Disclosure to Promote the Right To Information

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

WRITING AND PRINTING PAPERS — SPECIFICATION

( Fourth Revision )

ICS 85.080.10
FOREWORD

This Indian Standard (Fourth Revision) was adopted by the Bureau of Indian Standards, after the draft finalized by the Paper and Its Products Sectional Committee had been approved by the Chemical Division Council.

This standard was first published in 1961 and subsequently revised in 1971, 1981 and 1991. The Committee responsible for the formulation of this standard decided to revise it further. Changes made in this standard through various amendments have been amalgamated in this revised edition. Marking clause has also been modified.

A scheme for labelling environment friendly products known as ECO-Mark has been introduced at the instance of the Ministry of Environment and Forests (MEF), Government of India. The ECO-Mark would be administered by the Bureau of Indian Standards (BIS) under the Bureau of Indian Standards Act, 1986 as per the Resolution 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 ECO logo, it shall also carry the ISI Mark of BIS besides meeting additional optional environment friendly (EF) requirements. For this purpose, the Standard Mark of BIS would be a single mark being a combination of the ISI Mark and the ECO logo. Requirements to be satisfied for a product to qualify for the BIS Standard Mark for ECO friendliness, will be optional; manufacturing units will be free to opt for the ISI Mark alone also.

The composition of the Committee responsible for formulation of this standard is given in Annex A.

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)'.

IS 2 : 1960 'Rules for rounding off numerical values (revised)'.
Indian Standard

WRITING AND PRINTING PAPERS —
SPECIFICATION
(Fourth Revision)

1 SCOPE

This standard prescribes requirements and methods of sampling and test for commonly used types of writing and printing papers.

2 REFERENCES

The standards listed below contain 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 revision, 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>
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</thead>
<tbody>
<tr>
<td>1060 (Part 1)</td>
<td>Methods of sampling and test for paper and allied products:</td>
</tr>
<tr>
<td>1966</td>
<td>Part 1 (revised)</td>
</tr>
<tr>
<td>1060 (Part 2)</td>
<td>Methods of sampling and test for paper and allied products:</td>
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<tr>
<td>1960</td>
<td>Part 2</td>
</tr>
<tr>
<td>1060 (Part 3)</td>
<td>Methods of sampling and test for paper and allied products:</td>
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<tr>
<td>1969</td>
<td>Part 3</td>
</tr>
<tr>
<td>1064:1980</td>
<td>Specification for paper sizes (second revision)</td>
</tr>
<tr>
<td>1763:1961</td>
<td>Specification for substances of paper and pulp board</td>
</tr>
<tr>
<td>4661:1999</td>
<td>Glossary of terms used in paper trade and industry (second revision)</td>
</tr>
<tr>
<td>5285:1998</td>
<td>Fibre analysis of paper and board — Methods of test (first revision)</td>
</tr>
<tr>
<td>6211:1993</td>
<td>Code of practice for packaging of paper and board (first revision)</td>
</tr>
<tr>
<td>9894:1981</td>
<td>Method of test for smoothness/roughness of paper</td>
</tr>
</tbody>
</table>

3 TERMINOLOGY

For the purpose of this standard, the definitions of terms given in IS 4661 shall apply.

4 REQUIREMENTS

4.1 Writing and printing papers shall be of uniform formation, evenly finished and generally free from specks, holes and other blemishes. When tested according to 12 of IS 5285, the furnish for all varieties shall not contain more than 20 percent mechanical pulp.

4.2 The substance of writing and printing papers shall be as prescribed in IS 1763. For determination of substance, select 10 sheets at random and cut from each a test piece of size 25 cm x 25 cm (or 25 cm x 20 cm or 25 cm x 40 cm). Proceed as prescribed in 6 of IS 1060 (Part 1).

4.2.1 No single test result shall vary by more than ±5 percent from the nominal substance. Further, the mean of 10 test results shall not vary from the nominal substance by more than ±2.5 percent. However, where 2.5 percent is less than 1.5, the tolerance shall be ±1.5 g/m².

NOTE — For white printing paper, cream-wove and cream laid paper, the mean of 10 test results shall not vary from the nominal substance (grammage) by more than ±4 percent and no single test result shall vary by more than ±8 percent from the nominal grammage.

4.2.2 The tolerance of ±2.5 percent shall be allowed on the mass of the ream, when calculated according to the following formula:

\[ R = \frac{(A \times B \times C + D)}{1000} \]

where

- \( A \) = nominal substance of paper, in g/m²;
- \( B \) = nominal number of sheets of paper in a ream;
- \( C \) = nominal area of each sheet, in m²;
- \( D \) = nominal mass of the wrapping paper, in g; and
- \( R \) = nominal mass of ream of paper, in kg.

4.3 A tolerance of ±10 percent or ±20 microns, whichever is less, shall be permitted on the nominal thickness, if specified by the purchaser, when tested according to 7 of IS 1060 (Part 1).

4.4 Sizes and Tolerance on Size

Trimmed sizes of writing and printing papers shall be in accordance with IS 1064. The permissible tolerance on the size shall be in accordance with 4 of IS 1064.
4.5 The pH value for all types of writing and printing papers shall be not less than 5.0.

4.6 The writing and printing papers shall also comply with the requirements given in Table 1.

4.7 White printing paper [see Sl No. (xvii) of Table 1] may also be tinted. In the case of tinted paper the colour should be an approximate match to the shade approved by the purchaser. The requirement for brightness shall not apply in the case of printing paper so tinted.

4.8 Additional Requirements for ECO-Mark

4.8.1 General Requirements

4.8.1.1 The product shall conform to the requirements for quality and performance prescribed in 4.1 to 4.7.

4.8.1.2 The manufacturer shall produce to BIS, the environmental consent clearance from the concerned State Pollution Control Board as per the provisions of Water (Prevention and Control of Pollution) Act, 1974 and Air (Prevention and Control of Pollution) Act, 1981 along with the authorization, if required, under the Environment (Protection) Act, 1986 and the Rules made thereunder, while applying for ECO-Mark.

4.8.2 Specific Requirements

The material shall be of the following two types depending on the raw material used in the manufacture:

a) Type A — Manufactured from pulp containing not less than 60 percent by mass of pulp made from materials other than bamboo, hardwood, softwood and reed.

b) Type B — Manufactured from pulp made from 100 percent waste paper.

5 PACKING AND MARKING

5.1 Packing

The packing of paper shall be done so as to ensure that the paper is not damaged due to handling and transportation and shall be as agreed to between the purchaser and the supplier (see IS 6211).

5.1.1 For ECO-Mark, the product shall be packed in such packages which shall be recyclable/reusable or biodegradable.

5.2 Marking

Each package shall be marked with the following particulars:

a) Description and substance of the paper, in g/m²;

b) Size of the paper;

c) Mass of 500 sheets including wrapping paper, in kg/ream;

d) Lot number;

e) Month and year of manufacture; and

f) Indication of the source of manufacture.

5.2.1 For ECO-Mark, following additional information may also be marked on the container/package:

The criteria for which the product has been labelled with ECO-Mark.

5.2.2 BIS Certification Mark

Each package may also be marked with the Standard Mark.

5.2.2.1 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 the licence for the use of Standard Mark may be granted to manufacturers or producers may be obtained from the Bureau of Indian Standards.

6 SAMPLING

6.1 Representative samples for test shall be drawn as given in 3 of IS 1060 (Part 1).

6.2 Number of Tests

Each of the selected units shall first be tested for requirements given in 4.2. Then from each of these units, number of sheets sufficient to carry out all tests specified in Table 1 shall be taken out at random. The sheets shall first be examined for the requirements given in 4.1, 4.3, 4.4, 4.5 and 4.7 and then number of test pieces for each of the characteristic as indicated in its test method shall be cut from them. These pieces shall be tested according to the methods specified in Table 1.

6.3 Criterion for Conformity

6.3.1 A sheet not meeting the relevant requirements for any one or more characteristics shall be considered as defective.

6.3.2 A lot shall be declared as conforming to the requirements of this specification, if the number of defective sheets found, does not exceed the acceptance number. This acceptance number is zero for the requirement for substance (see 4.2) and for all other requirements depends upon the size of the sample and shall be equal to zero, if the size is less than 13 and 1 if the size is greater than or equal to 13.
Table 1 Requirements for Writing and Printing Papers
(Clauses 4.6, 4.7 and 6.2)

<table>
<thead>
<tr>
<th>SL No.</th>
<th>Type of Paper</th>
<th>Tensile Index Nm/g.</th>
<th>Brightness</th>
<th>Opacity</th>
<th>One Minute Cobb Test</th>
<th>Double Fold</th>
<th>Gloss</th>
<th>Wax Pick</th>
<th>Smoothness (Bendtsen) mN/m²</th>
<th>Tear Index Min mN/m²/g</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Min CD</td>
<td>Min MD</td>
<td>Min</td>
<td>Min</td>
<td>Max</td>
<td>Min CD</td>
<td>Min MD</td>
<td>Min</td>
<td>Max</td>
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<td>(1)</td>
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<td>(2)</td>
<td>(3)</td>
<td>(4)</td>
<td>(5)</td>
<td>(6)</td>
<td>(7)</td>
<td>(8)</td>
<td>(9)</td>
<td>(10)</td>
</tr>
<tr>
<td>i)</td>
<td>Account book</td>
<td>17</td>
<td>25</td>
<td>75</td>
<td>80</td>
<td>22</td>
<td>5</td>
<td>10</td>
<td>-</td>
<td>-</td>
</tr>
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<td>ii)</td>
<td>Air mail/manifold</td>
<td>20</td>
<td>30</td>
<td>72</td>
<td>70</td>
<td>25</td>
<td>-</td>
<td>-</td>
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<td>-</td>
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<tr>
<td>iii)</td>
<td>Antique wove and antique laid</td>
<td>17</td>
<td>25</td>
<td>72</td>
<td>80</td>
<td>25</td>
<td>-</td>
<td>-</td>
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<td>iv)</td>
<td>Azure laid</td>
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<td>-</td>
<td>85</td>
<td>25</td>
<td>5</td>
<td>10</td>
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<td>v)</td>
<td>Bond</td>
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<td>35</td>
<td>80</td>
<td>80</td>
<td>20</td>
<td>10</td>
<td>15</td>
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<td>vi)</td>
<td>Cartridge, drawing</td>
<td>20</td>
<td>30</td>
<td>72</td>
<td>-</td>
<td>25</td>
<td>20</td>
<td>25</td>
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<td>-</td>
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<td>vii)</td>
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<td>17</td>
<td>25</td>
<td>72</td>
<td>80</td>
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<tr>
<td>viii)</td>
<td>Cream laid and cream wove</td>
<td>17</td>
<td>25</td>
<td>72</td>
<td>80</td>
<td>25</td>
<td>-</td>
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<tr>
<td>ix)</td>
<td>Duplicating absorbent</td>
<td>17</td>
<td>25</td>
<td>72</td>
<td>85</td>
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<td>1</td>
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<td>x)</td>
<td>Duplicating, semi-absorbent</td>
<td>17</td>
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<td>Poster, machine glazed</td>
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<td>25</td>
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<td>18</td>
<td>(Glazed side only)</td>
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<td>Printing, coloured</td>
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<td>25</td>
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<td>80</td>
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<td>xiii)</td>
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<td>20</td>
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<td>77</td>
<td>80</td>
<td>25</td>
<td>10</td>
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<tr>
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<tr>
<td>Sl No.</td>
<td>Type of Paper</td>
<td>Tensile Index Nm/g</td>
<td>Brightness$^{a}$</td>
<td>Opacity Percent</td>
<td>One Minute Cobb Test</td>
<td>Double Fold</td>
<td>Gloss$^{a}$</td>
<td>Wax Pick</td>
<td>Smoothness (Bendtsen) ml/min</td>
<td>Tear Index mN m$^{-2}$ g</td>
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<tr>
<td>(1)</td>
<td></td>
<td>CD (3)</td>
<td>MD (4)</td>
<td>Min (5)</td>
<td>Min (6)</td>
<td>Average (7)</td>
<td>CD (8)</td>
<td>MD (9)</td>
<td>Min (10)</td>
<td>Max (11)</td>
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<td>xvi)</td>
<td>Printing, semi-bleached</td>
<td>17</td>
<td>25</td>
<td>45</td>
<td>80</td>
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<td>-</td>
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<tr>
<td>xvi)</td>
<td>Printing, unbleached</td>
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<td>25</td>
<td>-</td>
<td>80</td>
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<tr>
<td>xvii)</td>
<td>Printing, white</td>
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<td>-</td>
<td>-</td>
<td>15</td>
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<td>xviii)</td>
<td>Printing, white super calendered</td>
<td>17</td>
<td>25</td>
<td>72</td>
<td>75</td>
<td>25</td>
<td>-</td>
<td>-</td>
<td>-</td>
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<tr>
<td>xix)</td>
<td>Typewriting</td>
<td>17</td>
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<td>72</td>
<td>-</td>
<td>25</td>
<td>-</td>
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Test Method —
Ref to Clause
No. in:

- IS 1060 (Part 1) 12.4 12.4 — 16 13.2.2 12.6 12.6 15 — — 12.7 12.7
- IS 1060 (Part 2) — — 13 — — — — — — — — — —
- IS 1060 (Part 3) — — — — — — 8 — — — — — —
- IS 9894 — — — — — — — — — 3 — — — —

$^{a}$ Only for white papers.

$^{a}$ Strip test (see 14 of IS 1060 (Part 1)) water rise in 1 min - 10 mm.

Tensile index = Breaking length, m $\times$ 0.0098; Tear index = Tear factor $\times$ 0.098

CD = Cross direction, MD = Machine direction
ANNEX A
(Foreword)

COMMITTEE COMPOSITION
Paper and Its Products Sectional Committee, CHD 15

Organization

Central Pulp & Paper Research Institute, Saharanpur
All India Federation of Master Printers, New Delhi
B & A Multivall Packaging Ltd, Kolkata
Ballarpur Industries Ltd, New Delhi
Central Forensic Science Laboratory, New Delhi
Century Pulp and Paper Mills, Nainital
Central Pulp & Paper Research Institute, Saharanpur
Central Revenues Control Laboratory, New Delhi
Crop Care Federation of India, New Delhi
Defence Materials & Stores, R & D Establishment, Kanpur
Department of Industrial Policy & Promotion, New Delhi
Directorate General of Supplies & Disposals, New Delhi
Directorate of Printing (Ministry of Urban Development), New Delhi
Federation of Corrugated Box Manufacturers of India, Mumbai
Federation of Paper Traders Association of India, Mumbai
Forest Research Institute, Dehra Dun
Hindustan Lever Limited, Mumbai
Hindustan Paper Corporation Ltd, Kolkata
India Security Press, Nasik
Indian Agro and Recycled Paper Mills Association, New Delhi
Indian Institute of Packaging, Mumbai
Indian Institute of Technology, Roorkee, Saharanpur Campus
Indian Newsprint Manufacturers Association, Delhi
Indian Paper Manufacturers Association, New Delhi
Indian Pulp and Paper Technical Association, Saharanpur
Indian Recycled Paper Mills Association, Delhi
JK Paper Ltd, New Delhi

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SHRI V. K. MALIK (Alternate)
SHRI RONGURUP ROYCHODHURY
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SHRI K. D. PRASAD
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NEPA Limited, Nepanagar
Regional Research Laboratory (CSIR), Jorhat
Security Printing Press, Hyderabad
Seshasayee Paper and Boards Limited, Erode
Stationery Office, Government of India, Kolkata
Voluntary Organization in Interest of Consumer Education (VOICE), New Delhi
BIS Directorate General

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Shri Mau Khan

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Member Secretary
Shri S. N. Chatterjee
Scientist E (CHD), BIS
Bureau of Indian Standards

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Review of Indian Standards

Amendments are issued to standards as the need arises on the basis of comments. Standards are also reviewed periodically; a standard along with amendments is reaffirmed when such review indicates that no changes are needed; if the review indicates that changes are needed, it is taken up for revision. Users of Indian Standards should ascertain that they are in possession of the latest amendments or edition by referring to the latest issue of ‘BIS Catalogue’ and ‘Standards: Monthly Additions’.

This Indian Standard has been developed from Doc: No. CHD 15 (1495).

Amendments Issued Since Publication

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<tr>
<th>Amend No.</th>
<th>Date of Issue</th>
<th>Text Affected</th>
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KOLKATA 700054  

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MUMBAI 400093  

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Printed at Simco Printing Press, Delhi