KUIVATID JA AHJUD, KUS ERALDUB SÜTTIVAID AINEID. OHUTUSNÕUDED

Dryers and ovens, in which flammable substances are released - Safety requirements

EESTI STANDARDIKESKUS
ESTONIAN CENTRE FOR STANDARDISATION

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

See Eesti standard EVS-EN 1539:2015 sisaldab Euroopa standardi EN 1539:2015 ingliskeelset teksti.	This Estonian standard EVS-EN 1539:2015 consists of the English text of the European standard EN 1539:2015.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas.	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation.
Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 07.10.2015.	Date of Availability of the European standard is 07.10.2015.
Standard on kättesaadav Eesti Standardikeskusest.	The standard is available from the Estonian Centre for Standardisation.

Tagasisidet standardi sisu kohta on võimalik edastada, kasutades EVS-i veebilehel asuvat tagasiside vormi või saates e-kirja meiliaadressile standardiosakond@evs.ee.

ICS 25.180.01

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 1539

October 2015

ICS 25.180.01

Supersedes EN 1539:2009

English Version

Dryers and ovens, in which flammable substances are released - Safety requirements

Séchoirs et fours dans lesquels se dégagent des substances inflammables - Prescriptions de sécurité

Trockner und Öfen, in denen brennbare Stoffe freigesetzt werden - Sicherheitsanforderungen

This European Standard was approved by CEN on 27 June 2015.

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 CEN-CENELEC Management Centre 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 CEN-CENELEC Management Centre has the same status as the official versions.

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

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

Ref. No. EN 1539:2015 E

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European foreword

This document (EN 1539:2015) has been prepared by Technical Committee CEN/TC 271 “Surface treatment equipment - Safety”, 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 April 2016, and conflicting national standards shall be withdrawn at the latest by April 2016.

This document supersedes EN 1539:2009.

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 the EU Directive 2006/42/EC.

For relationship with the EU Directive, see informative Annex ZA, which is an integral part of this document.

This European Standard is part of a series of standards in the area of safety for development and construction of machines and plants for the coating of surfaces with organic substances (paints, lacquers and similar products).

This European Standard was prepared with contribution of the following TCs:

— TC 186 "Industrial thermoprocessing - Safety";

— TC 198 "Printing and paper machinery - Safety";

— TC 200 "Tannery machinery - Safety";

— TC 202 "Foundry machinery".

NOTE 1 Although a dryer as a whole is not subject to the ATEX Directive 94/9/EC in a formal way, this document is based on a fundamental risk assessment according to this Directive.

NOTE 2 This European Standard is based on an explosion protection concept which does not define zones for areas with potentially explosive atmosphere.

In relation to the previous version of the standard, the following main modifications have been made

— the scope has been adjusted to meet the fields of application of the standard;

— the requirements for safety related controls have been modified for clarification;

— guidance for implementation of safety related control systems has been included;

— requirements for monitoring of heating system have been implemented;

— requirements for type B dryers have been detailed;

— requirements for minimization of energy usage and environmental impact have been included.

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.

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.

Introduction

This document is a type C standard as stated in EN ISO 12100.

This document is of relevance in particular for the following stakeholder group representing the market players with regard to machinery safety:

— machinery manufacturers (small, medium and large enterprises);

— health and safety bodies (regulators, accident prevention organisations, market surveillance).

The machinery concerned and the extent to which hazards, hazardous situations and hazardous events are covered are indicated in the scope of this European Standard.

When provisions of this type C standard are different from those which are stated in type A or B standards, the provisions of this type C standard take precedence over the provisions of the other standards, for machines that have been designed and built according to the provisions of this type C standard.

1 Scope

This European Standard deals with all significant hazards, hazardous situations and hazardous events relevant to ovens and dryers in which flammable substances are released by evaporation from and curing of coating materials.

The specific significant risks related to the use of this machinery with foodstuff and pharmaceutical products are not dealt with in this European Standard.

This European Standard is only applicable to machines which are used as intended and under the conditions which are foreseeable as malfunction by the manufacturer (see Clause 4).

For ovens and dryers in which flammable substances are released by evaporation from and curing of coating materials, in which the concentration of these flammable substances shall not, under no circumstances, exceed 3 % of the LEL, EN 746-1 and EN 746-2 may be applied instead of this European Standard.

This European Standard is not applicable to:

— ovens for hardening metals;

— enamelling plants;

— portable heating systems for drying (for instance infrared radiant heaters, hot-air blowers, blow-dryers);

— solvent recovery plants;

— distillation and/or refraction plants;

— textile dry-cleaning systems.

This European Standard is not applicable to machinery manufactured before the date of its publication as EN.

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 547-1, *Safety of machinery — Human body measurements — Part 1: Principles for determining the dimensions required for openings for whole body access into machinery*

EN 619, *Continuous handling equipment and systems — Safety and EMC requirements for equipment for mechanical handling of unit loads*

EN 746-1, *Industrial thermoprocessing equipment — Part 1: Common safety requirements for industrial thermoprocessing equipment*

EN 746-2, *Industrial thermoprocessing equipment - Part 2: Safety requirements for combustion and fuel handling systems*

EN 953, *Safety of machinery — Guards — General requirements for the design and construction of fixed and movable guards*

EN 1127-1, *Explosive atmospheres - Explosion prevention and protection - Part 1: Basic concepts and methodology*

EN 12198-1:2000+A1:2008, *Safety of machinery - Assessment and reduction of risks arising from radiation emitted by machinery - Part 1: General principles*

EN 12198-2, *Safety of machinery — Assessment and reduction of risks arising from radiation emitted by machinery — Part 2: Radiation emission measurement procedure*

EN 12433-1, *Industrial, commercial and garage doors and gates - Terminology - Part 1: Types of doors*

EN 12433-2, *Industrial, commercial and garage doors and gates - Terminology - Part 2: Parts of doors*

EN 12445, *Industrial, commercial and garage doors and gates - Safety in use of power operated doors - Test methods*

EN 12453, *Industrial, commercial and garage doors and gates - Safety in use of power operated doors - Requirements*

EN 12635, *Industrial, commercial and garage doors and gates — Installation and use*

EN 12978, *Industrial, commercial and garage doors and gates — Safety devices for power operated doors and gates — Requirements and test methods*

EN 13023, *Noise measurement methods for printing, paper converting, paper making machines and auxiliary equipment — Accuracy grades 2 and 3*

EN 13463-1, *Non-electrical equipment for use in potentially explosive atmospheres - Part 1: Basic method and requirements*

EN 14462, *Surface treatment equipment - Noise test code for surface treatment equipment including its ancillary handling equipment - Accuracy grades 2 and 3*

EN 14994, *Gas explosion venting protective systems*

EN 15061, *Safety of machinery — safety requirements for strip processing line machinery and equipment*

EN 50104, *Electrical apparatus for the detection and measurement of oxygen - Performance requirements and test methods*

EN 60079-0, *Explosive atmospheres - Part 0: Equipment - General requirements (IEC 60079-0)*

EN 60079-29-1, *Explosive atmospheres - Part 29-1: Gas detectors - Performance requirements of detectors for flammable gases (IEC 60079-29-1)*

EN 60079-29-4, *Explosive atmospheres - Part 29-4: Gas detectors - Performance requirements of open path detectors for flammable gases (IEC 60079-29-4)*

EN 60204-1:2006, *Safety of machinery - Electrical equipment of machines - Part 1: General requirements (IEC 60204-1)*

EN 61000-6-2, *Electromagnetic compatibility (EMC) - Part 6-2: Generic standards - Immunity for industrial environments (IEC 61000-6-2)*

EN 60405, *Nuclear instrumentation - Constructional requirements and classification of radiometric gauges (IEC 60405)*

EN 60519-1, *Safety in electroheat installations — Part 1: General requirements (IEC 60519-1)*

EN 60519-6, *Safety in electroheat installations - Part 6: Specifications for safety in industrial microwave heating equipment (IEC 60519-6)*

EN ISO 12100:2010, *Safety of machinery - General principles for design - Risk assessment and risk reduction (ISO 12100:2010)*

EN ISO 10218-1, *Robots and robotic devices - Safety requirements for industrial robots - Part 1: Robots (ISO 10218-1)*

EN ISO 10218-2, *Robots and robotic devices - Safety requirements for industrial robots - Part 2: Robot systems and integration (ISO 10218-2)*

EN ISO 13732-1, *Ergonomics of the thermal environment - Methods for the assessment of human responses to contact with surfaces - Part 1: Hot surfaces (ISO 13732-1)*

EN ISO 13849-1, *Safety of machinery - Safety-related parts of control systems - Part 1: General principles for design (ISO 13849-1)*

EN ISO 14122-2, *Safety of machinery - Permanent means of access to machinery - Part 2: Working platforms and walkways (ISO 14122-2)*

EN ISO 14122-3, *Safety of machinery - Permanent means of access to machinery - Part 3: Stairs, stepladders and guard-rails (ISO 14122-3)*

EN ISO 14122-4, *Safety of machinery — Permanent means of access to machinery — Part 4: Fixed ladders (ISO 14122-4)*

ISO 19353, *Safety of machinery — Fire prevention and protection*

3 Terms and definitions

For the purposes of this document the terms and definitions given in EN ISO 12100 and the following apply.

3.1
dryer
oven
machine in which, by a drying process, flammable substances are released by evaporation and curing

Note 1 to entry: See 3.7 for the definition of drying process.

3.2
chamber dryer
dryer in which the temperature of workpieces and the concentration of flammable substances are a function of time

Note 1 to entry: Uniform temperature distribution is intended in the effective volume. This dryer is typically loaded in batches.