



ECOSIGN

Basic Concepts on Ecodesign

UNIT 9: Ecodesign in the Environmental Management



Objectives

- Identify the ISO standard 14006.
- Identify the different stages of the ecodesign process according to the ISO standard 14006 to implement an ecodesign environmental management.

9.1 Introduction

- In 2000 companies demanded that an independent body issued a certifiable standard for the environmental management of design.
- Interested parties worked in a standard to encompass the environmental management variable of design and the development of products.
- AENOR promoted the development of the standard UNE 150301.

STANDARD UNE 150301:2003. ENVIRONMENTAL MANAGEMENT OF DESIGN AND DEVELOPMENT PROCESS. DESIGN FOR ENVIRONMENT.

- A few years later, AENOR suggested the development of an international standard motivated by the increasing demand of companies to certify ecodesign.
- The workgroup was established “ISO/TC 207/SC 1/WG 4” and in 2011 standard ISO 14006 was approved and published.

STANDARD ISO 14006:2011. ENVIRONMENTAL MANAGEMENT SYSTEMS. GUIDELINES FOR INCORPORATING ECODESIGN.



Assisting tool for the Environmental Management of Design

9.1 Introduction

OBJECTIVES OF THE STANDARD ISO 14006

Establish a systematic methodology



To guarantee the continual environmental improvement in the design process and the development of products/services.

Approach based on the all stages of the life cycle of the product/service



Environmental aspects and impacts related to each one of them.

Facilitate communication for companies to show their environmental performance



Through an issued certificate accrediting the compliance of the requirements demanded.

Raise awareness in the market and society on the environmental impact



Environmental impacts that products/services generate.

9.2 Requirements of Standard ISO 14006:2011

9.2.1 Structure of Standard ISO 14006

- The structure of the standard ISO 14006 is based on the quality management system (ISO 9001:2008) and environmental management system (ISO 14001:2004).
- The standard was posed this way to ease the incorporation of itself in the mentioned management systems.

Currently the standard ISO 14006:2011 matches no more the versions in force for the standards ISO 9001:2015 and ISO 14001:2015, since they present now the so called “high level structure”.

“To incorporate the requirements of ISO 14006, correlation tables of clauses from the in force standard with the annulled ones can be considered”.

Clauses of the standard ISO 14006

General

1. SCOPE
2. NORMATIVE REFERENCES
3. TERMS AND DEFINITIONS

Requirements

4. ROLE OF TOP MANAGEMENT IN ECODESIGN
5. GUIDELINES FOR INCORPORATING ECODESIGN INTO AN EMS
6. ECODESIGN ACTIVITIES IN PRODUCT DESIGN AND DEVELOPMENT

9.2 Requirements of Standard ISO 14006:2011

9.2.2 Key Requirements of ISO 14006

THE APPROACH OF THIS STANDARD IS FUNDAMENTALLY BASED ON THE FOLLOWING CONCEPTS:

- **CONTINUAL IMPROVEMENT:** “PDCA Cycle or Deming Cycle”.

PLAN, DO, CHECK AND ACT

Continual improvement of the implemented management system, pursuing the improvement of environmental impacts generated by products and services.

Unit 8 video: “La mejora continua en los sistemas de gestión”.

- **LIFE CYCLE:** Consider environmental aspects related to each stage of the life cycle of a product/cycle, not only from the manufacturing stage.
- **PREVENTION:** Prevent impacts from a product or service promoting its minimisation since the design stage.

9.2 Requirements of Standard ISO 14006:2011

9.2.2 Key Requirements of ISO 14006

CLAUSE 4. ROLE OF TOP MANAGEMENT IN ECODSIGN

In this clause, the potential benefits of ecodesign are explained and the strategic issues for the business and management are considered.

■ BENEFITS OF ECODSIGN:

- Economic: competitiveness increase, costs reduction and funding/investment raising.
- Innovation and creativity promotion, identification of new business models.
- Legal responsibility reduction.
- Improvement of the public image of the organisation and/or brand.
- Increase of the workforce motivation.

9.2 Requirements of Standard ISO 14006:2011

9.2.2 Key Requirements of ISO 14006

CLAUSE 4. ROLE OF TOP MANAGEMENT IN ECODESIGN

Top management comprises two kind of tasks to secure that ecodesign is implemented in the organisation: to consider the “strategic aspects of ecodesign” and “management of internal processes”, once the ecodesign strategy and approach are established.

STRATEGIC ASPECTS OF ECODESIGN

refers to:

- Incorporating ecodesign into all operations of the organisation.
- Allocation of resources (human, technical and financing).
- Establishing objectives for environmental performance.
- Promoting innovation and new business models.

MANAGEMENT OF INTERNAL PROCESSES

includes:

- Incorporation and implementation of the chosen strategy into all relevant procedures, programmes and planning.
- Securing a multidisciplinary approach
- Involving the entire value chain (suppliers, after-sales, service providers, recyclers).
- Promoting communication in two directions, in the internal and external value chain.

9.2 Requirements of Standard ISO 14006:2011

9.2.2 Key Requirements of ISO 14006

CLAUSE 5. GUIDELINES FOR INCORPORATING ECODESIGN INTO AN EMS

This clause requires the treatment of ecodesign as an integral part of an Environmental Management System (EMS) according to the requirements of the standard ISO 14001. The designed process and product development are required to be included in the EMS scope.

- **ENVIRONMENTAL POLICY:** Framework for reviewing environmental objectives and targets. In alignment with significant environmental impacts throughout the life cycle of products. Commitment to comply with applicable legal requirements and with other requirements, with continual improvement of the ecodesign process and environmental performance.
- **ENVIRONMENTAL ASPECTS AND ITS ASSESSMENT:** Identify and evaluate environmental aspects should explicitly include the life cycle of the product, that may have a significant impact on the environment, that can be controlled or influenced by the organisation. Significant aspects must be considered in setting this environmental objectives.
- **LEGAL AND OTHER REQUIREMENTS AND ITS ASSESSMENT:** Identify the requirements related to the environmental aspects of its products throughout its LC. Compliance with requirements must be periodically checked and records on the results must be kept.
- **OBJECTIVES, TARGETS AND PROGRAMMES:** Objectives should be focused on the improvement of the environmental impact of the products throughout their life cycle. Types of objectives: “HORIZONTAL” (applicable to all types of products), product-“SPECIFIC” and “RELATED TO THE ECODESIGN PROCESS”.



9.2 Requirements of Standard ISO 14006:2011

9.2.2 Key Requirements of ISO 14006

CLAUSE 5. GUIDELINES FOR INCORPORATING ECODESIGN INTO AN EMS

IMPLEMENTATION AND OPERATION

- **Resources, roles, responsibility and authority:** To define all of them involved in a product design and development process, including also other functions of the organisation that could collaborate in the improvement of the environmental performance of the product.
- **Competence, training and awareness:** The organisation should ensure that any persons:
 - are aware of, and have knowledge of, environmental aspects and impacts related to products throughout their life cycle.
 - have, or should have access to, competence in applying methodologies and tools for the identification and evaluation of environmental aspects of products and for the identification of environmental improvement strategies.
- **Communication:**
 - Internal, information related to environmental performance.
 - External, to develop solutions to minimise environmental impacts.
 - The necessary actions to improve environmental performance (e.g. guidance on use, maintenance and end-of-life).
- **Documentation and control:** Documents and records necessary to ensure the effective planning, operation and control of processes. Approve, update and control the validity and distribution.
 - Document the environmental policy, objectives and targets, the scope of the EMS, interaction and reference of main elements to related documents.

9.2 Requirements of Standard ISO 14006:2011

9.2.2 Key Requirements of ISO 14006

CLAUSE 5. GUIDELINES FOR INCORPORATING ECODSIGN INTO AN EMS

■ Operational control:

- Procedures must be documented to incorporate ecodesign to the design and development process.
- standard follows the method described in **ISO 9001: 2008**
- Communicate applicable procedures and requirements to suppliers.

■ Emergency and preparedness and response: To

- identify potential emergency situations and potential accidents that can have an impact(s) on the environment and how to respond to them.
- periodically review them and, when necessary, modify them.

DESIGN AND DEVELOPMENT

The environmental aspect is incorporated to all stages.

Criteria to be used are determined as well as environmental responsibilities and authorities.

Stages of design and development:

- Design and development planning.
- Design and development inputs.
- Design and development outputs.
- Design and development review.
- Design and development verification.
- Design and development validation.
- Control of design and development changes.

9.2 Requirements of Standard ISO 14006:2011

9.2.2 Key Requirements of ISO 14006

CLAUSE 5. GUIDELINES FOR INCORPORATING ECODESIGN INTO AN EMS

CHECKING

- **Monitoring and measurement:** should include information needed to assess conformity with the objectives and targets related to the ecodesign process and with the environmental impact of its products throughout their life cycle.
- **Nonconformity, corrective action and preventive action:** identify and correct nonconformity(ies) and taking action(s) to mitigate their environmental impacts. Record of the results of information, corrective action(s) and preventive action(s) taken.
- **Control of records:** established, implemented and maintained procedure(s) for identification, storage, protection, retrieval, retention and disposal of records.
- **Internal audit:** of the EMS are conducted at planned intervals to determine whether the EMS conforms to planned arrangements and the standard. To address the responsibilities and requirements for planning and conducting audits, reporting results and retaining associated records.

MANAGEMENT REVIEW:

- Top management shall review the organisation's EMS, at planned intervals to ensure its continuing suitability, adequacy and effectiveness.
- Shall include assessing opportunities for improvement and the need for changes to the system, including the policy, objectives and targets. Records of top management reviews shall be retained with any decisions and actions related to reviewed issues.



9.2 Requirements of Standard ISO 14006:2011

9.2.2 Key Requirements of ISO 14006

CLAUSE 6. ECODESIGN ACTIVITIES IN PRODUCT DESIGN AND DEVELOPMENT

This clause addresses ecodesign considered in product design and development.

■ **THINKING:**

- Life cycle thinking,
- Objective: minimise the overall adverse environmental impact
 - identifying, qualifying and, where feasible, quantifying the significant environmental aspects of the product
- Considering the trade-offs between environmental aspects and between different life cycle stages

■ **ECODESIGN PROCESS.** The following steps should be carried out:

- To specify the functions of the product,
- to define significant environmental parameters
- to identify relevant environmental improvement strategies
- to develop environmental objectives/targets based on the improvement strategies
- to establish a product specification
- to develop technical solutions to meet the environmental objectives/targets while taking into account other design considerations

9.2 Requirements of Standard ISO 14006:2011

9.2.2 Key Requirements of ISO 14006

CLAUSE 6. ECODESIGN ACTIVITIES IN PRODUCT DESIGN AND DEVELOPMENT

- **ENVIRONMENTAL ASSESSMENT OF PRODUCTS:** There are various analysis methods and tools available, the choice depends on the organisation's strategy, type of product, expertise, time and budget.
- **ANALYSIS OF INTERESTED PARTIES' ENVIRONMENTAL REQUIREMENTS:** As an initial step in ecodesign, the relevant legal and other interested parties' requirements should be understood. These requirements help set the basic framework within a product is developed.
- **VALUE CHAIN INVOLVEMENT:** Organisations in the value chain should cooperate and communicate information on their product or product category to achieve ecodesign objectives.
- **ECODESIGN REVIEW:** Environmental considerations should be integrated into the design review.
 - The organisation should conduct the review to evaluate whether the product has met the targets defined in the environmental product specification whenever a major design phase is completed.
 - When the product's environmental targets are not met, improvement actions should be assigned.
 - Maintaining records of the design reviews.
 - The organisation may conduct further product reviews after market launch to consider feedback from users and other interested parties, as well as additional environment related knowledge. The results will then be incorporated into ecodesign (continual improvement).

9.2 Requirements of Standard ISO 14006:2011

9.2.3 ISO 14006 Standard Certification

- Once the EMS has been implemented, the organisation is in position to certify the system.

→ Contact with an accredited verification body:

AENOR, BVQi, SGS, ...

To perform the certification audit and check that the requirements of ISO 14001 are met.

- Certification audit by a third party. Checking that the ISO 14006 requirements are met on the implemented EMS.
- Issue of the corresponding “ISO 14006 Certification” when the result is satisfying.
- Dissemination of the certification, communication to the interested parties: (customers, suppliers, society, etc.).



Thank you for your attention

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