
**Safety requirements for dry-cleaning
machines —**

Part 3:
Machines using combustible solvents

*Exigences de sécurité pour les machines de nettoyage à sec —
Partie 3: Machines utilisant des solvants combustibles*



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Foreword

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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 8230-3 was prepared by Technical Committee ISO/TC 72, *Textile machinery and accessories*, Subcommittee SC 5, *Industrial laundry and dry-cleaning machinery and accessories*.

This first edition of ISO 8230-3, together with ISO 8230-1:2008 and ISO 8230-2:2008, cancels and replaces ISO 8230:1997, of which it constitutes a technical revision.

ISO 8230 consists of the following parts, under the general title *Safety requirements for dry-cleaning machines*:

- *Part 1: Common safety requirements*
- *Part 2: Machines using perchloroethylene*
- *Part 3: Machines using combustible solvents*

Introduction

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

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

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

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Safety requirements for dry-cleaning machines —

Part 3: Machines using combustible solvents

1 Scope

This part of ISO 8230 specifies safety requirements for dry-cleaning machines that use a combustible solvent (CS), as defined in ISO 8230-1, as their cleaning medium.

It is applicable to such dry-cleaning machines, within the scope of ISO 8230-1, when they are used as intended and under conditions of misuse that are reasonably foreseeable by the manufacturer.

This part of ISO 8230, in conjunction with ISO 8230-1, deals with all significant hazards, significant hazardous situations and significant hazardous events that have been identified as being significant to the types of machines covered by this part of ISO 8230 and which require specific action by the designer or manufacturer to eliminate or reduce the risk.

It deals with the following significant hazards specific to the use of CS:

- hazards related to the entire dry-cleaning machine (electrical hazards, explosion hazards);
- hazards relating to the machine (combustible solvent emission, explosion hazards during the cleaning phase, explosion hazards during the drying phase);
- hazards relating to the distilling equipment (combustible solvent emission, explosion hazards).

This part of ISO 8230 applies to machines manufactured after the date of its issue.

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 2719:2002, *Determination of flash point — Pensky-Martens closed cup method*

ISO 8230-1:2008, *Safety requirements for dry-cleaning machines — Part 1: Common safety requirements*

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

IEC 60204-1:2005, *Safety of machinery — Electrical equipment of machines — Part 1: General requirements*

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

EN 50104:2002, *Electrical apparatus for the detection and measurement of oxygen — Performance requirements and test methods* (amended by EN 50104:2002/A1:2004)

EN 60079-0:2006, *Electrical apparatus for potentially explosive atmospheres — General requirements*

EN 61779-1:2000, *Electrical apparatus for the detection and measurement of flammable gases — Part 1: General requirements and test methods* ¹⁾

EN 61779-4:2000, *Electrical apparatus for the detection and measurement of flammable gases — Part 4: Performance requirements for group II apparatus indicating a volume fraction up to 100 % lower explosive limit* ²⁾

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 12100-1 and ISO 8230-1 and the following apply.

3.1

area of explosion

area of concentration of a combustible substance in the air where an explosion can occur

3.2

lower explosion limit

LEL

lower limit of the area of explosion

3.3

lower explosion point

LEP

temperature of a combustible liquid at which the concentration of the saturated vapour equals the lower explosion limit

NOTE If the lower explosion point is unknown, it can be assumed that the CS does not form any explosive vapour air mixtures if temperatures do not exceed 15 K below the flash point. During washing and spinning, the formation of mist is possible. With the operating conditions existing in the cage, the ignition energy required for droplet size and density is not reached by means of the ignition sources to be expected.

3.4

flash point

lowest temperature at which, under prescribed test conditions and in accordance with ISO 2719, a liquid releases combustible gas or combustible vapour in such quantities that a flame occurs immediately after contact with an effective ignition source

3.5

ignition temperature

lowest temperature of a hot surface, determined under prescribed test conditions, at which ignition of a combustible substance as gas air or vapour air mixture occurs

3.6

inert, verb

adding of inert substances to prevent the creation of an explosive gas atmosphere

1) IEC 61779-1:1998 modified.

2) IEC 61779-4:1998 modified.