



Non-destructive testing — Penetrant testing

Part 2: Testing of penetrant materials

STANDARDS
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AS ISO 3452.2:2020

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- Australasian Thermographers Association
- Australian Institute for Non-Destructive Testing
- Australian Nuclear Science and Technology Organisation
- Austrroads
- Engineers Australia
- Institute of Electrical Inspectors
- National Aerospace Non-Destructive Testing Board of Australia
- Weld Australia

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Non-destructive testing — Penetrant testing

Part 2: Testing of penetrant materials

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Preface

This Standard was prepared by the Australian members of Joint Standards Australia/Standards New Zealand Committee MT-007, Non-Destructive Testing of Metals and Materials, to supersede AS 2062—1997, *Non-destructive testing — Penetrant testing of products and components*.

After consultation with stakeholders in both countries, Standards Australia and Standards New Zealand decided to develop this Standard as an Australian Standard rather than an Australian/New Zealand Standard.

The objective of this Standard is to specify the technical requirements and test procedures for penetrant materials for their type testing and batch testing. This Standard covers the temperature range 10 °C to 50 °C. Additional tests in AS ISO 3452.5:2020 or AS ISO 3452.6:2020 may be required outside this range.

On-site control tests and methods are detailed in AS ISO 3452.1:2020.

This Standard is identical with, and has been reproduced from, ISO 3452-2:2013, *Non-destructive testing — Penetrant testing — Part 2: Testing of penetrant materials*.

As this document has been reproduced from an International Standard, the following applies:

- (a) In the source text “this part of ISO 3452” should read “this Australian Standard”.
- (b) A full point substitutes for a comma when referring to a decimal marker.

Australian or Australian/New Zealand Standards that are identical adoptions of international normative references may be used interchangeably. Refer to the online catalogue for information on specific Standards.

The terms “normative” and “informative” are used in standards to define the application of the appendices or annexes to which they apply. A “normative” appendix or annex is an integral part of a Standard, whereas an “informative” appendix or annex is only for information and guidance.

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1) Also applicable for colour contrast indications, if modified.

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. 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. www.iso.org/patents

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For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: [Foreword - Supplementary information](#)

The committee responsible for this document is ISO/TC 135, *Non-destructive testing*, Subcommittee SC 2, and by Technical Committee CEN/TC 138, *Non-destructive testing* in collaboration.

This third edition cancels and replaces the second edition (ISO 3452-2:2006), which has been technically revised.

ISO 3452 consists of the following parts, under the general title *Non-destructive testing — Penetrant testing*:

- *Part 1: General principles*
- *Part 2: Testing of penetrant materials*
- *Part 3: Reference test blocks*
- *Part 4: Equipment*
- *Part 5: Penetrant testing at temperatures higher than 50 °C*
- *Part 6: Penetrant testing at temperatures lower than 10 °C*

The main changes with respects to the previous edition are listed below:

- a) The normative references were updated;
- b) [Tables 1, 4, 8, 9](#) were corrected;
- c) A new [Clause 5.1](#) was inserted;
- d) [Clause 6.6](#) was revised;
- e) The former [Annex B](#) was deleted;
- f) Editorial changes were made.

NOTES

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Non-destructive testing — Penetrant testing

Part 2: Testing of penetrant materials

SAFETY PRECAUTIONS — The materials required by this part of ISO 3452 include chemicals which may be harmful, flammable and/or volatile. All necessary precautions shall be observed. All relevant International, national and local regulations pertaining to health and safety, environmental requirements, etc. shall be observed.

1 Scope

This part of ISO 3452 specifies the technical requirements and test procedures for penetrant materials for their type testing and batch testing. This part of ISO 3452 covers the temperature range 10 °C to 50 °C. Additional tests in part 5 or part 6 of ISO 3452 may be required outside this range.

On-site control tests and methods are detailed in ISO 3452-1.

2 Normative references

The following referenced documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. 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 3452-1:2013, *Non-destructive testing — Penetrant testing — Part 1: General principles*

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

ISO 9712, *Non-destructive testing — Qualification and certification of NDT personnel*

ISO 10474, *Steel and steel products — Inspection documents*

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

ISO/IEC 17025, *General requirements for the competence of testing and calibration laboratories*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 12706, ISO 3452-1 and the following apply.

3.1

batch

quantity of material manufactured in one production having uniform properties throughout and with a unique identifying number or mark

3.2

candidate

sample of the testing product submitted for evaluation in accordance with this part of ISO 3452

4 Classification

4.1 Testing products

Penetrant testing products shall be classified by type, method and form in accordance with [Table 1](#).