

Australian Standard[®]

**Petri dishes—Plastic—
For single use**

This Australian Standard was prepared by Committee CH/1, Laboratory Glassware and Related Apparatus. It was approved on behalf of the Council of Standards Australia on 9 May 1997 and published on 5 July 1997.

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**Petri dishes—Plastic—
For single use**

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PREFACE

This Standard was prepared by the Standards Australia Committee CH/1, Laboratory Glassware and Related Apparatus, to supersede AS 2766—1985, *Petri dishes — Plastics—For single use*.

The objective of this Standard is to provide specifications for single-use plastic Petri dishes that are used in the laboratory.

This Standard differs from the previous edition in that clauses dealing with packaging, marking and sterility have been modified and the range of dishes has been extended to include a 140 mm diameter and a 100 mm square dish.

The terms 'normative' and 'informative' have been used in this Standard to define the application of the appendix to which they apply. A 'normative' appendix is an integral part of a Standard, whereas an 'informative' appendix is only for information and guidance.

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STANDARDS AUSTRALIA

Australian Standard**Petri dishes—Plastic—For single use**

1 SCOPE This Standard specifies requirements for plastic Petri dishes intended for single use in microbiological testing.

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

AS

1199 Sampling procedures and tables for inspection by attributes

1399 Guide to AS 1199—Sampling procedures and tables for inspection by attributes

AS/NZS

ISO 9000 Quality management and quality assurance standards

ISO 9000.1 Part 1: Guidelines for selection and use

ISO 9002 Quality systems—Model for quality assurance in production, installation and servicing

ISO 9004 Quality management and quality system elements

ISO 9004.1 Part 1: Guidelines

SAA

HB18 Guidelines for third-party certification and accreditation

HB18.28 Guide 28—General rules for a model third-party certification scheme for products

EN

46002 Quality systems—Medical devices—Particular requirements for the application of ISO 9002

3 DEFINITIONS For the purpose of this Standard, the definitions below apply (see also Figure 1).

3.1 Base—the component of the Petri dish with the lesser diameter (for round dishes) or width dimension (for square dishes).

3.2 Lid—the component of the Petri dish with the greater diameter (for round dishes) or width dimension (for square dishes).

3.3 Petri dish—the complete article comprising both lid and base.

3.4 Stacking rim—protrusion(s) on the outside edge of the base of the dish, designed to prevent direct contact between the flat outside face of the base and the surface on which it rests.

4 DESIGN

4.1 General The Petri dishes described herein shall be of a circular or square shape and may be manufactured with separate compartments. The base of each dish shall be fitted with a stacking rim. Unless otherwise specified, ventilation of the interior of the closed dish shall be provided by fitting at least three (3) ridges to the top of the inside of the lid so that when the lid is placed on the base, only the ridges shall rest on the rim of the base thereby facilitating gas movement into and out of the dish.

The cross-sectional design of the components shall be similar to that illustrated in Figure 1.

4.2 Edges The edges of the base and lid shall be smooth and flat so as to be approximately parallel to the flat surface of the base.

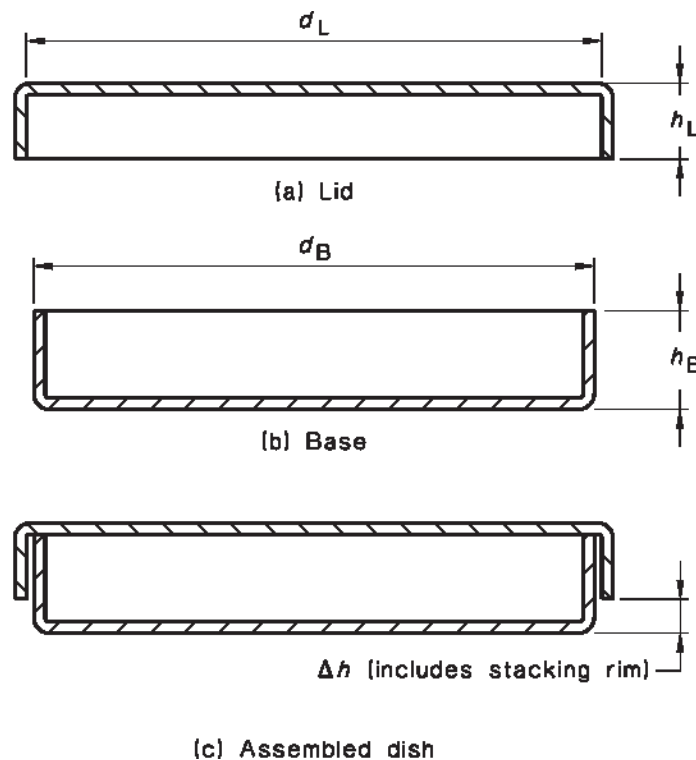


FIGURE 1 DIAGRAMMATIC REPRESENTATION OF A PLASTIC PETRI DISH EXCLUDING THE STACKING RIM

5 MATERIAL The dishes shall be made from a colourless, transparent and rigid plastic material. They shall be free from staining, weld lines and other defects liable to interfere with microbiological examination.

The use of the manufacturer's own clean rework material is permissible, but no other rework material shall be used.

When tested in accordance with Appendix A, Petri dishes shall have no discernible effect (i.e. no inhibition, no encouragement) on the growth of the bacterium *Escherichia coli*.

NOTE: This requirement ensures that the materials of manufacture do not contain substances which may be toxic or sources of nutrition for the test bacteria.

6 CONSTRUCTION

6.1 General Each Petri dish shall be constructed so that it shall exhibit no distortion, loss of clarity, staining or other defect likely to interfere with its normal use.

6.2 Stability The base shall be constructed so that the dish shall stand on a flat surface without any tendency to rock or spin.

6.3 Compartments Where the base has separate compartments, each compartment shall be watertight.

6.4 Finish All parts of the Petri dish shall be free of sharp edges, projections and roughness likely to cause accidental cutting, puncturing or abrasion of the skin of the user at all stages of service life of the dish. However, the surface shall not be so smooth as to contribute to difficulty in safe handling or in complying with the requirements of Clause 8.3.

7 DIMENSIONAL REQUIREMENTS

7.1 Overall dimensions The dimensions of a Petri dish shall ensure that the base fits inside the lid. The dishes shall conform to the dimensions given in Table 1 and shown in Figure 1.

7.2 Flatness When measured in accordance with Appendix B, the inner and outer surfaces of the base shall not depart from flatness by more than ± 0.25 mm.

7.3 Compartment dividers If the base has separate compartments, the height of the dividers shall be not less than 7 mm.

7.4 Venting ridges The ridges shall be 0.3 ± 0.05 mm in height. They shall be fitted on the inside of the top of the lid, extending radially from the wall, equidistant from each other and long enough to exceed the maximum lateral clearance between the lid and base.

7.5 Lateral clearance ($d_L - d_a$) Notwithstanding the dimension given in Table 1, the dimensions of the lid and the base shall be such that the lateral clearance between lid and base, ($d_L - d_a$) shall be not less than 1.0 mm or greater than 2.0 mm for 90 mm diameter and 100 mm square dishes. For 140 mm diameter dishes the lateral clearance shall not be less than 2 mm or greater than 4 mm.

8 PHYSICAL REQUIREMENTS

8.1 Rigidity When the dish is tested in accordance with Appendix C—

- (a) the diameter of the lid, measured in the direction of the applied force, shall not decrease by more than 1 mm; and
- (b) the diameter of the base, measured in the direction of the applied force, shall not decrease by more than 2 mm.

8.2 Resistance to permanent deformation When tested in accordance with Appendix D—

- (a) the lid of a Petri dish shall not crack, fracture or show any similar permanent deformity under a force of 10 N (i.e. load of approximately 1000 g); and
- (b) the base of the Petri dish shall neither fracture nor permanently deform under a force of 7.5 N (i.e. load of approximately 750 g).

8.3 Stability in stacking When tested in accordance with Appendix E, a stack of 10 Petri dishes shall be capable of being tilted at up to 12° from the vertical without collapsing.

8.4 Resistance to thermal distortion After subjection to the thermal test in accordance with Appendix F, a Petri dish shall not exhibit distortion sufficient to allow it to rock or spin on a flat surface nor to cause deviation from the requirements of Clauses 6, 7.2, 7.3, 8.1, 8.2 and 8.3.

TABLE 1
DIMENSIONS AND TOLERANCES FOR PLASTIC PETRI DISHES

Item	Dimension under consideration (see Figure 1)	Circular dish		millimetres
		Square dish		
Overall Petri dish	Nominal diameter/side (d_o)	90	140	100 × 100
	Difference between external height of lid and the total height of the assembled dish (Δ_h)	3.0 (minimum)	3.0 (minimum)	3.0 (minimum)
	Lateral clearance between internal wall of lid and external wall of base ($d_L - d_B$) = Δd	$1.0 \leq \Delta d \leq 2.0$	$2.0 \leq \Delta d \leq 4.0$	$1.0 \leq \Delta d \leq 2.0$
Lid	External height (h_L)	8.5 ± 1.5	9.0 ± 1.5	9.0 ± 1.5
	Internal diameter (d_L), measured between sidewalls	90.5 ± 2.0	144.0 ± 2.0	103.5 ± 2
Base	External height (h_B), excluding stacking rim	14.0 ± 2.0	19.0 ± 2.0	19.0 ± 2.0
	External diameter/side (d_B)	89.0 ± 1.5	139.0 ± 1.5	102.5 ± 1.5

9 FREEDOM FROM CONTAMINANTS

9.1 General When received in appropriate packaging, Petri dishes shall be free from contamination by particulate matter, deposits of oil or foreign chemicals likely to interfere with their normal use. They shall be classified in accordance with their method of manufacture and of sterilization as—

- (a) sterile;
- (b) aseptically-manufactured; or
- (c) general purpose;

in accordance with the appropriate requirements stated below (Clause 9.2, 9.3 or 9.4). For sterile and aseptic products, the interior of the packaging system shall retain its microbial status at least until the package seal is broken.

9.2 Sterile dishes Where intended for use in circumstances where product sterility is essential and patient protection is paramount, the dishes shall be regarded as sterile devices under the Commonwealth Therapeutic Goods Act for which the Therapeutic Goods Administration is the regulatory authority. Manufacture of such dishes shall comply with the Therapeutic Goods Manufacturing Principles (Determination No. 2 of 1994 under the Act) with reference to AS/NZS ISO 9002 and EN 46002.

Dishes shall be terminally sterilized using a validated process consisting of exposure to one of the following:

- (a) Gamma (ionization) radiation.
- (b) Ethylene oxide gas.
- (c) Other equivalent process.

Sterilized dishes shall comply with the requirements of either Therapeutic Goods Order No. 11, Standard for sterile therapeutic goods, or the Australian Code of Good Manufacturing Practice for Therapeutic Goods (GMP)—Medical Products, Appendix C, Guidelines on tests for sterility.

9.3 Aseptically-manufactured dishes These Petri dishes are primarily intended for use in routine microbiological culture procedures and do not normally come into contact with the patients.