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Standards

Irish Standard
I.S. EN 1839:2012

Determination of explosion limits of gases and vapours

I.S. EN 1839:2012

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English Version

Determination of explosion limits of gases and vapours

Détermination des limites d'exposivité des gaz et vapeurs

Bestimmung der Explosionsgrenzen von Gasen und Dämpfen

This European Standard was approved by CEN on 27 July 2012.

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Foreword

This document (EN 1839:2012) 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of an identical text or by endorsement, at the latest by March 2013, and conflicting national standards shall be withdrawn at the latest by March 2013.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.

This document supersedes EN 1839:2003.

The significant changes between this European Standard and EN 1839:2003 are given in Table H.1.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive 94/9/EC.

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

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

The hazard of an explosion can be avoided by preventing the formation of explosive mixtures of gases and/or vapours. To do so, the explosion limits (also known as "flammability limits") of the flammable substance need to be known. These limits depend mainly on:

- the properties of the flammable substance;
- temperature and pressure;
- size and shape of the test vessel;
- ignition source (type, energy);
- the criterion for self-propagating combustion.

To obtain reliable and comparable results it is necessary to standardise the conditions for determining the explosion limits (i.e. apparatus and procedure). However, it is not possible to provide one single method that is suitable for all types of substances. For practical reasons, it is preferable to use apparatus that can also be used for the determination of other explosion characteristics. This European Standard, therefore, details two methods, namely, the tube method (method T) and the bomb method (method B). In general, the tube method gives a wider explosion range. Differences in the explosion limits determined by the two methods can vary by up to 10 % relative.

For substances which are difficult to ignite with large quenching distances, only a modified tube method is suitable. This is described in Annex A.

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