

Environmental Product Declaration



Index

page

ENVIRONMENTAL COMMITMENT	2
XOKO CENTRAL LEG STOOL FULLY UPHOLSTERED	3
Product Description	
Product Specifications	
DISTRIBUTION OF THE EMISSIONS FOR THE RELEVANT LIFE CYCLE STAGES	4
Atmospheric Emissions	
Water Emissions	
WASTE & PRODUCT RECYCLABILITY	5
Waste	
Dismantle and Unpackaging Instructions	
Recyclability Percentage	
DISTRIBUTION OF THE ENVIRONMENTAL IMPACT CATEGORIES FOR THE RELEVANT LIFE CYCLE STAGES	6
Considered Environmental Impact Categories	
Environmental Impact Categories Assessment	
CONTRIBUTION TO THE LEED SYSTEM	7
ADDITIONAL ENVIRONMENTAL INFORMATION	8
BIBLIOGRAPHY & REFERENCES	8

Environmental Commitment

Akaba was established in 1986 by three partners who, with more enthusiasm than economic means, decided to get together in order to create a furniture company that had four main goals: design, internationality, corporate image and the creation of new jobs.

AKABA, S.A. is a company sensitive to environmental issues and is consequently committed to comply with different environmental standards. As a result, AKABA S.A. is involved in a continuous process of revision and improvement of the Control and Management of its activities.

The implementation of an environmental management system is a strategic and competitive challenge accepted by our company, resulting from the firm commitment accepted by AKABA S.A. with society to take care of the environment. The main principles of this challenge are:

- To design products and processes that minimize the consumption of raw material and the rational use of resources as well as to re-use or recycle waste.
- To reduce air, water and soil pollution adopting preventive measures to avoid environmental accidents.
- To be aware of and to comply with the Legislation and Regulations related to the environment and that affect the activities of AKABA, S.A.



XOKO Stool

Product Description

Stool program for collaborative spaces, central leg powdercoated. Seat in one piece, injected in polyurethane fully upholstered

Note: Any variation on the characteristics of this chair may have a non-significant influence on the aspects included in this statement.

Product Specifications

XOKO Stool is composed by the following materials:

Material	Weight (kg)	%
Metal		
Aluminium	0,555	3,67
Steel	14,675	96,33
Plastic		
PE	0,080	6,13
ABS	0,009	0,65
PUR	1,200	91,99
Other plastics	0,018	1,23
Others		
Textil	0,437	6,75
Carboard	3,773	58,28
Others	2,264	34,97



NOTE: the functional unit used in this study is that of a chair with 10 years duration, used as a seat.

All these outcomes refer to a product unit, that means the product and its packaging.

Data here indicated may have non-significant deviations due to tolerances of materials or of different finishes

Distribution of the Emissions for the Relevant Life Cycle Stages

Atmospheric Emissions

Atmospheric Emissions	Production	Transport	Disposal	Total
Carbon Dioxide (CO ₂)	29,72	14,21	-23,37	20,56
Carbon Monoxide (CO)	0,53	0,06	-0,17	0,42
Nitrous Oxide (N ₂ O)	4,39E-04	1,74E-04	-2,16E-04	3,97E-04
Dioxins	1,46E-09	3,99E-15	1,46E-11	1,47E-09
Hydrofluorocarbons (HFC)	2,07E-03	4,16E-05	3,51E-04	2,46E-03
Heavy Metals	3,73E-05	4,35E-05	3,35E-05	1,14E-04
Methane (CH ₄)	0,02	0,01	-0,09	-0,06
Nitrogen Oxides (NO _x)	0,18	0,26	-0,02	0,41
Non-Methane Volatile Organic Compounds (NMVOC)	0,01	0,04	-0,01	0,04
Sulfur Oxides (SO _x)	0,08	0,01	-0,06	0,03

Units in Kg.

Water Emissions

Water Emissions	Production	Transport	Disposal	Total
Dioxins	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Nitrates	5,19E-03	7,38E-05	-5,06E-03	2,01E-04
Phosphates	9,41E-04	7,93E-06	-9,66E-04	-1,76E-05
Sulfates	4,25E-02	2,47E-03	-6,19E-02	-1,69E-02

Units in Kg.



Life Cycle Stages



Production

This stage includes raw materials extraction and transformation, purchased parts, as well as production and assembly processes.



Transport

All the movement of materials and energy in all the life cycle of the product, like transport from suppliers to AKABA's factory in Usurbil, and transport from AKABA to Spanish and Major European markets.



Use

This stage refers to the life of the product from the moment in which it is distributed, until it turns into a waste product. Not relevant environmental exchanges occur during use of the product.



Disposal

Refers to the different ways in which the residuals can be managed and disposed. A product can be landfilled, recycled or incinerated at the end of its useful life.

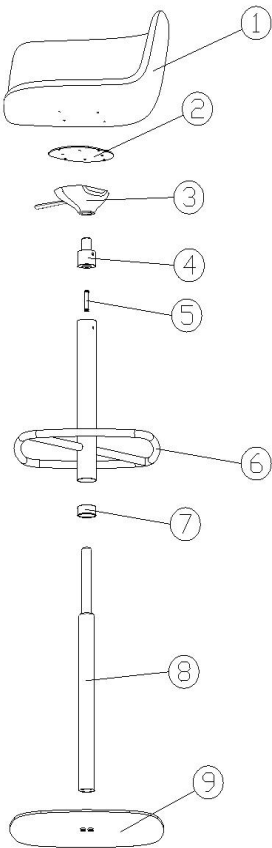
Waste & Product Recyclability

Waste

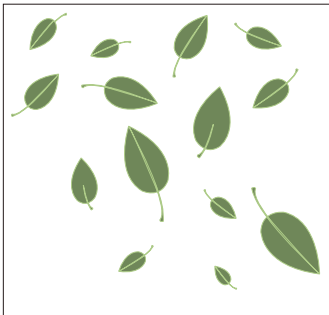
Component	Material	Weight (kg)	Disposal
XOKO STOOL			
1 Upholstered seat	Others	4,135	Landfill
2 Loop sheet	Steel	0,612	Recycling
3 Mechanism	Aluminium	0,554	Recycling
4 Piston adaptor	Steel	0,646	Recycling
5 Piston adaptor axle	Steel	0,046	Recycling
6 Foot suport assembly	Steel	2,403	Recycling
7 Assembly cap support feet	ABS	0,009	Recycling
8 Hydraulic piston	Others	2,264	Landfill
9 Base column	Steel	8,267	Recycling
Screws	Steel	0,089	Recycling
PACKAGING			
Packing box	Carboard	3,773	Recycling
Packaging bag	PE	0,08	Recycling

Dismantle and unpackaging instructions

Dismantling XOKO Stool is easy and can be done with common hand tools such as screwdrivers, allen screws, etc



Recyclability percentage



XOKO Central Leg Stool fully Upholstered is

72%

recyclable

Distribution of the Environmental Impact Categories for the Relevant Life Cycle Stages

For evaluating the impact of the XOKO Stool life cycle, we used the calculating CML baseline2000 Method, developed by the Environmental Studies Centre (CML) at Leiden University, Holland.

Environmental Impact Categories Assessment

Impact Categories	Units	Production	Transport	Disposal	Total
Global Warming	kg CO2 eq	31,15	14,57	-19,53	26,19
Ozone Layer Depletion	kg CFC-11 eq	4,71E-06	6,27E-06	-3,48E-06	7,50E-06
Acidification	kg SO2 eq	0,33	0,27	-0,08	0,51
Eutrophication	kg PO4 eq	0,03	0,03	0,00	0,06
Photochemical ozone	kg C2H4	0,06	0,01	-0,01	0,06
Abiotic Depletion	kg Sb eq	0,32	0,09	-0,15	0,27



Considered Environmental Impact

Global Warming, GWP

Some of the gases in the earth's atmosphere (in particular water vapour and carbon dioxide) have an ability to absorb infrared radiation. They do not prevent sunlight reaching the earth's surface, but they do trap some of the infrared radiation emitted back into space causing an increase in the surface temperature. Global Warming Potential, GWP100, translates the quantity of emission of gases into a common measure to compare their contributions - relative to carbon dioxide - to the absorption of infrared radiation in 100 years perspective.

Ozone Layer Depletion

Ozone forms a layer in the stratosphere protecting plants and animals from much of the sun's harmful UV-radiation. The ozone levels have declined as a consequence of CFCs and halons released into the atmosphere. A depletion of the ozone layer will increase the UV-radiation at ground level. Ozone depletion potential translates the quantity of emission of gases into a common measure to compare their contributions - relative to CFC-11 (a Freon) - to the breakdown of the ozone layer.

Acidification

Acidification originates from the emissions of sulphur dioxide and oxides of nitrogen. In the atmosphere, these oxides react with water vapour and form acids which subsequently fall down to the earth in the form of rain or snow, or as dry depositions. Acidification potential translates the quantity of emission of substances into a common measure to compare their contributions to the capacity to release hydrogen ions.

Eutrophication

Nutrients (mainly nitrogen and phosphorus) from sewage outfalls and fertilised farmland accelerate the growth of algae and other vegetation in water. The degradation of organic material consumes oxygen resulting in oxygen deficiency and fish kill. Eutrophication translates the quantity of emission of substances into a common measure expressed as the oxygen required for the degradation of dead biomass.

Photochemical Ozone

Photochemical ozone or ground level ozone is formed by the reaction of volatile organic compounds and nitrogen oxides in the presence of heat and sunlight. Ground-level ozone forms readily in the atmosphere, usually during hot summer weather. Photochemical ozone creation potential translates the quantity of emission of gases into a common measure to compare their contributions - relative to ethylene - to the formation of photochemical oxidants.

Abiotic Depletion

Is the depletion of non-renewable resources such as oil, coal and retails due to their extraction and consumption. This category includes abiotic resources and energy.

Contribution to the LEED system

LEED (Leader in Energetic Efficiency and Sustainable Design) is a system of Sustainable Classification of Buildings made by the US Green Building Council.

Its mission is "Transform and build buildings and communities so that they have been designed, produced and built with an environmental vision and socially responsible so as to contribute to a better life quality".

The XOKO Stool thanks to the process followed in its design, material election and durability, contributes to get points in the credits of the LEED classification system.



ENVIRONMENTAL DATA

LEED NC & CI Materials and Resources

Points

Credit 2.1 Construction Waste Management

Implement a planning of waste management. This point will be applicable when there is at least a 50% of recycle/recuperation of the construction waste, demolition and packaging. The packaging of the XOKO Stool is easily segregated and 100% recyclable.

1 point

Credit 2.2 Construction Waste Management

Implement a planning of waste management. This point will be applicable when there is at least a 75% of recycle/recuperation of the construction waste, demolition and packaging. The packaging of the XOKO Stool is easily segregated and 100% recyclable..

1 point

Credit 4.1 Recycled Content

This point will be applicable when the recycled content such that the sum of post-consumer recycled content plus one-half of the post-industrial content constitutes at least 10% of the total value of the materials in the project.

1 point

Credit 4.2 Recycled Content

This point will be applicable when the recycled content such that the sum of post-consumer recycled content plus one-half of the post-industrial content constitutes at least 20% of the total value of the materials in the project.

1 point

Credit 5.1 Regional Materials

AKABA, S.A. is placed in Usurbil (Gipuzkoa), Spain.

This point will be applicable when the minimum of 20% of the combined value of construction and materials and products are manufactured regionally within a radius of 800 Km (500 miles).

1 point

Credit 7 Certified Wood

Encourage environmentally responsible forest management. When using a minimum 50 % that are certified in accordance with the FSC (Forest Stewardship Council's Principles and Criteria).

This point will depend on the different versions of the XOKO Stool.

1 point

ENVIRONMENTAL DATA

LEED CI Materials and Resources

Points

Credit 3.3 Resource Reuse

Use salvaged, refurbished or used furniture and furnishings for 30% of the total furniture and furnishings budget.

XOKO Stool is designed for a long life cycle and can be easily reused and an easy substitution of components and finishes.

1 point

General Environmental Information

- All plastics used are PP, PA 6, PE and PS, all classified as non hazardous. Also, the plastic parts that exceed more than 50 gr are marked so that they can be easily re-used or recycled, except where limited by shape of the components
- No chemical product is used that can cause harm in the workplace.
- The paint used is in powder, free of paint thinner.
- The painting process is done in a closed circuit automated installation which reduces water consumption and the release of powder into the atmosphere to a minimum.
- Wood is varnished in front of a waste absorbing wall constantly covered with water.
- No use of exotic wood, imported or endangered.
- All paper, cardboard, plastic and metallic waste is recycled.
- All hazardous waste is classified and sent to authorized waste dealers.

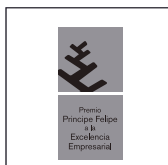
Bibliography & References

- Norma UNE 150025 IN: "Etiquetas ecológicas y declaraciones medioambientales. Declaraciones ambientales Tipo III." Febrero 2003. Equivalente a ISO/TR 14025:2000.
- Norma UNE-EN ISO 11469: " Plásticos. Identificación genérica y marcado de productos plásticos." Mayo 2001
- Requirements for Environmental Product Declarations, EPD, (MSR 1999:2) published by the Swedish Environmental Management Council at www.environdec.com
- PCR for preparing an environmental declaration for Seating, prepared by Lars Thortveit and Christofer Skaar at the Norwegian University of Science and Technology in accordance with ISO/CD 14025 and the Norwegian adaptation of this standard (NEPD 2004)
- LEED para Nueva Construcción Versión 2.2 y LEED para Remodelación de interiores Versión 2.0 (SPAIN GREEN BUILDING COUNCIL)



AKABA

AKABA, S.A. Atallu kalea 14- 20170 USURBIL
GIPUZKOA - SPAIN
Tel +34 943 37 22 11 Fax +34 943 37 10 52
www.akaba.net e-mail akaba@akaba.net



Akaba
Premio Príncipe Felipe a la
Excelencia Empresarial 2002

Akaba
Premio Nacional de Diseño 2000

AKABA XOKO STOOL