



SLOVENSKI STANDARD

SIST EN ISO 11810-1:2005

01-junij-2005

BUXca Yý U

SIST EN ISO 11810:2003

Laserji in z laserji povezana oprema - Preskusna metoda in klasifikacija za ugotavljanje odpornosti proti laserju za kirurške zastirke in/ali za varovalna pokrivala za paciente – 1. del: Primarno zgorevanje in prodiranje (ISO 11810-1:2005)

Lasers and laser-related equipment - Test method and classification for the laser resistance of surgical drapes and/or patient protective covers - Part 1: Primary ignition and penetration (ISO 11810-1:2005)

[SIST EN ISO 11810-1:2005](https://standards.iteh.ai/catalog/standards/sist/61ade97c-9bf8-420d-a335-8c6464bfc46c/sist-en-iso-11810-1-2005)

Laser und Laseranlagen - Prüfverfahren und Einstufung zur Laserresistenz von Operationstüchern und/oder anderen Abdeckungen zum Schutz des Patienten - Teil 1: Primäre Entzündung und Laserdurchstrahlung (ISO 11810-1:2005)

Lasers et équipements associés aux lasers - Méthode d'essai et classification de la résistance au laser pour des draps chirurgicaux et/ou des couvertures de protection des patients - Partie 1: Allumage primaire et pénétration (ISO 11810-1:2005)

Ta slovenski standard je istoveten z: EN ISO 11810-1:2005

ICS:

11.140	Oprema bolnišnic	Hospital equipment
13.340.99	Druga varovalna oprema	Other protective equipment
31.260	Optoelektronika, laserska oprema	Optoelectronics. Laser equipment

SIST EN ISO 11810-1:2005

en

iTeh STANDARD PREVIEW
(standards.iteh.ai)

SIST EN ISO 11810-1:2005

<https://standards.iteh.ai/catalog/standards/sist/61ade97c-9bf8-420d-a335-8c6464bfc46c/sist-en-iso-11810-1-2005>

EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN ISO 11810-1

February 2005

ICS 31.260; 13.340.99; 11.040.30

Supersedes EN ISO 11810:2002

English version

**Lasers and laser-related equipment - Test method and
classification for the laser resistance of surgical drapes and/or
patient protective covers - Part 1: Primary ignition and
penetration (ISO 11810-1:2005)**

Lasers et équipements associés aux lasers - Méthode
d'essai et classification de la résistance au laser pour des
draps chirurgicaux et/ou des couvertures de protection des
patients - Partie 1: Allumage primaire et pénétration (ISO
11810-1:2005)

Laser und Laseranlagen - Prüfverfahren und Einstufung zur
Laserresistenz von Operationstüchern und/oder anderen
Abdeckungen zum Schutz des Patienten - Teil 1: Primäre
Entzündung und Laserdurchstrahlung (ISO 11810-1:2005)

This European Standard was approved by CEN on 7 February 2005.

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.

<https://standards.iteh.ai/catalog/standards/sist/61ade97c-9bf8-420d-a335->

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.



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

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

EN ISO 11810-1:2005 (E)**Foreword**

This document (EN ISO 11810-1:2005) has been prepared by Technical Committee ISO/TC 172 "Optics and optical instruments" in collaboration with Technical Committee CEN/TC 123 "Lasers and photonics", the secretariat of which is held by DIN.

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

This document supersedes EN ISO 11810:2002.

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.

Endorsement notice

The text of ISO 11810-1:2005 has been approved by CEN as EN ISO 11810-1:2005 without any modifications.

ITEH STANDARD PREVIEW
(standards.iteh.ai)

[SIST EN ISO 11810-1:2005](https://standards.iteh.ai/catalog/standards/sist/61ade97c-9bf8-420d-a335-8c6464bfc46c/sist-en-iso-11810-1-2005)

<https://standards.iteh.ai/catalog/standards/sist/61ade97c-9bf8-420d-a335-8c6464bfc46c/sist-en-iso-11810-1-2005>

INTERNATIONAL
STANDARDISO
11810-1First edition
2005-02-15

**Lasers and laser-related equipment —
Test method and classification for the
laser resistance of surgical drapes and/or
patient protective covers —**

Part 1:

Primary ignition and penetration

iTeh STANDARD PREVIEW

(standard) (8.11.2010)

*Lasers et équipements associés aux lasers — Méthode d'essai et
classification de la résistance au laser pour des draps chirurgicaux
et/ou des couvertures de protection des patients —*

SIST EN ISO 11810-1:2005

Partie 1: Allumage primaire et pénétration<https://standards.iteh.ai/catalog/standards/sist/61ade97c-9b18-420d-a335-8c6464bfc46c/sist-en-iso-11810-1-2005>Reference number
ISO 11810-1:2005(E)

© ISO 2005

ISO 11810-1:2005(E)

PDF disclaimer

This PDF file may contain embedded typefaces. In accordance with Adobe's licensing policy, this file may be printed or viewed but shall not be edited unless the typefaces which are embedded are licensed to and installed on the computer performing the editing. In downloading this file, parties accept therein the responsibility of not infringing Adobe's licensing policy. The ISO Central Secretariat accepts no liability in this area.

Adobe is a trademark of Adobe Systems Incorporated.

Details of the software products used to create this PDF file can be found in the General Info relative to the file; the PDF-creation parameters were optimized for printing. Every care has been taken to ensure that the file is suitable for use by ISO member bodies. In the unlikely event that a problem relating to it is found, please inform the Central Secretariat at the address given below.

iTeh STANDARD PREVIEW (standards.iteh.ai)

[SIST EN ISO 11810-1:2005](https://standards.iteh.ai/catalog/standards/sist/61ade97c-9bf8-420d-a335-8c6464bfc46c/sist-en-iso-11810-1-2005)

<https://standards.iteh.ai/catalog/standards/sist/61ade97c-9bf8-420d-a335-8c6464bfc46c/sist-en-iso-11810-1-2005>

© ISO 2005

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11
Fax + 41 22 749 09 47
E-mail copyright@iso.org
Web www.iso.org

Published in Switzerland

Contents

Page

Foreword	iv
Introduction	v
1 Scope	1
2 Normative references	1
3 Terms and definitions	1
4 Test methods	3
4.1 General conditions	3
4.2 Testing procedure	7
5 Classification	8
5.1 Laser induced ignition (I)	8
5.2 Resistance to laser penetration (P)	9
5.3 Classification definition	9
6 Test report	9
Bibliography	11

ITeH STANDARD PREVIEW
(standards.iteh.ai)

SIST EN ISO 11810-1:2005

<https://standards.iteh.ai/catalog/standards/sist/61ade97c-9bf8-420d-a335-8c6464bfc46c/sist-en-iso-11810-1-2005>

ISO 11810-1:2005(E)

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

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

ISO 11810-1 was prepared by Technical Committee ISO/TC 172, *Optics and photonics*, Subcommittee SC 9, *Electro-optical systems*.

This first edition cancels and replaces ISO 11810:2002, which has been technically revised.

ISO 11810 consists of the following parts, under the general title *Lasers and laser-related equipment — Test method and classification for the laser resistance of surgical drapes and/or patient protective covers*:

- *Part 1: Primary ignition and penetration*
- *Part 2: Secondary ignition*

iTeh STANDARD PREVIEW
(standards.iteh.ai)

SIST EN ISO 11810-1:2005

<https://standards.iteh.ai/catalog/standards/sist/61ade97c-9bf8-420d-a335-8c6464bfc46c/sist-en-iso-11810-1-2005>

Introduction

Some laser applications in medicine may require laser-resistant surgical drapes or other patient protective covers. Surgical drapes or other patient protective covers are necessary when a sterile procedure is performed and the surrounding area needs to be protected from liquids, secretions and inadvertent laser radiation. While conventional surgical drapes or other patient protective covers are not necessarily laser-resistant, specifically designed drapes offer the possibility of laser resistance.

Laser induced risks include ignition, flammability, melting, penetration, thermal transfer and reflectivity. Textile and non-woven drape materials may have other risks but they may provide a laser barrier. While there are many potential ignition devices present in the operating room (e.g. fibre optic illumination systems, electro-surgical units, hot wire cauteries), this test method addresses only the laser ignition source. This part of ISO 11810 is intended for use in testing a surgical drape or other patient protective cover that claims to be laser-resistant. In addition, areas within this product may vary in material composition or design. Depending on the claims being made by the manufacturer or end-user requirements, all areas for which laser resistance is claimed may need to be tested.

CO₂ lasers may provide the most challenging conditions of all medical lasers. Ignition/flammability tests and penetration tests may disclose more challenging laser wavelengths as well as modes of laser delivery, for example Q-switching in the nanosecond range. The 20 W CO₂ laser (continuous wave) has been selected as the laser for this part of ISO 11810.

Users of this test method are cautioned that the laser resistance of a surgical drape or other patient protective cover will be wavelength sensitive and that a surgical drape or other protective cover should be tested at the wavelengths for which it is intended to be used. If tested using other wavelengths, the power settings and modes of delivery need to be explicitly stated.

The results from this part of ISO 11810 should not be applied to other wavelengths and temporal formats.

The performance of laser-resistant surgical drapes or other patient protective covers may be changed when used in combination rather than individually.

iTeh STANDARD PREVIEW
(standards.iteh.ai)

SIST EN ISO 11810-1:2005

<https://standards.iteh.ai/catalog/standards/sist/61ade97c-9bf8-420d-a335-8c6464bfc46c/sist-en-iso-11810-1-2005>

Lasers and laser-related equipment — Test method and classification for the laser resistance of surgical drapes and/or patient protective covers —

Part 1: Primary ignition and penetration

1 Scope

This part of ISO 11810 is applicable to disposable and reusable, as well as woven and non-woven materials used as surgical drapes and other patient protective covers which claim to be laser-resistant.

The purpose of this part of ISO 11810 is to provide a standardized method for testing and classifying surgical drapes and other patient protective covers with respect to laser-induced hazards. An appropriate classification system is given. It is not the purpose of this part of ISO 11810 to serve as a general fire safety specification, and as such, this part of ISO 11810 does not cover other sources of ignition. It also does not cover the issue of laser-induced secondary ignition.

All materials reflect portions of the beam and it is necessary for the user to decide whether specular reflectance may be a hazard. This measurement, however, is not covered in this part of ISO 11810.

<https://standards.iteh.ai/catalog/standards/sist/61ade97c-9bf8-420d-a335-8c6464bfc46c/sist-en-iso-11810-1-2005>

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.

ISO 11145:2001, *Optics and optical instruments — Lasers and laser-related equipment — Vocabulary and symbols*

ISO 11146-1, *Lasers and laser-related equipment — Test methods for laser beam widths, divergence angles and beam propagation ratios — Part 1: Stigmatic and simple astigmatic beams*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1

afterflame

persistence of flaming of a material, under specified test conditions, after the ignition source has been removed

3.2

afterflame time

length of time for which a material continues to flame, under specified test conditions, after the ignition source has been removed