BRITISH STANDARD

BS 615:1953

Incorporating Amendment Nos. 1 and 2

CONFIRMED
DECEMBER 2007

Specification for

Kohlrausch flasks

Co-operating organizations

The Scientific Glassware and Related Laboratory Apparatus Industry Standards Committee, under whose supervision this British Standard was prepared, consists of representatives from the following Government departments and scientific and industrial organizations:—

Admiralty*
Air Ministry
Association of British Chemical Manufacturers*
Association of Scientific Workers
Board of Trade
British Association for the Advancement of Science*
British Chemical Ware Manufacturers' Association*
British Laboratory Ware Association*
British Lampblown Scientific Glassware Manufacturers' Association*
British Pharmacopoeia Commission
British Scientific Instrument Research Association
Chemical Society
Department of the Government Chemist*
D.S.I.R. — Chemical Research Laboratory
Glass Manufacturers' Federation*
Institute of Petroleum*
Ministry of Education
Ministry of Health*
Ministry of Supply*
National Physical Laboratory*
Oil Companies Materials Committee
Pharmaceutical Society of Great Britain
Royal Institute of Chemistry*
Science Masters' Association
Society of Chemical Industry
Society of Glass Technology*
Society of Public Analysts and Other Analytical Chemists*
Standardization of Tar Products Tests Committee*

The Government departments and scientific and industrial organizations marked with an asterisk in the above list, together with the following, were directly represented on the committee entrusted with the preparation of this British Standard:—

Association of Hospital Management Committees
Guild of Public Pharmacists
High Commission of India
Metropolitan Water Board
University of London (Faculty of Science)
Individual manufacturers

This British Standard, having been approved by the Scientific Glassware and Related Laboratory Apparatus Industry Standards Committee and endorsed by the Chairman of the Chemical Divisional Council, was published under the authority of the General Council on 14 July 1953

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Amendments issued since publication

Amd. No.	Date of issue	Comments
1767	December 1953	
4919	May 1963	Indicated by a sideline in the margin

Contents

Foreword

This standard makes reference to the following British Standards:—

BS 675, *Sugar flasks.*

BS 1797, *Tables for use in the calibration of volumetric glassware.*

This British Standard specifies three sizes of flask, suitable for use in viscosity determination and chemical analysis, and in particular for the following purposes:—

50 *ml. flask* — the determination of the viscosity of oils by means of the Redwood apparatus.

100 *ml. flask* — the analysis of sugars.[1)]

200 *ml. flask* — the determination of the viscosity of oils by means of the Engler apparatus.

This British Standard was first published in 1936. At that time three special sizes of flask for use in the sugar industry were included, but in view of the negligible demand for these in recent years they have now been omitted. The present revision has been brought into line with other specifications for volumetric glassware published since 1949, by listing only the essential dimensions as mandatory and including the others for the guidance of manufacturers.

Tests have shown that the requirement in Clause **5** regarding stability on an inclined plane is readily satisfied by good quality flasks in current production. It has been suggested that after further consideration by the manufacturers it may be possible to increase the specified minimum angle of "topple" from 10° to 15°.

SUBSIDIARY STANDARD TEMPERATURE OF 27 °C.

At the Second Meeting, in 1951, of Technical Committee ISO/TC 48 — Laboratory Glassware and Related Apparatus, of the International Organization for Standardization. It was agreed to qualify as follows the acceptance of 20 °C. as the standard temperature for volumetric glassware:—

"When it is necessary in tropical countries to work at an ambient temperature considerably above 20 °C., and these countries do not wish to use exclusively the standard temperature of 20 °C., it is recommended that they should adopt a temperature of 27 °C."

In order to meet the requirements of such tropical countries it has been decided to amend the British Standards for volumetric glassware to permit 27 °C., as an alternative to 20 °C.

In the present British Standard this amendment applies to Clauses **3** and **9**, to Appendix B, and to Figure 1.

In accordance with the recommendations of Committee ISO/TC 48 — use of the inscription "In" is now recommended in place of "C" to indicate that the flask is graduated "to contain". It is intended that this change shall become mandatory, when a revised edition of the standard is published.

A British Standard does not purport to include all the necessary provisions of a contract. Users of British Standards are responsible for their correct application.

Compliance with a British Standard does not of itself confer immunity from legal obligations.

Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, pages 1 to 4, an inside back cover and a back cover.

This standard has been updated (see copyright date) and may have had amendments incorporated. This will be indicated in the amendment table on the inside front cover.

[1)] A modified Kohlrausch flask of greater accuracy, intended for polarization work on raw and refined sugar, is specified in BS 675, *"Sugar flasks"*.

1 Scope

This British Standard specifies a range of Kohlrausch flasks suitable for use in viscosity determination and chemical analysis.

2 Sizes

Three sizes of flask are specified, of capacity 50, 100 and 200 ml. respectively.

3 Definition of capacity

The capacity of the flask is defined as the volume of water at 20 °C., expressed in millilitres, contained by the flask at 20 °C., when determined as described in Appendix B.

4 Material

The flask shall be made of clear glass, as free as possible from visible defects, and shall be well annealed.

5 Construction

The general shape of the flask shall be as shown in Figure 1. It shall stand vertically on its base without rocking and shall not topple when placed empty on a surface inclined at an angle of 10° to the horizontal.

The junction between the wide and narrow parts of the neck shall be such as to facilitate the flow of liquid down the wall and there shall be no shoulder on which liquid can lodge.

The flange at the top of the neck shall be turned over sharply and the mouth shall not be belled to any considerable distance from the top of the neck.

The flask shall be sufficiently robust in construction to withstand normal usage and the wall thickness shall show no gross departures from uniformity.

6 Dimensions

The only mandatory dimensions for British Standard Kohlrausch flasks are those specified in Table 1.

Table 2 provides for the guidance of manufacturers further recommended dimensions suitable for Kohlrausch flasks. These dimensions are not a mandatory part of the specification, but a flask which, on visual inspection, shows any gross departure from them shall be deemed not to comply with the specification.

Table 1 — Mandatory dimensions for Kohlrausch flasks

All dimensions are in millimetres

Dimension			Nominal capacity		
			50 ml.	100 ml.	200 ml.
a) Internal diameter of narrow part of neck					
	Classes A and B	minimum	8	10	12
	Class A	maximum	10	12	14
	Class B	maximum	12	14	16
b) Length of tube of uniform bore above and below graduation mark		minimum	5	5	6
c) Diameter of base		minimum	27	34	40

Table 2 — Recommended dimensions for Kohlrausch flasks

All dimensions are in millimetres

Dimension	Nominal capacity		
	50 ml.	100 ml.	200 ml.
d) Internal diameter of wide part of neck	25	25	30
e) Length of cylindrical portion of narrow part of neck	30	35	40
f) Distance from top of narrow part of neck to top of wide part	45	53	63
g) Overall height	127	155	185

7 Graduation mark

The graduation mark shall be a fine clean permanent line of uniform thickness, completely encircling the neck of the flask and lying in a plane parallel to the base.

8 Tolerances on capacity

Two sets of tolerances are specified, namely Class A and Class B, as shown in Table 3.

Table 3 — Tolerances on capacity for Kohlrausch flasks

Tolerance		Nominal capacity		
		50 ml.	100 ml.	200 ml.
Class A	ml.	± 0.04	± 0.06	± 0.1
Class B	ml.	± 0.06	± 0.1	± 0.2

9 Inscriptions

Each flask shall have permanently and legibly marked on it:

a) The nominal capacity of the flask, e.g. "100 ml."

b) *Either* the inscription "In 20 °C" *or* the inscription "C20 °C" to indicate that the flask is graduated for content at 20 °C.

c) An identification number, which is mandatory on Class A flasks and optional on Class B flasks.

d) The maker's or vendor's name or mark.

e) The number of this British Standard, i.e. "BS 615",[2)] and also the letter "A7" or "B" to indicate the class of accuracy for which the flask has been graduated.

[2)] The mark "BS 615" on the product is an indication by the manufacturer that it purports to comply with the requirements of this British Standard.
The British Standards Institution is the owner of the registered certification mark shown below:—

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Appendix A Testing of British Standard Kohlrausch flasks

The National Physical Laboratory is prepared to accept flasks for examination for compliance with the Class A requirements of this British Standard. Certificates of values will be issued for satisfactory Class A flasks, if required. Particulars of the fees charged can be obtained on application to the Director, National Physical Laboratory, Teddington, Middlesex.

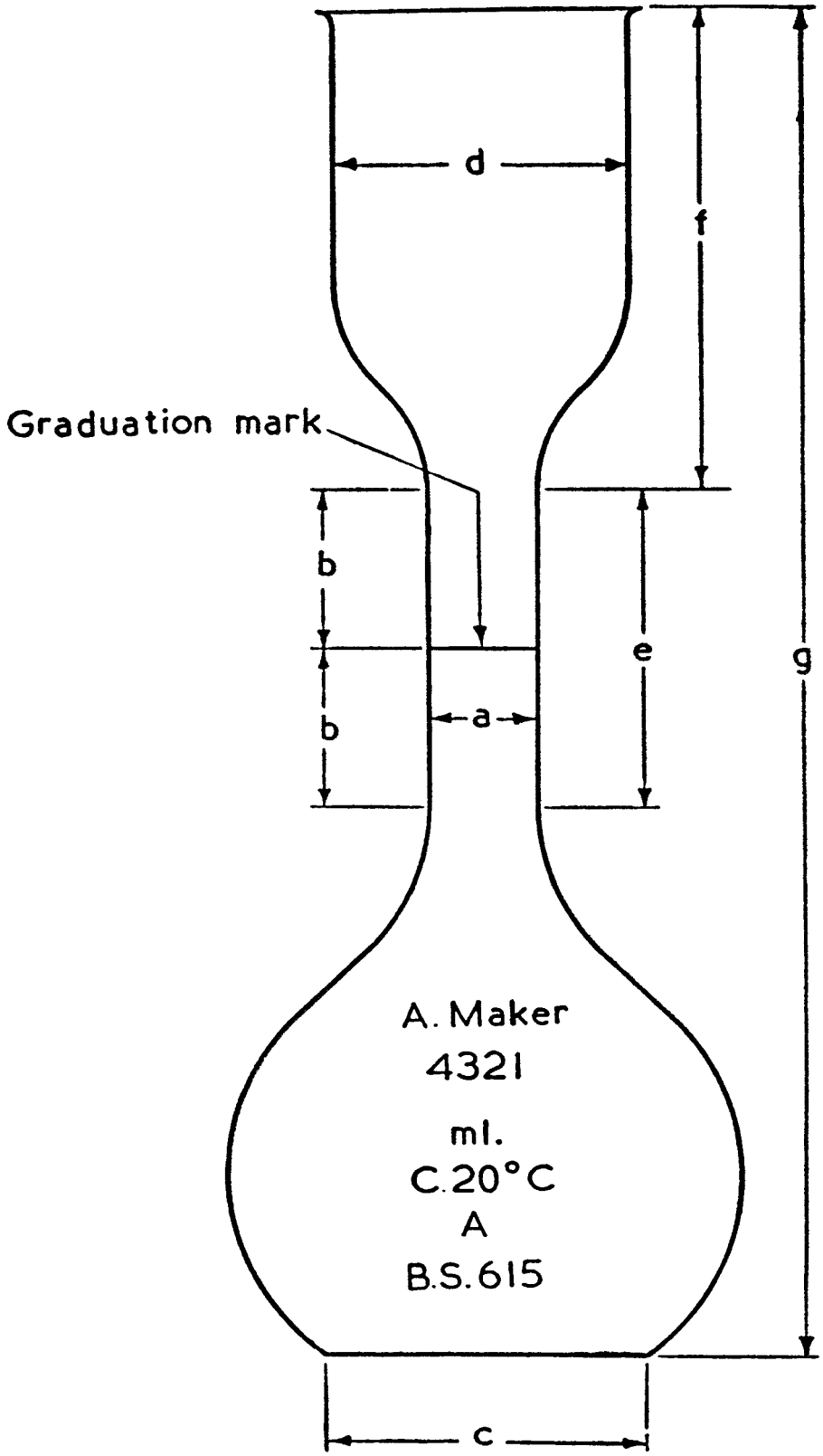
Appendix B Method for the determination of capacity

When determining the capacity of a flask the vessel shall first be thoroughly cleaned and dried. If hot air is used to speed up the process of drying, care shall be taken that the flask settles down to room temperature before testing.

The clean weighed flask shall then be filled with distilled water to a few millimetres above the graduation mark, care being taken to avoid wetting the neck of the flask above the water surface and also to avoid trapping any air bubbles on the walls of the flask. The lowest point of the water meniscus[3)] shall be adjusted to the top edge of the graduation mark by withdrawing small amounts of water by means of a glass tube drawn out to a jet at its lower end. The weight of the water in the flask shall then be determined.

All operations shall be carried out at room temperature. The volume of water contained by the flask at 20 °C. shall be calculated from the weight thus determined by applying corrections for water temperature and, where necessary, air temperature and pressure (see BS 1797[4)]).

[3)] The meniscus can be clearly defined by folding a strip of black paper round the neck, the top edge of the paper being not more than 1 mm. below the graduation mark. The meniscus, so shaded, is viewed against a white background.
[4)] BS 1797, *"Tables for use in the calibration of volumetric glassware"*.



The lettered dimensions refer to Table 1 and Table 2

Figure 1 — British Standard Kohlrausch flask

British Standards

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Including subject index and numerical list of
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