



**SLOVENSKI STANDARD**  
**SIST EN 13938-1:2005**  
**01-februar-2005**

---

**Eksplozivi za civilno uporabo - Smodniki in raketna goriva - 1. del: Zahteve**

Explosives for civil uses - Propellants and rocket propellants - Part 1: Requirements

Explosivstoffe für zivile Zwecke - Treibladungspulver und Raketentreibstoffe - Teil 1: Anforderungen

Explosif a usage civil - Poudres propulsives et propergols pour fusées - Partie 1 : Exigences

ITEH STANDARD PREVIEW  
(standards.iteh.ai)

**Ta slovenski standard je istoveten z: EN 13938-1:2004**

<https://standards.iteh.ai/catalog/standards/sist/7c6cbdb6-1a90-4445-9e6e-517cb519c260/sist-en-13938-1-2005>

**ICS:**

71.100.30

**SIST EN 13938-1:2005**

**en**

**iTeh STANDARD PREVIEW**  
**(standards.iteh.ai)**

SIST EN 13938-1:2005

<https://standards.iteh.ai/catalog/standards/sist/7c6cbdb6-1a90-4445-9e6e-517cb519e260/sist-en-13938-1-2005>

ICS 71.100.30

English version

## Explosives for civil uses - Propellants and rocket propellants - Part 1: Requirements

Explosif à usage civil - Poudres propulsives et propergols  
pour fusées - Partie 1 : Exigences

Explosivstoffe für zivile Zwecke - Treibladungspulver und  
Raketentreibstoffe - Teil 1: Anforderungen

This European Standard was approved by CEN on 23 August 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.

[SIST EN 13938-1:2005](https://standards.iteh.ai/catalog/standards/sist/7c6cbdb6-1a90-4445-9e6e-517cb519e260/sist-en-13938-1-2005)

<https://standards.iteh.ai/catalog/standards/sist/7c6cbdb6-1a90-4445-9e6e-517cb519e260/sist-en-13938-1-2005>



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

Management Centre: rue de Stassart, 36 B-1050 Brussels

## Contents

	Page
Foreword.....	3
1 Scope .....	4
2 Normative references .....	4
3 Terms and definitions .....	4
4 Requirements .....	5
4.1 Resistance to electrostatic energy - Solid gun propellants .....	5
4.2 Deflagration to detonation transition - Solid gun propellants .....	5
4.3 Burning rate under ambient conditions .....	5
4.4 Voids and fissures - Solid rocket propellants .....	5
4.5 Integrity of inhibitor coatings - Solid rocket propellants.....	5
4.6 Properties of black powders for blasting .....	6
4.7 Thermal stability - Solid gun propellants, solid rocket propellants and black powder.....	6
4.8 Sensitiveness to friction .....	6
4.9 Sensitiveness to impact.....	6
Annex ZA (informative) Clauses of this European Standard addressing essential requirements or other provisions of EU Directives .....	7
Bibliography .....	8

**STANDARD PREVIEW**  
**(standards.iteh.ai)**  
<https://standards.iteh.ai/catalog/standards/sist/7c6cbdb6-1a90-4445-9e6e-517cb519e260/sist-en-13938-1-2005>

## Foreword

This document (EN 13938-1:2004) has been prepared by Technical Committee CEN/TC 321, "Explosives for civil uses", the secretariat of which is held by AENOR.

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 2005, and conflicting national standards shall be withdrawn at the latest by April 2005.

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 a series of standards with the generic title *Explosives for civil uses - Propellants and Rocket Propellants*. The other parts of this series are listed below:

- EN13938-2      *Part 2: Determination of resistance to electrostatic energy.*
- EN13938-3      *Part 3: Determination of deflagration to detonation transition.*
- EN13938-4      *Part 4: Determination of burning rate under ambient conditions.*
- EN13938-5      *Part 5: Solid rocket propellants. Determination of voids and fissures*
- EN13938-6      *Part 6: Solid rocket propellants. Guide for the determination of integrity of inhibitor coatings.*
- EN13938-7      *Part 7: Determination of properties of black powder.*

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 the requirements for propellants, solid rocket propellants, powder cakes and black powders for civil uses.

## 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 13631-2; *Explosives for civil uses — High explosives — Part 2: Determination of thermal stability of explosives.*

EN 13631-3; *Explosives for civil uses — High explosives — Part 3: Determination of sensitiveness to friction of explosives.*

EN 13631-4; *Explosives for civil uses — High explosives — Part 4: Determination of sensitiveness to impact of explosives.*

EN 13857-1:2003; *Explosives for civil uses — Part 1: Terminology.*

EN 13938-2; *Explosives for civil uses — Propellants and rocket propellants — Part 2: Determination of resistance to electrostatic energy.*

EN 13938-3; *Explosives for civil uses — Propellants and rocket propellants — Part 3: Determination of deflagration to detonation transition.*

EN 13938-4; *Explosives for civil uses — Propellants and rocket propellants — Part 4: Determination of burning rate under ambient conditions.*

EN 13938-5; *Explosives for civil uses — Propellants and rocket propellants — Part 5: Determination of voids and fissures.*

EN 13938-7; *Explosives for civil uses — Propellants and rocket propellants — Part 7: Determination of properties of black powder.*

## 3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 13857-1:2003 and the following apply.

### 3.1

#### **powder cake**

substance consisting of nitro-cellulose impregnated with not more than 60 %, by mass, of nitro-glycerine or other liquid organic nitrates or a mixture of these.

## 4 Requirements

### 4.1 Resistance to electrostatic energy - Solid gun propellants

When tested in accordance with EN 13938-2, the sensitiveness to electrostatic energy shall not be less than 0,5 J.

NOTE The range of validity of the results is considered to be from + 10 °C to + 30 °C.

### 4.2 Deflagration to detonation transition - Solid gun propellants

When tested in accordance with EN 13938-3, the length before detonation (LBD) shall not be less than 0,05 m.

NOTE The range of validity of the results is considered to be from 0 °C to + 40 °C.

### 4.3 Burning rate under ambient conditions

#### - Solid gun propellants:

When tested in accordance with EN 13938-4, the burning rate shall be less than 400 mm/s.

NOTE 1 The results of this test are also used for product identification.

#### - Black powders:

When tested in accordance with EN 13938-4, the burning rate shall be within  $\pm 20$  % of that claimed by the manufacturer.

NOTE 2 The results of this test are also used for product identification.

NOTE 3 The range of validity of the results is considered to be from 0 °C to + 40 °C.

### 4.4 Voids and fissures - Solid rocket propellants

#### - Small rocket motors:

When tested in accordance with EN 13938-5, the difference between any partial average thrust and the overall average thrust shall not be greater than 10 %.

NOTE 1 The range of validity of the results is considered to be from 0 °C to + 40 °C.

#### - Large rocket motors:

When determined by the method specified by the manufacturer, the maximum size and number of voids and fissures shall meet the requirements of the manufacturer's specification.

NOTE 2 Guidance on the determination of voids and fissures is given in EN 13938-5.

### 4.5 Integrity of inhibitor coatings - Solid rocket propellants

When determined by the method specified by the manufacturer, the integrity of the inhibitor coating shall meet the requirements of the manufacturer's specification.

NOTE Guidance on the determination of integrity of inhibitor coatings is given in EN 13938-6.

#### 4.6 Properties of black powders for blasting

When tested in accordance with EN 13938-7, the distance over which transmission of deflagration occurs shall not be less than 400 mm.

NOTE The range of validity of the results is considered to be from 0 °C to + 40 °C.

#### 4.7 Thermal stability - Solid gun propellants, solid rocket propellants and black powder

When tested in accordance with EN 13631-2, the result shall be 'no reaction'.

#### 4.8 Sensitiveness to friction

- *Solid gun propellants and rocket propellants:*

When tested in accordance with EN 13631-3, the sensitiveness to friction shall not be less than 50 N.

- *Powder cakes and black powders:*

When tested in accordance with EN 13631-3, the sensitiveness to friction shall not be less than 80 N.

NOTE The range of validity of the results is considered to be from + 10 °C to + 40 °C.

#### 4.9 Sensitiveness to impact

- *Solid gun propellants and rocket propellants:*

When tested in accordance with EN 13631-4, the sensitiveness to impact shall not be less than 1 J.

- *Powder cakes and black powders:*

When tested in accordance with EN 13631-4, the sensitiveness to impact shall not be less than 2 J.

NOTE The range of validity of the results is considered to be from + 10 °C to + 40 °C.

iTeh STANDARD PREVIEW  
(standards.iteh.ai)

SIST EN 13938-1:2005

<https://standards.iteh.ai/catalog/standards/sist/7c6cbdb6-1a90-4445-9e6e-517cb519e260/sist-en-13938-1-2005>



## Annex ZA (informative)

### Clauses of this European Standard addressing essential requirements or other provisions of EU Directives.

This European standard 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 93/15/EEC.

WARNING : Other requirements and other EU Directives may be applicable to the product(s) falling within the scope of this standard.

The following clauses of this standard are likely to support requirements of Directive 93/15/EEC.

I.1 Clauses 4.1, 4.4, 4.7, 4.8 and 4.9

I.2 Clauses 4.3 and 4.6

II.1.(a) Clauses 4.3 and 4.6

II.1.(b) Clauses 4.6 and 4.7

II.1.(c) Clauses 4.8 and 4.9

II.1.(l) Clause 4.1

II.2.(a) Clause 4.6 <https://standards.iteh.ai/catalog/standards/sist/7c6cbdb6-1a90-4445-9e6e-517cb519e260/sist-en-13938-1-2005>

II.2.D.(c) Clauses 4.4

**iTeh STANDARD PREVIEW**  
**(standards.iteh.ai)**

SIST EN 13938-1:2005

Compliance with this standard provides one means of conforming with the specific essential requirements of the Directive concerned and associated EFTA regulations.