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# GUIDE

**Environmental aspects - Inclusion in electrotechnical product standards**



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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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# Environmental aspects - Inclusion in electrotechnical product standards

## FOREWORD

1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
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This fourth edition of IEC Guide 109 has been prepared, in accordance with ISO/IEC Directives, Part 1, Annex A, by the IEC Advisory Committee on Environmental Aspects (ACEA).

This fourth edition cancels and replaces the third edition published in 2012.

This edition includes the following significant technical changes with respect to the previous edition:

a) provide standards writers with reference documents, especially horizontal standards, for alignment;
b) align with other guides (such as IEC Guide 108 and relevant documents published by other standards development organizations);
c) introduction of checklists and recommendations to help product committees identify relevant environmental issues to their products.

The text of this IEC Guide is based on the following documents:

| Draft | Report on voting |
|---|---|
| SMBNC/76/DV | SMBNC/77/RV |

Full information on the voting for the approval of this Guide can be found in the report on voting indicated in the above table.

The language used for the development of this Guide is English.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in greater detail at www.iec.ch/standardsdev/publications.

# INTRODUCTION

This document provides requirements and recommendations to standards writers on how environmental aspects are addressed as applicable during the development of IEC documents including International Standards (IS), Technical Specifications (TS) and Publicly Available Specifications (PAS).

The need to optimize impacts (i.e. reduce the adverse impacts or increase beneficial impacts) on the environment caused by environmental aspects of a product[1)] during all stages of its life cycle from acquiring materials to manufacturing, distribution, use, and end-of-life treatment (e.g. reuse and material recycling) is recognized around the world. The choices made at early phases of product design and development largely determine what those impacts will be during each stage of the life of the product. The task of making the optimal choices is very complex. For example, choosing specifications that improve environmental aspects can involve difficult trade-offs, such as a higher durability by changing the materials used can make the product less recyclable.

Any standard that includes requirements for products can significantly influence the product's environmental aspects and the resultant impacts. Standards can promote flexibility in the selection of the choices to improve environmental aspects. Furthermore, it is important that standards addressing environmental aspects do not impede innovation in any sense. Standards writers can encourage the protection of the environment, for instance, by specifying requirements that lead to the appropriate design and manufacturing process and product use.

In this context, it is also important that standards writers give careful consideration to environmental aspects when specifying test methods.



1) Although the term "product" has been used throughout this document, the concept also embraces systems, services and processes as appropriate.

## 1 Scope

This document provides requirements and guidance on how to consider aspects resulting in impacts on the environment caused by electrotechnical products. It is intended for standards writers developing documents containing provisions relevant to environment as defined in this document.

NOTE The IEC Standardization Management Board (SMB) has decided that Guides such as this one can have mandatory requirements which shall be followed by all IEC committees developing technical work that falls within the scope of the guide, as well as guidance which may or may not be followed. The mandatory requirements in this Guide are identified by the use of “shall”. Statements that are only for guidance are identified by using the verb “should”. (See IEC Directives Supplement Part 1, A.1.1.).

## 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.

IEC Guide 123, *Assignment and management of horizontal functions within the area of environment*

IEC Guide 121, *Securing credible environmentally relevant performance assessment methods in standards*



## 3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.



ISO and IEC maintain terminology databases for use in standardization at the following addresses:

– IEC Electropedia: available at https://www.electropedia.org/

– ISO Online browsing platform: available at https://www.iso.org/obp

**3.1**
**environment**
surroundings in which a product or system exists, including air, water, land, natural resources, flora, fauna, humans and their interrelation

Note 1 to entry: This term is defined in the context of environmental sustainability.

**3.2**
**natural resource**
part of nature that provides benefits to humans or underpins human well-being

[SOURCE: ISO 14050:2020 [2], 3.2.5]

**3.3**
**environmental aspect**
element of an organization's activities or products that can interact with the environment

Note 1 to entry: A significant environmental aspect has or can have a significant environmental impact.

**3.4**
**environmental impact**
change to the environment, whether adverse or beneficial, wholly or partly resulting from environmental aspects

**3.5**
**energy recovery**
production of useful energy through direct and controlled combustion or other processing of waste

Note 1 to entry: Waste incinerators producing hot water, steam and/or electricity are common means for energy recovery.

[SOURCE: IEC 60050-904:2014, IEV 904-04-03]

**3.6**
**substance**
matter of constant composition best characterized by the entities (molecules, formula units, atoms) it is composed of

Note 1 to entry: Physical properties such as density, refractive index, electric conductivity, melting point, etc. characterize the substance.

Note 2 to entry: Formula unit is the smallest unit of a non-molecular substance, such as an ionic compound, covalent network solid, or metal.

Note 3 to entry: Based on the IUPAC definition (C01039).

[SOURCE: IEC FDIS 60050-193:2026, IEV 193-03-04]



**3.7**
**hazardous substance**
substance that has, according to defined classification criteria, the potential for adversely impacting human health or the environment or both



Note 1 to entry: The criteria for determining whether a substance is classified as hazardous are defined by law or regulation.

**3.8**
**input**
material or energy which enters a life cycle stage of a product from raw material acquisition to final disposal.

[SOURCE: IEC 60050-901:2013, IEV 901-07-05, modified – In the definition, "product system at any stage" is replaced by "life cycle stage of a product"]

**3.9**
**output**
material or energy which leaves a life cycle stage of a product, from raw material acquisition to final disposal

[SOURCE: IEC 60050-901:2013, IEV 901-07-06, modified – In the definition, "product system at any stage" is replaced by "life cycle stage of a product"]

**3.10**
**life cycle**
consecutive and interlinked stages from raw material acquisition or generation from natural resources to final disposal

[SOURCE: ISO 14050:2020, 3.6.1]