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Animal feeding stuffs: Methods of sampling and analysis - Determination of mineral oil saturated hydrocarbons (MOSH) and mineral oil aromatic hydrocarbons (MOAH) with on-line HPLC-GC-FID analysis

EESTI STANDARDI EESSÕNA

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EUROPEAN STANDARD

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English Version

Animal feeding stuffs: Methods of sampling and analysis - Determination of mineral oil saturated hydrocarbons (MOSH) and mineral oil aromatic hydrocarbons (MOAH) with on-line HPLC-GC-FID analysis

Aliments pour animaux : Méthodes d'échantillonnage et d'analyse - Détermination des hydrocarbures saturés d'huile minérale (MOSH) et des hydrocarbures aromatiques d'huile minérale (MOAH) par analyse CLHP CG-FID en ligne

Futtermittel: Probenahme und Untersuchungsverfahren - Bestimmung von mineralölgesättigten Kohlenwasserstoffen (MOSH) und mineralölaromatischen Kohlenwasserstoffen (MOAH) mit Online Analyse durch HPLC GC FID

This European Standard was approved by CEN on 2 August 2021.

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European foreword

This document (EN 17517:2021) has been prepared by Technical Committee CEN/TC 327 “Animal feeding stuffs - Methods of sampling and analysis”, the secretariat of which is held by NEN.

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of an identical text or by endorsement, at the latest by April 2022, and conflicting national standards shall be withdrawn at the latest by April 2022.

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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Introduction

WARNING — The method described in this document implies the use of reagents that pose a hazard to health. This document does not claim to address all associated safety problems. It is the responsibility of the user of this document to take appropriate measures for the health and safety protection of the personnel prior to use of the standard and to ensure that regulatory and legal requirements are complied with.

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1 Scope

This document specifies a method for the determination of saturated and aromatic hydrocarbons (from C10 to C50) in feed. The method has been interlaboratory validated with on-line-HPLC-GC-FID – see [1], [2] and [3]. This method is not intended to be applied to other matrices.

The method can be used for the analysis of mineral oil saturated hydrocarbons (MOSH) and/or mineral oil aromatic hydrocarbons (MOAH).

The method is applicable for feed materials, in particular vegetable oils and other fat rich feed materials, compound feeds and pre-mixtures. It is not applicable to additives or deodistillates.

NOTE 1 The method was not designed for encapsulated matrices.

The method has been tested in an interlaboratory study via the analysis of both naturally contaminated and spiked samples (pre-mixture, soybean meal, sunflower seeds, chicken feed, pig feed, vegetable oil) ranging from 3 mg/kg to 286 mg/kg for MOSH and from 1 mg/kg to 16 mg/kg for MOAH.

According to the results of the interlaboratory study, the method has been proven suitable for MOSH and MOAH mass concentrations, each above 10 mg/kg. However, the method was not fully validated during the collaborative study for the premixture sample due to too low concentrations of MOSH and MOAH. The method was also not fully validated during the collaborative study for the sunflower seeds sample due to a too low concentration of MOAH.

NOTE 2 The conclusions regarding MOAH are based on 4 analyte / matrix combinations while the IUPAC protocol [4] expects this to be a minimum of 5.

In case of suspected interferences from natural sources, the fossil origin of the MOSH and MOAH fraction can be verified by examination of the pattern by GC-MS.

For the determination of MOSH and MOAH in edible fats and oils, another CEN standard is also available: EN 16995. For more information see [5].

Annex C proposes a manual alternative method to on-line HPLC-GC-FID analysis that can be used as a screening method for the determination of MOSH.

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 ISO 6498, *Animal feeding stuffs - Guidelines for sample preparation (ISO 6498)*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

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

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

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

3.1
mineral oil saturated hydrocarbons
MOSH
paraffinic (open-chain, usually branched) and naphthenic (cyclic, alkylated) hydrocarbons

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