



**NSAI**  
Standards

Irish Standard  
I.S. EN 16466-3:2013

# Vinegar - Isotopic analysis of acetic acid and water - Part 3: $^{18}\text{O}$ -IRMS analysis of water in wine vinegar

## I.S. EN 16466-3:2013

*Incorporating amendments/corrigenda/National Annexes issued since publication:*

The National Standards Authority of Ireland (NSAI) produces the following categories of formal documents:

I.S. xxx: Irish Standard – national specification based on the consensus of an expert panel and subject to public consultation.

S.R. xxx: Standard Recommendation - recommendation based on the consensus of an expert panel and subject to public consultation.

SWIFT xxx: A rapidly developed recommendatory document based on the consensus of the participants of an NSAI workshop.

*This document replaces:*

*This document is based on:*  
EN 16466-3:2013

*Published:*  
31 January, 2013

This document was published  
under the authority of the NSAI  
and comes into effect on:  
31 January, 2013

**ICS number:**  
67.220.10

**NSAI**  
1 Swift Square,  
Northwood, Santry  
Dublin 9

T +353 1 807 3800  
F +353 1 807 3838  
E standards@nsai.ie  
W NSAI.ie

**Sales:**  
T +353 1 857 6730  
F +353 1 857 6729  
W standards.ie

Údarás um Chaighdeáin Náisiúnta na hÉireann

ICS 67.220.10

English Version

Vinegar - Isotopic analysis of acetic acid and water - Part 3:  
<sup>18</sup>O-IRMS analysis of water in wine vinegar

Vinaigre - Analyse isotopique de l'acide acétique et de l'eau -  
Partie 3: Analyse SMRI-<sup>18</sup>O de l'eau dans le vinaigre de vin

Essig - Isotopenanalyse von Essig und Wasser - Teil 3:  
<sup>18</sup>O-IRMS-Analyse von Wasser in Weinessig

This European Standard was approved by CEN on 3 November 2012.

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, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and United Kingdom.



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

Management Centre: Avenue Marnix 17, B-1000 Brussels

## Contents

Page

Foreword.....	3
Introduction .....	4
1 Scope.....	5
2 Normative references.....	5
3 Principle.....	5
4 Reagents.....	5
4.1 Carbon dioxide.....	5
4.2 Carbon dioxide used for equilibration .....	5
5 Apparatus .....	5
6 Procedure .....	6
6.1 General .....	6
6.2 Manual method.....	6
6.3 Use of an automatic exchange apparatus.....	6
6.4 Manual preparation manual and automatic equilibration and analysis with a dual inlet IRMS.....	7
6.5 Use of an automatic equilibration apparatus coupled to a continuous flow system .....	7
6.6 Calculation and expression of the results .....	7
7 Precision.....	8
7.1 Repeatability.....	8
7.2 Reproducibility.....	8
8 Test report .....	8
Annex A (informative) Results of the collaborative study (2009).....	9
Bibliography.....	10

## Foreword

This document (EN 16466-3:2013) has been based on an international collaborative study of the method published in *Analytica Chimica Acta* 649 (2009) 98-105, and organised under the auspices of the Permanent International Vinegar Committee (CPIV, Brussels).

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 July 2013, and conflicting national standards shall be withdrawn at the latest by July 2013.

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

The European standard, *Vinegar — Isotopic analysis of acetic acid and water*, consists of the following parts:

- *Part 1:  $^2\text{H}$ -NMR analysis of acetic acid;*
- *Part 2:  $^{13}\text{C}$ -IRMS analysis of acetic acid;*
- *Part 3:  $^{18}\text{O}$ -IRMS analysis of water.*

According to the CEN/CENELEC Internal Regulations, the national standards organisations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

## **Introduction**

Wine vinegar is defined by the European Regulations 479/2008 and 491/2009 as the product obtained exclusively from the acetous fermentation of wine, which is in turn defined as the product exclusively obtained from the alcoholic fermentation of fresh grapes, whether crushed or not, or of grape must.

In accordance with this, it is clear that the production of wine vinegar by fermenting dried grapes and rehydrating with tap water is not allowed by European Regulations.

The isotopic analysis of water from vinegar by  $^{18}\text{O}$ -IRMS enables the distinction of wine vinegar and vinegars from fermented dried grapes which have been rehydrated with water [1], and more generally helps to check the authenticity of wine vinegar.

This is a free preview. Purchase the entire publication at the link below:

[Product Page](#)

- 
- Looking for additional Standards? Visit Intertek Inform Infostore
  - Learn about LexConnect, All Jurisdictions, Standards referenced in Australian legislation
-