

भारतीय मानक मसौदा
वेब ऑफसेट स्याही, काली — विशिष्टि
(IS 14163 का पहला पुनरीक्षण)

Draft Indian Standard
Web Offset Ink, Black — Specification
(*First Revision of IS 14163*)

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ICS 87.080

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

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

FOREWORD

(*Formal clauses will be added later*)

This standard was first published in 1995. In this revision, Amendment No. 1 has been incorporated. Further, Reference clause and Packing & Marking clause have been updated. Now, the standard has been updated based on the technological advancements that may have taken place since the last publication of the Standard.

The Web offset ink, book black is generally used for printing of books and the newspaper black for newspaper printing. Since the quality of paper and the process of printing is slightly different hence certain requirements like drying time, viscosity, fineness of dispersion, tack and tinting strength are different for both. Also, for Web offset ink, news black, additional requirements like yield, flow ability and penetration and permeability are specified.

There are different types of web offset printing machines and the quality of ink prescribed in this standard is likely to exhibit good print characteristics and machine-runability at a printing speed of 10 000 to 25 000 impressions per hour. The papers normally used for Web offset printing are both side uncoated type, namely, cream wove (70 to 80 gsm⁻²), white printing (60 to 70 gsm⁻²) and maplitho (50 to 70 gsm⁻²) [*see IS 1848 (Part 1) and IS 11688*].

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.

Draft Indian Standard
WEB OFFSET INK, BLACK – SPECIFICATION
(First Revision)

1 SCOPE

This standard prescribes requirements and methods of sampling and test for Web offset ink, black, book black and news black.

2 REFERENCES

The standards listed 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 the standards indicated below:

<i>IS No.</i>	<i>Title</i>
IS 196 : 1966	Atmospheric conditions for testing (<i>revised</i>)
IS 3680 : 1987	Round printing ink containers (<i>first revision</i>)
IS 4395 : 1987	Glossary of terms relating to inks and allied industries (<i>first revision</i>)
IS 6931 : 2023	Printing inks — Methods of test (<i>first revision</i>)

3 TERMINOLOGY

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

4 TYPES

There shall be following two types of web offset ink, depending upon the colour and end use:

- Type 1 — Web offset ink, News Black
- Type 2 — Web offset ink, Book Black

4.1 Approved/Standard Sample

The sample accepted by the indentor or inspection authority as the basis of supply/manufacture.

5 REQUIREMENTS**5.1 Description**

5.1.1 The material shall consist essentially of a dispersion of carbon black in suitable blends of mineral/vegetable oil with or without toner.

5.1.2 The material shall dry only by penetration/ absorption into the paper.

5.1.3 The material shall distribute freely, work sharp and shall be free from excessive objectionable odour.

5.1.4 The ink shall be free from flying and misting at the printing speed.

5.2 Composition

The ink shall contain not less than 9 percent by mass of solvent extracted residue when determined by the method prescribed in IS 6931.

5.3 Hue (Shade)

The hue shall be comparable or within acceptable range to the approved/standard sample, when tested by the method prescribed in IS 6931.

5.4 Fineness of Dispersion and Coarse Particles

5.4.1 The material shall be free from coarse particles and other contaminants when the ink is worked up on a glass slab with an ink testing knife.

5.4.2 The material shall not be coarser than 10 micrometres for Type 1 ink and 12.5 micrometres for Type 2 ink of the approved/standard sample when tested for fineness of dispersion of pigment particles in the medium by the method prescribed in IS 6931.

5.5 The material shall also comply with the requirements given in Table 1 when tested by the methods prescribed in IS 6931. Reference to the appropriate clauses is given in col 5 of the Table.

5.6 Printing Strength, Distribution and Covering Power

The Type 1 ink shall be considered to possess satisfactory covering power and distribution property if no white areas or specks show through dried film or ink, when tested by the method prescribed in IS 6931.

5.7 Strike Through and Show Through

The ink shall not exhibit strike through and show through more than the approved/standard sample, when adjudged by the method prescribed in IS 6931 on the same type of paper.

NOTE — Show through mainly depends on the opacity and thickness of paper and may not be considered as a major deficiency of the ink used.

5.8 Colour Strength

The Type 2 ink shall have sufficient colour strength to produce print matters of 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 16 and 18 points range. The ink shall be capable of producing sharp and clear prints with no 'filling-in' of type matters, uniform print lay in solid prints with no uncovered areas of hickies. The prints shall be easy to read.

NOTE — Generally, inks which produce good prints characteristics in the 5, 6, 7 and 8 point types, also produce good prints with the higher type point.

5.9 Flowability

The flowability of the ink, Type 1, when tested by the method prescribed in Annex A, shall be equal to that of approved/standard sample.

5.10 Penetration and Permeability

The penetration and permeability of the material of Type 1 ink shall be equal to those of approved/standard sample, when tested by the method prescribed in Annex B.

6 PACKING AND MARKING

6.1 Packing

The material shall be packed in steel drums.

6.2 Marking

6.2.1 The material shall be marked with the following information:

- a) Name and colour of the material;
- b) Indication of the source of manufacture;
- c) Description of the material;
- d) Net mass;
- e) Month and year of manufacture; and
- f) Lot number in code or otherwise.

6.2.2 BIS Certification Marking

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.

7 SAMPLING

The method of drawing representative samples of the material, number of tests to be performed and the criteria for conformity of the material to the requirements of this standard shall be as prescribed in Annex A of IS 6931.

Table 1 Requirements for Web Offset Ink
(Clause 5.5)

Sl No.	Characteristic	Requirement for		Method of Test (Ref to IS 6931)
		Type 1	Type 2	
(1)	(2)	(3)	(4)	(5)
i)	Viscosity, at (27 ± 2) °C, in poise	60 ± 5	85 - 95	5.4.1
ii)	Tinting strength, percent of approved sample	± 10	± 5	5.2
iii)	Tack, for 3 inch, at inkometer speed			5.8
	800 r pm	5 - 6	6 - 8	
	1 200 r pm	6 - 8	-	
iv)	Drying time, <i>Max</i> in mm	2	120	5.9 for Type 1
			-	5.6.2 for Type 2
v)	Yield, at (27 ± 2) °C, dynes cm ⁻²	$5\ 000 \pm 500$		5.2

ANNEX A

(Clause 5.9)

DETERMINATION OF FLOWABILITY

A-1 APPARATUS

A-1.1 Flow Gauge

The flow gauge as shown in Fig. 1 shall consist of a glass plate with a holder to support. The glass plate shall be about 120 mm × 165 mm and its surface shall be clean and smooth. The face opposite to that on which ink drops are placed shall be cross-lined.

A-1.2 Dropping Rod

It shall be of brass, 5 mm in diameter and 150 mm in length with one end rounded into a half sphere. A mark is provided at a distance of 30 mm from the rounded lip.

A-2 PROCEDURE

A-2.1 Dip the dropping rod in the well-mixed sample of the ink at (27 ± 2) °C to the 30 mm mark. Remove the rod vertically and after the dripping line from the rod has stopped, allow two drops of the ink to drop on the marking line of the glass plate. Immediately place the glass plate vertically in the holder as shown in Fig. 1 and allow the ink drops to flow down the glass plate for 10 min.

A-2.1.1 Repeat the test in the same manner with the approved/standard ink. The material shall be considered satisfactory if the length of flow of sample is equal to that of approved/ standard ink.

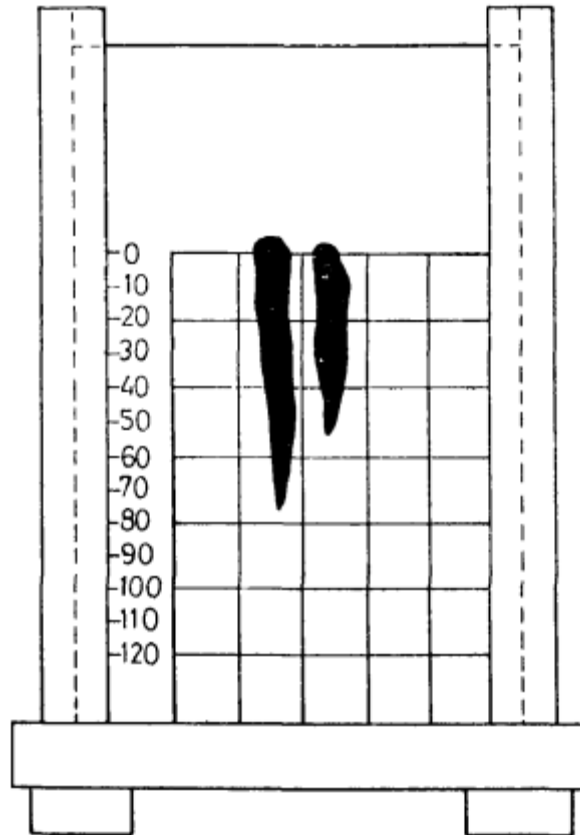
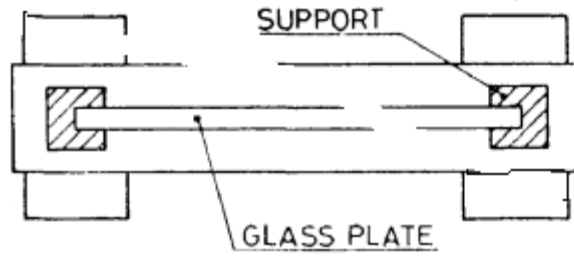


FIG. 1 FLOW GAUGE

ANNEX B

(Clause 5.10)

DETERMINATION OF PENETRATION AND PERMEABILITY

B-1 APPARATUS

B-1.1 Dropping Rod

It shall be of brass, 5 mm in diameter and 150 mm in length with one end rounded into a half sphere. A mark is provided at a distance of 30 mm from the rounded tip.

B-2 PROCEDURE

B-2.1 Dip the dropping rod in the well-mixed sample of the ink at (27 ± 2) °C to the 30 mm mark and remove it out vertically. After the dripping line from the rod has stopped, transfer a drop of the ink on a sheet of newsprint paper. Measure the diameter of the portion of the paper penetrated by the vehicle after 10, 30 and 60 min. At each time interval, measure the long and short diameters, and report the average in millimetres. Repeat the test in a similar manner with the approved/standard ink, using the same type of newsprint paper.

B-2.2 The material shall conform to the requirements of the test if the average diameter after 10, 30 and 60 min is the same as that for the approved/standard ink.