



Babies' dummies



This Australian Standard® was prepared by Committee CS-040, Babies Dummies. It was approved on behalf of the Council of Standards Australia on 4 February 2015. This Standard was published on 24 March 2015.

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 - Australian Chamber of Commerce and Industry
 - Australian Competition and Consumer Commission
 - Australian Industry Group
 - Australian Toy Association
 - CHOICE
 - Consumer Affairs Victoria
 - Consumers Federation of Australia
 - Infant and Nursery Products Association of Australia
 - Office of Fair Trading, NSW
 - The Children's Hospital at Westmead
-

This Standard was issued in draft form for comment as DR AS 2432.

Standards Australia wishes to acknowledge the participation of the expert individuals that contributed to the development of this Standard through their representation on the Committee and through the public comment period.

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Australian Standard[®]

Babies' dummies

Originated as AS 2432—1981.
Previous edition 2009.
Fourth edition AS 2432:2015.

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Published by SAI Global Limited under licence from Standards Australia Limited, GPO Box 476, Sydney, NSW 2001, Australia

ISBN 978 1 76035 006 2

PREFACE

This Standard was prepared by the Standards Australia Technical Committee CS-040, Babies Dummies, to supersede AS 2432—2009. This Standard aims to establish, through manufacturing requirements, a desirable level of inherent safety in babies' dummies.

This edition differs from the previous edition in that—

- (a) material requirements have been added to align with EN 1400:2013;
- (b) requirements for decorations have been added;
- (c) the minimum width requirement for the dummy shield has been removed;
- (d) a minimum thickness requirement for the teat has been added;
- (e) the bite test has been adjusted to align with EN 1400:2013;
- (f) a requirement for a batch code has been added;
- (g) the warning label text has been adjusted;
- (h) conditioning requirements before testing have been adjusted;
- (i) the recommended instructions for use and care have been adjusted; and
- (j) a rationale has been added, based on EN 1400:2013.

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 for information and guidance only.

CONTENTS

	<i>Page</i>
1 SCOPE AND APPLICATION	4
2 REFERENCED DOCUMENTS	4
3 DEFINITIONS	5
4 MATERIAL REQUIREMENTS	7
5 DESIGN AND CONSTRUCTION.....	11
6 PERFORMANCE TEST REQUIREMENTS	15
7 PACKAGING	16
8 LABELLING	16
 APPENDICES	
A TEST METHODS FOR MATERIAL REQUIREMENTS	18
B CONDITIONING A BABY'S DUMMY FOR CONSTRUCTION AND MECHANICAL TESTS	22
C SHIELD TEST.....	24
D PROTRUSION TEST	29
E TENSILE TEST	32
F COMPRESSION TEST	34
G BITE ENDURANCE TEST FOR RUBBER COMPONENTS.....	37
H IMPACT TEST	40
I TEAR TEST	41
J GUIDANCE FOR INSTRUCTIONS FOR THE USE AND HYGIENIC CARE OF BABIES DUMMIES	43
K RATIONALES	44
L SUITABLE HPLC APPARATUS FOR DETERMINATION OF 2-MERCAPTOBENZOTHAZOLE (MBT) AND ANTIOXIDANTS BHT, 2246, CYANOX 425, WINGSTAY L AND IRGANOX 1520	52
 BIBLIOGRAPHY	 55

STANDARDS AUSTRALIA

Australian Standard

Babies' dummies

1 SCOPE AND APPLICATION**1.1 Scope**

This Standard specifies safety requirements relating to the materials, design, construction, performance, packaging and product information for babies' dummies.

1.2 Application

This Standard applies to all babies' dummies except those intended for use by premature babies, or for therapeutic applications, in which the usage is under medical supervision or direction.

A dummy that is intended for use by premature babies, or for therapeutic applications is exempted from the requirements of this Standard. However, exempted dummies should comply with those requirements in this Standard that can be applied. Refer to the test methods in Appendix A.

2 REFERENCED DOCUMENTS

The following Standards are referred to in this Standard:

NOTE: Other documents referred to for further information by use of a number in square brackets (e.g. [3]) are listed in the Bibliography.

AS

2001 Methods of test for textiles

2001.4.A03 Method 4.A03: Colourfastness tests—Grey scale for assessing staining

2070 Plastics materials for food contact use

AS/NZS

8124 Safety of toys

8124.10 Part 10: Organic chemical compounds—Sample preparation and extraction

8124.11 Part 11: Organic chemical compounds—Methods of analysis

AS ISO

1302 Geometrical product specifications (GPS)—Indication of surface texture in technical product documentation

AS/NZS ISO

8124 Safety of toys

8124.3 Part 3: Migration of certain elements (ISO 8124-3:2010, MOD)

ISO

188 Rubber, vulcanized or thermoplastic—Accelerated ageing and heat resistance tests

DIN

53160 Determination of the colourfastness of articles for common use

53160-1 Part 1: Test with artificial saliva

EN

1400 Child use and care articles—Soothers for babies and young children—Safety requirements and test methods

12868 Child use and care articles—Methods for determining the release of N-nitrosamines and N-nitrosatable substances from elastomer or rubber teats and soothers

3 DEFINITIONS

For the purpose of this Standard, the following definitions apply.

3.1 Cover

Structure that prevents access to the plug.

3.2 Dummy

Article intended to satisfy the non-nutritive sucking needs of a baby, which includes a teat that the baby sucks.

NOTE: A dummy is also known as ‘pacifier’ or ‘soother’.

3.3 Major axis of the dummy

Axis of the dummy at right angles to the shield and through the centre of the teat where the teat enters the shield (see Figure 1).

3.4 Major axis of the shield

Axis of the shield parallel to the longest dimension of the shield and in the middle of the width (see Figure 2).

3.5 Minor axis of the shield

Axis of the shield parallel to the shortest dimension of the shield and in the middle of the length (see Figure 1).

3.6 Plug

Structure inserted within the neck of the teat to attach the teat to the shield.

NOTE: Refer also to Clauses 3.1 and 3.7.

3.7 Ring or knob

A structure positioned adjacent to or on the shield to facilitate handling of the dummy.

NOTE: The ring or knob may be integral with the shield or plug or cover, or it may be a separate component that is attached to the shield or plug or cover.

3.8 Rubber

Any vulcanized rubber, silicone rubber or thermoplastic elastomer.

3.9 Shall

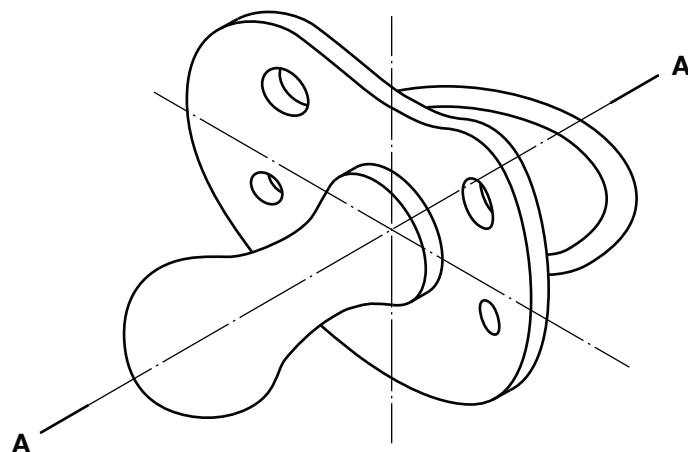
Indicates that a statement is mandatory.

3.10 Shield

A structure positioned at the rear portion of the teat to reduce the likelihood of the dummy being drawn entirely into the baby’s mouth.

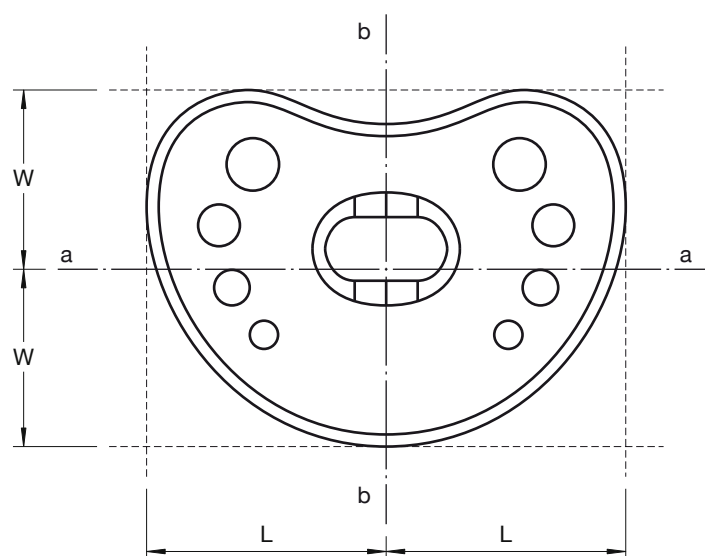
3.11 Should

Indicates a recommendation.



A-A Major axis of the dummy

FIGURE 1 MAJOR AXIS OF THE DUMMY



LEGEND:

W = Half of shield width

L = Half of shield length

a-a = Major axis of the shield

b-b = Minor axis of the shield

FIGURE 2 MAJOR AND MINOR AXIS OF THE SHIELD

4 MATERIAL REQUIREMENTS

4.1 General

NOTE: Refer to Paragraph K2 of Appendix K.

A dummy shall be made only from plastics or rubber materials (see Clause 3.8) or both, each of which shall not contain any leachable constituent—

- (a) in a concentration known to be harmful to health;
- (b) known to cause mucosal irritation; and
- (c) which would flavour any part of the dummy.

NOTE: The use of any material other than plastics or rubber is not permitted in dummies.

Dummies shall be produced from grades of materials with quality standards that ensure that there is no increased risk from chemicals either specified or not specified in this Standard. The chemicals mentioned in Clauses 4.2 to 4.8 do not represent a definitive list. The following requirements in Clauses 4.2 to 4.8 cover the current known issues.

Dummies or components of dummies shall be subjected to the tests marked with a tick (✓) in Table 1.

TABLE 1
REQUIREMENTS AND TESTS ON MATERIALS

	Plastics materials for food contact use	Migration of certain elements	N-nitrosamines and N-nitrosatables release	2-mercaptobenzothiazole release	Antioxidant release	Formaldehyde release	Bisphenol A* release	Colour fastness	Volatile compounds content
Requirement Clause	4.2	4.3	4.4	4.5.2	4.5.3	4.5.4	4.6*	4.7	4.8
Test	AS 2070	AS/NZS ISO 8124.3	EN 12868	A2	A2	A2	A3	DIN 53160-1	A4
Vulcanized rubber		✓	✓	✓	✓	✓		✓	
Silicone rubber		✓	✓			✓		✓	✓
Thermoplastics	✓	✓					✓	✓	
TPEs	✓	✓	✓					✓	
All decorations	✓	✓						✓	

* Bisphenol A release testing should only be carried out on thermoplastics that use bisphenol A in their manufacture, such as polycarbonates. Bisphenol A is not used in the production of other common thermoplastics, such as polypropylene and polyethylene.

4.2 Plastics materials for food contact use

Plastics materials used in dummies shall meet the requirements of AS 2070.

4.3 Migration of certain elements

The migration of elements from dummies shall not exceed the limits given in Table 2 (after application of the analytical correction given in Table 3) when tested in accordance with the methods specified in AS/NZS ISO 8124.3.

NOTE: Refer to Paragraph K3 of Appendix K.

TABLE 2
MAXIMUM ACCEPTABLE ELEMENT MIGRATION
FROM DUMMY MATERIALS

Element	Sb	As	Ba	Cd	Cr	Pb	Hg	Se
Values in milligrams per kilogram of dummy material	60	2.5	200	1.8	50	2.5	10	50

TABLE 3
ANALYTICAL CORRECTION

Element	Sb	As	Ba	Cd	Cr	Pb	Hg	Se
Analytical correction (%)	60	60	30	30	30	30	50	60

4.4 N-nitrosamines and N-nitrosatable substances release

Rubber components shall be tested in accordance with EN 12868 and the total release of N-nitrosamines and N-nitrosatable substances from these components shall not exceed the limits given in Table 4.

NOTE: Refer to Paragraph K4 of Appendix K.

TABLE 4
N-NITROSAMINES AND N-NITROSATABLE
SUBSTANCES RELEASE AND TOLERANCE

Substance	Limit mg/kg	Tolerance mg/kg
N-nitrosamines	0.01	0.01
N-nitrosatables	0.1	0.1

NOTE: Limits and tolerances are expressed as amount of substances migrating from 1 kg of rubber component.

4.5 2-mercaptobenzothiazole (MBT), antioxidant and formaldehyde release

4.5.1 General

NOTE: Refer to Paragraphs K5, K6, K7 of Appendix K.

4.5.2 2-mercaptobenzothiazole (MBT)

When vulcanized rubber components of dummies are tested in accordance with Paragraph A2 of Appendix A, the migration of 2-mercaptobenzothiazole or 2(3H)-benzothiazolethione shall not exceed the limit given in Table 5.

TABLE 5
MBT RELEASE LIMIT

Compound	CAS number	Limit*
2-mercaptobenzothiazole or 2(3H)-benzothiazolethione (MBT)	149-30-4	8 mg/kg

* The limit is expressed as amount of substance migrating from 1 kg of rubber

4.5.3 Antioxidants

When vulcanized rubber components of dummies are tested in accordance with Paragraph A2 of Appendix A, the migration of the chemicals listed in Table 6 shall not exceed the limits given in Table 6.

TABLE 6
ANTIOXIDANT RELEASE LIMITS

Chemical name	CAS number	Limits* mg/L
2,6-bis(1,1-dimethylethyl)-4-methylphenol (BHT)	128-37-0	0.3125
2,2'-methylenebis(4-ethyl-6-tert-butylphenol) (Cyanox 425)	000088-24-4	0.0625†
2,2'-methylenebis(6-(1,1-dimethylethyl)-4-methylphenol) (Antioxidant 2246)	119-47-1	
Butylated reaction product of p-cresol and dicyclopentadiene (Wingstay L)	68610-51-5	0.25
2,4-bis(octylthiomethyl)-6-methylphenol (Irganox 1520)	110553-27-0	0.25‡

* Limits are expressed as amount of substance per litre of simulant.

† This limit is the sum of Cyanox 425 and Antioxidant 2246.

‡ This limit is the sum of Irganox 1520 and Irganox 1726—2,4-bis(dodecylthiomethyl)-6-methylphenol, CAS 110675-26-8.

4.5.4 Formaldehyde

When vulcanized rubber and silicone rubber components of dummies are tested in accordance with Paragraph A2 of Appendix A, the migration of formaldehyde shall not exceed the limit given in Table 7.

TABLE 7
FORMALDEHYDE MIGRATION

Compound	CAS number	Limit* mg/L
Formaldehyde	50-00-0	0.375

* The limit is expressed as amount of substance per litre of simulant (see AS/NZS 8124.11:2008).

4.6 Bisphenol A release

When thermoplastic components of dummies are tested in accordance with Paragraph A3 of Appendix A, the migration of bisphenol A shall not exceed the limit given in Table 8 (see Footnote to Table 1).

NOTE: Refer to Paragraphs K2.5 and K8 of Appendix K.

TABLE 8
MONOMERS (MIGRATION)

Compound	CAS number	Limit* mg/L
Bisphenol A (2,2-bis(4-hydroxyphenyl)propane)	80-05-7	0.125

* The limit is expressed as amount of substance per litre of simulant (see AS/NZS 8124.11:2008).

NOTE: Refer to Paragraph K8 of Appendix K.

4.7 Colour fastness

When all parts are tested in accordance with DIN 53160-1, colour fastness to saliva shall be greater than 4 on the grey scale as defined in AS 2001.4.A03.

NOTE: Refer to Paragraph K9 of Appendix K.

4.8 Volatile compounds content

When silicone rubber components of dummies are tested in accordance with Paragraph A4 of Appendix A, and the results are calculated in accordance with Paragraph A4.3, the volatile compounds content shall not exceed 0.5% (m/m).

NOTE: Refer to Paragraph K10 of Appendix K.

5 DESIGN AND CONSTRUCTION

5.1 General

A dummy shall comply with the requirements of Clauses 5.2 and 5.3, and shall include at least—

- (a) a teat complying with the requirements of Clause 5.5.1;
- (b) a shield complying with the requirements of Clause 5.5.2; and
- (c) a ring or knob complying with the requirements of Clause 5.5.3 or Clause 5.5.4 respectively.

All components shall be free from any sharp edges, points, flash and burrs that could cause an injury.

5.2 Decoration

There shall be no printing on the sucking side of the shield.

NOTE: Laser etched batch coding is exempt from this requirement.

Adhesive decals and labels shall not be attached to any part of the dummy.

Decorations shall not be attached to any part of the dummy by adhesive.

Decorations shall not become detached during conditioning of the dummy or during any testing.

NOTE: A dummy may be decorated, including by moulding-in, imprinting and printing. Imprinting may include techniques such as stamping and laser etching.

5.3 Shield dimensions

The shield of a dummy shall be of such size that when the dummy is tested in accordance with Appendix C, the shield shall not pass through the opening in the test template.

NOTE: Refer to Paragraph K11 of Appendix K.

5.4 Protruding components

NOTE: Refer to Paragraph K12 of Appendix K.

When tested in accordance with Appendix D, the dummy shall comply with the following:

- (a) Either—
 - (i) a ring made of rigid material shall be either hinged or free to swivel, and the ring shall collapse so that it and any other component do not protrude more than 16 mm on the handling side of the shield; or
 - (ii) any component of rigid material on the handling side of the shield, such as a knob, cover or ring, shall not protrude less than 10 mm or more than 16 mm.
- (b) Any component made of flexible material on the handling side of the shield, such as a knob, cover or ring, shall not protrude less than 10 mm or more than 35 mm.

NOTE: The purpose of this Clause is to minimize the hazard of the dummy being forced into a baby's mouth if the baby, with the dummy in its mouth, falls over onto the dummy.

5.5 Individual components

5.5.1 Teat

NOTE: Refer to Paragraphs K13 and K14 of Appendix K.

The following provisions apply to the teat of a dummy:

- (a) It shall have an external surface that is smooth.
- (b) If made from latex rubber it shall have a minimum uncompressed thickness of 1.1 mm at any point.
- (c) Any hollow section of the teat shall not contain solid, fluid or gaseous substances (except air), nor shall it contain any inserts except for the plug.
NOTE: Loose solid objects and liquid fillings cannot be contained within parts of a dummy because they present an inhalation hazard to the baby.
- (d) It shall be constructed so that liquid will not flow into or out of the front portion of the teat.
- (e) If designed so that liquid may flow into or out of the rear portion of the teat through an opening, the opening shall either—
 - (i) have a cross-sectional area of 19.6 mm² or more and permit a suitable cleaning brush to penetrate all inner parts of the teat to enable the teat to be completely cleaned and sterilized; or
 - (ii) be so constructed that, when the dummy is treated in accordance with the cleaning instructions as required by Clause 8.2, the dummy including the inside of the teat is capable of being cleaned and sterilized.

NOTE: An opening having a cross-sectional area of 19.6 mm² is equivalent to a circular opening having a diameter of 5 mm.

5.5.2 Shield

NOTE: Refer to Paragraphs K13 and K15 of Appendix K.

The following provisions apply to the shield of a dummy:

- (a) It shall be constructed so that the surface intended to contact the baby's lips is smooth.
- (b) It shall have at least two ventilation holes whereby—
 - (i) the cross-sectional area of each ventilation hole is 19.6 mm² or more;
 - (ii) the periphery of each ventilation hole is 5 mm or more from the periphery of the shield;

- (iii) the distance between the geometric centres of the pair of ventilation holes is 15 mm or greater;
- (iv) at least one ventilation hole shall be located on each side of the minor axis of the shield (see Figure 2); and
- (v) each ventilation hole shall permit the free and unimpeded passage of a 4 mm diameter rod.

If the shield has two holes that meet the requirements of Clause 5.5.2(b), Items (i) to (v), any additional holes do not have to meet those requirements.

- (c) If the shield is made from two or more components that form one or more hollow compartments, the components shall be permanently joined to prevent liquid flow into or out of any one of the hollow compartments and each hollow compartment shall not contain—
 - (i) any solid material, e.g. plastics insert, that is not securely attached to any one or more of the components; or
 - (ii) any liquid or liquid-absorbing material.

NOTE: Ventilation holes have been specified in Clause 5.5.2, Item (b) because these would not only provide air passages through which a baby could breathe if the dummy was accidentally ‘swallowed’, but the ventilation holes would also prevent the risk of the dummy being sucked into the oral pharynx since negative pressure would be generated.

Although the requirement in Clause 5.5.2, Item (b) would be satisfied with only two ventilation holes in the shield, the shield should have more than two holes as this would not only provide greater ventilation but would also reduce the risk of all the holes becoming blocked by being overlaid with the inner walls of the baby’s mouth.

5.5.3 *Ring*

Where the dummy includes a ring, the following provisions apply to the ring:

- (a) It shall be so designed that—
 - (i) it does not extend beyond the boundaries of a projected sphere having a radius of 45 mm and its centre located at the junction of the teat axis and the extension of the inner surface of the shield (see Figure 2); and
 - (ii) it will admit a 14 mm diameter rod through its aperture (see Figure 3).
- NOTE: The rod is intended to simulate the tip of an adult finger. The length of the rod is not specified, so that any suitable length may be used.
- (b) If it is made from two or more components that form one or more hollow compartments, the components shall be permanently joined to prevent liquid flow into or out of any one of the hollow compartments and each hollow compartment shall not contain—
 - (i) any solid material, e.g. plastics insert, that is not securely attached to any one or more of the components; or
 - (ii) any liquid or liquid-absorbing material.
 - (c) If the ring locks in a position such that it is not available to assist in extraction of the dummy, then it shall be considered as a knob for the purposes of this requirement and it shall also comply, in its locked position with the requirements in Clause 5.5.4, Items (b) and (c).

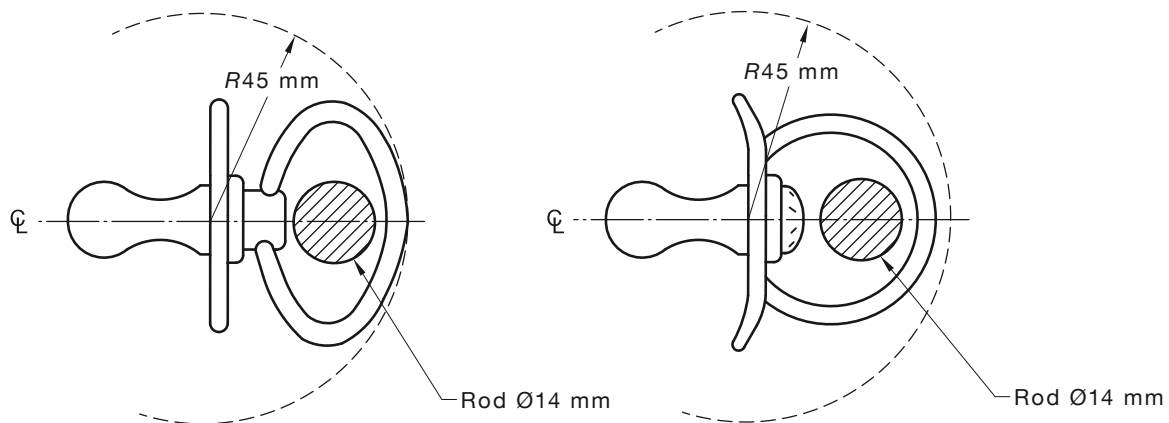


FIGURE 3 DESIGN LIMITATIONS

5.5.4 Knob

Where a dummy includes a knob, the following provisions apply to the knob:

- (a) It shall comply with the requirements of Clause 5.5.3, Items (a)(i) and (b).
- (b) It shall be so designed that it positively assists in the extraction of the dummy from a child's mouth if the dummy has been 'swallowed' test first.
- (c) It shall be so designed that, when it is gripped between two 14 mm diameter rods as shown in Figure 4, the knob and the cross-sectional areas of the rods lie within the boundary of the projected sphere [described in Clause 5.5.3, Item (a)(i)] for all practical positions of the rods relative to the knob.

NOTE: The knob or ring should be able to be securely gripped by the rods, as would be the case if the knob were gripped by a thumb and forefinger. Different length 14 mm diameter rods may be used to facilitate gripping.

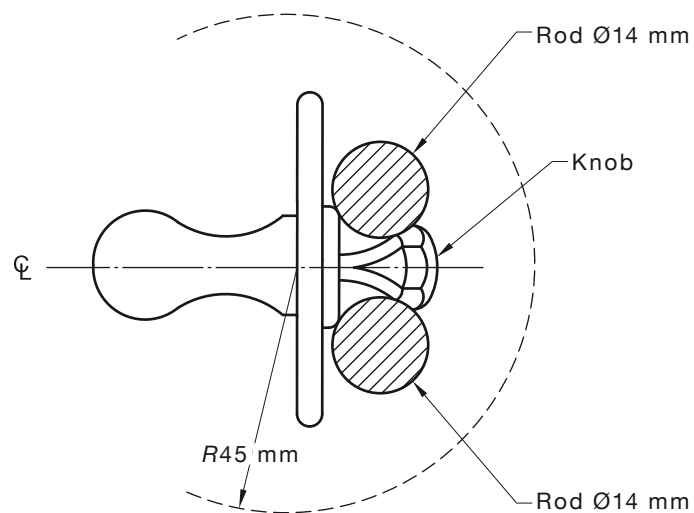


FIGURE 4 KNOB DESIGN LIMITATIONS

5.5.5 Plug

Where a dummy includes a plug, the following provisions apply to the plug:

- (a) It shall be constructed so that it does not damage the teat or shield during or after assembly.
- (b) If designed so that liquid can flow into or out of the rear portion of the knob through an opening, the opening shall either—
 - (i) have a cross-sectional area of 19.6 mm^2 or more and permit a suitable cleaning brush to penetrate all parts inside the plug and inside the teat, if the liquid is capable of entering the teat, so as to enable the whole dummy including all cavities to be completely cleaned and sterilized; or
 - (ii) be of such construction that, when the dummy is treated in accordance with the instructions specified in Clause 8.2, the dummy, including the inside of the plug and the inside of the teat, if the liquid is capable of entering the teat, is capable of being completely cleaned and sterilized.

NOTE: An opening having a cross-sectional area of 19.6 mm^2 is equivalent to a circular opening having a diameter of 5 mm.

6 PERFORMANCE TEST REQUIREMENTS

6.1 General

NOTE: Refer to Paragraph K16 of Appendix K.

6.2 Tensile test

When tested in accordance with Appendix E, no part of a dummy shall become—

- (a) detached;
- (b) torn;
- (c) fractured; or
- (d) broken.

6.3 Compression test

When tested in accordance with Appendix F, no part of a dummy shall become—

- (a) detached;
- (b) torn;
- (c) fractured; or
- (d) broken.

6.4 Bite endurance test for rubber components

NOTE: Refer to Paragraph K17 of Appendix K.

When tested in accordance with Appendix G, no rubber component of the dummy shall become—

- (a) detached;
- (b) cut through its entire thickness;
- (c) torn;
- (d) fractured; or
- (e) broken.

6.5 Impact test

When tested in accordance with Appendix H, no part of a dummy shall become—

- (a) detached;
- (b) torn;
- (c) fractured; or
- (d) broken.

6.6 Tear test

NOTE: Refer to Paragraph K18 of Appendix K.

When tested in accordance with Appendix I, no part of the dummy shall become detached as a result of the slit.

7 PACKAGING

The dummy or dummies shall be in a clean condition and the package shall—

- (a) be a sealed pack; and
- (b) not contain any pin, ribbon, string, cord, chain, twine, leather, yarn or any other means of attachment.

NOTES:

- 1 Sealed implies closed in a manner that prevents casual handling, but not necessarily airtight.
- 2 The purpose of prohibiting the packaging of the attachments with the dummy or dummies is to discourage people from tying or pinning the dummy to the baby. This is because the attachment not only presents a strangulation hazard to the baby, as is indicated by the warning specified in Clause 8.3, but it could also cut off the blood circulation to baby's finger or hand if it becomes wrapped around the finger or wrist.

8 LABELLING

8.1 General

Each pack containing one or more dummies shall be legibly labelled with either—

- (a) the name or trademark, and address of the manufacturer or distributor, if the dummy or dummies were manufactured in Australia; or
- (b) the name or trademark, and address of the Australian distributor, and the country in which the dummy or dummies were manufactured, if the dummy or dummies were not manufactured in Australia.

The product or the packaging shall include a batch code.

NOTE: Products made of natural latex or their packaging should be labelled with the date of manufacture.

8.2 Instructions

The pack shall include clearly legible instructions for treatment before first use as well as the normal use and hygienic care of the dummy.

NOTE: Guidance on the content of the instructions is provided in Appendix J.

Where a dummy is of such a construction that liquid can flow into or out of the teat and/or plug through an appropriate opening or openings in the rear of the dummy, the pack shall also include specific instructions as to how the dummy, including all areas into which liquid can enter, is to be completely cleaned and sterilized.

NOTE: Attention is drawn to the requirements of Clause 5.5.1, Item (e)(ii) and Clause 5.5.5, Item (b)(ii).

8.3 Warning notice

8.3.1 General

A warning notice shall be provided either on the packaging or in a leaflet supplied with the product. The warning notice, except as permitted in Clause 8.3.2, shall state:

WARNING

A torn or broken dummy poses a choking hazard. Inspect carefully before each use. Pull the teat in all directions. Throw away at the first sign of damage or weakness.

A cord or ribbon attached to a dummy poses a strangulation hazard. Do not attach a dummy to your child's clothing.

NOTE: Additional information that is not inconsistent with the above may be provided.

8.3.2 Exception

The word 'dummy' may be substituted with another that has the same meaning. For example the word 'pacifier' or 'soother' may be used.

8.3.3 Wording

The wording on the warning notice shall be—

- (a) clearly legible, in uppercase characters of not less than 2.5 mm in height; and
- (b) such that the word 'WARNING' is in bold typeface and on a separate line from the other words.

APPENDIX A
TEST METHODS FOR MATERIAL REQUIREMENTS
(Normative)

A1 CONDITIONING A BABY'S DUMMY FOR MATERIAL TESTS

A1.1 General

This Appendix sets out the method for conditioning a baby's dummy when required prior to testing for material requirements.

Samples and test portions shall only be handled with suitable (e.g. non-rubber) gloves and shall only be stored in securely fastened, migration free containers and protected from light.

A1.2 Boiling

All samples shall be immersed in boiling water for 10 ± 1 min without touching the walls of the container and then removed.

The samples shall be stored in a closed container to reduce the risk of contamination, for example, a desiccator is ideal for this purpose.

A1.3 New samples

New samples, preferably from the same batch, shall be used for each test (i.e. samples used in one test shall not be used in another test) unless otherwise stated.

A2 DETERMINATION OF 2-MERCAPTOBENZOTHAZOLE (MBT), ANTIOXIDANT AND FORMALDEHYDE RELEASE

A2.1 Principles

MBT, its metal-salts and the antioxidants listed in Table 6 are quantitatively determined following extraction into an aqueous migration liquid. MBT and the antioxidants are identified and determined by High Performance Liquid Chromatography (HPLC) and UV-detection at specific wavelength, either by fluid-fluid extraction or in a concentrated solution. The identification is confirmed by comparing the UV-spectra of the sample peaks produced by a diode array detector with the spectra of the peaks of authentic samples ([1], [2]).

Migrated formaldehyde shall be analysed using AS/NZS 8124.11:2008, Clauses 5.5.3.1 to 5.5.3.6.

A2.2 Apparatus and reagents for the determination of antioxidants and MBT

The following apparatus and reagents are required:

- (a) Stainless steel tweezers.
- (b) Extraction bottles, approximate volume 250 mL with flat base, a screw neck and provided with a polytetrafluoroethylene (PTFE)-lined rubber septum.
- (c) Bottle rotator, capable of holding and rotating the extraction bottles in head-over-heels motion at a constant speed. The distance from the centre of the rotating axis to the centre of the extraction bottle shall be approximately 150 mm.
- (d) HPLC with a suitable injection loop and diode array detector connected to an integrator or personal computer with chromatography software.