



SLOVENSKI STANDARD
SIST EN 840-5:2004

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Mobile waste containers - Part 5: Performance requirements and test methods

Fahrbare Abfallsammelbehälter - Teil 5: Anforderungen an die Ausführung und Prüfverfahren

Conteneurs roulants a déchets - Partie 5: Exigences de performance et méthodes d'essais

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| 13.030.40 | Naprave in oprema za odstranjevanje in obdelavo odpadkov | Installations and equipment for waste disposal and treatment |
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English version

Mobile waste containers - Part 5: Performance requirements and test methods

Conteneurs roulants à déchets - Partie 5: Exigences de performance et méthodes d'essais

Fahrbare Abfallsammelbehälter - Teil 5: Anforderungen an die Ausführung und Prüfverfahren

This European Standard was approved by CEN on 10 December 2003.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Central Secretariat has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

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Foreword

This document (EN 840-5:2004) has been prepared by Technical Committee CEN/TC 183 "Waste management", the secretariat of which is held by DIN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by September 2004 and conflicting national standards shall be withdrawn at the latest by September 2004.

This document supersedes EN 840-5:1997.

This draft European Standard is one part of the series of standards of EN 840 about "Mobile waste containers" comprising the following Parts:

- Part 1: Containers with 2 wheels with a capacity up to 400 l for comb lifting devices - Dimensions and design.
- Part 2: Containers with 4 wheels with a capacity up to 1 300 l with flat lid(s), for trunnion and/or comb lifting devices - Dimensions and design.
- Part 3: Containers with 4 wheels with a capacity up to 1 300 l with dome lid(s), for trunnion and/or comb lifting devices - Dimensions and design.
- Part 4: Containers with 4 wheels with a capacity up to 1 700 l with flat lid(s), for wide trunnion or BG and/or wide comb lifting device - Dimensions and design.
- Part 5: Performance requirements and test methods.
- Part 6: Safety and health requirements.

Annexes A, B, C, D and E are informative.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

1 Scope

This European Standard gives the test methods for mobile waste containers according to EN 840-1 to EN 840-4. It also gives the levels to be reached during the tests or after they have been done.

This European Standard is applicable to mobile waste containers with capacities up to 1 700 l.

2 Normative references

This European Standard incorporates, by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

EN 840-1:2004, *Mobile waste containers – Part 1: Containers with 2 wheels with a capacity up to 400 l for comb lifting devices – Dimensions and design.*

EN 840-2:2004, *Mobile waste containers – Part 2: Containers with 4 wheels with a capacity up to 1 300 l with flat lid(s), for trunnion and/or comb lifting devices – Dimensions and design.*

EN 840-3:2004, *Mobile waste containers – Part 3: Containers with 4 wheels with a capacity up to 1 300 l with dome lid(s), for trunnion and/or comb lifting devices – Dimensions and design.*

EN 840-4:2004, *Mobile waste containers – Part 4: Containers with 4 wheels with a capacity up to 1 700 l with flat lid(s), for wide trunnion or BG and/or wide comb lifting device – Dimensions and design.*

EN ISO 1461, *Hot dip galvanized coatings on fabricated iron and steel articles – Specifications and test methods (ISO 1461:1999).*

EN 1501-1, *Refuse collection vehicles and their associated lifting devices – General requirements and safety requirements – Part 1: Rear-end loaded refuse collection vehicles.*

ISO 2081, *Metallic coatings – Electroplated coatings of zinc on iron or steel.*

EN 10142, *Continuously hot-dip zinc coated low carbon steels strip and sheet for cold forming - Technical delivery conditions.*

3 Terms and definitions

Terms for components of mobile waste containers and lifting devices in three languages are given in annex A of EN 840-1:2004.

For the purposes of this European Standard, the definitions according to EN 840-1:2004, EN 840-2:2004, EN 840-3:2004 and EN 840-4 apply.

4 Tests

4.1 General

Before and after the tests a visual inspection of the container shall be done for the purpose of:

- a) checking that the container is not damaged and has no visual defect;
- b) checking that the manufacturing characteristics of the container to be tested are those specified in the standards applying to the container according to EN 840-1 to EN 840-4;
- c) comparing the condition of the container before and after the sequence of the tests.

After completing the tests some deformation of the container is permissible, however, it shall remain entirely functional.

4.2 Control before the tests

4.2.1 Visual aspects

No obvious damage, cracks, bubbles, large flashes or sharp edges shall be present. No surface defects (unsmooth areas; trails in colour) perceivable from a distance of 1 m by the naked eye shall be visible.

4.2.2 Compatibility with EN 840-1 to EN 840-4

4.2.2.1 Components

Body, lid, wheels and other fittings shall conform to the relevant container standard.

4.2.2.2 Sizes and dimensions

Functional and safety dimensions for the container and its components shall be checked according to the Figures and the relevant Tables of EN 840-1 to EN 840-4.

4.2.2.3 Volumes

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The volumes of container shall be measured

- a) for the body, by tank method;
- b) for the lid, by tank method;
- c) volume results in a) and b) minus any duplicated volumes.

The volumes shall be within the tolerances according to EN 840-1 to EN 840-4.

4.2.2.4 Tank method

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

The test procedure is as follows:

- place the empty container in a tank, the container shall not be inclined;
- simultaneously fill the tank and the container with water at a temperature of $(15 \pm 5) ^\circ\text{C}$;
- measure the quantity of water inside the container.

Accuracy of measurement shall be $\pm 1 \%$ of the measured capacity of the container.

4.2.3 Deflection for comb lifting system

The frontal receiver shall have a horizontal deflection of no more than:

- a) 1,5 % of the length of the frontal receiver for plastic;
- b) 0,6 % of the length for steel.

NOTE For other systems the values are to be defined when the systems are standardized.

4.2.4 Masses

The tolerances on the container mass claimed are as follows: for plastic containers $\pm 5\%$ and for metal containers $\pm 10\%$.

4.2.5 Colour

The colour shall be defined and agreed between customer and supplier. For colour measurement, differences and tolerances refer to existing International Standards.

4.2.6 Marking

Marking of the container shall correspond to EN 840-1 to EN 840-4.

4.3 Control after the tests

Notwithstanding variations in deflection and sizes, it shall be possible to lift and tilt the container loaded according to 4.5 with nominal load safely on the designated lifting equipment and to move the container on its wheels.

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4.4 Conditions of the test

The tests shall be carried out at the following temperatures:

- $T_1 = (23 \pm 5) \text{ }^\circ\text{C}$
- $T_2 = (-18 + 0/-2) \text{ }^\circ\text{C}$.

The minimum duration of conditioning before testing at a test temperature T_2 shall be 12 h. If the test shall be carried out outside the room conditioned at T_2 it shall be carried out within 5 min after taking the test pieces from the conditioned room. If the duration of the tests is more than 5 min, then the container shall be kept in the conditioned room for at least 15 min before a new 5 min period of testing.

For special purposes a temperature lower than $-18 \text{ }^\circ\text{C}$ or higher than $+23 \text{ }^\circ\text{C}$ can be agreed; in this case it shall be indicated in the test report.

4.5 Test load

For the test the containers are to be filled with ballast bags of HDPE granules of 4 kg max., with granules having a specific weight of $0,5 \text{ kg/dm}^3$.

The test load shall be $0,4 \text{ kg/dm}^3$ multiplied by nominal volume, but not more than 440kg.

4.6 Other test conditions

Any other test conditions shall be defined within the tests involved.

4.7 Tests on the containers

4.7.1 General

All tests shall be carried out on new containers.

4.7.2 Impact tests by ball drop

The ball drop test is not compulsory for steel containers.

The ability of sensitive points of the container to resist impacts at low temperature shall be tested under conditions in 4.4.

The 2-wheeled containers shall be placed on a concrete or steel surface in the normal position.

There shall be a steel frame between the concrete surface or the steel surface and the container so that the complete area of the bottom of the container can be deflected during the test.

The 4-wheeled containers shall stand on their wheels.

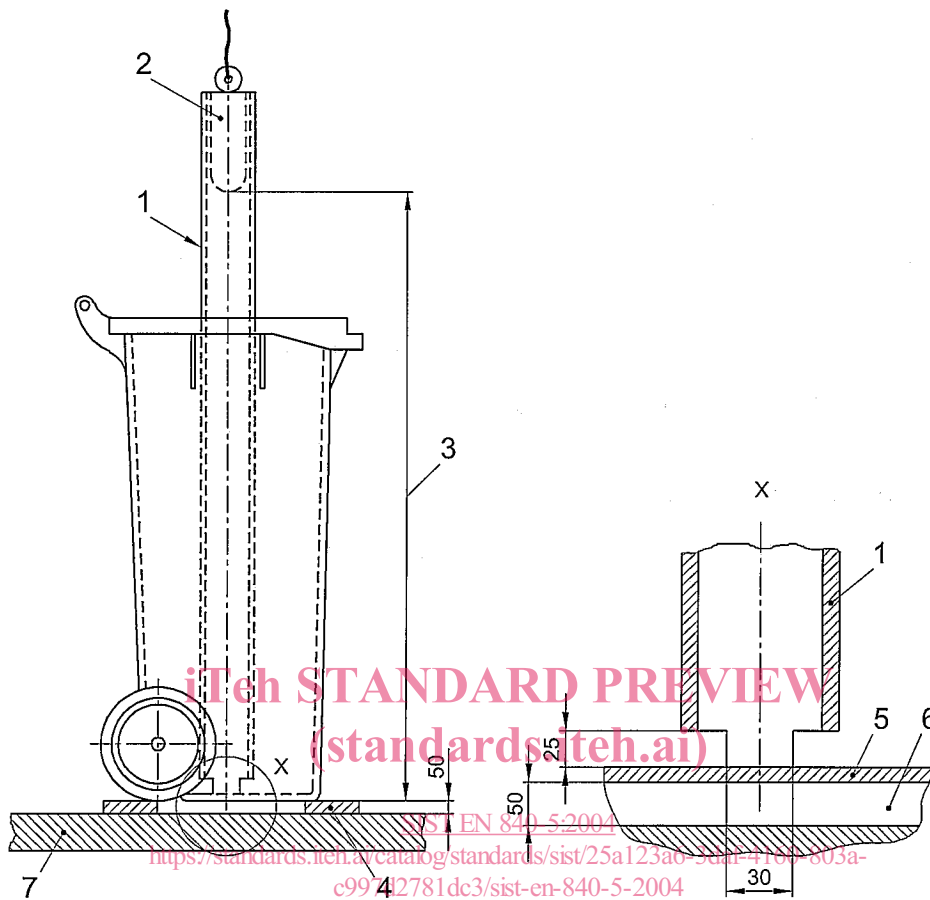
Ball drop tests shall be carried out using a 5 kg steel cylinder, diameter 65 mm, with hemispheric end radius of 32,5 mm. The steel cylinder is guided in a vertical pipe with a slot or with holes in order to allow the air to escape during the drop.

The device shall be according to Figure 1.

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Key

- | | |
|--|-----------------------------|
| 1 Vertical (plastic) pipe (inside diameter: 70 mm) | 6 Free room |
| 2 Steel cylinder (diameter: 65 mm; 1 hemispheric end; mass: 5 kg) | 7 Concrete or steel surface |
| 3 Height fall (0,80 m) | |
| 4 Steel frame (see 4.7.2) | |
| 5 Container bottom | |

Figure 1 — Device for ball drop test

The following areas of containers shall be tested by impact tests:

- a) on the body bottom (see Figure 2d) there shall be 3 successive impacts for each impact point defined below:
- the injection point(s),
 - A and D or C and B

After the test the container shall be waterproof in the tested points

- b) there shall be 2 successive impacts for each impact point defined below (see Figures 2a, 2b, 2c)

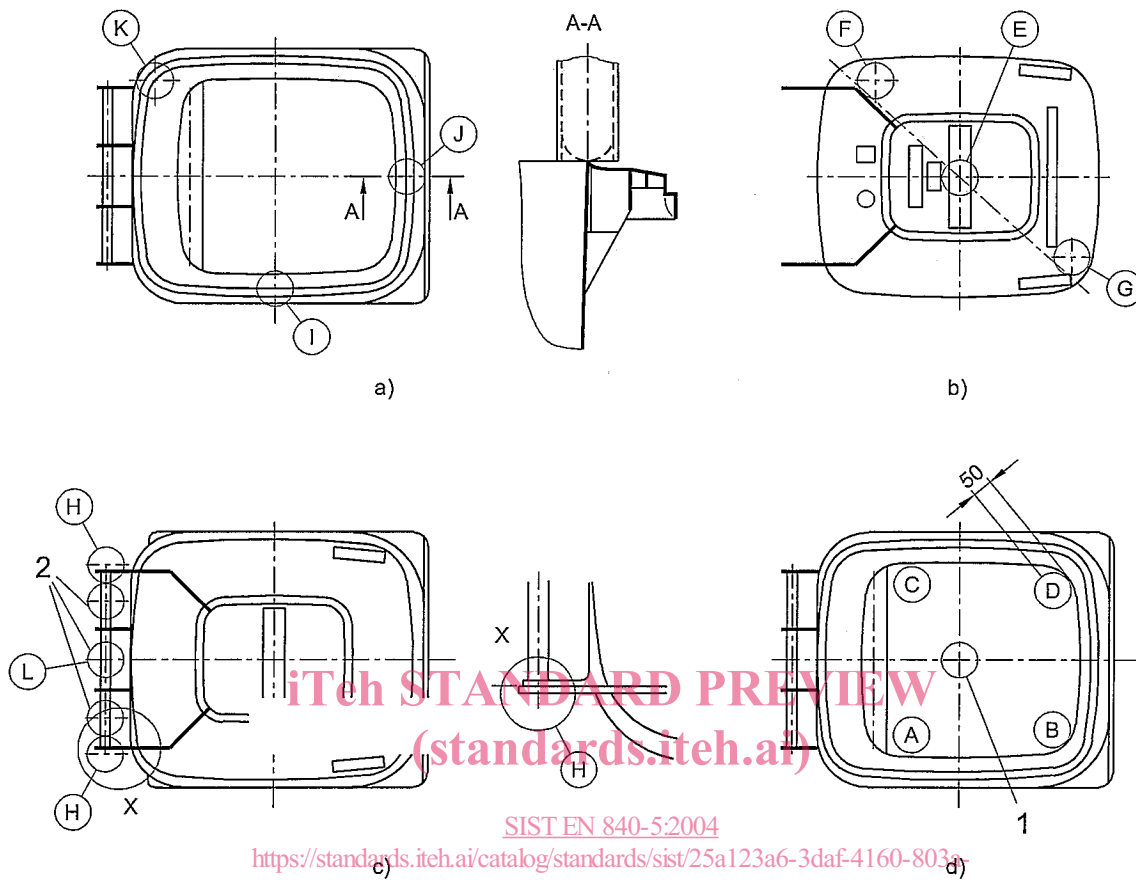
- the centre of the lid (E),
- one corner of the lid (cylinder to be tangent to the lid) (F),
- the corner diametrically opposite (cylinder to be tangent to the lid) (G),
- each hinge (H),
- the centre of the front face of the top rim (J),
- the centre of a lateral face of the top rim (I),
- the back corner opposite the lateral face previously tested of the top rim (K),
- centre of any handle (L, see Figure 2c key 2)

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Dimensions in mm



Key

- a) top view of the body/top rim
- b) lid
- c) handles, hinges
- d) body bottom
- 1) Injection point
(If one injection point only, impact on it and on A - D or B - C)
- 2) Middle of handle

Figure 2 — Impact points for ball drop test

Outside of the conditioning room (see 4.4), the test shall not last more than 5 min. After this time the container shall be reconditioned for at least 15 min.

After the test the following procedure shall be applied, if there is any doubt about the result:

- fill the body with a water volume equal to 10 % of the maximum capacity of the body;
- wait for 10 min.

After 10 min, if the container leaks, it is declared to be non conforming.