



SLOVENSKI STANDARD
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Fireworks - Part 9: Crackling granules - Specification and test methods

Feuerwerkskörper - Teil 9: Knatterartikel - Anforderungen und Prüfverfahren

Artifices de divertissement - Partie 9: Crépitant - Spécifications et méthodes d'essai

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Ta slovenski standard je istoveten z: EN 14035-9:2004

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Fireworks - Part 9: Crackling granules - Specification and test methods

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Spécifications et méthodes d'essai

Feuerwerkskörper - Teil 9: Knatterartikel - Anforderungen
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.

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 14035-9:2004) 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of an identical text or by endorsement, at the latest by February 2005, and conflicting national standards shall be withdrawn at the latest by February 2005.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: 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 crackling granules fireworks and the corresponding test methods. It is applicable to fireworks which are classified as crackling granules in categories 1 and 2 in EN 14035-2.

It is not applicable to crackling granules fireworks containing pyrotechnic composition which 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, crackling granules are classified as follows:

- brief description: bag, or other container, enclosing small granules of pyrotechnic composition;
- principal effect: crackling.

Schemes for type testing of crackling granules fireworks and batch testing of crackling granules fireworks are specified in A and 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 61672-1, *Electroacoustics - Sound level meters - Part 1: Specifications (IEC 61672-1:2002)*.

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*.

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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

4.1 Means of ignition

The means of ignition shall be identified by a protruding fuse.

Conformity to this requirement shall be verified by visual examination.

4.2 Attachment of initial fuse

The attachment of the protruding fuse to the crackling granules fireworks shall be secure when tested in accordance with 8.1.

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 or selection pack

The crackling granules fireworks shall be contained in a primary pack or selection pack conforming to 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 8.4, the protruding fuse shall not ignite.

4.4 Materials of firework case

The body of the firework case (i.e. the container) shall be made of paper, cardboard or plastics (see also 5.8).

Conformity to this requirement shall be verified by visual examination.

4.5 Integrity

There shall be no holes, splits, dents or bulges in the body of the firework case.

Conformity to this requirement shall be verified by visual examination.

4.6 Net explosive content

When determined in accordance with 8.3, a category 1 crackling granules fireworks shall have a mean net explosive content of not more than 0,5 g.

When determined in accordance with 8.3, a category 2 crackling granules fireworks shall have a net explosive content of not more than 3,0 g.

5 Performance

5.1 Initial fuse

When tested in accordance with 8.2, the initial fuse shall ignite within 10 s and the ignition shall be visible.

When tested in accordance with 8.2, the duration of the initial fuse burning shall be 3,0 s to 8,0 s.

5.2 Principal effect

When tested in accordance with 8.2, the principal effect of the crackling granules fireworks, as given in EN 14035-2, shall be crackling.

5.3 Functioning

When tested in accordance with 8.2, all the crackling granules contained in the firework shall be consumed.

5.4 Aural effects

When tested in accordance with 8.2, crackling granules fireworks shall produce a number of aural effects in succession.

5.5 Sound pressure level

When tested in accordance with 8.2, a category 1 crackling granules fireworks shall produce a 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 8.2, a category 2 crackling granules fireworks shall produce a maximum A-weighted impulse sound pressure level (L_{AImax}) of not higher than 120 dB(A) at a horizontal distance of 8,0 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 8.2, no burning or incandescent matter from a category 1 crackling granules fireworks shall fall to the ground more than 1,0 m from the testing point.

When tested in accordance with 8.2, no burning or incandescent matter from a category 2 crackling granules fireworks shall fall to the ground more than 6,0 m from the testing point.

When tested in accordance with 8.2, any flames caused by the functioning of the crackling granules fireworks shall be extinguished within 5,0 s of the cessation of the crackling.

5.7 Projected debris

When tested in accordance with 8.2, no debris from a category 1 crackling granules fireworks shall be projected laterally more than 1,0 m from the testing point.

When tested in accordance with 8.2, no debris from a category 2 crackling granules fireworks shall be projected laterally more than 8,0 m from the testing point.

5.8 Plastics body

If the crackling granules fireworks have a plastics body, the body shall not splinter when tested in accordance with 8.2.

6 Primary pack or selection pack

If a primary pack or selection pack is required to protect the initial fuse(s) of the crackling granules fireworks (see 4.3.3), the pack shall completely enclose the crackling granules fireworks. 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

Crackling granules fireworks 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 crackling granules 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 specified 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 crackling granules fireworks 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 'CRACKLING GRANULES FIREWORKS'. If a trade name is used in addition to the type name, it shall not conflict with the principal effect of crackling granules fireworks 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 crackling granules fireworks

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

- 'For outdoor use only';
- 'Place singly on ground'.
- 'Remove orange fuse cover¹⁾;
- 'Light fuse at its outermost end and retire immediately at least 1 m'.

7.3.3 Category 2 crackling granules fireworks

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

- 'For outdoor use only';
- 'Place singly on ground';
- 'Remove orange fuse cover¹⁾;
- 'Light fuse at its outermost end and retire immediately at least 8 m'.

¹⁾ If applicable.