

INTERNATIONAL STANDARD

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Laboratory glassware — Disposable microhaematocrit capillary tubes

Verrerie de laboratoire — Tubes capillaires microhématocrites à usage unique



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Foreword

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Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

This International Standard ISO 12772 has been prepared by Technical Committee ISO/TC 48, *Laboratory glassware and related apparatus*, Subcommittee SC 1, *Volumetric instruments*.

Annexes A, B and C form an integral part of this International Standard. Annexes D and E are for information only.

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Laboratory glassware — Disposable microhaematocrit capillary tubes

1 Scope

This International Standard provides details for two types of disposable glass capillary tubes, suitable for the microhaematocrit test and other analytical tests which include a separation of plasma and cells. The details specified are in conformity with ISO 8417, to the greatest possible extent.

WARNING — Capillary tubes can break during the analytical test procedure, resulting in broken sharp glass, blood spillage and aerosols. Appropriate precautions shall be taken to avoid dangerous infections.

2 Normative references

The following standards contain provisions which, through references in this text, constitute provisions of this International Standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 719:1985, *Glass - Hydrolytic resistance of glass grains at 98 °C - Method of test and classification*.

ISO 8417:—¹, *Laboratory volumetric instruments - Principles of design and construction of disposable volumetric articles*.

3 Definition

For the purposes of this International Standard, the following definition applies.

3.1 disposable: Adjective used to describe microhaematocrit capillary tubes which are intended to be used once only and then discarded.

NOTE — Such capillary tubes will only be expected to provide their specified performance during the original operation.

4 Classification

This International Standard describes two types of disposable glass capillary tubes as follows:

- Type I: coated with anti-coagulant
- Type II: uncoated

NOTE — Ammonium heparin, lithium heparin and sodium heparin are the preferred anti-coagulants for the microhaematocrit test. Salts of EDTA²⁾ and fluorides (usually sodium or potassium) may be used when capillary tubes are needed for special purposes.

¹⁾ To be published.

²⁾ EDTA is an abbreviation for ethylenediaminetetraacetic acid

5 Construction

5.1 Material

When tested in accordance with the procedure and classification given in ISO 719, the glass used for the capillary tubes shall at least comply with the requirements of class HGB 3.

The glass shall be free from visible defects and shall be free from internal stresses which would impair the performance of the capillary tube.

5.2 Design

The tubes shall be straight and open at both ends without lip or constriction. The tubes may be slightly fire-polished on one or both ends.

5.3 Dimensions

The dimensions of the tubes shall be as follows:

Length:	$(75 \pm 0,5)$ mm
Internal diameter:	$(1,15 \pm 0,08)$ mm
Wall thickness:	$(0,2 \pm 0,025)$ mm

The bore of the tubes shall be uniform and shall not vary by more than 4 % of the total over a distance of 75 mm.

NOTE — As the bore variation is critical for the analytical result, smaller bore variations than 4 % may be marked on the packaging of the capillary tubes.

5.4 Ring mark

The tubes may be provided with a ring mark to ease filling. Such a ring mark shall be at a distance of 60 mm max. from one end of the tube. The line thickness shall be between 0,5 mm and 1 mm.

In the case of colour-coded tubes (see 6.2), the colour of the ring mark should preferably be that of the colour code, or may be black.

5.5 Resistance to centrifugal force

When the tubes are tested as specified in annex A, not more than 0,5 % shall break.

5.6 Capillarity

The tube shall be capable of drawing plasma, serum or human whole blood to a level within 20 mm from the far end of the tube when tested as specified in annex B.

NOTE — In view of the possible infection risks, human blood should not be used.

5.7 Anti-coagulant (Type I only)

The inner surface of Type I tubes shall be evenly coated with an anti-coagulant (see clause 4). In the case of heparin, the coating shall show an activity of 2,13 IU to 7,45 IU (International Units) per capillary when tested as described in annex E. An airtight container should be used in order to prevent deterioration of the anti-coagulant caused by air moisture.