ISO 20122:2024-04 (E)

Vegetable oils - Determination of mineral oil saturated hydrocarbons (MOSH) and mineral oil aromatic hydrocarbons (MOAH) with online-coupled high performance liquid chromatography-gas chromatography-flame ionization detection (HPLC-GC-FID) analysis - Method for low limit of quantification

Contents

Page

Foreword iv

Introduction v

1 Scope 1

2 Normative references 1

3 Terms and definitions 1

4 Principle 2

5 Reagents 3

6 Apparatus 6

7 Sample 7
7.1 Sampling 7
7.2 Preparation of the final sample for liquid and solid fats 7

8 Procedures 8
8.1 General 8
8.2 Hexane/ethanol distribution for removal of interfering substances 8
8.3 Saponification 8
8.4 Removal of biogenic n-alkanes with aluminium oxide for determination of the MOSH fraction 9
8.5 Clean-up before epoxidation to separate polar substances 9
8.6 Ethanolic epoxidation of the MOAH fraction to oxidize unsaturated non-aromatic compounds 9
8.7 HPLC-GC separation 10
8.7.1 HPLC conditions 10
8.7.2 GC configuration 10
8.7.3 Solvent vapour exit configuration 11
8.7.4 Peak identification 11
8.7.5 System suitability test 12
8.8 Blank run 13
8.9 Quality control 13

9 Result of the determination 13
9.1 Testing the chromatograms for sufficient epoxidation and other relevant parameters 13
9.2 Calculation 14

10 Precision of the method 15
10.1 Repeatability limit 15
10.2 Reproducibility limit 15

11 Test report 15

Annex A (informative) Graphics and chromatograms 17

Annex B (informative) Precision data 28

Annex C (informative) Alternative method for the epoxidation of the MOAH fraction (performic acid epoxidation) 41

Bibliography 42