enea

Environmental Memory - FOLIO

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Index

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1. General information

Product: FOLIO
Designer: JOSEP LLUSCÁ

2. Enea with the environment

ENEA started in 1984 focused to manufacture and market contemporary design furniture. During all these years it had an excellent evolution, with an important presence in the world market furnishing lots of unique buildings in the hands of renowned architects.

The company, in the manufacture of its products, shows its concern for the natural environment through a philosophy of design and production where the following environmental criteria are taken into account:

- **Simplicity:** during the design process seeks to minimize the number of components, achieving a perfect interplay between them.

- **Recycling and reuse:** design seeks the use of recyclable and recycled materials for their manufacture, as well as easy removal that would facilitate the recycling and reuse.

- **Use of non-dangerous materials:** ENEA also works to reduce and replace the use of dangerous materials or negative for the environment. For example, using epoxy paints that are free from solvents and compounds volatile organic harmful.

ENEA uses a few production processes of high technology, in addition to an intense process of research and adaptation of materials to the needs of use. Various processes have been submitted from the beginning to a rigorous policy of quality, what has led to the company to be one of the first Spanish companies, manufacturers of furniture design, in obtaining the **ISO 9001 quality certification** and certificate of the **system of management of ecodesign**, awarded by AENOR, complies with the **UNE-EN ISO 14.006** and the certificate of the system of environmental management according to the **quality certification UNE-EN ISO 14001**.

All these processes, controls and selection of materials, guarantee the high quality of the products of ENEA, both in strength and durability as its finish, but with the commitment to achieve all this, taking into account the environment, framed within sustainable development. The objective is always meet current needs without compromising future resources.

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3. FOLIO, aspects of environmental innovation.

The Folio table has been specially designed to provide versatile and demanding solutions in the field of contract, because its design, detachable, foldable, stackable, can meet any need in different areas (meeting rooms, training kitchens, libraries, operational offices, conference rooms, etc.) as well as multifunctional spaces so prevalent in business, government agencies, schools or universities, allowing to create multiple compositions easily.

The table structure is composed of steel tubes painted or chromed and feet in cast aluminium, while the tops are rectangular melamine with optional customizable three-dimensional edges made in different widths between 1200 and 1800 mm. and depths between 600, 670 and 800mm.

The system is completely secure because, the contact of the table with the floor is only by gliders, which ensures high stability and settlement.

During the process of design, production, editing and marketing of FOLIO tried to minimize the number of components in the seat, as well as reduce and replace the use of dangerous materials or negative environment.

3.1. Product specifications

MATERIAL	Kg.	%
	P R O D U C T	
Steel	3,9	15
Aluminium	3.74	14.3
Chipboard	13.91	43.4
Plastic Materials	0.70	2.7
Others	0.13	10.4
	PACKING	
Plastic Bubble (PE)	0,11	0.4
Foam (PE)	0.04	0.2
PUR	0,1	0.4
Cardboar	3.44	13.2

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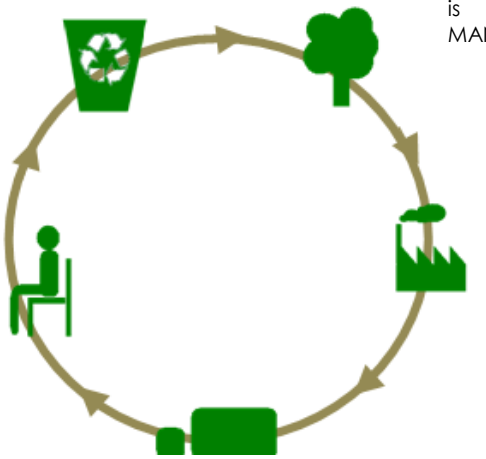
3.2. FOLIO life´s cycle.

At the end of life stage referred to different final destinations of the materials that make up the product.

This phase takes into account the transport of materials from their place of origin and have suffered some kind of transformation. For the calculation is included in the phase of MANUFACTURE.



In the phase of use does not need any special maintenance, clean with soap and water, and estimating the useful life of a chair of this type in 10 years, these materials will be negligi ble compared to the other in the Analysis of the Life Cycle, so it is not included the use phase in LCA.

At this stage are recorded the Transformation that take place in the purchased raw materials to give rise to the product that ENEA offers.

This phase takes into account both packing nee ded to transport the product as the transport of the product itself. For the calculation is divided in two stages PACKING and TRANSPORT.

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3.3. Environmental impacts.

Enea uses environmental software LCAManager, which allows obtaining values for different categories of environmental impacts using various methodologies.

In **FOLIO** we have calculated values for impacts according to the metodologia

- **CML2011:** Impact calculation methodology developed by the Centre of environmental sciences of the University of Leiden-Holanda..
- **Ecoidicador95:** Dutch Ecodesign methodology defined PRE CONSULTANTS. Provides unique value added categories of environmental impact (Goedkoop, 1995).
- **Ecoidicador99:** Dutch ecodesign methodology defined PRE CONSULTANTS. Provides unique value added categories of environmental impact (Goedkoop and Spriensmaa, 1999).

Category	Metodology	Total Value
Climate change (kg CO2 eq.)	CML 2001	3,88E+01
Acidification (kg SO2 eq.)	CML 2001	3,73E-06
Destruction layer ozone (kg CFC-11 eq.)	CML 2001	1,53E-01
Photochemical oxidants (kg ethylene eq.)	CML 2001	1,11E-02
Eutrophication (kg NOx eq.)	CML 2001	1,43E-01
TOTAL (points)	Eco indic.99	1,25E-03

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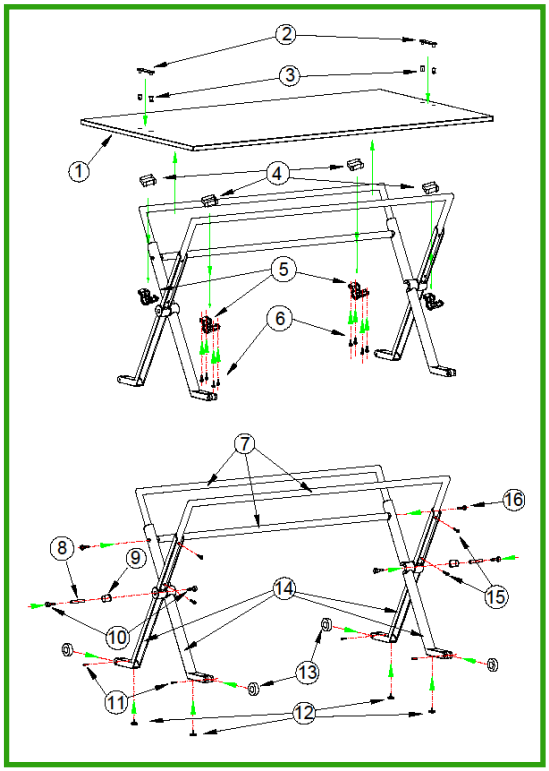
3.4. Instructions for end-of-life of the product



COMPONENT	MATERIAL	TARGET END OF LIFE
1	Chipboard+Melamine	Recycable
2	PP	Recycable
3	PP	Recycable
4	PP	Recycable
5	PP	Recycable
6	Steel	Recycable
7	Steel	Recycable
8	Steel	Recycable
9	Nylon 6	Incineration
10	Steel	Recycable
11	Steel	Recycable
12	Nylon 6 + Steel	Nylon, incinetarion and Steel, recycable
13	Nylon + Steel+ Rubber	Incineration
14	Aluminium	Recycable
15	Steel	Recycable

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3.5. Additional environmental information

- The product is suitable for reuse.
- The foams have not been manufactured with CFC or HCFC
- All plastic parts weighing more than 50g are marked according to ISO 11469 facilitating their classification for recycling.
- ENEA guarantees the availability of pieces at least 5 years, which avoids their remove and allows you to continue to use with minimal impact when compared with the manufacturing of a new chair.
- The 100% of the steel used is recycled.
- Approximately 10 percent of the plastic used is recycled.
- The materials used are 100% recyclable at the end of its useful life.
- The packaging is made of easily separable materials.
- The paints and lacquers used do not contain aromatic solvents or carcinogenic substances harmful to the reproductive system, mutagenic, toxic or allergenic according to Directive 1999/45/EC.
- The used plastic items do not contain heavy metals and phosphates.
- The waste generated is removed by authorized waste management enterprises.

Eco-design criteria

Diseño Design for the expansion of functions, multifunctionality, modularity and stackable, despite its apparent simplicity.

Design for reuse and recycling, ensuring easy removal and the use of recyclable and recycled materials.

Design for the reduction of use of materials, specially dangerous for human health and the environment.

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