

Draft for Public Comment

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Draft: BS EN 12637-3
Title: **Products and systems for the protection and repair of concrete structures —
Test Methods - Compatibility of injection products —
Part 3: Effect of injection products on elastomers**

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Cross-references

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The Online Service can also be used to find information on draft standards related to international or European publications.

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No. 28, 14/12/00

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Commenting on drafts

Introduction

This draft standard is based on European discussions in which the UK took an active part. Your comments on this draft are welcome and will assist in the preparation of the consequent British Standard. If no comments are received to the contrary, then the UK will approve this draft and implement it as a British Standard. Comment is particularly welcome on national legislative or similar deviations that may be necessary.

Even if this draft standard is not approved by the UK, if it receives the necessary support in Europe, the UK will be obliged to publish the official English Language text unchanged as a British Standard and to withdraw any conflicting standard.

UK vote

Please indicate whether you consider the UK should submit a negative (with reasons) or positive vote on this draft.

Format

The guidance given below is intended to ensure that all comments receive efficient and appropriate attention by the responsible BSI committee. **Annotated drafts are not acceptable and will be rejected.**

Each comment shall make one point only, be clearly separated from the others and be structured as follows in clause order:

- clause/sub-clause;
- paragraph/table/figure number;
- type of comment (general, technical or editorial);
- comment (with rationale);
- proposed change.

Submission

All comments should be submitted to the committee secretary at the Head Office address, preferably electronically via e-mail or on diskette (MS-DOS compatible, 1.44 megabytes). Comments should be compatible with Version 6.0 or Version 97 of Microsoft® Word for Windows™, if possible; otherwise comments in ASCII text format are acceptable. Any comments not submitted electronically should still adhere to the format requirements given above. No acknowledgement will normally be sent.

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Table for submission of comments

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 A blank electronic version of this table can be downloaded from the BSI web site at
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Draft no:	Project no.: 1996/05433	DPC no.: 00/108674
Short title:	Commentator:	Date:

Clause/ subclause	Paragraph/ Figure/ Table	Type of comment (General/ technical/editorial)	Comment (with rationale)	Proposed change
<u>Examples:</u>				
3.1	1st definition	Editorial	Definition is ambiguous and needs clarifying.	Amend to read '... so that the mains connector to which no connection ...'
6.4	2nd paragraph	Technical	The use of the UV photometer as an alternative cannot be supported as serious problems have been encountered in its use in the UK, giving rise to misleadingly high results.	Delete reference to UV photometer.

EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

DRAFT
prEN 12637-3

November 2000

ICS

English version

Products and systems for the protection and repair of concrete structures - Test methods - Compatibility of injection products - Part 3: Effect of injection products on elastomers

Produits et systèmes de protection et de réparation de structures en béton - Méthodes d'essai - Compatibilité des produits d'injection - Partie 3: Effet des produits d'injection sur les élastomères

Produkte und Systeme für den Schutz und die Instandsetzung von Betontragwerken - Prüfverfahren - Verträglichkeit von Injektionsprodukten - Teil 3: Einwirkung von Injektionsprodukten auf Elastomere

This draft European Standard is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee CEN/TC 104.

If this draft becomes a European Standard, 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.

This draft European Standard was established by CEN 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.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
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FOREWORD.

This European Standard has been prepared by Technical Committee CEN/TC 104 "Concrete and related products", the secretariat of which is held by DIN.

This document is currently submitted to the CEN Enquiry.

1. SCOPE.

This European Standard describes a test method to determine the ability of elastomers to withstand the effect of hardening and hardened injection products.

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 here after.

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.

EN 1504-1, *Products and systems for the protection and repair of concrete structures - Part 1 : General scope and definitions.*

EN 1504-5, *Products and systems for the protection and repair of concrete structures - Part 5 - Concrete injection.*

EN ISO 527, *Plastics - Determination of tensile properties.*

ISO 5893, *Rubber and plastics test equipment; tensile, flexural and compression types (constant rate of transverse); description.*

3. DEFINITIONS.

For the purpose of this European Standard, the definitions of EN 1504-1 and EN 1504-5 shall apply.

Elastomer : flexible solid, used for sealing applications.

4. TEST PRINCIPLE.

This method provides a procedure for exposing elastomeric test specimens to the influence of hardening and hardened injection product under definite conditions of temperature and time and to assess the effect of the injection product on the elastomer. The test is usually performed on the elastomer with which the injection product will come in contact in service.

5. APPARATUS.

5.1. Framework.

The essential features of the framework are illustrated in fig. 1, and consist of a base plate, an open-ended chamber 150 mm diameter which is held tightly against the test specimen by wing nuts mounted on bolts.

During the test, the opening in the top of the chamber is tightly closed by a suitable plug.

5.2. Grinding techniques, such as abrasive wheels or abrasive flexible bands, to remove excess of thickness, unevenness of surface of elastomer, in order to obtain flat sheets of elastomer.

5.3. Die, for cutting dumbbell specimens, according to relevant part of EN ISO 527.

5.4. Tension testing machine, according to ISO 5893.

5.5. Weighing device, capable of weighing a specimen to the nearest 0,001 g.

5.6. Injection product mixer.

6. SAMPLING AND PREPARATION.

6.1. Elastomeric test specimen.

The standard specimens shall be square or circular, having dimensions of 155 x 155 x 2 mm or 155 mm \varnothing x 2 mm. Specimens from commercial articles shall have the thickness of the material as received when they are less than 2 mm; otherwise, they should be grinded to a thickness of $2,0 \pm 0,1$ mm.

If it is not possible to get specimens of 155 x 155 mm (e.g. cables, ...) the samples shall be placed in the test apparatus in their original shape.

Prior to testing, the surface of the specimens shall be lightly grinded, in order to eliminate surface contaminants and achieve comparative testing.

Minimum three test specimens shall be prepared.

The specimens shall be conditioned for 24 hours at 21 ± 2 °C and 60 ± 10 % relative humidity.

6.2. Injection product.

The injection product shall be prepared in accordance with the requirements of the manufacturer.

6.3. Original properties of elastomeric test specimen.

- The original tensile strength and elongation shall be determined, using duplicate specimens cut from the sheet or article adjacent to those which are to be tested for compatibility with injection product.
- The specimen shall be weighted in air to the nearest 1 mg, m_1 .

6.4. Preparation of assembly.

If relevant, the inner faces of the chamber of the test apparatus shall be covered with demoulding agent, in order to avoid adhesion of the hardened injection product to the constituent material of the chamber.

The demoulding agent shall have no detrimental effect on the hardening of the injection product, and on the elastomer.

The test specimen is placed on the base plate at an even level; the assembly is fixed with wing nuts and bolts.

7. PROCEDURE.

- 7.1. The standard conditions of test shall be (21 ± 2) °C and (60 ± 10) % relative humidity.
- 7.2. Immediately after the mixing, the injection product is poured on the test specimen on a thickness of 5 ± 1 mm, and allowed to harden.
The assembly is maintained during 28 and 70 days; the chamber is tightly closed, in order to avoid loosening of volatile constituents (e.g. in case of swelling fitted injection products).
- 7.3. After the contact periods (28 days and 70 days), the assembly is dismantled, the specimen is removed. Any excess injection product is removed from the surface of the specimen.

- 7.4. The specimens are inspected visually and compared to the original specimens; softening, hardening, partial dissolution, discoloration or other changes are reported.
- 7.5. The mass of the specimen m_2 is determined to the nearest 1 mg.
- 7.6. Tensile strength and elongation are determined in accordance with test method EN ISO 527.
- 7.7. The above determinations are made in triplicate.

8. EXPRESSION OF RESULTS.

8.1. Change in mass.

The change in mass, expressed in %, is determined according to the following equation

$$\Delta M = \frac{m_2 - m_1}{m_1} \times 100$$

where : m_1 is the initial mass
 m_2 is the final mass

A negative result means a loss of mass of the specimen after conditioning.

8.2. Changes in tensile strength and elongation.

The changes in tensile strength and elongation are expression in % of the initial tensile strength and elongation.

9. TEST REPORT.

The test report shall contain the following informations :

- a) a reference to the this European 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 products (elastomer and injection product);
- e) name and identification marks or batch number of the products;
- f) date of supply of the products;

- g) procedure of preparation of the elastomeric test specimens and any deviation from the prescribed method of preparation, procedure of preparation of injection product;
- h) conditions of storage of prepared specimens prior to test;
- i) test conditions and test specimens, and any deviation from the prescribed test methods;
- j) the test results : visual changes, individual and average values of changes in mass after 28 and 70 days, individual and average values of tensile properties initial, after 28 and 70 days, and changes in tensile strength and elongation after 28 and 70 days.
- k) date of testing.
- l) date of test report and signature.

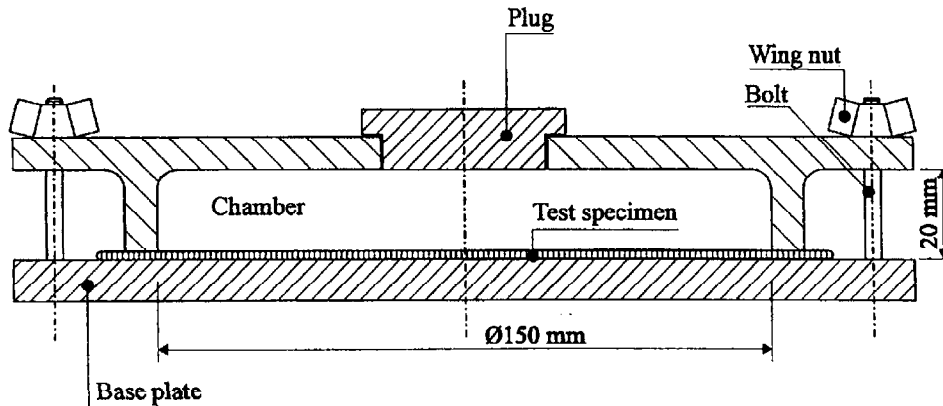


Fig.1 - Exposure framework for elastomers to injection products (dimensions in mm)