

ब्रश, कलाकार — विशिष्टि  
(चौथा पुनरीक्षण)

Brushes, Artists — Specification  
(Fourth Revision)

ICS 87.040

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## FOREWORD

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

This standard was first published in 1957. It covered the minimum requirements of artist's brushes which are filled with sable or squirrel-tail hair and set in a suitable cement. In the first revision in 1963, certain modifications in overall length and produced length of the filling material and an additional size (No. 0) was incorporated in addition to the statistical sampling plan and criteria for conformity. In the second revision in 1971, the number of sizes of artists' brushes were reduced from 13 to 9 and method of test for determination of moisture content of wood used for handles was incorporated. In the third revision in 1984, the number of sizes was increased to the original 13 sizes since a wide section of buyers, namely, commercial artists, art colleges and some organized consumers, were preferring the range of 13 sizes.

In this revision has taken up in order to bring out the standard in the latest style and format of the Indian Standards. The relevant clauses have been added and the references have been updated. Amendment No.1 and Amendment No. 2 issued to previous version of this standard has been incorporated in this revision.

The composition of the Committee, responsible for the 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 the 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.

*Indian Standard*  
**BRUSHES, ARTISTS — SPECIFICATION**  
( *Fourth Revision* )

## 1 SCOPE

This standard prescribes the requirements, methods of tests and sampling for artists' brushes filled with goat hair, natural colour or thin tapered nylon, monofilament and set in a suitable cement.

## 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 edition of these standards:

<i>IS No.</i>	<i>Title</i>
IS 380 : 2023	French chalk technical — Specification
IS 539 : 1974	Specification for naphthalene (second revision)
IS 707 : 2011	Glossary of terms applicable to timber technology and utilization
IS 5060 : 1969	Timber technology and utilization of wood, bamboo and cane — Glossary of terms (third revision)
IS 14834 : 2000	Lindane dusting powder — Specification

## 3 TERMINOLOGY

For the purpose of this standard, definitions given in IS 5060 and IS 707 and the following shall apply.

**3.1 Approved Tender Sample** — The sample accepted by the indentor an inspection authority as the basis for supply. When a sample is tested and approved by the purchaser or an inspection authority, the results of such tests as will permit the supplier to meet the limits imposed by the specification for deliveries shall be made available to the supplier.

## 4 GRADES

There shall be two grades of the material, namely;

- a) *Grade 1* — with goat hair, natural colour; and
- b) *Grade 2* — with nylon monofilament.

## 5 SIZES

The artists' brushes shall be of 13 sizes with the denominations as given in col (2) of [Table 1](#).

## 6 REQUIREMENTS

### 6.1 Materials

The brushes shall be manufactured from the following materials.

#### 6.1.1 Filling Material

##### 6.1.1.1 For Grade 1

Goat hair shall be of natural colour, properly straightened and free from admixture. As regards colour, lustre, flexibility and stiffness, the hair shall match with that used in the approved tender sample.

##### 6.1.1.2 For Grade 2

The nylon monofilament shall be thin and tapered and shall match with that in the approved tender sample.

#### 6.1.2 Timber

Any of the timber species listed in [Annex A](#) shall be used in the manufacture of handles of the brushes.

**6.1.2.1** The timber shall be reasonably straight-grained and well-seasoned to a moisture content not exceeding 15 percent when tested by the moisture meter or in case of dispute by the oven by the method given in [Annex B](#).

**6.1.2.2** The timber shall be free from brashness, and kind of biological or non-biological deterioration, insect attack, centre-heart (pith), knots except live pin knots, cracks, warp and any other defect which may reduce the life of the brush or affect its utility.

### 6.1.3 Ferrule

The ferrule shall be made of 0.27 mm to 0.31 mm thick nickel-plated, brass sheet or aluminium sheet. The ferrule shall be seamless or lapped and soldered.

### 6.1.4 Cement

Any suitable cement capable of satisfying the test specified under [6.5](#) may be used.

### 6.1.5 Silk Thread

A suitable silk thread for binding the hair of brushes shall be used.

## 6.2 Dimensions of Tolerances

### 6.2.1 Dimensions

The brushes shall conform to the dimensions given in [Table 1](#).

### 6.2.2 Tolerances

The tolerances of the linear dimensions shall be as follows:

Sl No.	Nominal Dimension	Tolerance
		mm
(1)	(2)	(3)
i)	Up to 15 mm	± 1.0
ii)	Over 15 mm but below 40 mm	± 2.0
iii)	40 mm and above	± 3.0

Tolerance for the length of hair out of ferrule ± 1.0 mm.

**Table 1 Requirements for Brushes Artists**

(Clauses [5](#) and [6.2.1](#))

Sl No.	Size No.	Protrusion of Hair (a)	Ferrule			Length of Handle Cut of Ferrule	Overall Length of Hair
			Diameter at Mouth (Internal)	Diameter at Bottom (Internal)	Length		
		mm	(B)	(C)	(D)	(E)	mm
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
i)	A-0	6.5	0.9	3.0	30.0	125	25.0
ii)	A-1	8.0	1.5	3.0	30.0	125	25.0
iii)	A-2	9.5	2.0	4.0	30.0	135	25.0
iv)	A-3	11.0	2.5	5.0	30.0	135	25.0
v)	A-4	14.5	3.0	5.5	30.0	140	25.0
vi)	A-5	16.0	3.5	6.0	35.0	140	28.0
vii)	A-6	18.0	4.0	6.5	35.0	140	28.0
viii)	A-7	21.0	4.5	7.0	35.0	150	28.0
ix)	A-8	22.5	5.0	7.5	35.0	150	32.0
x)	A-9	25.0	4.5	8.5	35.0	150	32.0
xi)	A-10	27.0	6.5	9.0	35.0	155	32.0
xii)	A-11	28.5	7.0	10.0	40.0	155	35.0
xiii)	A-12	30.0	8.0	12.0	40.0	155	38.0

NOTE — Letter A to E correspond to those given in [Fig. 1](#).

### **6.3 Manufacture**

**6.3.1** The brushes shall generally conform to the shape and design as shown in [Fig. 1](#).

**6.3.1.1** The ferrule, if lapped, shall be properly soldered.

**6.3.1.2** The handle shall be shaped to suit the ferrule.

**6.3.1.3** The hair shall be properly bound with the silk thread and cemented to form a tuft which shall be securely set inside the ferrule. The tuft shall be free from loose hair.

### **6.4 Workmanship and Finish**

**6.4.1** The handle shall be finished smooth all over and shall be properly varnished or lacquered.

**6.4.2** The ferrule shall be free from sharp edges.

**6.4.3** The ferrule shall be properly secured to the handle and clinched as shown in [Fig. 1](#).

**6.4.4** The ferrule of different sizes of brushes shall be completely filled with filling material. This shall be ascertained by pressing the filling material from one side near the ferrule.

**6.4.5** In general workmanship and finish, the brushes shall match the approved tender sample .

### **6.5 Test Requirements**

#### **6.5.1 Pull Test**

The tuft of the filling material of the brush shall not come out when subjected to a straight pull with thumb and finger grip. Hairs coming out of the cement shall be deemed as failure.

#### **6.5.2 Performance Test**

Artists' brushes shall be subjected to performance test with water and paint.

##### **6.5.2.1 Test with water**

The tuft of the filling material of the brush, when dipped in water till thoroughly wet, then withdrawn and given a light jerk, shall assume the shape as shown in [Fig. 1](#).

##### **6.5.2.2 Test with paint**

Dip the tuft of the filling material of the brush in a paint of viscosity 150 s to 200 s (measured in Ford-Cup viscometer No. 4) and stir it to moisten the same with the paint. Withdraw the tuft and squeeze out the excess paint from the filling material by pressing the same on a palette with a circular movement in such a way that the tuft makes an angle of 10° to 15° with the palette and the handle at an angle of 30° to 40° with the palette as shown in [Fig. 2](#). Simultaneously, draw this brush with a gradual release of pressure and thus increase the inclination of the tuft and the handle with the palette. Continue the entire process for 2 times to 3 times, till the excess paint is squeezed and the tuft attains the shape as shown in [Fig. 1](#). Withdraw the brush from the palette and see if the shape is retained and there is no spreading out of the hair.

## **7 PACKING AND MARKING**

### **7.1 Packing**

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

### **7.2 Marking**

#### **7.2.1** Unless otherwise agreed to between the

indentor or inspection authority and the supplier, each brush shall be legibly and indelibly marked or stamped with the following:

- a) Name of the material;
- b) Manufacturer's name and trade-mark, if any;
- c) Grade of the brush, if any;
- d) Month and year of manufacture;
- e) The warranty of the filling material; and
- f) The size denomination of the brush.

#### **7.2.2 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 thereunder, and the products may be marked with the Standard Mark.

## 8 PRESERVATION

The filling material of the brushes shall be liberally dusted before packing with a mixture of 5 parts (by mass) of Lindane 6.5 percent (see IS 14834) or methyl parathion 2 percent and 95 parts (by mass) of French chalk (see IS 380) or talc powder. Alternatively, pieces of naphthalene balls (see IS 539) shall be used in the packing box for the brushes.

## 9 TENDER SAMPLES AND SAMPLING

### 9.1 Tender Samples

The supplier shall submit four identical tender

samples of brushes of each denomination and grade and quality for approval.

The indenter or inspection authority shall retain one of the four approved tender samples against each item, till the completion of order.

### 9.2 Sampling

The method of drawing representative samples of the brushes and the criteria for conformity shall be as prescribed in [Annex C](#).

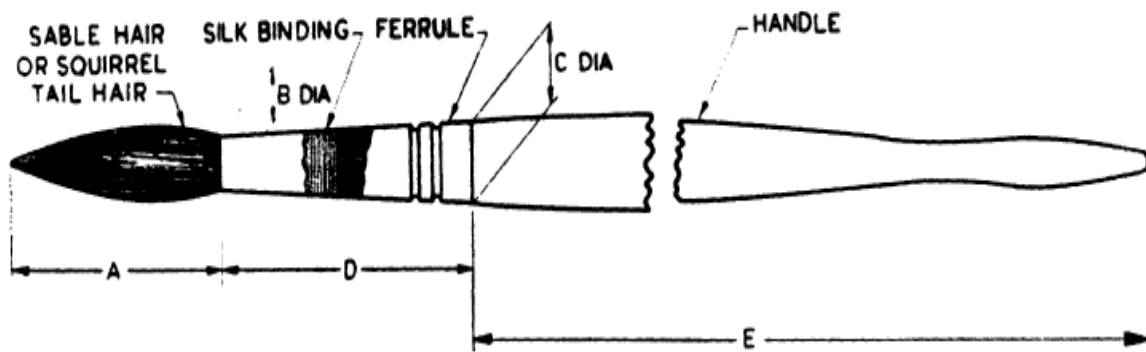


FIG. 1 BRUSH ARTISTS

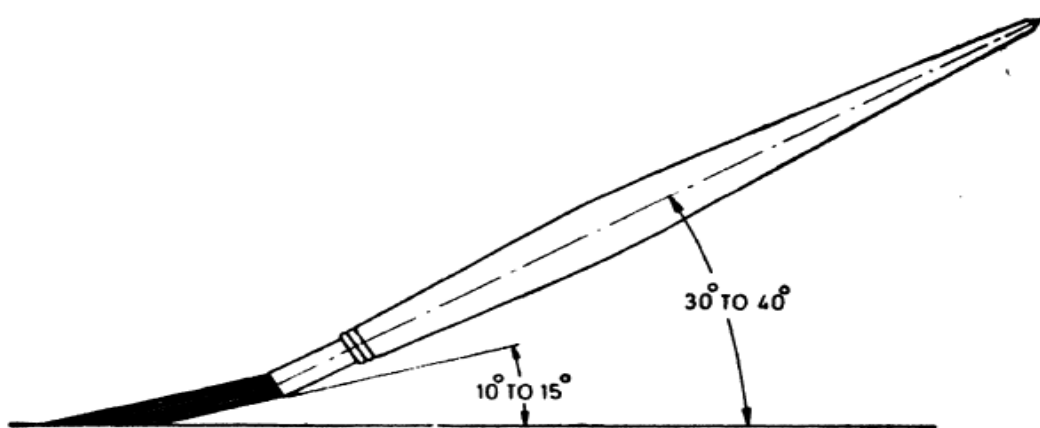


FIG. 2 PERFORMANCE TEST WITH PAINT

ANNEX A

(Clause 6.1.2)

SPECIES OF TIMBER FOR THE MANUFACTURE OF HANDLES FOR ARTISTS' BRUSHES

A-1 THE LIST OF THE SPECIES OF TIMBER APPROVED FOR THE MANUFACTURE OF HANDLES FOR LETTERING BRUSH IS GIVEN BELOW:

Trade Name		Botanical Name
Romon	Devanagari	
<i>Aini</i>	ऐनी	<i>Artocarpus hirsuta</i> Lamk., fam. Moraceae
<i>Banati</i>	बनति	<i>Lophopetalum wightianum</i> Arn., fam. Celastraceae
<i>bijasal</i>	बीजासाल	<i>Pterocarpus marsupium</i> Roxb., fam. Leguminosae
<i>Champak</i>	चम्पक	<i>Michelia champaca</i> Linn., fam. Magnoliaceae
<i>Chickrassi</i>	चिकरसी	<i>Chukrasia tabularis</i> A. Juss., fam. Meliaceae
<i>Dhaman</i>	धामन	<i>Grewia tiliifolia</i> Vahl., fam. Tiliaceae
<i>Gamari (gumhar)</i>	गमारी (गुम्हार)	<i>Gmelina arborea</i> Roxb., fam. Verbenaceae
<i>Haldu</i>	हलदू	<i>Adinal cordifolia</i> Hook. f., fam. Rubiaceae
<i>Kaim</i>	कैम	<i>Mitragyna parvifolia</i> (Roxb.) Korth., syn. <i>Stephegyne parvifolia</i> Korth., fam. Rubiaceae
<i>kanju</i>	कांजू	<i>Holoptelea integrifolia</i> Planch., fam. Ulmaceae
<i>Kathal</i>	कटहल	<i>Artocarpus heterophyllus</i> Lamk., syn. <i>A. integrifolia</i> Linn. f., Moraceae
<i>Kuthan</i>	कूथन	<i>Hymenodctyon excelsum</i> Wall., fam. Rubiaceae
<i>Lambapatti</i>	लांबापत्ती	<i>Planchonella longipetiolatum</i> H.J. Lam., syn. <i>Sideroxylon longipetiolatum</i> King et Prain, fam. Sapotaceae
<i>Nim-chameli</i>	नीम-चमेली	<i>Millingtonia hortensis</i> Linn f., fam. Bignoniaceae
<i>Kodapalai choupaini</i>	कोडापलाई चौपैनी	<i>Kingiodendron pinnatum</i> (Roxb.) Harms,
(Piney)	(पाइनी)	syn. <i>Hardwickia pinnata</i> Roxb., fam. Leguminosae
<i>Toon</i>	तून्	<i>Toona ciliate</i> Roem., syn. <i>Cedrela toona</i> Roxb., fam. Meliaceae

## ANNEX B

(Clause [6.1.2.1](#))

### DETERMINATION OF MOISTURE CONTENT FOR TIMBER USED IN BRUSHES, ARTISTS'

#### B-1 TEST SPECIMEN

The entire block used in artists' brushes may form the test specimen for determination of moisture content or a coupon cut from the test specimen may, as well, be used for moisture content determination. When for any reason additional determination of moisture content is required, separate samples shall be prepared from the sample material as is used in preparing the test specimens. Smaller specimens may be used when deemed necessary. The test shall be carried out immediately after cutting the specimen.

#### B-2 PROCEDURE

Weigh accurately each test specimen. This specimen shall then be dried in a ventilated oven at a

temperature of  $(150 \pm 2)$  °C until the mass becomes constant between two successive weighings made at an interval of not less than one h.

#### B-3 CALCULATION

The moisture content, expressed as a percentage of the oven-dry mass is given by the formula:

$$= \frac{M_1 - M_0}{M_0} \times 100$$

where

$M_1$  = initial mass, in g, of the test specimen; and

$M_0$  = oven-dry mass, in g, of the test specimen.

## ANNEX C

(Clause [9.2](#))

### SAMPLING AND CRITERIA FOR CONFORMITY FOR BRUSHES, ARTISTS'

#### C-1 SAMPLING

##### C-1.1 Lot

In any consignment, all the brushes of the same size and quality shall be divided into groups of 500 brushes or less and each such group shall constitute a lot. Care shall be taken to ensure that brushes included in a lot do not differ in construction, as far as possible.

**C-1.1.1** The conformity of the brushes in a lot to the requirements of this specification shall be ascertained for each lot separately. The number of brushes to be selected for this purpose shall be in accordance with col (2) and (3) of [Table 2](#).

**C-1.1.2** The brushes shall be selected at random. To ensure randomness of selection, one of the following procedures is recommended for use:

- a) If all the brushes in a lot are packed in one box, then starting from any brush, count them in any suitable order as 1, 2, ....., up to  $r$  and so on, where  $r$  is the integral part of  $N/n$  ( $N$  and  $n$  being the lot size and sample size respectively). Every  $r$ th brush thus counted shall be withdrawn to constitute the sample; and
- b) If the brushes in a lot are packed in more than one box, approximately equal number

of brushes shall be picked at random from as many boxes as possible so as to obtain the required number of brushes as specified in [Table 2](#).

**Table 2 Scale of Sampling**

[Clauses [C-1.1.1](#) and [C-1.1.2](#), *Sl No. (b)*]

Sl No.	No. of Brushes in a Lot	No. of Brushes to be Selected
	$N$	$n$
(1)	(2)	(3)
i)	Up to 10	2
ii)	11 to 25	3
iii)	26 to 50	4
iv)	51 to 100	5
v)	101 to 150	6
vi)	151 to 300	7
vii)	301 to 500	8
viii)	501 to 750	9
ix)	751 to 1 000	10



## **C-2 NUMBER OF TEST**

Tests for the characteristics shall be conducted on the individual brushes in the sample.

## **C-3 CRITERIA FOR CONFORMITY**

For declaring the conformity of the lot to the

requirements of this specification, all the brushes selected according to [C-1.1.2](#) shall satisfy the relevant requirements given under [6](#).

## ANNEX D

*(Foreword)*

### COMMITTEE COMPOSITION

Brushware, Polishes, Lac and Lac Products Sectional Committee, CHD 23

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### Amendments Issued Since Publication

Amend No.	Date of Issue	Text Affected

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