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I.S. EN 1539:2009

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

## I.S. EN 1539:2009

*Incorporating amendments/corrigenda issued since publication:*

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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 17 October 2009.

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 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 Management Centre has the same status as the official versions.

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## Foreword

This document (EN 1539:2009) 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of an identical text or by endorsement, at the latest by May 2010, and conflicting national standards shall be withdrawn at the latest by May 2010.

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 supersedes EN 1539:2000.

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 Annexes ZA and ZB, which are integral parts of this document.

This 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).

The following TCs participate in this joint-working group:

TC 186 "Industrial thermoprocessing - Safety";

TC 198 "Printing and paper machinery - Safety";

TC 200 "Tannery machinery - Safety";

TC 202 "Foundry machinery".

NOTE 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.

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

## **Introduction**

This European Standard is a type C standard as defined in EN ISO 12100 (all parts).

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

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).

This European Standard is not applicable to:

- 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;

NOTE 1 These machines are dealt with in EN 746-1 and EN 746-2.

- combined spraying and drying booths;

NOTE 2 EN 13355 deals with combined spraying and drying booths.

- ovens for hardening metals;
- sintering furnaces;
- enamelling plants;
- portable heating systems for drying (for instance infrared radiant heaters, hot-air blowers, blow-dryers);
- machinery for production of pharmaceutical products;
- machinery for production of food;
- 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 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 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 1037, *Safety of machinery — Prevention of unexpected start-up*
- EN 1127-1:2007, *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 13463-1:2009, *Non-electrical equipment for use in potentially explosive atmospheres — Part 1: Basic method and requirements*
- EN 13478, *Safety of machinery — Fire prevention and protection*
- EN 13501-1:2007+A1:2009, *Fire classification of construction products and building elements — Part 1: Classification using data from reaction to fire tests*
- 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 50104, *Electrical apparatus for the detection and measurement of oxygen — Performance requirements and test methods*
- EN 60079-0:2006, *Electrical apparatus for explosive gas atmospheres — Part 0: General requirements (IEC 60079-0:2004, modified)*
- EN 60070-29-1, *Explosive atmospheres — Part 29-1: Gas detectors — Performance requirements of detectors for flammable gases*

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