



SLOVENSKI STANDARD
oSIST ISO/DIS 14824-2:2012
01-junij-2012

Injekcijska masa za prednapete kable - 2. del: Postopki injektiranja

Grout for prestressing tendons - Part 2: Grouting procedures

Coulis pour câbles de précontrainte - Partie 2: Modes opératoires de gobetage

Ta slovenski standard je istoveten z: ISO/FDIS 14824-2

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ICS:

91.100.30	Beton in betonski izdelki	Concrete and concrete products
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Grout for prestressing tendons —

Part 2: Grouting procedures

Coulis pour câbles de précontrainte —

Partie 2: Modes opératoires de gobetage

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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.

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ISO 14824-2 was prepared by Technical Committee ISO/TC 71, *Concrete, Reinforced and Prestressed Concrete*, Subcommittee SC 3, *Production of Concrete and Execution of Concrete Structures*.

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ISO/CD 14824-2 (E)

Introduction

In post-tensioned prestressed concrete construction, the grouting of tendons is an important operation. The intention of this International Standard is to provide a specification for grouting, compliance with which will satisfy the requirements in ISO 22966.

The main function of grouting is to

- Provide protection to the prestressing steel against corrosion;
- Provide a bond between the prestressing steel and the ducts where required for the design of the structure;
- Allow the transfer of compressive stresses in the structure in a direction transverse to the internal tendons;
- Fill all voids where water may accumulate and cause frost damage.

The testing regimes anticipated by this International Standard include three levels:

- (1) Initial type and audit testing in accordance with ISO 14824-1;
- (2) Suitability testing for confirmation of the selected grout for a specific project in accordance with ISO 14824-2;
- (3) Inspection during the production of grout on a specific project in accordance with ISO 14824-2.

The test methods for each of the regimes are given in ISO 14824-3.

NOTE: In some countries requirements exist for Independent Third Party Certification of Grout and Grouting procedures which should be set out in National Requirements to supplement ISO 22966 Execution of Concrete Structures.

Grout for prestressing tendons —

Part 2: Grouting procedures

1 Scope

This International Standard gives the procedures to be used for grouting of tendons in post-tensioned prestressed concrete. It is applicable to all types of structures including bridges and buildings.

This standard also covers suitability testing and inspection testing for grouts and their component materials used on a project.

NOTE: Certain special structures or tendon configurations may require grouts with enhanced performance which may require amendment of some of the requirements of this standard.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 14824-1, *Grout for prestressing tendons – Part 1: Basic requirements*

ISO 14824-3, *Grout for prestressing tendons – Part 3: Test methods*

ISO 22966, *Execution of concrete structures*

3 Terms and definitions

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

3.1

grout

homogeneous mixture of cement and water, it may contain admixtures and additions

3.2

grouting

injection of grout into ducts in a continuous operation

3.3

tendon

assembly of prestressing steel and sheath with anchorages and all necessary auxiliary components to permit grouting, either placed internally or externally to the concrete structure

3.4

specialist contractor

contractor or construction enterprise which carries out grouting of tendons

4 Documentation

4.1 Execution specification

Before starting any part of the grouting works, the execution specification relevant to that part of the works shall be complete and available.

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The following items shall be included in the execution specification:

- reference to this International Standard;
- reference to other relevant International or national standards;
- reference to international or national approvals for the post-tensioning kit;
- reference to other relevant national regulations and standards;
- information and requirements for the particular project prepared to supplement and qualify the requirements of the above listed documents;
- drawings and other technical documents needed for the execution.

In addition where relevant, procedures shall be established for:

- making alterations to previously agreed requirements;
- distribution, the filing and recording of technical documents used for the works.

4.2 Quality plan

If a quality control procedure for grouting works is required by the execution specification, it shall be available at the site.

4.3 Execution documentation

The specialist contractor shall keep available on site written method statements covering materials, equipment, grouting procedures and inspection all adapted to the extent and complexity of the project. Provisions for the case of unusually low or high temperatures or delayed grouting, if likely to occur during the project duration, shall be specified.

The specialist contractor shall have shop drawings showing the position and details of the inlets and outlets, and the details of the sealing of the tendon anchorages.

The specialist contractor shall keep available on site documented records of:

- materials and grout used;
- initial type testing according to ISO 14824-1;
- suitability testing according to this International Standard;
- results of the project specific grouting tests, if specified.

The specialist contractor shall keep documented records of the conformity of the materials, equipment, grout, grouting operations, and inspection with this standard and the execution specification according to Table 2, Table 3 and Table 4. These records shall be kept for the duration, as required by national provisions.

Any eventual corrective actions taken shall also be recorded.

If special documentation beyond the requirements of this International standard is required for grouting works, the type and extent of the documentation shall be stated in the execution specification.

5 Materials

The individual materials and the grout to be used shall comply with ISO 14824-1.

6 Grout assessment

6.1 Suitability testing

The suitability of the grout shall be assessed for each project sufficiently in advance of grouting operations, to enable any necessary adjustments to be made in the use of the materials, equipment or personnel. The extent of suitability testing and number of tests shall be in accordance with Table 1.

Table 1 – Extent of suitability testing³⁾

Test in accordance with ISO 14824-3 ²⁾	Suitability testing	Number of tests
Sieve	✓	1 test
Fluidity	✓	1 test immediately after mixing 2 tests 30 min after mixing
Inclined tube	Only required if not already subject to initial type testing with the same type of mixer intended to be used on the project	1 test if required
Wick-induced bleed ¹⁾	✓	3 tests
Volume change ¹⁾	✓	3 tests
Compressive strength ⁴⁾	✓	3 tests
Density	✓	1 test
<p>¹⁾ Tests for bleeding and volume change are performed on the same sample.</p> <p>²⁾ Other test methods may be used if the correlation or safe relationship between the results of these test methods and the reference methods in ISO 14824-3 have been established.</p> <p>³⁾ Suitability testing may be waived for structures in Inspection Class 2 subject to there being satisfactory evidence from previous similar projects of full compliance of the grout with the requirements of ISO 14824-1 and documented testing during production in accordance with ISO 14824-1.</p> <p>⁴⁾ The number of Compressive tests may be reduced to 1 where there is documented evidence from previous projects of full compliance of the grout with the requirements of ISO 14824-1.</p>		

The grout assessment shall consist of the preparation of the grout using the materials, equipment and personnel proposed for the project, and testing in accordance with ISO 14824-3. The preparation of the grout shall be carried out under the conditions expected on site for the project. The assessed grout properties shall comply with ISO 14824-1. The range of acceptable temperatures specified for the particular grout shall be compatible with the expected conditions of the project.

6.2 Project specific grouting tests

If required by the execution specification, project specific grouting tests on tendons in representative forms of the project shall be performed.