
**Starches and derived products —
Determination of sulfur dioxide
content — Acidimetric method and
nephelometric method**

*Amidons, fécules et produits dérivés — Détermination de la teneur
en dioxyde de soufre — Dosage acidimétrique et dosage par
néphélémétrie*





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Foreword

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The committee responsible for this document is ISO/TC 93, *Starch (including derivatives and by-products)*.

This second edition cancels and replaces ISO 5379:1983, of which it constitutes a minor revision.

Starches and derived products — Determination of sulfur dioxide content — Acidimetric method and nephelometric method

1 Scope

This International Standard specifies two methods (an acidimetric method and a nephelometric method) for the determination of the sulfur dioxide content of starches and derived products.

2 Acidimetric method

2.1 Reagents

WARNING — All chemicals shall be handled with care. Consult the appropriate material safety data sheet for proper handling and disposal procedures.

All reagents shall be of recognized analytical quality and be sulfate-free.

2.1.1 Water, distilled water or water of at least equivalent purity, recently boiled.

2.1.2 Nitrogen, oxygen-free.

2.1.3 Hydrogen peroxide, solution containing approximately 9 g to 10 g of H_2O_2 per litre [$c(\text{H}_2\text{O}_2) = 0,265$ to $0,294$ mol/l].

Place 150 ml of 20 volumes (6 wt %, 2,08 mol/l) hydrogen peroxide solution or 30 ml of 110 volumes (30 wt %, 10,4 mol/l) hydrogen peroxide solution in a 1 l one-mark volumetric flask. Dilute to the mark with water.

This solution should be freshly prepared.

2.1.4 Hydrochloric acid.

To 500 ml of water in a 1 l beaker, slowly add 150 ml of concentrated hydrochloric acid (ρ_{20} 1,18 g/ml; 12 mol/l; 37 wt %) with stirring. Transfer this qualitatively to a 1 l volumetric flask and dilute to the mark.

CAUTION — Never add water to concentrated acid.

2.1.5 Bromophenol blue indicator solution.

Dissolve 100 mg of bromophenol blue [alternative names are α , α -bis(3,5-dibromo-4-hydroxyphenyl) toluene-2, α -sulfone or 3, 3', 5, 5'-tetrabromophenol sulfonephthalein] in 100 ml of 20 % (V/ V) ethanol.

2.1.6 Tashiro indicator solution.

Dissolve 30 mg of methyl red {2-[[4-(dimethylamino)phenyl]-azo] benzoic acid} and 50 mg of methylene blue [3,7-bis(dimethylamino)phenothiazin-5-ium chloride] in 120 ml of 90 % (V/ V) ethanol. Dilute to 200 ml with water, mix and filter if necessary.

NOTE The Tashiro indicator can only be used with the titrimetric method (2.3.4). The bromophenol blue indicator is appropriate for the titrimetric method and does not hinder the further use of the nephelometric method (see [Clause 3](#)). Nevertheless, with this indicator, it is more difficult to detect the end-point.