

## ENVIRONMENTAL PRODUCT DECLARATION

In accordance with ISO 14025



**epd-norge.no**

The Norwegian EPD Foundation

Owner of the declaration  
Program holder and publisher  
Declaration number  
Issue date  
Valid to

Scandinavian Business Seating AS  
The Norwegian EPD Foundation  
NEPD-335-209-EN  
21.06.2015  
21.06.2020

### HÅG SoFi

**with high back and aluminium armrests with TPU tops**

Product



SCANDINAVIAN  
BUSINESS SEATING

Scandinavian Business Seating AS

Manufacturer



## General information

### Product

HÅG SoFi with high back and aluminium armrests with TPU tops

### General Information

The Norwegian EPD Foundation  
Post Box 5250 Majorstuen, 0303 Oslo  
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### Declaration number:

NEPD335-209-EN

### This declaration is based on Product Category Rules:

PCR for Seating Solution, NPCR 003 extended version 2013, in accordance with recommendations by the Norwegian EPD Foundation.

### Declared unit:

One office chair: HÅG SoFi

### Declared unit with option:

Option:  
High back  
Aluminium armrest with TPU tops

### Functional unit:

Production of one seating solution provided and maintained for a period of 15 years.

### This EPD has been worked out by:

The declaration has been developed using Furniture EPD Tool Version 1.1.2, Approval: NEPD04  
Company specific data collected and registered by:

**Laura Fouilland**

Company specific data audited by:

**Carl Peter Aaser**

### Verification:

Independent verification of data, other environmental information and EPD has been carried out in accordance with ISO14024, 8.1.3. and 8.1.4.

externally



Mie Vold, Senior Research Scientist

(Independent verifier approved by EPD Norway)

### Owner of the declaration:

Scandinavian Business Seating AS  
Contact person: Laura Fouilland  
Phone: + 47 40 41 56 13  
E-mail: laura.fouilland@sbseating.com

### Manufacturer

Scandinavian Business Seating AS

### Place of production:

Sundveien 7374 Røros, Norway

### Management system:

ISO 14001, Certificate No.151496-2014-AE-NOR-NA  
From the accredited unit: DNV Certification As, Norway.  
ISO 9001, Certificate No.151495-2014-AQ-NOR-NA  
From the accredited unit: DNV Certification As, Norway.

### Org. No:

No 928 902 749

### Issue date:

21.01.2015

### Valid to:

21.01.2020

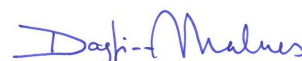
### Comparability:

EPDs from programmes other than the Norwegian EPD Foundation may not be comparable

### Year of study:

2015

Approved



Dagfinn Malnes

Managing Director of EPD-Norway

Key environmental indicators	Unit	Cradle to Gate A1-A3
Global warming	kg CO <sub>2</sub>	92
Total energy use	MJ	1967
Amount of recycled materials	%	45%

## Product

### Product Description and Application

HÅG SoFi is a unique task chair. It collects and perfects all of the best design features representative of the HÅG brand. A HÅG chair will forever change your way of sitting. At its core our unique HÅG inBalance®, intuitively keeps you in balanced and continuous motion (BalancedMovementMechanism™), without you having to think about it.

In this declaration, HÅG SoFi is studied in its high back version with aluminium armrests with TPU tops.

### Technical Data

Total Weight: 23,1kg

EN-1335 approved

Greenguard and Möbelfakta certified

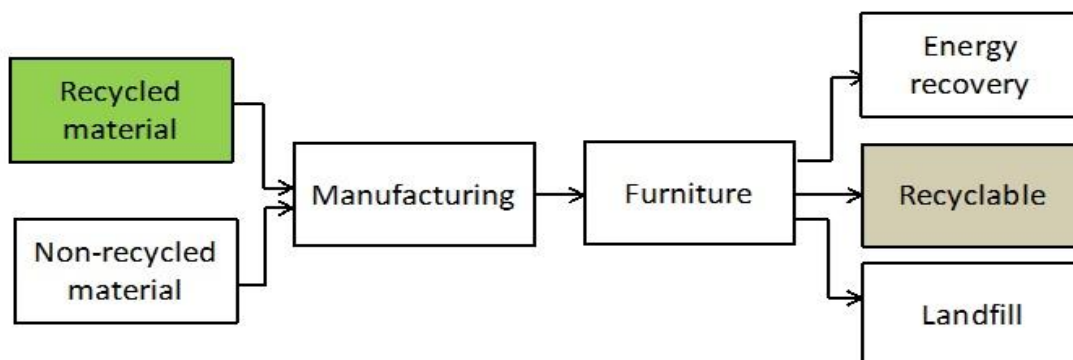
### Market

Worldwide

### Reference Service Life

15 years

Materials	kg	%
Aluminium	8,8	38%
Steel	5,0	22%
Zinc	1,3	5%
Plastic	6,4	28%
Polyurethane (PUR foam)	1,3	6%
Textiles	0,3	1%
<b>Total product</b>	<b>23,1</b>	<b>100%</b>
Packaging	3,3	
<b>Total product with packaging</b>	<b>26,4</b>	



Materials	Recycled	Recycled amount	Recycled materials	Recyclable	Recyclable amount	Recyclable materials
Unit	%	kg	%	%	kg	%
Aluminium	88%	7,66	29%	100%	8,8	33%
Steel	28%	1,4	5%	100%	5,0	19%
Zinc	8%	0,1	0%	100%	1,3	5%
Plastic	0%	0,0	0%	100%	6,4	24%
Polyurethane (PUR foam)	0%	0,0	0%	0%	0,0	0%
Textiles	100%	0,3	1%	100%	0,3	1%
Packaging (cardboard)	76%	2,5	10%	100%	3,3	13%
<b>Total product</b>		<b>12,0</b>	<b>45%</b>		<b>25,1</b>	<b>95%</b>

Product manufactured from 45% recycled material (packaging included)

At end of life product contains 95% recyclable material

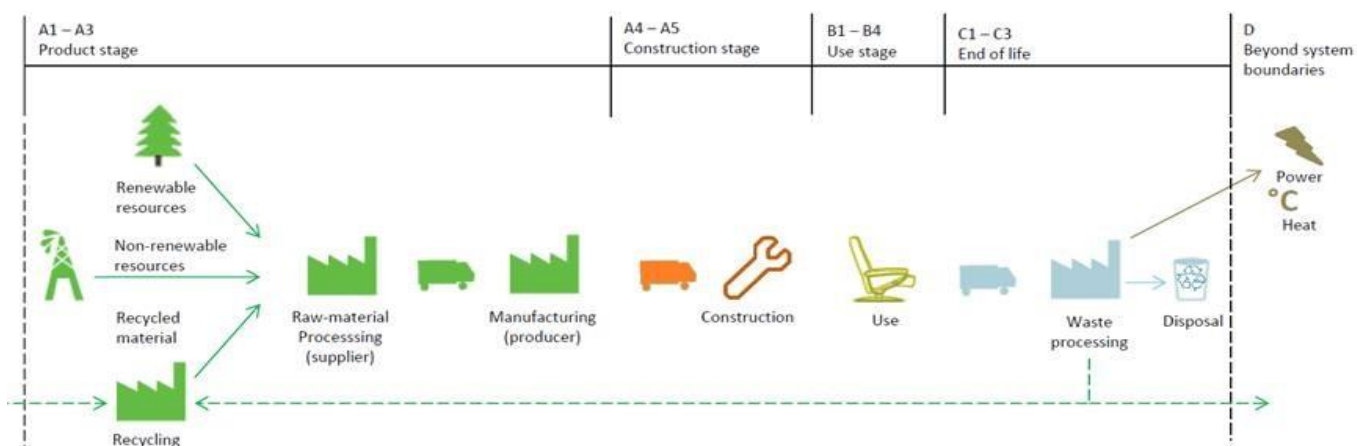
## LCA: Calculation rules

### Declared unit:

Production of one seating solution provided and maintained for a period of 15 years.

### System boundary:

Life cycle stages included are described in figure and through the corresponding letter and number designations in the declaration (see figure below)



### Data quality:

Specific manufacturing data from 2014 are used. Data from Ecoinvent 3.0.1. and Østfoldforskning databases are used as the basis for raw materials and energy carrier production. See [6].

### Cut-off criteria:

All major raw materials and all the essential energy is included. The production processes for raw materials and energy flows that are included with very small amounts (<1%) are not included. This cut-off rule does not apply for hazardous materials and substances

### Allocation:

Where virgin materials are used, emissions and energy consumption connected with extraction and production are included.

Where recycled materials are used in the product, emissions and energy consumption related to the recycling process are included.

Emissions from incineration are allocated to the product system that uses the recovered energy.

Emissions from incineration of waste are allocated to the product system that uses the recovered energy.

## LCA: Scenarios and additional technical information

Transportation to an average customer in Copenhagen is 1000 km (A4: average European lorry > 32 tonnes)

The use stage is represented by a scenario and includes vacuum cleaning of textile once a month. The PCR does not provide detailed guidelines for what should be included in the use stage. In the end of life stage, the transport distance for waste to waste processing is 72 km (C1). The reuse, recovery and recycling stage is beyond the system boundaries (D).

It is assumed that the solution is dismantled and the materials recycled or combusted according to the general Norwegian treatment of industrial waste (see the table below). The transport distance to reuse, recovery or recycling is varying for each material, but the average distance is 373 km. The vehicles used and associated data are described in detail in [5].

	Material recovery	Energy recovery	Disposal
Aluminium	70,1 %	0,0 %	30 %
Steel	70,1 %	0,0 %	30 %
Plastic	64,3 %	30,8 %	5 %
Cardboard	94,5 %	5,5 %	0 %

## LCA: Results

The following information describe the scenarios in the different modules of the EPD.

System boundaries (X=included, MND=modul not declared, MNR=modul not relevant)

Product stage			Construction stage		Use stage				End of life			Beyond the system boundaries
Raw materials	Transport	Manufacturing	Transport	Construction	Maintenance	Repair	Replacement	Operational energy use	Transport	Waste Processing	Disposal	Reuse-recovery-recycling potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	C1	C2	C3	D
x	x	x	x	MNR	x	MNR	MNR	MNR	x	x	x	x

## Environmental impact (INA=Indicator Not Accessible)

Parameter	A1	A2	A3	A1-A3	A4	B1	C1	C2	C3	C1-C3	D
GWP	89,8	2,6	6,8E-03	92,4	2,9	6,1E-03	2,2	19,5	0,1	21,8	-14,9
ODP	5,8E-05	1,9E-07	0,0	5,8E-05	2,1E-07	1,9E-10	INA	INA	INA	INA	-4,3E-07
POCP	3,3E-02	3,7E-04	1,1E-06	3,3E-02	4,2E-04	1,2E-06	INA	INA	INA	INA	-1,4E-02
AP	0,2	2,6E-03	7,0E-06	0,2	2,9E-03	5,0E-06	INA	INA	INA	INA	-1,0E-02
EP	0,5	1,1E-02	4,1E-05	0,6	1,2E-02	3,4E-05	INA	INA	INA	INA	-4,8E-02
ADPM*	1,4E-02	8,2E-06	3,8E-08	1,4E-02	9,3E-06	2,0E-08	INA	INA	INA	INA	-2,9E-05
ADPE	1330,0	39,6	0,1	1369,6	44,8	8,2E-02	INA	INA	INA	INA	-356,6

\* Some processes use Ecoinvent 3.0.1. and thus data on renewable resources is omitted. The true ADPM, RPEE, RPEM and TPE may be higher than indicated. This issue will be addressed in a new version of Ecoinvent 3, data from which was not available when this declaration was prepared.

**GWP** Global warming potential (kg CO<sub>2</sub>-eqv.); **ODP** Depletion potential of the stratospheric ozone layer (kg CFC11-eqv.); **POCP** Formation potential of tropospheric photochemical oxidants (kg C<sub>2</sub>H<sub>4</sub>-eqv.); **AP** Acidification potential of land and water (kg SO<sub>2</sub>-eqv.); **EP** Eutrophication potential (kg PO<sub>4</sub>-3-eqv.); **ADPM** Abiotic depletion potential for non fossil resources (kg Sb -eqv.); **ADPE** Abiotic depletion potential for fossil resources (MJ);

## Resource use (INA=Indicator Not Accessible)

Parameter	A1	A2	A3	A1-A3	A4	B1	C1	C2	C3	C1-C3	D
RPEE*	8,8	0,0	2,3E-04	8,8	0,0	9,3E-02	INA	INA	INA	INA	-2,4
RPEM*	35,9	0,2	4,3E-05	36,1	0,2	0,0	INA	INA	INA	INA	-6,1
TPE*	44,7	0,2	2,7E-04	44,9	0,2	9,3E-02	INA	INA	INA	INA	-8,6
NRPE	1929,3	39,8	4,7E-02	1969,1	45,1	7,9E-02	INA	INA	INA	INA	-351,9
NRPM	345,1	0,0	1,7E-02	345,1	0,0	0,0	INA	INA	INA	INA	0,0
TNRPE	2274,4	39,8	0,1	2314,3	45,1	8,8E-02	INA	INA	INA	INA	-351,9
SM	12,1	0,0	0,0	12,1	0,0	0,0	INA	INA	INA	INA	-4,3
RSF	0,0	0,0	0,0	0,0	0,0	0,0	INA	INA	INA	INA	0,0
NRSF	-11,2	0,0	0,0	-11,2	0,0	4,0E-02	INA	INA	INA	INA	0,0
W	10,1	1,1E-04	2,1E-05	10,1	1,2E-04	0,0	INA	INA	INA	INA	-41,8

**RPEE** Renewable primary energy resources used as energy carrier (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); **TNRPE** 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 (m<sup>3</sup>);

## End of life - Waste and Output flow (INA=Indicator Not Accessible)

Parameter	A1	A2	A3	A1-A3	A4	B1	C1	C2	C3	C1-C3	D
HW	0,3	4,9E-05	5,4E-07	0,3	5,5E-05	5,8E-06	INA	INA	INA	INA	-0,4
NHW	57,0	3,5	1,3E-03	60,5	3,9	7,6E-04	INA	INA	INA	INA	-2,2
RW	0,0	0,0	0,0	0,0	0,0	0,0	INA	INA	INA	INA	0,0
CR	0,0	0,0	0,0	0,0	0,0	0,0	INA	INA	INA	INA	0,0
MR	2,0E-03	0,0	0,0	2,0E-03	0,0	0,0	INA	INA	INA	INA	0,0
MER	0,0	0,0	0,0	0,0	0,0	0,0	INA	INA	INA	INA	0,0
EEE	0,0	0,0	0,0	0,0	0,0	0,0	INA	INA	INA	INA	0,0
ETE	0,0	0,0	0,0	0,0	0,0	0,0	INA	INA	INA	INA	0,0

**HW** Hazardous waste disposed (kg); **NHW** Non hazardous waste disposed (kg); **RW** Radioactive waste disposed (kg); **CR** Components for reuse (kg); **MR** Materials for recycling (kg); **MER** Materials for energy recovery (kg); **EEE** Exported electric energy (MJ); **ETE** Exported thermal energy ( MJ);

## Specific Norwegian requirements

### Electricity

The following data from ecoinvent v3 (June 2012) for Norwegian production mix included import, low voltage is used; Energy/Electricity country mix/Low voltage/Market: Electricity, low voltage {NO}| market for | Alloc Def, U. Production of transmission lines, in addition to direct emissions and loss in grid are included. Characterisation factors stated in EN 15804:2012+A1:2013 are used. This gives following greenhouse gas emissions: 24 g CO<sub>2</sub>-eqv/kWh.

### 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 '17.12.2014) substances on the Norwegian Priority list (published 04.12.2014) and substances that lead to the product being classified as hazardous waste. The chemical content of the product complies with regulatory levels as given in the Norwegian Product Regulations.

### Indoor environment

[HÅG SoFi Greenguard certificate](#)

### Climate declaration

Not relevant

## Bibliography

- [1] NS-EN ISO 14025:2006, Environmental labels and declarations-Type III environmental declarations-Principles and procedures.
- [2] NS-EN ISO 14044:2006, Environmental management - Life cycle assessment - Requirements and guidelines
- [3] EN 15804:2012 + A1:2013 Sustainability of construction works - Environmental product declaration - Core rules for the product category of construction products
- [4] PCR for seating solution: PRODUCT-CATEGORY RULES(PCR) for preparing an environmental product declaration (EPD) for Product Group "Seating solution", PCR 2008:NPCR 003, extended version
- [5] Raadal, H. L., Modahl, I. S., Lyng, K. A. (2009). Klimaregnskap for avfallshåndtering, Fase I og II. OR 18.09. ISBN : 978-82-7520-611-2, 82-7520-611-1
- [6] Brekke, A., Møller, H., Baxter, J., Askham, C. (2014). Verktøy - miljødeklarasjon for møbel Dokumentasjon som grunnlag for verifisering, Ostfold Research

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