
एक बार के कार्बन पेपर — विशिष्टि
(पहला पुनरीक्षण)

One Time Carbon Paper —
Specification
(First Revision)

ICS 87.080

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FOREWORD

This Indian Standard (First Revision) was adopted by the Bureau of Indian Standards, after the draft finalized by the Printing Inks, Stationery and Allied Products Sectional Committee had been approved by the Chemical Division Council.

This standard was first published in 1979. In this revision, the requirement for substance of base paper has been suitably modified. Also, reference clause has been incorporated. Further, Packing and Marking clause has been updated. Now, the standard has been updated based on the technological advancements that have taken place since the last publication of the Standard.

One time carbon paper has various end uses such as in teleprinter rolls, interleaving of plies, computer stationery and invoice sets.

The composition of the Committee responsible for formulation of this standard is given in [Annex D](#).

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 revised*) . The number of significant places retained in the rounded off value shall be the same as that of the specified value in this standard.

*Indian Standard***ONE TIME CARBON PAPER — SPECIFICATION***(First Revision)***1 SCOPE**

This standard prescribes the requirements and the methods of sampling and test for one time carbon papers.

2 REFERENCES

The standards given below contain provisions which, through reference in this text, constitute provision 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 these standards:

<i>IS No.</i>	<i>Title</i>
IS 170 : 2020	Acetone — Specification (<i>fifth revision</i>)
IS 718 : 2023	Carbon tetrachloride — Specification (<i>third revision</i>)
IS 1848 (Part 1) : 2018	Writing and printing papers — Specification: Part 1 Account book, azure lead, bond, cream laid and cream wove/printing white/printing coloured /printing offset, printing maplitho, printing white super calendered and typewriting types (<i>fifth revision</i>)
IS 4395 : 1987	Glossary of terms relating to inks and allied industry (<i>first revision</i>)
IS 4905: 2015/ ISO 24153 : 2009	Random sampling and randomization procedures (<i>first revision</i>)

3 TERMINOLOGY

For the purpose of this standard, the definitions given in IS 4395 shall apply.

4 TYPES

The material shall be of two types as follows:

- a) *Type A* — Single side; and

- b) *Type B* — Double side.

5 REQUIREMENTS**5.1 Description**

The carbon paper shall consist of tissue paper coated on one side or both, as required, with suitable carbon ink necessary to give the required copying qualities. The coating shall be smooth, uniform and free from smudginess and tendency to separate as flakes when in use. It shall have no tendency to offset or stain on normal handling when left in contact with copying sheets.

5.2 Carbon Work

The carbon work shall be well defined and clean. Light shall have no appreciable effect on the typed carbon work.

5.3 Base Paper

The base paper used for the manufacture of the material shall be machine glazed, machine finished or rag-free tissue provided the same does not have any physical defects, namely, pin holes, crease and other imperfections that would impair the performance of the finished product.

5.4 Size

The size of the carbon paper shall be as agreed to between the purchaser and the supplier. It may be in the form of sheets or reels as required.

5.5 The material shall also comply with the requirements given in [Table 1](#) when tested by the methods prescribed in the Annex. Reference to the appropriate annex is given in col (5) of the table.

6 PACKING AND MARKING**6.1 Packing**

Unless otherwise agreed to between the purchaser and the supplier 25 or 100 sheets shall be suitably packed in a packet which may be either a folder or cardboard box. When more than 25 sheets are packed in a packet, a demarcation sheet of distinctive colour, of the size of carbon paper, shall be included after every 25 sheets.

6.2 Marking

6.2.1 Each packet shall be marked with the following information:

- a) Name and colour of the carbon paper;
- b) Size of sheet/roll;
- c) Name of the manufacturer and/or his recognized trade-mark, if any;
- d) Batch number in code or otherwise to enable the lot of manufacture to be traced back from records; and
- e) Date of packing.

6.2.2 BIS Certification Marking

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 there under, and the products may be marked with the Standard Mark.

7 SAMPLING

The method of drawing representative samples of the material and the method of determining the criteria for conformity of the material to the requirements of this specification shall be as prescribed in [Annex C](#).

Table 1 Requirements for One Time Carbon Paper

(Clause [5.5](#))

SI No	Characteristic	Requirement For		Method of Test (Ref To Annex)
		Type A	Type B	
(1)	(2)	(3)	(4)	(5)
i)	Substance of base paper g/m ²	19 ± 2	19 ± 2	Annex A
ii)	Coating, g/m ²	4 to 6	8 to 10	Annex A
iii)	Manifolding (minimum number of copies)	5	—	Annex B

ANNEX A

[Table 1, Items (i) and (ii)]

DETERMINATION OF SUBSTANCE OF BASE PAPER AND MASS OF COATING

A-1 TEST PIECE

A-1.1 Condition a sheet of carbon paper as prescribed in [A-2.1.1](#) and cut out a test piece measuring about 10 cm × 10 cm. Weigh it accurately.

A-2.1 Take a suitable quantity of carbon tetrachloride (*see* IS 718) or a mixture of equal volumes of carbon tetrachloride and acetone (*see* IS 170) in a beaker. Bring the contents to the boil on a water bath and immerse the test piece into the boiling solvent until the tissue is clean. During this operation hold the test piece with forceps and agitate through the solvent. Repeat the operation with a fresh quantity of this solvent, if necessary. After the coating has been removed dry the decoated paper, condition it (*see* [A-2.1.1](#)) and weigh accurately.

A-2.1.1 *Conditioning*

Suspend the test piece in a conditioning chamber in which relative humidity of (65 ± 2) percent and temperature of (27 ± 1) °C are maintained (temperature should not vary by more than + 1 °C in a given series of tests) in such a way that

conditioning atmosphere has free access to all its surfaces. The test piece shall be deemed to have reached equilibrium when the results of two consecutive weighing at an interval of one hour do not differ by more than 0.4 percent of the total mass.

A-3 CALCULATION

$$\text{A-3.1 Substance of base paper, g/m}^2 = \frac{M_1}{A}$$

where

M_1 = mass, in g, of the test piece after decoating;
and

A = area, in m², of the test piece.

$$\text{A-3.2 Coating on Base Paper, g/m}^2 = \frac{M - M_1}{A}$$

where

M = mass, in g, of the test piece before decoating;

M_1 = mass, in g, of the test piece after decoating;
and

A = area, in m², of test piece.

ANNEX B

[Table 1, Item (iii)]

TEST FOR MANIFOLDING

B-1 PROCEDURE

Ordinary typing paper of substance 40 g/m² (*see* IS 1848) shall be used for this test. A convenient size of sheet for this test is 9 cm × 20 cm. A first sheet and copy sheets with sheets of carbon paper

shall be assembled in the usual way. The assembled sheets shall be inserted in the machine and the entire keyboard, both upper and lower case, shall be written twice over in unrelated order. The last copy sheet shall be examined for legibility. None of the characters shall be illegible.

ANNEX C

(Clause 7)

SAMPLING OF ONE TIME CARBON PAPER

C-1 GENERAL PRECAUTIONS

C-1.1 Samples, shall be drawn from original, unopened packets.

C-1.2 Samples shall be protected from abnormal exposure to heat and light, and shall not be allowed to come in contact with any liquid.

C-1.3 Samples shall be touched as little as possible, and contact with sweated hands shall be avoided.

C-1.4 Samples shall not be folded before testing.

C-2 SCALE OF SAMPLING**C-2.1 Lot**

All the packets in a single consignment of the same size, same type and from the same batch of manufacture shall constitute a lot.

C-2.1.1 Samples shall be tested from each lot separately for ascertaining the conformity of the lot to the requirements of this specification.

C-2.2 The number of packets to be selected from a lot for sampling shall depend upon the size of the lot

and shall be in accordance with col (2) and (3) of [Table 2](#).

C-2.3 These packets shall be selected at random from the lot and, for this purpose, random sampling procedures as specified in IS 4905 shall be used.

C-2.4 From each of the packets selected under [C-2.3](#), approximately equal number of sheets shall be taken so as to constitute the required sample size given in col (4) of [Table 2](#).

C-3 NUMBER OF TESTS AND CRITERIA FOR CONFORMITY

C-3.1 All the sheets selected according to col (3) and (4) of [Table 2](#) shall be examined for requirements given in [5.1](#) to [5.5](#). A sheet failing to meet any one or more of the requirements shall be considered as defective.

C-3.2 A lot shall be declared as conforming to the requirements of this specification if the number of sheets found defective under [C-3.1](#) is less than or equal to the corresponding permissible number of defective sheets given in col (5) of [Table 2](#).

Table 2 Scale of Sampling and Permissible Number of Defectives(Clause [C-2.2](#), [C-2.4](#), [C-3.1](#) and [C-3.2](#))

SI No.	No. of Packets in the Lot	No. of Packets to be Selected	No. of Sheets in the Sample	Permissible No. of Defective Sheets
(1)	(2)	(3)	(4)	(5)
i)	Up to 15	3	5	0
ii)	16 to 25	6	8	0
iii)	26 to 100	10	13	0
iv)	101 to 300	15	20	1
v)	301 to 500	20	32	2
vi)	501 and above	30	50	3

ANNEX D

(Foreword)

COMMITTEE COMPOSITION

Printing Inks, Stationery and Allied Products Sectional Committee, CHD 14

<i>Organization</i>	<i>Representative(s)</i>
Government Printing West Bengal, Kolkata	SHRI SUBIR KUMAR MANDAL (<i>Chairperson</i>)
All India Federation of Master Printers, New Delhi	SHRI HARJINDER SINGH
All India Printing Ink Mfgrs Association Ltd, Mumbai	SHRI SHIVRAM ANGNE SHRI R. SRIDHARAN (<i>Alternate</i>)
All India Print-Tech Professionals Forum, Kolkata	SHRI PARTHA PRATIM SANYAL
Consumer Voice, New Delhi	SHRI MAU KHAN DR RAJIV JHA (<i>Alternate</i>)
Department of Post, Ministry of Communication, New Delhi	SHRI S. BUCHCHAN DR AMARPREET DUGGAL (<i>Alternate</i>)
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Directorate of Printing, New Delhi	SHRI D. K. JAIN SHRI K. K. PURI (<i>Alternate</i>)
Flint Group, Noida	SHRI KAMLESH GANATRA SHRI DINESH AHUJA (<i>Alternate</i>)
Government of Indian Stationery Office, Kolkata	SHRI BISHAMBER DHAR SHRI RAKESH KUMAR SUKUL (<i>Alternate</i>)
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Indian Institute of Packaging, New Delhi	DR TANWEER ALAM SHRI BIDHAN DAS (<i>Alternate</i>)
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IS 9055 : 2024

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