SLOVENSKI PREDSTANDARD

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Ravnanje z okoljem - Ocenjevanje življenjskega cikla – Zahteve in smernice (ISO/DIS 14044:2005)

Environmental management - Life cycle assessment - Requirements and guidelines (ISO/DIS 14044:2005)

ICS 13.020.10; 13.020.60

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English version

Environmental management - Life cycle assessment - Requirements and guidelines (ISO/DIS 14044:2005)

Management environnemental - Analyse du cycle de vie - Exigences et lignes directrices (ISO/DIS 14044:2005)

This draft European Standard is submitted to CEN members for parallel enquiry. It has been drawn up by the Technical Committee CEN/SS S26.

If this draft becomes a European Standard, 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.

This draft European Standard was established by CEN 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 Management Centre has the same status as the official versions.

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

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Foreword

This document (prEN ISO 14044:2005) has been prepared by Technical Committee ISO/TC 207 "Environmental management" in collaboration with CMC.

This document is currently submitted to the parallel Enquiry.

This document will supersede EN ISO 14040:1997, EN ISO 14041:1998, EN ISO 14042:2000, EN ISO 14043:2000.

Endorsement notice

The text of ISO 14044:2005 has been approved by CEN as prEN ISO 14044:2005 without any modifications.

DRAFT INTERNATIONAL STANDARD ISO/DIS 14044

ISO/TC **207**/SC **5** Secretariat: **AFNOR**

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Environmental management — Life cycle assessment — Requirements and guidelines

Management environnemental — Analyse du cycle de vie — Exigences et lignes directrices

(Revision of ISO 14040:1997, ISO 14041:1998, ISO 14042:2000 and ISO 14043:2000)

ICS 13.020.10; 13.020.60

ISO/CEN PARALLEL ENQUIRY

The CEN Secretary-General has advised the ISO Secretary-General that this ISO/DIS covers a subject of interest to European standardization. **In accordance with the ISO-lead mode of collaboration as defined in the Vienna Agreement, consultation on this ISO/DIS has the same effect for CEN members as would a CEN enquiry on a draft European Standard.** Should this draft be accepted, a final draft, established on the basis of comments received, will be submitted to a parallel two-month FDIS vote in ISO and formal vote in CEN.

To expedite distribution, this document is circulated as received from the committee secretariat. ISO Central Secretariat work of editing and text composition will be undertaken at publication stage.

Pour accélérer la distribution, le présent document est distribué tel qu'il est parvenu du secrétariat du comité. Le travail de rédaction et de composition de texte sera effectué au Secrétariat central de l'ISO au stade de publication.

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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.

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 14044 was prepared by Technical Committee ISO/TC 207, *Environmental Management*, Subcommittee SC 5, *Life cycle assessment*.

This edition cancels and replaces the first edition (ISO 14040:1997, ISO 14041:1998, ISO 14042:2000, ISO 14043:2000), which have been technically revised.

Introduction

The increased awareness of the importance of environmental protection, and the possible impacts associated with products[1)], both manufactured and consumed, has increased the interest in the development of methods to better understand and address these impacts. One of the techniques being developed for this purpose is Life Cycle Assessment (LCA).

LCA can assist in

— identifying opportunities to improve the environmental performance of products at various points in their life cycle;

— informing decision-makers in industry, governmental or non-governmental organizations (e.g. strategic planning, priority setting, product or process design or redesign);

— selection of relevant indicators of environmental performance, including measurement techniques; and

— marketing (e.g. an environmental claim, ecolabelling scheme or environmental product declaration).

LCA address the environmental aspects and potential environmental impacts[2)] (e.g. resource use and environmental consequences of releases) throughout a product's life cycle from raw material acquisition through production, use, end-of-life treatment and disposal (i.e. cradle-to-grave).

There are four phases in an LCA study: The goal and scope definition phase, the inventory analysis phase, the impact assessment phase and the interpretation phase.

The scope, system boundary and level of detail of an LCA depend on the subject and intended use of the study. The depth and breadth of LCA may differ considerably depending on the goal of a particular LCA.

The life cycle inventory analysis phase (LCI phase) is the second phase of LCA. It is an inventory of input/output data with respect to the system being studied. It involves the collection of the data necessary to meet the goals of the defined study.

The life cycle impact assessment phase (LCIA) is the third phase of the LCA. The purpose of LCIA is to provide additional information to help assess a product system’s LCI results to better understand their environmental significance.

Life cycle interpretation is the final phase of the LCA procedure, in which the results of an LCI and/or of an LCIA, or both, are summarized and discussed as a basis for conclusions, recommendations and decision-making in accordance with the goal and scope definition.

There are cases where the goal and scope definition of an LCA may be satisfied by performing only an inventory analysis and an interpretation. This is usually referred to as an LCI study.

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1) In this International Standard, the term "product" used alone not only includes product systems but also service systems.

2) The “potential environmental impacts” are relative expressions, as they are related to the functional unit of a product system.

This standard covers two types of studies: Life Cycle Assessment studies (LCA studies) and Life Cycle Inventory studies (LCI studies). LCI studies are similar to LCA studies but lack the LCIA phase. LCI studies should not be confused with the LCI phase.

Generally, the information developed in an LCA or LCI study can be used as part of a much more comprehensive decision process. Comparing the results of different LCA or LCI studies is only possible if the assumptions and context of each study are equivalent. These assumptions are explicitly stated for reasons of transparency.

LCA is one of several environmental management techniques (e.g. risk assessment, environmental performance evaluation, environmental auditing, and environmental impact assessment) and may not be the most appropriate technique to use in all situations. LCA typically does not address the economic or social aspects of a product, but the life cycle approach and methodologies described in this International Standard can be applied on these other aspects.

Environmental management – Life cycle assessment – Requirements and guidelines

1 Scope

This international standard specifies the requirements and the procedures necessary for life cycle assessment (LCA) including:

a) The compilation and preparation of the definition of goal and scope of the LCA;

b) The life cycle inventory analysis (LCI) phase;

c) The life cycle impact assessment (LCIA) phase;

d) The life cycle interpretation phase;

e) The reporting and critical review of the LCA;

f) The limitations of the LCA;

g) The relationship between the LCA phases;

h) The conditions for use of value choices and optional elements.

This International Standard covers life cycle assessment (LCA) studies and life cycle inventory (LCI) studies.

The intended application of LCA or LCI results is considered during the goal and scope definition, but the application is outside the scope of this International Standard.

This International Standard, like other International Standards, is not intended to be used to create non-tariff trade barriers or to increase or change an organization's legal obligations. Neither is the standard intended for contractual or regulatory purposes or registration and certification.

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 14040:200X, *Environmental management - Life cycle assessment - Principles and framework.*

3 Terms and definitions

For the purpose of this International Standard, the following terms and definitions apply.

3.1
allocation
partitioning the input or output flows of a process or other product system to the product system under study

3.2
ancillary input
material input that is used by the unit process producing the product, but not constituting a part of the product

3.3
category endpoint
attribute or aspect of natural environment, human health, or resources, identifying an environmental issue of concern

NOTE Figure 3 illustrates this term in further detail

3.4
characterization factor
factor derived from a characterization model that is applied to convert the assigned LCI results to the common unit of the category indicator

NOTE The common unit allows aggregation into category indicator result

3.5
comparative assertion
environmental claim regarding the superiority or equivalence of one product versus a competing product that performs the same function

3.6
completeness check
process of verifying whether information from the phases of an LCA or an LCI study is sufficient for reaching conclusions in accordance with the goal and scope definition

3.7
consistency check
process of verifying that the assumptions, methods and data are consistently applied throughout the study and in accordance with the goal and scope definition

NOTE The consistency check should be performed before conclusions are reached

3.8
co-product
any of two or more products coming from the same unit process or product system

3.9
critical review
process ensuring consistency between an LCA and the principles and the requirements of the International Standards on life cycle assessment

NOTE 1 The principles are described in ISO 14040

NOTE 2 The requirements are described in ISO 14044

3.10
cut-off criteria
specification of amount of material or energy flow, or level of environmental significance associated with unit processes or product system to be excluded from a study

3.11
data quality
characteristics of data that bear on their ability to satisfy stated requirements

3.12
elementary flow
(1) material or energy entering the system being studied that has been drawn from the environment without previous human transformation

(2) material or energy leaving the system being studied that is released into the environment without subsequent human transformation

3.13
energy flow
input to or output from a unit process or product system quantified in energy units

NOTE Energy flow that is input may be called energy input; energy flow that is output may be called energy output

3.14
environmental aspect
element of an organization's activities, products or services that can interact with the environment

[ISO 14001 : 2004]

3.15
environmental mechanism
system of physical, chemical, and biological processes for a given impact category, linking the LCI results to category indicators~~,~~ and to category endpoints

3.16
evaluation
step within the life cycle interpretation phase to establish confidence in the results of the LCA or LCI study

NOTE evaluation includes completeness check, sensitivity check, consistency check, and any other validation that may be required according to the goal and scope definition of the study.

3.17
feedstock energy
combustion heat of raw material input that is not used as an energy source~~,~~ to a product system, expressed in terms of higher heating value or lower heating value

NOTE Care should be taken to ensure that double counting of raw material energy content is not done.

3.18
functional unit
quantified performance of a product system for use as a reference unit

3.19
impact category
class representing environmental issues of concern to which LCI results may be assigned

3.20
impact category indicator
quantifiable representation of an impact category

NOTE The shorter expression **3.19 category indicator** is used in the text of this International Standard for improved readability

3.21
input
material or energy, which enters a unit process

NOTE Materials may include raw materials and products