



NEW WORK ITEM PROPOSAL	
Date of presentation 2008-10-16	Reference number (to be given by the Secretariat)
Proposer BIS	ISO/TC 61 / SC 11 N 930
Secretariat JPIF	

A proposal for a new work item within the scope of an existing committee shall be submitted to the secretariat of that committee with a copy to the Central Secretariat and, in the case of a subcommittee, a copy to the secretariat of the parent technical committee. Proposals not within the scope of an existing committee shall be submitted to the secretariat of the ISO Technical Management Board.

The proposer of a new work item may be a member body of ISO, the secretariat itself, another technical committee or subcommittee, or organization in liaison, the Technical Management Board or one of the advisory groups, or the Secretary-General.

The proposal will be circulated to the P-members of the technical committee or subcommittee for voting, and to the O-members for information.

See overleaf for guidance on when to use this form.

IMPORTANT NOTE: Proposals without adequate justification risk rejection or referral to originator.

Guidelines for proposing and justifying a new work item are given overleaf.

Proposal (to be completed by the proposer)

<p>Title of proposal (in the case of an amendment, revision or a new part of an existing document, show the reference number and current title)</p> <p>English title Blow, injection blow & injection stretch blow moulded polypropylene containers for packaging of processed foods</p> <p>French title (if available)</p>	
<p>Scope of proposed project</p> <p>This International standard specifies the raw material to be used, tolerances on dimensions and mass, requirement as per prevailing food safety norms, handling and transport worthiness tests and procedures for recycling of containers made of polypropylene suitable for packaging of processed food products. It is applicable to containers made by conventional blow molding processes and advanced processes like stretch blow molding.</p>	
<p>Concerns known patented items (see ISO/IEC Directives Part 1 for important guidance)</p> <p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If "Yes", provide full information as annex</p>	
<p>Envisaged publication type (indicate one of the following, if possible)</p> <p><input type="checkbox"/> International Standard <input type="checkbox"/> Technical Specification <input type="checkbox"/> Publicly Available Specification <input type="checkbox"/> Technical Report</p>	
<p>Purpose and justification (attach a separate page as annex, if necessary)</p> <p>With opening of trade barriers export from various countries is of paramount importance. Packaging of processed foods assumes significance and role of plastics is critical. Standardisation and harmonisation in packaging is the need of the hour and is relevant to Industry and Trade bodies. A uniform standard like ISO IN THIS SECTOR IS A VITAL NEED TO FACILITATE TRADE AND COMMERCE, GLOBALLY.</p> <p>The preservation and distribution of prepared foods had been traditionally done by packaging of these perishables in glass, tin and specialty laminated plastics. These packages have high tare weight, low output, suspected integrity and difficult to recycle. The heat treatment of the packed foods (in form of high temperature sterilization) is done to eradicate pathogens and spore forming heat resistant bacteria. Typical processing temperatures exceed 120 deg C with exposure beyond 15 minutes. The post fill sterilization is becoming a popular method of preserving food. Moulded polypropylene containers can sustain continued exposure to high temperature. Other plastic resins may deform/melt at these temperatures. Polypropylene is compliant to FDA, resistant to most chemicals, opposes stress crack tendencies, and has high mechanical strength to counter all storage and transportation hazard possibilities.</p> <p>Development of standard in packaging in PP needs to be completed timely, therefore raising this NEW WORK ITEM.</p>	
<p>Target date for availability (date by which publication is considered to be necessary)</p>	
<p>Proposed development track <input type="checkbox"/> 1 (24 months) <input checked="" type="checkbox"/> 2 (36 months - default) <input type="checkbox"/> 3 (48 months)</p>	
<p>Relevant documents to be considered</p>	
<p>Relationship of project to activities of other international bodies</p>	

New work item proposal

Liaison organizations ISO/TC 122	Need for coordination with: <input type="checkbox"/> IEC <input checked="" type="checkbox"/> CEN <input type="checkbox"/> Other (please specify)	
Preparatory work (at a minimum an outline should be included with the proposal) <input checked="" type="checkbox"/> A draft is attached <input type="checkbox"/> An outline is attached. It is possible to supply a draft by The proposer or the proposer's organization is prepared to undertake the preparatory work required <input type="checkbox"/> Yes <input type="checkbox"/> No		
Proposed Project Leader (name and address) Dr. U. K. SAROOP, Reliance Industries Limited, 8th floor, Maker Tower 'E', Cuffe Parade, Colaba, Mumbai - 400005 (India)	Name and signature of the Proposer (include contact information) Prof Sadan Ghosh University of JadHAVpur, Kolkata India	
Comments of the TC or SC Secretariat Supplementary information relating to the proposal <input checked="" type="checkbox"/> This proposal relates to a new ISO document; <input type="checkbox"/> This proposal relates to the amendment/revision of an existing ISO document; <input type="checkbox"/> This proposal relates to the adoption as an active project of an item currently registered as a Preliminary Work Item; <input type="checkbox"/> This proposal relates to the re-establishment of a cancelled project as an active project. Other:		
Voting information The ballot associated with this proposal comprises a vote on: <input checked="" type="checkbox"/> Adoption of the proposal as a new project <input type="checkbox"/> Adoption of the associated draft as a committee draft (CD) <input type="checkbox"/> Adoption of the associated draft for submission for the enquiry vote (DIS or equivalent) Other:		
Annex(es) are included with this proposal (give details) <input type="checkbox"/>		
Date of circulation	Closing date for voting	Signature of the TC or SC Secretary
2008-10-17	2009-01-17	masayuki MURASHIGE, Secretary of ISO/TC 61/SC 11

Use this form to propose:

- a) a new ISO document (including a new part to an existing document), or the amendment/revision of an existing ISO document;
- b) the establishment as an active project of a preliminary work item, or the re-establishment of a cancelled project;
- c) the change in the type of an existing document, e.g. conversion of a Technical Specification into an International Standard.

This form is not intended for use to propose an action following a systematic review - use ISO Form 21 for that purpose.

Proposals for correction (i.e. proposals for a Technical Corrigendum) should be submitted in writing directly to the secretariat concerned.

Guidelines on the completion of a proposal for a new work item

(see also the ISO/IEC Directives Part 1)

- a) **Title:** Indicate the subject of the proposed new work item.
- b) **Scope:** Give a clear indication of the coverage of the proposed new work item. Indicate, for example, if this is a proposal for a new document, or a proposed change (amendment/revision). It is often helpful to indicate what is not covered (exclusions).
- c) **Envisaged publication type:** Details of the types of ISO deliverable available are given in the ISO/IEC Directives, Part 1 and/or the associated ISO Supplement.
- d) **Purpose and justification:** Give details based on a critical study of the following elements wherever practicable. *Wherever possible reference should be made to information contained in the related TC Business Plan.*
 - 1) The specific aims and reason for the standardization activity, with particular emphasis on the aspects of standardization to be covered, the problems it is expected to solve or the difficulties it is intended to overcome.
 - 2) The main interests that might benefit from or be affected by the activity, such as industry, consumers, trade, governments, distributors.
 - 3) Feasibility of the activity: Are there factors that could hinder the successful establishment or global application of the standard?
 - 4) Timeliness of the standard to be produced: Is the technology reasonably stabilized? If not, how much time is likely to be available before advances in technology may render the proposed standard outdated? Is the proposed standard required as a basis for the future development of the technology in question?

New work item proposal

5) Urgency of the activity, considering the needs of other fields or organizations. Indicate target date and, when a series of standards is proposed, suggest priorities.

6) The benefits to be gained by the implementation of the proposed standard; alternatively, the loss or disadvantage(s) if no standard is established within a reasonable time. Data such as product volume or value of trade should be included and quantified.

7) If the standardization activity is, or is likely to be, the subject of regulations or to require the harmonization of existing regulations, this should be indicated.

If a series of new work items is proposed having a common purpose and justification, a common proposal may be drafted including all elements to be clarified and enumerating the titles and scopes of each individual item.

e) Relevant documents and their effects on global relevancy: List any known relevant documents (such as standards and regulations), regardless of their source. When the proposer considers that an existing well-established document may be acceptable as a standard (with or without amendment), indicate this with appropriate justification and attach a copy to the proposal.

f) Cooperation and liaison: List relevant organizations or bodies with which cooperation and liaison should exist.

ISO TC 61/SC 11 N **930**

Date: 2008-10-8

ISO/WD

ISO TC 61/SC 11/WG

Secretariat: JISC

Blow, injection blow & injection stretch blow moulded polypropylene containers for packaging of liquid processed foods

Élément introductif — Élément central — Élément complémentaire

Document type: International Standard
Document subtype:
Document stage: (20) Preparatory
Document language: E

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO was prepared by Technical Committee ISO/TC 61, *Plastics*, Subcommittee SC 11, *Products*.

Introduction

The preservation and distribution of prepared foods had been traditionally done by packaging of these perishables in glass, tin and specialty laminated plastics. These packages have high tare weight, low output, suspected integrity and difficult to recycle.

The heat treatment of the packed foods (in form of high temperature sterilization) is done to eradicate pathogens and spore forming heat resistant bacteria. Typical processing temperatures exceed 120 deg C with exposure beyond 15 minutes. The post fill sterilization is becoming a popular method of preserving food.

Moulded polypropylene containers can sustain continued exposure to high temperature. Other plastic resins may deform/melt at these temperatures.

Polypropylene is compliant to FDA, resistant to most chemicals, opposes stress crack tendencies, and has high mechanical strength to counter all storage and transportation hazard possibilities.

This International standard prescribes the grade(s) best suited for the several molding processes used for manufacture of containers, the critical dimensions & tolerances thereof and lists the ingredients as well grades of polypropylene that could be used for ensuring the safety of processed foods. The standard also specifies the information about environmental aspects and guidelines for the recovery and recycling of plastics waste.

Blow, injection blow & injection stretch blow moulded polypropylene containers for packaging of liquid processed food —

1 Scope

This International standard specifies the raw material to be used, tolerances on dimensions and mass, requirement as per prevailing food safety norms, handling and transport worthiness tests and procedures for recycling of containers made of polypropylene suitable for packaging of processed food products. It is applicable to containers made by conventional blow molding processes and advanced processes like stretch blow molding.

This standard does not cover containers specifically intended for products classified as dangerous goods.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 1043-1, *Test standard includes information about symbols and abbreviated terms - part 1: basic polymers and their special characteristics.*

ISO 1873-1, *Test standard includes information about polypropylene (pp) molding and extrusion materials - part 1: designation system and basis for specificationst*

ISO 9113, *Test standard includes information about polypropylene (pp) and propylene-copolymer thermo determination of isotactic index.*

ISO 11469, *Test standard includes information about generic identification and marking of plastics productt*

ISO 22088-1~ 6, *Test standards include information about the determination of resistance to environmental stress cracking (esc)*

ISO 15270, *Test standard includes information about guidelines for the recovery and recycling of plastics waste*

ISO 17442, *Test standard includes information about environmental aspects -- general guidelines for their inclusion in standards*

BS 1918, *Glass container finishes*

BS 4839 Part-1:1972, *Specification for blow moulded polyolefins containers: Part 1 Containers up to 5 litres capacity*

ASTM D1972, *Test method includes information for generic marking of plastic products t*

ASTM D2659, *Test method includes information for column crush properties of blown thermoplastic containers*

ASTM D2684, *Test method includes information for permeability of thermoplastic containers to packaged reagents or proprietary products*

ASTM D2911, *Test method includes information for dimensions and tolerances for plastic bottles*

ASTM D4101, *Test method includes information for polypropylene injection and extrusion materials*

ASTM D5419, *Test method includes information for environmental stress crack resistance (escr) of threaded plastic closures*

ASTM D5857-01, *Standard specification for polypropylene injection and extrusion materials*

IS 2798:1998, *Methods of test for plastic containers (first revision)*

IS 10909:2001, *Positive lists of constituents of polypropylene and its copolymers in contact with foodstuffs, pharmaceuticals and drinking water*

IS 10910:1984, *Polypropylene and its copolymers for its safe use in contact with foodstuffs, pharmaceuticals and drinking water*

IS 10951:2002, *Polypropylene materials for moulding and extrusion*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply

3.1
Blow molded / Injection blow molded & Injection stretch blow molded container
A container formed from a parison of heat softened thermoplastic or injection followed by blow molded by the application of air pressure which forces it against the inside walls of a blow mould. Reheated preform could be formed into containers by mechanical stretching followed by air pressure using a mould

3.2
Neck face
The upper most surface of the container neck

3.3
Container height to neck face
The height of the highest point of the neck face of the finished empty container

3.4
Container overall height
The height of the finished empty container at its highest point with closure & fitment

3.5
Container diameter
The external diameter of the finished empty container at a specified height, expressed as the mean of the two perpendicular diameters, or as the circumference multiplied by 0.318 at the same specified height

3.6
Neck height (h)
The perpendicular distance from the highest point of the plane including the neck face to the nearest point of the finished container's shoulder. The measurements will be as per Figs 1A to 1D for containers with screw threaded necks, plain cylindrical necks and beaded necks

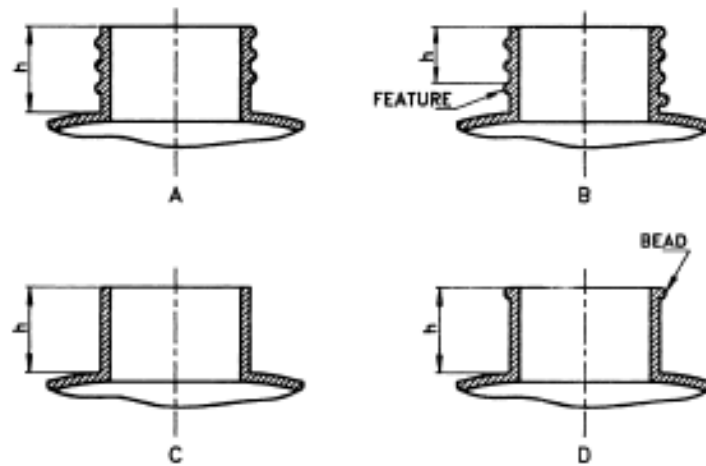


FIG. 1 NECK

Figure 1 — Neck

3.7

Standard neck finishes

a) Extrusion blow molded containers (EBM)

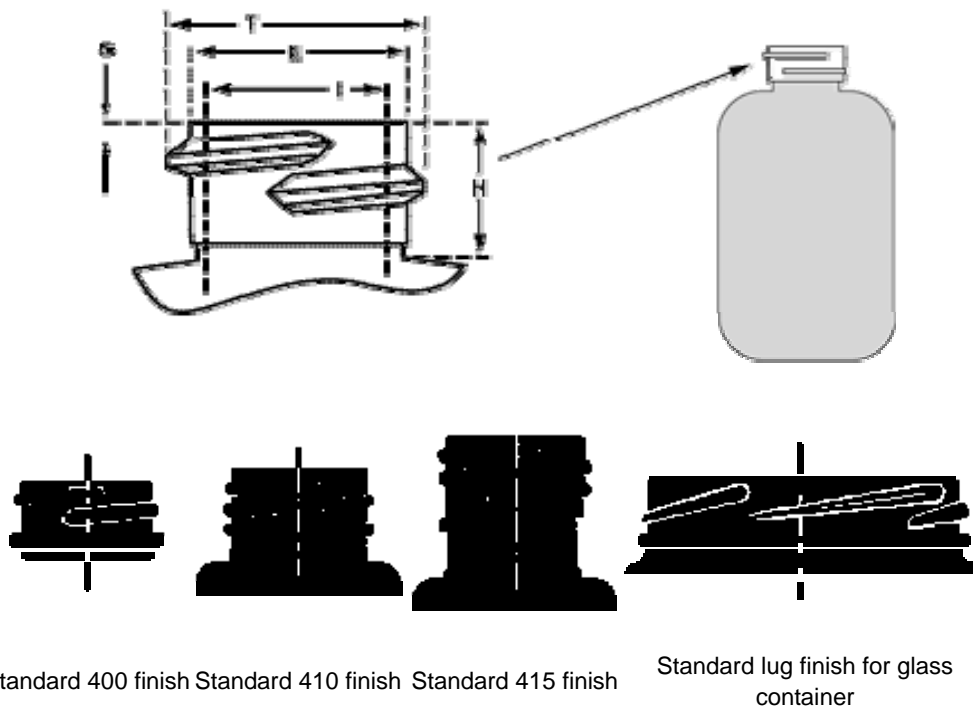
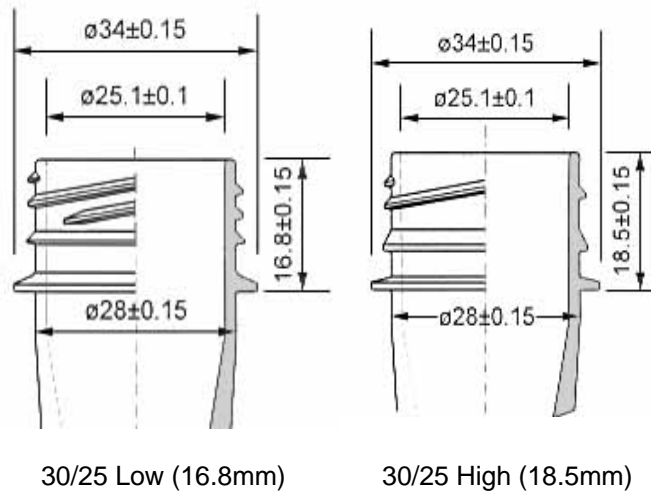


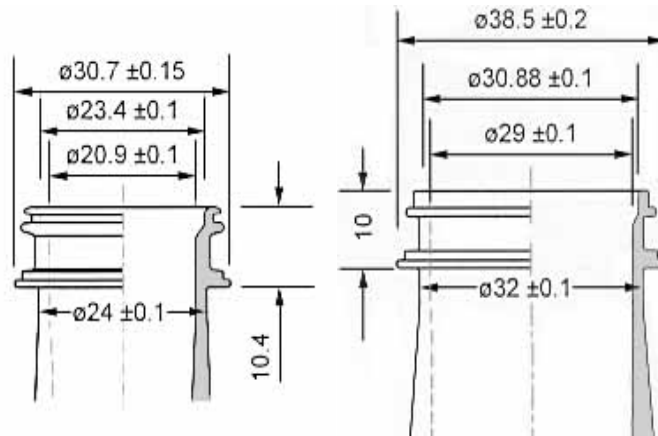
Figure 2 —

b) Injection stretch blow molded containers (ISBM)

1) Water



2) Edible Oil



3) Beverages & CSD – 28 mm PCO & BPF

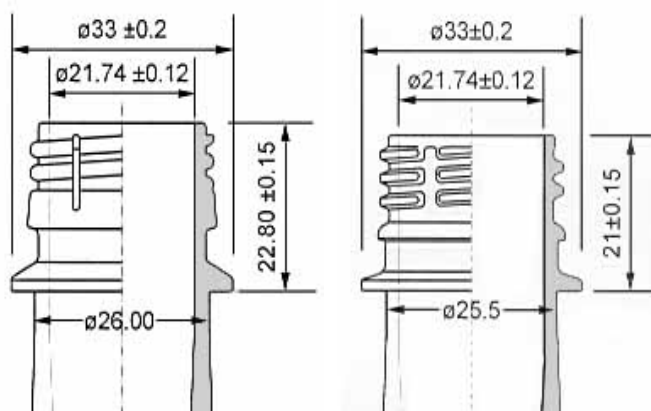


Figure 3 —

3.8**Neck diameter (E)**

The external diameter of the neck, excluding thread and/or prominences, measured as the mean. Ref. fig 2.

3.9**Thread diameter (T)**

The external diameter of the neck thread measured as the mean of two perpendicular diameters avoiding the part line. Ref. fig 2

3.10**Neck bore (I)**

The diameter of the inner periphery of the neck at a specified depth. Ref. fig 2

3.11**Neck ovality**

The difference between the maximum and the minimum neck diameters

3.12**Nominal capacity**

The volume of the liquid the container is intended to hold at ambient temperatures of 23+/- 1 deg C or 27+/- 2 deg C as the case may be

4 Capacity

The nominal capacities for stock containers as per retail trade for liquid food products, together with the corresponding minimum brimful capacities are given in Table 1.

Table 1 —

SI No	Nominal Capacity	Minimum Brimful Capacity
	ml	ml
1	50	67
2	60	92
3	100	108
4	125	129
5	150	157
6	180	187
7	200	212
8	250	260/285
9	500	525
10	750	836
11	1 000	1 035

5 Container mass – tare weight

The container mass or tare weight shall be as agreed between the purchaser and the vendor. The tolerance on the mass of the container shall be as specified in Table 2.

Table 2 —

SI No	Mass of the container gms	Tolerance %
1	Up to & including 10	+/- 10
2	Over 10 upto & including 25	+/- 7.5
3	Over 25	+/- 5

The accuracy of weighing shall be to the nearest 0.1g for containers with tare weight up to 50 gms and 0.5 gm for containers beyond 50 gms and up to 200 gms.

6 Raw material

The Polypropylene shall conform to the grade designation(s) specified in ISO 1873-1 Plastics Polypropylene (pp) molding and extrusion materials - part 1: designation system and basis for specifications.

The recommended Polypropylene grade designations are as below:

- a) Polypropylene homo polymer PPH – BAN – 1005 – 022
- b) Polypropylene random copolymer PPR – BAT – 0605 – 022 & PPR – MAT – 0605 – 200
- c) Polypropylene impact copolymer PPB – BAN – 0605 – 022

7 Tolerance on dimensions

7.1 General

The tolerance on dimensions is valid for finished empty containers. The dimensions of filled containers may vary.

7.2 Container height to neck face

The tolerance on dimensions is valid for finished empty containers. The dimensions of filled containers may vary.

7.3 Container overall height

The tolerance shall be +/- 2 % or +/- 1 mm whichever is greater. For containers with non circular or irregular cross sections, a peripheral method of measurement with tolerance may be adopted. Such deviation must be formalized during order placement.

7.4 Container diameter

The tolerance on external diameter at the agreed height shall be $\pm 1,5\%$ or $\pm 0,1$ mm when measured with vernier micrometer.

7.5 Neck height

The tolerance on neck height shall be as per Table 3. The neck height shall be measured with a micrometer depth gauge.

Table 3 —

SI No	Overall height mm	Tolerance of neck height mm
1	Up to & including 75	± 0.25
2	Over 75	± 0.40

7.6 Neck & thread diameter

The tolerance on these dimensions for EBM containers shall be $\pm 1.25\%$ or ± 0.25 mm whichever is greater. These are to be measured by using vernier or micrometer with accuracy of 0.02 mm.

The tolerances on the neck & thread dimensions for ISBM containers shall be as specified in fig 3.

7.7 Wall thickness

The minimum wall thickness at any point on the container surface shall not be less than 0.2 mm. These are to be measured by using micrometer or screw gauge.

7.8 Neck bore

This is to be measured at an agreed depth below the neck face using calipers, calibrated plugs etc. The tolerance shall be as agreed between the purchaser and vendor.

7.9 Neck ovality

The tolerance shall be as agreed between the purchaser and vendor.

8 Requirement

8.1 Closure leakage test

The containers shall not show any leakage when placed inverted over a blotting paper for at least 30 minutes.

8.2 Drop impact strength (2 sets of containers)

The containers shall not deshape, rupture or leak from the body or the closure when dropped from 1.2 m on its base and body.

8.3 Stack load test (performed on 4 containers)

Apply superimposed load – equivalent to 3 m stack and examine the containers for deshaping/deformation after 24 hours. The containers should not deshape/deform.

8.4 Hydrostatic pressure test

Internal pressure is generated by pumping water in closed containers. Rapture or bulge indicates failure.

8.5 ESCR resistance

Teepol grade B is used as agent. Test to be conducted for 48 hours and containers examined for crack. Follow procedure in ISO 22088.

8.6 Effectiveness of surface treatment

Printing ink and transparent scotch tape is used to check print fastness.

8.7 Ink adhesion of printed containers

similar to 8.6.

8.8 Product resistance of printed containers

similar to 8.7.

8.9 Food compatibility

Containers should be compliant to IS 10909 & 10910.

9 Marking

9.1 Statutory marking

The container shall be marked/debossed with the following:

- a) Nominal capacity of the container
- b) Month of manufacture in numerals or dial
- c) Code on food safety compliance

9.2 Recycling

The container shall carry the material recycling code “5” as per ISO 15270

10 Sampling & criterion for conformity

10.1 Lot

Container made of same material and drawn from a single batch of manufacture.

Tests shall be carried out for each lot. Sample size shall be in accordance with the chart below.

Sampling shall be done from the lot offered at random.

Table 4 —

SI.No	Lot size	For Non destructive tests		Wall thickness measurement
		Sample size	No. defect	Sub sample – No to be selected
1	Up to 100	5	0	2
2	101-300	13	1	2
3	301-500	32	3	2
4	501-1 000	50	5	3
5	Over 1 000	80	7	5

10.2 No of tests & criteria for conformity

The no of tests and criteria of conformity shall be as per table below.

Table 5 —

SI.No.	Characteristics	No of tests	Criteria for conformity	Clause Ref
1	Brimful capacity	As above. Col 3	The no of defective containers should not exceed the corresponding no in Col 3	4 Table 1
2	Container mass			5 Table 2
3	Dimensions			7.2 – 7.9
4	Closure leakage			8.1
5	Hyd.Pr. Test			8.4
6	Wall thickness	As above. Col 5	To satisfy the specification	7.7