



SLOVENSKI STANDARD
SIST EN 14035-20:2005
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Fireworks - Part 20: Jumping crackers - Specification and test methods

Feuerwerkskörper - Teil 20: Knallfrösche - Anforderungen und Prüfverfahren

Artifices de divertissement - Partie 20: Pétards sauteurs - Spécifications et méthodes d'essai

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This European Standard was approved by CEN on 3 February 2005.

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.

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.

CEN members are the national standards bodies of 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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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

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Foreword

This document (EN 14035-20:2005) 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of an identical text or by endorsement, at the latest by September 2005, and conflicting national standards shall be withdrawn at the latest by September 2005.

This document 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*

EN 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*

EN 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*

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

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

EN 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 jumping crackers and the corresponding test methods. It is applicable to fireworks which are classified as jumping crackers in Category 2 in EN 14035-2, which contain pyrotechnic report composition that is black powder and which are contained in a primary pack.

It is not applicable to jumping crackers 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 as mass fraction of sulfuric acid, greater than 0,002 %;
- zirconium with a particle size of less than 40 µm.

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NOTE In EN 14035-2, jumping crackers are classified as follows:

- brief description: paper tube containing black powder, folded back on itself several times and bound together;
- principal effects: reports in succession, with jumping motion.

Schemes for type testing of jumping crackers and batch testing of jumping crackers 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 14035-1:2003, *Fireworks — Part 1: Terminology*

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

EN 61672-1, *Electroacoustics - Sound level meters - Part 1: Specifications (IEC 61672-1:2002)*

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EN 61672-2, *Electroacoustics - Sound level meters - Part 2: Pattern evaluation tests (IEC 61672-2:2003)*

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*

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 protruding fuse or an ignition head.

Conformity to this requirement shall be verified by visual examination.

4.2 Attachment of initial fuse

For jumping crackers with protruding fuse, the attachment of the protruding fuse to the jumping cracker shall be secure when tested in accordance with 8.1.

For jumping crackers with ignition head, the attachment of the ignition head to the jumping cracker shall be secure when tested in accordance with 8.2.

4.3 Protection of initial fuse

The jumping cracker shall be contained in a primary pack conforming to Clause 6.

Conformity to this requirement shall be verified by visual examination.

4.4 Material of firework case

The body of the firework case shall be made of paper.

Conformity to this requirement shall be verified by visual examination.

4.5 Integrity

There shall be no holes or splits in the body of the firework case. There shall be no holes or splits in the end closure. If the end closure is a separate component, it shall be securely in place.

Conformity to these requirements shall be verified by visual examination.

4.6 Net explosive content

When determined in accordance with 8.4, a jumping cracker shall have a net explosive content of not more than 5,0 g.

5 Performance

5.1 Initial fuse

When tested in accordance with 8.3, the initial fuse shall ignite within 10 s and the ignition shall be visible.

When tested in accordance with 8.3, the duration of the initial fuse burning shall be 3,0 to 8,0 s.

5.2 Principal effects

When tested in accordance with 8.3, the principal effects of the jumping cracker, as given in EN 14035-2, shall be reports in succession, with jumping motions.

5.3 Functioning

When tested in accordance with 8.3, the jumping cracker shall function completely.

5.4 Sound pressure level

When tested in accordance with 8.3, a jumping cracker shall produce a 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 a height of 1,0 m above the ground.

5.5 Burning matter

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

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

5.6 Projected debris

When tested in accordance with 8.3, no debris from a jumping cracker 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.

6 Primary pack

The primary pack shall completely enclose the jumping ground cracker(s). There shall be no holes or splits in the primary 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

The primary packs of jumping crackers 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 jumping crackers 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 jumping crackers in this document, are given in EN 14035-4.

7.2 Type name and category

The type name shall be marked, in upper case, as 'JUMPING CRACKERS'. If a trade name is used in addition to the type name, it shall not conflict with the principal effects of a jumping cracker or with the name of another type of firework.

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

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 be given.

7.3.2 Jumping crackers

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

- 'Use singly';
- 'For outdoor use only';
- 'Place singly on ground and light fuse at its outermost end¹⁾', or
- 'Place singly on ground and light ignition head¹⁾';
- 'Retire immediately at least 8 m'.

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

Labelling shall include:

- name or trade mark, the address and the telephone number of the manufacturer; or
- 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
 - of the importer in a CEN member country, if the manufacturer is not established in a CEN member country.
- address shall comprise at least the town and the country.

7.5 Reference to this document

A primary pack shall be marked with the words 'Contents conform to EN 14035-20'.

¹⁾ Whichever is appropriate.

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 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, 4.3, 4.4, 4.5, Clause 6, 7.1 to 7.5, 7.6.1 and 7.7 is by visual examination.

8.1 Attachment of protruding fuse (type test and batch test)

8.1.1 Apparatus

8.1.1.1 Means of clamping the jumping cracker.

8.1.1.2 Weight, of mass 100 g.

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

8.1.2 Procedure

Clamp the jumping cracker by means of the clamping device (8.1.1.1) in a position such that the protruding fuse is pointing vertically downwards. Securely attach the 100 g weight (8.1.1.2) to the protruding fuse.

Using the timing device (8.1.1.3), determine and record whether the protruding fuse will support the weight for at least 10 s without becoming detached. If the protruding fuse becomes detached do not proceed with further testing of that jumping cracker.

8.2 Attachment of ignition head (type test)

8.2.1 Apparatus

Mechanical shock apparatus, conforming to A.5.1.1.

8.2.2 Procedure

When tested in accordance with A.5.2, record whether the ignition head becomes damaged, loose or detached. If the ignition head becomes damaged, loose or detached do not proceed with further testing of that jumping cracker.