
Pristnost živil - Določevanje razmerja izotopov C in/ali N v živilih z elementnim analizatorjem - Masna spektrometrija izotopskega razmerja (EA-IRMS)

Food authenticity - Determination of C and/or N isotope ratios in food by Elemental Analyser - Isotope Ratio Mass Spectrometry (EA-IRMS)

Lebensmittelauthentizität - Bestimmung von C- und/oder N-Isotopenverhältnissen in Lebensmitteln mittels Elementaranalyse mit Isotopenverhältnis-Massenspektrometrie (EA-IRMS)

Authenticité des aliments - Détermination des rapports isotopiques du carbone et/ou de l'azote dans les aliments au moyen d'un analyseur élémentaire couplé à un spectromètre de masse de rapports isotopiques (AE-SMRI)

<https://standards.iteh.ai>
<https://standards.iteh.ai/document/658128-7769ba959463/sist-en-18054-2025>

Ta slovenski standard je istoveten z: **EN 18054:2025**

ICS:

67.050

Splošne preskusne in
analizne metode za živilske
proizvode

General methods of tests and
analysis for food products

SIST EN 18054:2025

en,fr,de

EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 18054

June 2025

ICS 67.050

English Version

Food authenticity - Determination of C and/or N isotope ratios in food by Elemental Analyser - Isotope Ratio Mass Spectrometry (EA-IRMS)

Authenticité des aliments - Détermination des rapports isotopiques du carbone et/ou de l'azote dans les aliments au moyen d'un analyseur élémentaire couplé à un spectromètre de masse de rapports isotopiques (AE-SMRI)

Lebensmittelauthentizität - Bestimmung von C- und/oder N-Isotopenverhältnissen in Lebensmitteln mittels Elementaranalyse mit Isotopenverhältnis-Massenspektrometrie (EA-IRMS)

This European Standard was approved by CEN on 14 April 2025.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Türkiye and United Kingdom.



EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

Contents

	Page
European foreword	4
Introduction	5
1 Scope.....	6
2 Normative references.....	6
3 Terms and definitions	6
4 Principle	8
4.1 General.....	8
4.2 Sample introduction	8
4.3 Flash-combustion and reduction	8
4.3.1 General.....	8
4.3.2 Inorganic nitrogen.....	8
4.4 Gas separation.....	9
4.5 Mass spectrometer measurement	9
4.6 Corrections to initial isotope delta values	9
4.7 Normalization	9
5 Reagents and materials	10
6 Apparatus	11
7 Procedure	11
7.1 Prerequisites	11
7.2 Sample preparation	11
7.3 Sequence design	12
7.4 Instrumental tests	12
7.4.1 General.....	12
7.4.2 Backgrounds.....	12
7.4.3 Stability of working gas	12
7.4.4 Linearity of working gas.....	13
7.4.5 Calibration of magnet “jump” (dual isotope delta measurements only)	13
7.5 Instrumental method	13
7.6 Data processing	14
7.6.1 General.....	14
7.6.2 Rejection of individual runs within a sequence.....	14
7.6.3 Data to record.....	14
7.6.4 Evaluation of and corrections to raw isotope delta values.....	14
7.6.5 Rejection of individual samples within a sequence	16
7.6.6 Rejection of entire sequences	16
8 Precision	17
8.1 General.....	17
8.2 Repeatability	17
8.3 Reproducibility.....	18
8.4 Uncertainty.....	19
Annex A (informative) Inter-laboratory validation of the method.....	21
A.1 Method performance study design.....	21

A.2	Data processing	21
A.3	$\delta^{13}\text{C}_{\text{VPDB}}$ results	21
A.4	$\delta^{15}\text{N}_{\text{Air-N}_2}$ results	23
	Annex B (informative) Data processing example	26
B.1	General	26
B.2	Requirements	26
B.3	Description	26
B.4	Test data set	26
B.5	Initial data screening	28
B.6	Data processing	29
B.7	Example results	31
	Bibliography	32

iTeh Standards
(<https://standards.iteh.ai>)
Document Preview

[SIST EN 18054:2025](https://standards.iteh.ai/catalog/standards/sist/e665812f-0178-4d4b-a428-7769ba959463/sist-en-18054-2025)

<https://standards.iteh.ai/catalog/standards/sist/e665812f-0178-4d4b-a428-7769ba959463/sist-en-18054-2025>