
International Standard



5522

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Fruits, vegetables and derived products — Determination of total sulphur dioxide content

Fruits, légumes et produits dérivés — Détermination de la teneur en dioxyde de soufre total

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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 5522 was developed by Technical Committee ISO/TC 34, *Agricultural food products*, and was circulated to the member bodies in July 1979.

It has been approved by the member bodies of the following countries :

Australia	Germany, F. R.	New Zealand
Austria	Hungary	Peru
Brazil	India	Philippines
Bulgaria	Indonesia	Poland
Canada	Israel	Portugal
Chile	Italy	Romania
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Czechoslovakia	Korea, Rep. of	Spain
Egypt, Arab Rep. of	Libyan Arab Jamahiriya	Thailand
Ethiopia	Malaysia	Turkey
France	Netherlands	Yugoslavia

No member body expressed disapproval of the document.

Fruits, vegetables and derived products — Determination of total sulphur dioxide content

1 Scope and field of application

This International Standard specifies a method for the determination of the total sulphur dioxide content of fruits, vegetables and derived products, whatever the sulphur dioxide content.

2 Principle

Acidification and heating of a test portion, then entrainment, in a current of nitrogen, of the sulphur dioxide liberated. Absorption and oxidation of the sulphur dioxide by bubbling it through a neutral, dilute hydrogen peroxide solution. Determination of the sulphuric acid thus formed using standard volumetric sodium hydroxide solution.

Verification of the determination by precipitation of barium sulphate from the resulting solution, and, according to the sulphur dioxide content :

- weighing of the barium sulphate (annex A); or
- nephelometric determination (annex B).

3 Reagents

All reagents shall be of recognized analytical quality. The water used shall be distilled water or water of at least equivalent purity, recently boiled.

3.1 Nitrogen, oxygen free.

3.2 Hydrogen peroxide, 9,1 g/l solution, free from sulphate ions.

3.3 Hydrochloric acid, 100 g/l solution.

Dilute 1 volume of concentrated hydrochloric acid, $\rho_{20} = 1,19 \text{ g/ml}$, with 3 volumes of water.

3.4 Indicator solution.

Dissolve 100 mg of bromophenol blue¹⁾ in 100 ml of 20 % (V/V) ethanol.

3.5 Sodium hydroxide, standard volumetric solution, $c(\text{NaOH}) = 0,1 \text{ mol/l}^{2)}$, free from sulphate ions; or

3.6 Sodium hydroxide, standard volumetric solution, $c(\text{NaOH}) = 0,01 \text{ mol/l}^{3)}$, free from sulphate ions.

3.7 Iodine, standard volumetric solution, $c(1/2 \text{ I}_2) = 0,02 \text{ mol/l}^{4)}$.

3.8 Starch, 5 g/l solution containing 200 g of sodium chloride (as preservative) per litre.

Maintain the solution at boiling point for 10 min during preparation.

3.9 Potassium metabisulphite/EDTA solution.

Dissolve in a little water 1,20 g of potassium metabisulphite ($\text{K}_2\text{S}_2\text{O}_5$) and 0,20 g of the disodium salt of ethylenedinitrilotetraacetic acid⁵⁾. Transfer the solution quantitatively to a 1 000 ml one-mark volumetric flask. Make up to the mark with water and mix.

3.10 Sucrose, 100 g/l solution.

4 Apparatus

Usual laboratory apparatus not otherwise specified, and in particular :

4.1 Measuring cylinders.

4.2 Pipettes.

1) This indicator has been chosen because it does not give rise to interference in nephelometric determinations.

2) Hitherto expressed as "0,1 N standard volumetric solution".

3) Hitherto expressed as "0,01 N standard volumetric solution".

4) Hitherto expressed as "0,02 N standard volumetric solution".

5) This product is intended to protect the sulphite ion from oxidation by air by complexing the traces of copper ion.