

**Products and systems
for the protection and
repair of concrete
structures —
Test method —
Determination of
thixotropy of products
for protection of
reinforcement**

The European Standard EN 13062:2003 has the status of a
British Standard

ICS 91.080.40

National foreword

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The UK participation in its preparation was entrusted by Technical Committee B/517, Concrete, to Subcommittee B/517/8, Protection and repair of concrete structures, which has the responsibility to:

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English version

Products and systems for the protection and repair of concrete structure - Test method - Determination of thixotropy of products for protection of reinforcement

Produits et systèmes pour la protection et la réparation des structures en béton - Méthodes d'essais - Détermination de la thixotropie des produits de protection des armatures

Produkte und Systeme für den Schutz und die Instandsetzung von Betontragwerken - Prüfverfahren - Bestimmung der Ablaufneigung von Produkten für den Schutz der Bewehrung

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Foreword

This document (EN 13062:2003) has been prepared by Technical Committee CEN/TC 104 "Concrete and related products", 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of an identical text or by endorsement, at the latest by November 2003, and conflicting national standards shall be withdrawn at the latest by November 2003.

This European Standard is one of a series dealing with products and systems for the protection and repair of concrete structures.

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, Hungary, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Slovakia, Spain, Sweden, Switzerland and the United Kingdom.

1 Scope

This European Standard specifies a method for determining the thixotropy of products and systems intended for the protection of reinforcement.

2 Normative references

This European Standard incorporates by dated or undated references, 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 1504-1:1998, *Products and systems for the protection and repair of concrete structures - Definitions, requirements, quality control and evaluation of conformity - Part 1: Definitions.*

EN ISO 1513, *Paints and varnishes - Examination and preparation of samples for testing (ISO 1513:1992)*

EN ISO 2808, *Paints and varnishes - Determination of film thickness (ISO 2808:1997).*

EN ISO 12944-4, *Paints and varnishes - Corrosion protection of steel structures by protective paint systems - Part 4: Types of surface and surface preparation (ISO 12944-4:1998).*

EN ISO 15528, *Paints, varnishes and raw materials for paints and varnishes - Sampling (ISO 15528:2000)*

3 Terms and definitions

For the purposes of this European Standard, the terms and definitions given in EN 1504-1:1998 and the following apply:

3.1 thixotropy

sagging of a material from a steel plate stored in a vertical position for 24 h after application of the material

NOTE The thickness of the dry coating is measured 10mm below the upper edge of the steel plate and 10mm above the lower edge.

4 Apparatus

4.1 Stirrer

4.2 Film applicator (doctor blades); gap width: approximately 60 mm; gap clearance: from 200 μm to 1 000 μm .

4.3 Two steel plates (measuring approximately 3 mm x 70 mm x 150 mm) according to EN ISO 12944-4; the plates should have similar surface roughness of approximately 50 μm .

4.4 Apparatus to measure the dry-thickness of the coating according to EN ISO 2808.

4.5 Apparatus to measure the wet-thickness of the coating in accordance with EN ISO 2808 (Wet-film thickness gauge).

5 Sampling

A representative and homogenous sample of the material to be tested shall be taken in accordance with EN ISO 15528. The sample shall be examined and prepared as described in EN ISO 1513.

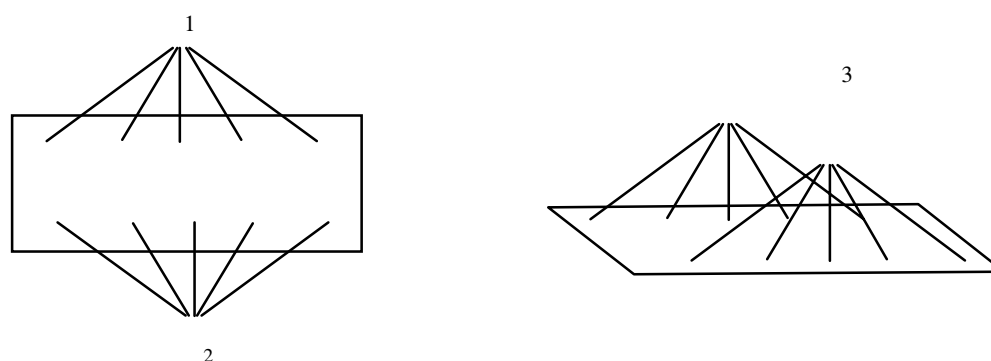
6 Procedure

The laboratory conditions for the test are $(21 \pm 2) ^\circ\text{C}$ and $(60 \pm 10) \% \text{ r. h.}$

Mix the components of the material under test according to the manufacturer's instructions. The mass of the mixture should be not less than 100 g. Weigh each component to an accuracy of 0,1 g. After stirring the mixture shall be homogeneous visually. Prepare a new mix of the material for each test.

Apply the mixture to two steel plates positioned horizontally using a film applicator. The thickness of the wet coating shall be in agreement with the manufacturer's instructions or according to the intended use. Immediately after coating store one of the steel plates in a vertical position, standing on its longitudinal side. Store the other one in a horizontal position.

Measure the coating thickness $(24 \pm 2) \text{ h}$ after application according to EN ISO 2808. Take 5 measurements $(10 \pm 1) \text{ mm}$ from each of the long edges of each of the plates at positions evenly spaced along the plates. Calculate the mean value for each of the plates (stored horizontally: mean value h) and in the case of the plate stored vertically record which readings apply to the bottom (mean value vb) and top (mean value vt) (see also Figure 1).



Key

- 1 Mean value vt of 5 readings
- 2 Mean value vb of 5 readings
- 3 Mean value h of 2×5 readings

Figure 1 — Position of the thickness measurements, on the left side for the plate stored vertically, right side for the plate stored horizontally (Dimensions not in correct scale)

7 Expression of Results

Calculate the thixotropy t [%] as follows:

$$t = \frac{vt}{h} \times 100$$

8 Precision

Precision data are currently not available.

9 Test report

The test report shall include the following information:

- a) a reference to the test method standard;
- b) name and address of the test laboratory;
- c) identification number and date of the test report;
- d) name and address of the manufacturer or supplier of the product(s);
- e) name and identification marks or batch number of the product(s);
- f) date of supply of the product;
- g) date of preparation of the test specimens and any deviation from the prescribed method of preparation;
- h) the applied thickness of the wet coating;
- i) conditions of storage of prepared specimens prior to test;
- j) date of test and details of the test equipment used;
- k) the method of measuring the thickness of the dry coating;
- l) the test results; single shrinkage values (s_1 and s_2) and mean shrinkage values to an accuracy of 0,1 mm/m: the measured thickness of the dry coating in μm 10 mm below the upper edge and 10 mm above the lower edge of the steel plates; individual and mean values v_b , v_t and h shall be reported; the thixotropy t [%];
- m) precision data;
- n) any deviation from this standard;
- o) date of test report and signature.

Bibliography

prEN 1504-2, *Products and systems for the protection and repair of concrete structures - Definitions, requirements, quality control and evaluation of conformity - Part 2: Surface protection systems.*

EN ISO 1514, *Paints and varnishes - Standard panels for testing (ISO 1514:1993)*

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