



SLOVENSKI STANDARD
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Packaging - Report on criteria and methodologies for life cycle analysis of packaging

Verpackung - Bericht über die Kriterien und Methodik von Ökobilanzen für Verpackungen

Emballage - Rapport sur les criteres et methodologies pour l'analyse du cycle de vie des emballages

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ICS:

13.020.60	Življenjski ciklusi izdelkov	Product life-cycles
55.020	Pakiranje in distribucija blaga na splošno	Packaging and distribution of goods in general

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en

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CEN REPORT

CR 13910

RAPPORT CEN

CEN BERICHT

November 2000

ICS

English version

Packaging - Report on criteria and methodologies for life cycle analysis of packaging

Emballage - Rapport sur les critères et méthodologies pour l'analyse du cycle de vie des emballages

Verpackung - Bericht über die Kriterien und Methodik von Ökobilanzen für Verpackungen

This CEN Report was approved by CEN on 20 April 2000. It has been drawn up by the Technical Committee CEN/TC 261.

CEN members are the national standards bodies of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

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

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Foreword

This European Standard has been prepared by Technical Committee CEN/TC 261 "Packaging", the secretariat of which is held by AFNOR.

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of an identical text or by endorsement, at the latest by May 2001, and conflicting national standards shall be withdrawn at the latest by May 2001.

This European Standard has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association.

This CEN report defines and describes how to apply Life Cycle Analysis (LCA) to packaging and distribution systems. The expression "Life Cycle Analysis", applied in the EU Packaging Directive, is in this report considered as identical to the concept of "Life Cycle Assessment" in the ISO 14040 standards.

The report has been prepared by the CEN Working group, CEN/TC 261/SC 4/WG 1/TG 1, which has been considering the aspects of life cycle assessment specific to packaging, in order to fulfil the "Mandate 200 rev.3 to CEN for Standardisation and a study related to packaging and packaging waste", requested by the EU Commission.

It has been decided to give this document the status of a CEN report. The report should be updated according to the development of ISO standards.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

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Introduction

Packaging is an integral part of modern society providing means for protection, presentation, information and distribution of products to industry, trade and consumers.

In 1994 the European Parliament and the European Council adopted a Directive on Packaging and Packaging Waste, covering all types of packaging placed on the market in the European Community and all packaging waste, whether used or released at the industrial, commercial, office, shop, service, household level or at any other level, regardless of the material used.

The Directive aims to harmonise national measures concerning the management of packaging and packaging waste in order to, on the one hand, prevent any impact thereof on the environment of all Member States, as well as of third countries, or to reduce such impact, thus providing a high level of environmental protection, and, on the other hand, to ensure the functioning of the internal market and to avoid obstacles to trade, and the distortion and restriction of competition within the European Community.

Article 10 of the Directive states that the European Commission shall promote, in particular, the preparation of European standards relating to, among others :

¾ criteria and methodologies for life-cycle analysis of packaging.

The present report covers the work of CEN to meet that requirement.

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1 Scope

The scope of this CEN report is to establish a set of best practice guidelines for undertaking those aspects of life cycle assessment specific to packaging and distribution systems.

2 Normative references

This Report incorporates, by dates or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed here after. For dated reference, subsequent amendments to or revisions of any of these publications apply to this Report only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred applies.

ISO 14040, 1997 *Environmental management - Life cycle assessment - Principles and framework*.

ISO 14041, 1998 *Environmental management - Life cycle assessment - Goal and scope definition and inventory analysis*.

ISO/DIS 14042:2000, *Environmental management - Life cycle assessment - Life cycle impact assessment*.

ISO/DIS 14043:2000, *Environmental management - Life cycle assessment - Life cycle interpretation*.

ISO/CD 14048 : 2000, *Environmental management - Life cycle assessment - LCA data documentation format*.

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3 Terms and definitions

For the purpose of this Report the following definitions apply :

This section defines the LCA and packaging specific terms used in this report. The LCA terms are based on definitions given in the ISO 14040 standard, and the packaging terms are based on definitions in the European Parliament and the Council Directive on Packaging and Packaging Waste (94/62/EC) unless stated otherwise.

3.1

life cycle assessment (LCA)

compilation and evaluation of the inputs, outputs and the potential environmental impacts of a product system throughout its life cycle

3.2

life cycle inventory analysis (LCI)

phase of life cycle assessment involving the compilation and quantification of inputs and outputs, for a given product system throughout its life cycle

3.3

life cycle impact assessment (LCIA)

phase of life cycle assessment aimed at understanding and evaluating the magnitude and significance of the potential environmental impacts of a product system

3.4

life cycle interpretation

phase of life cycle assessment in which the findings of either the inventory analysis or the impact assessment, or both, are combined consistent with the defined goal and scope in order to reach conclusions and recommendations

3.5

packaging

all items made of any materials of any nature to be used for the containment, protection, handling, delivery and presentation of goods, from raw materials to processed goods, from the producer to the user or the consumer

NOTE In this report the goods are referred to as "packed product" or just "product", in order to distinguish it from the packaging.

3.6**sakes packaging or primary packaging**

packaging conceived so as to constitute a sales unit to the final user or consumer at the point of purchase

3.7**grouped packaging or secondary packaging**

packaging conceived so as to constitute at the point of purchase a grouping of a certain number of sales units whether the latter is sold as such to the final user or consumer or whether it serves only as a means to replenish the shelves at the point of sale. It can be removed from the product without affecting its characteristics.

3.8**transport packaging or tertiary packaging**

packaging conceived so as to facilitate handling and transport of a number of sales units or grouped packaging in order to prevent physical handling and transport damage. Transport packaging does not include road, rail, ship and air containers.

3.9**used packaging**

packaging or packaging material remaining after the removal of the product it contained

3.10**distribution system**

necessary physical arrangements (packing, storage, transport and merchandising) to bring a product from its manufacturing stage, to its final stage of consumption/use

3.11**collection system**

necessary physical arrangements (sorting, collecting, transport and storage) to bring used packaging from the point of consumption to the point of reuse, recovery or final disposal

3.12**functional unit of packaging**

quantified performance of a product system of packaging, for use as a reference unit in a LCA study

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4 Criteria and methodology for life cycle assessment of packaging

According to ISO 14040, a LCA shall include the following phases: definition of goal and scope, inventory analysis, impact assessment and interpretation of results, as illustrated in figure 1, below.

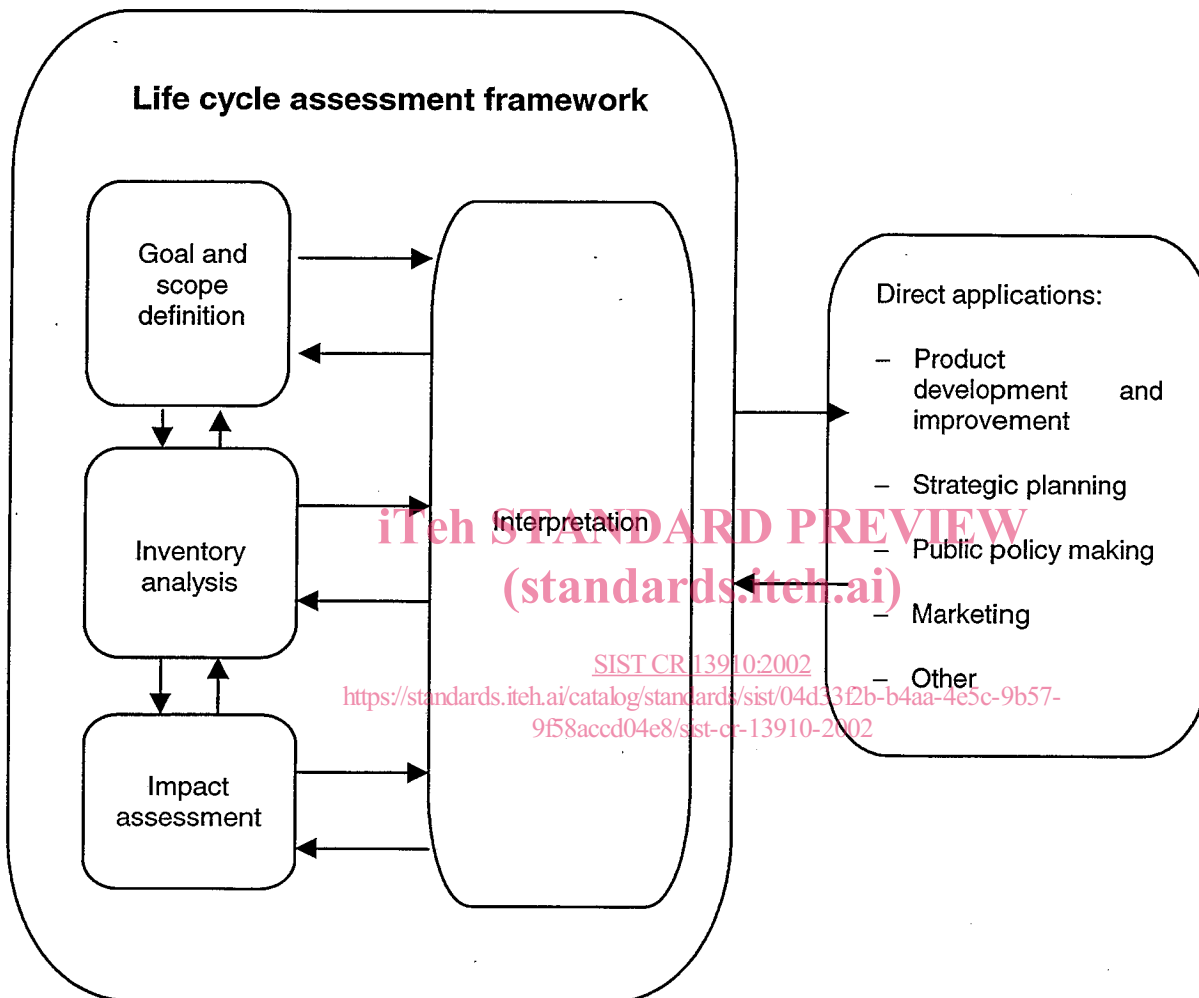


Figure 1 - Phases of a LCA

4.1 Goal and scope definition

The goal and scope of a LCA study of packaging shall be clearly defined, documented and consistent with the intended application. As illustrated in fig. 1 above, the goal and scope definition should be used as a reference all through the study, and in the reporting of the results.

When defining the goal and scope of a LCA study of packaging, the following comments on how packaging is actually used have to be taken into account.

Packaging is always used to pack products, resulting in a strong link between the life cycle of packaging and the packed product. Packaging is used to facilitate handling and transportation through the logistic chain, to protect the product, and to give relevant information. This means that for example closures, labels and printing inks have to be taken into account

Packaging is one component of a distribution system. A change of packaging will therefore often causes changes in this system, resulting in changes in resource consumption, emissions and hence in the environmental impact of the