

Australian Standard™

**Non-destructive testing—Determination
of thickness**

**Part 1: Determination of wall thickness
of pipe by the use of radiography**

This Australian Standard was prepared by Committee MT-007, Non-Destructive Testing of Metals and Materials. It was approved on behalf of the Council of Standards Australia on 15 October 2004.
This Standard was published on 1 November 2004.

The following are represented on Committee MT-007:

ANSTO
Australian Aerospace Non-Destructive Testing Committee
Australian Industry Group
Australian Institute for Non-Destructive Testing
Australian Pipeline Industry Association
Australian Railway Association
Bureau of Steel Manufacturers of Australia
Institution of Engineers Australia
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TestSafe Australia
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This Standard was issued in draft form for comment as DR 03553.

STANDARDS AUSTRALIA

RECONFIRMATION

OF

AS 2452.1—2004

Non-destructive testing—Determination of thickness

Part 1: Determination of wall thickness of pipe by the use of radiography

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NOTES

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of pipe by the use of radiography**

Originally as AS 2452.1—1982.
Second edition 2004

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Published by Standards Australia International Ltd GPO Box 5420, Sydney, NSW 2001, Australia

ISBN 0 7337 6343 X

PREFACE

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee MT-007, Non-Destructive Testing of Metals and Materials, at the request of industry. This Standard supersedes AS 2452.1—1982, *Non-destructive testing—Determination of thickness, Part 1: Determination of wall thickness of pipe by the use of radiography*.

This Standard was prepared by the Australian members of the Joint Standards Australia/Standards New Zealand Committee MT-007. After consultation with shareholders 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 methods for film radiography to determine wall thickness of pipes and small fabricated vessels.

The objective of this revision is to expand the technology for the equipment and accessories used for radiography in determining wall thickness.

The methods in this Standard provide suitable bases for the testing of round pipe or other small pressure vessels, including gas cylinders. The methods rely on the use of a source of radiation, X-rays or gamma-rays, and require testing personnel to be experienced in the handling and use of radiation equipment and materials.

This Standard is Part 1 of a series of Standards covering the radiography of ferrous castings.

The series comprises the following parts:

AS

2452 Non-destructive testing—Determination of thickness

2452.1 Part 1: Determination of the wall thickness of pipe by the use of radiography

2452.3 Part 3: Use of ultrasonic testing

The term 'normative' has been used in this Standard to define the application of the appendix to which it applies. A 'normative' appendix is an integral part of a Standard.

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STANDARDS AUSTRALIA

Australian Standard

Non-destructive testing—Determination of thickness

Part 1: Determination of wall thickness of pipe by the use of radiography

1 SCOPE

This Standard specifies the methods for the determination of the wall thickness of pipes and small fabricated vessels using X-ray or gamma-ray radiography.

NOTES:

- 1 Under a given set of radiographic conditions, the accuracy of the methods specified herein is reduced with decreasing wall thickness and with increasing pipe or vessel diameter.
- 2 The methods specified herein are more accurate when a pipe is empty.

2 REFERENCED DOCUMENTS

The following documents are referred to in this standard:

AS

1929 Non-destructive testing—Glossary of terms

2243 Safety in laboratories

2243.4 Part 4: Ionizing radiations

3998 Non-destructive testing—Qualification and certification of personnel

Code of Practice for the Control and Safe Handling of Sealed Radioactive Sources Used in Industrial Radiography*

NH and MRC Radiation Health Series No. 31, Code of Practice for the safe use of Industrial Radiography Equipment

3 SAFETY PRECAUTIONS

Exposure of any part of the human body to ionizing radiation may be injurious. It is therefore essential that when X-ray equipment or radioactive sources are being used adequate precautions be taken to protect testing personnel and any other persons in the vicinity.

NOTE. The use of radioactive substances and irradiating apparatus is controlled by various statutory regulations. Reference should also be made AS 2243.4, the 'Code of Practice for the Control and Safe Handling of Sealed Radioactive Sources used in Industrial Radiography' and NH and MRC Radiation Health Series No.31 'Code of Practice for the safe use of Industrial Radiography Equipment'.

4 DEFINITIONS

For the purposes of this Standard, the terms and definitions given in AS 1929 apply.

* Issued by the National Health and Medical Research Council, Canberra.