Tolmupilvede plahvatusomaduste kindlaksmääramine. Osa 2: Tolmupilvede maksimaalse plahvatusrõhu (dp/dt)max kindlaksmääramine KONSOLIDEERITUD TEKST

Determination of explosion characteristics of dust clouds - Part 2: Determination of the maximum rate of explosion pressure rise (dp/dt)max of dust clouds CONSOLIDATED TEXT

EESTI STANDARDIKESKUS
ESTONIAN CENTRE FOR STANDARDISATION

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

Käesolev Eesti standard EVS-EN 14034-2:2006+A1:2011 sisaldab Euroopa standardi EN 14034-2:2006+A1:2011 ingliskeelset teksti.	This Estonian standard EVS-EN 14034-2:2006+A1:2011 consists of the English text of the European standard EN 14034-2:2006+A1:2011.
Standard on kinnitatud Eesti Standardikeskuse 31.01.2011 käskkirjaga ja jõustub sellekohase teate avaldamisel EVS Teatajas.	This standard is ratified with the order of Estonian Centre for Standardisation dated 31.01.2011 and is endorsed with the notification published in the official bulletin of the Estonian national standardisation organisation.
Euroopa standardimisorganisatsioonide poolt rahvuslikele liikmetele Euroopa standardi teksti kättesaadavaks tegemise kuupäev on 12.01.2011.	Date of Availability of the European standard text 12.01.2011.
Standard on kättesaadav Eesti standardiorganisatsioonist.	The standard is available from Estonian standardisation organisation.

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EUROPEAN STANDARD

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English Version

Determination of explosion characteristics of dust clouds - Part 2: Determination of the maximum rate of explosion pressure rise $(dp/dt)_{max}$ of dust clouds

Détermination des caractéristiques d'explosion des nuages de poussière - Partie 2: Détermination de la vitesse maximale de montée en pression d'explosion $(dp/dt)_{max}$ des nuages de poussière

Bestimmung der Explosionskenngrößen von Staub/Luft-Gemischen - Teil 2: Bestimmung des maximalen zeitlichen Druckanstiegs $(dp/dt)_{max}$ von Staub/Luft-Gemischen

This European Standard was approved by CEN on 20 April 2006 and includes Amendment 1 approved by CEN on 13 November 2010.

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

Management Centre: Avenue Marnix 17, B-1000 Brussels

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Foreword

This document (EN 14034-2:2006+A1:2011) 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 July 2011, and conflicting national standards shall be withdrawn at the latest by July 2011.

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 includes Amendment 1, approved by CEN on 2010-11-13.

This document supersedes EN 14034-2:2006.

The start and finish of text introduced or altered by amendment is indicated in the text by tags ⟦A1⟩ ⟨A1⟧.

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 Directives.

For relationship with the EU Directive 94/9/EC, see informative Annex ZA, which is an integral part of this document.

This European Standard is one of a series of standards as listed below:

EN 14034 "Determination of explosion characteristics of dust clouds"

– Part 1: Determination of the maximum explosion pressure p_{max} of dust clouds;

– Part 2: Determination of the maximum rate of explosion pressure rise $(dp/dt)_{max}$ of dust clouds;

– Part 3: Determination of the lower explosion limit LEL of dust clouds;

– Part 4: Determination of the limiting oxygen concentration LOC of dust clouds.

According to the CEN/CENELEC Internal Regulations, the national standards organizations 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, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

Introduction

This European Standard specifies a method for experimental determination of the maximum rate of explosion pressure rise of dust clouds. The maximum rate of explosion pressure rise is the maximum value of the pressure rise per unit time during explosions of explosive atmospheres in the explosion range of a combustible dust in a closed vessel. The measurement of the maximum rate of explosion pressure rise forms the basis for explosion protection by design and construction of equipment, protective systems and components to reduce the explosion effects.

〈A1〉 *deleted text* 〈A1〉

1 Scope

This standard describes a test method for the determination of the maximum rate of explosion pressure rise of dust clouds in a closed vessel under defined initial conditions of pressure and temperature.

This method is not suitable for use with recognised explosives, like gunpowder and dynamite, explosives which do not require oxygen for combustion, pyrophoric substances, or substances or mixtures of substances which may under some circumstances behave in a similar manner. Where any doubt exists about the existence of hazard due to explosive properties, expert advice should be sought.

2 Normative references

The following referenced documents are indispensable for the application 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 14460, *Explosion resistant equipment*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1
dust
small solid particles in the atmosphere which settle out under their own weight, but which may remain suspended in air for some time (includes dust and grit, as defined in ISO 4225)

NOTE Generally maximum particle size will not exceed 500 µm.

3.2
combustible dust
dust able to undergo an exothermic reaction with air when ignited

NOTE The terms “flammable” and “combustible” are used synonymously.

3.3
explosion pressure
p_{ex}
highest overpressure occurring during an explosion of a dust cloud in a closed vessel

3.4
explosive atmosphere
mixture with air, under atmospheric conditions, of flammable (combustible) substances in the form of gases, vapours, mists or dusts, in which, after ignition has occurred, combustion spreads to the entire unburned mixture

3.5
ignition delay
t_v
time between the initiation of the dust dispersion and the activation of the ignition source