INTERNATIONAL STANDARD

ISO 8128-2

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Apple juice, apple juice concentrates and drinks containing apple juice — Determination of patulin content —

Part 2:
Method using thin-layer chromatography

Jus de pommes, concentrés de jus de pommes et boissons à base de jus de pommes — Détermination de la teneur en patuline —

Partie 2: Méthode par chromatographie sur couche mince

Reference number
ISO 8128-2:1993(E)

Foreword

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Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

International Standard ISO 8128-2 was prepared by Technical Committee ISO/TC 34, *Agricultural food products*, Sub-Committee SC 3, *Fruit and vegetable products*.

ISO 8128 consists of the following parts, under the general title *Apple juice, apple juice concentrates and drinks containing apple juice — Determination of patulin content*:

— *Part 1: Method using high-performance liquid chromatography*

— *Part 2: Method using thin-layer chromatography*

Annex A of this part of ISO 8128 is for information only.

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Apple juice, apple juice concentrates and drinks containing apple juice — Determination of patulin content —

Part 2:
Method using thin-layer chromatography

1 Scope

This part of ISO 8128 specifies a method using thin-layer chromatography for the determination of the patulin content of apple juice, apple juice concentrates and drinks containing apple juice.

The limit of detection of the method is 25 µg/l, based on 50 ml of ready-to-drink apple juice.

NOTE 1 For more precise analyses or in case of a dispute, the HPLC method specified in ISO 8128-1 should be used.

2 Principle

Extraction of patulin in a mixture of ethyl acetate and chloroform (3:2 by volume). Filtration of the extract on a silica-gel column and qualitative and semi-quantitative determination by means of two-directional thin-layer chromatography (TLC). The spots are developed using a 3-méthyl-2-benzothiazoline hydrazone (MBTH) hydrochloride solution.

3 Reagents

Use only reagents of recognized analytical grade and water of the purity required for chromatography.

WARNING — Special attention should be paid when using benzene or chloroform, which are toxic and may cause explosions.

3.1 Solvents, ethyl acetate, chloroform and toluene.

3.2 Developing solvents, for two-directional TLC:

benzene/methanol/acetic acid (80 % by mass) mixture (19:2:1 by volume);

toluene/ethyl acetate/formic acid (90 % by mass) mixture (5:4:1 by volume).

3.3 Silica gel, for column chromatography, of 0,063 mm to 0,2 mm particle size.

3.4 Eluting solution, toluene/ethyl acetate mixture (75:25 by volume).

3.5 Patulin standard solution ($C_7H_6O_4$).

3.5.1 Preparation

Weigh, to the nearest 0,1 mg, 10,0 mg of patulin in a 100 ml one-mark volumetric flask and dissolve it in ethyl acetate (3.1). Make up to the mark with ethyl acetate.

Pipette 10,0 ml of this solution into another 100 ml one-mark volumetric flask and make up to the mark with ethyl acetate.

The patulin content of this standard solution is 10 µg/ml approximately.

Measure the absorbance at 276 nm of this standard solution on an appropriate spectrometer using quartz cells of optical path length 10 mm.

NOTE 2 The preparation of the standard solution and the control of its purity are based on reference [3].