

भारतीय मानक मसौदा  
सादा कॉपियर कागज — विशिष्टि  
) आईएस 14490 का दूसरा पुनरीक्षण

*Draft Indian Standard*  
**PLAIN COPIER PAPER — SPECIFICATION**  
(*Second Revision of IS 14490*)

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ICS 85.060

Paper And Its Products Sectional Committee,  
CHD 15

**Last date of comments: 31<sup>th</sup> July 2023**

Paper and Its Products Sectional Committee, CHD 15

## FOREWORD

*(formal clauses added to be later)*

This Indian Standard (Second 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 1997 and subsequently revised in 2018. The myth that any ordinary paper of indeterminate quality can be handled successfully by plain paper copier, cause never ending customer dissatisfaction and service engineer frustration. It is a fact that plain paper copiers can tolerate only certain grades of paper. The Paper and Its Products (Excluding Packaging Materials) Sectional Committee, therefore, decided to formulate a specification for plain copier paper, commonly known as photocopier paper.

In first revision, the standard was technical revised which besides the amalgamation of amendments, had the following changes:

- Modification of the scope,
- Incorporation of cut sizes relevant to this product in size clause and upgradation of the requirement of brightness and opacity,
- Modification of the requirement of ash content, moisture and thickness and in the packing clause,
- Incorporation of the requirement for additional variety having 70 GSM,
- Introduction of a recommendatory clause for selection of raw material and its source for manufacturing copier paper for guidance purpose, and
- Updation of references of latest available test method standards.

The Committee responsible for the formulation of this standard has decided to revise it again based on technological advancements and latest practices in the field of copier paper.

In this second revision, besides the amalgamation of amendments, the reference clause and packing & marking clause have been modified.

This standard covers the requirements for paper intended for photocopy purpose under the grammages prescribed in the standard. Paper under any other commonly used commercial names, such as multipurpose/ printing/ writing paper etc. in grammages except those covered in this standard are not intended to be used for photocopy purpose.

A scheme for labelling environment friendly products known as ECO Mark has been introduced at the instance of the Ministry of Environment and Forest (MEF), Government of India. The ECO Mark scheme would be administered by the Bureau of Indian Standards (BIS) under the *Bureau of Indian Standards 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 ECO logo, it shall also carry the ISI Mark of BIS besides meeting additional environment friendly 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.

This standard, therefore, incorporates environment friendly requirements for plain copier paper which is based on the Gazette Notification No. 455 dated 13 November 1992 for paper as environment friendly products published in the Gazette of India.

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 : 2022 'Rules for rounding off numerical values (*second revision*)'. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

## **1 SCOPE**

This standard prescribes requirements and methods of sampling and tests for plain copier paper (cut size paper in A4, A3, A5, FS, B4, B5, Legal sizes) within the specified grammage (GSM).

## **2 REFERENCES**

The Indian Standards listed in Annex A 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 revisions, and parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent editions of the Indian Standards.

## **3 TERMINOLOGY**

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

## **4 MATERIAL**

The reel/ sheets intended for manufacturing of plain copier paper (cut size) shall conform to requirements of this standard.

## **5 REQUIREMENTS**

### **5.1 General**

The plain copier paper shall be devoid of pinholes when seen through the naked eyes (*see* Note 1). The surface shall be well calendered, quite smooth and free from fluff or loose fibers. Surface sizing is desirable for avoiding fluff.

#### **NOTES**

**1** Eye unaided by any instrument (other than spectacles for eyesight problem) that changes the apparent size or distance of an object.

**2** Chemicals sensitive to heat should be avoided for surface sizing as the waxes and some polymers may adhere to photo conductor surface causing defects in photocopy.

The paper shall have good dimensional stability, thermal stability and shall not have any static charge.

**Note** - A declaration regarding conformity of above may be obtained from the manufacturer.

### **5.2 Moisture**

Moisture content shall not be more than 6 percent when tested as per IS 1060 (Part 5/Sec 2).

### **5.3 Grammage (Substance)**

The grammage (substance) of plain copier paper shall be either of 65 g per square metre or 70 g per square metre or 75 g per square metre or 80 g per square metre or 90 g per square metre, when tested as

per IS 1060 (Part 5/Sec 5). No single test result shall vary by more than  $\pm 4$  percent from the nominal grammage. Further the mean value of 10 test results shall not vary from the nominal grammage by more than  $\pm 2.5$  percent.

The paper under test shall be conditioned as per IS 1060 (Part 4/Sec 1) before it is subjected to this test.

#### **5.4 Thickness**

The uniform thickness of paper shall be as follows when tested as per IS 1060 (Part 5/Sec 3).

$\geq 95 \mu\text{m}$  when grammage is 70 g per square metre or above;

$\geq 90 \mu\text{m}$  when grammage is 65 g per square metre.

**5.5** The paper shall also comply with the requirements given in Table 1.

#### **5.6 Size**

The paper shall be cut size paper in A4, A3, A5, FS, B4, B5, Legal sizes along with the permissible tolerance according to IS 1064.

#### **5.7 Additional Requirements for ECO-Mark**

##### **5.7.1 General Requirements**

**5.7.1.1** The product shall conform to the requirements for quality and performance prescribed under **5.1** to **5.5**.

**5.7.1.2** The manufacturers shall produce to BIS, 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 while applying for ECO-Mark.

##### **5.7.2 Specific Requirements**

- The material shall be manufactured from pulp containing not less than 60 percent by mass of pulp made from materials other than bamboo, hard woods, soft woods and reed.
- The material shall be manufactured from pulp made from 100 percent waste paper.

**Table 1 Requirements for Plain Copier Paper**  
(Clause 5.5)

Sl No. (1)	Characteristic (2)	Requirement (3)	Method of Test, Ref to (4)
i)	ISO brightness, percent, <i>Min</i>	85	<b>IS 1060 (Part 4/Sec 13)</b>
ii)	Opacity, percent, <i>Min</i>	88	<b>IS/ISO 2471</b>
iii)	One minute cobb test, both sides, g/m <sup>2</sup> , <i>Max</i>	30	<b>IS 1060 (Part 5/Sec 4)</b>
iv)	Surface strength, Dennison (Wax Pick)	No pick on 12 A	<b>8 of IS 1060 (Part 3)</b>
v)	Smoothness for both sides(Bendsten), ml/min, <i>Max</i>	300	<b>3 of IS 9894</b>
vi)	Ash content (at 900°C), percent by mass, <i>Max</i>	16	<b>11 of IS 1060 (Part 1)</b>
vii)	Taber stiffness, <i>Min</i>		<b>Annex D of IS 4658</b>
	a) Machine direction (MD)	2.0	
	b) Cross direction (CD)	1.0	
viii)	Tear Index, mN.m <sup>2</sup> /g, <i>Min</i>		<b>IS 1060 (Part 6/Sec 1)</b>
	a) Machine direction (MD)	3.5	
	b) Cross direction (CD)	4.5	
ix)	Tensile index, N.m/g, <i>Min</i>		<b>IS 1060 (Part 5/Sec 6)</b>
	a) Machine direction (MD)	40	
	b) Cross direction (CD)	25	

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NOTE — Requirement of brightness shall be applicable for white paper only.

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## 6 PACKING AND MARKING

### 6.1 Packing

Each ream containing 500 sheets of paper or a packet of 250 sheets of paper shall be wrapped in such packaging that it shall prevent moisture absorption and shall be strong enough to avoid any external impact during transit and shall reach to end user in intact condition. It shall then be either packed in shrink bundling or 3/5 ply corrugated cartons to ensure that the paper is not damaged due to handling and transportation or shall be packed as agreed to between the purchaser and the supplier. The maximum weight per carton should not be more than 40 kg.

For packing 100/50 sheets of paper, poly pouch may also be used and label shall be marked as per **6.2**.

**6.1.1** For ECO-Mark, the product shall be packed in such packages in a bundle or individual package having 100/50 sheets which shall be recyclable/ reusable/ **biodegradable or at least of 120 microns in thickness.**

### 6.2 Marking

The package shall be marked with the following particulars:

- a) Description and size of the paper;
- b) Quantity;
- c) Mass of 500/250 sheets including wrapping paper, in kg/ream. Chargeable weight should be read as net weight excluding the weight of packing;
- d) Lot no. and month and year of manufacture; and
- e) Name of manufacturer.

**6.2.1** 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.

#### **6.2.2** *BIS Certification Marking*

The packages may also be marked with the Standard Mark.

**6.2.2.1** The product(s) conforming to the requirements of this standard may be certified as per the conformity assessment schemes under the provisions of the *Bureau of Indian Standards Act*, 2016 and the Rules and Regulations framed thereunder, and the products may be marked with the standard mark.

### **7 SAMPLING AND CRITERIA FOR CONFORMITY**

**7.1** The plain copier paper shall be sampled in accordance with **4** of IS 1060 (Part 1).

#### **7.2 Tests**

From each of the ream, selected from the lot (*see 7.1*), one sheet shall be taken out at random from each ream subject to total minimum 10 sheets, **if selected reams are less than 10**. These sheets shall constitute the sample. The sheets selected shall first be tested for general requirements given in **5.1** and **5.6**. One test piece shall be cut from each sheet selected for each of the characteristics mentioned in **5.2** to **5.4** and Table 1 and tested. A sheet not meeting the requirements for any one or more characteristics shall be considered as defective.

#### **7.3 Criteria for Conformity**

A lot shall be declared as conforming to all the requirements of this standard if the number of defective sheets found does not exceed the acceptance number. The acceptance number shall depend upon the size of the sample and shall be zero if the size is less than 13. The acceptance number shall be one if it is greater than or equal to 13.

## ANNEX A

(Clause 2)

## LIST OF REFERRED INDIAN STANDARDS

<i>IS No.</i>	<i>Title</i>
1060	Methods of sampling and test for paper and allied products:
(Part 1) : 2022	Test methods for general purpose
(Part 3) : 1969	Part 3
Part 4	Methods of test for paper board and pulp
(Sec 1) : 2014/ISO 187 :	Section 1 Standard atmosphere for conditioning and testing and
1990	procedure for monitoring the atmosphere and conditioning of
	samples
(Sec 13) : 2020/ ISO 2470-	Measurement of diffuse blue reflectance factor " Indoor daylight
1:2016	conditions ( ISO brightness ) ( First Revision )
(Part 5)	Methods of test for paper and board,
(Sec 2) : 2021/	Determination of moisture content of a lot Oven-drying method
ISO 287 : 2017	
(Sec 3) : 2014/	Determination of thickness density and specific volume
ISO 534 : 2011	
(Sec 4) : 2014/	Determination of water absorptiveness — Cobb method
ISO 535 : 1991	
(Sec 5) : 2021/	Determination of grammage
ISO 536 : 2019	
(Sec 6) : 2014/	Determination of tensile properties — Constant rate of
ISO 1924-2 :	elongation method (20 mm/min)
2008	
(Part 6/ Sec 1) :	Methods of test for paper, Section 1 Determination of tearing
2014/ISO 1974 :	resistance — Elmendorf method
2012	
1064 : 1980	Specification for paper ( <i>second revision</i> )
4658 : 2019	Specification for coated paper and board (Art and Chromo) ( <i>second</i>
	<i>revision</i> )
4661 : 1999	Glossary of terms used in paper trade and industry ( <i>second</i>
	<i>revision</i> )
9894 : 1981	Methods of test for smoothness/ roughness of paper
IS/ISO 2471 : 2008	Paper and board determination of opacity paper backing diffuse
	reflectance method

**ANNEX B**  
*(foreword, fifth para, fourth sentence)*  
**RECOMMENDATION FOR RAW MATERIALS AND ITS SOURCE**  
**(FOR GUIDANCE ONLY)**

**B-1** To reduce the load on natural forest and to meet the need of raw material for making of pulp and paper, the alternate sources of fibrous natural substrate is also recommended. Thus, the following raw material are also recommended for manufacturing of plain copier paper which may be obtained from sources as given below:

- a) Fibrous raw materials wood / bamboo sourced from Social Farm Forestry or State Forest Corporations or pulp procured with FSC conformity.
- b) Non wood fibre sources from agro residues such as bagasse, wheat straw, sarkanda or similar products
- c) Recycled paper sources such as white cuttings / cleaned deinked pulp.