NATIONAL STANDARD OF THE

PEOPLE'S REPUBLIC OF CHINA

GB/T 23819-2023

Safety of machinery - Fire prevention and fire protection

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Foreword

This document was drafted in accordance with the rules provided in GB/T 1.1-2020 Directives for standardization - Part 1.Rules for the structure and drafting of standardizing documents.

This document replaces GB/T 23819-2018 Safety of machinery - Fire prevention and protection. Compared with GB/T 23819-2018, in addition to structural adjustments and editorial changes, the main technical changes of this document are as follows.

-- Delete some terms and definitions (see Clause 3; Clause 3 of the 2018 edition);

This document is identical to ISO 19353.2019 Safety of machinery - Fire prevention

and fire protection.

The following minimal editorial changes are made to this document.

-- Add Figure C.2 to Appendix C;

-- Add the informative appendix NA.

1 Scope

This document specifies methods for identifying fire hazards resulting from machinery and for performing a risk assessment.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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.

GB/T 15706-2012, Safety of machinery - General principles for design - Risk assessment and risk reduction (ISO 12100.2010, IDT)

3 Terms and definitions

For the purpose of this document, terms and definitions given in ISO 12100 and ISO

4 Fire hazards

A fire hazard occurs if combustible materials (fuel), oxidizer (oxygen) and ignition energy (heat) are available in sufficient quantities at the same place and at the same time. A fire is an interaction of these three components in the form of an uninhibited chemical reaction (see Figure 2).

5 Strategy for fire risk assessment and risk reduction

When deemed necessary, risk evaluation is followed by risk reduction.

In planning fire prevention and protection measures, normal operating conditions - including startup and standstill procedures, possible technical failures and reasonably foreseeable misuse - shall be taken into account.

Risk assessment shall include determination of the limits of the machinery, taking into account the phases of the machinery life that can involve fire hazards.

6 Procedure for the selection of complementary protective measures

Determine the residual risk level based on the possible injury of persons (see Figure 4).

Annex B gives an example of a methodology for selecting and qualifying a fire detection and fire suppression system.

Compare the performance of the fire prevention and protection system with the requirements established in 6.1.2.If the risk of fire has not been adequately reduced, repeat items 6.1.3 ~ 6.1.5.

7 Information for use

Comprehensive documentation that is readily understandable and unambiguous shall be provided regarding.

Annex A

(Informative)

Examples of machines and their typical fire-related hazards

See Table A.1 for examples of machines and their typical fire-related hazards.

Annex B

(Informative)

Example of a methodology for selecting and qualifying a fire detection and fire suppression system

The selection and qualifying of a fire detection and fire suppression system is a complex procedure. Several considerations are needed to ensure a safe and reliable solution.

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