
INTERNATIONAL STANDARD



3432

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION • МЕЖДУНАРОДНАЯ ОРГАНИЗАЦИЯ ПО СТАНДАРТИЗАЦИИ • ORGANISATION INTERNATIONALE DE NORMALISATION

Cheese — Determination of fat content — Butyrometer for Van Gulik method

Fromages — Détermination de la teneur en matière grasse — Butyromètre pour la méthode Van Gulik

iTeh STANDARD PREVIEW

First edition — 1975-07-15

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[ISO 3432:1975](#)

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FOREWORD

ISO (the International Organization for Standardization) is a worldwide federation of national standards institutes (ISO Member Bodies). The work of developing International Standards is carried out through ISO Technical Committees. Every Member Body interested in a subject for which a Technical Committee has been set up has the right to be represented on that Committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work.

Draft International Standards adopted by the Technical Committees are circulated to the Member Bodies for approval before their acceptance as International Standards by the ISO Council.

International Standard ISO 3432 was drawn up by Technical Committee ISO/TC 34, *Agricultural food products*, and circulated to the Member Bodies in January 1974.

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It has been approved by the Member Bodies of the following countries :

Austria	Germany	Romania
Belgium	Hungary	South Africa, Rep. of
Bulgaria	India	Spain
Canada	Ireland	Thailand
Chile	Israel	Turkey
Czechoslovakia	Italy	United Kingdom
Egypt, Arab Rep. of	Netherlands	
France	Poland	

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No Member Body expressed disapproval of the document.

Cheese — Determination of fat content — Butyrometer for Van Gulik method

1 SCOPE AND FIELD OF APPLICATION

This International Standard specifies the characteristics of a 0 to 40 % butyrometer (including stoppers) for the determination of the fat content of cheese by the Van Gulik method (ISO 3433) and illustrates suitable devices for weighing and introducing the cheese test portion.

2 REFERENCE

ISO 3433, *Cheese — Determination of fat content — Van Gulik method.*

3 CONSTRUCTION

3.1 Material

The butyrometer shall be made of clear glass as free as possible from visible defects and shall be resistant to the thermal shocks and the reagents encountered in the Van Gulik method.

3.2 Shape and dimensions

The butyrometer shall conform to the shape and dimensions shown in figure 1.

The internal surface shall be smooth and free from any defects so that during the determination none of the fat is prevented from entering the graduated tube.

The outer surface shall be symmetrical about the axis and all changes in cross-section shall be smooth, particularly the transition between the body and the graduated tube.

The wall thickness throughout shall be adequate to render the butyrometer sufficiently robust for the purpose for which it is intended; the wall thickness shall be at least 0,9 mm.

3.3 Openings

The openings shall be cylindrical, plain and preferably strengthened at the outer end by an outside rim as illustrated in figure 1. The external diameter of the neck shall not exceed 25 mm.

3.4 Body

The capacity of the butyrometer, i.e. between the levels Y and Z in figure 1, shall be $21,0 \pm 0,5$ ml (measured without a weighing device in position).

3.5 Graduated tube

The graduated tube shall be of the flat-bore type shown in cross-section in figure 1. The back surface of the tube shall not be frosted.

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4 GRADUATION AND NUMBERING

4.1 Basis of graduation

1,354 ml* at 20 °C, corresponding to 40 % fat

4.2 Description of the scale and its graduation

The graduation shall be as follows :

Length of scale, mm	71 ± 7
Scale range, % (m/m) fat	0 — 40
Number of graduations	80
Graduated	at each 0,5 %
Graduation lines of intermediate length	at each 1 % i.e. at every 2 divisions
Full-length graduation lines	at each 5 % i.e. at every 10 divisions
Numbered	at each 5 % i.e. at every 10 divisions
Maximum deviation from the required volume (4.1) of the graduated tube between any two graduation lines	0,25 %** i.e. half a scale division

* This is the volume of 18,34 g of mercury at 20 °C.

** i.e. 0,25 g of fat for 100 g of sample.

4.3 Position of scale

The position of the scale of the flat bore tube shall be such that the tube is uniform in cross-section, internally for at least 3 mm and externally for at least 5 mm, beyond each end of the scale.

4.4 Graduation lines

The graduation lines shall be clearly etched, of uniform thickness between 0,1 and 0,2 mm, and shall lie in planes perpendicular to the axis of the graduated tube and with no evident irregularity in their spacing. They shall be symmetrical about the centre line of the front of the tube.

Short graduation lines shall be 3 to 4 mm long. Graduation lines of intermediate length shall project equally beyond the left and right of short graduation lines for a distance of at least 1 mm but their total length shall not exceed 6 mm. Full-length (numbered) graduation lines shall extend completely across the flat portion of the front of the graduated tube.

4.5 Numbers

The numbers of the scale shall be permanent and clearly legible; each shall appear immediately above the graduation line to which it refers and to the right of the axis of the scale, when the butyrometer is vertical with its graduated tube uppermost and viewed from the front. The percentage symbol (%) shall be in front of the uppermost number, as indicated in figure 1.

5 INSCRIPTIONS

The following inscriptions shall be permanently and legibly marked on the body of the butyrometer :

- a) "CHEESE Van Gulik 65 °C";
- b) "ISO 3432" or the number of the equivalent national standard;
- c) the maker's or vendor's name or mark.

An identification number may be added if required.

6 WEIGHING DEVICE

If required, a weighing device may be used for the test portion. Suitable types are illustrated in figure 2.

NOTE — Other weighing devices, such as those made from plastics sheet, may be used provided that they do not influence the result.

7 STOPPERS

7.1 Material

The stoppers shall be made from a suitable grade of material having a hardness of 38 ± 5 IRHD.

7.2 Shape and dimensions

The stoppers shall conform to the shape and dimensions shown in figure 3. The optional central hole indicated will only be required when a weighing device of the type shown in figure 2 is used.

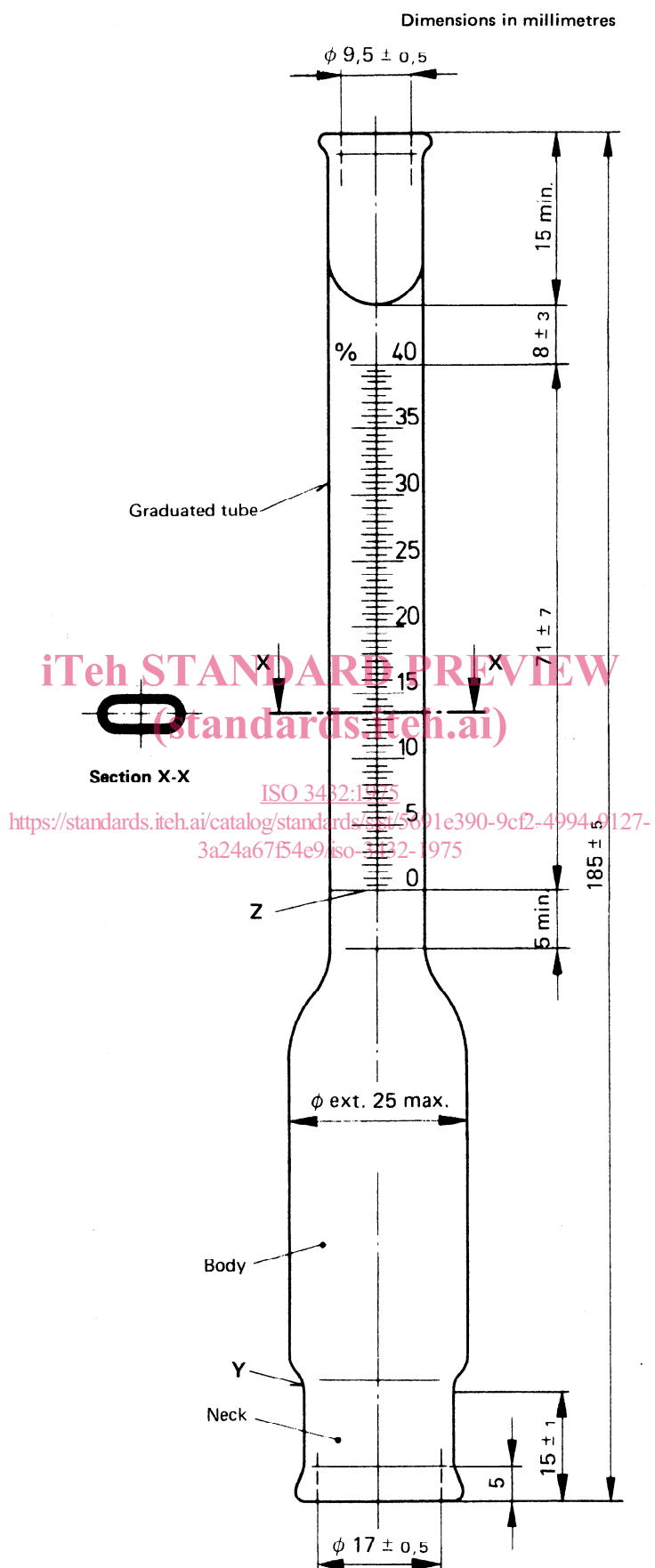


FIGURE 1 – Van Gulik butyrometer

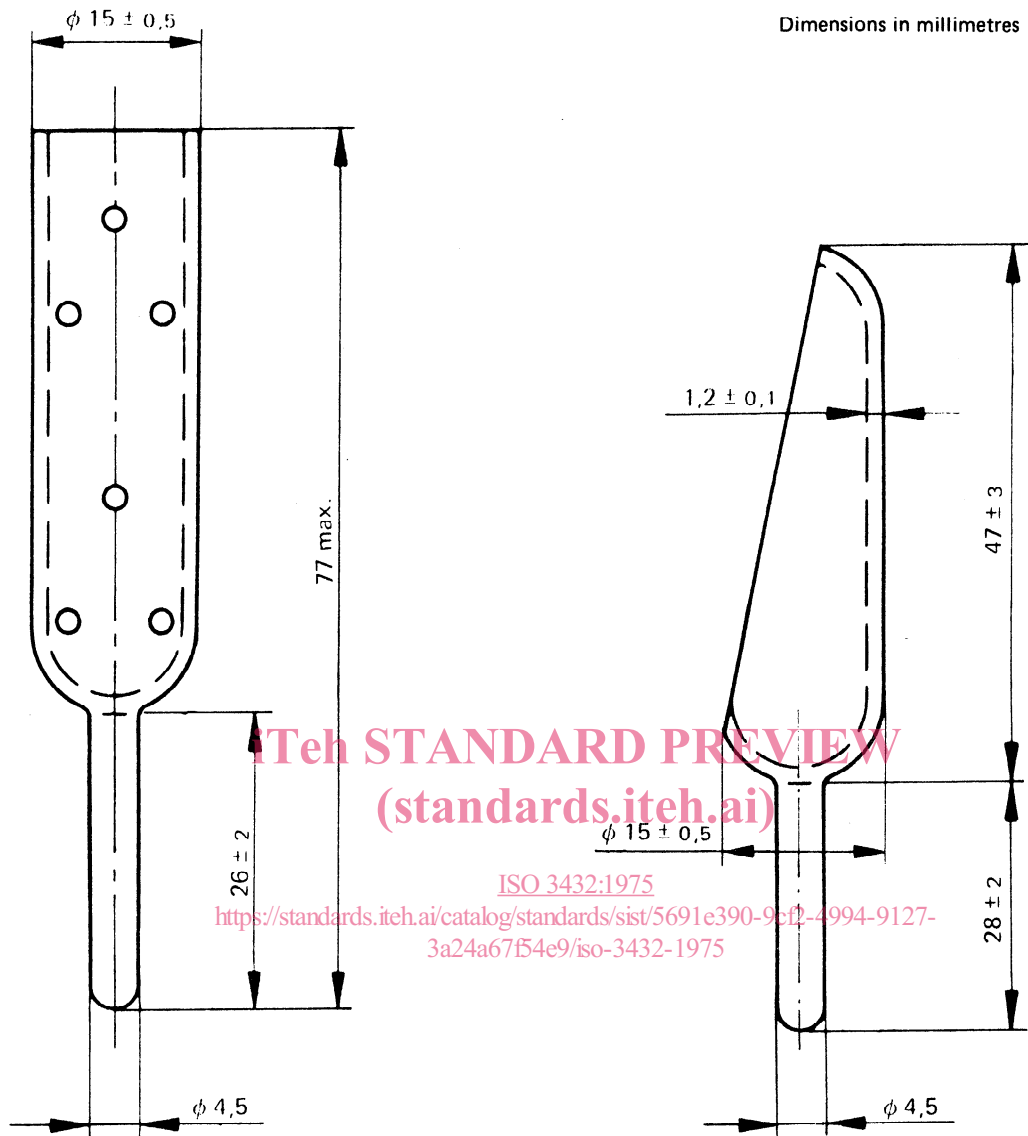


FIGURE 2 – Suitable weighing devices for the Van Gulik butyrometer

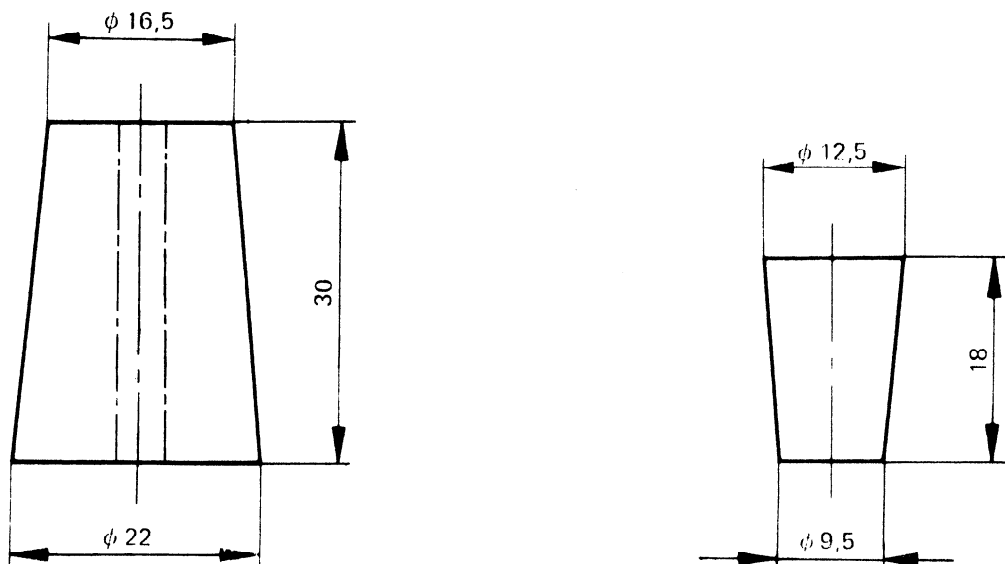


FIGURE 3 – Stoppers for the Van Gulik butyrometer

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