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**Safety of machinery — Reduction  
of risks to health resulting from  
hazardous substances emitted by  
machinery —**

Part 2:  
**Methodology leading to verification  
procedures**

*Sécurité des machines — Réduction des risques pour la santé  
résultant de substances dangereuses émises par des machines —  
Partie 2: Méthodologie menant à des procédures de vérification*





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## Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see [www.iso.org/directives](http://www.iso.org/directives)).

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. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see [www.iso.org/patents](http://www.iso.org/patents)).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: [Foreword - Supplementary information](#)

The committee responsible for this document is ISO/TC 199, *Safety of machinery*.

This second edition cancels and replaces the first edition (ISO 14123-2:1998), of which, by taking ISO 12100 into account, it constitutes a minor revision.

ISO 14123 consists of the following parts, under the general title *Safety of machinery — Reduction of risks to health resulting from hazardous substances emitted by machinery*:

- *Part 1: Principles and specifications for machinery manufacturers*
- *Part 2: Methodology leading to verification procedures*

## Introduction

The structure of safety standards in the field of machinery is as follows:

- a) **type-A standards** (basic safety standards) giving basic concepts, principles for design, and general aspects that can be applied to machinery;
- b) **type-B standards** (generic safety standards) dealing with one safety aspect or one type of safeguard that can be used across a wide range of machinery:
  - type-B1 standards on particular safety aspects (for example, safety distances, surface temperature, noise);
  - type-B2 standards on safeguards (for example, two-hand controls, interlocking devices, pressure-sensitive devices, guards);
- c) **type-C standards** (machine safety standards) dealing with detailed safety requirements for a particular machine or group of machines.

This document is a type-B1 standard as stated in ISO 12100. Its primary purpose is to give guidance to the writers of type-C standards when machines are identified as emitting hazardous substances as a significant risk. This part of ISO 14123 can also be used as guidance in controlling the risk where there is no type-C standard for a particular machine.

This part of ISO 14123 also provides type-C standard writers with guidance to enable the development of procedures relating to verification. Such procedures are required to take account of the health risks associated with the emission of hazardous substances in all phases of the machine life cycle (see ISO 12100:2010, 5.4 and ISO 14123-1:2015, Clause 4).

This part of ISO 14123 can also be used to assist designers and manufacturers to identify sources of emission that can subsequently affect the exposure of operators and others.

This document is of relevance, in particular, for the following stakeholder groups representing the market players with regard to machinery safety:

- machine manufacturers (small, medium and large enterprises);
- health and safety bodies (regulators, accident prevention organizations, market surveillance etc.);

Others can be affected by the level of machinery safety achieved with the means of the document by the above-mentioned stakeholder groups:

- machine users/employers (small, medium and large enterprises);
- machine users/employees (e.g. trade unions, organizations for people with special needs);
- service providers, e.g. for maintenance (small, medium and large enterprises);
- consumers (in case of machinery intended for use by consumers).

The above-mentioned stakeholder groups have been given the possibility to participate at the drafting process of this document.

The requirements of this document can be supplemented or modified by a type-C standard.

For machines that are covered by the scope of a type-C standard and that have been designed and built according to the requirements of that standard, the requirements of that type-C standard take precedence.



# Safety of machinery — Reduction of risks to health resulting from hazardous substances emitted by machinery —

## Part 2: Methodology leading to verification procedures

### 1 Scope

This part of ISO 14123 establishes a methodology that leads to the selection of critical factors relating to emissions of hazardous substances for the purpose of specifying suitable verification procedures.

This part of ISO 14123 is intended to be used in conjunction with ISO 14123-1 and relates specifically to ISO 14123-1:2015, Clause 8.

### 2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 12100:2010, *Safety of machinery — General principles for design — Risk assessment and risk reduction*

ISO 14123-1:2015, *Safety of machinery — Reduction of risks to health resulting from hazardous substances emitted by machinery — Part 1: Principles and specifications for machinery manufacturers*

### 3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 12100 and ISO 14123-1 apply.

### 4 Methodology

#### 4.1 General

This Clause specifies the steps that shall be taken to lead to a verification procedure. These steps are summarized in [Annex A](#).

#### 4.2 Identification of hazardous substances

**4.2.1** Identify substances that can be emitted during the intended use of the machine (see ISO 12100 and ISO 14123-1:2015, Clause 4).

**4.2.2** Determine which of these substances are hazardous to health and the nature of the hazard (see ISO 14123-1:2015, 3.2, Example).

**4.2.3** Where a number of hazardous substances has been identified, the verification procedure should be carried out on key substances that represent worst-case properties. Key substances may be selected based on toxicity, corrosive properties, solvent properties, dustiness, etc.