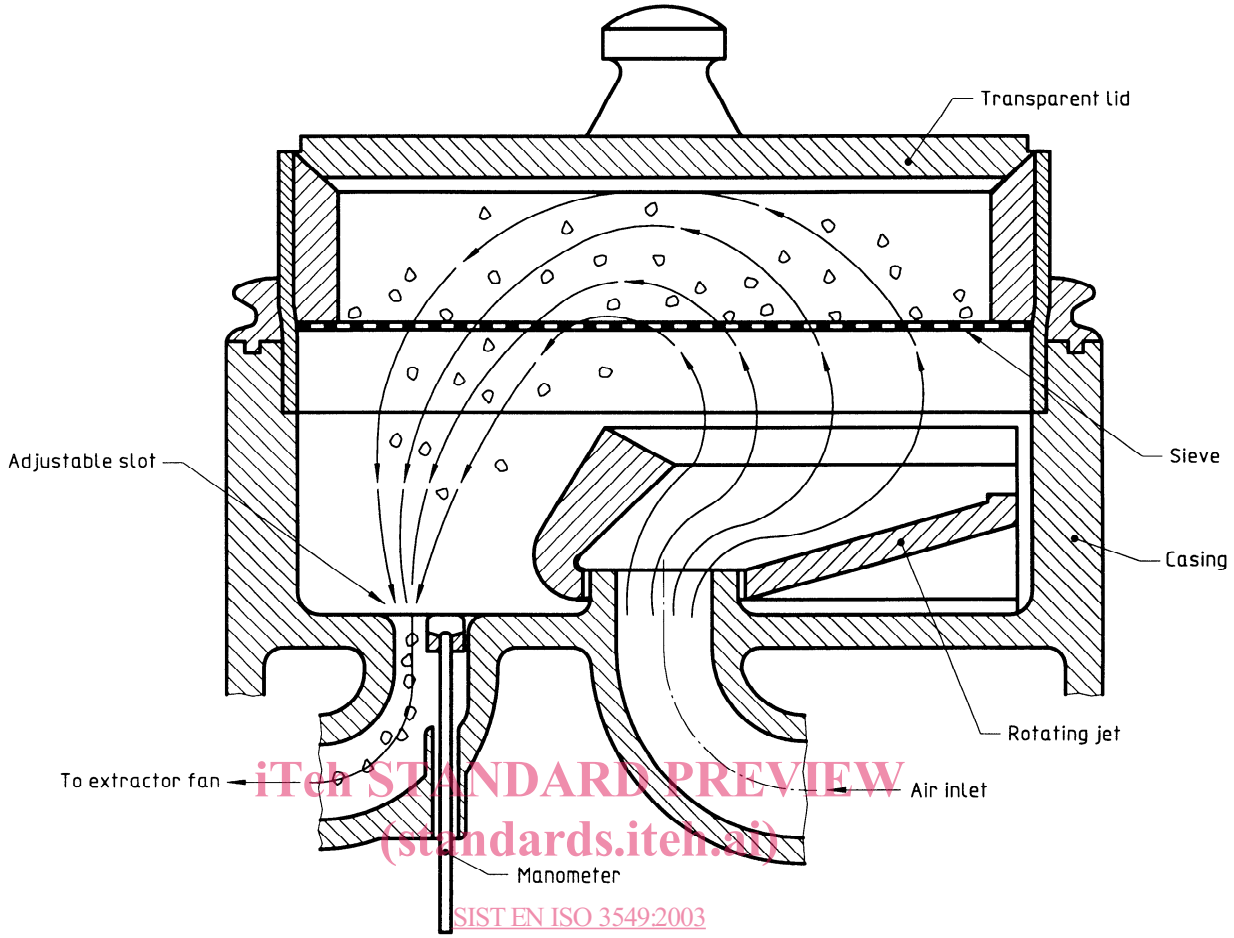

Figure 1 — Air-jet sieve apparatus

6.4.4 After 120 s, switch off the apparatus and remove the transparent lid and sieve. Recover the sieve residue by turning the sieve upside down on a clean sheet of paper and tapping vigorously to ensure that all particles are recovered.

6.4.5 Weigh the stainless-steel boat (6.2.7) to the nearest 1 mg (m_1). Transfer the sieve residue to it and reweigh to the nearest 1 mg (m_2).

6.4.6 Repeat the operations described in 6.4.1 to 6.4.5 with the 90 µm sieve and then with the 125 µm sieve on fresh 50 g portions of the sample.

6.5 Expression of results

Calculate the residue on each sieve, R, expressed as a percentage by mass, using the equation

$$R = \frac{(m_2 - m_1)}{m_0} \times 100$$

where

m_0 is the mass, in grams, of the test portion;

m_1 is the mass, in grams, of the steel boat;

m_2 is the mass, in grams, of the boat and the sieve residue.

If the two results (duplicates) for each sieve differ by more than one tenth of the maximum limit for that sieve in table 2, repeat the procedure.

Calculate the mean of two valid results (replicates) and report the result to three decimal places for the 125 µm sieve, two decimal places for the 90 µm sieve and one decimal place for the 45 µm sieve.

7 Determination of total zinc content

7.1 Principle

The zinc is titrated against EDTA solution.

7.2 Reagents

During the analysis, use only reagents of recognized analytical grade and only water of at least grade 3 purity as defined in ISO 3696.