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**Geotechnical investigation and testing —  
Sampling methods and groundwater  
measurements —**

**Part 3:  
Conformity assessment of enterprises  
and personnel by third party**

*Reconnaissance et essais géotechniques — Méthodes de prélèvement  
et mesurages piézométriques —*

*Partie 3: Évaluation de la conformité des entreprises et du personnel  
par un organisme tiers*



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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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

In other circumstances, particularly when there is an urgent market requirement for such documents, a technical committee may decide to publish other types of normative document:

- an ISO Publicly Available Specification (ISO/PAS) represents an agreement between technical experts in an ISO working group and is accepted for publication if it is approved by more than 50 % of the members of the parent committee casting a vote;
- an ISO Technical Specification (ISO/TS) represents an agreement between the members of a technical committee and is accepted for publication if it is approved by 2/3 of the members of the committee casting a vote.

An ISO/PAS or ISO/TS is reviewed after three years in order to decide whether it will be confirmed for a further three years, revised to become an International Standard, or withdrawn. If the ISO/PAS or ISO/TS is confirmed, it is reviewed again after a further three years, at which time it must either be transformed into an International Standard or be withdrawn.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO/TS 22475-3 was prepared by the European Committee for Standardization (CEN) Technical Committee CEN/TC 341, *Geotechnical investigation and testing*, in collaboration with Technical Committee ISO/TC 182, *Geotechnics*, Subcommittee SC 1, *Geotechnical investigation and testing*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

ISO 22475 consists of the following parts, under the general title *Geotechnical investigation and testing — Sampling methods and groundwater measurements*:

- *Part 1: Technical principles for execution*
- *Part 2: Qualification criteria for enterprises and personnel* [Technical Specification]
- *Part 3: Conformity assessment of enterprises and personnel by third party* [Technical Specification]

## Introduction

ISO 22475-1 specifies the technical principles for the execution of sampling and groundwater measurements.

The quality of these services can be proven by:

- a) a declaration of conformity by a contractor (first party control);
- b) a declaration of conformity by a client (second party control);
- c) a declaration of conformity by a conformity assessment body (third party control).

Every enterprise or individual may decide if and how they can prove the fulfilment of the technically related criteria: by first-, second- or third-party control because no part of ISO 22475 requires such a declaration.

ISO/TS 22475-2 specifies the qualification criteria for enterprises and personnel that perform sampling and groundwater measurements in accordance with ISO 22475-1.

The conformity assessment by third-party control may be made in accordance with the technical principles for execution of sampling and groundwater measurements in accordance with ISO 22475-1 as indicated in ISO/TS 22475-2 and the conformity assessment procedure given in this Technical Specification.

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# Geotechnical investigation and testing — Sampling methods and groundwater measurements —

## Part 3: Conformity assessment of enterprises and personnel by third party

### 1 Scope

This Technical Specification is applicable to the conformity assessment of enterprises and personnel performing specified parts of sampling and groundwater measurements in accordance with ISO 22475-1 and complying with the technical qualification criteria given in ISO/TS 22475-2 by third-party control.

### 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 14688-1, *Geotechnical investigation and testing — Identification and classification of soil — Part 1: Identification and description*

ISO 14689-1, *Geotechnical investigation and testing — Identification and classification of rock — Part 1: Identification and description*

ISO 22475-1, *Geotechnical investigation and testing — Sampling methods and groundwater measurements — Part 1: Technical principles for execution*

ISO/TS 22475-2, *Geotechnical investigation and testing — Sampling methods and groundwater measurements — Part 2: Qualification criteria for enterprises and personnel*

### 3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 22475-1 and ISO/TS 22475-2 and the following apply.

#### 3.1

##### **conformity assessment**

procedure used to demonstrate the conformity of an enterprise and/or its personnel in accordance with ISO/TS 22475-2 for specified parts of sampling and groundwater measurements

#### 3.2

##### **conformity assessment body**

independent and competent body that carries out procedures for conformity assessment of enterprises and/or personnel in accordance with this Technical Specification for specified parts of sampling and groundwater measurements

**3.3 assessor**  
qualified and competent expert appointed by the conformity assessment body to carry out the conformity assessment

**3.4 certificate**  
document issued by a conformity assessment body under the rules of the assessment in accordance with this Technical Specification indicating that an enterprise and/or personnel is competent to perform specified parts of sampling and/or groundwater measurements and follow the qualification criteria in accordance with ISO/TS 22476-2

## 4 Conformity assessment of enterprises

### 4.1 General

Insofar as the work of these enterprises falls within the scope of ISO/IEC 17025, the requirements specified in that International Standard are relevant and should be considered.

### 4.2 Eligibility for conformity assessment

Enterprises performing specified parts of sampling and/or groundwater measurements in accordance with ISO 22475-1 shall meet the qualification criteria of ISO/TS 22475-2.

### 4.3 Assessment of the enterprise

#### 4.3.1 Application procedure for the assessment

**4.3.1.1** An application form shall be submitted by the enterprise to the conformity assessment body indicating to which specific elements of ISO 22475-1 the application relates. It shall also be accompanied by relevant documents and presentation relating to the experience, training and qualification of the enterprise and its relevant personnel.

**4.3.1.2** The presentation of the enterprise shall contain the following (if applicable):

- a) organization;
- b) number of employees with their education, training, experience and certificates;
- c) number and types of drill rigs, machines and equipment and how they correspond to the certificates of the employees;
- d) evidence of maintenance and records for the equipment;
- e) transport and storage facilities for samples;
- f) calibration systems;
- g) quality assurance system;
- h) health and safety systems;
- i) system for the presentation of results;
- j) procedures for evaluation and reporting the results;
- k) procedures for handling divergences.



**4.3.1.3** Arrangements shall be made in advance for the assessor and enterprise to meet at the enterprise office and investigation site to demonstrate its skills, knowledge and safe working in accordance with the set standards and procedures of the conformity assessment body.

#### **4.3.2 Assessment procedure**

**4.3.2.1** The assessor shall examine the application form and accompanying documents in the presence of a competent and responsible representative (e.g. managing director) of the applicant enterprise at an interview. This examination and interview will form part of the assessor's review of the experience and knowledge of the enterprise. The assessor shall make an assessment by observation and questioning.

**4.3.2.2** The conformity assessment of an enterprise competence provides formal recognition of success in units of competence made up of a number of elements of competence. Each element can be separately assessed. Units and elements may be assessed in any order and there is no limitation of time over which this may take place.

**4.3.2.3** To gain a conformity assessment the applicant enterprise shall demonstrate the ability to meet all the qualification criteria in accordance with ISO/TS 22475-2.

**4.3.2.4** Units of competence to be assessed shall include:

- a) the requirements for the enterprise in accordance with ISO/TS 22475-2;
- b) the personnel requirements in accordance with ISO/TS 22475-2.

**4.3.2.5** All evidence shall be collected by the assessor and assembled into a portfolio of the applicant enterprise together with the assessor's comments and judgements (assessment report). This portfolio shall be examined by the conformity assessment body who will award a certificate if it meets all their criteria for award.

**4.3.2.6** When full assessment is judged satisfactory, the conformity assessment body will issue a certificate to the enterprise.

**4.3.2.7** In case the conformity assessment is judged "not satisfactory" the applicant enterprise may submit a new application form after six months.

**4.3.2.8** The certificate is valid for three years. The competence of the enterprise in accordance with the qualification criteria of ISO/TS 22475-2 shall be checked by a re-assessment in accordance with 4.3.3 after these three years.

**4.3.2.9** During these three years

- a) the enterprise shall inform the conformity assessment body about any changes concerning the competence of the enterprise and its personnel,
- b) the conformity assessment body may do some inspections producing an inspection report.

If the conformity assessment body judges that the enterprise does not fulfil the qualification of ISO/TS 22475-2 due to these changes, the certificate shall be withdrawn.

**4.3.2.10** A complementary assessment for additional specified parts of ISO 22475-1 may be done at any time. These specified parts shall be re-assessed together with the previous specified parts.

#### **4.3.3 Re-assessment**

##### **4.3.3.1 Application procedure for the re-assessment**

The enterprise shall submit an application form to the conformity assessment body for re-assessment indicating to which specific elements of ISO 22475-1 the application relates. It shall also again be

accompanied by a documentation of relevant activities relating to its experience, training and qualification during the previous three years.

#### **4.3.3.2 Re-assessment procedure**

**4.3.3.2.1** The assessor shall examine the application form and accompanying documentation and presentation of relevant activities relating to its experience, training and qualification during the previous three years.

**4.3.3.2.2** The assessor shall question the competent and responsible representative of the enterprise.

**4.3.3.2.3** When the re-assessment is judged satisfactory, the conformity assessment body will issue a certificate for the enterprise.

**4.3.3.2.4** The certificate of the re-assessment is also valid for three years. The competence of the enterprise shall be verified by a re-assessment in accordance with 4.3.3 after these three years.

**4.3.3.2.5** When re-assessment is judged not satisfactory, the enterprise may repeat a full assessment in accordance with 4.3.2 after six months.

## **5 Conformity assessment of personnel**

### **5.1 General**

Insofar as the work of these conformity assessment bodies falls within the scope of ISO/IEC 17024, the requirements specified in that international standard are relevant and should be considered.

### **5.2 Conformity assessment of the responsible expert**

#### **5.2.1 Eligibility for conformity assessment**

Applicants for being assessed as responsible experts for appropriate parts of sampling and groundwater measurements in accordance with ISO 22475-1 shall meet the qualification criteria of ISO/TS 22475-2.

#### **5.2.2 Assessment**

##### **5.2.2.1 Application procedure for the assessment**

The applicant for being assessed as responsible expert shall submit an application form to the conformity assessment body indicating which specific elements of ISO 22475-1 the application relates. It shall also be accompanied by a curriculum vitae and passport photographs of the applicant together with other documents relating to his/her experience, training and qualification.

##### **5.2.2.2 Assessment procedure**

**5.2.2.2.1** The assessor shall examine the application form and accompanying documents in the presence of the applicant at an interview. This examination and interview will form part of the assessor's review of the experience and knowledge of the applicant. The interview constitutes a skills check where the applicant shall demonstrate his/her knowledge and experiences.

**5.2.2.2.2** The conformity assessment of an applicant provides formal recognition of success in units of competence made up of a number of elements of competence. Each element can be separately assessed. Units and elements may be assessed in any order and there is no limitation of time over which this may take place.

**5.2.2.2.3** To gain a conformity assessment the applicant shall demonstrate the ability to meet all the qualification criteria in accordance with ISO/TS 22475-2.

**5.2.2.2.4** Units of competence to be assessed shall include:

- a) knowledge of the appropriate laws, health and safety regulations;
- b) knowledge of technical rules (e.g. operating manuals) and standards;
- c) knowledge of the purpose of geotechnical ground investigation, of geological, soil and/or rock, mechanical and hydrogeological principles;
- d) knowledge of appropriate parts of sampling and groundwater measurements in accordance with ISO 22475-1;
- e) knowledge of reporting sampling and groundwater measurements in accordance with ISO 22475-1;
- f) knowledge of the identification and description of soil and rock in each sample in accordance with ISO 14688-1 and ISO 14689-1 during the sampling process if relevant;
- g) knowledge of the quality assurance system;
- h) capability to understand the aim of the investigation programme;
- i) capability to supervise the work of the qualified operator;
- j) capability to ensure the completeness and quality of the report in accordance with ISO 22475-1, especially divergences influencing the results of the investigation, e.g. sample quality.

**5.2.2.2.5** The assessor shall make an assessment by observation and questioning. All evidence shall be collected by the assessor and assembled into a candidate's portfolio together with the assessor's comments and judgements (assessment report). The assessor shall make a final and commented judgement whether the assessment is satisfactory or not. The assessment body examines the portfolio and judges whether the results follow the rules of the body and thus can be accepted.

**5.2.2.2.6** When the conformity assessment is judged satisfactory, the conformity assessment body will issue a certificate to the responsible expert.

**5.2.2.2.7** In case the conformity assessment is judged "not satisfactory", the applicant may submit a new application form after six months.

**5.2.2.2.8** The certificate is generally valid for three years. The competence of the responsible expert in accordance with the technical qualification criteria of ISO/TS 22475-2 shall be verified by a re-assessment in accordance with 5.2.2 after these three years.

**5.2.2.2.9** A complementary assessment for additional specified parts of ISO 22475-1 may be done at any time. These specified parts shall be re-assessed together with the previous specified parts.

### **5.2.3 Re-assessment**

#### **5.2.3.1 Application procedure for the re-assessment**

The responsible expert shall submit an application form to the conformity assessment body for re-assessment indicating to which specific elements of ISO 22475-1 the application relates. It shall be accompanied by an updated curriculum vitae and passport photographs of the responsible expert, together with a documentation of relevant activities relating to his/her experience, training and qualification during the previous three years.

### 5.2.3.2 Re-assessment procedure

**5.2.3.2.1** The assessor shall examine the application form and accompanying documentation of relevant activities relating to his/her experience, training and qualification during the previous three years. This documentation shall demonstrate that the responsible expert was put in charge of activities in accordance with ISO 22475-1 and that he/she still meets the qualification criteria in accordance with ISO/TS 22475-2.

**5.2.3.2.2** When the re-assessment is judged satisfactory, the conformity assessment body will issue a certificate to the responsible expert.

**5.2.3.2.3** The certificate of the reassessment is also valid for three years. The competence of the responsible expert shall be verified by a re-assessment in accordance with 5.2.3 after these three years.

**5.2.3.2.4** When re-assessment is judged not satisfactory, the applicant may repeat a full assessment in accordance with 5.2.2 after six months.

## 5.3 Conformity assessment of the qualified operator

### 5.3.1 Eligibility for conformity assessment

Operators performing specified parts of sampling and groundwater measurements in accordance with ISO 22475-1 shall meet the qualification criteria of ISO/TS 22475-2.

### 5.3.2 Assessment

#### 5.3.2.1 Application procedure for the assessment

**5.3.2.1.1** An application form shall be submitted by the applicant to the conformity assessment body indicating to which specific elements of ISO 22475-1 the application relates. It shall also be accompanied by a curriculum vitae and passport photographs of the operator together with other documents relating to his/her experience, training and qualification.

**5.3.2.1.2** Arrangements shall be made in advance for the assessor and applicant to meet at one or more appropriate places (e.g. sites) in order that the operator demonstrate to the assessor his/her skills, knowledge and safe working practices in accordance with specified standards and procedures.

#### 5.3.2.2 Assessment procedure

**5.3.2.2.1** The assessor shall examine the application form and accompanying documents in the presence of the applicant at an interview. This examination and interview will form part of the assessor's review of the experience and knowledge of the applicant. The interview constitutes a check of skills where the applicant shall demonstrate his/her knowledge and experiences.

**5.3.2.2.2** The conformity assessment of an applicant provides formal recognition of success in units of competence made up of a number of elements of competence. Each element can be separately assessed. Units and elements may be assessed in any order and there is no limitation of time over which this may take place.

**5.3.2.2.3** To gain a conformity assessment the applicant shall demonstrate the ability to meet all the qualification criteria in accordance with ISO/TS 22475-2.

**5.3.2.2.4** Units of competence to be assessed shall include:

- a) basic knowledge of the purpose of geotechnical ground investigation, of geological, soil and rock, mechanical and hydrogeological fundamental principles;
- b) knowledge of specified parts of sampling and groundwater measurements, including borehole back filling, handling, transport and storage of samples in accordance with ISO 22475-1;

- c) knowledge of completion of records in accordance with ISO 22475-1;
- d) knowledge of a preliminary identification and description of soil and/or rock in each sample in accordance with ISO 14688-1 and/or ISO 14689-1 during the sampling process;
- e) knowledge of the functioning, safe operation and maintenance of the equipment (including field checks);
- f) knowledge of the quality assurance system;
- g) capability to contribute to health and safety in the workplace;
- h) capability to operate the equipment correctly and safely in accordance with ISO 22475-1.

**5.3.2.2.5** Evidence shall be provided of work activities which have been or are in the process of being carried out, or recorded work activities which have been signed by a trainer, supervisor or employer.

**5.3.2.2.6** An integral part of the assessment will be work-based assessment. The applicant will therefore be expected to have demonstrated competence in the assessed tasks over a period of time under normal working conditions. Evidence obtained by simulation or training only is not sufficient.

**5.3.2.2.7** The assessor shall observe and question the applicant while in the workplace, to determine current competence. All evidence shall be collected by the assessor and assembled into a candidate's portfolio together with the assessor's comments and judgements (assessment report). This portfolio shall be examined by the conformity assessment body who will award a certificate if it meets all their criteria for award.

**5.3.2.2.8** When full assessment is judged satisfactory, the conformity assessment body will issue a certificate to the applicant and an identification card that shall carry a photograph of the qualified operator. The identification card shall be retained by the qualified operator and presented on demand when required, especially while working on site.

**5.3.2.2.9** In case the conformity assessment is judged "not satisfactory" the applicant may submit a new application form after six months.

**5.3.2.2.10** The certificate of the assessment and the identification card is generally valid for three years. The competence of the qualified operator in accordance with the qualification criteria of ISO/TS 22475-2 shall be verified by a re-assessment in accordance with 5.3.3 after these three years.

**5.3.2.2.11** A complementary assessment for additional specified parts of ISO 22475-1 may be done at any time. These specified parts shall be re-assessed together with the previous specified parts.

### **5.3.3 Re-assessment**

#### **5.3.3.1 Application procedure for the re-assessment**

**5.3.3.1.1** The qualified operator shall submit an application form to the conformity assessment body for re-assessment indicating to which specific elements of ISO 22475-1 the application relates. It shall also again be accompanied by an up-dated curriculum vitae and passport photographs of the qualified operator together with a documentation of relevant activities relating to his/her experience, training and qualification during the previous three years.

**5.3.3.1.2** Arrangements shall be made in advance for the assessor and operator to meet at one or more sites to let the operator demonstrate to the assessor his/her skills, knowledge and safe working practices in accordance with specified standards and procedures.

#### **5.3.3.2 Re-assessment procedure**

**5.3.3.2.1** The assessor shall examine the application form and accompanying documentation of relevant activities relating to his/her experience, training and qualification during the previous three years. This

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documentation shall demonstrate that the qualified operator was performing activities in accordance with ISO 22475-1 and that he/she still meets the qualification in accordance with ISO/TS 22475-2.

**5.3.3.2.2** The assessor shall observe and question the qualified operator while in the workplace, to determine current competence.

**5.3.3.2.3** When the re-assessment is judged satisfactory, the conformity assessment body will issue a certificate to the qualified operator and an identification card that shall carry a photograph of the qualified operator. The identification card shall be retained by the qualified operator and presented on demand when required, especially while working on site.

**5.3.3.2.4** The certificate of the reassessment and the identification card is also generally valid for three years. The competence of the qualified operator shall be verified by a re-assessment in accordance with 5.3.3 after these three years.

**5.3.3.2.5** When re-assessment is judged not satisfactory, the applicant may repeat a full assessment in accordance with 5.3.2 after six months.

## Bibliography

- [1] ISO/IEC 17025, *General requirements for the competence of testing and calibration laboratories*
- [2] ISO/IEC 17024, *Conformity assessment — General requirements for bodies operating certification of persons*

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