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Whereas the Parliament of India has set out to provide a practical regime of right to information for citizens to secure access to information under the control of public authorities, in order to promote transparency and accountability in the working of every public authority, and whereas the attached publication of the Bureau of Indian Standards is of particular interest to the public, particularly disadvantaged communities and those engaged in the pursuit of education and knowledge, the attached public safety standard is made available to promote the timely dissemination of this information in an accurate manner to the public.

"जाने का अधिकार, जीने का अधिकार"
Mazdoor Kisan Shakti Sangathan
"The Right to Information, The Right to Live"

"पुराने को छोड़ नये के तरफ"
Jawaharlal Nehru
"Step Out From the Old to the New"

Indian Standard

PLASTICS FEEDING BOTTLES

(Incorporating Amendment No. 1)

आईएस/ICS 83.08: 55.100

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

March 2004

Price Group 4
प्लास्टिक आधार विषय समिति, पीसीडी 21

प्राक्कातन

इस भारतीय मानक के मर्मदे को प्लास्टिक आधार विषय समिति द्वारा अतिसर रूप देने तथा पेट्रोलियम, कोयला एवं संवर्धित उदासन विभाग परिषद् द्वारा अनुमोदन के बाद भारतीय मानक बूथो द्वारा प्रकाशित किया।

शिष्यों को दूध पिलाने के लिए दूध पिलाने की बोतलों सार्वजनिक रूप से प्रयुक्त की जाती है। "कौन की दूध पिलाने की बोतलों" पर भारतीय मानक पहले ही IS 5168 : 1969 के रूप में प्रकाशित किया जा पुकारा है। बब्ड के नियम द्वारा IS 3565 : 1966 'दूध पिलाने की बोतलों हेतु बब्ड का नियम' में दी गई है। पिलाने कुछ बब्ड में प्लास्टिक हमरे जीवन का अत्यधिक अंग बन गया है और कई क्षेत्रों में यह काम, धातु और वातावरण से अधिक पसंद की सामग्री बन गया है। प्रेषण क्षेत्र में प्लास्टिक के भंडे उपयोग के कारण दूध पिलाने की बोतलों के उदासन में प्लास्टिक अपने आप ही एक पसंद बन गई है। प्लास्टिक की दूध पिलाने की बोतलों द्वारा ही पाजार में विचारन किया।

शिष्य दूध बब्ड आधार की धारा 11(2), दूध पिलाने की बोतलों एवं शिष्य आधार (उदासन, पृष्ठ और विशेष प्रतिबिंदु) अधिनियम, 1992 में यह उल्लेख किया गया है कि "कोई व्यक्ति किसी दूध पिलाने वाली बोतल का विक्रय अथवा वितरण करते हुए अपने नाम से उपयोग करने के लिए इस नियम के प्रति प्रति नहीं हो पर भारत में उपलब्ध करने के लिए अवधारणा वा विनिर्देश के अनुसार नहीं हो हो हो।"।

इस संच ने समिति को दूध पिलाने की प्लास्टिक की बोतलों के लिए अवधारणा वाले नियम के लिए प्रति किया। प्लास्टिक की दूध पिलाने की बोतलों के लिए अनुसार, ऐसे नियम से निर्धारित प्रकाशित किया। CNS 11348 : 1989 "प्लास्टिक बोटल" राष्ट्रीय मानक बूथो, चीन द्वारा जारी; CNS 11349 : 1989 "चेयर एक्स टेस्ट फार फिल्डिंग फोटो" राष्ट्रीय मानक बूथो, चीन द्वारा जारी; JIS T 9112 : 1975 "प्लास्टिक बोटल", जापानी मानक संगठन, जापान द्वारा जारी, MS 755 : 1981 "प्लास्टिक फिल्डिंग बोटल", मानक एवं वैज्ञानिक अनुसंधान, मेलेशिया, मेलेशिया द्वारा जारी; तथा PNS 892 : 1993 "इंडियन केयर प्रोडक्ट्स — प्लास्टिक बोटल्स—विशेषज्ञ" हिन्दीपाइन राष्ट्रीय मानक, हिन्दीपाइन द्वारा जारी।

यह निरीक्षण करने के लिए इस मानक में किसी अपेक्षा विशेष विकास का पास किया गया है या नहीं, तो इसके लिए विशेष एवं विशेष विश्लेषण के परिणाम को देखने के लिए अलग एवं गति द्वारा अनुसरण करने की IS 2 : 1960 "संयोजक मानक" के पुराने संबंधी विधि (पुरानोंका) के अनुसार पुनर्विद्युत कर दिया जाए। पुनर्विद्युत मान रेखें देखे सार्वजनिक स्थानों की संख्या उतनी ही हो जितनी इस मानक में निर्दिष्ट मान की है।
AMENDMENT NO. 1 MAY 2002
TO
IS 14625 : 1999 PLASTICS FEEDING BOTTLES

(Page 1, clause 2) — Insert the following reference at the end of the list:

IS No. Title

14971:2001 Polycarbonate resins for its safe use in contact with foodstuffs, pharmaceuticals and drinking water

(Page 1, clause 4.1) — Substitute the following for the existing:

'4.1 Materials

The material used for plastics feeding bottles and accessories excluding nipples shall be of virgin polycarbonate conforming to IS 14971 or polypropylene conforming to IS 10910.'

(Page 2, clause 4.7.2, line 2) — Substitute '85' for '96'.

(Page 21)
AMENDMENT NO. 2 JULY 2003
TO
IS 14625 : 1999 PLASTICS FEEDING BOTTLES

( Foreword, para 5 ) — Insert the following new paras after para 5:

'A scheme of labelling environment friendly products with the ECO logo has been introduced at the instance of the Ministry of Environment and Forests (MEF), Government of India. The ECO-Mark is being administered by the Bureau of Indian Standards (BIS) under the BIS Act, 1986 as per the Resolutions No. 71 dated 21 February 1991 and No. 425 dated 28 October 1992 published in the Gazette of the Government of India. For a product to be eligible for marking with the ECO logo, it shall also carry the ISI Mark of the BIS besides meeting additional environment friendly requirements. For this purpose the standard mark would be a single mark being a combination of the ISI mark and the ECO logo.

This amendment is based on the gazette Notification No. 170 dated 18 May 1996 for plastic products as environment friendly products published in the Gazette of the Government of India. This amendment is, therefore, being issued to this standard to include environment friendly requirements for plastics feeding bottles'.

( Page 3, clause 4.7.8 ) — Insert the following new clause after 4.7.8 and renumber the subsequent clauses:

'5 ADDITIONAL REQUIREMENTS FOR ECO-MARK

5.1 General Requirements

5.1.1 The product shall conform to the requirements for quality, safety and performance prescribed.

5.1.2 The manufacturer shall produce to BIS the consent clearance as per the provisions of Water (Prevention & Control of Pollution) Act, 1974 and Air (Prevention & Control of Pollution) Act, 1981 along with the authorization, if required under Environment (Protection) Act, 1986 and the rules made thereunder while applying for the ECO-Mark. The manufacturer shall produce documentary evidence with respect to the compliance of regulation under Prevention of Food Adulteration Act, 1954 and Drugs and Cosmetic Act, 1940 and Rules made thereunder, wherever necessary.

1
5.1.3 The product must display a list of critical ingredients in descending order of quantity present expressed as percent of the total. The list of such ingredients shall be identified by Bureau of Indian Standards.

5.1.4 The product packaging shall display in brief the criteria based on which the product has been labelled as ‘Environment Friendly’.

5.1.5 The material used for product packaging shall be recyclable or biodegradable.

5.1.6 It shall also suitably mention that ECO-Mark label is applicable only to the packaging material/package, if content is not separately covered under ECO-Mark. It may be stated that ECO-Mark is applicable to the product or packaging material or both.

5.2 Product Specific Requirements

For the manufacture of this product one or more of the virgin material covered in following Indian Standard shall be used:

<table>
<thead>
<tr>
<th>IS No.</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>10142 : 1999</td>
<td>Polystyrene (crystal and high impact) for its safe use in contact with foodstuffs, pharmaceuticals and drinking water</td>
</tr>
<tr>
<td>10146 : 1982</td>
<td>Polyethylene for its safe use in contact with foodstuffs, pharmaceuticals and drinking water</td>
</tr>
<tr>
<td>10151 : 1982</td>
<td>Polyvinylchloride (PVC) and its copolymers for its safe use in contact with foodstuffs, pharmaceuticals and drinking water</td>
</tr>
<tr>
<td>10910 : 1984</td>
<td>Polypropylene and its copolymers for its safe use in contact with foodstuffs, pharmaceuticals and drinking water</td>
</tr>
<tr>
<td>11434 : 1985</td>
<td>Ionomers resins for its safe use in contact with food-stuffs, pharmaceuticals and drinking water</td>
</tr>
<tr>
<td>11704 : 1986</td>
<td>Ethylene/ acrylic acid (EAA) copolymers for its safe use in contact with foodstuffs, pharmaceuticals and drinking water</td>
</tr>
<tr>
<td>12247 : 1988</td>
<td>Nylon-6 polymer for its safe use in contact with food-stuffs, pharmaceuticals and drinking water</td>
</tr>
<tr>
<td>12252 : 1987</td>
<td>Polyalkylene terephthalates (PET &amp; PBT) for their safe use in contact with food-stuffs, pharmaceuticals and drinking water</td>
</tr>
</tbody>
</table>

( PCD 21 )

Reprography Unit, BIS, New Delhi, India
AMENDMENT NO. 3 MARCH 2004
TO
IS 14625 : 1999 PLASTICS FEEDING BOTTLES

[ Page 1, clause 4.1 ( see also Amendment No. 1 ) ] — Substitute the following for the existing:

'4.1 Materials
The material used for plastics feeding bottles and accessories excluding nipples shall be of virgin polycarbonate conforming to IS 14971 or polypropylene conforming to IS 10910 or polyethersulfone (PES).'

( Page 2, clause 4.5 ) — Substitute the following for the existing:

'4.5 Neck Dimensions
The neck dimensions shall be as agreed to between the purchaser and the supplier. The neck shall be hollow to ensure proper cleaning in line with good manufacturing practices.'

( Page 2, Fig. 1 and Fig. 2 ) — Delete and renumber the subsequent figures in text wherever it appears.

( PCD 21 )

Reprography Unit, BIS, New Delhi, India
AMENDMENT NO. 4 NOVEMBER 2004
TO
IS 14625 : 1999  PLASTICS FEEDING BOTTLES

(Foreword, para 2, second sentence) — Delete.

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

'The Act has been subsequently amended as The Infant Milk Substitute, Feeding Bottles and Infant Foods (Regulation of Production, Supply and Distribution) Amendment Act, 2003. Section 2(c) of this Act defines the feeding bottles as 'feeding bottle' means a bottle or receptacle used for the purpose of feeding infant milk substitutes, and include a teat and a valve attached or capable of being attached to such bottles or receptacle.'

(Page 1, clause 1.2) — Delete the existing sub-clause and renumber the subsequent sub-clause.

(Page 1, clause 2) — Include the following reference at the appropriate place:

<table>
<thead>
<tr>
<th>IS No.</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>3565 : 1966</td>
<td>Specification for rubber teats for feeding bottles</td>
</tr>
</tbody>
</table>

[Page 1, clause 4.1 (see also Amendments No. 1 and 3)] — Insert the following after clause 4.1:

'4.1.1 Rubber teats shall conform to IS 3565 and silicon teats shall be manufactured from non-toxic and food grade material till such time Indian Standard is available on the subject.'

(PCD 21)

Reprography Unit, BIS, New Delhi, India
4.5 Neck Dimensions

‘The Neck dimensions shall be as agreed to between the purchaser and the supplier. The inside wall of the neck shall be plain and without any thread marks to ensure proper cleaning in line with good manufacturing practices.’

4.6 Wall Thickness

The minimum wall thickness shall be declared by the manufacturer. The wall thickness when measured in accordance with 4.5 of IS 2798 shall not be less than -2 percent of the declared minimum value.

4.7.8 Migration Test

Representative samples of feeding bottle shall be subjected to overall migration test either by filling the whole container or by using sheets cut from the container; in the latter case the migration value has to be extrapolated to the container contact surface area and the volume of the contents with the following:

i) distilled water at 40 ± 2°C for 10 days
   ii) n-heptane at 38 ± 1°C for 30 minutes

The maximum extraction values for the container material shall not exceed 10 mg/dm² or 60 mg/l (for details of the test see. IS 9845)
PLASTICS FEEDING BOTTLES

1 SCOPE

1.1 This standard prescribes the requirements and methods of sampling and test for polycarbonate and polypropylene feeding bottles.

1.2 This standard does not cover the requirements for rubber teats required for these bottles.

1.3 Although the standard does not specify design, shape and dimensions of the polycarbonate and polypropylene feeding bottles, the recommended neck dimensional details are provided at 4.5 to facilitate easy interchangeability of the accessories.

2 NORMATIVE REFERENCES

The following standards contains provisions which through reference in this text constitute provisions of this standard. At the time of publication the editions indicated were valid. All standards are subject to revisions, and parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below:

<table>
<thead>
<tr>
<th>IS No.</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>266 : 1993</td>
<td>Sulphuric acid (third revision)</td>
</tr>
<tr>
<td>2798 : 1998</td>
<td>Methods of test for plastics containers (first revision)</td>
</tr>
<tr>
<td>4905 : 1968</td>
<td>Methods for random sampling</td>
</tr>
<tr>
<td>7019 : 1998</td>
<td>Glossary of terms in plastics and flexible packaging excluding paper (second revision)</td>
</tr>
<tr>
<td>8747 : 1977</td>
<td>Methods of tests for environmental stress-crack resistance of blow-moulded polyethylene containers</td>
</tr>
<tr>
<td>9833 : 1981</td>
<td>List of pigments and colourants for use in plastics in contact with foodstuffs, pharmaceuticals and drinking water</td>
</tr>
</tbody>
</table>
3 पारिवर्तिक शब्दावली
इस मानक के प्रयोजन के लिए IS 7019 में दी गई और निर्दिष्टित परिभाषाएं लागू होंगी।

3.1 सब्बड़ घास
सब्बड़ घासों में ढक्कन, हिस्टरोपोल, निप्पल एवं कैप रिंग शामिल हैं।

3.2 सांकेतिक पाशिता
बोतल में सामान्यतः 27 ± 2°C. पर दूध भरने का अपेक्षित आयाम है।

3.3 सब्बड़ घासिता
बोतल में सामान्यतः 27 ± 2°C. पर पानी भरने का अपेक्षित आयाम है।

4 अवश्यक

4.1 सामग्रीपरीक्षा
प्लास्टिक की दूध पिलने की बोतलों के सब्बड़ घासों के लिए निप्पल को छोड़ कर प्रयुक्त सामग्री पहले उपयोग न करे। गई पल्सिकाराइट अथवा पल्सिकोपाइल हो, जो क्रमशः IS 14971 अथवा IS 10910 के अनुरूप हो।

4.2 डिजाइन, आकार और आयाम
दूध पिलने की बोतलों के बीच समानता के अनुरूप उपयुक्त डिजाइन, आकार और आयाम की हों। उनको आकृतित ऐसी हो कि बोतल को सलाम के साफ किया जा सके और उनमें आकृति भी न फसे रह जाएं।

3 TERMINOLOGY
For the purpose of this standard, the definitions given in IS 7019 and the following shall apply.

3.1 Accessories
Accessories shall include the hood, disc/stopper, nipple, and cap ring.

3.2 Nominal Capacity
The volume of milk normally expected to be filled in the bottles at 27 ± 2°C.

3.3 Brimful Capacity
The volume of water required to fill the bottle completely at 27 ± 2°C.

4 REQUIREMENTS

4.1 Materials
The material used for plastics feeding bottles and accessories excluding nipples shall be of virgin polycarbonate conforming to IS 14971 or polypropylene conforming to IS 10910.

4.2 Design, Shape and Dimensions
The feeding bottle shall be of suitable design, shape and required dimensions as agreed to between the purchaser and the supplier. However, the shape shall be such that it is easily cleanable and does not permit the food remnants to remain stuck inside the feeding bottles.
4.3. Manufacture, Workmanship, Finish and Appearance

4.3.1 The bottles shall be manufactured by a suitable process adhering to good manufacturing practice (GMP).

4.3.1.1 The components used shall also be manufactured by a suitable process employing GMP.

4.3.1.2 The ingredients/ancillaries used for the components shall conform to the relevant Indian Standards on polycarbonate and polypropylene. In the case of polypropylene it shall conform to IS 10909.

4.3.2 The body of the bottle shall be smooth, both internally and externally, free from any visual defects like cavities, crevices, hooks, embedded foreign matters, detrimental bubbles, streaks, flaws, stains, etc.

4.4. Capacity

4.4.1 The bottles shall be manufactured in nominal capacity of 125 ml, 150 ml and 250 ml or any other capacity as agreed between the purchaser and the supplier. The brimful capacity shall exceed the nominal capacity by a minimum of 15 percent.

4.4.2 Capacity Scale

The feeding bottles shall be provided with the following capacity scale:

i) If the feeding bottle is an unprinted, then capacity scale shall be engraved on the bottle and if the bottle is printed then the capacity scale shall be clearly printed. The bottles with printed scale shall be tested for the permanency of pigment in accordance with method described in Annex A.

ii) The scale interval and the maximum indicating scale mark shall be as agreed between the purchaser and the supplier however, the minimum scale mark and interval marking shall be for not more than 20 percent of the maximum scale indicating mark.

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**FIG. 1 NECK DETAILS FOR POLYCARBONATE FEEDING BOTTLES**

All dimensions in millimetres.
iii) The scale marks and the indicating numerical values shall be clear and shall not be affected by high temperature sterilizing treatment.

iv) The limits and tolerances of the pigments and colourants used in the printing shall conform to IS 9833.

4.5 Neck Dimensions

The recommended neck dimensions details for polycarbonate feeding bottles are given in Fig. 1 and for polypropylene feeding bottles are given in Fig. 2.

4.6 Wall Thickness

The wall thickness shall be declared by the manufacturer. The wall thickness when measured in accordance with 4.5 of IS 2798 shall be within ±10 percent of the declared value.

4.7 Tests

4.7.1 Environmental Stress-Crack Resistance

The bottles shall be tested in accordance with Method 1 of IS 8747 and shall show no evidence of stress cracking or leakage after being kept in oven for 48 h.

4.7.2 Transparency

The transparency of a feeding bottle shall not be less than 85 percent for polycarbonate bottles and 60 percent for polypropylene bottles in light transmittance, when tested in accordance with the method described in Annex B.

All dimensions in millimetres.

**Fig. 2 Neck Details for Polypropylene Feeding Bottles**
4.7.3 Leakage Test
The bottles filled with water at ambient temperature and closed tight with closures shall be kept for 24 h in a horizontal position. During and at the end of the period, the bottles shall not show any leakages. The bottles shall be then held vertically upside down for 10 min and the bottle shall not show any leakages. The bottles may be kept on a blotting paper in upside down position and any leakages observed shall be noted.

4.7.4 Drop Test
The bottles filled with water at ambient conditions and closed tight with closures shall not show any sign of rupture or leakage when tested in accordance with the method described in Annex C.

The dropping height of the bottles shall be 1.2 m.

4.7.5 Ageing Resistance
Immerse the bottles into the boiling water for 20 min, then immediately into the ice water for 20 min alternately and repeat it 3 times. At the end of the test, the change in the capacity of bottles shall not be more than 1 percent and also there shall be no defective changes in the bottle.

There shall be no significant changes in appearance when the accessories are tested in accordance with the method indicated above.

4.7.6 Compressive Deformation Resistance
The bottles shall not get deformed by more than 10 percent in diameter in compressive direction at the compressive load of 2 kgf (19.6 N) when tested in accordance with the method described in Annex D.

4.7.7 Product Resistance of Printed Containers
The printed bottles when tested in accordance with the method prescribed in 14 of IS 2798 shall not show any significant removal of the print from the bottle surface and the print shall be legible to the naked eye after the test.

4.7.8 Migration Test
Representative samples of feeding bottle shall be subjected to overall migration test with n-heptane at 38 ± 1°C for 30 min either by filling the whole bottle. The maximum extraction values for the feeding bottle materials shall not exceed 60 mg/l (for details of the test see IS 9845).

4.7.4 Drop Test
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5 PACKING AND MAKING

5.1 The bottles shall be packed as agreed to between the purchaser and the supplier.

5.2 Each bottle shall be permanently marked with scale mark.

5.2.1 Each carton containing the bottle shall be permanently marked with the following:

a) Indication of the source of manufacture and trade-mark, if any;
b) Nominal capacity;
c) Batch No. and Code No.;
d) Month and year of manufacture;
e) Made from plastics materials meant for food contact applications indicating the material used;
f) Recycling symbol in line with IS 14534; and
g) Any other information required by the purchaser.

5.3 BIS Certification Marking

The bottles may also be marked with the Standard Mark.

5.3.1 The use of the Standard Mark is governed by the provisions of the Bureau of Indian Standards Act, 1986 and the Rules and Regulations made thereunder. 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.

6 SAMPLING

The samples of the bottles shall be drawn and the criteria for conformity determined as prescribed in Annex E.

अनुबंध 'क'

(खड 4.4.2)

वर्णक्षण स्वायत्त परीक्षण

ANNEX A

(Clauses 4.4.2)

TEST FOR PERMANENCY OF PIGMENT

A-1 GENERAL

This test is meant only for those feeding bottles which have a printed scale and graduations.
A-2 REAGENTS

A-2.1 Sodium Bichromate

See IS 249.

A-2.2 Concentrated Sulphuric Acid

Relative density, 1.834 approximately (see IS 266).

A-3 PROCEDURE

A-3.1 Weight about 20 g of sodium bichromate and dissolve in 1,500 ml of concentrated sulphuric acid and dilute to 2,500 ml with water. Immerse the bottles in the solution at room temperature for 15 min. Rinse the samples with water and dry.

A-3.1.1 The bottles shall be taken as having satisfied the requirements of the test if the printed impressions do not become illegible.

अनुबंध ‘ख’

(खंड 4.7.2)

पारदर्शिता परीक्षण

ANNEX B

(Clause 4.7.2)

TRANSPARENCY TEST

B-1 GENERAL

Test specimen shall be prepared from the part of feeding bottle where scale marks or other marks are not found.

B-2 APPARATUS

The optical series principle diagram of integration ball type light transmittance measurement device is shown in Fig. 3 and Fig. 4. The device shall conform to the optical conditions specified in Table 1.

B-3 TEST SPECIMEN

The size of test specimen shall be 50 × 50 mm and the thickness shall be the original thickness of the test specimen.

Three test specimens shall be prepared.

B-4 MEASUREMENT

B-4.1 Install the white standard plate, adjust the reading (T1) of the device’s current meter to be 100; adjust the amount of incident light.
B-4.2 Under the status where the white standard plate is installed, install and measure the test specimen to obtain the indication \( T_2 \) of the current meter. The full light transmittance shall be calculated according to the following formula:

\[
T = \frac{T_2}{T_1} \times 100
\]

where

\[
T = \text{full light transmittance (percent)}.
\]

Table 1 Optical Condition of Device
(Clauses B-2)

<table>
<thead>
<tr>
<th>SI No.</th>
<th>Item</th>
<th>Conditions</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1)</td>
<td>Integration ball</td>
<td>The sum of areas of light's inlets and outlet (the installation part of the test specimens and the white standard plate) ((a + b + c)) shall be less than 4 percent of overall internal surface arc of the ball (Refer to Fig. 2). The centre lines of the outlet and inlet shall be on the same large circle of the ball. The angle formed by the outlet diameter and the center line of the inlet shall be within °.</td>
</tr>
<tr>
<td>(2)</td>
<td>Reflection surface</td>
<td>The white standard plate shall have same high reflectivity to full wavelength of the visible light. Magnesium oxide, barium sulphate and aluminium oxide, etc can meet such requirements. The interior of the integration ball shall be coated with a material having the same reflectivity as the white standard plate. The light beams used to shine on the test specimen shall be parallel lights. Lights deviated from the optical axis for more than ° shall not be used. The centre of light beam shall coincide with the centre line of the outlet.</td>
</tr>
<tr>
<td>(3)</td>
<td>Light beam</td>
<td>The cross-section of the light beam at the outlet shall be circular and bright; the angle formed by its diameter and the centre of the inlet shall be 1.3 ± ° smaller than the angle formed by the outlet diameter. The cross section of the light beam at the outlet of the integration ball shall conform to Fig. 2.</td>
</tr>
<tr>
<td>(4)</td>
<td>Light trap</td>
<td>The light trap when not installed with the test specimen of the white standard plate shall be able to completely absorb the light.</td>
</tr>
</tbody>
</table>
Table 1 (Concluded)

<table>
<thead>
<tr>
<th>SI No.</th>
<th>Item</th>
<th>Conditions</th>
</tr>
</thead>
<tbody>
<tr>
<td>v)</td>
<td>Light source</td>
<td>The light source shall be the standard light source C. The comprehensive sensitivity of the receptor and the visually sensitivity filter used shall satisfy the Y value of Luther.</td>
</tr>
<tr>
<td>vi)</td>
<td>Receptor</td>
<td>Conditions at the standard light source C. However, when designated specifically, the one which satisfies the Y value of Luther conditions at the standard light source A can be used.</td>
</tr>
</tbody>
</table>

![Principle Diagram of Device]

**Fig. 3 Principle Diagram of Device**

![Conditions of the Integration Ball]

**Fig. 4 Conditions of the Integration Ball**

**ANNEX C**

**Clause 4.7.4**

**DROP TEST**

**C.1 SAMPLE SIZE**

The sample size shall be ten bottles, taken at random from a batch, divided into two sets of 5 each, designate as Set 1 and Set 2.
C-2 PROCEDURE

C-2.1 Fill each bottle with water at ambient conditions and close tight with closures.

C-2.2 Drop the bottles under free fall conditions in Set 1 squarely on their base on to a rigid flat horizontal surface of steel of smooth concrete as the dropping surface.

C-2.3 Drop the bottles under free fall condition in Set 2 on their side (the body of the bottle being parallel to the impacting floor) onto the dropping surface.

C-2.4 Examine each bottle for signs of rupture or leakage.

न-2 परीक्षण

न-2.1 प्रत्येक बोतल को परीक्षण शरीरों में पानी से भरें और उसकी कपास बन्ने करें।

न-2.2 नं. 1 में से पानी लें और इसमें इस्पात की दुधी सपाट क्षति सहित अंधिकार एक समान कंक्रेट की मिट्टी पर बोतल स्वतंत्र रूप से गिराएं (बोतल का दीवार संघाती जल के समान हो)।

न-2.3 नं. 2 में पानी लें और बोतल को यहां से आधार की ओर से स्वतंत्र रूप से गिराएं (बोतल का दीवार संघाती जल के समान हो)।

न-2.4 प्रत्येक बोतल में दरार अंधिकार के निषादों को जीव करें।

अनुवंश 'व'

(खंड 4.7.6)

संपीड़न विवरण परीक्षण

ANNEX D

(Clause 4.7.6)

COMPRESSIVE DEFORMATION TEST

प-1 आकृति

आकृति 5 में दराए अनुसार संपीड़न जिग के उपयोग द्वारा दीवार के मध्य भाग में अंधिकार ओवर बारे लिए हैं नं. 2 किग्रा. बल का संपीड़न भार आधिकारिक करें। उस समय उस भाग के विशेष का माप करें और विशेष के प्रतिस्थापन का परिक्षण करें।

मापन 27 ± 2°

2 किग्रा. (19.6 N)

2 kgf (19.6 N)

प-2 परीक्षण

FIG. 5 COMPRESSION JIG

D-1 PROCEDURE

Apply the compressive load of 2 kgf in the middle part of the body or to the part having the maximum diameter of a feeding bottle by the use of compression jig as shown in Fig. 5. Measure the deflection of the part at that time, and calculate percentage deflection. The measurements shall be carried out at 27 ± 2°C.

D-2 CALCULATION

वास का प्रतिस्थापन विशेष = \[ \frac{\text{परीक्षण से पूर्व बाहरी वास} - \text{संपीड़न के समय बाहरी वातस्ल} \times 100}{\text{परीक्षण से पूर्व बाहरी वास}} \]
Percentage deflection of diameter \( = \) \( \frac{\text{Outside diameter prior to test} - \text{Outside diameter at the time of compression}}{\text{Outside diameter prior to test}} \times 100 \)

अनुबंध ‘ड’

(खण्ड 6)

प्लास्टिक की दूर पिलाने की बोतलों के नमूने

ANNEX E

(Clause 6)

SAMPLING OF PLASTIC FEEDING BOTTLES

E-1 SCALE OF SAMPLING

E-1.1 Lot

In any consignment, all the bottles of the same material, size and drawn from a single batch of manufacture shall be grouped together to constitute a lot.

E-1.2 Scale of Sampling

For ascertaining the conformity of the lot to the requirements of this standard, tests shall be carried out for each lot separately. The number of bottles to be sampled from a lot shall be in accordance with Table 2.

E-1.3 The bottles shall be selected at random from the lot. To ensure the randomness of selection, methods given in IS 4905 may be followed.

E-2 CRITERIA FOR CONFORMITY

E-2.1 Manufacture, Workmanship, Finish and Appearance

The sample bottles selected as per col 2 of Table 2 shall be examined for manufacture, workmanship, finish and appearance. Any bottle failing in one or more of the requirements shall be termed as defective. The lot shall be accepted under this head if the number of defective bottles in sample does not exceed the acceptance number given in col 3 of Table 2.

E-2.2 Capacity (4.4) and Neck Dimensions (4.5)

5 bottles for lot size up to 5000 and 10 bottles for lot size above 5000 shall be selected at random from the samples already drawn according to E-1.3. There shall be no failure if the lot is to be accepted under this clause.
E-2.3 Permanency of pigments (4.4.2), Transparency (4.7.2), Leakage test (4.7.3), Ageing resistance (4.7.5), Compressive deformation resistance (4.7.6), and Ink adhesion for printed bottles (4.7.7). The number of sample bottles to be drawn shall be in accordance with col 4 of Table 2. Each of the sample bottle shall be subjected to Permanency of pigments (4.4.2), Transparency (4.7.2), Leakage test (4.7.3), Ageing resistance (4.7.5), Compressive deformation resistance (4.7.6), and Ink adhesion for printed bottles (4.7.7). The number of failures shall not exceed the acceptance number given in col 5 of Table 2 for all tests except leakage test. For leakage test the acceptance number is zero, that is no failure shall occur for lot acceptance.

E-2.4 Drop Test (4.7.4)

The sample bottles as given in test method (4.7.4) shall be drawn from the lot and these shall be subjected to drop test. There shall be no rupture or leakage in any bottle after the test for acceptance. In case even one bottle has any sign of rupture or leakage, the lot shall be considered as not conforming to the requirements of this specification.

Table 2 Scale of Sampling and Acceptance Number

<table>
<thead>
<tr>
<th>Lot Size</th>
<th>Sample Size</th>
<th>Acceptance Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Up to 500</td>
<td>13</td>
<td>1</td>
</tr>
<tr>
<td>501 to 1000</td>
<td>20</td>
<td>2</td>
</tr>
<tr>
<td>1001 to 3000</td>
<td>32</td>
<td>3</td>
</tr>
<tr>
<td>3001 to 5000</td>
<td>50</td>
<td>5</td>
</tr>
<tr>
<td>5001 and above</td>
<td>80</td>
<td>7</td>
</tr>
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</table>

In case of dispute in interpretation English text will be authentic.
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<tr>
<th>संबद्धता</th>
<th>नाम</th>
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<td>अध्यक्ष</td>
<td>श्री विजय, निदेशक, एलटीडी</td>
</tr>
<tr>
<td>सदस्य</td>
<td>श्री एस. के. भार्टिया, निदेशक, एमएचडी</td>
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<tr>
<td>सदस्य</td>
<td>डॉ. (श्रीमती) विजय मलिक, निदेशक, पीएसडी</td>
</tr>
<tr>
<td>सदस्य</td>
<td>श्री एस. चन्द्रेंद्र, संयुक्त निदेशक, सीईडी</td>
</tr>
<tr>
<td>सदस्य</td>
<td>श्री डॉ. पी. मिश्र, वैज्ञानिक अध्यक्ष, वैज्ञानिक तकनीकी शास्त्रावली आयोग</td>
</tr>
<tr>
<td></td>
<td>(मानव संसाधन मंत्रालय)</td>
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<td>सदस्य</td>
<td>श्रीमती किरन सकसियाना, संयुक्त निदेशक केंद्रीय अनुवाद शूरो, राजभाषा विभाग,</td>
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<td></td>
<td>गृह मंत्रालय</td>
</tr>
<tr>
<td>सदस्य</td>
<td>श्री जी. एस. बख्शी, संयुक्त निदेशक सीईडी</td>
</tr>
<tr>
<td>प्रमुख (हिंदी) एवं सदस्य सचिव</td>
<td>डॉ. (सुबिंदु) एस. डब्ल्यू. आर्थ</td>
</tr>
<tr>
<td>वरिष्ठ अनुवादक</td>
<td>श्रीमती कौल रानी कौशल</td>
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FOREWORD

This Indian Standard was adopted by the Bureau of Indian Standards, after the draft finalized by the Plastics Containers Sectional Committee had been approved by the Petroleum, Coal and Related Products Division Council.

Feeding bottles are universally used in feeding infants. Indian Standard on ‘Glass Feeding Bottles’ has already been published as IS 5168 : 1969. Requirements for rubber teats have been covered in IS 3565 : 1966 ‘Rubber teats for feeding bottles’. Over the last few years plastics have become an indispensable part of our life and plastics have taken over glass, metal and paper as a material of choice in many sectors. With the increased consumption of plastics in every sector, plastics have become an automatic choice in the manufacturing of feeding bottles and the plastics feeding bottles are already existing in the market.

Section 11(2) of Infant Milk Substitutes, Feeding Bottle and Infant Foods (Regulation of Production, Supply and Distribution) Act, 1992 states that ‘No person shall sell or otherwise distribute any feeding bottle unless it conforms to the Standard Mark specified by the Bureau of Indian Standards referred to in sub-section (1) for feeding bottles and such mark is affixed on its container’.

These considerations led the committee to formulate a separate specification for plastics feeding bottles. This standard at present prescribes polycarbonate (PC) and polypropylene (PP) as raw material for manufacturing plastics feeding bottles owing to its excellent transparency and sterilizability is concerned.

While preparing this standard considerable assistance has been dervied from the following publications:

- MS 735 : 1981 ‘Specification for plastic feeding bottles’, issued by Standards and Industrial Research Institute of Malaysia, Malaysia; and

For the purpose of deciding whether a particular requirement of this standard is complied with, the 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.
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This Indian Standard has been developed from Doc : No. PCD 21 (1531).

Amendments Issued Since Publication

<table>
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<th>Amend No.</th>
<th>Date of Issue</th>
<th>Text Affected</th>
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</tbody>
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