GAASIDE JA AURUDE PLAHVATUSPIIRIDE KINDLAKSMÄÄRAMINE KÕRGENDATUD RÕHUL, KÕRGENDATUD TEMPERATUURIL VÕI MUUDE OKSÜDEERIJATE KUI ÕHUGA

Determination of explosion limits of gases and vapours at elevated pressures, elevated temperatures or with oxidizers other than air

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

See Eesti standard EVS-EN 17624:2022 sisaldab Euroopa standardi EN 17624:2022 ingliskeelset teksti.	This Estonian standard EVS-EN 17624:2022 consists of the English text of the European standard EN 17624:2022.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation and Accreditation.
Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 16.03.2022.	Date of Availability of the European standard is 16.03.2022.
Standard on kättesaadav Eesti Standardimis- ja Akrediteerimiskeskusest.	The standard is available from the Estonian Centre for Standardisation and Accreditation.

Tagasisidet standardi sisu kohta on võimalik edastada, kasutades EVS-i veebilehel asuvat tagasiside vormi või saates e-kirja meiliaadressile standardiosakond@evs.ee.

ICS 13.230

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 17624

March 2022

ICS 13.230

English Version

Determination of explosion limits of gases and vapours at elevated pressures, elevated temperatures or with oxidizers other than air

Détermination des limites d'explosivité des gaz et vapeurs à pressions et températures élevées avec des oxydants autres que l'air

Bestimmung der Explosionsgrenzen von Gasen und Dämpfen bei erhöhten Drücken, erhöhten Temperaturen oder mit Oxidationsmitteln, welche nicht aus Luft bestehen

This European Standard was approved by CEN on 7 February 2022.

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, Turkey 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

Ref. No. EN 17624:2022 E

Contents

Page

European foreword

This document (EN 17624:2022) has been prepared by Technical Committee CEN/TC 305 “Potentially explosive atmospheres - Explosion prevention and protection” the secretariat of which is held by DIN.

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 September 2022, and conflicting national standards shall be withdrawn at the latest by September 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.

This document has been prepared under a Standardization Request given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s).

For relationship with EU Directive(s), see informative Annex ZA, which is an integral part of this document.

Any feedback and questions on this document should be directed to the users’ national standards body. A complete listing of these bodies can be found on the CEN website.

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, 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, Turkey and the United Kingdom.

Introduction

In accordance with EN ISO 12100:2010, this is a type-B standard.

The hazard of an explosion can be avoided by preventing the formation of explosive mixtures of gases and/or vapours with oxidizers. To do so, the explosion limits (also known as “flammability limits”) of the flammable substance need to be known. These limits are a strong function of the pressure and temperature within the system.

Standard EN 1839:2017 has methods suitable for determining these limits at atmospheric conditions. Technical conditions in plants, etc. can differ substantially from these assumed atmospheric conditions. Furthermore, explosive mixtures of flammable substances and oxidizers other than air are likely to occur.

To obtain reliable and comparable results it is necessary to standardize the conditions for determining the explosion limits at non-atmospheric conditions.

1 Scope

This document specifies a test method to determine the explosion limits of gases, vapours and their mixtures, mixed with a gaseous oxidizer or an oxidizer/inert gas mixture at pressures from 0,10 MPa to 10 MPa and for temperatures up to 400 °C.

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 10156:2017, *Gas cylinders - Gases and gas mixtures - Determination of fire potential and oxidizing ability for the selection of cylinder valve outlets (ISO 10156:2017)*

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
flammable substance
substance in the form of gas, vapour or mixtures of these, able to undergo an explosive exothermic reaction with an oxidizer or an oxidizer/inert gas mixture when ignited

[SOURCE: EN 13237:2012, 3.37, modified: removed reference to liquids and solids as they are not relevant for this standard]

3.2
explosion range
range of the concentration of a flammable substance or mixture of substances with an oxidizer, within which an explosion can occur, respectively range of the concentration of a flammable substance or mixture of substances in mixture with oxidizer/inert gas, within which an explosion can occur, determined under specified test conditions

Note 1 to entry: The explosion limits are not part of the explosion range.

[SOURCE: EN 13237:2012, 3.22, modified: changed air to oxidizer]

3.3
lower explosion limit
LEL
lowest concentration of the explosion range

Note 1 to entry: Those concentrations are given at which an explosion just fails during the tests.

[SOURCE: EN 13237:2012, 3.19.1, modified: removed “at which an explosion can occur”]