

Specification for

Plastics laboratory ware —

Part 2: Graduated measuring cylinders

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- British Lampblown Scientific Glassware Manufacturers' Association
- British Pharmacopoeia Commission
- Chemical Industries Association
- Chemical Society
- Department of Health and Social Security
- Department of Industry (Laboratory of the Government Chemist)*
- Department of Industry (National Physical Laboratory)
- Glass Manufacturers' Federation
- Institute of Petroleum
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- Society of Chemical Industry
- Society of Glass Technology
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The 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:

- British Society of Scientific Glassblowers
- Consortium of Local Education Authorities for the provision of Science Equipment
- Institute of Medical Laboratory Science
- Medical Research Council
- Individual expert

This British Standard, having been prepared under the direction of the Laboratory Apparatus Standards Committee, was published under the authority of the Executive Board on 30 September 1977

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Foreword

This British Standard has been prepared under the direction of the Laboratory Apparatus Standards Committee to provide for plastics graduated measuring cylinders of the type in general use in laboratories. It has been drawn up with reference to a Draft International Standard on laboratory glass graduated measuring cylinders, which, at the time of preparation of this British Standard, was being studied in ISO Technical Committee ISO/TC 48, Laboratory glassware and related apparatus. The details specified conform with ISO/R 384.

Differences between this British Standard and the Draft International Standard on glass graduated measuring cylinders have been limited, in most instances, to those arising from the differences in physical properties of the respective materials used in their construction. This British Standard specifies measuring cylinders intended for use with aqueous solutions at the reference temperature. **Before using these measuring cylinders for strong acids and alkalis, oxidizing agents or non-aqueous solutions or at other temperatures, users should satisfy themselves that the cylinders are suitable for such applications either by laboratory tests or by reference to the manufacturer or supplier.**

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.

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Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, pages 1 to 8, 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 Scope

This British Standard specifies requirements for a series of plastics cylinders with a graduated volumetric scale and a pouring lip.

2 References

The titles of the publications referred to in this standard are listed on the inside back cover.

3 Basis of graduation

3.1 Unit of volume. The unit of volume shall be the cubic centimetre (cm³), for which the name millilitre (ml) may be used.

NOTE The term millilitre (ml) is commonly used as a special name for the cubic centimetre (cm³), in accordance with a decision of the twelfth Conférence Générale des Poids et Mesures. The term millilitre is acceptable, in general, for reference to capacities of volumetric glassware and is used in the present text.

3.2 Reference temperature. The standard reference temperature, i.e. the temperature at which the cylinder is intended to contain its nominal volume (nominal capacity), should be 20 °C.

NOTE When it is necessary as in tropical countries to work at an ambient temperature considerably above 20 °C, and users do not wish to use the standard temperature of 20 °C, it is recommended that the reference temperature be 27 °C.

4 Series of nominal capacities

The series of nominal capacities of graduated measuring cylinders shall be as shown in Table 1.

Table 1 — Series of capacities, divisions and tolerances

Nominal capacity	Smallest scale division	Maximum permitted error	Maximum ungraduated capacity at base
ml	ml	ml	ml
10	0.2	± 0.2	1
25	0.5	± 0.5	2.5
50	1	± 1	5
100	1	± 1	10
250	2	± 2	20
500	5	± 5	50
1 000	10	± 10	100
2 000	20	± 20	200

5 Definition of capacity

5.1 General case. The capacity corresponding to any graduation line shall be defined as the volume of water at 20 °C, expressed in millilitres, contained by the cylinder at 20 °C when filled to that graduation line in accordance with the procedure given in A.1.

5.2 Special case. Where, exceptionally, the reference temperature is 27 °C, this value shall be substituted for 20 °C.

6 Accuracy

There shall be one class of accuracy.

When tested in accordance with Appendix A the errors on capacity shall not exceed the maximum permitted errors shown in Table 1. The error represents the maximum permissible error at any point and also the maximum permissible algebraic difference between the errors at any two points.

7 Material

7.1 General. Cylinders shall be rigidly constructed of generally non-brittle transparent or translucent plastics material of suitable chemical and thermal properties and shall be as free as possible from moulding defects and stress.

7.2 Resistance to extraction of ionic material by water at 20 °C. When tested in accordance with the procedure given in Appendix B, the cylinder shall give an aqueous extract, free of suspended matter, and having a conductivity not more than 200 µS/m greater than that of the original water used for the extraction.

NOTE 200 µS/m is equivalent to the conductivity of water containing approximately one part per million of sodium chloride.

8 Details of construction

(see also Figure 1)

8.1 Stability. The cylinders shall stand vertically without rocking or spinning when placed on a level surface. They shall not topple when placed empty on a non-slip surface inclined at an angle of $12 \pm 1^\circ$ to the horizontal.

8.2 Base. The base shall be of a suitable plastics material, and may be integral with the body. It may be either polygonal with five or more equal sides, or circular.

8.3 Spout. The spout shall be so formed as to enable the contents of the cylinder to be poured out in a narrow stream without spilling or running down the outside of the cylinder.