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Foodstuffs - Determination elements and their chemical species - Determination of organomercury in seafood by elemental mercury analysis

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ICS 67.120.30

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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 17266

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English Version

Foodstuffs - Determination elements and their chemical species - Determination of organomercury in seafood by elemental mercury analysis

Produits alimentaires - Dosage des éléments et de leurs espèces chimiques - Dosage du mercure organique dans les produits de la mer par analyse du mercure élémentaire

Lebensmittel - Bestimmung von Elementen und ihren Verbindungen - Bestimmung von Organoquecksilber in Fisch und Meeresfrüchten mittels Elementaranalyse von Quecksilber

This European Standard was approved by CEN on 9 September 2019.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
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European foreword

This document (EN 17266:2019) has been prepared by Technical Committee CEN/TC 275 “Food analysis - Horizontal methods”, the secretariat of which is held by DIN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by May 2020, and conflicting national standards shall be withdrawn at the latest by May 2020.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

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1 Scope

This document specifies a method for the determination of organomercury in seafood by elemental mercury analysis. The method has been successfully validated in an interlaboratory study on oyster tissue, mussel tissue, lobster hepatopancreas, dogfish liver and tuna at levels from 0,01 mg/kg to 5 mg/kg referring to dry weight and expressed as mercury [1], [2].

The limit of quantification is approximately 0,01 mg/kg of organomercury [3], [4].

Organic species of mercury, other than monomethylmercury, are also extracted and thus determined with this method. However, in seafood the contribution from organic species of mercury other than monomethylmercury is negligible.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 13804, *Foodstuffs - Determination of elements and their chemical species - General considerations and specific requirements*

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

3 Terms and definitions

No terms and definitions are listed in this document.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at http://www.iso.org/obp

— IEC Electropedia: available at http://www.electropedia.org/

4 Principle

Organomercury in seafood/fishery products is separated from the matrix by double liquid-liquid extraction, first with an organic solvent (toluene) and subsequently with L-cysteine solution and is determined by elemental mercury analyser [3], [4].

Elemental mercury analyser, also known as automated or direct mercury analyser, is a single purpose atomic absorption spectrophotometer for mercury determination. The determination of mercury with an elemental mercury analyser is based on sample drying and subsequent thermal decomposition, including electro thermal atomisation of mercury. A gold amalgamator selectively traps and pre-concentrates the mercury from the flow of decomposition products. Finally, the trapped mercury is thermally released and detected by atomic absorption at 253,7 nm. Organomercury results are expressed in mg/kg as mercury.

Alternative detection techniques can be used, provided that equivalence of method performance is proven.

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