BRITISH STANDARD

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14469-4:2004

Pigments and extenders — Testing of colouring materials in plasticized polyvinyl chloride (PVC-P) —

Part 4: Determination of bleeding of colouring materials

The European Standard EN 14469-4:2004 has the status of a British Standard

ICS 83.040.30

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National foreword

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Pigments and extenders - Testing of colouring materials in plasticized polyvinyl chloride (PVC-P) - Part 4: Determination of bleeding of colouring materials

Pigments et matières de charge - Essai des matières colorantes dans le chlorure de polyvinyle plastifié (PVC-P) - Partie 2: Détermination de l'exsudation des matières colorantes

Pigmente und Füllstoffe - Prüfung von Farbmitteln in weichmacherhaltigem Polyvinylchlorid (PVC-P) - Teil 4: Bestimmung des Ausblutens von Farbmitteln

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Foreword

This document (EN 14469-4:2004) 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of an identical text or by endorsement, at the latest by October 2004, and conflicting national standards shall be withdrawn at the latest by October 2004.

Annex A is informative.

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1 Scope

This Part of EN 14469 specifies a method of establishing and evaluating quantitatively the bleeding of pigments from sheets of coloured PVC-P into material of the same kind brought into contact with them. It also sets out the way in which specimens prepared in accordance with EN 14469-2 shall be tested.

NOTE It can also be used to determine bleeding from other polymers into white PVC-P.

This Part of EN 14469 does not deal with pigment blooming (see also annex A (informative)).

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 20105-A03*, Textiles – Tests for colour fastness – Part A03: Grey scale for assessing staining (ISO 105-A03:1993).*

3 Terms and definitions

For the purposes of this European Standard, the following terms and definitions apply.

3.1
blooming
formation of a deposit of a colouring material from the polymer on the surface of a film

3.2
bleeding
process of diffusion of a colouring material from the polymer into and through a polymer beneath, thus producing an undersirable staining or colour change

3.3
migration
movement of a colouring material from a polymer to the surface (blooming) or to another medium (bleeding)

4 Apparatus

4.1 Drying oven

with forced air circulation and capable of maintaining a temperature of (80 ± 5) °C.

4.2 White contact sheets

prepared in accordance with EN 14469-2, minimum size 75 mm x 75 mm x 0,5 mm.

4.3 Aluminium or plate glass sheets

with flat surfaces, of a size not less than the contact sheets.

4.4 Load

with a mass of not less than 500 g.

4.5 Roller

5 Test specimen

Test specimens of 50 mm x 50 mm produced preferably by pressing should be used, as described in EN 14469-2.

6 Procedure

Place the specimen between two white contact sheets (4.2) ensuring close contact between specimen and sheets by squeezing out the air with a roller. Then enclose the sheets and specimen between two plates (4.3) and load with at least 500 g (4.4). If required, several specimen sheet sets may be placed one on top of the other, as long as they are separated by suitable, non-coloured and non-optically whitened paper, e.g. filter paper. Take care to ensure that the specimens lie exactly above one other.

Keep the sheets in the drying oven (4.1) for 24 h at (80 ± 5) °C. Then separate the white contact sheets from the specimen and carry out the evaluation as soon as they have cooled to room temperature. If the specimen is equally smooth on both sides, either contact sheet may be used. Otherwise, select the white contact sheet which was in contact with the smoother surface.

7 Evaluation

Make a visual evaluation of any staining of the white contact sheet with the aid of the grey scale for assessing staining in accordance with EN 20105-A03. The reference used for visual evaluation is the white edge of the white contact sheet which was not in contact with the specimen.

The evaluation should be carried out as soon as the test procedure has been completed, as further colour changes in the white contact sheets may occur as a result of continuing diffusion into the sheets, if they are stored for any length of time.

8 Test report

The test report shall contain at least the following information:

a) all data needed to identify the pigment tested;

b) reference to this European Standard (EN 14469-4);

c) designation of the specimen with reference to the method of its preparation in accordance with EN 14469-2;

d) quantity of colouring material tested in percent (%) added to the basic mixture for the specimen concerned;

e) test result, giving the colour difference expressed as a rating on the grey scale;

f) any deviation from the test method specified;

g) date of testing.

Annex A
(informative)

Explanations

In practice migration is frequently used to describe both bleeding and blooming. In fact, migration can only be used as a general term for a process of which blooming and bleeding are related but distinct manifestations.

This Part of EN 14469, which is aligned with EN ISO 183 " Plastics – Qualitative evaluation of the bleeding of colorants (ISO 183:1976)", deals with the determination of bleeding. Exhaustive investigation and discussion have shown that a separate standard on testing of blooming is not practicable. Although blooming of colouring materials depends in principle on the same parameters as bleeding, it differs in that it is limited to low applied concentrations which vary according to the colorant used. Practical experiments show that even when all the test conditions are strictly observed, it is not possible to obtain an adequate degree of repeatability of blooming phenomena. It is important not to confuse chalking or plate-out with blooming.

Since this Part of EN 14469, in contrast to EN ISO 183, deals primarily with the testing of pigments, precise specifications have been given for specimen and contact sheets. Experience has shown that the thickness of the specimen is unimportant. For the thickness of the contact sheets, on the other hand, a lower limit has been set in order to facilitate visual evaluation.

Bibliography

[1] EN ISO 183, *Plastics – Qualitative evaluation of the bleeding of colorants (ISO 183:1976)*

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