



ENVIRONMENTAL PRODUCT DECLARATION

ISO 14025

EN 15804



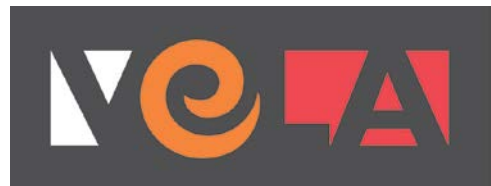
DECLARATION OWNER	Vermund Larsen A/S
ISSUE DATE	5.3.2016
VALID TO	6.8.2020

PRODUCT

Samba 400

MANUFACTURER

Vermund Larsen A/S



ENVIRONMENTAL PRODUCT
DECLARATION

ISO 14025

EN 15804

GENERAL INFORMATION

PRODUCT

Samba 400

DECLARATION TYPE

The intended use of the EPD is to communicate scientifically based information about the potential environmental impacts of Samba 400 to professional stakeholders (business to business).

PROGRAM OPERATOR

The EPD is not declared according to a program operator.

THIS DECLARATION IS BASED ON PRODUCT CATEGORY RULES:

BIFMA PCR for Office Furniture Workspace Products: UNCPC 3814, valid to August 6, 2020

DECLARED UNIT

One Samba 400 office chair.

OWNER OF THE DECLARATION

Vermund Larsen A/S

MANUFACTURER

Vermund Larsen A/S
Gøteborgvej 8-12
9200 Aalborg SV

ORG. NUMBER

52796628

PLACE OF USAGE

The World

ISSUE DATE

5.3.2016

VALID TO

6.8.2020

COMPARABILITY

This EPD was not written to support comparative assertions. EPDs based on different PCRs or different calculation models may not be comparable. When attempting to compare EPDs or life cycle impacts of products from different companies, the user should be aware of the uncertainty in the final results due to and not limited to the practitioner's assumptions, the source of data used in the study and the software tool used to conduct the study.

THE ENVIRONMENTAL PRODUCT DECLARATION IS PERFORMED BY:

Linda Høiby, COWI A/S

YEAR OF STUDY

2015

EXTERNAL VERIFICATION

No external and independent verification of the EPD has been performed.

EPD TYPE

This EPD includes all phases from cradle to gate.

KEY ENVIRONMENTAL INDICATORS ¹	UNIT	CRADLE TO GATE A1-A3
Global warming	kg CO ₂ -eq.	25.8
Energy use	MJ	393
Dangerous substances	-	-

PRODUCT

PRODUCT SPECIFICATION AND USAGE

The EPD describes results for production of the office chair called Samba 400 from Vermund Larsen A/S' production in Aalborg, Denmark.

The VELA Samba 400 is an office chair made for an ergonomic good sitting posture – focusing on the lumbar area. This chair is equipped with an ergonomic seat (width: 43 cm x length: 35 cm) that promotes an ergonomically correct and active sitting posture.

The seat is made of wood and covered with Phoenix upholstery – a fabric made from 100% polyester. The seat support is fitted with handles for adjustment of the sitting height and seat tilt.

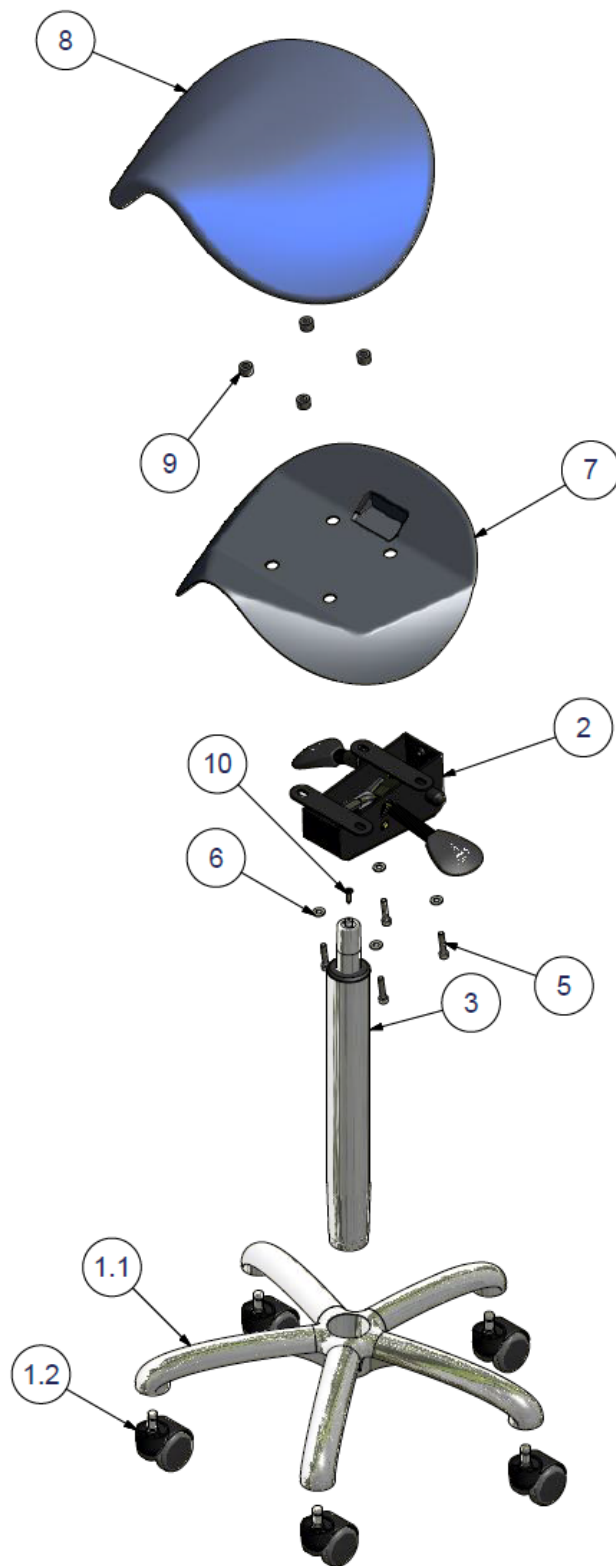
The sitting height is adjusted via a 300 Newton gas column, with 200 mm or 260 mm handling fitted in a chrome cover. The chair base is an aluminum frame (Ø50 cm) with five black 50mm soft twin castors.

The Samba 400 office chair can be tailor-made for the specific need of the costumers. These changes to the product are not included in this EPD.

PRODUCT DECLARATION

MAIN MATERIALS	%
Steel	37.8
Aluminum	17.1
Chromed steel	14.6
Wood	10.7
Polyurethane	8.4
Plastic PE-HD	7.5
Nylon	2.3
Polyester fabric	1.6

All materials used for Samba 400 office chair is included in the calculations including the packaging material which Vermund Larsen A/S uses before distributing the Samba 400 office chairs from Vermund Larsen A/S in Aalborg to costumers.



- 1. Frame with wheels
- 1.1 Frame without wheels
- 1.2. Wheel soft 50 mm
- 2. Seat support fitted with handles
- 3. Gasspring
- 4. Gasspring
- 5. Cylinder Head Cap Screw
- 6. Washer

- 7. Plastic cover
- 8. Saddle seat
- 9. Spacer
- 10. Wooden screw

TECHNICAL DATA

The technical data for the Samba 400 office chair can be found at www.vela.dk.

TESTS	TEST METHOD	RESULT
Fire test	EN 1021-1	Pass
Mechanical test	DS/EN 1335-1 DS/EN 1335-2 DS/EN 1335-3	Pass

The life time of Samba 400 office chair is not important to this EPD as the EPD is restricted to the phases A1-A3². Thus, the Reference Service Life (RSL) is not declared.

Vermund Larsen A/S provide guarantee of 10 years for the spare parts.

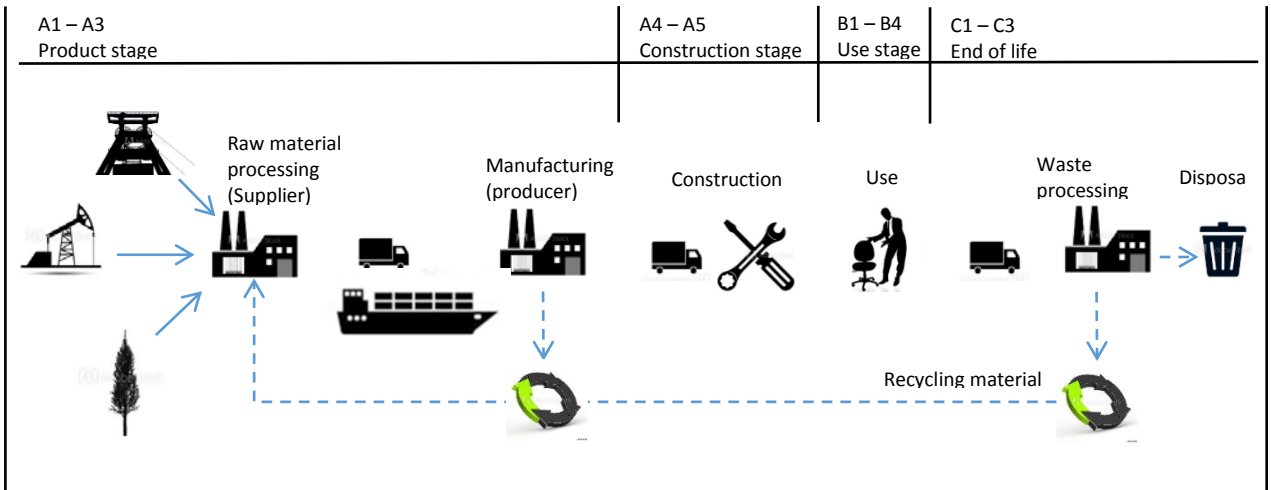
PROCESS DESCRIPTION

Vermund Larsen A/S is a 100% contract manufacturer. The production takes place in the following steps:

- The warehouse prints the mounting order and identification label for every single sales order and every single chair. (Identification label is used for subsequent traceability during the life time of the product).
- The warehouse picks components for assembly orders using a handheld scanner - and carts with all components for each order are brought to the assembly department.
- The upholstery workshop prints the mounting order for seats and back rests for the actual chairs.
- Foam is glued to the wooden span in the upholstery workshop - furniture textiles are cut according to various templates - and the seat and backrests are sewed according to different models. The warehouse picks the complete units (seats and backrests) from the upholstery workshop.
- The assembly workshop assembles the chairs according to the specifications on the productions order – with the delivered components.
- The assembly workshop carries out self-monitoring of each single chair to ensure that the features are according to the order – and the finish of the chair meet VELAs own quality standards.
- For every single chair photo documentation is made in the assembly workshop in a special photo-box. 7 pictures are taken in different fixed angles. The photos are combined with the identification number, for easy traceability with e.g. complaints.
- The department for packing and shipping will pick up the assembled chairs, and a 100% output control will be made – according to correct configuration, functionality and finish. If there is a fault, the chair returns to the technician who assembled the chair.
- The chairs are packed and marked according to instructions
- The production order is reported as finished and the sales order is booked – EDI-booking is sent to the shipping company
- The shipping company collect the chairs at VELA

The production flow is depicted in the figure below:

² See system boundary in section "LCA results". A1 includes raw materials, A2 transport from raw materials extraction to production site (at Vermund Larsen A/S in Aalborg, Denmark) and A3: production of the Samba 400 office chair at Vermund Larsen A/S in Aalborg, Denmark.



LCA: CALCULATION INFORMATION



The EPD is prepared according to the specification in EN15804 from 2013: Sustainability of construction works – Environmental product declarations – Core rules for the product category of construction products.

The calculations for the results in this EPD have been based on production data from 2015.

The background data derives from the LCA databases GaBi Professional and Ecoinvent v3.1. The calculations are based on the characterization model CML 2011 dated april 2013.

DECLARED UNIT

One Samba 400 office chair from Vermund Larsen A/S.

SYSTEM BOUNDARY

The system boundary of the EPD follows the modular structure in line with EN 15804. This section describes the modules, which are contained within the scope of this study. As the scope of the assessment is limited to cradle to gate of the manufacturing process, only modules A1-A3 have been considered in this LCA.

REFERENCE SERVICE SYSTEM (RSL)

The life time of the Samba 400 office chair is not important to this EPD as the EPD is restricted to the phases A1-A3. Thus, the Reference Service Life (RSL) is not declared.

CUT-OFF

All significant inputs and outputs to a (unit) process are included in the calculation.

All inputs, processes and activities within the product system boundaries defined in section “System Boundary” and any input of material greater than 1% of product inputs by mass for a unit process are taken into account.

The production of packaging material is used for the products received at Vermund Larsen A/S is not included.

Also, all energy input more than 1% of primary energy consumption contribution for a unit process are to be taken into account. The total omissions from a product stage (A1-A3) are assessed to be no more than 5% of product inputs by mass or 5% of primary energy contribution.

For those waste fractions which are reused, only the processes for reuse are included. The transport is estimated to be of minor importance and thus not included.

All emissions and their environmental impact contributing greater than 1% to the total are recorded according to EN 15804.

Particular care have been taken to include material and energy flows known to have the potential to cause significant emissions into air related to the environmental indicators of this EPD. Conservative assumptions in combination with plausibility considerations have been applied to comply with these criteria.

Production of capital equipment and machinery and infrastructure are not included in the assessment as they do not exceed the cut-off criteria set above.

ALLOCATIONS

The energy inputs, water input and waste generated has been quantified for the production at Vermund Larsen A/S in 2015. The distribution of the energy inputs, water input and waste generated for the four types of office chairs has been done by using an allocation key based on the time consumption for assembling the office chairs.

This allocation key is appropriate for this purpose as the only resources consumed at Vermund Larsen A/S is electricity, heating and water for the buildings where the office chairs are assembled.

The waste fractions are recycled or disposed of.

As this EPD only includes the phases A1-A3, the pre-consumer scenarios are not included in this EPD.

GEOGRAPHICAL COVERAGE AND TIME PERIOD

The Samba 400 office chair are produced in Aalborg, Denmark.

The input data related to the production site in Aalborg, Denmark, is from 2015.

The EPD for the Samba 400 office chair is valid from 5.3.2016 to 6.8.2020. The validation time is less than the typical time period of 5 years due to the fact that the BIFMA PCR for Office Furniture Workspace Products: UNCPC 3814 is valid only until 6.8.2020.

LCA: A1-A3 the product stage information module

The production phase (A1-A3) includes all materials, production of energy etc. including transport and treatment of secondary and waste materials. The LCA results have been provided in aggregated form for the production phase which means that the results from the phases A1-A3 are aggregated and can be considered a single module.

A1 – RAW MATERIAL SUPPLY

This module takes into account the extraction and processing of all raw materials and energy, which occur upstream to the studied manufacturing process.

The inputs are delivered from several suppliers to Vermund Larsen A/S.

The other main inputs are electricity, heating and water from the local and regional suppliers.

Waste fractions are either recycled or disposed of.

A2 – TRANSPORT TO MANUFACTURER

The raw materials are transported to the manufacturing site. In this case, the modeling include:

- Transportation by sea in container ship (only one supplier).
- Road transportation by truck.

A3 – MANUFACTURING

This module includes manufacturing of the Samba 400 office chair from Vermund Larsen A/S.

Minor amounts of waste including packaging materials, regular household waste from the employees and discarded components are recycled or disposed of.

LCA: RESULTS

SYSTEM BOUNDARIES

(X=included, MND=module not declared, MNR=module not relevant)

PRODUCT STAGE			CONSTRUCTION INSTALLATION STAGE		USE STAGE							END OF LIFE STAGE				BEYOND THE SYSTEM BOUNDARIES
Raw material	Transport	Manufacturing	Transport	Construction installation stage	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND

The background data for the raw materials extraction etc. derives from the LCA database GaBi Professional. The data concerning the consumption, processes etc. for producing the Samba 400 office chair has been delivered by Vermund Larsen A/S for 2015. The data quality is assessed to be acceptable.

ENVIRONMENTAL IMPACT

PARAMETER	A1-A3
GWP	25.8
ODP	2.4E-7
POCP	1.4E-2
AP	0.12
EP	2.0E-2
ADPM	2.2E-4
ADPE	393

GWP Global warming potential (kg CO₂-eqv.); ODP Depletion potential of the stratospheric ozone layer (kg CFC 11-eqv.); POCP Photochemical ozone creation potential (kg C₂H₄-eqv.); AP Acidification potential for soil and water (kg SO₂-eqv.); EP Eutrophication potential (kg (PO₄)³⁻-eqv.); ADPM Abiotic depletion potential for non-fossil resources (kg Sb-eqv.); ADPE Abiotic depletion potential for fossil resources (MJ, (lower) calorific value)

RESOURCE USE

PARAMETER	A1-A3
RPEE	69.1
RPEM	63.9
TPE	133
NRPE	194
NRPM	261
TRPE	455
SM	2.8E-5
RSF	0.96
NRSF	4.0E-2
W	15.0

RPEE Renewable primary energy resources used as energy carrier³ (MJ); **RPEM** Renewable primary energy resources used as raw materials (MJ); **TPE** Total use of renewable primary energy resources (MJ); **NRPE** Non-renewable primary energy resources used as energy carrier (MJ); **NRPM** Non-renewable primary energy resources used as materials (MJ); **TRPE** Total use of non-renewable primary energy resources (MJ); **SM** Use of secondary materials (kg); **RSF** Use of renewable secondary fuels (MJ); **NRSF** Use of non-renewable secondary fuels (MJ); **W** Use of net fresh water (m³)

END OF LIFE - WASTE

PARAMETER	A1-A3
HW	5.3E-5
NHW	17.6
RW	1.7E-2

HW Hazardous waste disposed (kg); **NHW** Non-hazardous waste disposed (kg), **RW** Radioactive waste disposed (kg)

The largest fractions of waste are generated in phase A1.

³ According to ISO13600 an energy carrier is either a substance or a phenomenon that can be used to produce mechanical work or heat or to operate chemical or physical processes. It is any system or substance that contains energy for conversion as usable energy later or somewhere else. This could be converted for use in, for example, an appliance or vehicle. Such carriers include petroleum, coal, wood, and natural gas etc.

SPECIFIC NATIONAL REQUIREMENTS

ELECTRICITY

Danish electricity is used in the production of the Samba 400 office chair:

Greenhouse gas emissions 292 kg CO₂ eqv./kWh

The data derives from energinet.dk (2014-data) and includes transmission loss of 5%.

DANGEROUS SUBSTANCES

None of the following substances have been added to the product:

- Substances on the REACH Candidate list of substances of very high concern (of 25.10.2013)
- Substances on the Norwegian Priority list (of 25.10.2013)
- Substances on the Danish list of hazardous substances and
- Substances that lead to the product being classified as hazardous waste.

The chemical content of the product also complies with regulatory levels as given in the Norwegian Product Regulations.

No information regarding the release of dangerous substances to indoor air, soil and water is available.

TRANSPORT

Transport of input materials to the production site in Aalborg is individual for each component and materials and has been included in the calculations.

The transport of the Samba 400 office chair from the production site in Aalborg, Denmark, to costumers at various locations, has not been included.

CARBON FOOTPRINT

The carbon footprint of the Samba 400 office chair is a part of the total result – and can thus be found in the section "LCA Results"⁴.

⁴ Only for the Samba 400 office chair from cradle to gate.