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Foodstuffs - Determination of acesulfame-K, aspartame, neohesperidine-dihydrochalcone and saccharin - High performance liquid chromatographic method

Produits alimentaires - Dosage de l'acésulfame-K, de l'aspartame, de la saccharine et de la néohespéridine dihydrochalcone - Méthode par chromatographie liquide haute performance

Lebensmittel - Bestimmung von Acesulfam-K, Aspartam, Neohesperidin-Dihydrochalcon und Saccharin - Hochleistungsflüssigchromatographisches Verfahren

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Management Centre: Avenue Marnix 17, B-1000 Brussels

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Foreword

This document (CEN/TS 15606:2009) has been prepared by Technical Committee CEN/TC 275 “Food analysis - Horizontal methods”, the secretariat of which is held by DIN.

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1 Scope

This Technical Specification (CEN/TS 15606:2009) specifies a high performance liquid chromatographic (HPLC) method with UV-detection for the determination of acesulfame-K, aspartame, neohesperidine-dihydrochalcone and saccharin in foodstuffs. The method has been fully validated [1] for the dialysis procedure through collaborative trial (see 8.2, 8.3 and Annex C), according to the IUPAC Harmonised Protocol [2], on the following analyte matrix combinations:

— acesulfame-K (from 86 mg/l to 331 mg/l) and aspartame (from 97 mg/kg to 610 mg/l)in water-based drink, fruit-based drink, cheesecake with biscuit base, canned soup and instant chocolate drink

— saccharin (from 70 mg/l to 97 mg/kg) in water-based drink, fruit-based drink, cheesecake with biscuit base and canned soup;

— neohesperidine-dihydrochalcone (from 27 mg/l to 57 mg/kg)in water-based drink, fruit-based drink and canned soup.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN ISO 3696, *Water for analytical laboratory use — Specification and test methods (ISO 3696:1987)*

3 Principle

The sample is extracted or diluted with water. If necessary, the sample solution with the intense sweeteners is purified with Carrez reagents. Alternatively, solid samples are slurried in NaCl/HCl solution and the sweeteners extracted by dialysis using cellulose acetate (molecular weight cut-off of approximately 12 000). The purified extract is analysed by ion-pair reversed-phase HPLC with UV detection.

4 Reagents

4.1 General

During the analysis, unless otherwise stated, use only reagents of recognised analytical grade for HPLC analysis and water suitable for HPLC or of at least grade 1 as defined in EN ISO 3696. When preparing solutions, the purity of the substances shall be taken into account.

4.2 Methanol, HPLC grade.

4.3 Hydrochloric acid, $w(HCl) \approx 36\ \%$ [1].

4.4 Phosphoric acid, $c(H_3PO_4) = 5$ mol/l [2].

[1] w is the mass fraction.

[2] c is the substance concentration.