



SLOVENSKI STANDARD
SIST EN 14469-1:2004
01-september-2004

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Pigments and extenders - Testing of colouring materials in plasticized polyvinyl chloride (PVC-P) - Part 1: Composition and preparation of basic mixtures

Pigmente und Füllstoffe - Prüfung von Farbmitteln in weichmacherhaltigem Polyvinylchlorid (PVC-P) - Teil 1: Zusammensetzung und Herstellen der Grundmischungen

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Pigments et matieres de charge - Essai des matieres colorantes dans le chlorure de polyvinyle plastifié (PVC-P) - Partie 1: Composition et préparation des mélanges de base

Ta slovenski standard je istoveten z: EN 14469-1:2004

ICS:

83.040.30	Pomožni materiali in aditivi za polimerne materiale	Auxiliary materials and additives for plastics
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EUROPEAN STANDARD

EN 14469-1

NORME EUROPÉENNE

EUROPÄISCHE NORM

May 2004

ICS 83.040.30

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Pigments and extenders - Testing of colouring materials in plasticized polyvinyl chloride (PVC-P) - Part 1: Composition and preparation of basic mixtures

Pigments et matières de charge - Essai des matières colorantes dans le chlorure de polyvinyle plastifié (PVC-P) - Partie 1: Composition et préparation des mélanges de base

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This European Standard was approved by CEN on 9 February 2004.

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 Central Secretariat 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 Central Secretariat has the same status as the official versions.

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

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

EN 14469-1:2004 (E)**Foreword**

This document (EN 14469-1:2004) has been prepared 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 November 2004, and conflicting national standards shall be withdrawn at the latest by November 2004.

Annex A is informative.

This document includes a Bibliography.

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

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Introduction

In this standard percent (%) in relation to contents indicates percentage proportion by mass.

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EN 14469-1:2004 (E)**1 Scope**

This Part of EN 14469 specifies a procedure for producing basic mixtures for the testing of colouring materials¹⁾ in plasticized polyvinyl chloride (PVC-P) materials, together with the composition of these basic mixtures.

It distinguishes between:

- basic mixture A (transparent basic mixture)
- basic mixture B (white basic mixture)

2 Normative references

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).

EN 14469-2, *Pigments and extenders — Testing of colouring materials in plasticized polyvinyl chloride (PVC-P) — Part 2: Preparation of test specimens.*

EN ISO 489, *Plastics — Determination of refractive index (ISO 489:1999).*

EN ISO 591-1, *Titanium dioxide pigments for paints — Part 1: Specifications and methods of test (ISO 591-1:2000).*

EN ISO 1060-1, *Plastics — Homopolymer and copolymer resins of vinyl chloride — Part 1: Designation system and basis for specifications (ISO 1060-1:1998).*

EN ISO 1628-2, *Plastics - Determination of the viscosity of polymers in dilute solution using capillary viscometers — Part 2: Poly(vinyl chloride) resins (ISO 1628-2:1998).*

EN ISO 2114, *Plastics (polyester resins) and paints and varnishes (binders) - Determination of partial acid value and total acid value (ISO 2114:2000).*

EN ISO 12185, *Crude petroleum and petroleum products — Determination of density — Oscillating U-tube method (ISO 12185:1996).*

ISO 6271, *Clear liquids — Estimation of colour by the platinum-cobalt scale.*

3 Constituents of the basic mixtures**3.1 General**

The quality of all constituents of the basic mixtures prepared according to this standard shall be such that the samples produced from these basic mixtures as defined in EN 14469-2 are free from any inhomogeneity. All raw materials used shall meet the specified values. Their trade names shall be mentioned in the product specification.

1) For definition of colouring material, see EN 971-1.

3.2 Vinyl chloride homopolymer

Vinyl chloride homopolymer (suspension polymer for general use as defined in EN ISO 1060-1). Principal properties as defined in Table 1.

Table 1 – Vinyl chloride homopolymer

Property	Value	Test as defined in
K value	70 ± 1	EN ISO 1628-2

3.3 Plasticizer

Diisodecyl phthalate (DIDP)²⁾, stabilized, with values as defined in Table 2.

Table 2 – Diisodecyl phthalate

Property	Value	Test as defined in
Refractive index $n_{\frac{20}{D}}$	1,4850 to 1,4860	EN ISO 489
Colour value	≤ 200	ISO 6271

3.4 Epoxidized soybean oil

Epoxidized soybean oil (ESO)³⁾ with values as defined in Table 3.

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Table 3 – Epoxidized soybean oil

Property	Value	Test as defined in	
Refractive index $n_{\frac{20}{D}}$	1,4720 to 1,4740	EN ISO 489	
Iodine colour value ICV	mg/100ml	≤ 3	By agreement between the interested parties ^a
Content of epoxide oxygen	%	6,2 to 6,8	By agreement between the interested parties ^b

^a See DIN 6162.
^b See ASTM D 1652

2) For plasticizer codes see EN ISO 1043-1.

3) For plasticizer codes see EN ISO 1043-1.

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3.5 Stabilizer

Liquid Ba/Zn stabilizer system with values as defined in Table 4.

Table 4 – Ba/Zn stabilizer system

Property	Value	Test as defined in
Barium content %	10,2 to 12,2	^a
Zinc content %	1,95 to 2,35	^a
Refractive index $n_{\frac{20}{D}}$	1,4970 to 1,5010	EN ISO 489

^a Determination by atomic absorption spectrometry

Any other Ba/Zn stabilizer system which gives the same test results may be used instead of this system.

3.6 Lubricant

Stearic acid with values as defined in Table 5.

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Table 5 – Stearic acid

Property	Value	Test as defined in
Density ρ (80 °C) g/ml	0,840 to 0,850	EN ISO 12185
Acid value AV mg KOH/g	206 to 211	EN ISO 2114

3.7 Titanium dioxide pigment

Titanium dioxide pigment with values as defined in Table 6.

Table 6 – Titanium dioxide pigment

Property	Value	Test as defined in
Titanium dioxide (TiO ₂) content %	92 to 98	EN ISO 591-1
Rutile content of the titanium dioxide part in the pigment %	≥ 98	By agreement between the interested parties
Silicon dioxide (SiO ₂) content and/or aluminium oxide (Al ₂ O ₃) content %	2 to 8	By agreement between the interested parties

4 Apparatus

High-speed mixer, adjustable, heatable and coolable, peripheral speed between 15 m/s and 35 m/s.

5 Composition of the basic mixtures

5.1 Basic mixture A (transparent basic mixture)

65,0	parts by mass of vinyl chloride homopolymer	as defined in 3.2
33,5	parts by mass of plasticizer	as defined in 3.3
1,5	parts by mass of epoxidized soybean oil	as defined in 3.4
1,3	parts by mass of stabilizer	as defined in 3.5
0,2	part by mass of lubricant	as defined in 3.6

101,5 parts by mass = total

5.2 Basic mixture B (white basic mixture)

65,00	parts by mass of vinyl chloride homopolymer	as defined in 3.2
33,50	parts by mass of plasticizer	as defined in 3.3
1,50	parts by mass of epoxidized soybean oil	as defined in 3.4
1,30	parts by mass of stabilizer	as defined in 3.5
0,20	part by mass of lubricant	as defined in 3.6
5,34	parts by mass of titanium dioxide pigment	as defined in 3.7

106,84 parts by mass = total

NOTE The titanium dioxide pigment content of the basic mixture has been set so that approximately 5 parts by mass of titanium dioxide pigment are present in 100 parts by mass of finished basic mixture.

6 Preparation of basic mixtures

PVC, stabilizer and lubricant are premixed in a high-speed mixer until the mix temperature is 70 °C. In the case of basic mixture B, the titanium dioxide pigment is then added and mixed for about 2 min (if the mixing time is longer there is a risk of greying due to metal abrasion). The premixed amounts of plasticizer and epoxidized soybean oil are then added as a fine stream while the mixer is running. The homogeneous mixture, the temperature of which has risen to about 100 °C as a result of the mixing procedure, is cooled to room temperature with continuing agitation.

The basic mixtures shall not be stored for longer than 2 years, and shall be hermetically sealed and protected from exposure to light.