SLOVENSKI STANDARD
SIST EN 16256-3:2013

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Pirotehnični izdelki - Pirotehnični izdelki za gledališče - 3. del: Zahteve za konstrukcijo in delovanje

Pyrotechnic articles - Theatrical pyrotechnic articles - Part 3: Requirements for construction and performance

Pyrotechnische Gegenstände - Pyrotechnische Gegenstände für Bühne und Theater - Teil 3: Anforderungen an die Konstruktion und Funktion

Articles pyrotechniques - Articles pyrotechniques destinés au théâtre - Partie 3: Exigences de construction et de performances

Ta slovenski standard je istoveten z: **EN 16256-3:2012**

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English Version

Pyrotechnic articles - Theatrical pyrotechnic articles - Part 3: Requirements for construction and performance

Articles pyrotechniques - Articles pyrotechniques destinés au théâtre - Partie 3: Exigences de construction et de performances

Pyrotechnische Gegenstände - Pyrotechnische Gegenstände für Bühne und Theater - Teil 3: Anforderungen an die Konstruktion und Funktion

This European Standard was approved by CEN on 3 November 2012.

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COMITÉ EUROPÉEN DE NORMALISATION
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Foreword

This document (EN 16256-3:2012) 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of an identical text or by endorsement, at the latest by June 2013, and conflicting national standards shall be withdrawn at the latest by June 2013.

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

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 European Standard is one of the series of standards as listed below:

— EN 16256-1, *Pyrotechnic articles — Theatrical pyrotechnic articles — Part 1: Terminology*

— EN 16256-2, *Pyrotechnic articles — Theatrical pyrotechnic articles — Part 2: Categories of theatrical pyrotechnic articles*

— EN 16256-3, *Pyrotechnic articles — Theatrical pyrotechnic articles — Part 3: Requirements for construction and performance*

— EN 16256-4, *Pyrotechnic articles — Theatrical pyrotechnic articles — Part 4: Minimum labelling requirements and instructions for use*

— EN 16256-5, *Pyrotechnic articles — Theatrical pyrotechnic articles — Part 5: Test methods*

CEN/TC 212 has also developed European Standards for:

— Pyrotechnic articles —Fireworks Categories 1, 2 and 3

— Pyrotechnic articles — Fireworks, Category 4

— Pyrotechnic articles — Pyrotechnic articles for vehicles

— Pyrotechnic articles — Other pyrotechnic articles

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, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

1 Scope

This European Standard specifies requirements for the construction, performance and primary packaging of theatrical pyrotechnical articles of the generic types defined in EN 16256-1:2012, Clause 3.

NOTE "Theatrical pyrotechnic article(s)" is abbreviated by "article(s)" in this European Standard.

This European Standard does not apply for articles containing military explosives or commercial blasting agents except for black powder or flash composition.

This European Standard does not apply for articles containing pyrotechnic composition that include any of the following substances:

— arsenic or arsenic compounds;

— polychlorobenzenes;

— lead or lead compounds;

— mercury compounds;

— white phosphorus;

— picrates or picric acid.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 16256-1:2012, *Pyrotechnic articles — Theatrical pyrotechnic articles — Part 1: Terminology*

EN 16256-4:2012, *Pyrotechnic articles — Theatrical pyrotechnic articles — Part 4: Minimum labelling requirements and instructions for use*

EN 16256-5:2012, *Pyrotechnic articles — Theatrical pyrotechnic articles — Part 5: Test methods*

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 16256-1:2012 apply.

4 Construction

4.1 General requirements (type test and batch test)

When tested in accordance with EN 16256-5:2012, 6.2.2, the article dimensions shall be in accordance with the manufacturers declaration.

If applicable, the tolerances according to Table 1 for dimensions shall only be used in batch tests (not applicable for calibres):

Table 1 — Construction tolerances

Dimensions in mm	Construction tolerances in %
≤ 30	± 15
> 30	± 10

NOTE These tolerances would not be applicable for articles contained in flexible material, such as a plastic bag.

For calibres, tolerances of ± 5 % and for (tube) angles ± 3 ° shall only be used in batch tests in accordance with EN 16256-5:2012, 6.1.4 and 6.16.

4.2 Permitted elements for combinations T1 indoor use (type test)

The following elements may be used in combinations T1 for indoor use:

a) Bengal flares,

b) Fountains,

c) Theatrical flashes,

d) Jets,

e) Dropping effects,

f) Projection devices,

g) Flame projectors,

h) Fireballs,

i) Rotating effects,

j) Desensitised pyrotechnic compositions,

k) Whistles,

l) Split tubes.

Conformity to above requirements shall be verified by visual examination in accordance with EN 16256-5:2012, 6.11 during function tests according to EN 16256-5:2012, 6.15.

4.3 Length of uncoated end of Bengal sticks (type test and batch test)

The uncoated end of Bengal sticks (handle) shall have a minimum length of 75 mm, when tested in accordance with 6.1.1 of EN 16256-5:2012.

4.4 Materials not permitted for T1 Maroons (type test and batch test)

The following casing materials are not permitted for T1 Maroons:

— glass;

— ceramics;

— metal;

— wood;

— reinforced glass fibre;

— any other similar materials producing hard brittle fragments.

This requirement shall be verified by visual inspection according to 6.11 of EN 16256-5:2012 during function tests according to EN 16256-5:2012, 6.15 and 6.9.

5 Pyrotechnic composition (type test)

When tested in accordance with EN 16256-5:2012, 6.2.3, the net explosive contents (NEC) shall comply with Table 2 and the specifications of the manufacturer. Articles of category T1 that exceed the NEC values listed in Table 2 are articles of category T2.

No limits are given for the NEC of category T2 articles in this European Standard.

NOTE The NEC has an influence (directly or indirectly) on the minimum safety distances. For category T2 articles it is agreed that no fixed minimum safety distances are defined. The safe use of T2 articles is one of the major responsibilities of the person with specialist knowledge who should determine the minimum safety distance by using the information given in EN 16256-4:2012, Clause 6.

Table 2 — Maximum NEC limits for theatrical pyrotechnic articles T1 *(1 of 2)*

Generic Types	Maximum NEC for T1 indoor and outdoor use	Maximum NEC for T1 'for outdoor use only'
Airburst	15 g	30 g
Bengal flame	50 g	2500 g
Bengal flare	50 g	2500 g
Bengal stick	7,5 g	50 g
Binary mixture	Not T1.	
Carretilla	Not T1 indoor.	80 g in total. The report unit shall not exceed 10,0 g of black powder or 4,0 g nitrate/metal-based composition or 2,0 g of any other composition that produces a report effect.
Combination	A combination shall have a total net explosive content of not more than 100 g; single elements shall not exceed the respective NEC limits. For combinations containing simultaneous Theatrical flashes: The combined NEC of the Theatrical flashes shall not exceed 15 g.	A combination, except a combination containing fountains, waterfalls, jets or rotating effects, shall have a NEC of not more than 500 g. The NEC of a combination containing fountains, waterfalls, jets or rotating effects shall have a NEC of not more than 600 g, of which not more than 500 g shall be contained in elements other than fountains, waterfalls, jets or rotating effects. Single elements shall not exceed the respective NEC limits of the single elements. Combinations shall have a total NEC of not more than 100 g report composition.
Comet	Not more than 10 g total NEC, shall only contain a pyrotechnic star as effect.	Not more than 25 g total NEC, mass of any report and/or bursting charge in the pyrotechnic unit: not more than 10 g of black powder or 4,0 g of nitrate/metal-based report composition or 2,0 g of any other composition that produces a report and/or bursting effect.
Desensitised pyrotechnic composition	50 g	
Dropping effect	50 g	250 g
Explosion simulator	Not T1 indoor.	50 g
Fireball	50 g of which a maximum of 15 g may be lifting charge	60 g of which a maximum of 20 g may be lifting charge
Flame projector	200 g	300 g
Fountain	100 g	250 g
Jet	15 g	30 g
Line rocket	15 g	30 g
Maroon	5,0 g of black powder or 2,0 g of nitrate/metal-based composition or 1,0 g of any other composition that produces a report effect.	10,0 g of black powder or 4,0 g nitrate/metal-based composition or 2,0 g of any other composition that produces a report effect.
Mine	For mines where the propellant and the stars are physically separated such that they do not mix, not more than 10 g; otherwise 50 g. Mines shall only contain pyrotechnic stars as effect.	Not more than 50 g; shall not contain more than 5 pyrotechnic units containing report composition and none of these pyrotechnic units shall contain more than 5,0 g of black powder or 2,0 g of nitrate/metal-based report composition or 1,0 g of any other composition that produces a report and/or bursting effect.

Table 2 *(2 of 2)*

Generic Types	Maximum NEC for T1 indoor and outdoor use	Maximum NEC for T1 'for outdoor use only'
Projection device	10 g	
Roman candle	Not T1 indoor.	Not more than 50 g; each pyrotechnic unit not more than 10 g; shall not contain more than 5 pyrotechnic units containing report composition and each of these pyrotechnic units not more than 10 g of black powder or 4,0 g nitrate/metal-based report composition or 2,0 g of any other composition that produces a report effect.
Rotating effect	Not more than 50 g per pyrotechnic unit, max 100 g	50 g max per pyrotechnic unit, max 250 g
Self consuming article	Not T1.	
Smoke device	50 g	1000 g
Split tube	15 g	50 g
Squib	Not T1.	
Theatrical fire	1000 g	
Theatrical flash	15 g	30 g
Theatrical report	5,0 g of black powder or 3,0 g of any other composition that produces a report effect.	20 g of black powder or 10 g of any other composition that produces a report effect.
Whistle	20 g	

For the total NEC (m) of a given article, the tolerances according to Table 3 apply.

Table 3 — Tolerances for the total NEC

Masses (m)	Tolerances
$m \leq 1$ g	± 50 %
1 g < $m \leq 5$ g	± 40 %
5 g < $m \leq 15$ g	± 30 %
$m > 15$ g	± 20 %.

The NEC limits given in Table 2 for T1 articles shall not be exceeded.