UDC 664.8 : 620.1

Ref. No. : ISO/R 751-1968 (E)

ISO

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION

ISO RECOMMENDATION

R 751

FRUIT AND VEGETABLE PRODUCTS

DETERMINATION OF WATER-INSOLUBLE SOLIDS

1st EDITION
June 1968

For each individual country the only valid standard is the national standard of that country.

Printed in Switzerland

Also issued in French and Russian. Copies to be obtained through the national standards organizations.

BRIEF HISTORY

The ISO Recommendation R 751, *Fruit and vegetable products – Determination of water-insoluble solids,* was drawn up by Technical Committee ISO/TC 34, *Agricultural food products,* the Secretariat of which is held by the Magyar Szabvanyügyi Hivatal (MSZH).

Work on this question by the Technical Committee began in 1960 and led, in 1964, to the adoption of a Draft ISO Recommendation.

In October 1966, this Draft ISO Recommendation (No. 1021) was circulated to all the ISO Member Bodies for enquiry. It was approved, subject to a few modifications of an editorial nature, by the following Member Bodies :

Argentina	Hungary	Romania
Australia	India	South Africa, Rep. of
Brazil	Iran	Thailand
Bulgaria	Ireland	Turkey
Chile	Israel	United Kingdom
Colombia	Korea, Rep. of	U.S.S.R.
Czechoslovakia	Netherlands	Yugoslavia
France	New Zealand	
Germany	Poland	
Greece	Portugal	

No Member Body opposed the approval of the Draft.

The Draft ISO Recommendation was then submitted by correspondence to the ISO Council, which decided, in June 1968, to accept it as an ISO RECOMMENDATION.

ISO Recommendation R 751 June 1968

FRUIT AND VEGETABLE PRODUCTS

DETERMINATION OF WATER-INSOLUBLE SOLIDS

1. SCOPE

This ISO Recommendation describes a method for the determination of water-insoluble solids in the edible parts of fruit and vegetable products.

2. PRINCIPLE

Solution of the water-soluble matter, filtration, drying of the residue and weighing.

3. APPARATUS

3.1 *Beakers*, 250 ml and 400 ml capacity.

3.2 *Büchner funnel.*

3.3 *Filter paper*, medium texture.

3.4 *Indicator paper.*

3.5 *Weighing vessel.*

3.6 *Desiccator*, containing an efficient desiccant.

3.7 *Analytical balance.*

3.8 *Oven*, regulated at 100 to 105 °C.

3.9 *Blender, or mortar.*

3.10 *Centrifuge.*

4. PROCEDURE

4.1 Preparation of the sample

Remove stalks, stones, seed pockets, and whenever possible, pips.

4.1.1 *Liquid or easily filtered products* (juices, pulpy products, etc.).

Mix the sample thoroughly.

4.1.2 *Thick products and products difficult to filter* (syrups, marmalades, jams, jellies, etc.).

Carefully mix the laboratory sample*, then draw a quantity sufficient for at least two parallel determinations and disintegrate it in the blender or mortar.

* Pending the completion of an ISO Recommendation on the sampling of fruit and vegetable products, the term "laboratory sample" is used in the English text to denote the sample as delivered to the laboratory.

4.2 Test portion

Weigh, to the nearest 0.01 g, 10 to 100 g of the prepared sample (see clause 4.1), depending on the consistency of the product and the assumed content of water-insoluble solids, e.g. :

– tomato purée	10 g
– jam, marmalade	25 g
– pulpy products	50 g
– fruit and vegetable juices	100 g

4.3 Determination

Carefully transfer the test portion to the 250 ml beaker (3.1), add about 100 to 150 ml of water and stir with a rod until a homogeneous mixture is obtained. Heat to boiling. For the analysis of products having a high sugar content, transfer the test portion to the 400 ml beaker (3.1), add about 250 ml of water, bring to the boil and keep gently boiling for 5 to 10 minutes.

Transfer the contents of the beaker quantitatively to the filter paper (3.3) placed in the Büchner funnel (3.2); the filter paper should have been previously dried at 100 to 105 °C in the weighing vessel (3.5) tared to the nearest 0.001 g.

When the products being analysed filter with difficulty (products with a high content of pectin or protein), or when dealing with products of high sugar content (marmalade, jam, etc.), separate if necessary the matter difficult to filter by centrifuging, decant the clear liquid, take up again the residue (deposit) from centrifuging in hot water, and centrifuge again. Carry out these operations several times, until the washings are free from sugars, salts, acids, etc., then transfer to the filter the residue from centrifuging.

Place the filter paper and contents in the tared weighing vessel (3.5) and dry in the oven (3.8) at 100 to 105 °C to constant mass. (Two consecutive weighings after 30 minutes in the oven, followed by cooling in the desiccator for about 20 minutes, should not differ by more than 0.001 g). Weigh to the nearest 0.001 g.

The whole of these operations takes 2 to 3 hours.

Carry out two determinations on the same prepared sample.

NOTE. – If it is desired to relate the result to the sample as received, weigh the latter before removing stalks, stones, etc. Weigh these after washing and drying, and take them into account in the expression of results.

5. EXPRESSION OF RESULTS

5.1 Method of calculation and formula

The percentage of water-insoluble solids in the edible parts of fruit and vegetable products is equal to :

$$(M_2 - M_1) \times \frac{100}{M_o}$$

where

M_o is the mass, in grammes, of the test portion,

M_1 is the mass, in grammes, of the dried filter paper,

M_2 is the mass, in grammes, of the filter paper with residue after drying.

Take as the result the arithmetic mean of the two determinations, if the requirement concerning repeatability is satisfied.

Report the result to the first decimal place.

5.2 Repeatability

The difference between two determinations carried out simultaneously or in rapid succession by the same analyst should not exceed 0.1 g of water-insoluble solids per 100 g of sample.