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# ISO

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION

## ISO RECOMMENDATION

### R 1871

AGRICULTURAL FOOD PRODUCTS

GENERAL DIRECTIONS FOR THE DETERMINATION OF NITROGEN  
BY THE KJELDAHL METHOD

1st EDITION

May 1971

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## BRIEF HISTORY

The ISO Recommendation R 1871, *Agricultural food products – General directions for the determination of nitrogen by the Kjeldahl method*, was drawn up by Technical Committee ISO/TC 34, *Agricultural food products*, the Secretariat of which is held by the Magyar Szabványügyi Hivatal (MSZH).

Work on this question led to the adoption of Draft ISO Recommendation No. 1871, which was circulated to all the ISO Member Bodies for enquiry in January 1970. It was approved, subject to a few modifications of an editorial nature, by the following Member Bodies :

|                |             |                       |
|----------------|-------------|-----------------------|
| Australia      | Hungary     | Romania               |
| Austria        | India       | South Africa, Rep. of |
| Brazil         | Israel      | Sweden                |
| Czechoslovakia | Netherlands | Turkey                |
| Denmark        | New Zealand | U.A.R.                |
| Finland        | Peru        | United Kingdom        |
| France         | Poland      | U.S.S.R.              |
| Greece         | Portugal    |                       |

No Member Body opposed the approval of the Draft.

This Draft ISO Recommendation was then submitted by correspondence to the ISO Council, which decided to accept it as an ISO RECOMMENDATION.

## AGRICULTURAL FOOD PRODUCTS

**GENERAL DIRECTIONS FOR THE DETERMINATION OF NITROGEN  
BY THE KJELDAHL METHOD**

## INTRODUCTION

- I.** The analysis of products of animal or vegetable origin, particularly food products, often includes a determination of the so-called total nitrogen by the Kjeldahl method.

It therefore seems useful, in order to make the results comparable, to recommend a single procedure for this determination.

Experience has shown

- (1) that different procedures are in use, depending on the products and the operators in the various countries;
- (2) that these different procedures, when correctly applied, give very similar results.

- II.** As far as can be seen, the spread of the results of the determination of nitrogen, due to the variety of procedures, generally seems less than the spread of the results attributable to the heterogeneity of the products examined. Furthermore, the fact of choosing a special procedure for each type of product to be analysed has the following results :

- (1) it is undoubtedly satisfactory to those analysts who, since they always analyse the same product, have chosen the procedure to which they are accustomed and which suits them;
- (2) it compels laboratories which analyse various types of products, and wish to follow ISO Recommendations, to multiply their procedures. This obliges them to have available a variety of types of apparatus and reagents and to train personnel in their use, which is contrary to the spirit of standardization.

In addition, for the analysis of compound products, of which each constituent should in principle be analysed by a special procedure, it is necessary to choose a method which will not necessarily be that adopted for each of the constituents of the product. This can only be damaging to the application of ISO Recommendations;

- (3) it means, as often as not, that laboratories which analyse different types of products find themselves unable to use the exact procedures specified because they do not have at their disposal all the necessary types of apparatus and reagents for these various procedures.

They are therefore forced either to use their normal procedure (which may not correspond to all the requirements) or to work out a compromise between their own procedure and that specified, and thus to deviate from the ISO Recommendations.

- III.** The conclusion reached is that the Kjeldahl method can be standardized in principle, but that it is possible to agree that various forms of apparatus or procedures are equivalent if they give equivalent results.

It has therefore been thought preferable

- (1) to define the general directions necessary for the correct application of the Kjeldahl method for the determination of nitrogen in agricultural food products; this is the purpose of the present ISO Recommendation;
- (2) to leave it to the ISO Recommendations which are specific to certain products to describe detailed procedures which are in accordance with the provisions of the general directions and which can constitute working documents for laboratories.

There are products containing nitrogenous compounds in which the nitrogen cannot be determined by the Kjeldahl method; these are special cases not compatible with the general directions, and other suitable methods should be the subject of special ISO Recommendations for these products.