
Ognjemet – 7. del: Bengalske vžigalice – Specifikacija in preskusne metode

Fireworks - Part 7: Bengal matches - Specification and test methods

Feuerwerkskörper - Teil 7: Bengalhölzer - Anforderungen und Prüfverfahren

Artifices de divertissement - Partie 7: Allumettes Bengale - Spécifications et méthodes d'essai

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und Prüfverfahren

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

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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 Central Secretariat has the same status as the official versions.

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Contents

page

1	Scope	6
2	Normative references	7
3	Terms and definitions	7
4	Construction.....	7
4.1	Means of ignition	7
4.2	Attachment of friction head	7
4.3	Resistance to ignition by an abrasive surface	8
4.4	Protection of Bengal match	8
4.5	Material of stick.....	8
4.6	Integrity of stick	8
4.7	Net explosive content.....	8
4.8	Length of uncoated end of wooden stick (handle).....	8
4.9	Striking surface.....	8
5	Performance	8
5.1	Friction head	8
5.2	Principal effects	8
5.3	Burning matter	9
5.4	Burning of pyrotechnic composition.....	9
5.5	Burning rate of pyrotechnic composition.....	9
6	Primary pack	9
7	Minimum labelling requirements.....	9
7.1	General.....	9
7.2	Type name and category.....	9
7.3	Safety information	10
7.3.1	General.....	10
7.3.2	Bengal matches	10
7.4	Name, address and telephone number of manufacturer or distributor or importer.....	10
7.5	Reference to this standard	10
7.6	Printing	10
7.6.1	Labelling	10
7.6.2	Type size.....	10
7.7	Additional information on the primary pack.....	11
8	Test methods.....	11
8.1	Attachment of friction head (type test).....	11
8.1.1	Apparatus	11
8.1.2	Procedure	11
8.2	Resistance to ignition by an abrasive surface (type test and batch test).....	11
8.2.1	Apparatus	11
8.2.2	Procedure	11
8.3	Length of uncoated end of wooden stick (type test and batch test).....	11
8.3.1	Apparatus	11
8.3.2	Procedure	11
8.4	Performance (type test and batch test)	12
8.4.1	Test environment.....	12
8.4.2	Material	12
8.4.3	Apparatus	12
8.4.4	Procedure	12
8.5	Determination of net explosive content (type test).....	13

8.5.1	Material	13
8.5.2	Apparatus	13
8.5.3	Procedure	13
8.6	Labelling (type test and batch test)	13
Annex A (normative) Type testing		14
A.1	General	14
A.2	Number of Bengal matches to be tested.....	14
A.3	Loose pyrotechnic composition	14
A.4	Thermal conditioning	15
A.5	Mechanical conditioning.....	15
A.5.1	Apparatus	15
A.5.2	Procedure	18
A.6	Number of primary packs to be examined.....	18
A.7	Test report.....	19
Annex B (normative) Batch testing		20
B.1	General	20
B.2	Sampling plans	20
B.3	Unit of product.....	20
B.4	Nonconformities	21
B.5	Test report.....	22
B.6	Acceptance or rejection of a batch.....	22
B.6.1	General	22
B.6.2	Nonconforming units	22
B.6.3	Critical nonconforming units	22
B.6.4	Major nonconforming units.....	22
B.6.5	Minor nonconforming units.....	22
Annex C (normative) Specification for test paper.....		23
C.1	Requirements	23
C.2	Scorch test	23
C.2.1	Material.....	23
C.2.2	Apparatus	23
C.2.3	Test specimen	23
C.2.4	Procedure	23
Annex D (normative) Method for determination of smouldering rate of cigarette		25
Annex E (informative) A-Deviations		26

Foreword

This document (EN 14035-7:2004) 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 and 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: Shells - 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 matches and the corresponding test methods. It is applicable to fireworks which are classified as Bengal match in category 1 in EN 14035-2 and which are contained in a primary pack.

It is not applicable to Bengal matches 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 .

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

- brief description: short wooden stick partially coated (along one end) with slow-burning pyrotechnic composition, with a dot of friction-sensitive pyrotechnic composition at the tip, and designed to be held in the hand;
- principal effects: emission of coloured flame and/or sparks.

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

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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 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*.

ISO 3599, *Vernier callipers, reading to 0,1 and 0,05 mm: 2004*

ISO 6344-3, *Coated abrasives - Grain size analysis - Part 3: Determination of grain size distribution of microgrits P 240 to P 2500*.

ISO 21948, *Coated abrasives – Plain sheets*.

3 Terms and definitions

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

4 Construction

4.1 Means of ignition

The means of ignition shall be identified by a friction head.

Conformity to this requirement shall be verified by visual examination.

4.2 Attachment of friction head

The attachment of the friction head to the Bengal match shall be secure when tested in accordance with 8.1.

4.3 Resistance to ignition by an abrasive surface

When tested in accordance with 8.2, the friction head shall not ignite.

4.4 Protection of Bengal match

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

Conformity to this requirement shall be verified by visual examination.

4.5 Material of stick

The stick of the Bengal match shall be made of wood.

Conformity to this requirement shall be verified by visual examination.

4.6 Integrity of stick

The wooden stick shall have no splits.

Conformity to this requirement shall be verified by visual examination.

4.7 Net explosive content

When determined in accordance with 8.5, a Bengal match shall have a mean net explosive content of not more than 3,0 g.

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4.8 Length of uncoated end of wooden stick (handle)

When measured in accordance with 8.3, the uncoated end of a Bengal match (handle) shall have a length of at least 40 % of the total length of the Bengal match. In case of short Bengal matches the uncoated end (handle) shall have a minimum length of 20 mm.

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4.9 Striking surface

The primary pack of Bengal matches shall be fitted with a striking surface for safety matches.

Conformity to this requirement shall be verified by visual examination.

5 Performance

5.1 Friction head

When tested in accordance with 8.4, the friction head shall ignite.

5.2 Principal effects

When tested in accordance with 8.4, the principal effects of the Bengal match, as given in EN 14035-2, shall be the emission of coloured flame and/or sparks.

5.3 Burning matter

When tested in accordance with 8.4, the functioning of a Bengal match shall not cause the test paper to catch fire or any holes to be burnt in the test paper.

When tested in accordance with 8.4, any flames caused by the functioning of the Bengal match shall be extinguished within 5,0 s of the pyrotechnic composition ceasing to burn.

5.4 Burning of pyrotechnic composition

When tested in accordance with 8.4, all the pyrotechnic composition of a Bengal match shall burn off.

5.5 Burning rate of pyrotechnic composition

When tested in accordance with 8.4, the pyrotechnic composition of a Bengal match shall have a burning time of more than 6,0 s for every 1,0 g of pyrotechnic composition.

6 Primary pack

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

The striking surface on the pack shall be covered or the pack shall be sealed.

Conformity to these requirements shall be verified by visual examination.

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7 Minimum labelling requirements

7.1 General

The primary packs of Bengal matches 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 matches contained in the 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 matches 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 MATCHES'. If a trade name is used in addition to the type name, it shall not conflict with the principal effects of a Bengal match or with the name of another type of firework.

The category shall be marked, in upper case, as 'CATEGORY 1' or 'CAT 1'.