



BSI Standards Publication

Pyrotechnic articles — Fireworks, Categories F1, F2 and F3

Part 5: Requirements for construction and performance

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National foreword

This British Standard is the UK implementation of EN 15947-5:2022. It supersedes BS EN 15947-5:2015, which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee CII/47, Pyrotechnic articles.

A list of organizations represented on this committee can be obtained on request to its committee manager.

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Pyrotechnic articles - Fireworks, Categories F1, F2 and F3 - Part 5: Requirements for construction and performance

Articles pyrotechniques - Artifices de divertissement,
Catégories F1, F2 et F3 - Partie 5 : Exigences de
construction et de performances

Pyrotechnische Gegenstände - Feuerwerkskörper,
Kategorien F1, F2 und F3 - Teil 5: Anforderungen an
Konstruktion und Funktion

This European Standard was approved by CEN on 8 August 2022.

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 CEN-CENELEC Management Centre or to any CEN member.

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Contents	Page
European foreword	4
1 Scope	6
2 Normative references	7
3 Terms and definitions	7
4 Construction	7
4.1 Construction materials (type test and batch test)	7
4.1.1 General requirements	7
4.1.2 Specific requirements	7
4.2 Length of handle and pull string (type test and batch test)	8
4.3 Permitted elements in battery, battery requiring external support, combination and combination requiring external support (type test and batch test)	9
4.4 Dimensions for mini rocket (type test and batch test)	9
4.5 Specific requirements for compound firework (type test and batch test)	10
4.6 Specific requirements for fireworks which eject pyrotechnic units with end closures (type test)	10
5 Pyrotechnic composition (type test)	10
6 Means of initiation	14
6.1 Permitted means of initiation (type test and batch test)	14
6.2 Protection of means of initiation (type test and batch test)	16
6.3 Attachment of means of initiation and resistance to ignition by an abrasive surface (type test and batch test)	16
6.4 Requirements for means of initiation (type test and batch test)	16
6.4.1 General requirements	16
6.4.2 Specific requirements	17
7 Performance	17
7.1 Properties to be checked before functioning tests	17
7.1.1 Loose pyrotechnic composition after mechanical conditioning (type test)	17
7.1.2 Integrity (type test and batch test)	17
7.1.3 Stabilization of flight (type test and batch test)	18
7.1.4 Other requirements (type test)	18
7.2 Properties to be checked during functioning tests (type test and batch test)	18
7.2.1 Principal effects	18
7.2.2 Functioning	18
7.2.3 Angle of ascent or flight	18
7.2.4 Motion	19
7.2.5 Stability during functioning	19
7.2.6 Height of explosion	20
7.2.7 Sound pressure level	20
7.2.8 Explosions and other failures	20
7.2.9 Burning or incandescent matter	21
7.2.10 Extinguishing of flames	21
7.2.11 Debris and projected debris	23
7.2.12 Burning rate of composition	23
7.2.13 Pull-string or strip	24

This is a preview of "BS EN 15947-5:2022". [Click here to purchase the full version from the ANSI store.](#)

7.3	Properties to be checked after functioning tests (type test and batch test)	24
7.3.1	Droop	24
7.3.2	Plastics body.....	24
7.3.3	Tube containing the propellant charge for rocket and report rocket.....	24
8	Primary pack or selection pack (type test and batch test).....	24
9	Type testing	24
9.1	General	24
9.2	Specific requirements for primary packs to be examined.....	26
10	Batch testing.....	26
10.1	General	26
10.2	Sampling plans.....	26
10.3	Unit of product.....	26
10.4	Nonconformities	27
10.5	Acceptance or rejection of a batch	29
10.5.1	Nonconforming units.....	29
10.5.2	Critical nonconforming units	29
10.5.3	Major nonconforming units	29
10.5.4	Minor nonconforming units.....	29
10.5.5	Fireworks supplied in primary packs or selection packs.....	29
Annex ZA	(informative) Relationship between this European Standard and the essential safety requirements of Directive 2013/29/EU aimed to be covered	30

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European foreword

This document (EN 15947-5:2022) has been prepared by Technical Committee CEN/TC 212 "Pyrotechnic articles", 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 April 2023, and conflicting national standards shall be withdrawn at the latest by December 2023.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN 15947-5:2015.

In comparison with the previous edition EN 15947-5:2015, the following essential technical modifications have been made:

- new fireworks types "report rocket" in F3 and "senko-hanabi" in F1 added with corresponding requirements;
- requirements for hand-held Bengal flame and Banger with preliminary effect have been added;
- procedure to check the labelling during type testing has been revised;
- measuring of sound pressure level during batch testing is not required, if the measured values during type testing were less than 90 dB (AI) at the respective safety distance;
- for fireworks with whistle elements no plastic tubes shall be ejected from the article during functioning;
- deletion of the requirements regarding "Integrity after function" (earlier 7.3.4);
- type testing was revised;
- requirements on elements in battery, battery requiring external support, combination and combination requiring external support has been revised;
- requirement for end closures breakability has been added;
- the requirement to use a non-metallic base plate to fix the individual fireworks for a compound firework has been removed;
- requirement removed for mounted wheels in category F3 (ex 6.4.2).

This document has been prepared under a Standardization Request (M/583) concerning pyrotechnic articles given to CEN by the European Commission and the European Free Trade Association, and supports Essential Safety requirements of Directive 2013/29/EU.

For relationship with Directive 2013/29/EU, see informative Annex ZA, which is an integral part of this document.

This document is one of the series of standards as listed below:

- EN 15947-1, *Pyrotechnic articles — Fireworks, Categories F1, F2 and F3 — Part 1: Terminology*
- EN 15947-2, *Pyrotechnic articles — Fireworks, Categories F1, F2 and F3 — Part 2: Categories and types of firework*

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- EN 15947-3, *Pyrotechnic articles — Fireworks, Categories F1, F2 and F3 — Part 3: Minimum labelling requirements*
- EN 15947-4, *Pyrotechnic articles — Fireworks, Categories F1, F2 and F3 — Part 4: Test methods*
- EN 15947-5, *Pyrotechnic articles — Fireworks, Categories F1, F2 and F3 — Part 5: Requirements for construction and performance*

Any feedback and questions on this document should be directed to the users' national standards body. A complete listing of these bodies can be found on the CEN website.

According to the CEN-CENELEC Internal Regulations, the national standards organisations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Türkiye and the United Kingdom.

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1 Scope

This document specifies requirements for construction and performance of firework and primary packs and selection packs. It is applicable to firework of the categories F1, F2 and F3 as defined by Article 6 Paragraph (1) clause (a) subclause (i) to (iii) of Directive 2013/29/EU.

This document is not applicable for fireworks containing detonative explosives other than black powder or flash composition or pyrotechnic composition that includes any of the following substances:

- arsenic or arsenic compounds;
- hexachlorobenzene;
- lead or lead compounds;
- mixtures containing a mass fraction of chlorates greater than 80 %;
- mixtures of chlorates with metals;
- mixtures of chlorates with red phosphorus (except when used in Christmas crackers, party poppers or snaps);
- mixtures of chlorates with potassium hexacyanoferrate (II);
- mixtures of chlorates with sulphur (these mixtures are allowed for friction heads only);
- mixtures of chlorates with sulphides;
- mercury compounds;
- nitrocellulose with a mass fraction of nitrogen of more than 12,6 %;
- picrates or picric acid;
- potassium chlorate with a mass fraction of bromates greater than 0,15 %;
- sulphur with an acidity, expressed in mass fraction of sulphuric acid, greater than 0,002 %;
- white phosphorus;
- zirconium with a particle size of less than 40 µm.

This document does not apply to fireworks intended to be kept or used at temperatures below -20 °C or above 50 °C.