

AMENDMENT NO. 2 SEPTEMBER 2024
TO
IS 17526 : 2021 DOMESTIC STAINLESS STEEL VACUUM FLASK/BOTTLE —
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 anti-corrosion properties.’

(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 F.’

(Page 2, clause 5.3) — Insert the following at the end:

‘NOTE — The welding shall comply with Annex E.’

(Page 2, clause 7.1.1) — 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/IS 6911 or grade 304 series as per IS 5522/IS 6911 or 316/316L as per IS 6911.’

(Page 2, clause 7.1.2) — Substitute the following for the existing:

‘Outer Container and Accessories

Outer container and accessories shall be of materials which shall be rigid enough to hold the inner container securely under conditions of use, corrosion resistant and protect it from damage in normal handling. The material used for the outer container shall be of stainless steel as per grades N1 and N2 of IS 15997/IS 6911 or 304 series according to IS 5522/IS 6911 or 316/316 L as per IS 6911. The minimum thickness of the outer container shall be 0.3 mm for flasks/bottles with capacity less than 1 000 ml and 0.4 mm for flasks/bottles with capacity 1 000 ml and above.

NOTE — 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 C, Annex D, and Annex E.’

(Page 8, clause 9.1) — Substitute the following for the existing:

‘**9.1** Each domestic vacuum stainless steel flask/bottle shall be legibly and permanently marked with the following minimum information:

- a) Nominal capacity;
- b) Grade of material of inner container and outer container along with applicable IS No;
- c) Name or trade mark of the manufacturer; and
- d) Batch number.’

Price Group 2

(Page 10, Annex C) — Insert the following new Annex C to Annex E and renumber the existing Annex C on Committee composition as Annex F:

‘ANNEX C

(Clause 7.1.2)

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

C-1 GENERAL

C-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.

C-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.

C-1.3 Following instruments/equipment's 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.

C-2 PROCEDURE

C-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.

C-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.

C-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.

C-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>Sl No.</i>	<i>Element(s)</i>	<i>Specific Release Limit (SRL) (mg/kg)</i>
(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 D

(Clause 7.1.2)

SENSORIAL TEST METHOD (TYPE TEST)

D-1 FOOD STIMULANT — Distilled water

D-2 TEST PROCEDURE

Fill the flask/bottle with 95-degree centigrade 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.

D-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 E

(Clause 5.3 and 7.1.2)

WELDING AND FINISHING

E-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 TIG 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.

E-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.'

(Page 14, Annex F) — Insert the following organization in the Committee composition:

'Hamilton Housewares Pvt Ltd, Mumbai

SHRI SANJAY MORESHWAR MHATRE
SHRI INDSUPRAKSH SINGH (*Alternate*)