

AMENDMENT NO. 1 SEPTEMBER 2024

TO

IS 17803 : 2022 POTABLE WATER BOTTLES (COPPER, STAINLESS STEEL, ALUMINIUM) — SPECIFICATION

(First cover page, title) — Substitute the following for the existing:

‘पेयजल की बोतल (धातु) — विशिष्टि

Potable Water Bottles (Metallic) — Specification’

(Foreword, para 3) — Insert the following at the end:

‘As material grades conforming to IS 6911 and IS 15997 have been permitted, so requirements for the welding procedure, staining test, and migration of heavy materials have been made mandatory. Considering the significance of corrosion resistance, following requirements have been also added:

- a) Sensory verification analysis to ensure no discernible sensory alterations;
- b) Constituent migration assessment to verify compliance with safe transfer levels; and
- c) Corrosion resistance evaluation to confirm maintenance of stainless steels intrinsic anticorrosion properties.’

para 6 (Foreword, para 5) — Substitute the following for the existing:

‘The composition of the Committee responsible for the formulation of this standard is given in Annex D.’

(Page 1, title) — Substitute the following for the existing:

‘POTABLE WATER BOTTLES (METALLIC) — SPECIFICATION’.

(Page 2, clause 5.3) — Substitute the following for the existing:

‘If possible, avoid welding and have only seamless stainless bottle. Welding if done for stainless steel bottle, shall be free from welding defects. The welding electrode shall conform to grade 308L as per IS 5856. The weld shall be finished properly so that when a finger is passed on the joint, it shall be smooth.

NOTE — The welding shall comply with Annex C.’

(Page 2, clause 7.1.2.1, sentence 1) — Substitute the following for the existing:

‘The materials used to manufacture the inner containers shall be stainless steel of grades N1, N2 as per IS 15997 or IS 6911 or grade 304 series as per IS 5522 or IS 6911 or 308L/316/316Las per IS 6911.’

(Page 2, clause 7.1.2) — Insert the following at the end:

‘NOTES

1 If grades N1 and N2 are used and welding is done in the food contact area of inner container, then material shall comply with the requirements given in Annex A, Annex B, and Annex C.

2 Material requirements of aluminum bottle shall be as per IS 3603.’

Price Group 3

(Page 2, clause 7.1.9) — Substitute the following for the existing:

‘Any bottle, irrespective of the material, if coated fully or partially externally, shall conform to the thickness test, salt water corrosion test, adhesion test procedures as per IS 9730. The limit for lead and cadmium of the coating shall be as per IS 9806 (see Table 1 of IS 9806), when measured as per standard test method. The minimum thickness of the coating shall be declared by the manufacturer.

NOTE — Material requirements of aluminum bottle shall be as per IS 3603.’

(Page 3, clause 7.3.1) — Substitute the following for the existing:

7.3.1 Drop Impact Test

7.3.1.1 Horizontal hang

Fill water in the bottle up to its full capacity at the normal temperature and drop it from the height of 400 mm in a horizontal state on a hard wood board of 30 mm or more in thickness fixed horizontally (see Fig. 1). The bottle shall comply with the requirements specified in 7.3.2.2.

7.3.1.2 Vertical hang

Fill water in the bottle up to its full capacity at the normal temperature and drop it from the height of 400 mm in a vertical state on a hard wood board of 30 mm or more in thickness fixed horizontally (see Fig. 1). The bottle shall comply with the requirements specified in 7.3.2.2.

7.3.1.3 Free fall test

Fill water in the bottle up to its full capacity at the normal temperature and drop it on a hard wood board of 30 mm or more in thickness fixed horizontally. The test shall be carried out in free-fall state, that is, by pushing the bottle gently by hand with a force just sufficient to fall from a table, at a height 400 mm above the ground level. The bottle shall comply with the requirements specified in 7.3.2.2.’

(Page 3, Fig. 1) — Insert new figure and renumber the subsequent figures accordingly.

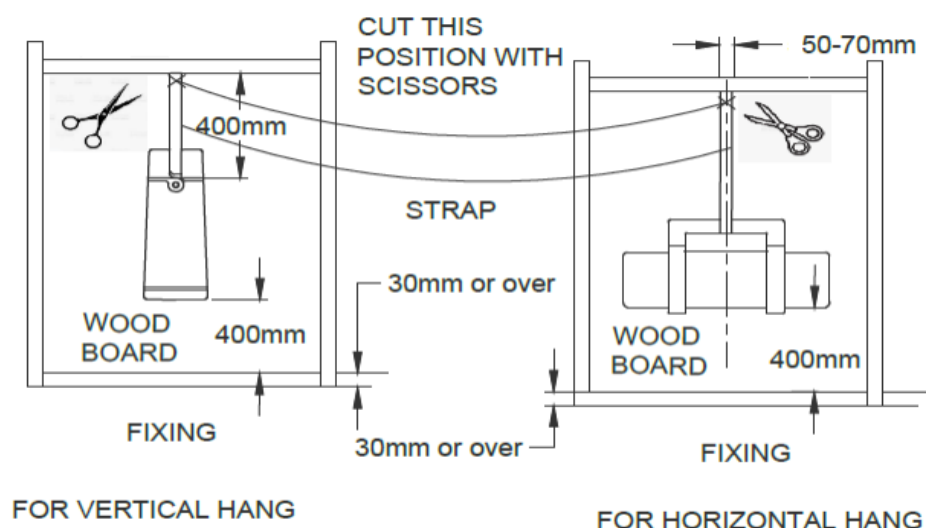


FIG. 1 DROP IMPACT TEST

(Page 3, clause 7.3.2.1, line 6) — Substitute ‘Fig. 2’ for ‘Fig. 1’.

Page 4 (Page 3, clause 7.4.1.1, line 4) — Substitute ‘Fig. 3’ for ‘Fig 2’.

(Page 4, clause 7.7.1, sentence 1) — Substitute the following for the existing:

‘7.7.1 Fill the bottle to 75 percent of its nominal capacity with water at room temperature and containing 0.5 percent surfactant.’

(Page 6, Annex A) — Insert the following new Annex A to Annex C and renumber the existing Annex A on Committee composition as Annex D:

‘ANNEX A

(Clause 7.1.2)

**TEST METHOD FOR LEACHING OF FOOD GRADE STAINLESS STEEL
(TYPE TEST)**

A-1 GENERAL

A-1.1 Stainless steel coupons are collected/made to conduct leaching in food simulated medium through analytical studies. Coupons shall be of dimensions 70 mm (length) × 50 mm (breadth) × t mm (thickness of RM sheet used) with weld in the center parallel to the breadth. For welding and finish, please refer to Annex E.

A-1.2 Details of stimulants are given below:

- a) 3 Percent acetic acid — Solution prepared by diluting 30 g of acetic acid with distilled water to a volume of 1 liter and;
- b) 4 Percent NaCl (common salt) — Solution prepared by diluting 40 g of NaCl (common salt) with distilled water to a volume of 1 liter.

A-1.3 Following instruments/equipment are required for carrying out this test:

- a) Inductively coupled plasma — mass spectrometer (ICP-MS);
- b) Millipore water purification system or distilled water;
- c) Hot plate ambassador, with energy regulator; and
- d) Calibrated vernier calliper.

A-2 PROCEDURE

A-2.1 Different beaker/Petri dish containing one coupon each in the different simulated food are to be heated to boiling temperature and soaked at the same temperature for 30 minutes*. At the same time, prepare a sample blank also. The sample blank shall contain only simulated food medium without coupon.

A-2.2 After soaking, remove the coupons using cleaned tongs and cool to room temperature.

NOTE — *Soaking can be in boiling temperature for 30 minutes/70 degree centigrade for 2 hours/40 degree centigrade for 10 days

A-3 METHOD OF ANALYSIS ON ICP-MS

The leaching solution shall be analysed for the presence of Fe, Cu, Ni, Cr and Mn and other elements on the ICP-MS.

A-4 CALCULATIONS

The values of the presence of Fe, Cu, Ni, Cr and Mn and other elements are analysed using ICP-MS. The value of sample blank shall be subtracted from it. Then, resultant values shall be normalized with respect to the area of the coupon in contact with simulated food medium, per unit volume of the simulator food item, so that the final concentration is given in mg/kg. Resultant values for Fe, Cu, Ni, Cr and Mn and other elements shall not be more than specific release limits (SRLs) given below:

<i>SI No.</i>	<i>Element(s)</i>	<i>Specific Release Limit (SRL)</i> mg/kg
(1)	(2)	(3)
i)	Antimony	0.04
ii)	Arsenic	0.002
iii)	Chromium	0.25
iv)	Cobalt	0.02
v)	Copper	4
vi)	Iron	40
vii)	Lead	0.01
viii)	Manganese	1.8
ix)	Mercury	0.003
x)	Molybdenum	0.12
xi)	Nickel	0.14
xii)	Tin	100

ANNEX B

(Clause 7.1.2)

SENSORIAL TEST METHOD (TYPE TEST)

B-1 FOOD STIMULANT — Distilled water

B-2 TEST PROCEDURE

Fill the flask/bottle with 70 °C distilled water, ensure the welded portion is in touch with the water, close the cap/lid and soak till the temperature of distilled water reaches ambient water temperature. At the same time, similarly prepare a sample blank, the water should not touch the welded portion, follow the protocol as cited above.

B-3 ACCEPTANCE CRITERIA

Transfer of taste and smell to the distilled water shall be less than 3. The distilled water samples of soaked and blank are smelled and tasted by a minimum of 5 personnel and results tabulated. The average of the results tabulated shall be taken for acceptance criteria.

NOTE — Evaluation criteria for transfer of taste and smell are as follows:

- 0 = No discernible deviation
- 1 = Barely discernible deviation
- 2 = Weak deviation
- 3 = Clear deviation
- 4 = Strong deviation

ANNEX C

(Clause 5.3 and 7.1.2)

WELDING AND FINISHING

C-1 GENERAL

Tungsten inert gas welding (TIG) welding is the preferred process because there is no flux or cleaning agent involved. The metal joints shall have clean welding. Mechanical cleaning followed by chemical cleaning shall be done on joints.

NOTE — Mechanical processes may include any of the processes like grinding, filing, sanding, sandblasting, and brushing. Chemical processes use solvents and acids to remove paint, oil, grease, and oxide.

C-2 PROCEDURE

- a) TIG welding shall be used;
- b) Preferred filler material grade 308L (07Cr18Ni9) as per IS 5856 to be used;
- c) After the weld, the weld surface and adjacent area to be grinded using 60 grit wheel;
- d) Clean the weld surface and adjacent area using a brush; and
- e) Polish the weld and adjacent area in the following sequence:
 - 1) 120 grit;
 - 2) 200 grit;
 - 3) 400 grit;
 - 4) Jute brush;
 - 5) Hard buff; and
 - 6) Clean with chalk powder or electro polishing.