



**NSAI**  
Standards

Irish Standard  
I.S. EN ISO 14045:2012

# Environmental management - Eco- efficiency assessment of product systems - Principles, requirements and guidelines (ISO 14045:2012)

## I.S. EN ISO 14045:2012

*Incorporating amendments/corrigenda/National Annexes issued since publication:*

The National Standards Authority of Ireland (NSAI) produces the following categories of formal documents:

I.S. xxx: Irish Standard – national specification based on the consensus of an expert panel and subject to public consultation.

S.R. xxx: Standard Recommendation - recommendation based on the consensus of an expert panel and subject to public consultation.

SWIFT xxx: A rapidly developed recommendatory document based on the consensus of the participants of an NSAI workshop.

*This document replaces:*

*This document is based on:*  
EN ISO 14045:2012

*Published:*  
28 May, 2012

This document was published under the authority of the NSAI and comes into effect on:  
28 May, 2012

**ICS number:**

13.020.10

13.020.60

**NSAI**  
1 Swift Square,  
Northwood, Santry  
Dublin 9

T +353 1 807 3800  
F +353 1 807 3838  
E standards@nsai.ie  
W NSAI.ie

**Sales:**  
T +353 1 857 6730  
F +353 1 857 6729  
W standards.ie

Údarás um Chaighdeáin Náisiúnta na hÉireann

ICS 13.020.10; 13.020.60

English Version

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

Management environnemental - Évaluation de l'éco-  
efficacité des systèmes de produits - Principes, exigences  
et lignes directrices (ISO 14045:2012)

Umweltmanagement - Ökoeffizienzbewertung von  
Produktsystemen - Prinzipien, Anforderungen und Leitlinien  
(ISO 14045:2012)

This European Standard was approved by CEN on 3 May 2012.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and United Kingdom.



EUROPEAN COMMITTEE FOR STANDARDIZATION  
COMITÉ EUROPÉEN DE NORMALISATION  
EUROPÄISCHES KOMITEE FÜR NORMUNG

**Management Centre: Avenue Marnix 17, B-1000 Brussels**

---

**Contents**

Page

**Foreword.....3**

## **Foreword**

This document (EN ISO 14045:2012) has been prepared by Technical Committee ISO/TC 207 “Environmental management”.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by November 2012, and conflicting national standards shall be withdrawn at the latest by November 2012.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

### **Endorsement notice**

The text of ISO 14045:2012 has been approved by CEN as a EN ISO 14045:2012 without any modification.

*This page is intentionally left BLANK.*

I.S. EN ISO 14045:2012  
**INTERNATIONAL  
STANDARD**

**ISO  
14045**

First edition  
2012-05-15

---

---

**Environmental management — Eco-  
efficiency assessment of product  
systems — Principles, requirements  
and guidelines**

*Management environnemental — Évaluation de l'écocoefficacité des  
systèmes de produits — Principes, exigences et lignes directrices*



Reference number  
ISO 14045:2012(E)

© ISO 2012



**COPYRIGHT PROTECTED DOCUMENT**

© ISO 2012

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office  
Case postale 56 • CH-1211 Geneva 20  
Tel. + 41 22 749 01 11  
Fax + 41 22 749 09 47  
E-mail [copyright@iso.org](mailto:copyright@iso.org)  
Web [www.iso.org](http://www.iso.org)

Published in Switzerland



<b>Contents</b>	<b>Page</b>
<b>Foreword</b> .....	<b>iv</b>
<b>Introduction</b> .....	<b>v</b>
<b>1 Scope</b> .....	<b>1</b>
<b>2 Normative references</b> .....	<b>1</b>
<b>3 Terms and definitions</b> .....	<b>1</b>
<b>4 General description of eco-efficiency</b> .....	<b>3</b>
<b>4.1 Principles of eco-efficiency</b> .....	<b>3</b>
<b>4.2 Phases of an eco-efficiency assessment</b> .....	<b>4</b>
<b>4.3 Key features of an eco-efficiency assessment</b> .....	<b>5</b>
<b>5 Methodological framework</b> .....	<b>5</b>
<b>5.1 General requirements</b> .....	<b>5</b>
<b>5.2 Goal and scope definition (including system boundaries, interpretation and limitations)</b> .....	<b>5</b>
<b>5.3 Environmental assessment</b> .....	<b>7</b>
<b>5.4 Product system value assessment</b> .....	<b>8</b>
<b>5.5 Quantification of eco-efficiency</b> .....	<b>9</b>
<b>5.6 Sensitivity and uncertainty analysis</b> .....	<b>9</b>
<b>5.7 Interpretation</b> .....	<b>9</b>
<b>6 Reporting and disclosure of results</b> .....	<b>10</b>
<b>6.1 General requirements</b> .....	<b>10</b>
<b>6.2 Further reporting requirements for comparative eco-efficiency assertion intended to be disclosed to the public</b> .....	<b>10</b>
<b>7 Critical review</b> .....	<b>11</b>
<b>7.1 General</b> .....	<b>11</b>
<b>7.2 Critical review by internal or external expert</b> .....	<b>11</b>
<b>7.3 Critical review by panel of interested parties</b> .....	<b>12</b>
<b>Annex A (informative) Examples of functional value, monetary value, other values and value indicators</b> .....	<b>13</b>
<b>Annex B (informative) Examples of eco-efficiency assessment</b> .....	<b>14</b>
<b>Bibliography</b> .....	<b>38</b>

## **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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

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.

ISO 14045 was prepared by Technical Committee ISO/TC 207, *Environmental management*, Subcommittee SC 5, *Life cycle assessment*.

## **Introduction**

Eco-efficiency assessment is a quantitative management tool which enables the study of life-cycle environmental impacts of a product system along with its product system value for a stakeholder.

Within eco-efficiency assessment, environmental impacts are evaluated using Life Cycle Assessment (LCA) as prescribed by other International Standards (ISO 14040, ISO 14044). Consequently, eco-efficiency assessment shares with LCA many important principles such as life cycle perspective, comprehensiveness, functional unit approach, iterative nature, transparency and priority of a scientific approach.

The value of the product system may be chosen to reflect, for example, its resource, production, delivery or use efficiency, or a combination of these. The value may be expressed in monetary terms or other value aspects.

The key objectives of this International Standard are to:

- establish clear terminology and a common methodological framework for eco-efficiency assessment;
- enable the practical use of eco-efficiency assessment for a wide range of product (including service) systems;
- provide clear guidance on the interpretation of eco-efficiency assessment results;
- encourage the transparent, accurate and informative reporting of eco-efficiency assessment results.



# Environmental management — Eco-efficiency assessment of product systems — Principles, requirements and guidelines

## 1 Scope

This International Standard describes the principles, requirements and guidelines for eco-efficiency assessment for product systems, including:

- a) the goal and scope definition of the eco-efficiency assessment;
- b) the environmental assessment;
- c) the product system value assessment;
- d) the quantification of eco-efficiency;
- e) interpretation (including quality assurance);
- f) reporting;
- g) critical review of the eco-efficiency assessment.

Requirements, recommendations and guidelines for specific choices of categories of environmental impact and values are not included. The intended application of the eco-efficiency assessment is considered during the goal and scope definition phase, but the actual use of the results is outside the scope of this International Standard.

## 2 Normative references

The following referenced documents are indispensable for the application 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.

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

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

ISO 14050:2009, *Environmental management — Vocabulary*

## 3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 14050 and the following apply.

### 3.1

#### **product**

any goods or service

[SOURCE: ISO 14021:1999, 3.1.11]

### 3.2

#### **product flow**

*products* (3.1) entering from or leaving to another product system

[SOURCE: ISO 14040:2006, 3.27]

This is a free preview. Purchase the entire publication at the link below:

[Product Page](#)

- 
- [Looking for additional Standards? Visit Intertek Inform Infostore](#)
  - [Learn about LexConnect, All Jurisdictions, Standards referenced in Australian legislation](#)
-