SLOVENSKI STANDARD

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Ognjemet – 10. del: Petarde z dvojnim pokom – Specifikacija in preskusne metode

Fireworks - Part 10: Double Bangers - Specification and test methods

Feuerwerkskörper - Teil 10: Doppelschläge - Anforderungen und Prüfverfahren

Artifices de divertissement - Partie 10: Pétards aériens - Spécifications et méthodes d'essai

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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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Foreword

This document (EN 14035-10:2004) 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of an identical text or by endorsement, at the latest by February 2005, and conflicting national standards shall be withdrawn at the latest by February 2005.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.*

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.

1 Scope

This document specifies requirements for the construction, performance, primary packaging and labelling of double bangers and the corresponding test methods. It is applicable to fireworks which are classified as double bangers in category 2 in EN 14035-2. It is applicable to double bangers which contain pyrotechnic report composition that is black powder.

It is not applicable to double bangers 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, double bangers are classified as follows:

— brief description: tube containing two portions of black powder connected by a delay fuse;

— principal effects: report, then ascent followed by second report.

Schemes for type testing of double bangers and batch testing of double bangers 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).*

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.

Conformity to this requirement shall be verified by visual examination.

4.2 Attachment of initial fuse

The attachment of the initial fuse to the double banger 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 double banger 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 8.5, the protruding fuse shall not ignite.

4.4 Materials of firework case

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

Conformity to these requirements 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. There shall be no holes or splits in the end closure(s). If the end closure is a separate component or the end closures are separate components, it (they) 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 double banger shall have a net explosive content of not more than 10,0 g.

4.7 Vertical stability

When tested in accordance with 8.2, a double banger shall not fall over.

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 double banger, as given in EN 14035-2, shall be report, then ascent followed by second report (in accordance with 5.3).

5.3 Number of reports

When tested in accordance with 8.3, the double banger shall not produce more than two reports.

5.4 Sound pressure level

When tested in accordance with 8.3, a double banger 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 double banger 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 double banger shall be extinguished within 5,0 s of the second report.

5.6 Projected debris

When tested in accordance with 8.3, no debris from a double banger 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.

5.7 Height of effects

When tested in accordance with 8.3, the second report of a double banger shall be at least 3,0 m above the ground.

5.8 Angle of flight

When tested in accordance with 8.3, the angel of flight of a double banger shall not exceed 40 cm to the vertical up to a height of 3,0 m above ground.

6 Primary pack or selection pack

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