BRITISH STANDARD

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Explosives for civil uses —

Part 1: Terminology

The European Standard EN 13857-1:2003 has the status of a British Standard

ICS 01.040.71; 71.100.30

BSI
British Standards

National foreword

This British Standard is the official English language version of EN 13857-1:2003.

The UK participation in its preparation was entrusted to Technical Committee CII/61, Explosives for civil uses, which has the responsibility to:

— aid enquirers to understand the text;

— present to the responsible international/European committee any enquiries on the interpretation, or proposals for change, and keep the UK interests informed;

— monitor related international and European developments and promulgate them in the UK.

A list of organizations represented on this committee can be obtained on request to its secretary.

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Explosifs à usage civil - Partie 1: Terminologie

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

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Contents

Foreword

This document (EN 13857-1:2003) has been prepared by Technical Committee CEN/TC 321 "Explosives for civil uses", the secretariat of which is held by AENOR.

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of an identical text or by endorsement, at the latest by January 2004, and conflicting national standards shall be withdrawn at the latest by January 2004.

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(s).

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

This European Standard is one of a series of general standards on Explosives for civil uses. The other part of this series is:

EN 13857-3 Part 3: Information to be provided by the manufacturer or his authorised representative to the user.

According to the CEN/CENELEC Internal Regulations, the : Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Slovakia, Spain, Sweden, Switzerland and the United Kingdom.national standards organizations of the following countries are bound to implement this European Standard

1 Scope

This European Standard defines the key technical terms used in the European Standards developed in the field of explosives for civil uses.

2 Terms and definitions

For the purposes of this European Standard, the following terms and definitions apply:

2.1
abrasion resistance
ability to withstand the reduction of the thickness of the covering of detonator leading wires or of detonating cord or of shock tube by local friction

2.2
acceptor charge
charge of explosive receiving a stimulus from another charge

2.3
base charge
explosive mass contained in the base of a detonator and intended to provide the main output energy

NOTE A base charge normally consists of a secondary explosive, for example Pentaerythritol tetranitrate (PETN)

2.4
black powder
intimate mixture of sodium nitrate or potassium nitrate with charcoal or other carbon, with or without sulfur

2.5
blasting accessories
non-explosive devices used in blasting

NOTE Examples of blasting accessories are blasting machines, circuit testers, shot firing cable

2.6
booster
explosive device used as a donor charge to amplify the energy supplied to the acceptor charge

2.7
bridgewire
resistance wire connecting the leading wires inside an electric detonator or electro-explosive device

2.8
bulk explosive
explosive which is not cartridged and can be loaded by pouring (under gravity), pumping or pneumatic means

2.9
burning duration
time for burning through a defined length of safety fuse, in seconds

2.10
cartridged explosive
explosive enclosed in a casing (usually cylindrical) formed from paper, cardboard, plastics or other material and used in this form

2.11
crimp
compression closure at the end of a detonator to hold in place safety fuse or to secure and provide a seal for shock tube or leading wires of an electric fuse

2.12
decomposition
chemical reaction of a substance which is not a detonation, resulting in significant change in properties

2.13
deflagration
reaction of combustion through a substance at sub-sonic velocity in the reacting substance

2.14
delay element
part of a delay detonator which provides a time delay between activation of the detonator and detonation of the base charge

2.15
delay interval
difference in time between adjacent detonators in a delay series

2.16
delay number
number given to a delay detonator to show its relative position in a given series

2.17
delay time
elapsed time between the activation and detonation of a delay detonator

2.18
detonating cord
article consisting of a core of detonating explosive (usually PETN) surrounded by a flexible outer covering or clad by soft metal tube

NOTE The explosive charge in a detonating cord can vary from 1,0 g/m to 200 g/m

2.19
detonation
reaction which moves through an explosive material at supersonic velocity in the reacting material

2.20
detonation velocity
velocity at which the detonation travels through the explosive column or charge, in m/s

2.21
detonator
article consisting of a small metal or plastics tube containing a primary explosives charge such as lead azide, and a secondary explosives charge such as PETN, or other combinations of explosives normally not exceeding a mass of 2 g

2.22
detonator, delay
detonator assembly in which a time delay between activation and detonation is included

NOTE Delay detonators can be electronic, electric or non-electric

2.23
detonator, electric
detonator assembly activated by means of an electrical current

NOTE Electric detonators include d.c. and a.c. (magnetically coupled) systems

2.24
detonator, electronic
detonator assembly in which the time delay is achieved by means of an electronic chip activated by electric or non-electric stimuli

2.25
detonator, instantaneous
detonator with no nominal delay time

2.26
detonator, non-electric
detonator assembly activated by means of shock tube or other means not involving electrical stimuli as the primary mode of initiation

2.27
detonator, plain
instantaneous detonator supplied without means of activation

NOTE Plain detonators are normally activated by means of detonating cord, safety fuse, pyrotechnic igniter, or shock tube

2.28
donor charge
charge of explosive supplying a stimulus to another charge

2.29
explosion
sudden release of energy producing blast effect with possible projection of fragments

NOTE The term explosion encompasses fast combustion, detonation and deflagration

2.30
explosive
solid or liquid substance or mixture of substances which by intrinsic chemical reaction is capable of producing an explosion

2.31
extreme conditions
conditions of high or low temperatures and/or pressures and/or humidity outside the range of applicability of the test method

2.32
firing current
constant electrical direct current required to reliably activate an electric detonator, in ampere (A)

2.33
firing current, series
lowest constant direct current which will reliably activate all detonators in a series-connected round

2.34
firing impulse
electrical energy divided by the electrical resistance of the detonator assembly which will activate an electric detonator or electro-explosive device, expressed in mJ/ohm

2.35
firing time
elapsed time between application of the firing current and the detonation of a detonator with no nominal delay time

2.36
flash-over voltage
minimum direct voltage which will give electrical breakdown between the conductor system and metal casing of the detonator

2.37
gap test
test to determine the greatest distance over which a donor charge is capable of initiating an acceptor charge

2.38
high explosive
substance or mixture of substances that can undergo a fast internal decomposition reaction leading to a detonation in its normal use

2.39
initiating capability
capacity of an explosive substance or article to transmit detonation to another substance or article under defined conditions

2.40
nominal delay interval
difference in nominal delay time between adjacent delay numbers in a series of delay detonators

2.41
nominal delay time
time defined by the manufacturer for a specific detonator in a delay series

2.42
overlap probability
statistical probability that a delay detonator of a given delay number in a delay series will detonate out of sequence

2.43
primary explosive
explosive substance which is sensitive to spark, friction, impact or flame and is capable of promoting initiation in an unconfined state

NOTE A primary explosive is commonly used in a detonator to initiate the secondary explosive base charge

2.44
propagation of detonation
ability to maintain a detonation front throughout the whole mass of an explosive

2.45
propellant
deflagrating explosive used for propulsion or for reducing drag of projectiles

NOTE Propellants can also be used as components of gas generators or other items

2.46
range of applicability of a test method
the conditions, for example temperature or pressure, over which the test method can be performed without significant modification to the apparatus and procedure described in the relevant standard

2.47
range of validity of a test result
the upper and lower limit of the relevant parameter, for example temperature or pressure, within which the results obtained from a test carried out under ambient conditions or the conditions specified in the test method are assumed to be applicable

2.48
relay, detonating cord
article containing tubes with charges of pyrotechnic delay composition and explosive, used to connect detonating cords and provide a defined delay in the propagation of detonating cord

2.49
safety fuse
article consisting of a core of fine-grained black powder surrounded by a flexible woven fabric with one or more protective coverings

NOTE A safety fuse burns on ignition at a predetermined rate without any external explosive effect

2.50
sensitiser
substance used to increase susceptibility to initiation

2.51
sensitiveness
susceptibility of explosive to an external stimulus such as impact, flame, friction or to a temperature, pressure, humidity condition leading to a reaction or impairment of functioning

2.52
shelf life
time period for which an explosive or device can be stored or maintained under specific conditions before use or disposal without becoming unsafe or failing to meet specified performance criteria

2.53
shock tube
tube usually containing a dusting of explosive charge on the inner wall capable on activation of transmitting a shock wave from one end of the tube to the other at a constant velocity and having no external explosive effect

NOTE A shock tube is commonly used as a component of detonator assemblies

2.54
surface connector
device containing an explosive charge with or without a time delay, used on the surface of a blast for transferring a signal or shock wave from one initiating unit to another or from one initiating unit to shock tube(s)

2.55
witness plate
plate, usually of metal (lead, steel or aluminium), used to detect the occurrence of a detonation or the impact of fragments or debris from an explosion

Annex ZA
(informative)

Clauses of this European Standard addressing essential requirements or other provisions of EU Directives

This European Standard 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 93/15/EEC.

WARNING : Other requirements and other EU Directives may be applicable to the product(s) falling within the scope of this standard.

The clauses of this standard are likely to support requirements I.1, I.2, I.3, II.1(a)-(m), II.2A(a)-(c), II.2B(a)-(c), II.2C(a)-(f) and II.2D(a)-(c) Directive 93/15/EEC.

Compliance with this standard provides one means of conforming with the specific essential requirements of the Directive concerned and associated EFTA regulations.

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