



SLOVENSKI STANDARD
oSIST prEN 16263-2:2021
01-julij-2021

Pirotehnični izdelki - Drugi pirotehnični izdelki - 2. del: Zahteve

Pyrotechnic articles - Other pyrotechnic articles - Part 2: Requirements

Pyrotechnische Gegenstände - Sonstige pyrotechnische Gegenstände - Teil 2:
Anforderungen

Articles pyrotechniques - Autres articles pyrotechniques - Partie 2 : Exigences

STANDARD PREVIEW
(standards.iteh.ai)

Ta slovenski standard je istoveten z: prEN 16263-2

[oSIST prEN 16263-2:2021](https://standards.iteh.ai/catalog/standards/sist/c3da859a-5f4b-404d-ab39-1eaab034d975/osist-pren-16263-2-2021)

<https://standards.iteh.ai/catalog/standards/sist/c3da859a-5f4b-404d-ab39-1eaab034d975/osist-pren-16263-2-2021>

ICS:

71.100.30	Eksplozivi. Pirotehnika in ognjemeti	Explosives. Pyrotechnics and fireworks
-----------	--------------------------------------	--

oSIST prEN 16263-2:2021

en,fr,de

iTeh STANDARD PREVIEW
(standards.iteh.ai)

[oSIST prEN 16263-2:2021](#)

<https://standards.iteh.ai/catalog/standards/sist/c3da859a-5f4b-404d-ab39-1eaab034d975/osist-pren-16263-2-2021>

EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

DRAFT
prEN 16263-2

June 2021

ICS 71.100.30

Will supersede EN 16263-2:2015

English Version

Pyrotechnic articles - Other pyrotechnic articles - Part 2: Requirements

Articles pyrotechniques - Autres articles
pyrotechniques - Partie 2 : Exigences

Pyrotechnische Gegenstände - Sonstige pyrotechnische
Gegenstände - Teil 2: Anforderungen

This draft European Standard is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee CEN/TC 212.

If this draft becomes a European Standard, 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.

This draft European Standard was established by CEN 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 CEN-CENELEC Management Centre has the same status as the official versions.

CEN members are the national standards bodies of 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, Turkey and United Kingdom.

<https://standards.iteh.ai/catalog/standards/sist/c3da859a-5f4b-404d-ab39->

Recipients of this draft are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

Warning : This document is not a European Standard. It is distributed for review and comments. It is subject to change without notice and shall not be referred to as a European Standard.



EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

Contents	Page
European foreword.....	4
1 Scope	5
2 Normative references	5
3 Terms and definitions	6
4 General and safety requirements	6
4.1 Incompatible substances.....	6
4.2 Safe disposal.....	6
4.3 Means of ignition.....	6
4.4 Safety features.....	7
4.5 Toxicity.....	7
4.6 Use of detonative explosives.....	8
5 Performance requirements	8
5.1 Verification of performance.....	8
5.2 Verification of design.....	8
5.3 Verification of labelling and instructions for use.....	8
5.4 Resistance to mechanical impact.....	9
5.5 Loose pyrotechnic composition after mechanical conditioning and mechanical impact test.....	9
5.6 Resistance to moisture.....	9
5.7 Resistance to high and low temperatures.....	9
5.8 Integrity.....	10
6 Requirements for semi-finished pyrotechnic articles and rocket motors	10
6.1 Semi-finished pyrotechnic articles.....	10
6.2 Rocket motors.....	10
7 Primary pack	10
8 Type testing	10
8.1 General.....	10
8.2 Number of items to be tested.....	11
8.2.1 General.....	11
8.2.2 Additional items for specific tests.....	11
8.3 Number of primary packs to be examined.....	11
8.4 Test report.....	12
9 Batch testing	12
9.1 General.....	12
9.2 Sampling plans.....	12
9.3 Unit of product.....	13
9.4 Non-conformities.....	13
9.5 Labelling.....	15
9.6 Test report.....	15
9.7 Acceptance or rejection of a batch.....	15
9.7.1 Non-conforming units.....	15
9.7.2 Critical non-conforming units.....	15
9.7.3 Major non-conforming units.....	16

9.7.4	Minor non-conforming units	16
9.7.5	Pyrotechnic articles supplied in primary packs.....	16
Annex ZA	(informative) Relationship between this European Standard and the essential safety requirements of Directive 2013/29/EU aimed to be covered	17
Bibliography	19

iTeh STANDARD PREVIEW (standards.iteh.ai)

[oSIST prEN 16263-2:2021](https://standards.iteh.ai/catalog/standards/sist/c3da859a-5f4b-404d-ab39-1eaab034d975/osist-pren-16263-2-2021)

<https://standards.iteh.ai/catalog/standards/sist/c3da859a-5f4b-404d-ab39-1eaab034d975/osist-pren-16263-2-2021>

European foreword

This document (prEN 16263-2:2021) has been prepared by Technical Committee CEN/TC 212 “Pyrotechnic articles”, the secretariat of which is held by NEN.

This document is currently submitted to the CEN Enquiry.

This document will supersede EN 16263-2:2015.

In comparison with the previous edition, the following technical modifications have been made:

- references to 2007/23/EC are replaced by references to 2013/29/EU. Annex ZA has been adjusted accordingly;
- Annex A and Annex ZB have been deleted;
- requirements for pyrotechnic articles that contain detonative explosives other than black powder and/or flash composition have been added, i.e. clause 4.6 and 8.2.2;
- clause 5.4 has been extended with more generic types;
- specific requirements on suitable instructions and markings have been added to clause 8.1;
- verification of design (except semi-finished products) has been added to Table 2 and Table 4.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s).

For relationship with EU Directive(s), 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 16263-1¹, *Pyrotechnic articles — Other pyrotechnic articles — Part 1: Terminology*;
- EN 16263-2², *Pyrotechnic articles — Other pyrotechnic articles — Part 2: Requirements*;
- EN 16263-3³, *Pyrotechnic articles — Other pyrotechnic articles — Part 3: Categories and types*;
- EN 16263-4⁴, *Pyrotechnic articles — Other pyrotechnic articles — Part 4: Test methods*;
- EN 16263-5⁵, *Pyrotechnic articles — Other pyrotechnic articles — Part 5: Minimum labelling requirements and instructions for use*.

¹ Under preparation. Stage at the time of publication: prEN 16263-1:2021.

² Under preparation. Stage at the time of publication: prEN 16263-2:2021.

³ Under preparation. Stage at the time of publication: prEN 16263-3:2021.

⁴ Under preparation. Stage at the time of publication: prEN 16263-4:2021.

1 Scope

This document specifies requirements for the construction and performances of other pyrotechnic articles, except pyrotechnic articles for vehicles, ignition devices and cartridges for powder actuated tools (PAT), of the following generic types:

- flares;
- flash devices;
- gas generators;
- heaters;
- other cartridges;
- pyromechanical devices;
- rockets and rocket motors;
- semi-finished pyrotechnic articles;
- smoke / aerosol generators;
- sound emitters;
- pyrotechnic liquid dispersers.

iTeh STANDARD PREVIEW
(standards.iteh.ai)

This document does not apply for articles containing pyrotechnic compositions that include any of the following substances:

- arsenic or arsenic compounds;
- polychlorobenzenes;
- mercury compounds;
- lead compounds (except for those included in ignition devices);
- white phosphorus;
- picrates or picric acid.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 16263-1:—¹, *Pyrotechnic articles - Other pyrotechnic articles - Part 1: Terminology*

EN 16263-3:—³, *Pyrotechnic articles - Other pyrotechnic articles - Part 3: Categories and types*

⁵ Under preparation. Stage at the time of publication: prEN 16263-5:2021.

prEN 16263-2:2021 (E)

EN 16263-4:—⁴, *Pyrotechnic articles - Other pyrotechnic articles - Part 4: Test methods*

EN 16263-5:—⁵, *Pyrotechnic articles - Other pyrotechnic articles - Part 5: Minimum labelling requirements and instructions for use*

EN 16265:—⁶, *Pyrotechnic articles - Other pyrotechnic articles - Ignition devices*

ISO 2859-1:1999, *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 16263-1 apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at <https://www.electropedia.org/>
- ISO Online browsing platform: available at <https://www.iso.org/obp>

4 General and safety requirements**4.1 Incompatible substances**

Pyrotechnic articles shall not contain incompatible substances as defined in EN 16263-1:—¹, 2.2.25 unless effective measures have been taken to permanently segregate incompatible substances one from the other, effective measures have been taken to stabilize mixtures of incompatible substances, or the manufacturer can demonstrate that any mixtures of incompatible substances do not present a risk to safety.

This requirement shall be verified by examination of the design from the manufacturer's documentation.

4.2 Safe disposal

Each pyrotechnic article shall be designed and manufactured in such a way that it can be disposed of safely by a suitable process with minimum effect on the environment.

This requirement shall be verified by examination of the information about safe disposal in the instructions for use.

4.3 Means of ignition

Any means of ignition shall be protected to avoid accidental initiation of the article. This requirement shall be verified by visual examination.

For pyrotechnic articles equipped with ignition devices which are CE type certified, no further testing of the ignition devices is required.

⁶ Under preparation. Stage at the time of publication: prEN 16265:2021.

If the pyrotechnic article is equipped with ignition devices which are not CE type certified, the ignition devices shall comply with the following requirements of EN 16265:—⁶:

- safety features (see 4.5 and EN 16265:—⁶, 5.5);
- mechanical resistance of leading wires (if any) or leading optical fibre (if any) (see EN 16265:—⁶, 5.8.1 and 5.8.2);
- determination of all-fire and no-fire thresholds (see EN 16265:—⁶, 5.9);
- electrical characteristics (see EN 16265:—⁶, 5.11);
- resistance to ESD (see EN 16265:—⁶, 5.12).

These tests may be performed on the articles or on subcomponents of the pyrotechnic articles which include their ignition device provided that their functioning remains representative of the normal behaviour of the ignition device in the article. Manufacturers may provide test reports proving these requirements are fulfilled.

4.4 Safety features

Each pyrotechnic article shall be equipped with safety features which are appropriate to its mode of initiation.

For articles that are sensitive to mechanical shocks, drops or other stimuli with the potential to cause unintended initiation, if the safety feature is not already a part of the included ignition device, the pyrotechnic article shall be equipped:

- with a safe / arm device, a safety pin or any other device intended to stop propagation of ignition along the whole pyrotechnic train; or
- with other means of protection to prevent inadvertent initiation.

The presence of the safety features shall be checked by visual examination and their effectiveness shall be verified in accordance with EN 16263-4:—⁴, 5.7 (mechanical conditioning), 5.8 (mechanical impact test), and 5.13.1.2 (electrostatic discharge). No initiation shall take place during these tests and the safety features shall remain in their safe position. This last requirement shall be verified by visual examination.

Integral safety features shall be checked by verification of construction and design according to 5.1 and their effectiveness shall be verified in accordance with EN 16263-4:—⁴, 5.7 (mechanical conditioning), 5.8 (mechanical impact test), and 5.13.1.2 (electrostatic discharge). No initiation shall take place during these tests and the safety features shall remain in their safe position. This last requirement shall be verified by function test in accordance EN 16263-4:—⁴, 5.10.3.4.

When the user could be exposed to the pyrotechnic effects during the ignition operation, the pyrotechnic article shall be equipped with an appropriate delay to allow the user to retire to the safe firing distance or assume the safe article orientation for hand-held devices as specified in the instructions for use. This requirement shall be verified according to EN 16263-4:—⁴, 5.10.3.1 and 5.6.

4.5 Toxicity

When the article is designed to generate toxic substances as intended use (e.g. pesticides), the manufacturer or importer shall supply corresponding information on the appropriate means of limiting exposure to these reaction products. This requirement shall be verified by examination of the instructions for use.

4.6 Use of detonative explosives

Pyrotechnic articles of categories P1 and P2 shall not contain detonative explosives (as defined in EN 16263-1:—¹, 2.2.13) other than black powder and flash composition, except when they meet the following conditions:

- (a) the detonative explosive cannot be easily extracted from the pyrotechnic article;
- (b) for category P1, the pyrotechnic article, as designed and manufactured and when functioned in accordance with its intended use, cannot function in a detonative manner and cannot initiate secondary explosives;
- (c) for category P2, the pyrotechnic article is designed and intended not to function in a detonative manner, or, if designed to detonate, it cannot as designed and manufactured initiate secondary explosives.

Requirements (a), (b) and (c) shall be verified by examination of the design from the manufacturer's documentation and visual inspection.

Requirements (b) and (c) shall be verified by test in accordance EN 16263-4:—⁴, 5.17, except when the article exhibits a combustive behaviour.

5 Performance requirements

5.1 Verification of performance

When tested in accordance with EN 16263-4:—⁴, 5.10, each pyrotechnic article shall function completely and attain the performance characteristics specified by the manufacturer.

The articles that have been exposed to mechanical conditioning (EN 16263-4:—⁴, 5.7) and/or mechanical impact test (EN 16263-4:—⁴, 5.8 - see list in 5.4 of this document) and to thermal conditioning (EN 16263-4:—⁴, 5.9.2.1) shall function safely and completely.

When a use by date is specified by the manufacturer and is greater than two years after the manufacturing of the article, its correct functioning at the 'use by' date shall be demonstrated by the manufacturer:

- either by results of firings of articles at the 'use by' date where available;
- or by function test in accordance with EN 16263-4:—⁴, 5.10, after extension of the thermal conditioning test over a period of time that shall be determined from the 'use by' date according to EN 16263-4:—⁴, 5.9.2.4.

5.2 Verification of design

When tested in accordance with EN 16263-4:—⁴, 5.2 and 5.3, the pyrotechnic article shall be in accordance with the manufacturer's documentation regarding construction, dimensions, mass and composition of pyrotechnic substances and mixtures, etc. including tolerances as specified by the manufacturer.

5.3 Verification of labelling and instructions for use

The labelling of the pyrotechnic article and instructions for use (when provided) shall be verified according to the requirements of EN 16263-5:—⁵, Clause 4.

5.4 Resistance to mechanical impact

Mechanical impact test in accordance with EN 16263-4:—⁴, 5.8 shall be performed on the following unpacked articles:

- articles (fitted with their safety features) which are designed to function by impact or shock or designed to arm on acceleration;
- articles (fitted with their safety features if any) which exhibit bare pyrotechnic composition;
- articles which exhibit a protection of their pyrotechnic compositions only by varnish or by a deformable or thin casing;
- the following generic types: flares (EN 16263-3:—³, 4.1 including the subtype hand-held flare and rocket), gas generators (EN 16263-3:—³, 4.3), pyromechanical devices (EN 16263-3:—³, 4.6), pyrotechnic disperser (EN 16263-3:—³, 4.7 including the subtype simulation device), rocket motors (EN 16263-3:—³, 4.8), smoke/aerosol generator (EN 16263-3:—³, 4.10 including the subtype simulation device), sound emitter (EN 16263-3:—³, 4.11 including the subtype simulation device) or other cartridges (EN 16263-3:—³, 4.5), the casing of which is designed to withstand an internal pressure developed by the normal functioning of the article.

Articles shall not ignite as a result of mechanical impact test nor release pyrotechnic composition from the article nor exhibit visible damages such as deformations (except those which do not alter the shape of the article or expose the inside of the article), ruptures or cracks. See also 4.4 and Clause 6. These occurrences shall be recorded as positive results.

5.5 Loose pyrotechnic composition after mechanical conditioning and mechanical impact test

oSIST prEN 16263-2:2021

<https://standards.iteh.ai/catalog/standards/sist/c3da859a-5f4b-404d-ab39-1caab094d975/sist-pr-en-16263-2-2021>

When tested in accordance with EN 16263-4:—⁴, 5.7 and 5.8:

- P1 articles shall not exhibit any loss of pyrotechnic composition from the article. It shall be checked by visual examination;
- For P2 articles, the loose pyrotechnic composition found outside the article after mechanical conditioning shall be weighed. The total mass of loose pyrotechnic composition shall not exceed 2 % of the NEC or 0,5 g, whichever is the smaller. If the pyrotechnic composition cannot be separated from the loose material, the same limits shall apply to the whole loose material.

5.6 Resistance to moisture

If the article is intended to be used in humid or wet conditions, thermal conditioning according to EN 16263-4:—⁴, 5.9.2.1 or 5.9.2.2 shall be performed in the presence of the highest level of humidity specified by the manufacturer and the article shall function correctly and completely according to EN 16263-4:—⁴, 5.10.

If the article is intended to be used in or under water, the water immersion test shall be performed according to EN 16263-4:—⁴, 5.16. The article shall function correctly and completely according to EN 16263-4:—⁴, 5.10.

5.7 Resistance to high and low temperatures

If the article is intended to be kept or used at high (60 °C or more) and/or low (below 0 °C) temperatures, performance tests in accordance with EN 16263-4:—⁴, 5.10 shall be carried out after conditioning in accordance with EN 16263-4:—⁴, 5.9.2.2 and/or 5.9.2.3 at the highest and/or lowest