



IEC TR 62824

Edition 1.0 2016-04

# TECHNICAL REPORT



---

**Guidance on material efficiency considerations in environmentally conscious design of electrical and electronic products**

INTERNATIONAL  
ELECTROTECHNICAL  
COMMISSION

---

ICS 13.020.01

ISBN 978-2-8322-3283-5

**Warning! Make sure that you obtained this publication from an authorized distributor.**

## CONTENTS

FOREWORD.....	3
INTRODUCTION.....	5
1    Scope.....	6
2    Normative references.....	6
3    Terms and definitions .....	6
4    Relationship between material efficiency and ECD .....	7
5    Material aspects for material efficiency.....	9
5.1    Material type and material quantity .....	9
5.1.1    General .....	9
5.1.2    Material type .....	9
5.1.3    Material quantity .....	9
5.2    Material substitutability.....	9
5.3    Renewable material.....	10
5.4    Material recyclability and material recoverability .....	10
5.4.1    General .....	10
5.4.2    Material recyclability .....	10
5.4.3    Material recoverability .....	11
5.5    Durability of product .....	11
Bibliography .....	12
Figure 1 – Illustration on integration of material aspects into the ECD process .....	8

## INTERNATIONAL ELECTROTECHNICAL COMMISSION

---

### **GUIDANCE ON MATERIAL EFFICIENCY CONSIDERATIONS IN ENVIRONMENTALLY CONSCIOUS DESIGN OF ELECTRICAL AND ELECTRONIC PRODUCTS**

#### 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.
- 2) The formal decisions or agreements of IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested IEC National Committees.
- 3) IEC Publications have the form of recommendations for international use and are accepted by IEC National Committees in that sense. While all reasonable efforts are made to ensure that the technical content of IEC Publications is accurate, IEC cannot be held responsible for the way in which they are used or for any misinterpretation by any end user.
- 4) In order to promote international uniformity, IEC National Committees undertake to apply IEC Publications transparently to the maximum extent possible in their national and regional publications. Any divergence between any IEC Publication and the corresponding national or regional publication shall be clearly indicated in the latter.
- 5) IEC itself does not provide any attestation of conformity. Independent certification bodies provide conformity assessment services and, in some areas, access to IEC marks of conformity. IEC is not responsible for any services carried out by independent certification bodies.
- 6) All users should ensure that they have the latest edition of this publication.
- 7) No liability shall attach to IEC or its directors, employees, servants or agents including individual experts and members of its technical committees and IEC National Committees for any personal injury, property damage or other damage of any nature whatsoever, whether direct or indirect, or for costs (including legal fees) and expenses arising out of the publication, use of, or reliance upon, this IEC Publication or any other IEC Publications.
- 8) Attention is drawn to the Normative references cited in this publication. Use of the referenced publications is indispensable for the correct application of this publication.
- 9) Attention is drawn to the possibility that some of the elements of this IEC Publication may be the subject of patent rights. IEC shall not be held responsible for identifying any or all such patent rights.

The main task of IEC technical committees is to prepare International Standards. However, a technical committee may propose the publication of a technical report when it has collected data of a different kind from that which is normally published as an International Standard, for example "state of the art".

IEC TR 62824, which is a Technical Report, has been prepared by IEC technical committee 111: Environmental standardization for electrical and electronic products and systems.

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

Enquiry draft	Report on voting
111/391/DTR	111/411/RVC

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

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

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

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

A bilingual version of this publication may be issued at a later date.

**IMPORTANT – The 'colour inside' logo on the cover page of this publication indicates that it contains colours which are considered to be useful for the correct understanding of its contents. Users should therefore print this document using a colour printer.**

## INTRODUCTION

The natural resources of our planet are being depleted by the rapid growth of industry including the production and use of electrical and electronic products. Materials are consumed both directly and indirectly and lead to other environmental impacts, such as climate change. As a consequence, there are an increasing number of policies and regulations being considered or enacted at regional or national level to promote sustainable production while minimizing environmental impacts. To meet these challenges, this Technical Report provides information on how material efficiency considerations can be integrated into the environmentally conscious design (ECD).

Material efficiency relates to the efficient use of materials over a product's lifetime, including its fabrication, distribution, use and disposal. Within this document, the following material aspects are considered: material type, material quantity, material substitutability, use of renewable material, material recyclability, material recoverability, and durability of product.

This document is intended to support ECD, but focuses on the efficient use of material within products. Its aim is to facilitate the use of materials in an optimal way and thereby promote the sustainability of natural resources.

## **GUIDANCE ON MATERIAL EFFICIENCY CONSIDERATIONS IN ENVIRONMENTALLY CONSCIOUS DESIGN OF ELECTRICAL AND ELECTRONIC PRODUCTS**

### **1 Scope**

IEC 62824 which is a Technical Report provides information on selection and efficient use of materials in electrical and electronic products. Environmentally conscious design (ECD) can then proceed in such a way that aspects, including material type, material quantity, material substitutability, renewable material, material recyclability, material recoverability, and durability of product are taken into account during the design phase.

### **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.

None.