



SLOVENSKI STANDARD
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Fireworks - Part 23: Non-hand-held sparklers - Specification and test methods

Feuerwerkskörper - Teil 23: Wunderkerzen, groß - Anforderungen und Prüfverfahren

Artifices de divertissement - Partie 23 : Cierges magiques non tenus a la main -
Spécifications et méthodes d'essai

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English version

Fireworks - Part 23: Non-hand-held sparklers - Specification and test methods

Artifices de divertissement - Partie 23: Cierge magique non tenu à la main - Prescriptions et méthodes d'essai

Feuerwerkskörper - Teil 23: Wunderkerzen, groß - Anforderungen und Prüfverfahren

This European Standard was approved by CEN on 7 November 2002.

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 Management Centre or to any CEN member.

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 Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Slovakia, Spain, Sweden, Switzerland and United Kingdom.

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EUROPÄISCHES KOMITEE FÜR NORMUNG

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Foreword

This document (EN 14035-23:2003) 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of an identical text or by endorsement, at the latest by November 2003, and conflicting national standards shall be withdrawn at the latest by November 2003.

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.*

prEN 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.*

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

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

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

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

prEN 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.*

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

prEN 14035-14, *Fireworks - Part 14: Flying squibs - Specification and test methods.*

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

prEN 14035-16, *Fireworks - Part 16: Friction-ignited flash bangers - Specification and test methods.*

prEN 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.*

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

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

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

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

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prEN 14035-26, *Fireworks - Part 26: Percussion caps - Specification and test methods.*

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

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

prEN 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.*

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

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

In this European Standard the annexes A to D are normative, annex E is informative.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: 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.

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1 Scope

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

It is not applicable to non-hand-held sparklers 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, non-hand-held sparklers are classified as follows:

- brief description: rigid wire partially coated with slow-burning pyrotechnic composition, with or without an ignition tip;
- principal effects: emission of sparks, with or without aural effect, without report.

Schemes for type testing of non-hand-held sparklers and batch testing of non-hand-held sparklers are specified in annex A and annex B respectively.

2 Normative references

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text, and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

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

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

EN 1783, *Matches — Performance requirements, safety and classification.*

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 868:1985).*

ISO 2439, *Flexible cellular polymeric materials — Determination of hardness (indentation technique) (including Technical Corrigendum 1:2001).*

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

3 Terms and definitions

For the purposes of this European Standard, the terms and definitions given in EN 14035-1 apply.

4 Construction

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4.1 Length

When measured in accordance with 8.1, the total length of a category 1 non-hand-held sparkler shall be not more than 300 mm.

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When measured in accordance with 8.1, the total length of a category 2 non-hand-held sparkler shall be not more than 750 mm.

When measured in accordance with 8.1, a category 1 non-hand-held sparkler shall have a minimum length devoid of pyrotechnic composition of 50 mm.

When measured in accordance with 8.1, a category 2 non-hand-held sparkler shall have a minimum length devoid of pyrotechnic composition of 75 mm.

4.2 Integrity of non-hand-held sparkler

When tested in accordance with A.5, the mass of loose pyrotechnic composition shall not exceed 100 mg.

4.3 Vertical stability

Category 1 non-hand-held sparklers supplied with a holder shall not fall over when tested in accordance with 8.2.

5 Performance

5.1 Ignition of non-hand-held sparkler

When tested in accordance with 8.3, a category 1 non-hand-held sparkler shall ignite within 15 s.

When tested in accordance with 8.4, a category 2 non-hand-held sparkler shall ignite within 15 s.

5.2 Principal effects

When tested in accordance with 8.3 or 8.4, the principal effects of the non-hand-held sparkler, as given in EN 14035-2, shall be the emission of sparks, with or without aural effect, without report.

5.3 Explosions

When tested in accordance with 8.3 or 8.4, the non-hand-held sparklers shall not produce an explosion.

5.4 Burning of pyrotechnic composition

When tested in accordance with 8.3 or 8.4, the pyrotechnic composition shall burn off completely.

5.5 Burning matter

When tested in accordance with 8.3, the functioning of a category 1 non-hand-held sparkler 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, no burning or incandescent matter from a category 2 non-hand-held sparkler shall fall to the ground more than 6,0 m from the testing point.

6 Primary pack

The primary pack shall completely enclose the non-hand-held sparkler(s) and there shall be no holes or splits in the pack.

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 non-hand-held sparklers 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 non-hand-held sparklers 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 the primary packs of non-hand-held sparklers 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 'NON-HAND-HELD SPARKLERS'. If a trade name is used in addition to the type name, it shall not conflict with the principal effect of a non-hand-held sparkler 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

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 to 7.3.3 may be given.

7.3.2 Category 1 non-hand-held sparklers

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

- 'Use singly over non-flammable surface';
- 'Place a sparkler in the support provided: do not hold in the hand';
- 'Light one sparkler at a time at its outermost end';
- 'Keep sparkler away from any part of the body and flammable materials';
- 'Do not inhale smoke';
- 'Spent sparkler remains very hot: do not touch'.

7.3.3 Category 2 non-hand-held sparklers:

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

- 'For outdoor use only';
- 'Use singly';
- 'Insert a sparkler upright in soft ground or attach it securely to an upright post: do not hold in the hand';
- 'Light one sparkler at a time at its outermost end';
- 'Retire immediately at least 1 m';
- 'Keep sparkler away from any part of the body and flammable materials';
- 'Do not inhale smoke';
- 'Spent sparkler remains very hot: do not touch'.

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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 14035-23'.

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 8.5, 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 non-hand-held sparklers shall be sold only in a primary pack. The packs 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.

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8 Test methods

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

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8.1 Length of non-hand-held sparklers (type test and batch test)

8.1.1 Apparatus

Rule, reading to 1 mm.

8.1.2 Procedure

Measure and record the total length of the hand-held sparkler to the nearest 1 mm using the rule (8.1.1).

Measure and record the total length of the wire not coated with pyrotechnic composition to the nearest 1 mm using the rule.

8.2 Vertical stability test of category 1 non-hand-held sparklers provided with a holder (type test)

8.2.1 Apparatus

8.2.1.1 Wooden block, rectangular, with an upper surface inclined at 10° to the horizontal.

8.2.1.2 Timing device, capable of being read to the nearest 0,1 s.