

**Masinaid tööstuslike detailide pindade
puhastamiseks ja eeltöötlemiseks
vedelike või aurude abil. Osa 3:
Süttimisohtlike puhastusvedelikke
kasutavate masinate ohutus**

Machines for surface cleaning and pre-treatment of
industrial items using liquids or vapours - Part 3:
Safety of machines using flammable cleaning liquids

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

<p>Käesolev Eesti standard EVS-EN 12921-3:2005 sisaldab Euroopa standardi EN 12921-3:2005 ingliskeelset teksti.</p> <p>Käesolev dokument on jõustatud 22.06.2005 ja selle kohta on avaldatud teade Eesti standardiorganisatsiooni ametlikus väljaandes.</p> <p>Standard on kättesaadav Eesti standardiorganisatsioonist.</p>	<p>This Estonian standard EVS-EN 12921-3:2005 consists of the English text of the European standard EN 12921-3:2005.</p> <p>This document is endorsed on 22.06.2005 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>This European Standard deals with the significant hazards of machines for surface cleaning and pre-treatment - in the following called "cleaning machines" - of industrial items using flammable cleaning liquids or a mixture of cleaning liquids, even in emulsion form, which can potentially create, even temporarily, a condition of flammability.</p>	<p>Scope:</p> <p>This European Standard deals with the significant hazards of machines for surface cleaning and pre-treatment - in the following called "cleaning machines" - of industrial items using flammable cleaning liquids or a mixture of cleaning liquids, even in emulsion form, which can potentially create, even temporarily, a condition of flammability.</p>
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Võtmesõnad:

ICS 25.220.10; 25.220.20

English version

**Machines for surface cleaning and pre-treatment of industrial
items using liquids or vapours - Part 3: Safety of machines using
flammable cleaning liquids**

Machines de nettoyage et de prétraitement de pièces
industrielles utilisant des liquides ou des vapeurs - Partie 3:
Sécurité des machines utilisant des liquides de nettoyage
inflammables

Maschinen zur Oberflächenreinigung und -vorbehandlung
von industriellen Produkten mittels Flüssigkeiten oder
Dampfphasen - Teil 3: Sicherheit von Anlagen, in denen
brennbare Reinigungsflüssigkeiten verwendet werden

This European Standard was approved by CEN on 21 March 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.

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.



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Foreword

This European Standard (EN 12921-3:2005) 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 November 2005, and conflicting national standards shall be withdrawn at the latest by November 2005.

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 EC Directives, see informative Annex ZA, which is an integral part of this document.

This document is part of a series of standards in the area of safety for development and construction of machines for surface cleaning and pre-treatment of industrial items using liquids or vapours.

The EN 12921 series includes the following parts:

- Part 1: Common safety requirements;
- Part 2: Safety of machines using water based cleaning liquids;
- Part 3: Safety of machines using flammable cleaning liquids;
- Part 4: Safety of machines using halogenated solvents.

NOTE Although a machine for surface cleaning and pre-treatment of industrial items, as an integral whole, formally does not fall under the scope of the ATEX Directive 94/9/EC, the standard is based upon a fundamental risk analysis according to this directive.

This European Standard includes a Bibliography.

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.

0 Introduction

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

This European Standard contains additional safety requirements to and/or deviations from EN 12921-1.

The machinery concerned and the extent to which hazards, hazardous situations and events are covered is 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 the significant hazards of machines for surface cleaning and pre-treatment - in the following called "cleaning machines" - of industrial items using flammable cleaning liquids or a mixture of cleaning liquids, even in emulsion form, which can potentially create, even temporarily, a condition of flammability.

This European Standard applies in combination with EN 12921-1. Both parts together cover all significant hazards relevant for cleaning machines of industrial items using liquids or vapours, when they are used as intended and under the conditions foreseen by the manufacturer (see Clause 4). The specific requirements specified in this European Standard take precedence over the respective requirements of EN 12921-1.

To the extend of this document the terms combustible materials and flammable substance and explosive are equivalently used.

NOTE 1 The condition of flammability can be generated only when molecules of the fluid are in intimate contact with oxygen from the air. Ignition is possible when: the fluid generates a concentration of vapour in air, or: the flammable fluid is present as a suspension of fine droplets in air (aerosol).

NOTE 2 In practice, fires and explosions differ by the size and intensity of the reaction, and by the instantaneous effects on the environment.

This European Standard does not apply to machinery and related equipment excluded from the scope of EN 12921-1.

This European Standard is not applicable to cleaning machines of industrial items using flammable cleaning liquids which are manufactured before the publication of this European Standard by CEN.

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 954-1, *Safety of machinery – Safety-related parts of control systems – Part 1: General principles for design*

EN 1127-1:1997, *Explosive atmospheres - Explosion prevention and protection – Part 1: Basic concepts and methodology*

EN 1539, *Dryers and ovens, in which flammable substances are released – Safety requirements*

EN 12921-1:2005, *Machines for surface cleaning and pre-treatment of industrial items using liquids or vapours – Part 1: Common safety requirements*

EN 13463-1:2001, *Non-electrical equipment for potentially explosive atmospheres – Part 1: Basic method and requirements*

EN 13463-5, *Non-electrical equipment intended for use in potentially explosive atmospheres – Part 5: Protection by constructional safety "c"*

EN 50015:1998, *Electrical apparatus for potentially explosive atmospheres — Oil immersion "o"*

EN 50017, *Electrical apparatus for potentially explosive atmospheres — Powder filling "q"*

EN 50020, *Electrical apparatus for potentially explosive atmospheres — Intrinsic safety "i"*

EN 60079-0, *Electrical apparatus for explosive gas atmosphere – Part 0: General requirements (IEC 60079-0:2004)*

EN 60079-1, *Electrical apparatus for potentially explosive gas atmospheres — Part 1: Flameproof enclosures "d"* (IEC 60079-1:2003)

EN 60079-2, *Electrical apparatus for explosive gas atmospheres — Part 2: Pressurized enclosures "p"* (IEC 60079-2:2001)

EN 60079-7, *Electrical apparatus for explosive gas atmospheres — Part 7: Increased safety "e"* (IEC 60079-7:2001)

EN 60079-15, *Electrical apparatus for explosive gas atmospheres — Part 15: Type of protection "n"* (IEC 60079-15:2001, modified)

EN 60079-18, *Electrical apparatus for explosive gas atmospheres — Part 18: Construction test and marking of type of protection encapsulation "m" electrical apparatus* (IEC 60079-18:2004)

EN 60079-25, *Electrical apparatus for explosive gas atmospheres — Part 25: Intrinsically safe systems* (IEC 60079-25:2003)

EN 60204-1, *Safety of machinery — Electrical equipment of machines — Part 1: General requirements* (IEC 60204-1:1997)

EN 60529, *Degrees of protection provided by enclosures (IP code)* (IEC 60529:1989)

EN ISO 12100-1:2003, *Safety of machinery — Basic concepts, general principles for design — Part 1: Basic terminology, methodology* (ISO 12100-1:2003)

EN ISO 12100-2, *Safety of machinery — Basic concepts, general principles for design — Part 2: Technical principles* (ISO 12100-2:2003)

3 Terms and definitions

For the purposes of this European Standard, the terms and definitions given in EN ISO 12100-1:2003, EN 12921-1:2005 and the following apply.

3.1

area classification

assessed division of a facility into hazardous areas and non-hazardous areas, and the subdivision of the hazardous areas into zones

3.2

explosive atmosphere

mixture with air, under atmospheric condition, of flammable substance(s) in the form of gas, vapour, mist or dust, in which, after ignition has occurred, combustion spreads to the entire unburned mixture (see 3.17 of EN 1127-1:1997)

3.3

explosion range

range of the concentrations of a flammable substance in air, within which an explosion can occur (see 3.13 of EN 1127-1:1997)

3.4

flammable substance

substance in the form of gas, vapour, liquid, solid, or mixtures of these, able to undergo an exothermic reaction with air when ignited (see 3.1 of EN 1127-1:1997)