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IRISH STANDARD

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EXPLOSIVES FOR CIVIL USES - PROPELLANTS AND ROCKET PROPELLANTS - PART 3: DETERMINATION OF DEFLAGRATION TO DETONATION TRANSITION

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Explosives for civil uses - Propellants and rocket propellants - Part 3: Determination of deflagration to detonation transition

Explosifs à usage civil - Poudre propulsive et propergol - Partie 3: Méthode de détermination du passage de la déflagration à la détonation

Explosivstoffe für zivile Zwecke - Treibladungspulver und Raketentreibstoffe - Teil 3: Bestimmung des Überganges der Deflagration in die Detonation

This European Standard was approved by CEN on 28 November 2002.

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Foreword

This document (EN 13938-3:2003) 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of an identical text or by endorsement, at the latest by September 2003, and conflicting national standards shall be withdrawn at the latest by September 2003.

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 the 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 on *Explosives for civil uses – Propellants and rocket propellants.* The other parts of this series are listed below:

WI 00321046 Part 1: *Requirements*.

WI 00321050 Part 2: *Determination of resistance to electrostatic energy*.

prEN 13938-4 Part 4: *Determination of burning rate under ambient conditions*.

prEN 13938-5 Part 5: *Solid rocket propellants. Guide for the determination of voids and fissures*.

prEN 13938-6 Part 6: *Solid rocket propellants. Guide for the determination of integrity of inhibitor coatings*.

prEN 13938-7 Part 7: *Determination of the properties of black powder*.

Annex A is informative.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Slovakia, Spain, Sweden, Switzerland and the United Kingdom.

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1 Scope

This European Standard specifies a method to determine the tendency of a propellant to undergo transition from deflagration to detonation. It applies to propellants of a grain size up to 8 mm. This method does not apply to black powder.

2 Normative references

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text, and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

EN ISO/IEC 17025, *General requirements for the competence of testing and calibration laboratories (ISO/IEC 17025:1999).*

prEN 13857-1:2001, *Explosives for civil uses – Part 1: Terminology.*

ISO 3304, *Plain and seamless precision steel tubes – Technical conditions for delivery.*

3 Terms and definitions

For the purposes of this European Standard, the terms and definitions given in prEN 13857-1:2001 apply.

4 Apparatus

The apparatus is shown in Figures 1 and 2.

4.1 Seamless steel tube conforming to ISO 3304, external diameter 48,3 mm ± 0,5 mm, thickness 4,0 mm ± 0,6 mm and length 1200^{+5}_{0} mm. The tube is threaded at both ends and it is closed by two cast-iron screw caps.

4.2 Lead witness plate(s), thickness 30 mm ± 10 mm.

4.3 Ignition device consisting of an insulated Ni/Cr wire, diameter 0,40 mm ± 0,05 mm, length 15 mm ± 1 mm, located at one end of the tube and internally attached to the cap.

4.4 Inert rod, of at least 1300 mm length, with major length indications at every 100 mm and minor length indications at every 5 mm and a diameter slightly smaller than the inner diameter of the steel tube.

4.5 Inert fill plate, consisting of an inert non-metallic material for filling the free space in caps.

4.6 Anvil, consisting of a steel plate, minimum thickness 80 mm, to be put on the ground for supporting lead witness plate(s).

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