

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 | Ethanol 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 |