



SLOVENSKI STANDARD
SIST EN 14035-12:2003
01-december-2003

Člani tega standarda so:

Fireworks - Part 12: Flash bangers and flash banger batteries - Specification and test methods

Feuerwerk - Teil 12: Blitzknallkörper und Blitzknallkörperbatterien - Anforderungen und Prüfverfahren

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Artifices de divertissement - Partie 12: Pétardes à composition flash et batteries de pétardes à composition flash - Prescriptions et méthodes d'essai

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Ta slovenski standard je istoveten z: **EN 14035-12:2003**

ICS:

71.100.30

SIST EN 14035-12:2003

en

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ICS 71.100.30

English version

Fireworks - Part 12: Flash bangers and flash banger batteries - Specification and test methods

Artifices de divertissement - Partie 12: Pétards à
composition flash et batteries de pétards à composition
flash - Spécifications et méthodes d'essai

Feuerwerkskörper - Teil 12: Blitzknallkörper und
Blitzknallkörperbatterien - 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.

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EUROPÄISCHES KOMITEE FÜR NORMUNG

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Foreword

This document (EN 14035-12:2003) 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of an identical text or by endorsement, at the latest by November 2003, and conflicting national standards shall be withdrawn at the latest by November 2003.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.*

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

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

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 C are normative and the annex D is informative and contains national deviations due to regulations, the alteration of which is for the time being outside the competence of the CEN/CENELEC member.

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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.

1 Scope

This European Standard specifies requirements for the construction, performance, primary packaging and labelling of flash bangers and flash banger batteries and the corresponding test methods. It is applicable to fireworks which are classified as flash bangers and flash banger batteries in categories 1, 2 and 3 in EN 14035-2 and which contain pyrotechnic report composition that is nitrate/metal-based or perchlorate/metal-based.

It is not applicable to fireworks 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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Schemes for type testing of flash bangers and flash banger batteries and batch testing of flash bangers and flash banger batteries 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 60651, *Sound level meters (IEC 60651:1993)*.

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 together with the following terms and definitions apply.

3.1 flash banger

single non-metallic case containing a metal-based report charge and provided with an initial fuse, other than a friction head, to transmit ignition

NOTE In EN 14035-2 flash bangers are classified as follows:

- brief description: non-metallic case containing metal-based pyrotechnic composition;
- principal effects: report and a flash of light.

3.2 flash banger battery

assembly of individual flash bangers, but with a single point of ignition, which is designed to produce a series of reports and flashes of light

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4 Construction

4.1 Means of ignition

The means of ignition of a flash banger shall be identified by a protruding fuse or an ignition head.

A flash banger battery shall have a single point of ignition, identified by a protruding fuse.

Conformity to these requirements shall be verified by visual examination.

4.2 Attachment of initial fuse

For flash bangers and flash banger batteries with protruding fuse, the attachment of the protruding fuse to the firework shall be secure when tested in accordance with 8.1.

For flash bangers with ignition head, the attachment of the ignition head to the flash banger shall be secure when tested in accordance with 8.2.

4.3 Protection of initial fuse

4.3.1 General

The initial fuse shall be protected in one of the ways specified in 4.3.2, 4.3.3 or 4.3.4.

4.3.2 Initial fuse protected by fuse cover

An orange fuse cover shall be in place over the initial fuse.

Conformity to this requirement shall be verified by visual examination.

4.3.3 Initial fuse protected by primary pack

The firework shall be contained in a primary pack conforming to clause 6.

Conformity to this requirement shall be verified by visual examination.

4.3.4 Protruding fuse designed to resist side ignition

When tested in accordance with 8.5, the protruding fuse shall not ignite.

4.4 Materials of firework case

The body of the firework case shall be made of paper, cardboard, cardboard wrapped in cord, or cellular plastics. If the end closure(s), if any, is a (are) separate component(s), it (they) shall be made of clay or similar material, or of paper, cardboard or cellular plastics.

For a flash banger battery, these requirements apply to each pyrotechnic element.

Conformity to these requirements shall be verified by visual examination.

4.5 Integrity

4.5.1 Firework case

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There shall be no holes, splits, dents or bulges in the body of the firework case. There shall be no holes or splits in the end closure(s). If the end closure (or the end closures), if any, is a (are) separate component(s), it (they) shall be securely in place.

For a flash banger battery, these requirements apply to each pyrotechnic element.

Conformity to these requirements shall be verified by visual examination.

4.5.2 Firework

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

4.6 Net explosive content

4.6.1 Flash bangers

When determined in accordance with 8.4, a category 1 flash banger shall have a net explosive content of not more than 0,3 g for nitrate/metal-based report composition or not more than 0,2 g for perchlorate/metal-based report composition.

When determined in accordance with 8.4, a category 2 flash banger shall have a net explosive content of not more than 1,0 g for nitrate/metal-based report composition or not more than 0,5 g for perchlorate/metal-based report composition.

When determined in accordance with 8.4, a category 3 flash banger shall have a net explosive content of not more than 10,0 g for nitrate/metal-based report composition or not more than 5,0 g for perchlorate/metal-based report composition.

4.6.2 Flash banger battery

When determined in accordance with 8.4, a category 1 flash banger battery shall have a total net explosive content of not more than 7,5 g and each individual pyrotechnic element shall have a net explosive content of not more than 0,2 g nitrate/metal-based report composition or not more than 0,1 g perchlorate/metal-based report composition.

When determined in accordance with 8.4, a category 2 flash banger battery shall have a total net explosive content of not more than 25,0 g and each individual pyrotechnic element shall have a net explosive content of not more than 1,0 g nitrate/metal-based report composition or not more than 0,5 g perchlorate/metal-based report composition.

When determined in accordance with 8.4, a category 3 flash banger battery shall have a total net explosive content of not more than 250,0 g and each individual pyrotechnic element shall have a net explosive content of not more than 10,0 g for nitrate/metal-based report composition or not more than 5,0 g for perchlorate/metal-based report composition.

5 Performance

5.1 Initial fuse

When tested in accordance with 8.3, the initial fuse of a flash banger or flash banger battery shall ignite within 10 s and the ignition shall be visible.

For flash bangers or for category 1 or category 2 flash banger batteries, the duration of the initial fuse burning shall be 3,0 s to 8,0 s, when tested in accordance with 8.3.

For category 3 flash banger batteries the duration of the initial fuse burning shall be 5,0 s to 13,0 s, when tested in accordance with 8.3.

5.2 Principal effects

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5.2.1 Flash banger

When tested in accordance with 8.3, the principal effects of the flash banger, as given in EN 14035-2, shall be a single report and a flash of light (in accordance with 5.3).

5.2.2 Flash banger battery

When tested in accordance with 8.3, the principal effects of the flash banger battery shall be a series of reports and flashes of light.

5.3 Number of reports (flash bangers only)

When tested in accordance with 8.3, the flash banger shall not produce more than one report.

5.4 Functioning (flash banger batteries only)

When tested in accordance with 8.3, all pyrotechnic elements of a banger battery shall function completely.

5.5 Sound pressure level

5.5.1 Flash bangers

When tested in accordance with 8.3, a category 1 flash banger shall produce an maximum A-weighted impulse sound pressure level (L_{AImax}) of not higher than 120 dB(A) at a horizontal distance of 1,0 m from the testing point and at a height of 1,0 m above the ground.

When tested in accordance with 8.3, a category 2 flash banger shall produce an maximum A-weighted impulse sound pressure level (L_{AImax}) of not higher than 120 dB(AI) at a horizontal distance of 8,0 m from the testing point and at a height of 1,0 m above the ground.

When tested in accordance with 8.3, a category 3 flash banger shall produce an maximum A-weighted impulse sound pressure level (L_{AImax}) of not higher than 120 dB(AI) at a horizontal distance of 15,0 m from the testing point and at a height of 1,0 m above the ground.

5.5.2 Flash banger batteries

When tested in accordance with 8.3, none of the reports from a category 1 flash banger battery shall produce an maximum A-weighted impulse sound pressure level (L_{AImax}) of higher than 120 dB(AI) at a horizontal distance of 1,0 m from the testing point and at a height of 1,0 m above the ground.

When tested in accordance with 8.3, none of the reports from a category 2 flash banger battery shall produce an maximum A-weighted impulse sound pressure level (L_{AImax}) of higher than 120 dB(AI) at a horizontal distance of 8,0 m from the testing point and at a height of 1,0 m above the ground.

When tested in accordance with 8.3, none of the reports from a category 3 flash banger battery shall produce an maximum A-weighted impulse sound pressure level (L_{AImax}) of higher than 120 dB(AI) at a horizontal distance of 15,0 m from the testing point and at a height of 1,0 m above the ground.

5.6 Burning matter

When tested in accordance with 8.3, no burning or incandescent matter from a category 1 firework shall fall to the ground more than 1,0 m from the testing point.

When tested in accordance with 8.3, no burning or incandescent matter from a category 2 firework shall fall to the ground more than 6,0 m from the testing point.

When tested in accordance with 8.3, no burning or incandescent matter from a category 3 firework shall fall to the ground more than 15,0 m from the testing point.

When tested in accordance with 8.3, any flames caused by the functioning of the firework shall be extinguished within 5,0 s of the firework ceasing to function.

5.7 Projected debris

When tested in accordance with 8.3, no debris from a category 1 firework shall be projected laterally more than 1,0 m from the testing point and any particle of debris which is projected laterally more than 0,5 m from the testing point shall not exceed a mass of 0,5 g.

When tested in accordance with 8.3, no debris from a category 2 firework shall be projected laterally more than 8,0 m from the testing point and any particle of debris which is projected laterally more than 6,0 m from the testing point shall not exceed a mass of 1,0 g.

When tested in accordance with 8.3, no debris from a category 3 firework shall be projected laterally more than 15,0 m from the testing point.

6 Primary pack

If a primary pack is required to protect the initial fuse(s) of the firework(s) (see 4.3.3), the primary pack shall completely enclose the firework(s). There shall be no holes or splits in the pack, except those which are intended to enable the packaging to be opened and those which are otherwise technically necessary.

Conformity to these requirements shall be verified by visual examination.

7 Minimum labelling requirements

7.1 General

Flash bangers and flash banger batteries and their primary packs, if any, shall be marked with the information specified in 7.2 to 7.5 and, if relevant, 7.7 and/or 7.8.

The specified information shall be given in the language(s) of the country in which the fireworks or 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 required information.

Conformity to the requirements specified in 7.1 to 7.5, 7.6.1, 7.7.2 and 7.8 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 flash bangers and flash banger batteries 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 'FLASH BANGER' or 'FLASH BANGER BATTERY' as appropriate. If a trade name is used in addition to the type name, it shall not conflict with the principal effects of a flash banger or a flash banger battery 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 **iTeh STANDARD PREVIEW** **(standards.iteh.ai)**

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 7.3.7 may be given.

7.3.2 Category 1 flash bangers

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

- 'For outdoor use only';
- 'Remove orange fuse cover' ¹⁾;
- 'Place singly on ground and light fuse at its outermost end';
- 'Retire immediately at least 1 m'.

7.3.3 Category 2 flash bangers

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

- 'For outdoor use only';
- 'Remove orange fuse cover' ¹⁾;
- 'Place singly on ground and light fuse at its outermost end';

¹⁾ If applicable.