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Non-destructive testing — Penetrant testing — Part 1: General principles

Táto norma obsahuje anglickú verziu európskej normy.
This standard includes the English version of the European Standard.

Táto norma bola oznámená vo Vestníku ÚNMS SR č. 08/21

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English Version

**Non-destructive testing - Penetrant testing - Part 1:
General principles (ISO 3452-1:2021)**

Essais non destructifs - Examen par ressuage - Partie 1:
Principes généraux (ISO 3452-1:2021)

Zerstörungsfreie Prüfung - Eindringprüfung - Teil 1:
Allgemeine Grundlagen (ISO 3452-1:2021)

This European Standard was approved by CEN on 16 May 2021.

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CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

EN ISO 3452-1:2021 (E)**Contents**

Page

European foreword.....	3
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European foreword

This document (EN ISO 3452-1:2021) has been prepared by Technical Committee ISO/TC 135 "Non-destructive testing" in collaboration with Technical Committee CEN/TC 138 "Non-destructive testing" the secretariat of which is held by AFNOR.

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of an identical text or by endorsement, at the latest by December 2021, and conflicting national standards shall be withdrawn at the latest by December 2021.

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Endorsement notice

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Non-destructive testing — Penetrant testing —

Part 1: General principles

*Essais non destructifs — Examen par ressuage —
Partie 1: Principes généraux*



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Contents

Page

Foreword	v
1 Scope	1
2 Normative references	1
3 Terms and definitions	1
4 Safety precautions	2
5 General principles	2
5.1 Personnel	2
5.2 Description of the method	2
5.3 Process sequence	2
5.4 Equipment	3
5.5 Effectiveness	3
6 Products, sensitivity and designation	3
6.1 Product family	3
6.2 Testing products	3
6.3 Sensitivity	3
6.4 Designation	4
7 Compatibility	4
7.1 General	4
7.2 Compatibility of penetrant testing products	4
7.3 Compatibility of penetrant testing products and the material to be tested	4
8 Test procedure	5
8.1 Written test procedure	5
8.2 Precleaning	5
8.2.1 General	5
8.2.2 Mechanical precleaning	5
8.2.3 Chemical precleaning	5
8.2.4 Drying	5
8.3 Temperature	5
8.4 Application of penetrant	6
8.4.1 Methods of application	6
8.4.2 Penetration time	6
8.5 Excess penetrant removal	6
8.5.1 General	6
8.5.2 Water	6
8.5.3 Solvents	6
8.5.4 Emulsifier	6
8.5.5 Water and solvent	7
8.5.6 Excess penetrant removal check	7
8.5.7 Drying after excess penetrant removal	7
8.6 Developing	7
8.6.1 General	7
8.6.2 Dry developer	8
8.6.3 Water-suspendable developer	8
8.6.4 Solvent-based developer	8
8.6.5 Water soluble developer	8
8.6.6 Water- or solvent-based for special application (e.g. peelable developer)	8
8.6.7 No developer (type I only)	8
8.7 Inspection	9
8.7.1 General	9
8.7.2 Viewing conditions	9
8.7.3 Wipe-off technique	9
8.7.4 Recording	10

ISO 3452-1:2021(E)

8.8	Post cleaning and corrosion protection.....	10
8.8.1	Post cleaning.....	10
8.8.2	Corrosion protection.....	10
8.9	Retesting.....	10
9	Test report.....	10
Annex A (normative)	Main stages of standard penetrant examination.....	12
Annex B (normative)	Process and control tests.....	14
Annex C (informative)	Example test report.....	22
Bibliography	23

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).

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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.

This document was prepared by Technical Committee ISO/TC 135, *Non-destructive testing*, Subcommittee SC 2, *Surface methods*, in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 138, *Non-destructive testing*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

This third edition cancels and replaces the second edition (ISO 3452-1:2013) which has been technically revised.

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

- clarification of understanding of product family;
- addition of the new procedure “no developer”;
- technical revision according to the state of the art.

A list of all parts in the ISO 3452 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.

Non-destructive testing — Penetrant testing —

Part 1: General principles

1 Scope

This document specifies a method of penetrant testing used to detect discontinuities, e.g. cracks, laps, folds, porosity and lack of fusion, which are open to the surface of the material to be tested using white light or UV-A (365 nm) radiation. It is mainly applied to metallic materials, but can also be performed on other materials, provided that they are inert to the test media and not excessively porous (castings, forgings, welds, ceramics, etc.)

This document also includes requirements for process and control testing, but is not intended to be used for acceptance criteria. It gives neither information relating to the suitability of individual test systems for specific applications nor requirements for test equipment.

NOTE 1 Methods for determining and monitoring the essential properties of penetrant testing products to be used are specified in ISO 3452-2 and ISO 3452-3.

NOTE 2 The term "discontinuity" is used in this document in the sense that no evaluation concerning acceptability or non-acceptability is included.

NOTE 3 CEN/TR 16638 addresses penetrant testing using actinic blue light.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 3059, *Non-destructive testing — Penetrant testing and magnetic particle testing — Viewing conditions*

ISO 3452-2, *Non-destructive testing — Penetrant testing — Part 2: Testing of penetrant materials*

ISO 3452-3, *Non-destructive testing — Penetrant testing — Part 3: Reference test blocks*

ISO 3452-4, *Non-destructive testing — Penetrant testing — Part 4: Equipment*

ISO 3452-5, *Non-destructive testing — Penetrant testing — Part 5: Penetrant testing at temperatures higher than 50 degrees C*

ISO 3452-6, *Non-destructive testing — Penetrant testing — Part 6: Penetrant testing at temperatures lower than 10 degrees C*

ISO 12706, *Non-destructive testing — Penetrant testing — Vocabulary*

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