# इंटरनेट मानक

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"Step Out From the Old to the New"

IS 2347 (2006): Domestic Pressure Cookers [MTD 31: Utensils, Cutlery and Domestic Hardwares]

"ज्ञान से एक नये भारत का निर्माण"
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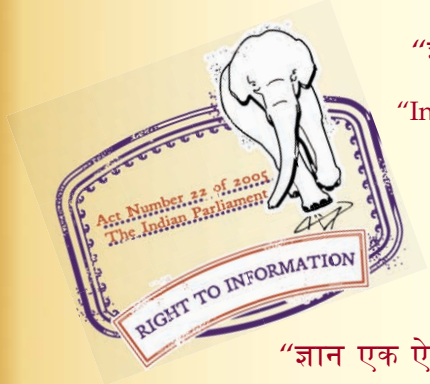



"ज्ञान एक ऐसा खजाना है जो कभी चुराया नहीं जा सकता है"
Bhartṛhari—Nītiśatakam
"Knowledge is such a treasure which cannot be stolen"

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भारतीय मानक

# घरेलू प्रेशर कुकर — विशिष्टि

( पाँचवां पुनरीक्षण )

*Indian Standard*

# DOMESTIC PRESSURE COOKERS — SPECIFICATION

*( Fifth Revision )*

ICS 97.540.50



**BUREAU OF INDIAN STANDARDS**
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

*February* 2006

**Price Group 5**

FOREWORD

This Indian Standard (Fifth Revision) was adopted by the Bureau of Indian Standards, after the draft finalized by the Utensils, Cutlery and Domestic Hardware Sectional Committee had been approved by the Mechanical Engineering Division Council.

This standard was first published in 1963 and subsequently revised in 1966, 1974, 1987 and 1995. In this revision, following major changes have been made:

a) Amendment No. 1 has been incorporated,

b) Handles and knobs shall conform to IS 13395 : 1995 'Performance of handless and handle assemblies attached to cookware — specification',

c) Safety pressure relief device clause has been modified, and

d) Test for spring loaded mechanism has been modified.

The Committee responsible for the formulation of this standard is given at Annex J.

For the purpose of deciding whether a particular requirement of this standard is complied with, t final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS 2 : 1960 'Rules for rounding off numerical values (*revised*)'. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

# AMENDMENT NO. 1 JUNE 2010
# TO
# IS 2347 : 2006 DOMESTIC PRESSURE COOKERS — SPECIFICATION

***( Fifth Revision )***

(*Second cover, Foreword, para* 3) — Substitute 'Annex M' *for* 'Annex J'.

(*Page* 1, *clause* **3.1**, *line* 3) — Substitute 'steam' *for* 'cooking'.

(*Page* 2, *clause* **5.7**) — Add 'Vent pipe inside diameter shall be 2.00 mm, *Min*' at the end.

(*Page* 2, *clause* **6.2**) — Add the following note at the end.

'NOTE — Steam release safety device should not put off the flame of the stove.'

(*Page* 2, *clause* **7.1**) — Insert a new clause **7.2**:

'**7.2** The cooker, if hard anodized, fully or partially, shall satisfy the requirements as given in Annex J. The requirements of Annex J shall be applicable only to the anodized portions in the body and lid. Annex J is not applicable to other parts of pressure cookers.'

(*Page* 2, *clause* **8.1**) — Substitute the following for the existing:

'The cooker shall be subjected to air pressure of 40 percent of the nominal steam pressure, slowly raised to nominal steam pressure as specified by the manufacturer. It shall not show any sign of leakage or deformation.'

(*Page* 3, *clause* **8.6**, *line* 4) — Insert the word 'steam' before 'pressure'.

(*Page* 6, *Annex A*) — Insert the following at appropriate place:

IS 5523 : 1983 Methods of testing anodic coatings on aluminium and its alloys

IS 6012 : 1992 Method for measurement of coating thickness by Eddy current

IS 6057 : 1988 Hard anodic coatings on aluminium and aluminium alloys

**Price Group 2**

(*Page* 7, *clause* **G-1.1**, *line* 3) **—** Substitute 'steam' *for* 'cooking'.

(*Page* 8, *Annex* H) **—** Insert new Annex J, Annex K, and Annex L after Annex H and renumber the existing Annex J as Annex M.

## ANNEX J
(*Clause* **7.2**)

### J-1 FINISH AND APPEARANCE

**J-1.1 Basic Metal**, shall be as given in **5.1** of IS 6057.

**J-1.2 Finish of the Coating**, shall be as given in **5.2** of IS 6057.

### J-2 THICKNESS

The minimum thickness of anodized layer shall be 25 µm. Thickness of the hard anodic coating shall normally be determined by microscopic method as specified in IS 5523 or with the help of instruments based on Eddy current principle as specified in IS 6012. In case of dispute, however microsection method shall be the referee method.

### J-3 ABRASION RESISTANCE

Shall be as given in **7** of IS 6057.

### J-4 HARDNESS

Hard anodized coating shall have a hardness greater than 350 HV.

#### J-4.1 Type Test

Hardness shall be tested by micro-indentation method for every 25 000 pieces or once in 3 months whichever is earlier.

#### J-4.2 Routine Test

Routine test for hardness shall be carried out as specified in **10.1** of IS 6057.

**J-5 RESISTANCE TO STAINING OF ANODIZED COATINGS**

When tested as specified in Annex K there shall be no staining visible on any surface intended to come in contact with food.

**J-6 ALKALI RESISTANCE**

When tested as specified in Annex L there shall be no loss of the insulating properties of the coating of any surface intended to come in contact with food.

## ANNEX K
(*Clause* **J-5**)

### RESISTANCE TO STAINING OF ANODIZED COATINGS

**K-1 APPARATUS**

A means of raising the temperature of the sample and the solution to 25 ± 5°C and maintaining them at that temperature during the test.

**K-2 REAGENTS**

**K-2.1** A 40 ± 5 percent *v*/*v* aqueous solution of Nitric acid ($HNO_3$) solution, freshly prepared on the day of the test.

**K-2.2** Dye, Aluminium Blue 2LW or Anthraquinone violet R dye solution prepared by dissolving 1 g in 50 ml distilled water.

**K-3 PROCEDURE**

**K-3.1** Apply a drop of the nitric acid (**K-2.1**) to the anodized surface and allow to stand for 120 ± 5 s.

**K-3.2** Wash the test area thoroughly with running water and dry with a clean, dry cloth.

**K-3.3** Apply a drop of the dye solution (**K-2.2**) to the test area and allow it to remain for 300 ± 10 s.

**K-3.4** Wash the test area thoroughly and dry with clean, dry cloth.

**K-3.5** Visually examine the test area to ascertain if the oxide coating has taken up any of the dye.

# ANNEX L
(*Clause* J-6)

## RESISTANCE TO ALKALI OF ANODIZED ALUMINIUM

### L-1 APPARATUS

**L-1.1** A means of raising the temperature of the sample and the solution to $35^{+5}_{-2}$ °C and maintaining them at that temperature during the test.

**L-1.2** Multimeter, or any meter capable of measuring the electrical conductivity between the coating and the substrate, operating at 9 V.

### L-2 REAGENTS

**L-2.1** 5 percent Sodium hydroxide solution, freshly prepared on the day of the test.

**L-2.2 Degreasing Agent** — Any substance which will degrease the test specimen without leaving any residue.

### L-3 PROCEDURE

**L-3.1** Remove sufficient of the oxide coating to allow contact by the multimeter probe from an area close to the test area (the contact area).

**L-3.2** Clean the test area with the degreasing agent, rinse with deionized water and dry.

**L-3.3** Raise sample and test solution to $35^{+5}_{-2}$ °C.

**L-3.4** Apply the sodium hydroxide solution to the test area to cover at least a 10 mm diameter spot to a depth greater than 2 mm, allow to sit for 2 min at a temperature of $35^{+5}_{-2}$ °C.

**L-3.5** Rinse the solution from the test area with deionized water and dry.

**L-3.6** Apply the multimeter probes between the contact area and any point of the surface not under test. Note any current flow.

**L-3.7** Apply the multimeter probes between the test area and the contact area and check if there is a difference in current flow from that found in **L-3.6**.

(ME 33)

Reprography Unit, BIS, New Delhi, India

*Indian Standard*

# DOMESTIC PRESSURE COOKERS — SPECIFICATION

*( Fifth Revision )*

## 1 SCOPE

The standard covers the requirements for domestic pressure cookers.

## 2 REFERENCES

The standards given in Annex A are necessary adjunct to this standard. At the time of publication, the editions indicated were valid. All standards are subject to revision and parties to agreement based on this standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated in Annex A.

## 3 TERMINOLOGY

For the purpose of this standard, the following definitions shall apply.

**3.1 Pressure Cooker** — A closed domestic pressure-cooking vessel for use with external heat source, and capable of maintaining nominal cooking pressure upto 1.0 kgf/cm$^2$ (100 kN/m$^2$ approximately) gauge nominal.

**3.2 Capacity** — The full liquid capacity of the vessel, that is, total internal volume with lid in position.

**3.3 Cooking Capacity** — The maximum cooking capacity of the vessel is two-thirds of the capacity as specified in **3.2**.

## 4 CAPACITIES

The nominal capacity of pressure cookers shall be from 1 to 22 litres and shall be expressed only in complete or half-litre units. No negative tolerances shall be allowed on the nominal capacity.

NOTE — If the capacity of a cooker is not in complete or half-litre unit, its nominal capacity shall be marked as the nearest lower complete or half-litre units. For example, in the case of a cooker having a capacity of 4.9 litres, the nominal capacity to be marked shall be 4.5 litres.

**4.1** The capacity of the cooker shall be tested as given in Annex B.

## 5 MATERIALS

All components of the cookers including the vessel, gasket, pressure regulating device and internal accessories which come in contact with food or steam shall be made of the materials satisfying the following requirements:

a) They shall not discolour the food or spoil the flavour or odour of the cooked food in the cooker or cause it to become toxic; and

b) They shall not be affected by contact with foods cooked in the cooker in such a way that the operational efficiency or safety of the cooker is impaired.

### 5.1 Body, Lid, Containers and Grid

The body and the lid of the pressure cookers, the containers and the grid shall be made from aluminium alloys conforming to IS 21 or stainless steel conforming to designation X04Cr19Ni9 or X07Cr18Ni9 of IS 5522.

NOTES

1 If stainless steel pressure cooker is provided with composite bottom, the same shall conform to the relevant Part of IS 4536.

2 The containers shall grid shall form separate items and may not be supplied with the pressure cooker unless specifically ordered.

**5.1.1** The body and lid shall be made from the materials specified in **5.1** or a combination thereof.

### 5.2 Fusible Plugs

The chemical composition of the fusible plug shall be such that it melts before a gauge pressure greater than 3 kgf/cm$^2$ (300 kN/m$^2$ approximately) is reached, in case of cookers made of wrought material.

### 5.3 Gasket

The gasket shall conform to IS 7466.

### 5.4 Handles and Knobs

The handles and knobs shall conform to IS 13395.

### 5.5 Pressure Regulating Device

The pressure regulating device except the vent seal pin, shall be made of brass, stainless steel or leaded tin bronze.

### 5.6 Vent Seal Pin for Pressure Regulating Device

Material used for vent seal pipe shall be stainless steel of Designation X04Cr18Ni10 or X07Cr18Ni9 as per IS 6527.

### 5.7 Vent Pipe

The material used shall be nickel chrome plated brass or stainless steel.

### 5.8 Spring

If the lid is operated by spring loaded mechanism, the spring shall be of stainless steel wire or spring steel wire, suitably coated.

### 5.9 Vent Pipe Nut

The material used shall be aluminium or suitable aluminium alloy or stainless steel.

## 6 CONSTRUCTION

The construction of the domestic pressure cooker shall be suitable to ensure an easy and safe handling, good performance and a reasonable life. The vessel shall be so constructed that no distortion takes place under normal conditions of use.

### 6.1 Pressure Regulating Device

Pressure regulation shall be effected by a free dead weight valve. There shall be no intermediate linkage between the vent pipe and weight valve.

**6.1.1** The passage from the interior of the vessel giving access through the valve to the atmosphere shall be so arranged that it is not liable to clog while the cooking is in progress.

**6.1.2** The pressure regulating device shall be easy to clean and so designed that when working parts are removed, the obstructions shall be clearly visible.

**6.1.3** The pressure regulating device shall be provided with a suitable lifting attachment The lifting attachment shall be made from the same material as it is used for making the pressure regulating device. Alternatively, it shall be made from any other heat resisting materials such as arnite, glass filled nylon, polycarbonates, etc, and shaped to form a suitable sized knob to be fitted to the pressure regulating device.

### 6.2 Safety Pressure Relief Device

In addition to a pressure regulating device, an independent safety relief device with separate and direct connection with the interior of the vessel shall be fitted. This safety pressure relief device may be of destructible type or of a resettable type or both.

**6.2.1** The destructible type of safety pressure relief device shall consist of an ejectable disc or fusible plug or ejectable fusible pintle or other device of a like character. The fusible plug, under its normal conditions of use, shall not be susceptible to corrosion or dimensional changes which might interfere with its satisfactory functioning.

**6.2.2** In the resettable type of safety pressure relief device, the orifice or orifices, disclosed when the device functions, shall be of a form not susceptible to clogging by the issue of food or other contents of the cooker.

### 6.3 Temperature Responsive Pressure Relief Device

If the safety pressure relief device is not of the fusible type, one of the additional requirements given in **6.3.1** and **6.3.2** shall be met.

**6.3.1** A separate temperature responsive pressure relief device shall be provided which shall satisfy the type test given in Annex C.

**6.3.2** The cooker shall satisfy the type test prescribed in Annex D.

### 6.4 Handles and Knobs

**6.4.1** The screws, studs/nuts used for fitting handles and knobs shall be made from corrosion resistant material such as stainless steel or brass.

**6.4.1.1** The rivets shall be made from corrosion resistant material, including aluminium.

## 7 WORKMANSHIP AND FINISH

The body and the lid shall be free from wrinkles, scratches and other surface defects.

**7.1** The body and the lid shall be neat and clean. The steel and brass parts except the screws, studs nuts and those of stainless steel shall be plated chromium over nickel and the plating shall conform to service grade No. 2 of IS 1068.

## 8 TESTS

### 8.1 Air Pressure Test

The cooker shall be subjected to a proof pressure of 0.4 kgf/cm$^2$ (40 kN/m$^2$ approximately) gauge, slowly raised to 1.0 kgf/cm$^2$ (100 kN/m$^2$ approximately) gauge. It shall not show any sign of leakage or deformation.

### 8.2 Proof Pressure Test

The cooker shall be subjected to a proof pressure test as prescribed in Annex E. The vessel shall not show any sign of leakage or other forms of failure either during or after the test.

### 8.3 Operating Test for Pressure Regulating Device

The pressure regulating device shall pass the test prescribed in Annex F

### 8.4 Test for Safety Pressure Relief Device

The device shall satisfy the test prescribed in Annex G. After the test, the cooker shall be in normal serviceable condition and the pressure regulating device shall satisfy the requirements of the test prescribed in Annex F.

### 8.5 Bursting Pressure Test

The bursting pressure of the vessel of the cooker shall be not less than 6 times the greatest nominal cooking pressure when determined as prescribed in Annex H. The pressure should be developed in a reservoir approximate 10 kgf/cm$^2$ and then released through a valve to the cooker under test gradually. Suitable device such as hand type knap sack sprayer as per IS 1970 or Rocker sprayer as per IS 3062 may be used for the above purpose.

NOTE — This is a type test. The greatest nominal cooking pressure is the designed cooking pressure of the cookers intended to operate at one pressure only and the highest designed to operate at more than one pressure. The greatest nominal cooking pressure at which the cookers generally work is 1.0 kgf/cm$^2$ (100 kN/m$^2$ approximately) gauge.

### 8.6 Tests for Removal of Lid Under Pressure

A force of 12 kgf (120 N approximately), when applied in any direction to any part of the lid or cover or its fastening or locking device, shall not be able to release the lid or cover of the cooker unless the pressure inside has fallen below 0.18 kgf/cm$^2$ (18 kN/m$^2$ approximately) gauge.

NOTE — This is a type test and the cookers having lids or covers fastened by screw clamps or similar device which ensure that the internal pressure is destroyed before the lid is freely released or opening, are exempt from this requirement.

### 8.7 Test for Spring-Loaded Mechanism

When the lid is operated by a spring-loaded mechanism, the spring shall be completely compressed and kept in that position for 24 h. It shall then be compressed completely and released 3 000 times consecutively. The spring shall not suffer a permanent set of more than 3 percent in length.

## 9 SAMPLING

### 9.1 Routine Inspection

This may be carried out by the manufacturer as given below.

**9.1.1** Cookers of same capacity and type shall be subjected to routine inspections at the levels given below:

| *Sl No.* | *Characteristic/Test* | *Frequency of Inspection/Test* |
|---|---|---|
| i) | Workmanship and finish | Each cooker |
| ii) | Capacity test | One in every 500 and part thereof |
| iii) | Air pressure test | Each cooker |
| iv) | Proof pressure test: | |
| | a) For production up to 2 000 pieces per month | 4 percent of the total production |
| | b) For production between 2 001and 10 000 pieces per month | 2 percent of the total production |
| | c) For production above 10 000 pieces per month | 1 percent of the total production |
| v) | Operating test for pressure regulating device: | |
| | a) For production up to 2 000 pieces per month | 10 percent of the total production |
| | b) For production between 2 001 and 10 000 pieces per month | 5 percent of the total production |
| | c) For production above 10 000 pieces per month | 2 percent of the total production |
| vi) | Test for safety pressure relief device | 1 percent of the total devices poduced |
| vii) | Bursting pressure test: | |
| | a) For production up to 2 000 pieces per month | One in every 500 cookers |
| | b) For production between 2 001 and 10 000 pieces per month | One in every 700 cookers |
| | c) For production above 10 000 pieces per month | One in every 1 000 cookers |
| viii) | Test for removal of lid under pressure (whenever applicable) | One in every 500 cookers |
| ix) | Test for spring-loaded mechanism (wherever applicable) | One in every 100 cookers |

**9.1.2** When the purchaser desires, the procedures laid down in **9.2** may be followed for judging the conformity of the lot.

### 9.2 Lot Inspection Plan

**9.2.1** *Lot*

All the domestic pressure cookers having the same capacity and produced under similar conditions of manufacture shall be grouped together to constitute a lot.

**9.2.2** *Number of Samples*

For ascertaining the conformity of the material in a lot to the requirements of the specification, tests shall be carried out on each lot separately. The number of samples to be selected from the lot shall depend upon the size of the lot and shall be in accordance with Table 1.

**9.2.2.1** Each pressure cooker shall be selected at random from the lot. For this purpose, reference may be made to IS 4905.

**9.2.3** *Number of Tests and Criteria for Conformity*

**9.2.3.1** Each pressure cooker selected in the sample as per col 2 of Table 1, shall be tested for workmanship and finish (*see* **7**). A pressure cooker failing in one or more of the above requirements shall be termed as defective. The lot shall be considered as conforming to the requirements of these characteristics, if the number of defective in the sample is less than or equal to the corresponding acceptance number given in col 3 of Table 1.

**9.2.3.2** The lot which has been found satisfactory as per **9.2.3.1** shall then be tested for the requirements of air pressure test (*see* **8.1**), proof pressure test (*see* **8.2**), operating test for pressure regulating device (*see* **8.3**) and test for safety pressure relief device (*see* **8.4**) on the sub sample selected as per col 4 of Table 1.

Wherever applicable, two pressure cookers shall also be subjected to tests for removal of lid under pressure (*see* **8.6**) and test for spring-loaded mechanism (*see* **8.7**).

The lot shall be considered as conforming to the requirements of this specification, if both the pressure cookers in the sample meet the requirements for any of the above mentioned tests.

**9.2.3.3** The lot having been found satisfactory as per **9.2.3.2** shall be further subjected to bursting pressure tests (*see* **8.5**) and thickness and plating and chemical composition (wherever applicable), on the two pressure cookers in the sub-sample.

**9.2.3.4** The lot shall be considered as conforming to the requirements of the specification, if all the pressure cookers in the sub-sample meet the corresponding requirements.

## 10 INSTRUCTIONS FOR USE

**10.1** The manufacturer shall supply fully illustrated instructions for use with each cooker. The instructions shall also indicate the cooking capacity of the cooker and shall include instructions or illustrations to identify features intended to reduce risks.

**10.2** The instruction manual shall include the important safeguards specified in the following clauses.

**10.3** Unless otherwise indicated, the text of the instructions shall be verbatim to, or in equally definitive terminology as specified in **10.5**, except where specific conflict in the risk alluded to has been reduced. The items may be

**Table 1 Scale of Sampling**
(*Clauses* 9.2.2 *and* 9.2.3.1)

| No. of Pressure Cookers in the Lot | No. of Pressure Cookers to be Selected in a Sample | | Sub-sample for Physical Tests |
|---|---|---|---|
| | Sample Size | Acceptance No. | |
| (1) | (2) | (3) | (4) |
| Up to 50 | 8 | 0 | 3 |
| 51- 90 | 13 | 0 | 5 |
| 91- 150 | 20 | 1 | 5 |
| 151- 280 | 32 | 2 | 8 |
| 281- 500 | 50 | 3 | 8 |
| 501- 1 200 | 80 | 5 | 8 |
| 1 201- 3 200 | 125 | 7 | 13 |
| 3 201 and above | 200 | 10 | 13 |

numbered. In a list of items, the phrases 'Read all Instructions', 'SAVE THESE INSTRUCTIONS' shall be first and last, respectively. Other important and safeguard items considered appropriate by the manufacturer may be inserted.

**10.4** The instruction manual shall include instructions and caution statements for cleaning, user-maintenance operations recommended by the manufacturer and shall warn a user that any other servicing should be performed by an authorized service representative.

### 10.5 Important Safeguards

**10.5.1** The instruction manual shall include the following:

When using pressure cookers, basic safety precautions should always be followed:

a) Read all instructions before use.

b) Before sealing the cooker it should be ensured that the steam starts coming out of the vent pipe of the cooker freely.

c) Aluminium pressure cooker body should not be used for deep frying.

d) Do not touch hot surfaces. Use handles or knobs.

e) Close supervision is necessary when the pressure cooker is used near children.

f) Do not place the pressure cooker in a heated oven.

g) Extreme caution must be used when moving a pressure cooker containing hot liquids.

h) Do not use pressure cooker for other than intended use.

j) This appliance cooks under pressure. Improper use may result in scalding injury. Make certain unit is properly closed before operating. See 'Operating Instructions'.

k) Do not fill the unit over 2/3 full. When cooking foods that expand during cooking such as rice or dried vegetable, do not fill the unit over ½ full. See 'Food Preparation Instructions' (such instructions shall appear elsewhere in the manual as noted in **10.1**).

m) Food items which tend to foam, froth, sputter are likely to block the pressure release device. Therefore, while cooking such items, the cooking instructions supplied by the manufacturer shall be strictly followed.

n) Always check the pressure release devices for clogging before use.

p) Do not open the pressure cooker until the unit has cooled and internal pressure has been reduced. See 'Operating Instructions'.

q) Do not use this pressure cooker for pressure frying with oil.

## 11 MARKING

Each cooker shall be marked with its capacity, on the body, the name or recognized trade-mark of the manufacturer on both the lid and the body. The carton shall also be similarly marked.

**11.1** Each cooker shall be indelibly and legibly marked with a notice emphasizing the reading of instructions before use, for example, 'IMPORTANT — Read instructions before use'.

### 11.2 BIS Certification Marking

Each pressure cooker may also be marked with the Standard Mark on the body of the cooker.

**11.2.1** The use of the Standard Mark is governed by the provisions of *Bureau of Indian Standards Act*, 1986 and the Rules and Regulations made thereunder. The details of conditions under which a licence for the use of the Standard Mark may be granted to manufacturers or producers, may be obtained from the Bureau of Indian Standards.

## 12 PACKING

Each pressure cooker shall be suitably packed in a carton with suitable cushioning.

# ANNEX A
(*Clause* 2)

## LIST OF REFERRED INDIAN STANDARDS

| *IS No.* | *Title* |
|---|---|
| 21 : 1992 | Wrought aluminium and aluminium alloys for manufacture of utensils — Specification (*fourth revision*) |
| 1068 : 1993 | Electroplated coatings of nickel plus chromium and copper plus nickel plus chromium (*third revision*) |
| 1342 : 1988 | Oil pressure stoves — specification (*sixth revision*) |
| 1970 : 1995 | Hand-operated compression knapsack sprayer — Specification (*fifth revision*) |
| 3062 : 1995 | Crop protection equipment — Rocker sprayer — Specification (*fourth revision*) |
| 4246 : 2002 | Domestic gas stove for use with liquefied petroleum gases — Specification (*fifth revision*) |
| 4536 | Specification for composite bottom stainless steel cooking utensils: |
| (Part 1) : 1987 | Copper electrodeposited (*first revision*) |
| (Part 2) : 1969 | 3-Ply construction |
| (Part 3) : 1989 | Copper clad |
| 4905 : 1968 | Methods for random sampling |
| 5522 : 1992 | Stainless steel sheets and strips for utensils (*second revision*) |
| 6527 : 1995 | Stainless steel wire rod (*first revision*) |
| 7466 : 1994 | Rubber gaskets for pressure cookers — Specification (*first revision*) |
| 13395 : 1995 | Performance of handles and handle assemblies attached to cookware — Specification |

# ANNEX B
(*Clause* 4.1)

## CAPACITY TEST

### B-1 PROCEDURE

The vessel of the cooker shall be filled to the brim with water and the lid closed with the gasket in position. More water shall be poured through the vent pipe of the pressure regulating device till the pressure cooker is filled completely up to the top edge of the vent pipe. The volume of the water shall then be measured with the help of a measuring jar. This shall give the full liquid capacity of the vessel.

# ANNEX C
(*Clause* 6.3.1)

## TEST FOR TEMPERATURE RESPONSIVE SAFETY PRESSURE RELIEF DEVICE

### C-1 PROCEDURE

The cooker, fitted with a calibrated pressure gauge, with all relief device, sealed and containing a quantity of water equal to 1/16 part of the internal volume of the cooker, shall be placed in still air on a burner such as a pressure stove (*see* IS 1342) or LPG stove (*see* IS 4246). Before sealing the cooker, it shall be ensured that the steam starts coming out of vent pipe of the cooker freely. The temperature responsive device shall release before a gauge pressure greater than 3 kgf/cm$^2$ (300 kN/m$^2$ approximately) is reached.

# ANNEX D
(*Clause* 6.3.2)

## TEMPERATURE TEST FOR COOKERS WITHOUT TEMPERATURE RESPONSIVE PRESSURE RELIEF DEVICE OR FUSIBLE RELIEF DEVICE

### D-1 PROCEDURE

The openings in the vessel of the cooker shall be suitably sealed and the provision shall be made for applying internal pressure by means of compressed air. In an ambient temperature of not less than 15°C, the cooker empty and dry, shall be placed in still air on a burner such as a pressure stove. After 30 min an air pressure equal to four times the greatest nominal cooking pressure shall be applied and maintained for 10 min, heat being applied continuously. While subjected to this pressure and the heat, the vessel of the cooker shall not fail, and on examination after the test vessel shall not show any sign of impending failure.

CAUTION — Failure of the cooker under test is likely to be accompanied by an explosion. Therefore, before conducting this test, adequate protection for operator as well as property shall be provided.

# ANNEX E
(*Clause* 8.2)

## PROOF PRESSURE TEST

### E-1 PROCEDURE

The cooker shall be coupled to a hydraulic test pump provided with a calibrated pressure gauge. All the remaining openings in the body and lid of the cooker shall be suitably sealed. A pressure not less than twice the greatest nominal cooking pressure shall be applied. The cooker shall not show any sign of leakage or other forms of failure either during or after the test.

NOTE — The instructions given by the manufacturer in the instruction manual regarding the fixing of the gasket shall be followed.

# ANNEX F
(*Clauses* 8.3 *and* 8.4)

## OPERATING TEST FOR PRESSURE REGULATING DEVICE

### F-1 PROCEDURE

The cooker shall be fitted with a calibrated pressure gauge in place of safety pressure relief device. It shall be half filled with water and placed in still air on a burner such as a pressure stove. The heat input shall be continued until the pressure regulating device first operates and the pressure noted. This initial operating pressure shall not in any case exceed 110 percent of the greatest nominal cooking pressure. The heat input shall be further continued and the maximum pressure shall not exceed 120 percent of the initial operating pressure.

# ANNEX G
(*Clause* 8.4)

## TEST FOR SAFETY PRESSURE RELIEF DEVICE

### G-1 PROCEDURE

The cooker shall be fitted with a calibrated pressure gauge in place of the pressure regulating device. It shall be filled with water equal in quantity to 1/16 of the internal volume of the vessel and placed in still air on a burner such as a pressure stove (*see* IS 1342) or LPG stove (*see* IS 4246).

#### G-1.1 For Destructible Devices

The relief device shall be deemed to have passed the test, if it functions when the steam reaches a gauge pressure between 1.5 and 3 times the greatest nominal cooking pressure.

**G-1.2 For Resettable Devices**

The device shall be deemed to have passed the test if it functions when the steam reaches a gauge pressure between 1.5 and 2 times the greatest nominal cooking pressure.

NOTE — In case both the devices are provided in the same pressure cooker, each device is to be tested separately by blocking the other and both should pass the test separately.

# ANNEX H

(*Clause* 8.5)

## BURSTING PRESSURE TEST

### H-1 PROCEDURE

**H-1.1** The cooker shall be coupled to a hydraulic test pump provided with a calibrated pressure gauge, suitably graduated. All the remaining openings in the body and lid of the cooker shall be suitably sealed or deactivated or removed.

**H-1.2** A gradually increasing hydraulic pressure shall be applied to the vessel of the cooker until:

a) a rupture takes place, or

b) a deformation occurs so that an appreciable leakage takes place at the joint of the lid or elsewhere.

**H-1.3** The maximum gauge pressure obtained as in **H-1.2** shall be taken as the bursting pressure of the cooker for the purpose of this standard. In case the cooker satisfactorily stands a pressure of 6 times the greatest nominal cooking pressure, further applications of pressure is not necessary.

CAUTION — Failure of the cooker under test is likely to be accompanied by an explosion. Therefore, before conducting this test, adequate protection for operator as well as property shall be provided.

# ANNEX J
(*Foreword*)

## COMMITTEE COMPOSITION

Composition of Utensils, Cutlery and Domestic Hardware Sectional Committee, ME 33

| *Organization* | *Representatives* |
|---|---|
| Office of Development Commissioner, New Delhi | SHRI J. K. ARYA (***Chairman***)<br>SHRI S. K. DAS (*Alternate*) |
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| Consumers Forum (Regd), New Delhi | SHRI AVINASH PANDIT |
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| Federation of Consumer Organization, Thiruchirapalli | SHRIMATI S. SHAKUNTALA |
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| India Tourism Development Corporation Ltd, New Delhi | SHRI ADITYA BHASKAR |
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| Ministry of Defence (DGQA), Kanpur | SHRI J. C. MAKANI<br>SHRI NAND LAL RAM (*Alternate I*)<br>SHRI VIJAYKUMAR (*Alternate II*) |
| Ministry of Railways, New Delhi | SENIOR COMMERCIAL OFFICER |
| Ministry of Science & Technology, New Delhi | DR A. K. CHAKRAVORTHY |
| Rationale Iron & Steel Corporation, Kanpur | SHRI S. K. SRIVASTVA<br>SHRI R. N. TRIPATHY (*Alternate*) |
| Republic Engineers, Delhi | SHRI M. P. SINGH |
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| Steel Authority of India, Salem | SHRI T. KALYANASUNDARAM<br>SHRI N. K. VIJAYAVARGIA (*Alternate*) |
| TTK Prestige Ltd, Bangalore | SHRI S. RAVI CHANDRAN<br>PROF A. V. RAMANI (*Alternate*) |
| V. K. Surgicals, Indore | SHRI V. K. BHARGAVA |
| BIS Directorate General | SHRI A. S. BASU, Scientist F & Head (MED)<br>[Representing Director General (*Ex-officio Member*)] |

*Member Secretary*
SHRI BENGALI BABU
Joint Director (MED), BIS

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