

TECHNICAL SPECIFICATION

SPECIFICATION TECHNIQUE



**Switchgear and controlgear and their assemblies for low voltage –
Environmental aspects**

**Appareillages et ensembles d'appareillages basse tension –
Aspects environnementaux**



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INTERNATIONAL ELECTROTECHNICAL COMMISSION

**SWITCHGEAR AND CONTROLGEAR AND
THEIR ASSEMBLIES FOR LOW VOLTAGE –****Environmental aspects**

FOREWORD

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IEC TS 63058 has been prepared by IEC technical committee 121: Switchgear and controlgear and their assemblies for low voltage. It is a Technical Specification.

The text of this Technical Specification is based on the following documents:

Draft TS	Report on voting
121/54/DTS	121/58A/RVDTS

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

The language used for the development of this Technical Specification 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.

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under webstore.iec.ch in the data related to the specific document. At this date, the document will be

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INTRODUCTION

Increasingly, there is a focus on preserving the natural environment for the good of future generations. For this to be achieved, efficient use of energy and materials throughout the life cycle of every product and process to conserve world's finite natural resources is essential. In addition, release of substances and materials that might be harmful for the environment or induce climatic changes are to be avoided or minimized. From conception to end of life of a product, the environmental impact of all the relevant processes should be considered, including how materials are disposed of or recovered for future use.

In order to contribute to conserving natural resources, manufacturers of low-voltage switchgear and controlgear and their assemblies should ensure an environmentally conscious design (ECD) involving:

- phasing-out or minimizing use of hazardous substances or materials;
- efficient use of energy and materials in the manufacture of products;
- ensuring the lowest practical energy consumption by the products while they are in use;
- at the end of product life, the possibility, as far as practical, of recycling materials for future use, and sorting hazardous components requiring a specific treatment.

Declarations and ECD are increasingly required and in some instances mandated. These can take several forms, for example, Type II or Type III environmental declaration, material declaration (MD). In some business, Green Public Procurement (GPP) is applicable and/or ECD is part of the ISO 14001 certification. Some countries and regions are also actively pushing for environmental conservation, for example, the European Union through its Ecodesign Directive and China through Ecodesign Initiative. Systematic demands for ECD will be required by most, if not all customers, in the medium term.

Assessing the environmental impact of low-voltage switchgear and controlgear and their assemblies is part of an ECD process. ECD requires the identification, measurement and reporting of particular impacts. IEC 62430 describes the basic principles of ECD, with the goal of reducing the potential environmental impacts of products.

Generally, the environmental impact of low-voltage switchgear and controlgear and their assemblies is very low compared with that of the overall system into which they are incorporated and the processes to which they contribute. The lifetime impact of processes such as the air-conditioning of a building, the manufacture of steel or shipping far exceed that of the manufacture and use of any associated low-voltage switchgear and controlgear.

Even though low-voltage switchgear and controlgear and their assemblies have a relatively minor impact on the environment, there is a market need for appropriate methods for managing these environmental matters. A simplified means of estimating the environmental impacts is required together with readily available data to make the stakeholder's, for example contractor's, installer's and end user's, task of assessing environmental impacts at system level easier.

Specific rules for assessing the environmental impacts and providing appropriate data for low-voltage switchgear and controlgear and their assemblies are among the purposes of this document. These rules establish a common evaluation scheme of their environmental impacts in terms of characterized impact indicators (e.g. CO₂-equivalents, ozone depletion) over their whole life cycle.

SWITCHGEAR AND CONTROLGEAR AND THEIR ASSEMBLIES FOR LOW VOLTAGE –

Environmental aspects

1 Scope

This document, which is a Technical Specification, provides guidance to manufacturers of low-voltage switchgear and controlgear and their assemblies in evaluating and improving the environmental impact of their products, and in enabling effective communication using common references for environmental information throughout the supply chain.

This document provides:

- guidance on the process and general aspects to implement environmentally-conscious product design principles, as given in IEC 62430, essential for low-voltage switchgear and controlgear and their assemblies;
- the Product Specific Rules (PSR) for Life Cycle Assessment (LCA);
NOTE 1 The general methods and the process to execute the LCA are in accordance with ISO 14040 and ISO 14044 but not addressed in this document.
NOTE 2 PSR and LCA can be used for quantitative ECD and also apply for some environmental declarations, for example Type III.
- standard environmental impact data derived from case studies and a means of using them;
NOTE 3 This is to encourage manufacturers to apply more effective quantitative methods in the ECD process to improve the environmental efficiency of their products.
- common rules for communicating information about the presence of regulated substances and the materials contained in the product, according to IEC 62474;
- guidance on communicating information about the end of life treatment of the product.

NOTE 4 This document is intended to replace Annex O and Annex W of IEC 60947-1:2020.

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 60050-904, *International Electrotechnical Vocabulary (IEV) – Part 904: Environmental standardization for electrical and electronic products and systems* (available at www.electropedia.org)

IEC 61439-1:2020, *Low-voltage switchgear and controlgear assemblies – Part 1: General rules*

IEC 62430:2019, *Environmentally conscious design (ECD) – Principles, requirements and guidance*

IEC 62474:2018, *Material declaration for products of and for the electrotechnical industry*

IEC 62474-DB¹, *Material declaration for products of and for the electrotechnical industry* (available at <http://std.iec.ch/iec62474>)

¹ "DB" refers to the IEC on-line database.

IEC TR 62635:2012, *Guidelines for end-of-life information provided by manufacturers and recyclers and for recyclability rate calculation of electrical and electronic equipment*

ISO 14006, *Environmental management systems – Guidelines for incorporating ecodesign*

ISO 14021:2016, *Environmental labels and declarations – Self-declared environmental claims (Type II environmental labelling)*

ISO 14025:2006, *Environmental labels and declarations – Type III environmental declarations – Principles and procedures*

ISO 14040:2006, *Environmental management – Life cycle assessment – Principles and framework*

ISO 14044:2006, *Environmental management – Life cycle assessment – Requirements and guidelines*

ISO 14044:2006/AMD1:2017

ISO 14044:2006/AMD2:2020

ISO 14045:2012, *Environmental management – Eco-efficiency assessment of product systems – Principles, requirements and guidelines*

EN 45558:2019, *General method to declare the use of critical raw materials in energy-related products*

EN 50693:2019, *Product category rules for life cycle assessments of electronic and electrical products and systems*

Reference Life Cycle Data System (ILCD) Handbook, *Recommendations for Life Cycle Impact Assessment in the European context. First edition November 2011. EUR 24571*

3 Terms, definitions and abbreviated terms

3.1 Terms and definitions

For the purposes of this document, the terms and definitions given in IEC 60050-904 and the following apply.

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

- ISO Online browsing platform: available at <http://www.iso.org/obp>
- IEC Electropedia: available at <http://www.electropedia.org/>

3.1.1

declarable substance group

group of substances included in the IEC 62474-DB at the date the material declaration is made

Note 1 to entry: Substance group is multiple CAS # (for example Lead compounds).

3.1.2

end of life

life cycle stage of a product starting when it is removed from its intended use phase

[SOURCE: IEC TR 62635:2012, 3.2, modified – Hyphens deleted in term, alternate term deleted, "use-stage" replaced with "use phase".]

3.1.3

end of life treatment

operation after a waste has been handed over to a facility for product and product part reuse, material recycling, energy recovery and residue disposal

Note 1 to entry: This includes dismantling, material separation and disposal.