ENVIRONMENTAL PRODUCT DECLARATION

IN ACCORDANCE WITH EN 15804+A2 & ISO 14025 / ISO 21930

H402-1 LOCKER SECTION SLOPING ROOF

SONESSON INREDNINGAR AB

Programme: The International EPD® System, www.environdec.com	Programme operator: EPD International AB	EPD registration number: S-P-09735	Publication date: 2023-07-05	Valid until: 2028-07-04	Revision Date: 2023-10-23	Geographical scope: Sweden

An EPD should provide current information and may be updated if conditions change. The stated validity is therefore subject to the continued registration and publication at www.environdec.com.

GENERAL INFORMATION

MANUFACTURER INFORMATION

Manufacturer	Sonesson Inredningar AB
Address	J A Gahms gata 6, 421 31 Västra Frölunda
Contact details	mikael.lundman@sono.se
Website	www.sonesson.se

PRODUCT IDENTIFICATION

Product name	H402-1 locker section sloping roof
Additional label(s)	Clothes locker H301, H331, H401, H402, H431, H4Z2 Storage locker H403, H306, H406 School locker H302, H303, H403, H402
Place(s) of production	Malow, Poland
CPC code	3812 Other furniture, of a kind used in offices

The International EPD System

EPDs within the same product category but from different programs may not be comparable.

EPD INFORMATION

The EPD owner has the sole ownership, liability, and responsibility for the EPD. Construction products EPDs may not be comparable if they do not comply with EN 15804 and if they are not compared in a building context.

EPD program operator	The International EPD System
EPD standards	This EPD is in accordance with EN 15804+A2 and ISO 14025 standards.
Product category rules	The CEN Standard EN 15804 serves as the core PCR. In addition, the Int'l EPD System PCR 2019:14 Construction Products, version 1.2.5 (01.11.2022) as well as c-PCR-021 Furniture is used.
EPD author	Anna Ouchterlony, Emma Svensson Akusjärvi, Goodpoint AB
EPD verification	Independent verification of this EPD and data, according to ISO 14025: ☐ Internal certification ☑ External verification
Verification date	2023-07-05
EPD verifier	Bárbara Civit
EPD number	S-P-09735
Publishing date	2023-07-05
Revision date	2023-10-23
EPD valid until	2028-07-05

PRODUCT INFORMATION

PRODUCT DESCRIPTION

Sono manufactures lockers for different purposes with varied designs to satisfy different demands in different applications. The products have the same composition of material, they have fully welded constructions and eco-friendly powder-coated surfaces.

The results in this EPD are based on the data for the heaviest locker, namely the School locker H402, so that with a conservative approach the result can be used for the other 1-sectional products as well. The lockers come with a variety of choices and accessories (door, material, color, lock etc.). The modelled article is a standard locker with the thickest of the steel door options. Here follows a list of the products included in this EPD. To use the EPD for the corresponding 2-, 3- or 4-sectional lockers the result needs to be multiplied with that factor. This will give a representative, although conservative value for these variations.

PRODUCT APPLICATION

The School lockers are used in schools or similar environments for storing educational material or personal belongings of the students. The school environment really makes great demands on smart solutions. Sono's school lockers have therefore been designed to make maximum use of limited surfaces and withstand tougher grip. They come in several models and sizes. In addition, they are designed to enable easy cleaning of surfaces. They are simply created for a smarter school day.

The Clothes lockers are more often used as closets for your outerwear at the workplace. Different types of work clothes are used in different workplaces. Desires for furnishing options in the wardrobes change according to need. Some work outdoors and want to be able to hang up wet work clothes to dry overnight. Others see more the locker as a wardrobe for your own outerwear during the working day. Therefore, we have a very wide range of both wardrobes and accessories.

The Storage lockers are suitable solutions where there is a need of lockable storage of personal belongings. It can be in the elegant setting of the beautiful concert hall or the theatre, in the modern designed office, at the gym or in the grocery store.

The products are mainly distributed on the Swedish market.

TECHNICAL SPECIFICATIONS

Weight: 15,3-40,3 kg in standard design.
Measurements: Width: 300-400 mm, Height: 1752-1902 mm, Depth: 400-550 mm.
The modelled article: 400x1902x550 (WxHxD)

PRODUCT STANDARDS

EN 16121:2013+A1:2018
TEST SEVERITY 2

PHYSICAL PROPERTIES OF THE PRODUCT

Density of the material, i.e., steel sheet DC01 - 7.86 g/cm3.

For more information about the products, see the product data sheets: www.sonesson.se

PRODUCT RAW MATERIAL COMPOSITION

Product and Packaging Material	Weight, kg	Post-consumer %	Renewable %	Country Region of origin
Steel	48,5	0	0	EU
Aluminium	0,013	0	0	EU
Plastic	0,007	0	0	EU
Rubber	0,006	0	0	EU
Powder coating	1,4	0	0	EU

SUBSTANCES, REACH - VERY HIGH CONCERN

The product does not contain any REACH SVHC substances in amounts greater than 0,1 % (1000 ppm).

PRODUCT LIFE-CYCLE

MANUFACTURING AND PACKAGING (A1-A3)

The environmental impacts considered for the product stage cover the manufacturing of raw materials used in the production as well as packaging materials and other ancillary materials. Also, fuels used by machines, and handling of waste formed in the production processes at the manufacturing facilities are included in this stage. The study also considers the material losses occurring during the manufacturing processes as well as losses during electricity transmission.

The finished steel formats (sheets) are transported to the production site from the steel services. The material is placed in the machine cassettes. From the cassettes, the machine takes the appropriate sheet formats and places them on the conveyor belt. The sheet metal then passes through the appropriate stations:

1. punching (the sheet undergoes punching treatment to create various types of holes, perforations, etc.).
2. bending (the sheet metal is bent, shaped)
3. welding (welding is automated and performed by a robot).

The employee then transports the welded cabinet to the painting department. There, the cabinet undergoes the following processes:

1. washing - this is a closed circuit. There is a small sewage treatment plant in Malow.
2. powder coating. The booths operate in a closed circuit, waste generation is negligible.
3. assembly (equipping the product with doors, locks, bumpers, clothing bars, hooks, etc.).
4. wrapping (the product is placed on the foiling machine, the bottom rim protection is placed underneath, and a cardboard hood is placed on top. During filming, the corners of the product are secured with a solid cardboard corner protector).

The product is then placed in the warehouse and sent to the customer. See the manufacturing process chart on the next page.

TRANSPORT AND INSTALLATION (A4-A5)

Transportation impacts occurred from final products delivery to construction site (A4) cover fuel direct exhaust emissions, environmental impacts of fuel production, as well as related infrastructure emissions.

Transport in A4 covers the distance from the manufacturing plant in Malow, Poland to the location of Sono outside of Gothenburg in Sweden.

PRODUCT USE AND MAINTENANCE (B1-B7)

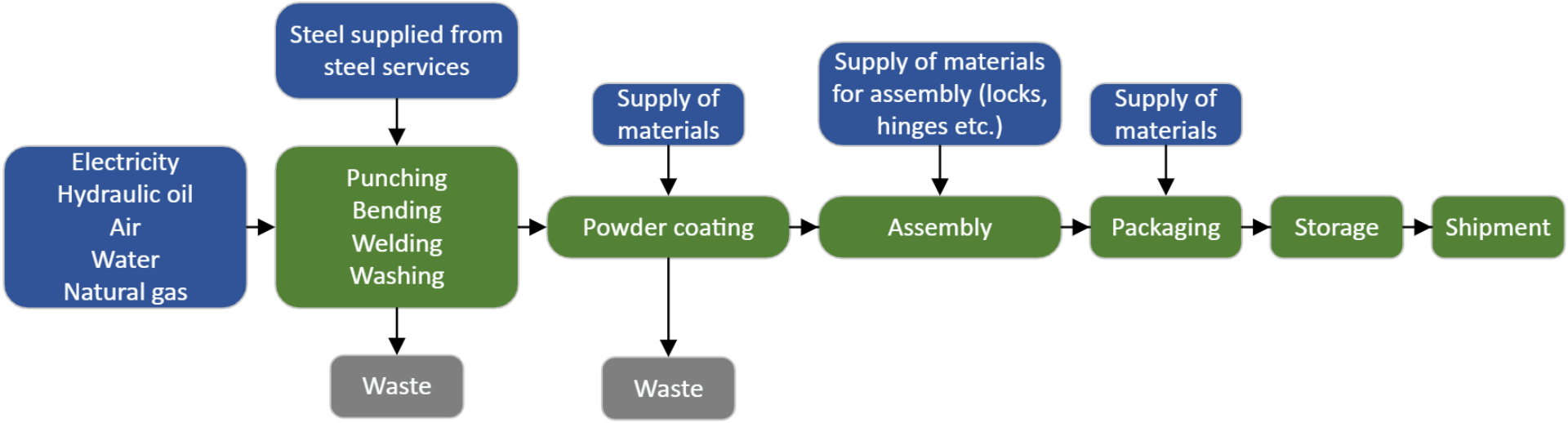
The life cycle stage of use and maintenance is excluded from the system boundaries since it is considered negligible. They need a wipe with a damp cloth every now and then depending on the frequency and type of usage. During their lifetime, the lockers require minimal maintenance. Repair, replacement, and refurbishment is not considered as it is normally not required during the products estimated lifetime of 15 years. Operational energy use is not considered as it is not relevant for this product.
Air, soil, and water impacts during the use phase have not been studied.

PRODUCT END OF LIFE (C1-C4, D)

No machinery is used for the demolition of the lockers at the location of usage. The distance for the transportation to the waste treatment facility is assumed to be 100 km, based on a mapping of recycling sorting facilities

in southern Sweden. The lockers consist almost exclusively of galvanized steel for which material recycling is the modelled end-of-life scenario. The remaining components of plastic/rubber are assumed to be incinerated with energy recovery. No material ends up in landfill or is treated without energy recovery.

MANUFACTURING PROCESS



LIFE-CYCLE ASSESSMENT

LIFE-CYCLE ASSESSMENT INFORMATION

Period for data	2021

DECLARED AND FUNCTIONAL UNIT

Declared unit	1 locker
Mass per declared unit	49.96 kg
Reference service life	15

BIOGENIC CARBON CONTENT

Product's biogenic carbon content at the factory gate

Biogenic carbon content in product, kg C	0
Biogenic carbon content in packaging, kg C	1.913

SYSTEM BOUNDARY

This EPD covers the cradle to gate with options scope with the following modules: A1 (Raw material supply), A2 (Transport) and A3 (Manufacturing), A4 (Transport), A5 (Assembly) and C1 (Deconstruction), C2 (Transport at end-of-life), C3 (Waste processing) and C4 (Disposal). In addition, module D - benefits and loads beyond the system boundary is included.

Product stage			Assembly stage		Use stage							End of life stage				Beyond the system boundaries		
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D	D	D
x	x	x	x	x	MND	MND	MND	MND	MND	MND	MND	x	x	x	x	x	x	x
EU	EU	EU	EU	EU	-	-	-	-	-	-	-	EU	EU	EU	EU	EU		
Raw materials	Transport	Manufacturing	Transport	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	Deconstr./demol.	Transport	Waste processing	Disposal	Reuse	Recovery	Recycling

Modules not declared = MND.

CUT-OFF CRITERIA

The study does not exclude any modules or processes which are stated mandatory in the EN 15804:2012+A2:2019 and the applied PCR. The study does not exclude any hazardous materials or substances.

The study includes all major raw material and energy consumption. All inputs and outputs of the unit processes, for which data is available for, are included in the calculation. There is no neglected unit process more than 1% of total mass or energy flows. The module specific total neglected input and output flows also do not exceed 5% of energy usage or mass.

The potential use of water for cleaning of the lockers during its lifetime is considered negligible and hence excluded from the study.

ALLOCATION, ESTIMATES AND ASSUMPTIONS

Allocation is required if some material, energy, and waste data cannot be measured separately for the product under investigation.

In this study, as per EN 15804, allocation is conducted in the following order.

1. Allocation should be avoided.
2. Allocation should be based on physical properties (e.g., mass, volume) when the difference in revenue is small.

3. Allocation should be based on economic values.

For the locker considered in this EPD - physical allocation is used for data on energy use, air emissions, ancillary material and packaging used in the manufacturing plant.

Allocation used in Ecoinvent 3.6 environmental data sources follows the methodology 'allocation, cut-off by classification'. This methodology is in line with the requirements of the EN 15804 -standard.

AVERAGES AND VARIABILITY

The EPD is produced based on a conservative approach by modelling the largest, and hence worst case in a range of different sizes and types of lockers. The raw material composition of the lockers is the same and hence will the lockers of a smaller size and weight be covered by the results presented in this EPD. An approximation of results for the smaller lockers could be done by multiplying the results by the weight factor (starting on factor 1 of the modelled article and multiplying with the share of weight for the article in question). It should be noted that the EPD is modelled for a 1-sectional locker. For the EPD to be valid for 2-, 3- or 4 sections a multiplication by the corresponding factor needs to be performed. This will be considered a conservative approach as the material intensity does not amount to 2, 3 and 4 times the weight of the 1-sectional locker but rather 0,75, 1,6 and 2,4 respectively.

The International EPD System additional data requirements

Data specificity and GWP-GHG variability for GWP-GHG for A1-A3.

Supply-chain specific data for GWP-GHG	> 95 %

DIFFERENCES VS THE PREVIOUS VERSION

C-PCR-021 Furniture is used as complementary PCR for the studied product & the reference was included in the EPD.

ENVIRONMENTAL IMPACT DATA

Note: additional environmental impact data may be presented in annexes.

CORE ENVIRONMENTAL IMPACT INDICATORS – EN 15804+A2, PEF

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP – total	kg CO_2e	1,52E2	4,94E0	5,08E1	2,08E2	1,03E1	8,6E0	MND	MND	MND	MND	MND	MND	MND	0E0	8,17E-1	1,18E0	0E0	-9,65E1
GWP – fossil	kg CO_2e	1,52E2	4,94E0	5,68E1	2,14E2	1,04E1	1,2E0	MND	MND	MND	MND	MND	MND	MND	0E0	8,16E-1	1,25E0	0E0	-9,6E1
GWP – biogenic	kg CO_2e	-2,47E-1	2,63E-3	-5,98E0	-6,22E0	5,56E-3	7,4E0	MND	MND	MND	MND	MND	MND	MND	0E0	4,39E-4	-7,07E-2	0E0	-4,62E-1
GWP – LULUC	kg CO_2e	2,32E-1	1,75E-3	1,85E-2	2,52E-1	3,7E-3	1,28E-4	MND	MND	MND	MND	MND	MND	MND	0E0	2,95E-4	1,4E-3	0E0	-2,24E-2
Ozone depletion pot.	kg CFC_{-11}e	8,54E-6	1,12E-6	7,42E-6	1,71E-5	2,37E-6	1,87E-8	MND	MND	MND	MND	MND	MND	MND	0E0	1,86E-7	1,77E-7	0E0	-3,15E-6
Acidification potential	mol H^+e	7,68E-1	2,02E-2	2,03E-1	9,92E-1	4,26E-2	1,03E-3	MND	MND	MND	MND	MND	MND	MND	0E0	2,34E-3	1,5E-2	0E0	-4,75E-1
EP-freshwater[3)]	kg Pe	8,76E-3	4,14E-5	2,73E-3	1,15E-2	8,72E-5	4,73E-6	MND	MND	MND	MND	MND	MND	MND	0E0	6,94E-6	8,51E-5	0E0	-5,75E-3
EP-marine	kg Ne	1,47E-1	5,99E-3	3,16E-2	1,84E-1	1,27E-2	4,56E-4	MND	MND	MND	MND	MND	MND	MND	0E0	4,65E-4	3,3E-3	0E0	-9,2E-2
EP-terrestrial	mol Ne	1,67E0	6,62E-2	3,52E-1	2,08E0	1,4E-1	3,7E-3	MND	MND	MND	MND	MND	MND	MND	0E0	5,19E-3	3,83E-2	0E0	-1,04E0
POCP (“smog”)	kg NMVOCe	7,36E-1	2,03E-2	1,16E-1	8,72E-1	4,28E-2	1,18E-3	MND	MND	MND	MND	MND	MND	MND	0E0	1,99E-3	1,05E-2	0E0	-4,96E-1
ADP-minerals & metals	kg Sbe	2,73E-3	1,34E-4	1,24E-4	2,99E-3	2,82E-4	1,67E-6	MND	MND	MND	MND	MND	MND	MND	0E0	2,25E-5	6,83E-5	0E0	-1,72E-3
ADP-fossil resources	MJ	1,67E3	7,45E1	7,52E2	2,5E3	1,57E2	1,86E0	MND	MND	MND	MND	MND	MND	MND	0E0	1,23E1	1,71E1	0E0	-7,93E2
Water use[2)]	m^3e depr.	8,97E1	2,4E-1	8,51E0	9,85E1	5,06E-1	1,8E-2	MND	MND	MND	MND	MND	MND	MND	0E0	4,04E-2	2,43E-1	0E0	-4,46E1

1) GWP = Global Warming Potential; 2) EP = Eutrophication potential. Required characterisation method and data are in kg P-eq. Multiply by 3,07 to get PO4e; 3) POCP = Photochemical ozone formation; 4) ADP = Abiotic depletion potential; 5) EN 15804+A2 disclaimer for Abiotic depletion and Water use and optional indicators except Particulate matter and Ionizing radiation, human health. The results of these environmental impact indicators shall be used with care as the uncertainties on these results are high or as there is limited experience with the indicator.

ADDITIONAL (OPTIONAL) ENVIRONMENTAL IMPACT INDICATORS – EN 15804+A2, PEF

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Particulate matter	Incidence	1,2E-5	3,44E-7	6,31E-7	1,3E-5	7,27E-7	3,25E-8	MND	MND	MND	MND	MND	MND	MND	0E0	5,2E-8	1,88E-7	0E0	-7,42E-6
Ionizing radiation[5)]	kBq U235e	3,71E0	3,26E-1	3,71E-1	4,41E0	6,87E-1	1,06E-2	MND	MND	MND	MND	MND	MND	MND	0E0	5,39E-2	8,52E-2	0E0	5,7E-2
Ecotoxicity (freshwater)	CTUe	6,57E3	5,75E1	4,72E2	7,1E3	1,21E2	2,13E0	MND	MND	MND	MND	MND	MND	MND	0E0	9,58E0	7,27E1	0E0	-5,44E3
Human toxicity, cancer	CTUh	1,06E-6	1,67E-9	1,29E-8	1,07E-6	3,52E-9	4,7E-10	MND	MND	MND	MND	MND	MND	MND	0E0	2,76E-10	1,79E-9	0E0	-5,15E-7
Human tox. non-cancer	CTUh	4,88E-6	6,5E-8	3,96E-7	5,34E-6	1,37E-7	5,83E-9	MND	MND	MND	MND	MND	MND	MND	0E0	1,05E-8	8,52E-8	0E0	1,13E-5
SQP	-	3,52E2	6,2E1	3,28E1	4,47E2	1,31E2	1,05E0	MND	MND	MND	MND	MND	MND	MND	0E0	1,05E1	4,27E0	0E0	-2,35E2

6) EN 15804+A2 disclaimer for Ionizing radiation, human health. 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; 7) SQP = Land use related impacts/soil quality.

USE OF NATURAL RESOURCES

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Renew. PER as energy	MJ	1,6E2	1,05E0	6,17E1	2,23E2	2,22E0	1,41E-1	MND	MND	MND	MND	MND	MND	MND	0E0	1,77E-1	2,68E0	0E0	-8,17E1
Renew. PER as material	MJ	0E0	0E0	6,35E1	6,35E1	0E0	-9,33E1	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	0E0	0E0	3,25E1
Total use of renew. PER	MJ	1,6E2	1,05E0	1,25E2	2,87E2	2,22E0	-9,31E1	MND	MND	MND	MND	MND	MND	MND	0E0	1,77E-1	2,68E0	0E0	-4,92E1
Non-re. PER as energy	MJ	1,67E3	7,45E1	7,35E2	2,48E3	1,57E2	1,86E0	MND	MND	MND	MND	MND	MND	MND	0E0	1,23E1	1,71E1	0E0	-7,93E2
Non-re. PER as material	MJ	9,27E-2	0E0	1,62E1	1,63E1	0E0	-1,67E1	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	-5,69E-1	0E0	0E0
Total use of non-re. PER	MJ	1,67E3	7,45E1	7,52E2	2,5E3	1,57E2	-1,49E1	MND	MND	MND	MND	MND	MND	MND	0E0	1,23E1	1,65E1	0E0	-7,93E2
Secondary materials	kg	7,94E0	0E0	8,85E-1	8,83E0	0E0	0E0	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	0E0	0E0	3,79E1
Renew. secondary fuels	MJ	0E0	0E0	0E0	0E0	0E0	0E0	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	0E0	0E0	0E0
Non-ren. secondary fuels	MJ	0E0	0E0	0E0	0E0	0E0	0E0	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	0E0	0E0	0E0
Use of net fresh water	m^3	1,16E0	1,27E-2	1,46E0	2,63E0	2,69E-2	7,62E-4	MND	MND	MND	MND	MND	MND	MND	0E0	2,13E-3	7,01E-3	0E0	-6,58E-1

8) PER = Primary energy resources.

END OF LIFE – WASTE

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Hazardous waste	kg	4,99E1	7,57E-2	2,4E0	5,24E1	1,6E-1	1,26E-2	MND	MND	MND	MND	MND	MND	MND	0E0	1,27E-2	0E0	0E0	-3,69E1
Non-hazardous waste	kg	4,41E2	5,19E0	1,23E2	5,69E2	1,1E1	8,57E-1	MND	MND	MND	MND	MND	MND	MND	0E0	8,74E-1	0E0	0E0	-3,12E2
Radioactive waste	kg	3,41E-3	5,1E-4	3,09E-4	4,23E-3	1,08E-3	1,14E-5	MND	MND	MND	MND	MND	MND	MND	0E0	8,45E-5	0E0	0E0	-2,22E-4

END OF LIFE – OUTPUT FLOWS

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Components for re-use	kg	0E0	0E0	0E0	0E0	0E0	0E0	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	0E0	0E0	0E0
Materials for recycling	kg	0E0	0E0	0E0	0E0	0E0	0E0	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	5E1	0E0	0E0
Materials for energy rec	kg	0E0	0E0	0E0	0E0	0E0	0E0	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	1,3E-2	0E0	0E0
Exported energy	MJ	0E0	0E0	0E0	0E0	0E0	1,22E1	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	4,16E-1	0E0	0E0

ENVIRONMENTAL IMPACTS – GWP-GHG - THE INTERNATIONAL EPD SYSTEM

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP-GHG	kg CO_2e	1,52E2	4,94E0	5,68E1	2,14E2	1,04E1	1,2E0	MND	MND	MND	MND	MND	MND	MND	0E0	8,16E-1	1,25E0	0E0	-9,6E1

10) This indicator includes all greenhouse gases excluding biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product as defined by IPCC AR 5 (IPCC 2013) This indicator Is almost equal to the GWP indicator originally defined in EN 15804:2012+A1:2013.

SCENARIO DOCUMENTATION

Manufacturing energy scenario documentation

Scenario parameter	Value
Electricity data source and quality	Reference product: Market for electricity, medium voltage (Reference product: electricity, medium voltage)
Electricity CO_2e / kWh	1.01
District heating data source and quality	Reference product: Heat and power co-generation, natural gas, conventional power plant, 100mw electrical (Reference product: electricity, high voltage)
District heating CO_2e / kWh	0,79

BIBLIOGRAPHY

ISO 14025:2010 Environmental labels and declarations – Type III environmental declarations. Principles and procedures.

ISO 14040:2006 Environmental management. Life cycle assessment. Principles and frameworks.

ISO 14044:2006 Environmental management. Life cycle assessment. Requirements and guidelines.

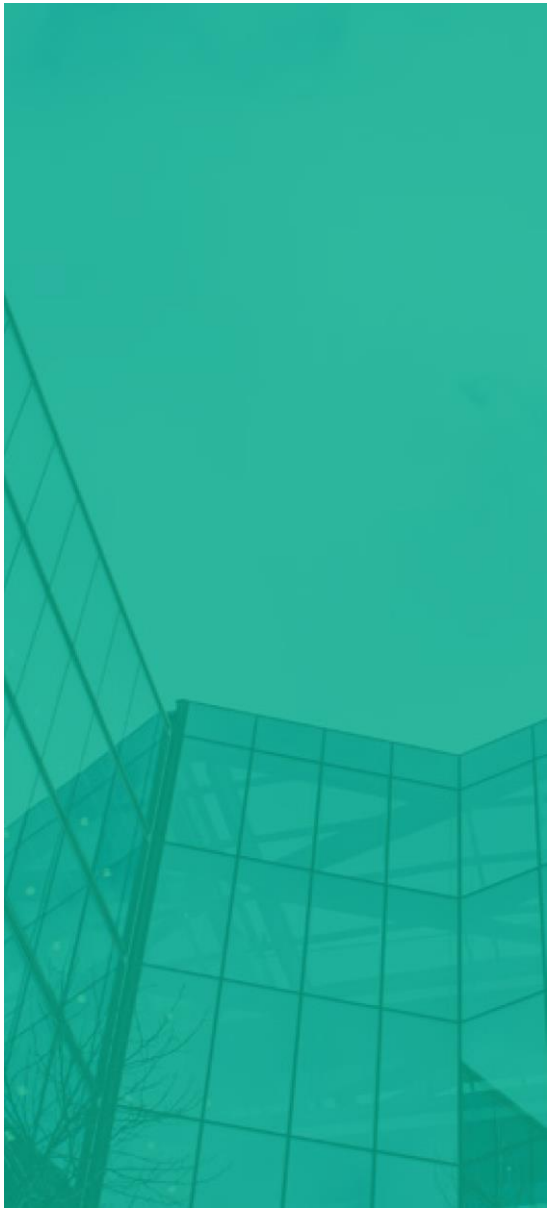
Ecoinvent database v3.6 (2019) and One Click LCA database.

EN 15804:2012+A2:2019 Sustainability in construction works – Environmental product declarations – Core rules for the product category of construction products.

Int'l EPD System PCR 2019:14 Construction products, version 1.2.5 (01.11.2022)

EPD. General Programme Instructions of the international EPD® system. Version 4.0

H402-1 locker section sloping roof LCA background report 15.06.2023



ABOUT THE MANUFACTURER

Sono is a leading supplier of storage lockers and dressing room furnishings.
The company was founded in 1909 and for more than 100 years we have equipped schools, sports facilities, offices and other public settings with our wide and customized assortment.

EPD AUTHOR AND CONTRIBUTORS

Manufacturer	Sonesson Inredningar AB
EPD author	Anna Ouchterlony, Emma Svensson Akusjärvi, Goodpoint AB
EPD verifier	Bárbara Civit
EPD program operator	The International EPD System
Background data	This EPD is based on Ecoinvent 3.6 (cut-off) and One Click LCA databases.
LCA software	The LCA and EPD have been created using One Click LCA Pre-Verified EPD Generator for

VERIFICATION STATEMENT

VERIFICATION PROCESS FOR THIS EPD

This EPD has been verified in accordance with ISO 14025 by an independent, third-party verifier by reviewing results, documents, and compliancy with EN 15804, ISO 14025 and ISO 14040/14044, following the process and checklists of the program operator for:

- This Environmental Product Declaration
- The Life-Cycle Assessment used in this EPD
- The background report (project report) for this EPD

Why does verification transparency matter? Read more online.

VERIFICATION OVERVIEW

Following independent third party has verified this specific EPD:

EPD verification information	Answer
Independent EPD verifier	Bárbara Civit
EPD verification started on	29.05.2023
EPD verification completed on	05.07.2023
Supply-chain specific data %	>95%
Approver of the EPD verifier	The International EPD System
Author & tool verification	**Answer**
EPD author	Anna Ouchterlony, Emma Svensson Akusjärvi, Goodpoint AB
EPD author training completion	2021.09.06
EPD Generator module	One Click LCA Pre-Verified EPD Generator for Construction products
Independent software verifier	Ugo Pretato, Studio Fieschi & soci
Software verification date	2021-05-11

THIRD-PARTY VERIFICATION STATEMENT

I hereby confirm that, following detailed examination, I have not established any relevant deviations by the studied Environmental Product Declaration (EPD), its LCA and project report, in terms of

- the data collected and used in the LCA calculations,
- the way the LCA-based calculations have been carried out,
- the presentation of environmental data in the EPD, and
- other additional environmental information, as present

with respect to the procedural and methodological requirements in ISO 14025:2010 and EN 15804:2012+A2:2019.

I confirm that the company-specific data has been examined as regards plausibility and consistency; the declaration owner is responsible for its factual integrity and legal compliance.

I confirm that I have sufficient knowledge and experience of construction products, this specific product category, the construction industry, relevant standards, and the geographical area of the EPD to carry out this verification.

I confirm my independence in my role as verifier; I have not been involved in the execution of the LCA or in the development of the declaration and have no conflicts of interest regarding this verification.

VERIFICATION AND REGISTRATION (ENVIRONDEC)

ISO standard ISO 21930 and CEN standard EN 15804 serves as the core Product Category Rules (PCR)	
PCR	PCR 2019:14 Construction products, version 1.11
PCR review was conducted by:	The Technical Committee of the International EPD® System. See www.environdec.com/TC for a list of members. Review chair: Claudia A. Peña, University of Concepción, Chile. The review panel may be contacted via the Secretariat www.environdec.com/contact.
Independent third-party verification of the declaration and data, according to ISO 14025:2006:	Independent verification of this EPD and data, according to ISO 14025: ☐ Internal certification ☑ External verification
Third party verifier	Bárbara Civit
	Approved by: The International EPD® System Technical Committee, supported by the Secretariat
Procedure for follow-up during EPD validity involves third party verifier	☐ yes ☑ no

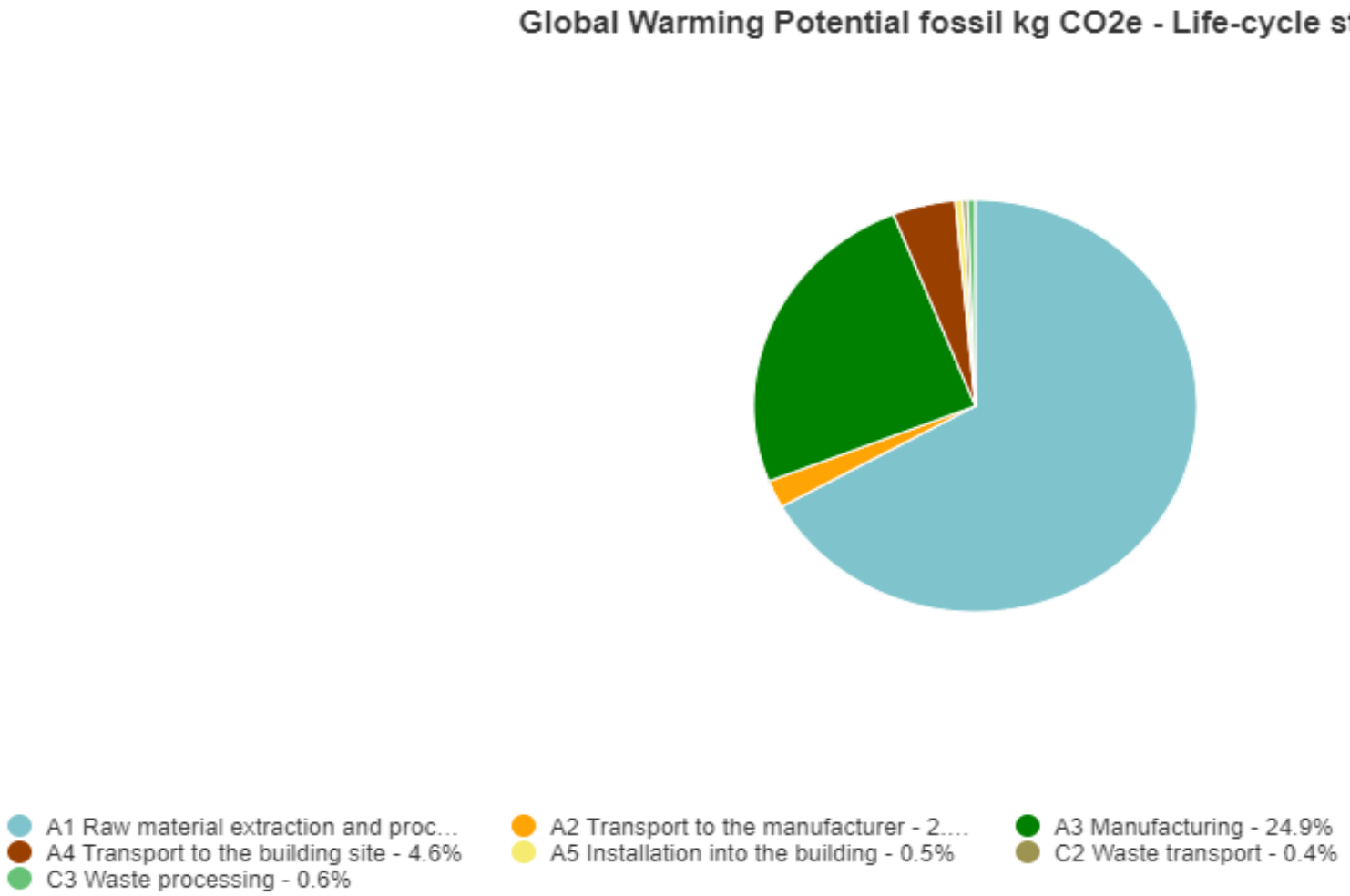
THE INTERNATIONAL EPD® SYSTEM

EPD International AB, Box 210 60, SE-100 31 Stockholm, Sweden, E-mail: info@environdec.com

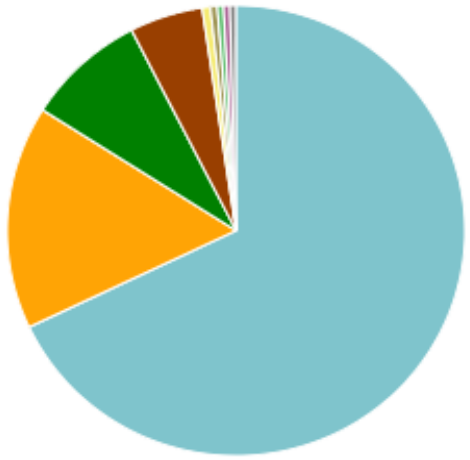
ANNEX 1 : ENVIRONMENTAL IMPACTS – EN 15804+A1, CML / ISO 21930

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Global Warming Pot.	kg CO_2e	1,47E2	4,9E0	5,46E1	2,06E2	1,03E1	1,54E0	MND	MND	MND	MND	MND	MND	MND	0E0	8,09E-1	1,23E0	0E0	-9,21E1
Ozone depletion Pot.	kg CFC_{-11}e	7,97E-6	8,93E-7	5,6E-6	1,45E-5	1,88E-6	1,61E-8	MND	MND	MND	MND	MND	MND	MND	0E0	1,48E-7	1,5E-7	0E0	-2,75E-6
Acidification	kg SO_2e	6,15E-1	9,91E-3	1,75E-1	7,99E-1	2,09E-2	8,51E-4	MND	MND	MND	MND	MND	MND	MND	0E0	1,65E-3	9,29E-3	0E0	-3,92E-1
Eutrophication	kg PO_4^3e	3,77E-1	2,04E-3	8,83E-2	4,67E-1	4,3E-3	1,6E-3	MND	MND	MND	MND	MND	MND	MND	0E0	3,4E-4	3,8E-3	0E0	-2,65E-1
POCP (“smog”)	kg C_2H_4e	9,04E-2	6,52E-4	8,56E-3	9,97E-2	1,38E-3	1,5E-4	MND	MND	MND	MND	MND	MND	MND	0E0	9,85E-5	4,36E-4	0E0	-6,28E-2
ADP-elements	kg Sbe	2,73E-3	1,34E-4	1,24E-4	2,99E-3	2,82E-4	1,67E-6	MND	MND	MND	MND	MND	MND	MND	0E0	2,25E-5	6,83E-5	0E0	-1,72E-3
ADP-fossil	MJ	1,67E3	7,45E1	7,52E2	2,5E3	1,57E2	1,86E0	MND	MND	MND	MND	MND	MND	MND	0E0	1,23E1	1,71E1	0E0	-7,93E2

ANNEX 6 : LIFE-CYCLE ASSESSMENT RESULT VISUALIZATION



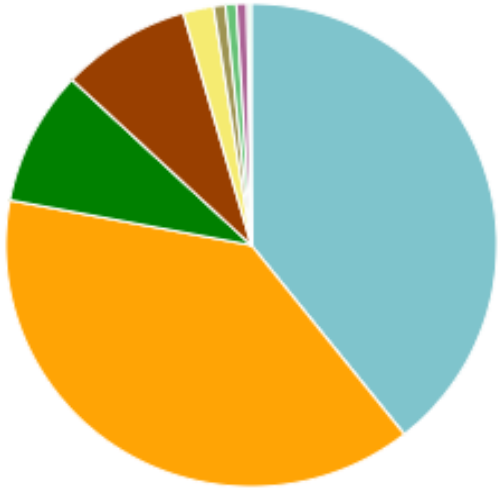
Global Warming Potential fossil kg CO2e - Classifications



- Steel - 68.0%
- Powder coating - 5.2%
- Plastic - 0.5%
- Energy - 16.0%
- Material recycling - 0.6%
- Emissions to air - 0.4%
- Electricity - 8.5%
- Wood - 0.5%
- Carton - 0.4%

Global Warming Potential fossil kg CO2e - Resource types

This is a drilldown chart. Click on the chart to view details



35:Electricity, gas, steam and air con...
Transport of goods, Road - 8.5%
Other direct emissions - 0.7%
Other resource types - 0.1%
24:Manufacture of basic metals - 38....
38:Waste collection, treatment and di...
17:Manufacture of paper and paper ...
20:Manufacture of chemicals and ch...
16:Manufacture of wood and of prod...
Plastic profiles and products - 0.1%