INTERNATIONAL STANDARD ISO 3433

Cheese — Determination of fat content — Van Gulik method

Fromages — Détermination de la teneur en matière grasse — Méthode Van Gulik

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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 3433 was drawn up by Technical Committee ISO/TC 34, *Agricultural food products*, and circulated to the Member Bodies in March 1974.

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

Austria	Hungary	Spain
Belgium	India	Thailand
Bulgaria	Iran	Turkey
Canada	Ireland	United Kingdom
Czechoslovakia	Israel	U.S.S.R.
Ethiopia	Netherlands	Yugoslavia
France	Poland	
Germany	South Africa, Rep. of	

No Member Body expressed disapproval of the document.

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AMENDMENT

Foreword (Inside front cover)

The ISO Member Body for the Arab Republic of Egypt has now approved this International Standard. The Arab Republic of Egypt should therefore be included in the list of countries whose Member Bodies have approved the document.

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Cheese — Determination of fat content — Van Gulik method

1 SCOPE AND FIELD OF APPLICATION

This International Standard describes the Van Gulik method for the determination of the fat content of cheese.

This method is applicable to all types of cheese. However, it may not give completely satisfactory results when it is applied to cheeses with an internal mould (blue-veined cheeses). See note in 8.3.11.

2 REFERENCES

ISO/R 707, *Milk and milk products — Sampling.*

ISO/R 1735, *Cheese and processed cheese products — Determination of fat content (Reference method).*

ISO 2446, *Milk — Determination of fat content — Gerber method.* [1]

ISO 3432, *Butyrometer for determination of the fat content of cheese by the Van Gulik method.*

3 DEFINITION

Van Gulik method : An empirical procedure which, when applied to a cheese, gives a value for fat content, expressed in grams per 100 g of cheese, that is equivalent to that obtained by the reference method (ISO/R 1735).

4 PRINCIPLE

Dissolution of the protein with sulphuric acid, followed by separation of the fat of the cheese in a Van Gulik butyrometer by centrifuging, the separation being assisted by the addition of a small quantity of amyl alcohol.

Direct reading of the fat content on the butyrometer scale.

5 REAGENTS

5.1 Sulphuric acid.

The sulphuric acid shall have a density at 20 °C of 1,522 ± 0,005 g/ml, which corresponds to 61,72 to 62,63 %

(m/m) H_2SO_4. The acid shall be colourless or not darker in colour than pale amber, and shall not contain any impurity likely to affect the result.

5.2 Amyl alcohol.

5.2.1 *Composition*

At least 98 % (V/V) of the amyl alcohol shall consist of the primary alcohols 3-methylbutan-1-ol and 2-methyl-butan-1-ol, the only permissible major impurities being 2-methylpropan-1-ol and butan-1-ol. It shall be free from secondary pentanols, 2-methylbutan-2-ol, 2-furaldehyde, gasoline (petrol) and derivatives of benzene. Not more than a trace of water shall be present.

5.2.2 *Physical appearance*

The amyl alcohol shall be clear and colourless.

5.2.3 *Density*

The amyl alcohol shall have a density at 20 °C of 0,808 to 0,818 g/ml.

5.2.4 *2-Furaldehyde and other organic impurities*

When 5 ml of the amyl alcohol is added to 5 ml of the sulphuric acid (5.1), no more than a yellow or light brown colour shall develop.

5.2.5 *Distillation range*

When the amyl alcohol is distilled at a pressure of 1 013 mbar*, not less than 98 % (V/V) shall distil below 132 °C and not more than 5 % (V/V) below 128 °C. There shall be no solid residue after distillation.

NOTE — If the atmospheric pressure during the distillation is lower or higher than 1 013 mbar, the specified temperatures should be respectively decreased or increased by 0,03 °C/mbar.

5.2.6 *Suitability test*

An amyl alcohol may satisfy the requirements of 5.2.1 to 5.2.5 yet be unsuitable for the Van Gulik method. Therefore, check the suitability of the amyl alcohol before use by means of the following comparative test with a standard amyl alcohol.

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1) At present at the stage of draft.

* 1 mbar = 0,1 kPa.