

---

---

**Geotechnical investigation and  
testing — Geohydraulic testing —**

**Part 4:  
Pumping tests**

*Reconnaissance et essais géotechniques — Essais géohydrauliques —*

*Partie 4: Essais de pompage*

**(<https://standards.iteh.ai>)**  
**Document Preview**

[ISO 22282-4:2021](https://standards.iteh.ai/catalog/standards/iso/b2abf083-6f33-4829-a6e4-feebab44fd28/iso-22282-4-2021)

<https://standards.iteh.ai/catalog/standards/iso/b2abf083-6f33-4829-a6e4-feebab44fd28/iso-22282-4-2021>



**iTeh Standards**  
**(<https://standards.iteh.ai>)**  
**Document Preview**

[ISO 22282-4:2021](https://standards.iteh.ai/catalog/standards/iso/b2abf083-6f33-4829-a6e4-feeab44fd28/iso-22282-4-2021)

<https://standards.iteh.ai/catalog/standards/iso/b2abf083-6f33-4829-a6e4-feeab44fd28/iso-22282-4-2021>



**COPYRIGHT PROTECTED DOCUMENT**

© ISO 2021

All rights reserved. Unless otherwise specified, or required in the context of its implementation, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office  
CP 401 • Ch. de Blandonnet 8  
CH-1214 Vernier, Geneva  
Phone: +41 22 749 01 11  
Email: [copyright@iso.org](mailto:copyright@iso.org)  
Website: [www.iso.org](http://www.iso.org)

Published in Switzerland

# Contents

Page

<b>Foreword</b> .....	<b>iv</b>
<b>Introduction</b> .....	<b>v</b>
<b>1 Scope</b> .....	<b>1</b>
<b>2 Normative references</b> .....	<b>1</b>
<b>3 Terms, definitions and symbols</b> .....	<b>2</b>
3.1 Terms and definitions.....	2
3.2 Symbols.....	2
<b>4 Equipment</b> .....	<b>2</b>
<b>5 Test procedure</b> .....	<b>3</b>
5.1 Test preparation.....	3
5.1.1 General.....	3
5.1.2 Determining the discharge rate for the pumping test.....	3
5.2 Arranging the disposal of discharge water.....	3
5.3 Executing and equipping the well.....	4
5.3.1 Design of the test well.....	4
5.3.2 Installation procedure.....	6
5.3.3 Preparation of the well.....	6
5.4 Executing and equipping the piezometers.....	6
5.4.1 Installation procedure.....	6
5.4.2 Preparation of piezometers.....	6
5.5 Execution of the test.....	7
5.5.1 General.....	7
5.5.2 Pre-pumping monitoring.....	7
5.5.3 Preliminary pumping phase.....	7
5.5.4 Pumping test.....	7
5.5.5 Post-pumping monitoring.....	8
5.6 Uncertainty of measurement.....	8
5.7 Interruptions in pumping.....	9
5.8 Decommissioning.....	9
<b>6 Test results</b> .....	<b>9</b>
<b>7 Reports</b> .....	<b>9</b>
7.1 Field report.....	9
7.1.1 General.....	9
7.1.2 Installation record.....	10
7.1.3 Record of measured values and test results.....	10
7.2 Test report.....	11
<b>Annex A (informative) Record of measured values and test results of the pumping test — Example</b> .....	<b>12</b>
<b>Annex B (informative) Determining the pumping test discharge</b> .....	<b>15</b>
<b>Annex C (informative) Interpretation of the pumping test results</b> .....	<b>19</b>
<b>Bibliography</b> .....	<b>27</b>

## 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.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see [www.iso.org/directives](http://www.iso.org/directives)).

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. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see [www.iso.org/patents](http://www.iso.org/patents)).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see [www.iso.org/iso/foreword.html](http://www.iso.org/iso/foreword.html).

This document was prepared by Technical Committee ISO/TC 182, *Geotechnics*, in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 341, *Geotechnical investigation and testing*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

This second edition cancels and replaces the first edition (ISO 22282-4:2012), which has been technically revised.

The main changes compared to the previous edition are as follows:

- editorial changes;
- correction of formulae.

A list of all parts in the ISO 22282 series can be found on the ISO website.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at [www.iso.org/members.html](http://www.iso.org/members.html).

## Introduction

General rules on the planning and execution of geohydraulic field tests are covered by ISO 22282-1.

A pumping test consists in principle of:

- drawing down the piezometric surface of the groundwater by pumping from a well (the test well);
- measuring the pumped discharge and the water level in the test well and piezometers, before, during and after pumping, as a function of time.

**iTeh Standards**  
**(<https://standards.iteh.ai>)**  
**Document Preview**

[ISO 22282-4:2021](https://standards.iteh.ai/catalog/standards/iso/b2abf083-6f33-4829-a6e4-feeab44fd28/iso-22282-4-2021)

<https://standards.iteh.ai/catalog/standards/iso/b2abf083-6f33-4829-a6e4-feeab44fd28/iso-22282-4-2021>