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**Ognjemet – 8. del: Bengalske bakle – Specifikacija in preskusne metode**

Fireworks - Part 8: Bengal sticks - Specification and test methods

Feuerwerkskörper - Teil 8: Bengalfackeln - Anforderungen und Prüfverfahren

Artifices de divertissement - Partie 8: Baguettes Bengale - Spécifications et méthodes d'essai

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und Prüfverfahren

This European Standard was approved by CEN on 14 June 2004.

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 Central Secretariat or to any CEN member.

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COMITÉ EUROPÉEN DE NORMALISATION  
EUROPÄISCHES KOMITEE FÜR NORMUNG

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## Foreword

This document (EN 14035-8:2004) has been prepared by Technical Committee CEN/TC 212 "Fireworks", the secretariat of which is held by NEN.

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of an identical text or by endorsement, at the latest by February 2005, and conflicting national standards shall be withdrawn at the latest by February 2005.

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

EN 14035-1, *Fireworks - Part 1: Terminology.*

EN 14035-2, *Fireworks - Part 2: Categorisation.*

EN 14035-3, *Fireworks - Part 3: Aerial wheels - Specification and test methods.*

EN 14035-4, *Fireworks - Part 4: Bangers and banger batteries - Specification and test methods.*

prEN 14035-5, *Fireworks - Part 5: Batteries or combinations - Specification and test methods.*

EN 14035-6, *Fireworks - Part 6: Bengal flames - Specification and test methods.*

EN 14035-7, *Fireworks - Part 7: Bengal matches - Specification and test methods.*

EN 14035-8, *Fireworks - Part 8: Bengal sticks - Specification and test methods.*

EN 14035-9, *Fireworks - Part 9: Crackling granules - Specification and test methods.*

EN 14035-10, *Fireworks - Part 10: Double bangers - Specification and test methods.*

EN 14035-12, *Fireworks - Part 12: Flash bangers and flash banger batteries - Specification and test methods.*

EN 14035-13, *Fireworks - Part 13: Flash pellets - Specification and test methods.*

EN 14035-15, *Fireworks - Part 15: Fountains - Specification and test methods.*

EN 14035-17, *Fireworks - Part 17: Ground spinners - Specification and test methods.*

prEN 14035-18, *Fireworks - Part 18: Hand-held fountains - Specification and test methods.*

EN 14035-19, *Fireworks - Part 19: Hand-held sparklers - Specification and test methods.*

prEN 14035-20, *Fireworks - Part 20: Jumping crackers - Specification and test methods.*

prEN 14035-21, *Fireworks - Part 21: Jumping ground spinners - Specification and test methods.*

EN 14035-22, *Fireworks - Part 22: Mines - Specification and test methods.*

EN 14035-23, *Fireworks - Part 23: Non-hand-held sparklers - Specification and test methods.*

EN 14035-24, *Fireworks - Part 24: Novelty matches - Specification and test methods.*

prEN 14035-25, *Fireworks - Part 25: Party poppers - Specification and test methods.*

EN 14035-27, *Fireworks - Part 27: Rockets - Specification and test methods.*

EN 14035-28, *Fireworks - Part 28: Roman candles - Specification and test methods.*

EN 14035-29, *Fireworks - Part 29: Serpents - Specification and test methods.*

prEN 14035-31, *Fireworks - Part 31: Shell-in-mortars - Specification and test methods.*

prEN 14035-32, *Fireworks - Part 32: Snaps - Specification and test methods.*

prEN 14035-33, *Fireworks - Part 33: Spinners - Specification and test methods.*

EN 14035-34, *Fireworks - Part 34: Table bombs - Specification and test methods.*

prEN 14035-35, *Fireworks - Part 35: Throwdowns - Specification and test methods.*

EN 14035-36, *Fireworks - Part 36: Wheels - Specification and test methods.*

prEN 14035-37, *Fireworks - Part 37: Whistlers - Specification and test methods.*

prEN 14035-38, *Fireworks - Part 38: Shot tubes - Specification and test methods.*

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

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## 1 Scope

This document specifies requirements for the construction, performance, primary packaging and labelling of Bengal sticks and the corresponding test methods. It is applicable to fireworks which are classified as Bengal sticks in categories 1 and 2 in EN 14035-2 and which are contained in a primary pack.

It is not applicable to Bengal sticks containing pyrotechnic composition that includes any of the following substances:

- arsenic or arsenic compounds;
- mixtures containing a mass fraction of chlorates greater than 80 %;
- mixtures of chlorates with metals;
- mixtures of chlorates with red phosphorus;
- mixtures of chlorates with potassium hexacyanoferrate(II);
- mixtures of chlorates with sulfur;
- mixtures of chlorates with sulfides;
- lead or lead compounds;
- mercury compounds;
- white phosphorus;
- picrates or picric acid;
- potassium chlorate with a mass fraction of bromates greater than 0,15 %;
- sulfur with an acidity, expressed in mass fraction of sulphuric acid, greater than 0,002 %;
- zirconium with a particle size of less than 40 µm.

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NOTE In EN 14035-2, Bengal sticks are classified as follows:

- brief description: wooden stick partially coated (along one end) with slow—burning pyrotechnic composition and designed to be held in the hand;
- principal effects: emission of coloured flames and sparks.

Schemes for type testing of Bengal sticks and batch testing of Bengal sticks are specified in annex A and annex B respectively.



## 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 1783, *Matches - Performance requirements, safety and classification*.

EN 14035-1:2003, *Fireworks — Part 1: Terminology*.

EN 14035-2, *Fireworks — Part 2: Categorisation*.

EN 20187, *Paper, board and pulps - Standard atmosphere for conditioning and testing and procedure for monitoring the atmosphere and conditioning of samples (ISO 187:1990)*.

EN ISO 536, *Paper and board - Determination of grammage (ISO 536:1995)*.

EN ISO 845, *Cellular plastics and rubbers — Determination of apparent (bulk) density (ISO 845:1988)*.

EN ISO 868, *Plastics and ebonite - Determination of indentation hardness by means of a durometer (Shore hardness) (ISO 868:2003)*.

EN ISO 2439, *Flexible cellular polymeric materials - Determination of hardness (indentation technique) (ISO 2439:1997, including Technical Corrigendum 1:1998)*.

ISO 2859-1, *Sampling procedures for inspection by attributes — Part 1: Sampling schemes indexed by acceptance quality limit (AQL) for lot-by-lot inspection*.

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## 3 Terms and definitions

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For the purposes of this document, the terms and definitions given in EN 14035-1:2003 apply.

## 4 Construction

NOTE Bengal sticks usually do not have an initial fuse (producing the principal effects immediately after ignition).

### 4.1 Protection of Bengal stick

The Bengal stick shall be contained in a primary pack conforming to 6.

Conformity to this requirement shall be verified by visual examination.

### 4.2 Material of stick

The stick of a Bengal stick shall be made of wood.

Conformity to this requirement shall be verified by visual examination.

### 4.3 Integrity

The wooden stick shall have no splits.

Conformity to this requirement shall be verified by visual examination.

#### **4.4 Net explosive content**

When determined in accordance with 8.3, a category 1 Bengal stick shall have a mean net explosive content of not more than 4,0 g.

When determined in accordance with 8.3, a category 2 Bengal stick shall have a mean net explosive content of not more than 20,0 g.

#### **4.5 Length of uncoated end of wooden stick (handle)**

When measured in accordance with 8.1, the uncoated end of a Bengal stick (handle) shall have a minimum length of 75 mm.

### **5 Performance**

#### **5.1 Ignition of Bengal stick**

When tested in accordance with 8.2, the pyrotechnic composition of the Bengal sticks shall ignite within 10 s.

#### **5.2 Principal effects**

When tested in accordance with 8.2, the principal effects of the Bengal stick, as given in EN 14035-2, shall be the emission of coloured flames and sparks.

#### **5.3 Burning of pyrotechnic composition**

When tested in accordance with 8.2, all the pyrotechnic composition of a Bengal stick shall burn off.

#### **5.4 Burning time of pyrotechnic composition**

When tested in accordance with 8.2, the pyrotechnic composition of a Bengal stick shall burn for more than 6,0 s for every 1,0 g of pyrotechnic composition.

#### **5.5 Burning matter**

When tested in accordance with 8.2, the functioning of a category 1 Bengal stick shall not cause the test paper to catch fire or any holes to be burnt in the test paper.

When tested in accordance with 8.2, the functioning of a category 2 Bengal stick shall not cause the test paper to catch fire.

When tested in accordance with 8.2, any flames caused by the functioning of the Bengal stick shall be extinguished within 5,0 s of the Bengal stick ceasing to function.

### **6 Primary pack**

The primary pack shall completely enclose the Bengal stick(s) and there shall be no holes or splits in the primary pack.

Conformity to these requirements shall be verified by visual examination.

## 7 Minimum labelling requirements

### 7.1 General

The primary packs of Bengal sticks shall be marked with the information specified in 7.2 to 7.5 and 7.7.

The specified information shall be given in the language(s) of the country in which the Bengal sticks contained in primary packs are offered for retail sale. For each language, it shall be presented as a whole and shall not be interrupted by other text. Additional text given in another language shall not conflict with the specified information.

Conformity to the requirements specified in 7.1 to 7.5, 7.6.1 and 7.7 shall be verified by visual examination.

NOTE Examples of typical labels for bangers, for which many of the marking requirements are similar to those specified for primary packs of Bengal sticks in this standard, are given in EN 14035-4.

### 7.2 Type name and category

The type name shall be marked, in upper case, as 'BENGAL STICKS'. If a trade name is used in addition to the type name, it shall not conflict with the principal effects of a Bengal stick or with the name of another type of firework.

The appropriate category shall be marked, in upper case, as 'CATEGORY 2' or 'CAT 2', for example.

### 7.3 Safety information

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#### 7.3.1 General

Safety information shall be emphasized by use of a heading, or bold type, or similar. If necessary, instructions in addition to those specified in 7.3.2 may be given.

#### 7.3.2 Bengal sticks

Labelling shall include at least the following safety information in the order as given:

- 'For outdoor use only';
- 'Use singly';
- 'Do not use in windy conditions';
- 'Hold horizontally'.

## **7.4 Name, address and telephone number of manufacturer or distributor or importer**

Labelling shall include:

- the name or trade mark, the address and the telephone number of the manufacturer; or
- an abbreviation or a code allowing the identification of the manufacturer, and the name or trade mark, the address and the telephone number
  - of his authorized distributor; or
  - if the manufacturer is not established in a CEN member country, of the importer in a CEN member country.

The address shall comprise at least the town and the country.

## **7.5 Reference to this standard**

A primary pack shall be marked with the words 'Contents conform to EN 14035-8'.

## **7.6 Printing**

### **7.6.1 Labelling**

Labelling shall be clearly visible, easily legible, indelible and on a single-colour background.

NOTE Printing errors which are not misleading should not be classified as faults.

### **7.6.2 Type size**

When measured in accordance with 8.4, the type sizes shall be such that the height of the character 'X' (in upper case) is at least 2,8 mm for the information specified in 7.2, 7.3 and 7.7 and at least 2,1 mm for the other information.

## **7.7 Additional information on the primary pack**

The primary pack shall be marked with the statement

'Must be sold as packaged'.

This statement shall appear adjacent to the type name or category. For the printing 7.6 applies.

## **8 Test methods**

NOTE Verification of conformity to the requirements in 4.1, 4.2, 4.3, 6, 7.1 to 7.5, 7.6.1, and 7.7 is by visual examination.

### **8.1 Length of uncoated end of wooden stick (type test and batch test)**

#### **8.1.1 Apparatus**

**Rule**, reading to 1 mm.