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# International Standard



# 1577

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

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## Tea — Determination of acid-insoluble ash

*Thé — Détermination des cendres insolubles dans l'acide*

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**Descriptors** : agricultural products, tea, tests, determination of content, ashes.

## 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 1577 was developed by Technical Committee ISO/TC 34, *Agricultural food products*.

It was submitted directly to the ISO Council, in accordance with clause 5.10.1 of part 1 of the Directives for the technical work of ISO. It cancels and replaces ISO Recommendation R 1577-1970, which had been approved by the member bodies of the following countries :

|                     |                |                       |
|---------------------|----------------|-----------------------|
| Australia           | Hungary        | South Africa, Rep. of |
| Brazil              | India          | Spain                 |
| Canada              | Iran           | Thailand              |
| Chile               | Israel         | Turkey                |
| Colombia            | Korea, Rep. of | United Kingdom        |
| Czechoslovakia      | Poland         | USSR                  |
| Egypt, Arab Rep. of | Portugal       |                       |
| France              | Romania        |                       |

The member bodies of the following countries had expressed disapproval of the document on technical grounds :

Netherlands  
Sri Lanka  
USA

# Tea — Determination of acid-insoluble ash

## 1 Scope and field of application

This International Standard specifies a method for the determination of the acid-insoluble ash from tea.

## 2 References

ISO 1572, *Tea — Preparation of ground sample of known dry matter content.*

ISO 1575, *Tea — Determination of total ash.*

## 3 Definition

For the purpose of this International Standard, the following definition applies :

**acid-insoluble ash** : The part of the total ash, obtained in accordance with ISO 1575, remaining after treatment with hydrochloric acid solution under the conditions specified.

## 4 Principle

Treatment of the total ash with hydrochloric acid solution, filtration, ignition and weighing of the residue.

## 5 Reagents

All reagents shall be recognized analytical grade. The water used shall be distilled water or water of equivalent purity.

### 5.1 Hydrochloric acid solution.

Dilute 1 volume of concentrated hydrochloric acid ( $\rho_{20}$  1,16 to 1,18 g/ml) with 2,5 volumes of water.

**WARNING** — Concentrated hydrochloric acid is corrosive, has an irritant vapour and causes burns.

**5.2 Silver nitrate**, approximately 17 g/l solution.

## 6 Apparatus

Usual laboratory apparatus, and the following items :

**6.1 Dish**, of capacity 50 to 100 ml, used for the determination of total ash.

**6.2 Furnace**, capable of being controlled at  $525 \pm 25$  °C.

**6.3 Boiling water bath.**

**6.4 Filter paper**, ashless.

**6.5 Desiccator**, containing an efficient desiccant.

**6.6 Analytical balance.**

## 7 Procedure

### 7.1 Test portion

See ISO 1575.

### 7.2 Determination

To the total ash obtained as described in ISO 1575, contained in the dish (6.1), add 25 ml of the hydrochloric acid solution (5.1). Cover the dish with a watch glass to prevent spattering, and boil gently the solution for 10 min. Allow to cool and filter the contents of the dish through the filter paper (6.4). Wash the dish and the filter paper with hot water until the washings are free from the acid, as confirmed by the silver nitrate solution (5.2). Return the filter paper and contents to the dish, evaporate the water carefully on the boiling water bath (6.3) and heat in the furnace (6.2) controlled at  $525 \pm 25$  °C, until the residue is free from visible carbon particles. Cool the dish in the desiccator (6.5) and weigh. Heat again in the furnace for 30 min, allow to cool and weigh; repeat these operations, if necessary, until the difference between two successive weighings does not exceed 0,001 g. Note the lowest mass.

### 7.3 Number of determinations

Carry out two separate determinations on the residues obtained from the two determinations of total ash.

## 8 Expression of results

### 8.1 Method of calculation and formula

The acid-insoluble ash obtained from the ground sample, expressed as a percentage by mass on the dry basis, is equal to

$$m_3 \times \frac{100}{m_0} \times \frac{100}{RS}$$

where

$m_0$  is the mass, in grams, of the test portion of the ground sample used for the determination of total ash (see ISO 1575);

$m_3$  is the mass, in grams, of the acid-insoluble ash;

$RS$  is the dry matter content, as a percentage by mass, of the ground sample, determined by the method specified in ISO 1572.

Take as the result the arithmetic mean of the two determinations, provided that the requirement for repeatability (see 8.2) is satisfied.

### 8.2 Repeatability

The difference between the results of two determinations, carried out simultaneously or in rapid succession by the same analyst, shall not exceed 0,02 g of acid-insoluble ash per 100 g of ground sample.

## 10 Test report

The test report shall show the method used and the result obtained. It shall also mention any operating details not specified in this International Standard, or regarded as optional, as well as any circumstances that may have influenced the result.

The report shall include all details required for complete identification of the sample.

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