भारतीय मानक

Indian Standard

IS 4087 : 2024

चिकित्सा प्रयोगशाला हेतु काँच का सामान — हेमोग्लोबिनोमीटर के लिए पिपेट और जैव रासायनिक कार्य के लिए रक्त पिपेट — विशिष्टि

(दूसरा पुनरीक्षण)

Medical Laboratory Glassware — Pipette for Haemoglobinometer and Blood Pipette for Biochemical Work — Specification

(Second Revision)

ICS 71.040.20

भारतीय मानक ब्यूरो
BUREAU OF INDIAN STANDARDS
मानक भवन, 9 बहादुर शाह ज़फर मार्ग, नई दिल्ली - 110002
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI - 110002
www.bis.gov.in www.standardsbis.in

January 2024 **Price Group 5**

Medical Laboratory Instruments Sectional Committee MHD 10

FOREWORD

This Indian Standard (Second Revision) was adopted by the Bureau of Indian Standard, after the draft finalized by the Medical Laboratory Instruments Sectional Committee had been approved by the Medical Equipment and Hospital Planning Division Council.

The first revision of this Indian Standard was published in 1980 with the title 'Specification for pipette for haemoglobinometer and blood pipette for biochemical work'. This revision has been brought out to align the cross-references to the latest editions and bring it in line with the current practices.

The composition of the Committee responsible for the 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 : 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.

Indian Standard

MEDICAL LABORATORY GLASSWARE — PIPETTE FOR HAEMOGLOBINOMETER AND BLOOD PIPETTE FOR BIOCHEMICAL WORK — SPECIFICATION

(Second Revision)

1 SCOPE

This Indian Standard specifies requirements and methods of test for the following pipettes used in medical laboratories:

a) Pipette for haemoglobinometer used in pathology work; and
b) Blood pipette for biochemical work.

2 REFERENCES

The standards given 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 these standards.

IS No.	*Title*
IS/ISO 718 : 1990	Laboratory glassware — Thermal shock and thermal shock endurance — Test methods
IS 1382 : 1981	Glossary of terms relating to glass and glassware (*first revision*)

3 TERMINOLOGY

For the purpose of this standard, the definitions given in IS 1382 shall apply.

4 MATERIAL

4.1 The pipettes shall be made from heat-resistant glass tubing or lead glass tubing, clear or with enamel back. The tubes shall have a uniform bore.

4.2 The mouthpiece shall be made of glass or suitable plastic.

4.3 The connecting tube shall be of rubber or polyethylene tubing, non-collapsible under suction by mouth.

5 SHAPE, DIMENSIONS AND CAPACITY

5.1 The shape and dimensions of the pipettes shall be as given in Fig. 1 to Fig. 3.

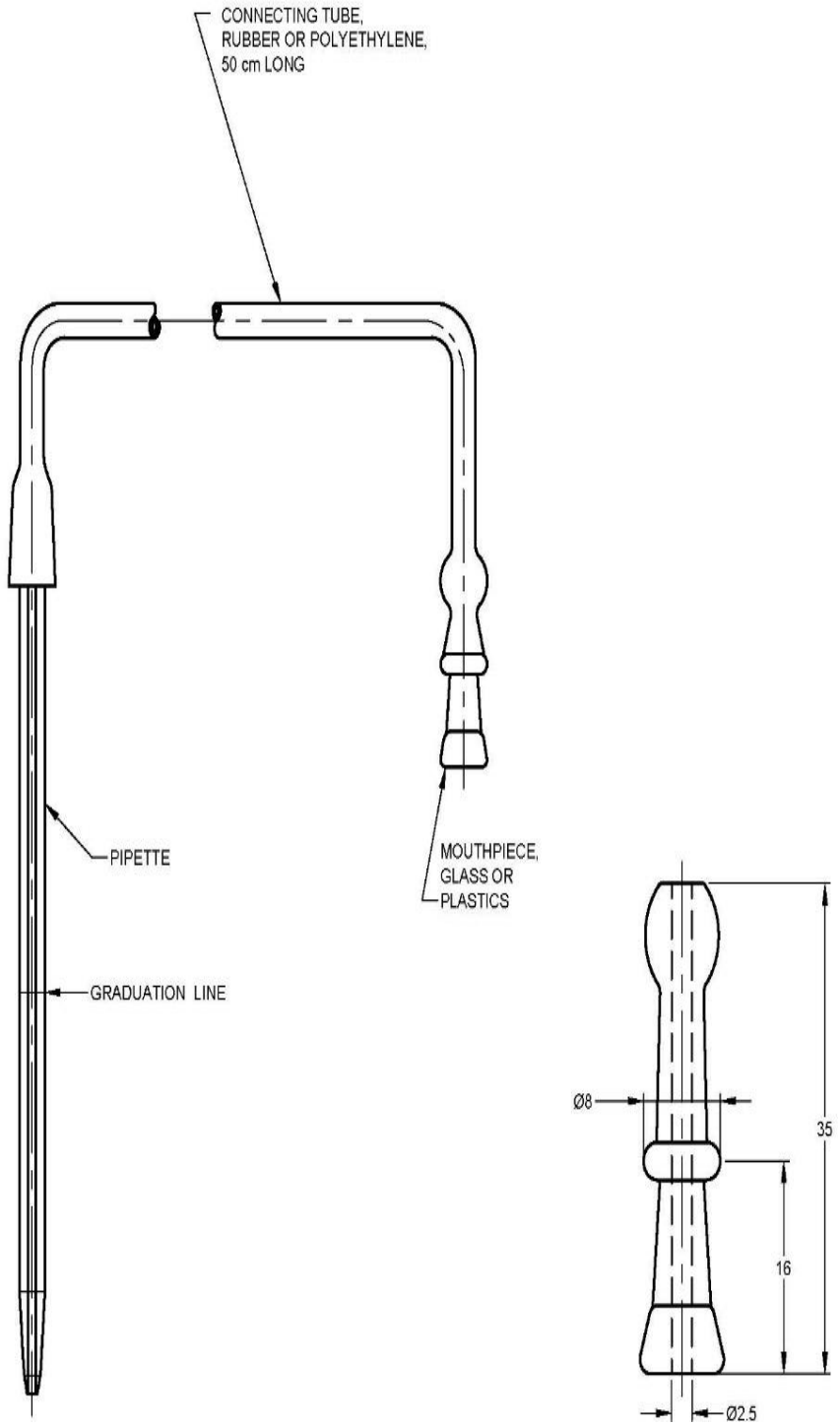
5.2 The pipette for haemoglobinometer shall be calibrated to contain 20 µl up to the mark etched on it, at 27 °C.

5.3 The blood pipette shall be calibrated to contain 200 °C µl at 27 °C.

5.4 The capacity of the pipette for haemoglobinometer at 27 °C up to the mark shall be 20 µl ± 5 µl and that of the blood pipette at 27 °C shall be 200 µl ± 5 µl up to the mark on it, when tested in accordance with the method specified in **8.1**.

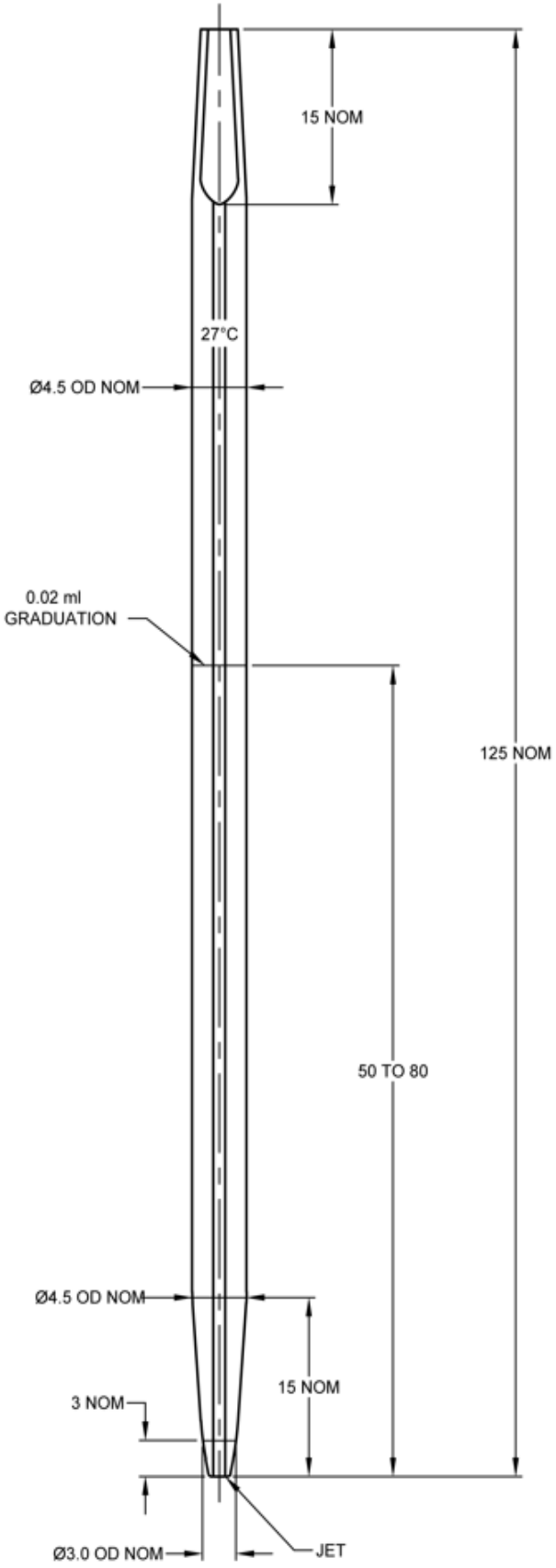
6 WORKMANSHIP AND FINISH

The pipette shall be well-annealed and free from bubbles, blisters and, as far as possible, free from striae, stones and other visible defects. It shall be symmetrical about its axis. The bore of the pipette shall be uniform throughout. The capillary at the upper end of the pipette for haemoglobinometer may be expanded as shown in Fig. 2 or it may consist entirely of capillary bore. The top of the pipette shall be smooth and finished at right angles to the axis. The top 10 mm to 20 mm of the pipette may taper slightly to facilitate the attachment of a rubber tubing. The jet of the haemoglobinometer pipette shall be formed by grinding into a taper as shown in Fig. 2. The delivery jet of the blood pipette shall be made with a gradual taper. There shall be no sudden constriction of the bore at the orifice. The tapered portion shall be polished. The end of the jet shall be ground smooth and at right angles to the axis of the pipette. The jet of the blood pipette shall be beveled slightly at the periphery. The pipette shall pass the thermal shock test specified in **8.2**.



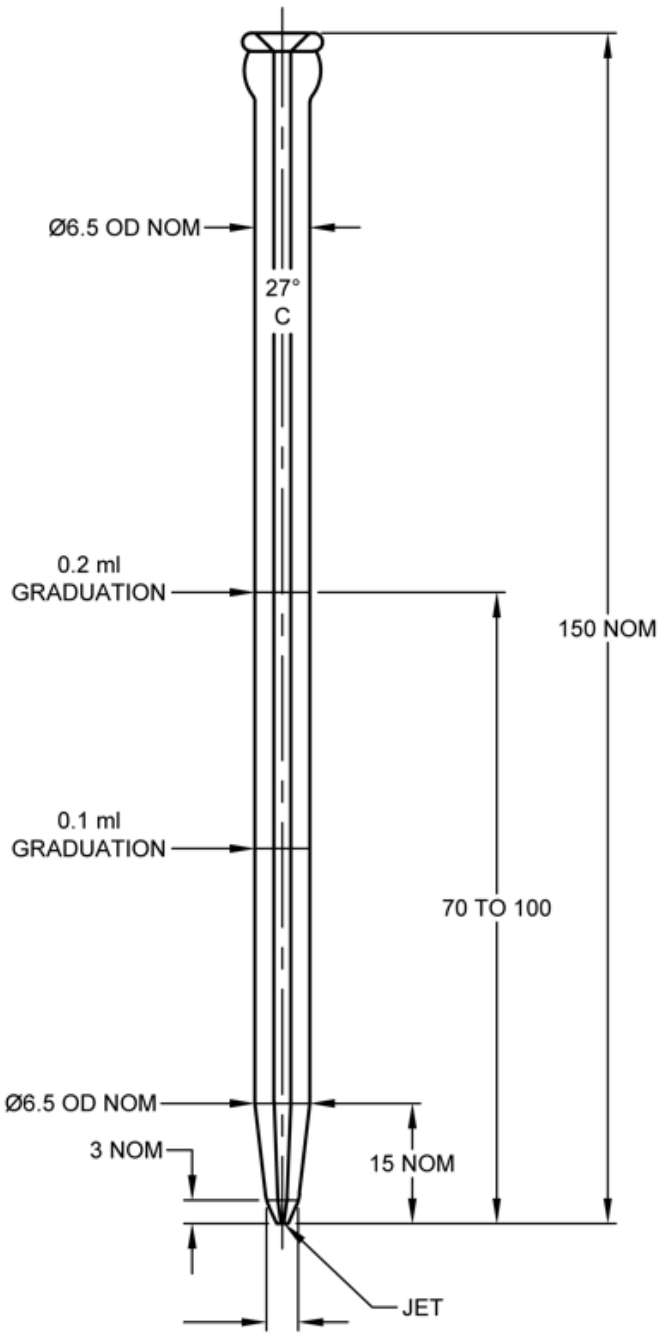
All dimensions in milimeters.

FIG. 1 ASSEMBLY FOR HAEMOGLOBINOMETER PIPETTE AND PIPETTE FOR BIOCHEMICAL WORK WITH DETAILS OF MOUTHPIECE



All dimensions in milimeters.

FIG. 2 PIPETTE, HAEMOGLOBINOMETER



All dimensions in milimeters.

FIG.3 BLOOD PIPETTE FOR BIOCHEMICAL WORK

7 GRADUATIONS

The graduation lines shall be fine, clean, permanent and of uniform thickness and at right angles to the axis of the pipette. They shall be carried all-round the circumference of the pipette. On the haemoglobinometer pipette the mark 20 µl shall be inscribed immediately above or below the line and shall be permanent. The blood pipette shall be marked at 100 µl and 200 µl, inscribed immediately above the respective line. When tested according to 8.3, there shall be no fading of the graduation lines or marks.

8 TESTS

8.1 Method for Determination of Capacity

The pipette shall be cleaned thoroughly and dried in an air oven maintained at 110 °C ± 5 °C. It shall be cooled in a desiccator. The connecting tube and mouthpiece shall be attached. Mercury shall be sucked in and its level adjusted up to the graduation mark to be tested. This mercury shall be transferred into a clean and dry, previously massed, beaker or any other vessel and massed. The volume at 27 °C shall be calculated from the mass of the mercury determined.

8.2 Thermal Shock Test

Thermal shock test shall be in accordance with IS/ISO 718.

8.3 Test for Permanency of Marking

The pipette shall be completely immersed in a glass cylinder containing hydrochloric acid solution in distilled water of 0.01 normality. The cylinder and its contents shall be autoclaved at 98.1 kN/m^2 at 120 °C for 30 minutes. The autoclaving shall be repeated after allowing sufficient time for the cylinder and contents to come to room temperature. The markings shall not show appreciable reduction in intensity.

9 MARKING

9.1 The pipette shall be marked with the following:

a) Name of the manufacturer;
b) Symbol ‘27 °C’ to indicate that the pipette is calibrated at 27 °C; and
c) The word ‘In’, to indicate that it is calibrated to contain the liquid.

9.2 BIS Certification Marking

The product(s) confirming 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.

10 PACKING

10.1 The pipette may be packed as given in 10.2 or as agreed between the supplier and the purchaser.

10.2 The pipette shall be clipped on to a suitable cardboard piece, either by self-clipping action on the cardboard or by a separate clip or rubber band. One pipette so mounted shall be packed in a cardboard carton along with the connecting tube and the mouth piece, both attached, and placed in a paper envelope. In case the connecting tube is of rubber, it shall be given suitable sprinkle of French chalk.

ANNEX A

(*Foreword*)

COMMITTEE COMPOSITION

Medical Laboratory Instruments Sectional Committee, MHD 10

Organization	*Representative(s)*
All India Institute of Medical Sciences, New Delhi	DR SUDIP KUMAR DATTA **(*Chairperson*)** DR TUSHAR SEHGAL (*Alternate*)
Association of Indian Medical Device Industry, New Delhi	SHRI RAKESH JAIN SHRI SHAILESH PATEL (*Alternate*)
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Borosil Technologies Limited, Pune	SHRI SREEJITH KUMAR P. S. SHRI MAHESH SURVE (*Alternate*)
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Organization	*Representative(s)*
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Member Secretary
SHRI PAWAN KUMAR
SCIENTIST 'B'/ASSISTANT DIRECTOR
MEDICAL EQUIPMENT AND HOSPITAL PLANNING, BIS

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Amendments Issued Since Publication

Amend No.	Date of Issue	Text Affected

BUREAU OF INDIAN STANDARDS

Headquarters:

Manak Bhavan, 9 Bahadur Shah Zafar Marg, New Delhi 110002
Telephones: 2323 0131, 2323 3375, 2323 9402 *Website*: www.bis.gov.in

Regional Offices:		*Telephones*
Central	: 601/A, Konnectus Tower -1, 6th Floor, DMRC Building, Bhavbhuti Marg, New Delhi 110002	2323 7617
Eastern	: 8th Floor, Plot No 7/7 & 7/8, CP Block, Sector V, Salt Lake, Kolkata, West Bengal 700091	2367 0012 2320 9474
Northern	: Plot No. 4-A, Sector 27-B, Madhya Marg, Chandigarh 160019	265 9930
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