

Australian Standard[®]

Mobile waste containers

Part 5: Performance requirements and test methods



This Australian Standard® was prepared by Committee PL-047, Mobile Waste Containers. It was approved on behalf of the Council of Standards Australia on 4 June 2008. This Standard was published on 30 June 2008.

The following are represented on Committee PL-047:

- Department of Environment and Climate Change, NSW
 - Plastics and Chemicals Industries Association
 - Sustainability Victoria
 - Victorian Waste Management Association
 - Waste Contractors and Recyclers Association of NSW
 - Waste Management Association of Australia
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This Standard was issued in draft form for comment as DR 05349.

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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Mobile waste containers

Part 5: Performance requirements and test methods

First published as AS 4123.5—2008.

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Published by Standards Australia GPO Box 476, Sydney, NSW 2001, Australia

ISBN 0 7337 8792 4

PREFACE

This Standard was prepared by Committee PL-047, Mobile Waste Containers.

The objective of this Standard is to provide manufacturers, designers and regulatory authorities with uniform minimum requirements for the design, safety and performance of mobile waste containers.

This Standard is part of a series of Standards on mobile waste containers which, when complete, will consist of the following:

AS

- 4123 Mobile waste containers
- 4123.1 Part 1: Containers with two wheels with a capacity up to 400 L for lifting devices—Dimensions and design
- 4123.2 Part 2: Containers with four wheels with a capacity from 500 L to 1200 L with flat lid(s), for trunnion and/or lifting devices—Dimensions and design
- 4123.3 Part 3: Containers with four wheels with a capacity from 770 L to 1300 L with dome lid(s), for trunnion and/or lifting devices—Dimensions and design
- 4123.4 Part 4: Containers with four wheels with a capacity from 750 L to 1700 L with flat lid(s), for wide trunnion or BG and/or wide comb lifting devices—Dimensions and design
- 4123.5 Part 5: Performance requirements and test methods (this Standard)
- 4123.6 Part 6: Health, safety and environment
- 4123.7 Part 7: Colours, markings, and designation requirements

This Standard should not be regarded as a design specification or as an instruction manual.

In the preparation of this Standard consideration was given to—

- (a) continuity of satisfactory operation;
- (b) the prevention of injury to persons or property;
- (c) encouraging the use of recycled material in the manufacture;
- (d) consistency of colours for mobile waste containers; and
- (e) relevant international Standards.

The terms ‘normative’ and ‘informative’ are used in this Standard to define the application of the Appendix to which they apply. A normative appendix is an integral part of the standard, whereas an informative appendix is for information and guidance.

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STANDARDS AUSTRALIA

Australian Standard
Mobile waste containers
Part 5: Performance requirements and test methods
1 SCOPE

This part of the Standard specifies the performance requirements and test methods for mobile waste containers covered under the scope of AS 4123.1, AS 4123.2, AS 4123.3 or AS 4123.4, as appropriate. This Standard further specifies the levels to be attained during the tests or after the completion of the tests.

This Standard applies to mobile waste containers of capacities up to 1700 L.

2 REFERENCED DOCUMENTS

The following documents are referenced in this Standard:

AS

4123	Mobile waste containers
4123.1	Part 1: Containers with two wheels with a capacity up to 400 L for lifting devices—Dimensions and design
4123.2	Part 2: Containers with four wheels with a capacity from 500 L to 1200 L with flat lid(s), for trunnion and/or lifting devices—Dimensions and design
4123.3	Part 3: Containers with four wheels with a capacity from 770 L to 1300 L with dome lid(s), for trunnion and/or lifting devices—Dimensions and design
4123.4	Part 4: Containers with four wheels with a capacity from 750 L to 1700 L with flat lid(s), for wide trunnion or BG and/or wide comb lifting devices—Dimensions and design
4123.6	Part 6: Health, safety and environment
4123.7	Part 7: Colours, markings, and designations requirements
HB 18.28	Conformity assessment—Guidance on a third-party certification system for products

AS/NZS ISO

9001	Quality management systems—Requirements
9004	Quality management systems—Guidelines for performance improvements

ISO

105-B02	Textiles—Tests for colourfastness. Part B02: Colourfastness to artificial light; Xenon arc fading lamp test
1461	Hot dip galvanized coatings on fabricated iron and steel articles. Specifications and test methods.
2081	Metallic coatings—Electroplated coatings of zinc on iron or steel
4892	Plastics: Methods of exposure to laboratory light sources
4892-2	Part 2: Xenon-arc lamps

ASTM	
D2565-99	Standard practice for xenon-arc exposure of plastics intended for outdoor applications
D638	Standard test method for tensile properties of plastics
G155-05A	Standard practice for operating xenon arc light apparatus for exposure of non metallic materials
EN	
1501	Refuse collection vehicles and their associated lifting devices—General requirements and safety requirements
1501-1	Part 1: Rear-end loaded refuse collection vehicle
10327	Continuously hot dip coated strip and sheet of low carbon steels for cold forming—Technical delivery conditions

3 DEFINITIONS

For the purpose of this Standard the definitions stated in AS 4123.1, AS 4123.2, AS 4123.3 or AS 4123.4 apply.

4 PERFORMANCE REQUIREMENTS

4.1 General

The container shall be subject to a visual inspection before and after the tests for the following purposes:

- (a) To verify that the container is not damaged and has no visual defect.
- (b) The manufacturing characteristics of the container under test is covered in AS 4123.1, AS 4123.2, AS 4123.3 or AS 4123.4; as appropriate.
- (c) To compare the condition of the container before and after the sequence of tests.

After completion of the test, the primary functionality of the container shall be maintained after any allowable deformation.

4.2 Requirements before the tests

4.2.1 Visual aspects

The container shall be subject to normal visual inspection from a distance of 1 m. The inside and outside surfaces of the container shall be smooth and even after allowable manufacturing related unevenness. The container shall be without burrs, free of foreign bodies, bubbles, tears and other faulty areas. Insignificant flat sink marks are permitted, provided they do not impair the functionality of the container. No excessive colour streaking shall be visible.

4.2.2 Physical properties

The physical properties of waste container shall correspond to the following Standards.

4.2.2.1 Components

Body, lid, wheels/castors and other fittings shall comply with the relevant container Standard, AS 4123.1, AS 4123.2, AS 4123.3 or AS 4123.4.

4.2.2.2 Sizes and dimensions

Functional and safety dimensions shall be within the limits for length, width, height, rims and trunnions specified in the relevant container Standard for the whole container, for the components and basic functional details.

4.2.2.3 Capacity

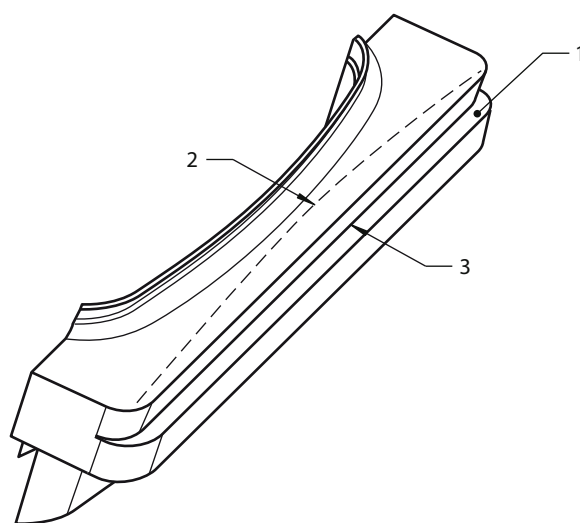
The capacity of the container determined in accordance with Clause 5.4 shall be within the tolerances specified in AS 4123.1, AS 4123.2, AS 4123.3 or AS 4123.4, as applicable.

4.2.3 Deflection of the frontal receiving system

In areas involved by the comb-rim, interface shall have deflection no more than—

- (a) 1.5% of the length of the frontal receiver for plastic (see Figure 1).
- (b) 0.6% of the length for steel.

NOTE: For other material types the values should be defined when the systems are standardized.



LEGEND:

- 1. Handles or hinge site
- 2. Lifting rim
- 3. Deflection (1.5%)

FIGURE 1 DEFLECTION

4.2.4 Mass

The tolerances on the container mass claimed are as follows:

- (a) $\pm 5\%$ for plastic containers; and
- (b) $\pm 10\%$ for metal containers.

4.2.5 Colour

AS 4123.7 states the colour designations for bodies and lids of mobile waste containers that relate to the type of waste materials. The colour is subject to agreement between the user and responsible vendor.

4.2.6 Marking

The container shall comply in accordance with AS 4123.1, AS 4123.2, AS 4123.3 or AS 4123.4 as applicable.

4.3 Requirements after the tests

After the tests, despite variations in deflection and size, it shall be possible to safely lift, tilt and move the container on its wheels and castors with the container loaded in accordance with Clause 5.3 with the nominal weight on the designated lifting equipment.

5 TEST CONDITIONS

5.1 General

The test conditions specified in this Clause apply. Other specific test conditions are detailed in the tests of Clause 6.

5.2 Test temperature

Plastic containers shall be tested under the following temperatures:

$$t_1 = (23 \pm 5)^\circ\text{C} \text{ (temperature of the room)}$$

$$t_2 = (-18^{+0}_{-2})^\circ\text{C} \text{ (cold for some impact tests when made on plastic products).}$$

Before testing at t_2 the specimens shall remain in the cold room for at least 12 h. The tests shall be performed in the cold room or within 5 mins of being removed from the cold room. If 5 mins are exceeded the container shall be reconditioned for at least 15 min at t_2 .

$$t_3 = 90 \text{ to } 95^\circ\text{C} \text{ (temperature for storage in warm environments).}$$

5.3 Ballast weight

For the test the containers shall be filled with ballasts of HDPE granules in bags of 4 kg max, with granules having a specific weight of 500 to 600 kg/m³.

The ballast weight shall be 400 kg/m³ multiplied by nominal volume, with a maximum load of 440 kg (nominal load).

5.4 Determination of capacities

The capacity of the container, its parts and the total capacity shall be determined as follows:

- (a) For the body, by tank method up to 1700 L.
- (b) For the lid, by tank method when possible.
- (c) The total volume is the sum of (a) and (b) minus interferences.

5.5 Tank method

The test equipment shall consist of a tank with sufficient capacity to receive the container to be tested.

The test procedure for the container shall be as follows:

- (a) Place the empty container in a tank, the container shall not be inclined.
- (b) Simultaneously fill the tank and the container with water at a temperature of $20^\circ \pm 5^\circ\text{C}$.
- (c) Record the actual water temperature.
- (d) Measure the volume of water inside the container.
- (e) Measure the volume of water inside the lid.

The test set-up for the lid consists of a container which is filled with loose plastic granulate. The lid is embedded horizontally and form-fitting into the plastic granulate for the test. The lid is filled with water up to the level that corresponds to the insertion depth of the body into the lid.

The maximum allowable measurement uncertainty shall be within $\pm 1\%$ of the measured volume for both the container and the lid.

6 TESTS

The container shall be subjected to the tests specified in this Clause. The container under test shall be new and within 90 days from the date of manufacture.

6.1 Impact tests by ball drop

6.1.1 *General*

The ability of the sensitive points of the container to resist impacts at low temperature shall be tested in this Clause. The test is conducted on both, two wheeled and four wheeled containers.

Two wheeled containers shall be placed on a concrete or steel support so there is at least 50 mm clearance below the base.

Four wheeled containers shall be standing on their wheels.

NOTE: Ball drop test is not mandatory for steel containers.

6.1.2 *Test procedure*

The device shall be set up according to Figure 2. The test shall be performed at temperature t_2 , according to conditions stated in Clause 5.2.

Ball drop tests shall be carried out with the aid of a 5.0 kg steel cylinder, diameter 65 mm, with hemispheric end radius of 32.5 mm. The steel cylinder is guided in a vertical tube with a slot or with holes in order to allow the air to escape during the drop.