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AS 2648, Part 1—1983
UDC 678.5-418:621-777

Australian Standard 2648, Part 1—1983

Amdt 1.

UNDERGROUND MARKING TAPE
Part 1—NON-DETECTABLE TAPE

STANDARDS ASSOCIATION OF AUSTRALIA
Incorporated by Royal Charter

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This Australian standard was prepared by Committee PL/30, Plastics Underground Warning Strips. It was approved on behalf of the Council of the Standards Association of Australia on 9 June 1983 and published on 5 September 1983.

The following interests are represented on Committee PL/30:

Australian Gas Association

Confederation of Australian Industry

Department of Transport

Electricity Supply Association of Australia

Melbourne City Council

Melbourne and Metropolitan Board of Works

Plastics Institute of Australia Incorporated

This standard was issued in draft form for comment as DR 81154.

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AMENDMENT No 1
to
AS 2648—1983
UNDERGROUND MARKING TAPE
PART 1—NON-DETECTABLE TAPE

REVISED TEXT

SUMMARY: This amendment applies to Table 1 and Clause 6 Note 1.
Published on 9 November 1984.

Page 4. Table 1. AMDT No 1 NOV. 1984

Add to table as follows:

Underground service	Tape colour	Preferred colour
Sewerage	Cream	BS 4800 No. 10 C31

Page 4. Note 1 to Table. AMDT No 1 NOV. 1984

Delete existing Note and *substitute*:

1. The revision* of the former AS K185, Colou[r] fo[r] Specific Purposes, will include the above BS 381C and BS [4]50 colours under the following proposed references and names:

Orange	AS 2700 Y14
Canary	AS 2700 Y11
Jade	AS 2700 G11
Signal Red	AS 2700 R13
Straw	AS 2700 Y[1]4

When the Australian stan[dard] p[u]blished, reference to the AS colours may be made in lie[u] of those in the British standards.

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AMENDMENT No 3
to
AS 2648, Part 1—1983
UNDERGROUND MARKING TAPE
PART 1—NON-DETECTABLE TAPE

REVISED TEXT

SUMMARY: This amendment applies to Clause 7.

Published on 5 December 1986.

AMDT No 3 DEC. 1986

Page 5. Clause 7.

Delete '...100 mm' for maximum internal diameter of roll former and *replace* with '...10 mm'.

Delete '...piece' and *replace* with '...continuous length from periphery to core not precluding the use of splices. Splices shall be a minimum of 500 m apart. Spliced tape shall meet the requirements of Clause 9.1(a).

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AMENDMENT No 2
to
AS 2648, Part 1—1983
UNDERGROUND MARKING TAPE
Part 1—NON-DETECTABLE TAPE

REVISED TEXT

SUMMARY: This amendment applies to Appendix B, Clause B3(b) Micrometer. Appendix C, Clause C2(c) Micrometer. Appendix D, Clause D2.4 Dart.

Published on 10 May 1985.

Page 7. Clause B3(b) Micrometer.

Delete '1.2 N' for spindle head force and *replace* with '1.2 ± 0.3 N'.

AMDT No 2 MAY 1985

Page 10. Clause C2(c) Micrometer.

Delete '1.2 N' for spindle head force and *replace* with '1.2 ± 0.3 N'.

AMDT No 2 MAY 1985

Page 12. Clause D2.4 Dart.

Insert after 'aluminium'—'or other suitable material'.

AMDT No 2 MAY 1985

AUSTRALIAN STANDARD

UNDERGROUND MARKING TAPE
Part 1
NON-DETECTABLE TAPE

AS 2648 Part 1—1983

First published 1983

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PREFACE

This standard was prepared by the Association's Committee for Plastics Underground Warning Strips under the direction of the Plastics Standards Board in response to a request from the Electricity Commission of New South Wales. It is one of two parts; Part 2* covers detectable tape.

The main purpose of non-detectable marking tape is to warn during excavation of the presence of a service line buried further below the ground. This function is achieved when the tape is dragged up by the digging equipment either intentionally or accidentally, leading to the identification of the service before any damage has occurred. In order for this system to be successful, the tape must have the property that when struck by digging equipment it does not tear easily and remain in the ground unnoticed, but instead is able to stretch and be brought to the surface. Hence considerable importance is placed on the properties of elongation at break and tear resistance. This type of marking tape is not detectable by means of metal detectors. In order to overcome this, many Authorities install a wire line along with the tape.

AS 2648, Part 2 will specify requirements for marking tape which can be detected by metal detectors. These tapes generally consist of either a plastics tape incorporating a metallic strip or instead are made completely from a metallized foil. However, even though this type of tape may perform better in a situation where the location of a service is deliberately being sought, elongation properties are often reduced due to the metallic component, and consequently the tape may go unnoticed during excavation where the operator is unaware of the existence of a buried service.

This standard sets out requirements for width, elongation at break, tear resistance, adhesion of print, colour and lettering. No material requirements have been included as it was considered that this could be unnecessarily restrictive. The standard is intended to be a performance standard.

During the preparation of this standard, cognizance was taken of a draft British Industry Specification for Plastic Marking Tape for Electrical Use, and AS 1326, Polyethylene (Polythene) Film for Packaging and Allied Purposes.

*In course of preparation.

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STANDARDS ASSOCIATION OF AUSTRALIA

Australian Standard for UNDERGROUND MARKING TAPE

PART 1—NON-DETECTABLE TAPE

1 SCOPE. This standard specifies requirements for printed underground marking tape suitable for use in conjunction with underground public utility services as a means of indicating the proximity of a service. It applies to tape which is not detectable by metal detectors (see Note 1).

NOTES:

1. Some authorities install a wire line in conjunction with the tape.
2. Detectable tape is specified in AS 2648, Part 2 (in course of preparation).
3. Advisory information on alternative methods of determining compliance of a 'lot' with this standard is given in Appendix A.

2 REFERENCED DOCUMENTS. The following documents are referred to in this standard:

AS 1199	Sampling Procedures and Tables for Inspection by Attributes
AS 1345	Identification of the Contents of Piping, Conduits and Ducts
AS 1399	Guide to AS 1199, Sampling Procedures and Tables for Inspection by Attributes
AS 1635	Methods of Test for Pressure Sensitive Adhesive Tapes
AS 1821-23	Suppliers Quality Control Systems—Levels 1, 2 and 3
AS 2000	Guide to AS 1821-1823, Suppliers Quality Control System
AS 2103	Dial Gauges and Dial Test Indicators
AS 2193	Methods for Calibration and Grading of Force-measuring Systems of Testing Machines
AS 2490	Sampling Procedures and Charts for Inspection by Variables for Percent Defective
AS 2700*	Colours for Paints
AS B83	Gauge Blocks and Their Accessories
ISO 105	Textiles—Tests for Colour Fastness Section A 02—Grey Scales for Assessing Change in Colour
BS 381C	Colours for Identification, Coding and Special Purposes
BS 4800	Paint Colours for Building Purposes
ASTM D 882	Tests for Tensile Properties of Thin Plastic Sheeting
ASTM D 1938	Test for Tear Propagation Resistance of Plastic Film and Thin Sheeting by a Single-tear Method

3 DEFINITION. For the purpose of this standard, the following definition applies:

Marking tape—tape which is buried above underground services to provide visual warning during subsequent excavation.

4 MATERIALS. Any material which complies with all the requirements of this standard shall be considered suitable.

5 WIDTH. The minimum nominal width shall be 75 mm. Preferred larger nominal widths are 100 mm and 150 mm.

The tolerance on the nominal width shall be ±3 percent.

NOTE: Other widths may be available as agreed between purchaser and supplier.

6 COLOUR. The background colour of the tape used in marking a particular underground service shall be in accordance with Table 1.

TABLE 1

UNDERGROUND SERVICE IDENTIFICATION COLOUR

Underground service	Tape colour	Preferred colour
Electricity	Orange	BS 381C No 557 Light Orange
Gas	Yellow	BS 381C No 309 Canary Yellow
Water	Green	BS 381C No 228 Emerald Green
Communications	White	BS 4800 No 18 C31
Firefighting	Red	BS 381C No 537 Signal Red
~~Sewerage~~	Cream	BS 4800 No. 10. C31

Amdt 1

NOTES:

1. The revision* of the former AS K185, Colours for Specific Purposes, will include the above BS 381C colours under the following proposed references and names:
   Orange—AS 2700 Y14
   Canary—AS 2700 Y11
   Jade—AS 2700 G11
   Signal Red—AS 2700 R13
   When the Australian standard is published, reference to the AS colours may be made in lieu of those in the British standards.

   New Note - see Amdt 1.
2. Identification colours for other underground services should be of a bright colour. Guidance may be obtained from AS 1345.
3. The use of the colour canary yellow to identify pipelines containing gases is adopted in this standard, as this is the colour commonly used in Australia to identify gas pipes by gas supply authorities and users. It should be noted, however, that AS 1345 specifies a colour of light beige for this purpose, this being the internationally agreed colour.

*In course of preparation.

*AS 2700, Colours for Paints (in course of preparation).