

**Tööstuslikud termotöötlusseadmed. Osa 3:
Ohutusnõuded atmosfäärigaaside
genereerimisel ja kasutamisel**

Industrial thermoprocessing equipment - Part 3:
Safety requirements for the generation and use of
atmosphere gases

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

<p>Käesolev Eesti standard EVS-EN 746-3:1999 sisaldab Euroopa standardi EN 746-3:1997 ingliskeelset teksti.</p> <p>Käesolev dokument on jõustatud 23.11.1999 ja selle kohta on avaldatud teade Eesti standardiorganisatsiooni ametlikus väljaandes.</p> <p>Standard on kättesaadav Eesti standardiorganisatsioonist.</p>	<p>This Estonian standard EVS-EN 746-3:1999 consists of the English text of the European standard EN 746-3:1997.</p> <p>This document is endorsed on 23.11.1999 with the notification being published in the official publication of the Estonian national standardisation organisation.</p> <p>The standard is available from Estonian standardisation organisation.</p>
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<p>Käsitlusala:</p> <p>Käesolev EN 746 osa määrab kindlaks ohutusnõuded atmosfäärigaaside süsteemile ning nende kasutamisele tööstuslikes termotöötlusseadmetes ning vastavates käitistes, sealhulgas atmosfäärigaaside tootmisele termotöötlusseadmetes keemilise reaktsiooni teel.</p>	<p>Scope:</p>
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Võtmesõnad: eristuskiri, gaasid, kontrollitud keskkond, kuumtöötlemine, kütteseadmestik, ohtlikud seadmed, ohud, ohutusseadmed, seadmestiku ohutus, tööstustooted, õnnetuste vältimine

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Descriptors: Thermoprocessing equipment, atmosphere gases, requirements.

English version

Industrial thermoprocessing equipment

**Part 3: Safety requirements for the generation
and use of atmosphere gases**

Equipements thermiques industriels –
Partie 3: Prescriptions de sécurité pour la
génération et l'utilisation des gaz
d'atmosphère

Industrielle Thermoprozeßanlagen – Teil 3:
Sicherheitsanforderungen für die Erzeu-
gung und Anwendung von Schutz- und
Reaktionsgasen

This European Standard was approved by CEN on 1997-02-15.

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.

The European Standards exist 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, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, and the United Kingdom.

CEN

European Committee for Standardization
Comité Européen de Normalisation
Europäisches Komitee für Normung

Central Secretariat: rue de Stassart 36, B-1050 Brussels

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FOREWORD

This European Standard has been prepared by Technical Committee CEN/TC 186 "Industrial thermoprocessing - 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 September 1997, and conflicting national standards shall be withdrawn at the latest by September 1997.

The working group that drafted this Part of EN 746 comprised experts from the following countries: France, Germany, Italy, Switzerland and the United Kingdom.

This standard forms one part of safety standards covering Industrial Thermoprocessing Equipment.

The full list of parts of this standard is given below:

EN 746 Industrial Thermoprocessing Equipment

- Part 1: Common Safety Requirements for Industrial Thermoprocessing Equipment
- Part 2: Safety Requirements for Combustion and Fuel Handling Systems
- Part 3: Safety Requirements for the Generation and Use of Atmosphere Gases
- Part 4: Particular Safety Requirements for Hot Dip Galvanising Thermoprocessing Equipment
- Part 5: Particular Safety Requirements for Salt Bath Thermoprocessing Equipment
- Part 6: Particular Safety Requirements for Material Melting, Remelting and Liquid Phase Maintaining Thermoprocessing Equipment
- Part 7: Particular Safety Requirements for Vacuum Thermoprocessing Equipment
- Part 8: Particular Safety Requirements for Quenching Equipment

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(s).

For relationship with EU Directive(s), see informative Annex ZA, which is an integral part of this standard.

An assessment of the foreseeable risks arising from the use of the equipment was carried out when this standard was prepared.

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

0 INTRODUCTION

This standard has been prepared to be a harmonised standard to provide one means of conforming with the Essential requirements of the Machinery Directive and associated EFTA Regulations.

The extent to which hazards are covered is indicated in the scope of this standard. In addition, machinery shall comply as appropriate with EN 292 for hazards which are not covered by this standard.

This European Standard is a type C-standard as defined in EN 292.

The equipment dealt with and the extent to which hazards are covered are indicated in the scope of this part of EN 746.

Where for clarity an example of a preventative measure is given in the text, this should not be considered as the only possible solution. Any other solution leading to the same risk reduction is permissible if an equivalent level of safety is achieved.

This part of EN 746 assumes that the installations are operated and maintained by trained personnel.

1 SCOPE

This Part of EN 746 specifies safety requirements for atmosphere gas systems and their use in industrial thermo-processing equipment and associated plant, including systems for the production of atmosphere gases by reaction inside the thermo-processing equipment.

It applies to the supply of atmosphere gases, gaseous and liquid additions to, and their removal from industrial thermo-processing equipment and associated plant, confined to equipment integrated in the thermo-processing and associated plant.

This Part of EN 746 also details the anticipated significant hazards associated with atmosphere gas systems and their use in industrial thermo-processing equipment and specifies the appropriate preventative measures for the reduction or elimination of these hazards.

This Part of EN 746 does not apply to atmosphere process gases, essential safety equipment, start-up, operation and shut-down of thermo-processing plant for semi-conductor devices for which special additional engineering requirements are necessary.

This Part of EN 746 specifies the requirements to be met to ensure the safety of persons and property during commissioning, start up, operation, shut down and maintenance, as well as in the event of foreseeable faults or malfunctions which can occur in the equipment. It specifies the safety requirements at stages in the life of the equipment, and its design, ordering, construction and use.

This Part of EN 746 applies to equipment which is placed on the market after the date of issue of this standard.

The hazards covered by this Part of EN 746 are listed in clause 4.

A table of typical atmosphere gases is given in Annex A.

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.

EN 88	Pressure governors for gas appliances for inlet pressures up to 200 mbar
EN 161	Automatic shut-off valves for gas burners and gas appliances
EN 292-1:1991	Safety of machinery- Basic concepts, general principles for design - Part 1: Basic terminology, methodology
EN 292-2:1991	Safety of machinery- Basic concepts, general principles for design - Part 2: Technical principles and specifications
EN 298	Automatic gas burner control systems for gas burners and gas burning appliances with or without fans
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 60204-1	Safety of machinery- Electrical equipment of machines - Part 1: General requirements (IEC 204-1:1992, modified)
EN 60519-1	Safety in electroheat installations - Part 1: General requirements
EN 60519-2	Safety in electroheat installations - Part 2: Particular requirements for resistance heating equipment
IEC 364-4-41	Electrical installations of buildings; Part 4: Protection for safety; Chapter 41: Protection against electrical shock

IEC 364-4-43	Electrical installations of buildings; Part 4: Protection for safety; Chapter 43: Protection against overcurrent
IEC 364-4-47	Electrical installations of buildings; Part 4: Protection for safety; Chapter 47: Application of protective measures for safety. Section 470 - General. Section 471 - Measures of protection against electric shock
IEC 364-4-442	Electrical installations of buildings; Part 4: Protection for safety; Chapter 44: Protection against overvoltages; Section 442: Protection of low-voltage installations against faults between high-voltage systems and earth
IEC 364-4-443	Electrical installations of buildings; Part 4: Protection for safety; Chapter 44: Protection against overvoltages; Section 443 - Protection against overvoltages of atmospheric origin or due to switching
IEC 364-4-473	Electrical installations of buildings. Part 4: Protection for safety. Chapter 47: Application of protective measures for safety. Section 473 - Measures of protection against overcurrent
IEC 364-4-45	Electrical installations of buildings. Part 4: Protection for safety; Chapter 45: Protection against undervoltage
IEC 364-4-46	Electrical installations of buildings. Part 4: Protection for safety; Chapter 46: Isolation and switching
IEC 519-3	Safety in electroheat installations - Part 3: Particular requirements for induction and conduction heating and induction melting installations

3 DEFINITIONS

For the purposes of this standard the following definitions apply:

NOTE: An alphabetic listing of the definitions, as well as their cross-references in German, French and English are given in informative Annex E.