

Milo

Design – Böttcher & Kayser

Distributeur SUISSE



REACTIV OFFICE DESIGN

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www.rod-design.ch



JOHANSON



Introduction

With its welcoming embrace and fluid lines MILO is a timeless armchair and footstool with a personality that's sure to make it a discreet focus of attention in any room. The armchair comes in three models with a matching footstool. The design is characterised by clear, flowing lines, soft yet well-defined contours, a seat shell with an iconic form and a well-coordinated backrest that all combine to give the chair a distinctive identity that is very much at home in today's design landscape.

"MILO can adopt a range of different personalities and adapts easily to a wide variety of settings, purposes

and conditions.

It is ideal both as a solitaire for relaxation and reflection, and grouped to provide a setting for effective communication in open-plan offices, hotel lobbies or lounges," say Böttcher & Kayser.

During the manufacturing process considerable emphasis was placed on constructing an item of furniture with the potential to be simply re-used by easily replacing the covers if they become tired and worn. The padding on the outside of the arms is held firmly in place, but the inside is more loosely upholstered to accentuate the soft, welcoming qualities that invite users to linger a little longer.



Designer

Böttcher & Kayser is a Berlin-based studio founded in 2007, working in the fields of consumer product, furniture, lighting and interior design. Moritz Böttcher and Nikolaus Kayser have been rewarded with several prestigious awards such as the Interior Innovation Award, several iF Design Awards and numerous Red Dot Awards – including the award, 'Best of the Best' in 2013. Their projects have been published in books and magazines around the world.



Models

All Milos models are offered with 03, 08 and 09 stands.



Milo - Low



Milo - Xlow



Milo- High



Milo -Footstool



Milo - Wing

Material

Seat - Upholstery materials

Johanson offers a very generous range of fabrics, leather and artificial leather from the most reputable suppliers in the world. Should any other material be desired despite the wide selection, it is also possible to suggest other materials. Johanson does not charge start-up costs for handling non-standard materials.

Multicolour - Finish RAL

Take part in Johanson's color range, 405 variants of different finishes are offered as standard on steel frames and metal details. Choose from all 195 RAL colors, alternatives are available both as solid finish (gloss 72) or Structure finish which has a matte, slightly textured elegant surface. In addition, 15 RAL colors with pearl finish and chrome or polished aluminum are offered.

For all colours see www.johansondesign.com

195 Solid collection (gloss 72)

195 Structure collection (matte, textured surface)

15 Pearl finish collection

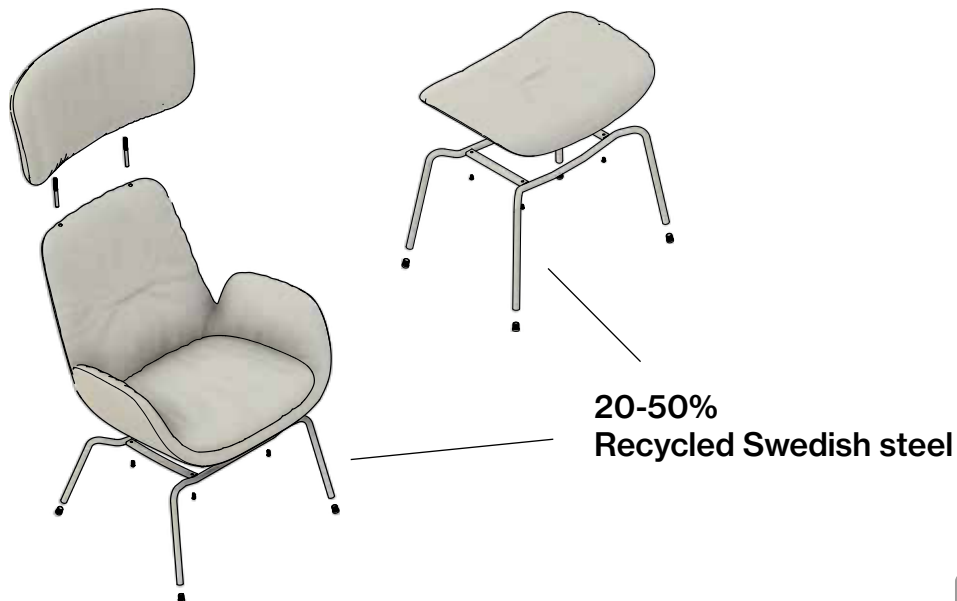
Chrome (08, 09- base)

Polished aluminum (03-base).



Facts

Milo detail



Separable



Material

Fully upholstered armchair with moulded seat frame in polyether.
FSC certified wood.
Finished/lacquered metal.

Fire classification

All products meet Möbelfakta's fire requirements. All polyether/foam are tested to Cal TB 117. All standard fabrics meet EN 1021:1 & 2. Other classification, for example BS 5856 (Crib 5) on request, please contact customer support.

Certificate

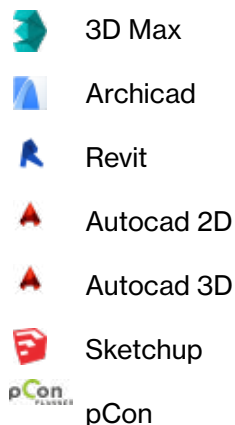


Recycling

All steel parts are recyclable. Before we finish the chrome/lacquer all grease/oil is removed by alkaline wash and then sent for destruction. The lacquering is produced by electrostatic epoxy powder coating that gives a minimum of waste. The electrostatic chrome (chrome 3) is recyclable. The plastic parts that are used are recyclable by grinding. All upholstery and frames of synthetic material are totally without C.F.C. emissions. All glue is water based.

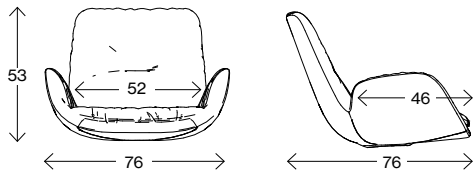
BIM - objects can be downloaded

at johansondesign.com



Facts

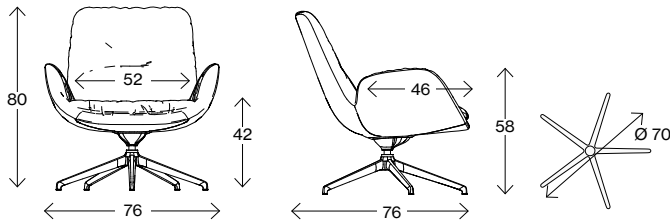
Measurements cm



Milo Low - Seat

Weight (kg) -
Volume (m³) 0,48

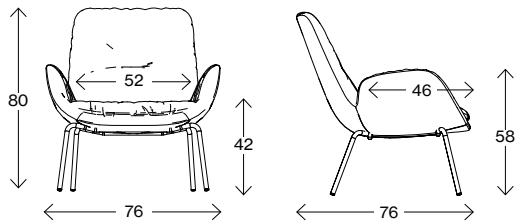
Measurements cm



Milo Low 03

Weight (kg) 16
Volume (m³) 0,51

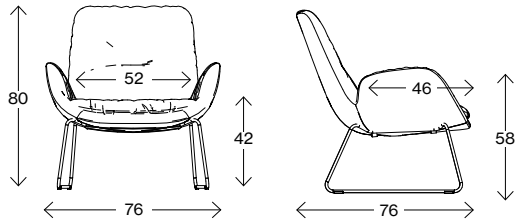
Measurements cm



Milo Low 08

Weight (kg) 16
Volume (m³) 0,51

Measurements cm



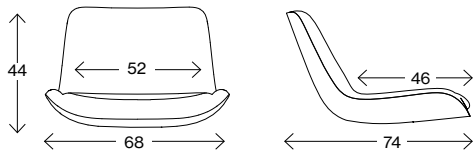
Milo Low 09

Weight (kg) 16
Volume (m³) 0,51

Facts

Measurements cm

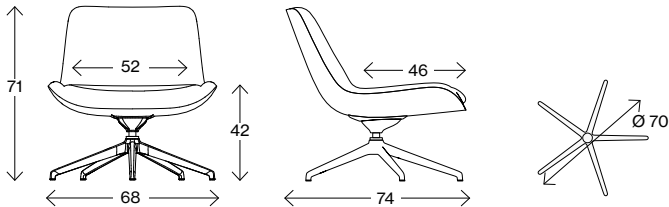
Milo Xlow - Seat



Measurements cm

Milo Xlow 03

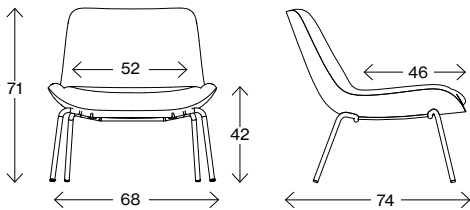
Weight (kg) -
Volume (m³) 0,48



Measurements cm

Milo Xlow 08

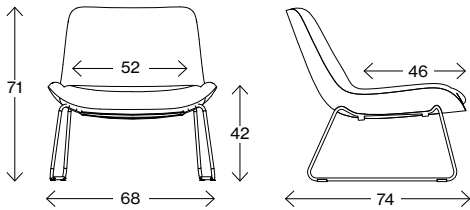
Weight (kg) -
Volume (m³) 0,48



Measurements cm

Milo Xlow 09

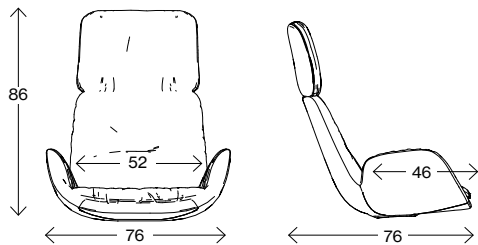
Weight (kg) -
Volume (m³) 0,48



Facts

Measurements cm

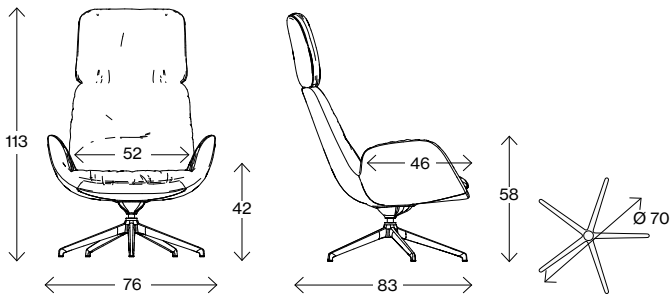
Milo High - Seat



Measurements cm

Milo High 03

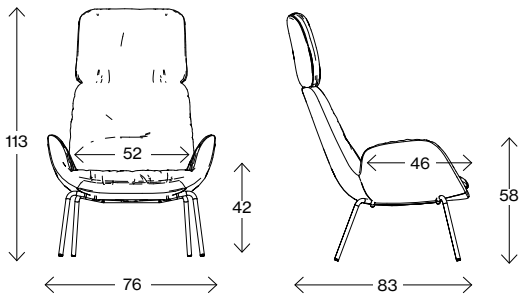
Weight (kg) 21,6
Volume (m³) 1,02



Measurements cm

Milo High 08

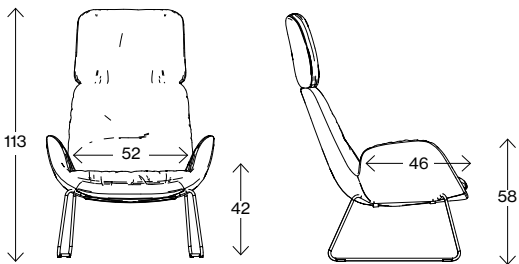
Weight (kg) 21,6
Volume (m³) 1,02



Measurements cm

Milo High 09

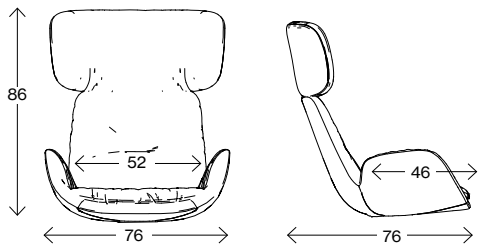
Weight (kg) 21,6
Volume (m³) 1,02



Facts

Measurements cm

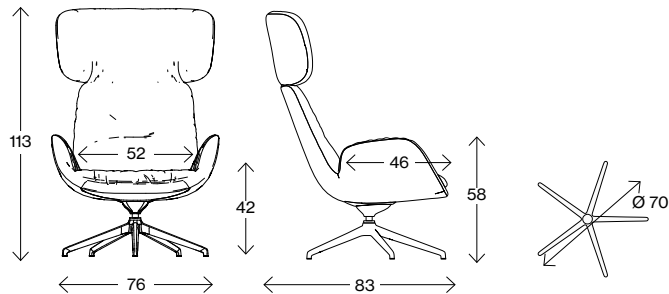
Milo Wing - Seat



Measurements cm

Milo Wing 03

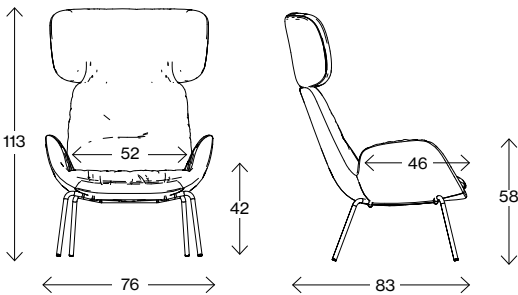
Weight (kg) 25
Volume (m³) 1,02



Measurements cm

Milo Wing 08

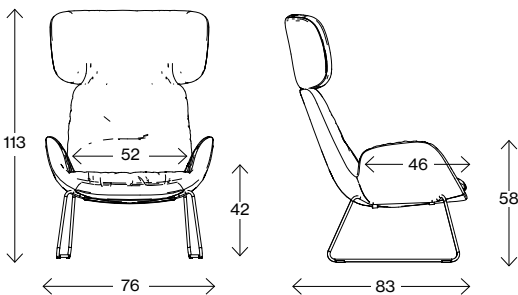
Weight (kg) 25
Volume (m³) 1,02



Measurements cm

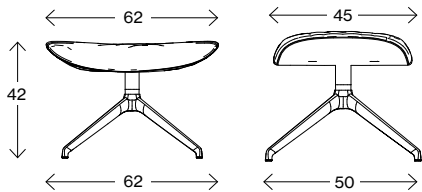
Milo Wing 09

Weight (kg) 25
Volume (m³) 1,02



Facts

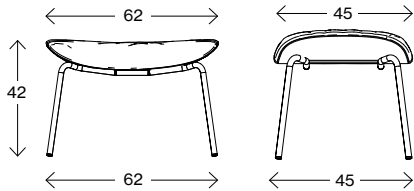
Measurements cm



Milo Footstool 03

Weight (kg) 7,5
Volume (m³) 0,19

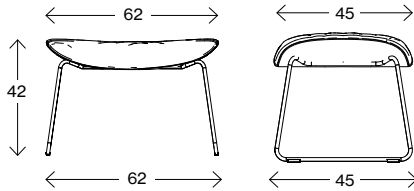
Measurements cm



Milo Footstool 08

Weight (kg) 7,5
Volume (m³) 0,19

Measurements cm



Milo Footstool 09

Weight (kg) 7,5
Volume (m³) 0,19











JOHANSON

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Environmental product declaration

in accordance with ISO 14025 and EN 15804+A2

Milo Family



JOHANSON

The Norwegian EPD Foundation

Owner of the declaration:

Johanson Design AB

Product:

Milo Family

Declared unit:

1 pcs

This declaration is based on Product Category

Rules:

CEN Standard EN 15804:2012+A2:2019 serves as
core PCR

NPCR 026:2022 Part B for Furniture

MILO

Böttcher & Kayser

Program operator:

The Norwegian EPD Foundation

Declaration number:

NEPD-8812-8472

Registration number:

NEPD-8812-8472

Issue date: 23.01.2025

Valid to: 23.01.2030

EPD software:

LCAno EPD generator ID: 769887

Johanson Design AB
Anders Anderssons väg 7
285 35 MARKARYD
SWEDEN

Testing of seating furniture according to FprEN 16139:2024

(3 appendices)

1286018

Customer:	Johanson Design AB
Test object/ID:	Armchair/Milo Low 08
Test method:	FprEN 16139:2024 Furniture - Strength, durability and safety - Requirements for non-domestic seating. Test level 1
Scope:	Complete test
Date of test:	2024-09-23 – 2024-10-17
Test result:	The tested object passed the test
Reservation:	The test results in this report apply solely to the specimen tested
Test environment:	23 ± 2°C and 50 ± 5% relative humidity
Measurement uncertainty:	Decision rule according to EN ISO IEC 17025:2018 clause 3.7 No account is taken of measurement uncertainty when reporting numerical results
Additional information:	The test method and results also comply with EN 16139:2013

RISE Research Institutes of Sweden AB Department Building and Real Estate - Technical Wood Assessment

Performed by

Examined by



Annika Ahagen



Bengt-Åke Andersson

Appendices

1. Test result (3 pages)
2. Test object (1 page)
3. Pictures (2 pages)

RISE Research Institutes of Sweden AB

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Testing
ISO/IEC 17025

Appendix 1

Test result

Abbreviations: N/A = Not applicable
N/T = Not tested

Table 1

1.	Safety	FprEN 16139	Result
1.1	<u>General requirements</u> The seating shall be so designed as to minimise the risk of injury to the user. All accessible parts shall be so designed that physical injury and damage are avoided. This requirement is met when: a) accessible corners are rounded or chamfered; b) the edges of the seat, back rest and arm rests which are in contact with the user when sitting in the chair are rounded or chamfered; c) the edges of handles are rounded or chamfered in the direction of the force applied; d) all other edges are free from burrs and rounded or chamfered; e) the ends of hollow components are closed or capped. Movable and adjustable parts shall be designed so that injuries and inadvertent operation are avoided. It shall not be possible for any load bearing part of the seating to come loose unintentionally. All parts which are lubricated to assist sliding shall be designed to protect users from lubricant stains when in normal use	4.1 4.2	Pass
1.2	<u>Shear and squeeze points</u> With the exception of tipping seats there shall be no shear and squeeze points created by parts of the seating operated by powered mechanisms, e.g. springs and gas lifts. There shall be no shear and squeeze points created by forces applied during normal use as well as during normal movements and actions Note! Shear and squeeze points that are created only during manually setting up and folding are acceptable, because the user can be assumed to be in control of his/her movements and to be able to cease applying the force immediately upon experiencing pain.	4.3	Pass

Appendix 1

Table 2

2.	Stability	EN 1022:2023	Result
2.1	Forwards overbalancing Requirement ≥ 20 N	7.3.1	Pass >100 N
2.2	Forwards overturning for seating with footrest	7.3.2	N/A
2.3	Corner stability test Requirement 30 kg	7.3.3	Pass
2.4	Sideways overbalancing, all seating without arms Requirement ≥ 20 N	7.3.4	N/A
2.5	Sideways overbalancing, all seating with arms Requirement ≥ 20 N	7.3.5.2	Pass >100 N
2.6	Sideways overbalancing, seating with raised side edges	7.3.5.3	N/A
2.7	Rearwards overbalancing, all seating with backs Requirement ≥ 198 N	7.3.6	Pass >250 N

Table 3

3.	Strength, durability	Reference EN 1728	Cycles	FprEN 16139 level 1	Result
3.1	Seat and back static load test	6.4	10	Seat: 1600 N Back: 560 N	Pass
3.2	Seat front edge static load test	6.5	10	1300 N	Pass
3.3	Vertical static load on back rests	6.6	10	600 N Seat: 1300 N	Pass
3.4.1	Foot rest static load test	6.8	10	1300 N	N/A
3.4.2	Leg rest static load test	6.9	10	1300 N	N/A
3.5	Arm sideways static load test	6.10	10	400 N	Pass
3.6	Arm downwards static load test	6.11	5	750 N	Pass
3.7.1	Vertical upwards static load on arm rests for seating which may be moved when occupied	6.13.1	10	1200 N	N/A
3.7.2	Vertical upwards static load on arm rests for stackable seating	6.13.2	10	25 kg	N/A

Appendix 1

3.	Strength, durability	Reference EN 1728	Cycles	FprEN 16139 level 1	Result
3.8	Seat and back durability test	6.17	100 000	Seat: 1000N Back: 300 N	Pass
3.9	Seat front edge durability test	6.18	50 000	800 N	Pass
3.10	Seat side-to-side durability test (For single column seat)	Annex D	10 000	1100 N	N/A
3.11	Arm durability test	6.20	30 000	400 N	Pass
3.12	Foot rest durability test	6.21	50 000	1000 N	N/A
3.13	Leg rest durability test	Annex H	10 000	1000 N	N/A
3.14	Leg forward static load test	6.15	10	500 N Seat: 1000 N	Pass
3.15	Leg sideways static load test	6.16	10	400 N Seat: 1000 N	Pass
3.16	Seat impact test	6.24	10 x 2	240 mm	Pass
3.17	Backward fall test	6.28	5	Unloaded	N/A
3.18	Back impact test	6.25	10	210 mm/38°	Pass
3.19	Arm impact test	6.26	10	210 mm/38°	Pass
3.20	Auxiliary writing surface static load test	6.14	10	300 N	N/A
3.21	Auxiliary writing surface durability test	6.22	10 000	150 N	N/A

Appendix 2

Test object

Test object/ID: Armchair/Milo Low 08

Dimensions ¹

Width: 760 mm

Depth: 750 mm

Height: 800 mm

Seat height (in front): 420 mm

Mass: 13.5 kg

Components

Frame/legs: Metal tube, Ø22 mm
Metal plate, 10 mm

Seat/Backrest/Armrest: Fabric, flexible foam
Metal rod Ø8 mm Ø14 mm, 5x30x230 mm

Sampling: The test object was selected by the customer

Date of arrival at
RISE test laboratory: 2024-08-22

Observed defects before testing: No defects

¹ The dimensions are only intended to unambiguously identify the test object and do not claim to be metrologically accurate

Appendix 3

Pictures



Figure 1



Figure 2



Figure 3



Figure 4

Appendix 3



Figure 5



Figure 6

Verifikat

Transaktion 09222115557529888332

Dokument

1286018A Johanson Design Milo Low 08

Huvuddokument

7 sidor

Startades 2024-10-21 14:36:49 CEST (+0200) av Annika

Ahagen (AA)

Färdigställt 2024-10-22 07:26:12 CEST (+0200)

Signerare

Annika Ahagen (AA)

RISE Research Institutes of Sweden AB

Org. nr 556464-6874

annika.ahagen@ri.se



Signerade 2024-10-22 07:26:12 CEST (+0200)

Bengt-Åke Andersson (BA)

RISE Research Institutes of Sweden AB

Org. nr 556464-6874

bengt-ake.andersson@ri.se



Signerade 2024-10-21 15:36:21 CEST (+0200)

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MÖBELFAKTA CERTIFICATE

PRODUCT NAME: Milo
Easy chair
The Milo furniture series - Wing/High/Low with 03, 08 & 09 bases. Powder-coated metal surfaces and Fame upholstery. The product can also be ordered with a wide range of other upholsteries that meet Möbelfakta's standards.

DESIGNER: Böttcher & Kayser

COMPANY: Johanson Design AB

REG.NUMBER: 120230823

USE CLASS: Non-domestic

VALIDITY:: 2023-08-23 - 2028-08-23 and applies provided that the product meets the applicable requirements. If Möbelfakta Sverige AB changes the Requirements Specification for Möbelfakta, the Licensee is obliged to adapt the declared product within the transitional period announced in the requirements specification in order for the certificate to be valid.
All approved products are published on www.mobelfakta.se.
<https://www.mobelfakta.se/Details.html?id=3982>

THIS PRODUCT HAS BEEN DECLARED AND APPROVED TO THE CRITERIA OF MÖBELFAKTA:

-  **QUALITY** – THE PIECE OF FURNITURE MUST MEET ESTABLISHED INTERNATIONAL TECHNICAL STANDARDS
-  **ENVIRONMENT** – ALL STAGES OF THE MANUFACTURING PROCESS MUST BE GREEN. FROM RAW MATERIALS TO FINISHED PRODUCT
-  **RESPONSIBLE SUPPLY CHAINS** – ALL STAKEHOLDERS IN THE SUPPLY CHAIN TAKE SOCIAL, ENVIRONMENTAL AND ETHICAL RESPONSIBILITY



MÖBELFAKTA



TEST REPORT

Client: Gabriel
Hjulgagervej 55
Postbox 59
DK-9100 Aalborg
Denmark

Entry No: 73587

Date received: 09/02/2016

Client's Description: Sample of fabric: Fame 61003 Beige

Test Required: Flammability

Pre-treatment: None

Conditioning: A minimum of 24 hours at 50+/-5% Relative Humidity, 23+/-2°C

Date Tests Completed: 10/02/2016

Method of Test: BS EN 1021-1: 2014 – smouldering cigarette ^F

Ignition Source	Observations	Result
Smouldering cigarette	No flaming or progressive smouldering was observed within one hour of placement of the cigarettes.	PASS

Note: A 20-22 kg/m³ non fire retardant polyurethane foam was used as the filling.

The above tests relate only to the ignitability of the combination of materials under the particular conditions of test; they are not intended as a means of assessing the full potential fire hazard of the materials in use.

During the tests the following data was recorded: -

Smouldering cigarette

Time of Ignition (sec)	No Ignition	No Ignition	N/A
Time to extinction of flame after removal of butane flame (sec)	N/A	N/A	N/A
Time of Cover Split (sec)	Split	Split	N/A
Melting (Yes or No)	Yes	Yes	N/A
Dripping (Yes or No)	No	No	N/A
Charring (Yes or No)	Yes	Yes	N/A
Self-extinguished before smouldering full length (Yes or No)	No	No	N/A

-----End of Document-----

This is hereby certified to be a correct return of the tests made of the items referred to herein



Dale Brockbank
Materials Testing Manager
10 February 2016

- ❖ Unless instructed otherwise by the client sample remnants will be disposed of after 28 days.
- ❖ Opinions and interpretations expressed herein are outside the scope of UKAS accreditation.
- ❖ Tests marked ^F in this certificate are performed under the Laboratory's Flexible Scope of Accreditation.
- ❖ Uncertainty budgets for test methods contained within this report are available on request.

This Certificate relates only to the sample received and, unless that sample has been drawn by the staff of this laboratory, or its agent, and endorsed accordingly, any application of the result to a bulk quantity or other material is entirely the responsibility of the client.



1104



TEST REPORT

Client: Gabriel
Hjulgagervej 55
Postbox 59
DK-9100 Aalborg
Denmark

Entry No: 84044

Date received: 27/04/2017

Client's Description: Sample of fabric: Fame 60005 Light Grey, BEA- West 200417, 95% Wool/5% Polyamide LT

Test Required: Flammability

Pre-treatment: None

Conditioning: A minimum of 24 hours at 50+/-5% Relative Humidity, 23+/-2°C

Date Tests Completed: 15/05/2017

Method of Test: BS EN 1021-2: 2014 – match flame equivalent

Ignition Source	Observations	Result
Match flame equivalent	No flaming or progressive smouldering was observed after removal of the butane flame.	PASS

Note: A 20-22 kg/m³ non fire retardant polyurethane foam was used as the filling.

The above tests relate only to the ignitability of the combination of materials under the particular conditions of test; they are not intended as a means of assessing the full potential fire hazard of the materials in use.

During the tests the following data was recorded: -

Match flame equivalent

Time of Ignition (sec)	8	7	8
Time to extinction of flame after removal of butane flame (sec)	0	0	0
Time of Cover Split (sec)	Did not split	Did not split	Did not split
Melting (Yes or No)	Yes	Yes	Yes
Dripping (Yes or No)	No	No	No
Charring (Yes or No)	Yes	Yes	Yes

-----End of Document-----

This is hereby certified to be a correct return of the tests made of the items referred to herein



Dale Brockbank
Materials Testing Manager
15 May 2017

❖ Unless instructed otherwise by the client sample remnants will be disposed of after 28 days.
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Test Required: Flammability

Pre-treatment: None

Conditioning: A minimum of 24 hours at 50+/-5% Relative Humidity, 23+/-2°C

Date Tests Completed: 10/02/2016

Method of Test: BS EN 1021-1: 2014 – smouldering cigarette ^F

Ignition Source	Observations	Result
Smouldering cigarette	No flaming or progressive smouldering was observed within one hour of placement of the cigarettes.	PASS

Note: A 20-22 kg/m³ non fire retardant polyurethane foam was used as the filling.

The above tests relate only to the ignitability of the combination of materials under the particular conditions of test; they are not intended as a means of assessing the full potential fire hazard of the materials in use.

During the tests the following data was recorded: -

Smouldering cigarette

Time of Ignition (sec)	No Ignition	No Ignition	N/A
Time to extinction of flame after removal of butane flame (sec)	N/A	N/A	N/A
Time of Cover Split (sec)	Split	Split	N/A
Melting (Yes or No)	Yes	Yes	N/A
Dripping (Yes or No)	No	No	N/A
Charring (Yes or No)	Yes	Yes	N/A
Self-extinguished before smouldering full length (Yes or No)	No	No	N/A

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Entry No: 84044

Date received: 27/04/2017

Client's Description: Sample of fabric: Fame 60005 Light Grey, BEA- West 200417, 95% Wool/5% Polyamide LT

Test Required: Flammability

Pre-treatment: None

Conditioning: A minimum of 24 hours at 50+/-5% Relative Humidity, 23+/-2°C

Date Tests Completed: 15/05/2017

Method of Test: BS EN 1021-2: 2014 – match flame equivalent

Ignition Source	Observations	Result
Match flame equivalent	No flaming or progressive smouldering was observed after removal of the butane flame.	PASS

Note: A 20-22 kg/m³ non fire retardant polyurethane foam was used as the filling.

The above tests relate only to the ignitability of the combination of materials under the particular conditions of test; they are not intended as a means of assessing the full potential fire hazard of the materials in use.

During the tests the following data was recorded: -

Match flame equivalent

Time of Ignition (sec)	8	7	8
Time to extinction of flame after removal of butane flame (sec)	0	0	0
Time of Cover Split (sec)	Did not split	Did not split	Did not split
Melting (Yes or No)	Yes	Yes	Yes
Dripping (Yes or No)	No	No	No
Charring (Yes or No)	Yes	Yes	Yes

-----End of Document-----

This is hereby certified to be a correct return of the tests made of the items referred to herein



Dale Brockbank
 Materials Testing Manager
 15 May 2017

❖ Unless instructed otherwise by the client sample remnants will be disposed of after 28 days.
 ❖ Opinions and interpretations expressed herein are outside the scope of UKAS accreditation.
 ❖ Tests marked ^F in this certificate are performed under the Laboratory's Flexible Scope of Accreditation.
 ❖ Uncertainty budgets for test methods contained within this report are available on request.
 This Certificate relates only to the sample received and, unless that sample has been drawn by the staff of this laboratory, or its agent, and endorsed accordingly, any application of the result to a bulk quantity or other material is entirely the responsibility of the client.



**TEST REPORT**

Client: Gabriel
Hjulgagervej 55
Postbox 59
DK-9100 Aalborg
Denmark

Entry No: 113785

Date received: 19/11/2019

Client's Description: Fabric: Fame 60999 Black. Composition: 95% Wool/ 5% Polyamide

Test Required: Flammability BS 5852: 1979 Ignition sources 0 & 1

Pre-treatment: None

Conditioning: A minimum of 96 hours at 50+/-20% Relative Humidity, 20+/-5°C

Date Tests Completed: 26/11/2019

Method of Test: BS 5852: Part 1: 1979

The following test results relate only to the ignitability of the combination of materials under the particular conditions of test; they are not intended as a means of assessing the full potential fire hazard of the materials in use.

Ignition Source	Observations	Result
0 (cigarette)	No flaming or progressive smouldering was observed within one hour of placement of the cigarettes.	Pass
1 (butane flame)	Flaming ceased within the specified two minute period after removal of the butane flame and no progressive smouldering occurred.	Pass

Note: 20-22 kg/m³ non fire retardant polyurethane foam

-----End of Page-----

This is hereby certified to be a correct return of the tests made of the items referred to herein

Daniel Young
Senior Technologist
06 January 2020

- ❖ Unless instructed otherwise by the client sample remnants will be disposed of after 28 days.
- ❖ Opinions and interpretations expressed herein are outside the scope of UKAS accreditation.
- ❖ Uncertainty budgets for test methods contained within this report are available on request.
- ❖ The results have been obtained for the above test are due to the allowances that have been made based on the uncertainty of the measurement for this test and its associated measurements.

This Certificate relates only to the sample received and, unless that sample has been drawn by the staff of this laboratory, or its agent, and endorsed accordingly, any application of the result to a bulk quantity or other material is entirely the responsibility of the client.





Client: Gabriel

Entry No: 113785

During the tests the following data was recorded: -

	Source 0		Source 1	
Time of Ignition (sec)	No Ignition	No Ignition	12	12
Time to extinction of flame after removal of butane flame (sec)	N/A	N/A	2	1
Time of Cover Split (sec)	Did Not Split	Did Not Split	19	19
Melting (Yes or No)	Yes	Yes	Yes	Yes
Dripping (Yes or No)	No	No	No	No
Charring (Yes or No)	Yes	Yes	Yes	Yes
Other phenomena				

-----End of Document-----



GOVMARK

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Farmingdale, New York 11735-5626 USA
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email: govmark.accounting@sgs.com

Page 1

Received: 11/16/2018	Completed: 11/21/2018	Letter: F	BG	P.O.#:	Test Report #:	3-29638-0-
Client's Identification	Style: Fame. Content: 95% Wools of New Zealand / 5% Polyamide. Weight: 630 g/lm. Color: 61136 Beige. Product End Use: Upholstery.					
Tested For: Bente Ellingsoe, Quality Department Gabriel A/S Hjulmagervej 55 DK-9000 Aalborg, Denmark				Key Test: CA TB 117-2013 (Section 1-Cover Fabric) /ACT Tel: 011-45-9630-3100 Ext: Fax: 011-45-9811-6125		

Test Category: Cigarette Ignition Specifier: ACT LE 2015; V 08/15 NTR 9/15
Product Category: Upholstery PC: 24H dl/SM

TEST PERFORMED: California Technical Bulletin 117-2013 - Requirements, Test Procedure and Apparatus for Testing the Smolder Resistance of Materials Used in Upholstered Furniture (June 2013 Version; V 1/18)

Section 1, Cover Fabric Test (Upholstery cover material is the outermost layer of fabric or related material used to enclose the main support system or upholstery materials, or both, used in the furniture item.) --

As cited by the ACT Voluntary Performance Guidelines (January 2015)

REFERENCE: ASTM E1353-08ae1

IGNITION SOURCE: SRM 1196 Cigarette

SPECIMEN TEST COMPOSITE:

Upholstery Cover Material: As described in "Client's Identification".

Standard Substrate Material: Non FR polyurethane foam, density 1.8 ± 0.05 lb/ft³

BRIEF DESCRIPTION OF TEST: Miniature cushions are prepared using the client's cover fabric over the standard filling material. The vertical or back cushions measure 8" x 8" x 2". The horizontal or seat cushions measure 8" x 5" x 2".

A lighted cigarette is placed in the crevice formed by the vertical cushion and the horizontal cushion.

The test is terminated at 45 minutes if smoldering is no longer observed.

Test measurements and observations are recorded.

-- See Page 3 for "Results" and "Conclusion" --



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Page 2

Received: 11/16/2018	Completed: 11/21/2018	Letter: F	BG	P.O.#:	Test Report #:	3-29638-0-
Client's Identification	Style: Fame. Content: 95% Wools of New Zealand / 5% Polyamide. Weight: 630 g/lm. Color: 61136 Beige. Product End Use: Upholstery.					
Tested For: Bente Ellingsoe, Quality Department			Key Test: CA TB 117-2013 (Section 1-Cover Fabric) /ACT			235
Gabriel A/S			Tel: 011-45-9630-3100			Ext:
Hjulgagervej 55			Fax: 011-45-9811-6125			
DK-9000 Aalborg, Denmark						

PASS/FAIL/REPEAT CRITERIA: A material is considered to pass or fail based on the following criteria:

1. A single mock-up test specimen fails to meet the requirements of this test procedure if any of the following criteria occurs:
 - a) The mock-up test specimen continues to smolder after the 45 minute test duration;
 - b) A vertical char length (measured as specified in step 11.9 of ASTM E1353-08ae1) of more than 1.8 inches (45 mm) develops on the cover fabric.
 - c) The mock-up test specimen transitions to open flaming.
2. The cover fabric passes the test if three initial mock-up specimens pass the test, i.e., the cigarettes burn their entire length and the mock-ups are no longer smoldering.
3. If more than one initial specimen fails, the cover fabric fails the test.
4. If any one of the three initial specimens fails, repeat the test on additional three specimens.
5. If all three additional specimens pass the test, the cover fabric passes the test. If any one of the additional three specimens fails, the cover fabric fails the test.

DISCUSSION: The current version of California Technical Bulletin 117-2013 has no provision to recognize cigarettes that self-extinguish prior to burning their entire length. However, ASTM E 1353 does recognize this phenomenon.

The SGS Govmark report evaluates replacement cigarettes as follows:

If a cigarette self-extinguishes (SE) before burning its entire length, a new cigarette is placed into the test. If the new (replacement) cigarette self-extinguishes or burns its entire length, the result for that specimen will then be evaluated as if the cigarette burned its entire length when assigning the "Passing/Failure" conclusion.



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Page 3

Received: 11/16/2018 Completed: 11/21/2018 Letter: F BG P.O.#: Test Report #: 3-29638-0-

Client's Identification Style: Fame. Content: 95% Wools of New Zealand / 5% Polyamide. Weight: 630 g/lm. Color: 61136 Beige. Product End Use: Upholstery.

Tested For: Bente Ellingsoe, Quality Department

Gabriel A/S

Hjulgagervej 55

DK-9000 Aalborg, Denmark

Key Test: CA TB 117-2013 (Section 1-Cover Fabric) /ACT

235

Tel: 011-45-9630-3100

Ext:

Fax: 011-45-9811-6125

RESULTS:

	Specimen #	Char Length (inches)	SE (yes/no)	SB45 (yes/no)	TOF (yes/no)
Initial:	1	0.3	No	No	No
	2	0.3	No	No	No
	3	0.3	No	No	No
Replacement:	1				
(If needed)	2				
	3				
Repeat Tests:	1				
(If needed)	2				
	3				

EXPLANATION:

Initial: These are the first 3 cigarettes where the results could be sufficient to draw a test conclusion.

Replacement: If any of the initial cigarettes self-extinguish before burning their complete length, a new test is conducted with a fresh cigarette.

Repeat Test: Depending on the initial or replacement results, 3 repeat tests might be required to draw a conclusion.

CODES USED:

SE = Cigarette self-extinguished; See "Discussion" on Page 2

SB45 = Smolder beyond 45 minutes

TOF = Transitions to open flaming

MNR = Measurement not recorded as smoldering exceeded 45 minutes or specimen transitioned to open flames

EC = Escalating smoldering combustion: Extinguished by technician at:
(mm: ss) _____ : _____ due to unsafe conditions.

CONCLUSION:

The above results reported for the initial and / or replacement cigarettes are sufficient to indicate:

☒ Passing; ☐ Failure; ☐ Repeat test on 3 additional specimens

The results after conducting the repeat tests indicate:

☐ Passing; ☐ Failure

(Page 3 of 4)

SGS**GOVMARK**

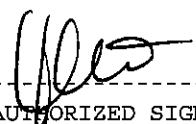
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Page 4

Received: 11/16/2018	Completed: 11/21/2018	Letter: F	BG	P.O.#:	Test Report #:	3-29638-0-
Client's Identification	Style: Fame. Content: 95% Wools of New Zealand / 5% Polyamide. Weight: 630 g/lm. Color: 61136 Beige. Product End Use: Upholstery.					
Tested For: Bente Ellingsoe, Quality Department Gabriel A/S Hjulmagervej 55 DK-9000 Aalborg, Denmark			Key Test: CA TB 117-2013 (Section 1-Cover Fabric) /ACT Tel: 011-45-9630-3100 Fax: 011-45-9811-6125			235 Ext:

REMARKS: None.

CERTIFICATION: I certify that the above results were obtained after testing specimens in accordance with the procedures and equipment specified above.



AUTHORIZED SIGNATURE
SGS GOVMARK
/gb /pm

Phyllis Pettit

JAN 07 2019

(Page 4 of 4)



CARPENTER

We bring comfort to your life.™

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Hörngatan 10
573 42 Tranås
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- Phone: +46140-38 60 00
- Fax: +46140-38 60 80

RICHFOAM® POLYETHER

European Standard Reference	Sweden Standard Reference	Colour	Code	Width	Height	Density	CLD	ILD	Fire behaviour ⁽⁸⁾			Guide for Use	
						kg/m³ ⁽¹⁾	kPa ⁽²⁾	Newtons					
						Nett ⁽⁷⁾	CLD 40%	ILD 40%					
				cm	cm				FMVSS302 ⁽⁴⁾	CA TB 117 ⁽⁵⁾	CRIB V ⁽⁶⁾	OEKO-TEX ⁽⁹⁾	
RP23020	RP23080	White	H90	203	124	21	2,0	80			x		Backrest cushion
RP23030	RP23120	White Black	H90 H78	203	115	21	3,0	120			x		Backrest cushion and mattresses Dark colour for package
RP25023	RP25090	White	H90	203	120	23	2,3	90			x		Backrest cushion and bedding toppers
RP25035	RP25140	White	H90	204	124	23	3,5	140			x		Backreset cushion and beds
RP27030	RP27120	White	H90	205	124	25	3,0	120			x		Mattresses and backrest cushion
RP28036	RP28145	Yellow	H12	204	120	26	3,6	145			x		Mattresses and beds
RP28048	RP28190	Yellow	H12	205	118	26	4,8	190			x		Beds and furniture
RP30023	RP30090	White	H90	204	110	28	2,3	90			x		Beds and furniture
RP30038	RP30150	White	H90	202	110	28	3,8	150			x		Seat cushions
RP35025	RP35100	White	H90	206	105	33	2,5	100			x		Seat cushions and bedding toppers
RP35034	RP35135	White	H90	211	105	33	3,4	135			x		Seat cushions and mattresses
RP35039	RP35155	Blue	H52	206	108	33	3,9	155			x		Seat cushions and beds
RP35044	RP35175	Yellow	H12	205	106	33	4,4	175			x		Beds and furniture
RP35046	RP35185	Yellow	H12	205	111	33	4,6	185			x		Beds and furniture
RP35059	RP35235	White	H90	205	111	33	5,9	235			x		Beds and furniture

RICHFOAM® FR POLYETHER

RF28035	RF28140	Grey	H75	205	117	26	3,5	140	FMVSS302 ⁽⁴⁾		x	Acoustic and automotive applications
RF40033	RF40130	Blue	H52	206	105	38	3,3	130	FMVSS302 ⁽⁴⁾		x	Mattresses and automotive applications

SPECIAL PROGRAM

HS23014	HS23055	White	H90	214	109	21	1,4	55			x	Extra soft for cushions
HS45018	HS45070	White	H90	206	82	43	1,8	70			x	Bedding toppers and back cushions

CELSIUS® VISCO ELASTIC FOAM

VE50015	VE50062	White	H90	204	90	48	1,5	60			x	Mattresses and bedding toppers
VE52020	VE52080	Yellow	H13	204	90	50	2,0	80			x	Mattresses and bedding toppers
VE55025	VE55100	Yellow	H13	205	90	53	2,5	100			x	Mattresses and bedding toppers

RICHLUX® HIGH RESILIENCE

European Standard Reference	Sweden Standard Reference	Colour	Code	Width	Height	Density kg/m³ ⁽¹⁾ Nett ⁽⁷⁾	CLD kPa ⁽²⁾ CLD 40%	ILD Newtons ILD 40%	Fire behaviour ⁽⁸⁾	Guide for Use
				cm	cm				OEKO-TEX ⁽⁹⁾	
HR24016	HR24065	Light green	H62	203	108	22	1,6	65	FMVSS302 ⁽⁴⁾ , CAL TB 117 ⁽⁵⁾	x Backrest cushions
HR32019	HR32075	White	H90	205	108	30	1,9	75	FMVSS302 ⁽⁴⁾ , CAL TB 117 ⁽⁵⁾	x Backrest cushions and bedding toppers
HR32029	HR32115	Yellow	H12	213	112	30	2,9	115	FMVSS302 ⁽⁴⁾ , CAL TB 117 ⁽⁵⁾	x Seat cushions and mattresses
HR35025	HR35100	White	H90	204	108	33	2,5	100	FMVSS302 ⁽⁴⁾ , CAL TB 117 ⁽⁵⁾	x Seat cushions and bedding toppers
HR35034	HR35135	Yellow	H12	211	102	33	3,4	135	FMVSS302 ⁽⁴⁾ , CAL TB 117 ⁽⁵⁾	x Seat cushions and mattresses
HR38038	HR38150	Yellow	H12	211	98	36	3,8	150	FMVSS302 ⁽⁴⁾ , CAL TB 117 ⁽⁵⁾	x Seat cushions and mattresses
HR44049	HR44195	White	H90	205	86	42	4,9	195	FMVSS302 ⁽⁴⁾ , CAL TB 117 ⁽⁵⁾	x Seat cushions and beds
HR44054	HR44215	White	H90	205	84	42	5,4	215	FMVSS302 ⁽⁴⁾ , CAL TB 117 ⁽⁵⁾	x Seat cushions and beds
HR50028	HR50110	Yellow	H12	213	87	48	2,8	110	FMVSS302 ⁽⁴⁾ , CAL TB 117 ⁽⁵⁾	x Seat cushions and mattresses
HR50068	HR50270	Blue	H52	203	70	48	6,8	270	FMVSS302 ⁽⁴⁾ , CAL TB 117 ⁽⁵⁾	x Hard seat cushions and beds
HR53021	HR53085	Grey	H70	205	85	51	2,1	85	FMVSS302(4), CAL TB 117 ⁽⁵⁾	x Seat cushions and mattresses, toppers
HR65018	HR65071	White	H90	205	85	53	1,8	70	FMVSS302(4), CAL TB 117 ⁽⁵⁾	x Seat cushions and mattresses, toppers

RICHGUARD® COMBUSTION MODIFIED HIGH RESILIENCE

RG32031	RG32125	White	H90	205	100	30	3.1	125	FMVSS302 ⁽⁴⁾ , CAL TB 117 ⁽⁵⁾ , Crib V ⁽⁶⁾	x CMHR for mattresses and seat cushions
RG45049	RG45195	Green	H55	205	91	43	4,9	195	FMVSS302 ⁽⁴⁾ , CAL TB 117 ⁽⁵⁾ , Crib V ⁽⁶⁾	x CMHR for seat cushions
RG55070	RG55280	White	H90	203	80	53	7,0	280	FMVSS302 ⁽⁴⁾ , CAL TB 117 ⁽⁵⁾ , Crib V ⁽⁶⁾	x CMHR for hard seat cushions

MOULDED FOAMS

RP5500	RP 55 00	Dark Grey	H78			55				
HR5500	HR 55 00	White	H90			55			FMVSS302 ⁽⁴⁾ , CAL TB 117 ⁽⁵⁾ E4 ⁽¹⁰⁾	x
MD5500	MD 55 00	White	H90			53			FMVSS302 ⁽⁴⁾ , CAL TB 117 ⁽⁵⁾ E4 ⁽¹⁰⁾	x
RG6000	RG 60 00	Green	H62			58			FMVSS302 ⁽⁴⁾ , CAL TB 117 ⁽⁵⁾ , Crib V ⁽⁶⁾	x
RG7500	RG 75 00	Green	H62			73			FMVSS302 ⁽⁴⁾ , CAL TB 117 ⁽⁵⁾ , Crib V ⁽⁶⁾	x
VE8000	VE 80 00	White	H90			78			FMVSS302 ⁽⁴⁾ , CAL TB 117 ⁽⁵⁾	x

- (1) ISO 845
 (2) ISO 3386/1 (INDICATIVE)
 (3) EN ISO 2439/B
 (4) Federal Motor Vehicle Safety Standard 302
 (5) California Technical Bulletin 117-2013, Section 3
 (6) Furniture and Furnishings (Fire)(Safety) Regulations SI 1324 1988, Amended 1989, 1993, 2010
 (7) Nett density (Kg/m³)
 (8) - Reduced burning characteristics are guaranteed when leaving the factory.
 - Carpenter Sweden AB cannot be held responsible for further treatment.
 (9) Oeko-Tex Standard 100 product class I, certificate number 1276-203
 (10) - Type-approved and Certified by the RDW
 - Horizontal Burning rate according to ECE Regulation No 118, Annex 6
 - Vertical burning rate according to ECE Regulation No. 118, Annex 8

- The given figures are average values to which our tolerances apply; susceptible to alterations.

Tolerance*	Length (cm)	Width (cm)	Height (cm)
AM/AS/RF/RS/RX	0+2	0+2	0+4
AU/RG/HR/LS/NA/GC/HS	0+2	0+7	0+4
VA/VC/VE/VG/VL/NV	0+3	0+7	0+5

* Not valid for moulded foams

Net Density ^{(1)*}		Hardness ⁽³⁾	
Min.	-5%	Min.	-15%
Max	+5%	Max	+15%

* Not valid for moulded foams

Tolerance Moulded Foams

Net Density ⁽¹⁾		Hardness ⁽³⁾	
Min.	-10%	Min.	x
Max	+10%	Max	x

CODE-KEY FOR LETTERS

AM	Antimicrobial Polyether
AS	Antistatic Polyether
AU	Aurora
FL	Flame Laminatable Polyether
GC	Large cell Polyether
HR	High Resilience
HS	Hypersoft
HY	Hybrid
LS	Lastilux
NA	Naturalis
NV	Naturalis Visco
RB	Richbond Combustion Modified Rebond
RF	Fire retardent Polyether
RG	Combustion Modified High Resilience
RP	Standard Polyether
RS	Sponge
RX	Combustion Modified Polyether
SE	Serene
VA	Celsius Visco elastic with antimicrobial
VC	Celsius Combustion modified Visco elastic
VE	Celsius Visco Elastic
VG	Clima Visco Elastic
VL	Celsius Combustion Modified Viscolux.

CODE – KEY FOR FOAM PROCESS

V	Vertical process
H	Horizontal process



RDW



RICHFOAM®, RICHGUARD®, RICHBOND® and CELSIUS® are all registered trademarks of Carpenter Co.

General information

Product

Milo Family

Program operator:

The Norwegian EPD Foundation
Post Box 5250 Majorstuen, 0303 Oslo, Norway
Phone: +47 977 22 020
web: www.epd-norge.no

Declaration number:

NEPD-8812-8472

This declaration is based on Product Category Rules:

CEN Standard EN 15804:2012+A2:2019 serves as core PCR
NPCR 026:2022 Part B for Furniture

Statement of liability:

The owner of the declaration shall be liable for the underlying information and evidence. EPD Norway shall not be liable with respect to manufacturer information, life cycle assessment data and evidences.

Declared unit:

1 pcs Milo Family

Declared unit (cradle to gate) with option:

A1-A3,A4,A5,B2,B3,B4,C1,C2,C3,C4,D

Functional unit:

MIL0 is a armchair and footstool with fluid lines and a distinctive identity. It adapts to various settings, ideal for relaxation or communication. Designed for longevity, its covers are easily replaceable, and the upholstery invites users to linger.

General information on verification of EPD from EPD tools:

Independent verification of data, other environmental information and the declaration according to ISO 14025:2010, § 8.1.3 and § 8.1.4. Verification of each EPD is made according to EPD-Norway's guidelines for verification and approval requiring that tools are i) integrated into the company's environmental management system, ii) the procedures for use of the EPD tool are approved by EPD-Norway, and iii) the process is reviewed annually by an independent third party verifier. See Appendix G of EPD-Norway's General Programme Instructions for further information on EPD tools

Verification of EPD tool:

Independent third party verification of the EPD tool, background data and test-EPD in accordance with EPDNorway's procedures and guidelines for verification and approval of EPD tools.

Third party verifier:

Elisabet Amat, GREENIZE projects

(no signature required)

Owner of the declaration:

Johanson Design AB
Contact person: Lucas Carlsson
Phone: +46 (0) 433 725 00
e-mail: lucas@johansondesign.se

Manufacturer:

Johanson Design AB

Place of production:

Johanson Design AB
Anders Anderssons väg 7
285 35 Markaryd, Sweden

Management system:

ISO 14001

Organisation no:

SE556358520601

Issue date:

23.01.2025

Valid to:

23.01.2030

Year of study:

2024

Comparability:

EPD of construction products may not be comparable if they not comply with EN 15804 and seen in a building context.

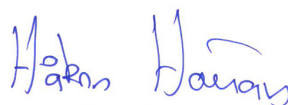
Development and verification of EPD:

The declaration is created using EPD tool lca.tools ver EPD2022.03, developed by LCA.no. The EPD tool is integrated in the company's management system, and has been approved by EPD Norway.

Developer of EPD: Lucas Carlsson

Reviewer of company-specific input data and EPD: Sandra Rube

Approved:



Håkon Hauan
Managing Director of EPD-Norway

Product

Product description:

With its welcoming embrace and fluid lines MILO is a timeless armchair and footstool with a personality that's sure to make it a discreet focus of attention in any room. The armchair comes in three models with a matching footstool. The design is characterised by clear, flowing lines, soft yet well-defined contours, a seat shell with an iconic form and a well-coordinated backrest that all combine to give the chair a distinctive identity that is very much at home in today's design landscape. "MILO can adopt a range of different personalities and adapts easily to a wide variety of settings, purposes and conditions. It is ideal both as a solitary for relaxation and reflection, and grouped to provide a setting for effective communication in open-plan offices, hotel lobbies or lounges," say Böttcher & Kayser.

During the manufacturing process considerable emphasis was placed on constructing an item of furniture with the potential to be simply re-used by easily replacing the covers if they become tired and worn. The padding on the outside of the arms is held firmly in place, but the inside is more loosely upholstered to accentuate the soft, welcoming qualities that invite users to linger a little longer.

Product specification

This declaration focuses on an in-depth study of Milo Low 03

The table on page 12 of this declaration provides the key environmental indicators for the other models within the product family

Materials	kg	%	Recycled share in material (kg)	Recycled share in material (%)
Plastic - Nylon (PA)	0,00	0,03	0,00	0,00
Plastic - Polyethylene (LDPE)	0,01	0,07	0,00	0,00
Powder coating	0,06	0,44	0,00	0,00
Metal - Aluminium	3,46	25,36	3,36	97,00
Metal - Steel	4,81	35,26	0,96	20,00
Plastic - Polyurethane (PUR)	4,09	29,98	0,00	0,00
Textile - Recycled polyester	1,09	8,01	1,09	100,00
Wood - Plywood	0,12	0,84	0,00	0,00
Total	13,64	100,00	5,41	

Packaging	kg	%	Recycled share in material (kg)	Recycled share in material (%)
Packaging - Cardboard	0,45	12,00	0,00	0,00
Recycled cardboard	3,30	88,00	3,30	100,00
Total incl. packaging	17,39	100,00	8,71	

Technical data:

Volume 0.46 m³ - (excluding packaging)

Volume 0.51 m³ - (including packaging)

Total height 80 cm

Total width 80 cm

Total depth 80 cm

Seat height 42 cm

Seat width 52 cm

Seat depth 46 cm

Complied with technical standards:

EN 16139:2013 Furniture - Strength, durability and safety - Requirements for non-domestic seating

Möbelfakta certified

You can find all certifications and test results here:

<https://johansondesign.com/downloads/certificate>

Market:

World Wide

Reference service life, product

15 years (5 year warranty)

Reference service life, building

LCA: Calculation rules

Declared unit:

1 pcs Milo Family

Cut-off criteria:

All major raw materials and all the essential energy is included. The production processes for raw materials and energy flows with very small amounts (less than 1%) are not included. These cut-off criteria do not apply for hazardous materials and substances.

Allocation:

The allocation is made in accordance with the provisions of EN 15804. Incoming energy and water and waste production in-house is allocated equally among all products through mass allocation. Effects of primary production of recycled materials is allocated to the main product in which the material was used. The recycling process and transportation of the material is allocated to this analysis.

Data quality:

Specific data for the product composition are provided by the manufacturer. They represent the production of the declared product and were collected for EPD development in the year of study. Background data is based on registered EPDs according to EN 15804, Ostfold Research databases, ecoinvent and other LCA databases. The data quality of the raw materials in A1 is presented in the table below.

Fabric used in the calculation is Camira Oceanic, a 100% post-consumer recycled polyester

A3 Data Collection (Production Phase)

Data for the A3 module, encompassing the production phase, was collected in 2020. This data includes all relevant inputs and outputs associated with manufacturing processes.

A4 Data Collection (Transport to Customer)

Transport data for the A4 module was sourced from Trafa.se and reflects operations during the years 2021-2022. According to statistics from Trafikanalys, the average distance covered by a Swedish heavy-duty truck transporting furniture in domestic traffic was approximately 143 kilometers in 2022, with an average of 153 kilometers for the period 2012-2022. These values are based on representative industry conditions and account for the most recent data on logistics efficiency and route optimization.

A5 Data (Packaging Disposal)

For the A5 module, it is assumed that packaging materials are automatically handled and disposed of in alignment with standard waste management practices at this stage. This assumption aligns with typical end-of-life scenarios for packaging in regulated waste systems.

Maintenance Data (B2 Module)

Maintenance requirements are calculated based on typical cleaning scenarios over the product's lifespan, assumed to be 15 years:

Vacuum cleaning: Energy consumption is calculated assuming a 900 W vacuum cleaner operating for 30 seconds per week over 15 years.

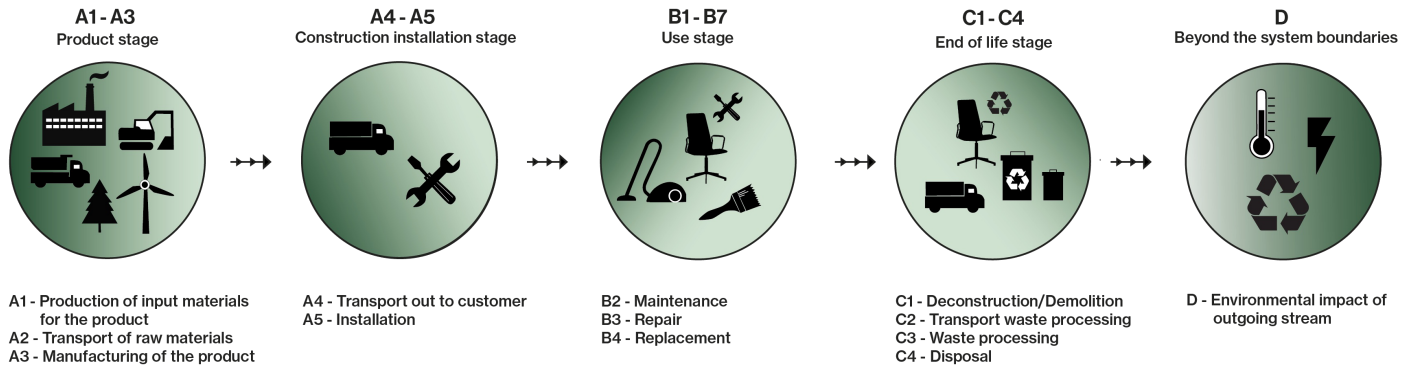
Wet cleaning: Water consumption is estimated at 0.0005 m³ (equivalent to 0.5 liters) per cleaning session, with cleaning occurring once per week for 15 years.

Materials	Source	Data quality	Year
Metal - Aluminium	ecoinvent 3.6	Database	2019
Metal - Steel	ecoinvent 3.6	Database	2019
Packaging - Cardboard	Modified ecoinvent 3.6	Database	2019
Plastic - Nylon (PA)	ecoinvent 3.6	Database	2019
Plastic - Polyethylene (LDPE)	ecoinvent 3.6	Database	2019
Plastic - Polyurethane (PUR)	ecoinvent 3.6	Database	2019
Powder coating	ecoinvent 3.6	Database	2019
Recycled cardboard	Modified ecoinvent 3.6	Database	2019
Textile - Recycled polyester	SCS-EPD-08784	EPD	2020
Wood - Plywood	modified ecoinvent 3.6	Database	2019

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 materials	Transport	Manufacturing	Transport	Assembly	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	X	X	MND	X	X	X	MND	MND	MND	X	X	X	X	X

System boundary:



Additional technical information:

To achieve the best possible climate footprint, it's essential to take care of your furniture. The longer you maintain and care for your products, the better it is for the environment. Use our care instructions for optimal results.

You find it here:

<https://johansondesign.com/downloads>

Johanson Design is a company committed to sustainability and holds various certifications that underscore its dedication to environmental responsibility and quality.

Environmental Management System (ISO 14001):

Johanson has implemented an Environmental Management System (EMS) in accordance with ISO 14001 standards. This certification demonstrates the company's commitment to minimizing its environmental impact by systematically identifying, managing, and reducing its environmental footprint across all aspects of its operations.

FSC Certification:

Johanson sources its wood materials from responsibly managed forests certified by the Forest Stewardship Council (FSC). This certification ensures that the wood used in its products is harvested in an environmentally and socially responsible manner, promoting the conservation of forests and the well-being of forest-dependent communities.

Möbelfakta Certification:

Johanson products meet the standards set by Möbelfakta, a certification system for furniture. Möbelfakta evaluates products based on criteria such as quality, environment, and social responsibility, ensuring that certified products meet rigorous sustainability and performance standards.

LCA: Scenarios and additional technical information

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

Transport from production place to user (A4)	Capacity utilisation (incl. return) %	Distance (km)	Fuel/Energy Consumption	Unit	Value (Liter/tonne)
Truck, 16-32 tonnes, EURO 6 (km)	36,7 %	143	0,043	l/tkm	6,15
Assembly (A5)	Unit	Value			
Waste, packaging, corrugated board box, 0 % recycled, to average treatment (kg)	kg	0,45			
Waste, packaging, cardboard, 100 % recycled, to average treatment (kg)	kg	3,30			
Maintenance (B2)	Unit	Value			
Water, tap water (m3)	m3	0,39			
Electricity, Sweden (kWh)	kWh	5,85			
Waste, hazardous waste, to average treatment (kg)	kg	0,075			
Repair (B3)	Unit	Value			
Varnish (kg)	kg	0,075			
Transport to waste processing (C2)	Capacity utilisation (incl. return) %	Distance (km)	Fuel/Energy Consumption	Unit	Value (Liter/tonne)
Truck, 16-32 tonnes, EURO 6 (km)	36,7 %	85	0,043	l/tkm	3,66
Waste processing (C3)	Unit	Value			
Waste treatment per kg Wood, incineration with fly ash extraction (kg)	kg	0,11			
Waste treatment per kg Polyurethane (PU), incineration (kg)	kg	4,090			
Waste, materials to recycling (kg)	kg	1,99			
Waste treatment per kg Scrap steel, incineration with fly ash extraction (kg)	kg	4,81			
Waste treatment per kg Polyethylene, PE, incineration with fly ash extraction - C3 (kg)	kg	0,010			
Waste treatment per kg Plastics, Mixture, municipal incineration with fly ash extraction (kg)	kg	0,0040			
Waste treatment per kg Scrap aluminium, incineration with fly ash extraction (kg)	kg	3,46			
Waste treatment per kg Non-hazardous waste, incineration with fly ash extraction - C3 (kg)	kg	0,060			
Disposal (C4)	Unit	Value			
Landfilling of ashes from incineration of Wood, process per kg ashes and residues (kg)	kg	0,0013			
Landfilling of ashes from incineration of Polyurethane (PU), process per kg ashes and residues - C4 (kg)	kg	0,15			
Landfilling of ashes and residues from incineration of Scrap steel (kg)	kg	3,17			
Landfilling of ashes from incineration of Polyethylene, PE, process per kg ashes and residues - C4 (kg)	kg	0,00035			
Landfilling of ashes and residues from incineration of Scrap aluminium (kg)	kg	3,10			
Landfilling of ashes from incineration of Non-hazardous waste, process per kg ashes and residues - C4 (kg)	kg	0,014			
Landfilling of ashes from incineration of Plastics, Mixture, municipal incineration with fly ash extraction, process per kg ashes and residues - C4 (kg)	kg	0,00013			
Benefits and loads beyond the system boundaries (D)	Unit	Value			
Substitution of thermal energy, district heating, in Norway (MJ)	MJ	89,11			
Substitution of electricity, in Norway (MJ)	MJ	5,89			
Substitution of primary steel with net scrap (kg)	kg	1,30			
Substitution of primary aluminium with net scrap (kg)	kg	0,010			

LCA: Results

The LCA results are presented below for the declared unit defined on page 2 of the EPD document.

Environmental impact							
Indicator		Unit	A1-A3	A4	A5	B2	B3
	GWP-total	kg CO ₂ -eq	6,04E+01	4,07E-01	6,43E+00	5,45E-01	1,60E-01
	GWP-fossil	kg CO ₂ -eq	6,55E+01	4,06E-01	6,07E-02	5,18E-01	1,60E-01
	GWP-biogenic	kg CO ₂ -eq	-5,17E+00	1,68E-04	6,37E+00	7,06E-03	6,42E-04
	GWP-luluc	kg CO ₂ -eq	8,74E-02	1,45E-04	2,01E-05	1,95E-02	1,29E-04
	ODP	kg CFC11 -eq	4,20E-06	9,20E-08	1,28E-08	1,67E-07	1,60E-08
	AP	mol H ⁺ -eq	3,31E-01	1,17E-03	2,87E-04	2,86E-03	2,09E-03
	EP-FreshWater	kg P -eq	4,70E-03	3,25E-06	4,98E-07	3,29E-05	8,08E-06
	EP-Marine	kg N -eq	7,09E-02	2,31E-04	9,50E-05	4,84E-04	1,61E-04
	EP-Terrestrial	mol N -eq	6,60E-01	2,58E-03	1,03E-03	6,12E-03	1,68E-03
	POCP	kg NMVOC -eq	2,15E-01	9,90E-04	2,96E-04	1,55E-03	6,27E-04
	ADP-minerals&metals ¹	kg Sb-eq	1,45E-02	1,12E-05	1,48E-06	1,59E-05	3,78E-06
	ADP-fossil ¹	MJ	9,68E+02	6,14E+00	8,49E-01	3,74E+01	2,77E+00
	WDP ¹	m ³	3,47E+03	5,94E+00	1,08E+00	3,56E+03	9,91E+00

Indicator		Unit	B4	C1	C2	C3	C4	D
	GWP-total	kg CO ₂ -eq	0	0	2,42E-01	1,14E+01	8,06E-02	-2,07E+00
	GWP-fossil	kg CO ₂ -eq	0	0	2,42E-01	1,12E+01	8,05E-02	-2,05E+00
	GWP-biogenic	kg CO ₂ -eq	0	0	1,00E-04	1,93E-01	5,79E-05	-2,30E-03
	GWP-luluc	kg CO ₂ -eq	0	0	8,60E-05	7,43E-05	2,26E-05	-2,03E-02
	ODP	kg CFC11 -eq	0	0	5,47E-08	5,90E-08	2,27E-08	-3,76E-02
	AP	mol H ⁺ -eq	0	0	6,94E-04	9,96E-03	5,30E-04	-1,20E-02
	EP-FreshWater	kg P -eq	0	0	1,93E-06	4,36E-06	8,43E-07	-1,38E-04
	EP-Marine	kg N -eq	0	0	1,37E-04	5,53E-03	1,87E-04	-2,95E-03
	EP-Terrestrial	mol N -eq	0	0	1,54E-03	5,31E-02	2,07E-03	-3,10E-02
	POCP	kg NMVOC -eq	0	0	5,88E-04	1,26E-02	5,95E-04	-1,17E-02
	ADP-minerals&metals ¹	kg Sb-eq	0	0	6,67E-06	2,21E-06	1,26E-06	-2,98E-05
	ADP-fossil ¹	MJ	0	0	3,65E+00	4,85E+00	1,69E+00	-2,07E+01
	WDP ¹	m ³	0	0	3,53E+00	1,48E+01	4,19E+00	-7,23E+01

GWP-total = Global Warming Potential total; GWP-fossil = Global Warming Potential fossil fuels; GWP-biogenic = Global Warming Potential biogenic; GWP-luluc = Global Warming Potential land use and land use change; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential, Accumulated Exceedance; EP-freshwater = Eutrophication potential, fraction of nutrients reaching freshwater end compartment; EP-marine = Eutrophication potential, fraction of nutrients reaching marine end compartment; EP-terrestrial = Eutrophication potential, Accumulated Exceedance; POCP = Formation potential of tropospheric ozone; ADP-minerals&metals = Abiotic depletion potential for non-fossil resources; ADP-fossil = Abiotic depletion for fossil resources potential; WDP = Water (user) deprivation potential, deprivation-weighted water consumption

"Reading example: 9,0 E-03 = 9,0*10⁻³ = 0,009"

*INA Indicator Not Assessed

1. The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator

Remarks to environmental impacts

Additional environmental impact indicators

Indicator	Unit	A1-A3	A4	A5	B2	B3
 PM	Disease incidence	4,24E-06	2,49E-08	4,24E-09	2,28E-08	9,11E-09
 IRP ²	kgBq U235 -eq	2,44E+00	2,69E-02	3,63E-03	1,21E+00	8,89E-03
 ETP-fw ¹	CTUe	2,66E+03	4,55E+00	1,13E+00	2,26E+01	3,78E+00
 HTP-c ¹	CTUh	1,43E-07	0,00E+00	3,40E-11	9,97E-10	4,26E-10
 HTP-nc ¹	CTUh	1,74E-06	4,98E-09	1,42E-09	2,16E-08	3,36E-09
 SQP ¹	dimensionless	3,49E+02	4,30E+00	5,69E-01	1,63E+01	9,58E-01

Indicator	Unit	B4	C1	C2	C3	C4	D
 PM	Disease incidence	0	0	1,48E-08	4,31E-08	9,46E-09	-3,84E-07
 IRP ²	kgBq U235 -eq	0	0	1,60E-02	7,73E-03	6,85E-03	-4,73E-02
 ETP-fw ¹	CTUe	0	0	2,71E+00	4,77E+01	1,12E+00	-1,22E+02
 HTP-c ¹	CTUh	0	0	0,00E+00	9,89E-10	4,20E-11	-7,89E-09
 HTP-nc ¹	CTUh	0	0	2,96E-09	3,26E-08	1,24E-09	1,09E-07
 SQP ¹	dimensionless	0	0	2,55E+00	5,67E-01	3,74E+00	-5,03E+01

PM = Particulate Matter emissions; IRP = Ionizing radiation – human health; ETP-fw = Eco toxicity – freshwater; HTP-c = Human toxicity – cancer effects; HTP-nc = Human toxicity – non cancer effects; SQP = Soil Quality (dimensionless)

"Reading example: 9,0 E-03 = 9,0*10⁻³ = 0,009"

*INA Indicator Not Assessed

1. The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator

2. This impact category deals mainly with the eventual impact of low dose ionizing radiation on human health of the nuclear fuel cycle. It does not consider effects due to possible nuclear accidents, occupational exposure nor due to radioactive waste disposal in underground facilities. Potential ionizing radiation from the soil, from radon and from some construction materials is also not measured by this indicator.

Resource use							
Indicator		Unit	A1-A3	A4	A5	B2	B3
	PERE	MJ	1,45E+02	8,79E-02	1,40E-02	1,71E+01	2,35E-01
	PERM	MJ	3,14E+01	0,00E+00	-2,65E+01	0,00E+00	0,00E+00
	PERT	MJ	1,76E+02	8,79E-02	-2,65E+01	1,71E+01	2,35E-01
	PENRE	MJ	8,72E+02	6,14E+00	8,49E-01	3,75E+01	2,77E+00
	PENRM	MJ	1,83E+02	0,00E+00	0,00E+00	0,00E+00	7,61E-01
	PENRT	MJ	1,06E+03	6,14E+00	8,49E-01	3,75E+01	3,53E+00
	SM	kg	8,71E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
	RSF	MJ	1,05E+00	3,15E-03	4,63E-04	9,09E-02	8,97E-03
	NRSF	MJ	1,81E+00	1,12E-02	1,91E-03	2,33E-01	2,24E-03
	FW	m ³	1,13E+00	6,57E-04	4,00E-04	4,31E-01	4,09E-03

Indicator		Unit	B4	C1	C2	C3	C4	D
	PERE	MJ	0	0	5,23E-02	1,39E-01	3,54E-02	-4,71E+01
	PERM	MJ	0	0	0,00E+00	-4,93E+00	0,00E+00	0,00E+00
	PERT	MJ	0	0	5,23E-02	-4,79E+00	3,54E-02	-4,71E+01
	PENRE	MJ	0	0	3,65E+00	4,86E+00	1,69E+00	-2,07E+01
	PENRM	MJ	0	0	0,00E+00	-1,83E+02	0,00E+00	0,00E+00
	PENRT	MJ	0	0	3,65E+00	-1,79E+02	1,69E+00	-2,07E+01
	SM	kg	0	0	0,00E+00	0,00E+00	0,00E+00	0,00E+00
	RSF	MJ	0	0	1,87E-03	3,27E-03	9,28E-04	4,37E-02
	NRSF	MJ	0	0	6,69E-03	0,00E+00	4,81E-02	-1,19E+00
	FW	m ³	0	0	3,91E-04	1,67E-02	1,52E-03	-6,04E-02

PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non renewable primary energy resources used as raw materials; PENRT = Total use of non renewable primary energy resources; SM = Use of secondary materials; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Net use of fresh water

"Reading example: 9,0 E-03 = 9,0*10⁻³ = 0,009"

*INA Indicator Not Assessed

End of life - Waste

Indicator		Unit	A1-A3	A4	A5	B2	B3
	HWD	kg	6,61E+00	3,17E-04	0,00E+00	7,72E-02	6,29E-04
	NHWD	kg	1,16E+01	2,99E-01	3,75E+00	1,42E-01	7,35E-02
	RWD	kg	2,59E-02	4,18E-05	0,00E+00	5,37E-04	8,86E-06

Indicator		Unit	B4	C1	C2	C3	C4	D
	HWD	kg	0	0	1,88E-04	0,00E+00	6,39E+00	-7,41E-03
	NHWD	kg	0	0	1,78E-01	6,00E-02	1,56E-01	-7,90E-01
	RWD	kg	0	0	2,49E-05	0,00E+00	1,04E-05	-3,97E-05

HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed

"Reading example: 9,0 E-03 = $9,0 \cdot 10^{-3}$ = 0,009"

*INA Indicator Not Assessed

End of life - Output flow

Indicator		Unit	A1-A3	A4	A5	B2	B3
	CRU	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
	MFR	kg	4,22E-02	0,00E+00	3,49E+00	1,59E-02	0,00E+00
	MER	kg	6,99E-02	0,00E+00	5,11E-06	3,58E-02	0,00E+00
	EEE	MJ	4,54E-02	0,00E+00	2,14E-01	4,38E-05	0,00E+00
	EET	MJ	6,86E-01	0,00E+00	3,24E+00	6,63E-04	0,00E+00

Indicator		Unit	B4	C1	C2	C3	C4	D
	CRU	kg	0	0	0,00E+00	0,00E+00	0,00E+00	0,00E+00
	MFR	kg	0	0	0,00E+00	1,99E+00	0,00E+00	0,00E+00
	MER	kg	0	0	0,00E+00	1,26E+01	0,00E+00	0,00E+00
	EEE	MJ	0	0	0,00E+00	6,10E+00	0,00E+00	0,00E+00
	EET	MJ	0	0	0,00E+00	9,24E+01	0,00E+00	0,00E+00

CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported energy electrical; EET = Exported energy thermal

"Reading example: 9,0 E-03 = $9,0 \cdot 10^{-3}$ = 0,009"

*INA Indicator Not Assessed

Biogenic Carbon Content

Indicator	Unit	At the factory gate
Biogenic carbon content in product	kg C	5,23E-02
Biogenic carbon content in accompanying packaging	kg C	1,74E+00

Note: 1 kg biogenic carbon is equivalent to 44/12 kg CO₂

Additional requirements

Greenhouse gas emissions from the use of electricity in the manufacturing phase

National production mix from import, low voltage (production of transmission lines, in addition to direct emissions and losses in grid) of applied electricity for the manufacturing process (A3).

Electricity mix	Source	Amount	Unit
Electricity, Sweden (kWh)	ecoinvent 3.6	54,94	g CO ₂ -eq/kWh

Dangerous substances

The product contains no substances given by the REACH Candidate list.

Indoor environment

Additional Environmental Information

Key Environmental Indicators

Key environmental indicators	Unit	A1-A3	A4	A1-C4	A1-D
GWPtotal	kg CO ₂ -eq	60,41	0,41	79,68	77,61
Total energy consumption	MJ	1020,07	6,25	1095,56	1026,67
Amount of recycled materials	%	49,63			

Additional environmental impact indicators required in NPCR Part A for construction products

Indicator	Unit	A1-A3	A4	A5	B2	B3
GWPIOBC	kg CO ₂ -eq	6,69E+01	4,07E-01	6,07E-02	5,44E-01	1,60E-01

Indicator	Unit	B4	C1	C2	C3	C4	D
GWPIOBC	kg CO ₂ -eq	0	0	2,42E-01	1,12E+01	8,13E-02	-2,77E+00

GWP-IOBC: Global warming potential calculated according to the principle of instantaneous oxidation. In order to increase the transparency of biogenic carbon contribution to climate impact, the indicator GWP-IOBC is required as it declares climate impacts calculated according to the principle of instantaneous oxidation. GWP-IOBC is also referred to as GWP-GHG in context to Swedish public procurement legislation.

Variants and Options

Key environmental indicators (A1-A3) for variants of this EPD

Variants	Weight (kg)	GWPtotal (kg CO ₂ -eq)	Total energy consumption (MJ)	Amount of recycled materials (%)
Milo Low 03	17,40	60,41	1020,07	50,09
Milo Low 08	15,35	63,09	1081,18	36,78
Milo Low 09	15,85	65,75	1120,96	36,25
Milo High 03	21,07	69,30	1223,30	50,79
Milo High 08	19,04	72,10	1286,91	40,06
Milo High 09	19,54	74,75	1326,70	39,55
Milo Wing 03	21,85	73,81	1290,04	49,59
Milo Wing 08	19,79	76,49	1351,06	39,21
Milo Wing 09	20,29	79,14	1390,85	38,74

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