भारतीय मानक

Indian Standard

IS 3740 : 2024

चिकित्सा प्रयोगशाला हेतु काँच का सामान — पैथोलॉजी कार्य के लिए ग्लास ट्यूब — विशिष्टि

(पहला पुनरीक्षण)

Medical Laboratory Glassware — Glass Tubes for Pathology Work — Specification

(First Revision)

ICS 71.040.20

भारतीय मानक ब्यूरो
BUREAU OF INDIAN STANDARDS
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January 2024 **Price Group 6**

Medical Laboratory Instruments Sectional Committee, MHD 10

FOREWORD

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

This standard was originally published in 1966 as IS 3740 : 1966 ‘Specification for tubes, glass, for pathological work’. This revision aligns the cross references to the latest Indian Standards to 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 compiled 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 shall be the same as that of the specified value in this standard.

Indian Standard

MEDICAL LABORATORY GLASSWARE — GLASS TUBES FOR PATHOLOGY WORK — SPECIFICATION

(First Revision)

1 SCOPE

This standard specifies requirements for the following glass tubes used in medical laboratories for pathological tests:

a) Tube, Folin Wu for blood sugar determination,
b) Tube for Kahn and Wasserman Tests,
c) Tube, antigen dilution,
d) Tube, agglutination (Dreyer's),
e) Tube, Durham fermentation and bacteriological, and
f) Tube, widal.

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 1382 : 1981	Glossary of terms relating to glass and glassware (*first revision*)
IS 2303 (Part 1/ Sec 2) : 2021	Grading glass for alkalinity: Part 1 Hydrolytic resistance of glass grains, Section 2 Determination and classification of hydrolytic resistance at 121 °C (*third revision*)
IS/ISO 718 : 1990	Laboratory glassware — Thermal shock and thermal shock endurance — Test methods

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3 TERMINOLOGY

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

4 MATERIALS

4.1 The glass tube shall be made from clear, neutral, heat-resistant glass.

4.2 The glass shall pass the alkalinity test prescribed in IS 2303 (Part 1/Sec 2) for class HGA-1.

5 SHAPES AND DIMENSIONS

5.1 The shapes and dimensions of the various tubes shall be as given in Fig. 1 to 6.

6 CONSTRUCTION, WORKMANSHIP AND FINISH

6.1 General Requirements

6.1.1 The tubes shall be well annealed, free from bubbles and as far as possible, free from striae, stones and other visible defects.

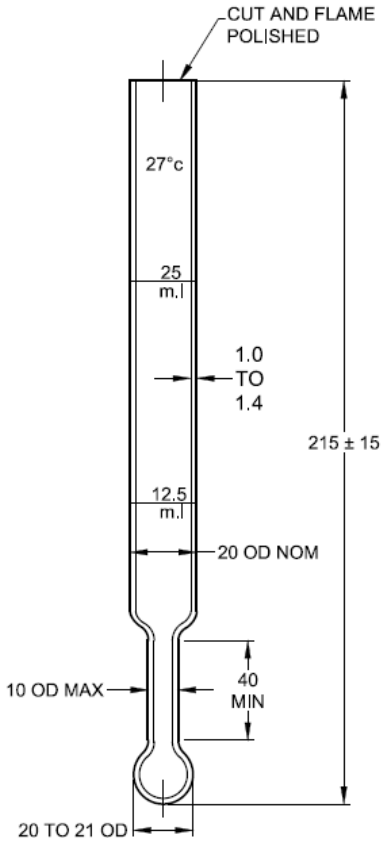
6.1.2 The tubes shall pass the thermal shock test specified in 7.

6.1.3 The tubes shall be concentric and well formed. The top end shall be cut at right angles to the axis of the tube and may be flame-polished or be finished with a circular, well-formed rim.

6.2 Specific Requirements

6.2.1 *Tube, Folin Wu*

The design of the tube shall be as shown in Fig. 1. The bulb at the lower end shall be of such a capacity that when 4 ml of a liquid is poured into the tube, the meniscus shall be between the top of the bulb and the middle of the constricted portion of the tube. It shall be graduated at 12.5 ml and 25.0 ml calibrated at 27 °C. The tolerance at the capacity 12.5 ml and 25.0 ml shall be ± 0.1 ml. The graduations shall be etched all-round the tube and filled with a permanent pigment.



All dimensions in millimetres.

FIG. 1 TUBE FOLIN WU

6.2.2 *Tube for Kahn and Wassermann Tests*

The design of the tube shall be as shown in Fig. 2. The bottom of the tube shall be rounded. It shall be finished on the upper side without a rim. The internal diameter of the tube shall be uniform.

6.2.3 *Tube, Antigen Dilution*

The design of the tube shall be as shown in Fig. 3. The bottom of the tube shall be dished as shown in the figure so as to allow it to stand vertically when placed on a flat, level surface. It shall be square on the upper side and finished without a rim.

6.2.4 *Tube, Agglutination* (*Dreyer's*)

The tube shall have a funnel shaped mouth and tapered end as given in Fig. 4.

6.2.5 *Tube, Durham Fermentation and Bacteriological*

The design of the tubes shall be as given in Fig. 5. The bottom of each tube shall be well rounded. The dimensions of the durham fermentation tube and the bacteriological tube shall be as given in Fig. 5 read with Table 1.

6.2.6 *Tube, Widal*

The design of the tube shall be as given in Fig. 6. The top of each tube shall have a rim. The bottom shall be well rounded with uniform thickness.

7 THERMAL SHOCK TEST

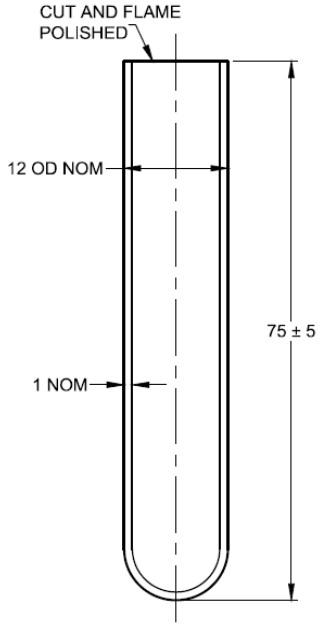
Thermal shock test shall be in accordance with IS/ISO 718.

8 MARKING

8.1 The tubes shall be marked with the following:

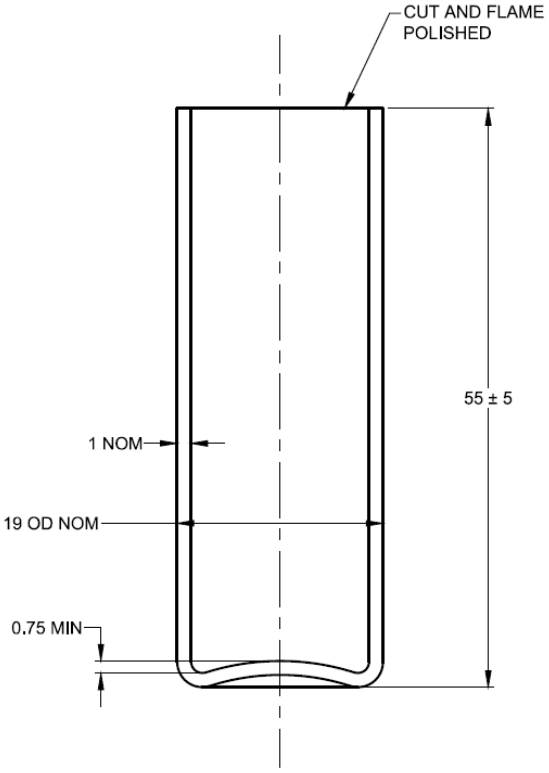
a) Name of the manufacturer or his trade-mark or initials; and

b) The Folin Wu tube shall be marked with the inscription 27 °C to indicate that it is calibrated at 27 °C.



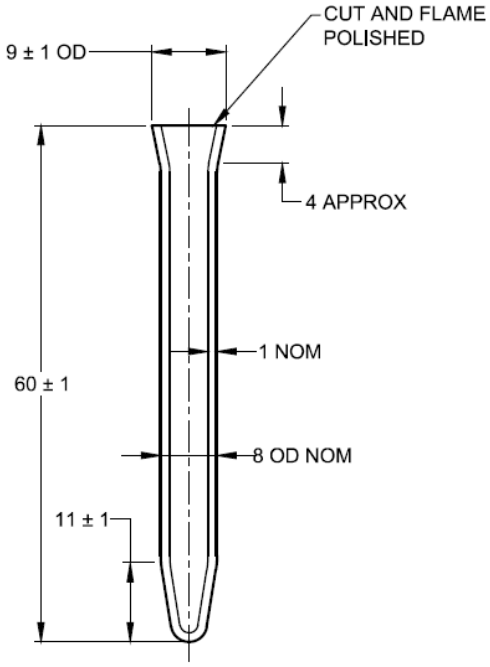
All dimensions in millimetres.

FIG. 2 TUBE FOR KAHAN AND WASSERMANN TEST



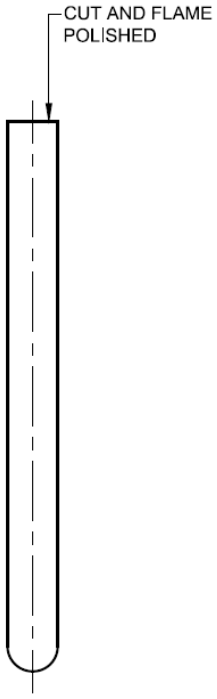
All dimensions in millimetres.

FIG. 3 TUBE ANTIGEN DILUTION



All dimensions in millimetres.

FIG. 4 TUBE AGGLUTINATION (DREYERS)



All dimensions in millimetres.

FIG. 5 TUBE DURHAM FERMENTATION AND BACTERIOLOGICAL

Table 1 Dimensions of Durham Fermentation Tubes and Bacteriological Test Tubes

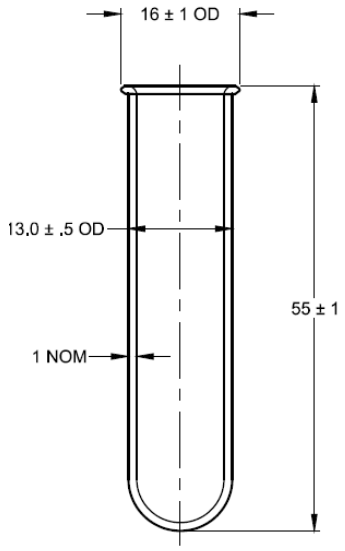
(*Clause* 6.2.5)

All dimension in millimetres.

Sl No.	Size	Overall Length	Outer Diameter	Wall Thickness, Nominal
(1)	(2)	(3)	(4)	(5)
i)	Durham fermentation tubes			
	I	30 ± 1	6.00 ± 0.25	1.0
	II	35 ± 1	8.00 ± 0.25	
	III	50 ± 1	7.50 ± 0.25	
	IV	60 ± 1	7.00 ± 0.25	
ii)	Bacteriological tubes			
	V	75 ± 1	10.0 ± 0.5	1.0
	VI	75 ± 1	12.0 ± 0.5	
	VII	100 ± 1	12.0 ± 0.5	
	VIII	100 ± 1	16.0 ± 0.5	
	IX	125 ± 2	12.0 ± 0.5	
	X	125 ± 2	19.0 ± 0.5	1.0
	XI	150 ± 2	16.0 ± 0.5	
	XII	150 ± 2	19.0 ± 0.5	
	XIII	150 ± 2	25.0 ± 1.0	
	XIV	175 ± 2	38.0 ± 1.0	1.0

NOTE — Bacteriological test-tubes suitable for use with different sizes of fermentation tubes are as given below:

	Sizes		
Durham fermentation tube	I, V, VI, VII, VIII, IX, X, XI	II,VIII, IX, X, XI	III, IV, XI
bacteriological test-tube			



All dimensions in millimetres.

FIG. 6 TUBE WIDAL

8.2 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.

9 PACKING

9.1 The tubes may be packed as given below or as agreed to between the purchaser and supplier.

9.2 The Folin Wu tube shall be wrapped in corrugated fibreboard. The other tubes shall be individually wrapped in tissue paper. Five of each kind shall be further wrapped in 10 mm thick layers of cotton and then in paper to form a bundle.

ANNEX A

(*Foreword*)

COMMITTEE COMPOSITION

Medical Laboratory Instruments Sectional Committee, MHD 10

Organization	*Representative(s)*
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SCIENTIST 'B'/ASSISTANT DIRECTOR
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Bureau of Indian Standards

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Amendments Issued Since Publication

Amend No.	Date of Issue	Text Affected

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