SENTINEL HOLDING
INSTITUT

SHI-PRODUKTPASS

Produkte finden - Gebäude zertifizieren

SHI-Produktpass-Nr.:

12065-10-1018

Kährs 3-Schicht Parkett Original

Warengruppe: Parkett

Kährs Parkett Deutschland GmbH & Co. KG
Konrad-Adenauer-Str. 15
72072 Tübingen

Produktqualitäten:

- SHI-Produkt bewertung 2024
- QNG Qualitätssiegel Nachhaltiges Gebäude
- DGNB NEUBAU 2023
- DGNB NEUBAU 2018

GEPRÜFT NACHHALTIGES PRODUKT – SHI PRODUKT PASS – SENTINEL HOLDING INSTITUT – www.sentinel-holding.eu

Köttner

Helmut Köttner
Wissenschaftlicher Leiter
Freiburg, den 13.10.2025

SENTINEL HOLDING
INSTITUT

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Kährs®

Inhalt

Wir sind stolz darauf, dass die SHI-Datenbank, die erste und einzige Datenbank für Bauprodukte ist, die ihre umfassenden Prozesse sowie die Aktualität regelmäßig von dem unabhängigen Prüfunternehmen SGS-TÜV Saar überprüfen lässt.

SGS TÜV SAAR

SENTINEL HOLDING
INSTITUT

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Kährs®

SHI-Produktbewertung 2024

Seit 2008 etabliert die Sentinel Holding Institut GmbH (SHI) einen einzigartigen Standard für schadstoffgeprüfte Produkte. Experten führen unabhängige Produktprüfungen nach klaren und transparenten Kriterien durch. Zusätzlich überprüft das unabhängige Prüfunternehmen SGS regelmäßig die Prozesse und Aktualität.

Kriterium	Produktkategorie	Schadstoffgrenzwert	Bewertung
SHI-Produktbewertung	Bodenbeläge aus Holz /-werkstoff	TVOC ≤ 300 µg/m^3 Formaldehyd ≤ 36 µg/m^3	Schadstoffgeprüft
Gültig bis: 26.08.2027			

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QNG - Qualitätssiegel Nachhaltiges Gebäude

Das Qualitätssiegel Nachhaltiges Gebäude, entwickelt durch das Bundesministerium für Wohnen, Stadtentwicklung und Bauwesen (BMWSB), legt Anforderungen an die ökologische, soziokulturelle und ökonomische Qualität von Gebäuden fest. Das Sentinel Holding Institut prüft Bauprodukte gemäß den QNG-Anforderungen für eine Zertifizierung und vergibt das QNG-ready Siegel. Das Einhalten des QNG-Standards ist Voraussetzung für den KfW-Förderkredit. Für bestimmte Produktgruppen hat das QNG derzeit keine spezifischen Anforderungen definiert. Diese Produkte sind als nicht bewertungsrelevant eingestuft, können jedoch in QNG-Projekten genutzt werden.

Kriterium	Pos. / Bauproduktgruppe	Betrachtete Stoffe	QNG Freigabe
3.1.3 Schadstoffvermeidung in Baumaterialien	2.3 Mehrschichtiges Holzparkett, Bambusbeläge und Bodenbeläge auf Holzwerkstoff-Trägerplatten	VOC / Emissionen / gefährliche Stoffe	QNG-ready
Nachweis: Prüfbericht des Instituts Eurofins Product Testing A/S vom 10.11.2022 (Nr. 392-2022-00430701_A_EN). Konformitätserklärung vom 09.10.2025 bestätigt die materielle Übereinstimmung mit dem geprüften Produkt. Keine geräucherte Variante.			

Produkt:
Kährs 3-Schicht Parkett Original

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DGNB Neubau 2023

Das DGNB-System (Deutsche Gesellschaft für Nachhaltiges Bauen) bewertet die Nachhaltigkeit von Gebäuden verschiedener Art. Das System ist sowohl anwendbar für private und gewerbliche Großprojekte als auch für kleinere Wohngebäude. Die Version 2023 setzt hohe Standards für ökologische, ökonomische, soziokulturelle und funktionale Aspekte während des gesamten Lebenszyklus eines Gebäudes.

Kriterium	Pos. / Relevante Bauteile / Bau-Materialien / Flächen	Betrachtete Stoffe / Aspekte	Qualitätsstufe
ENV 1.2 Risiken für die lokale Umwelt, 03.05.2024 (3. Auflage)	47c Holzwerkstoffe bei Bodenbelägen	VVOC, VOC, SVOC Emissionen und Gehalt an gefährlichen Stoffen	Qualitätsstufe: 4
Nachweis: Emission nach 28. Tg ≤ DE-UZ 176 nachgewiesen durch Prüfbericht des Instituts Eurofins Product Testing A/S vom 10.11.2022 (Nr. 392-2022-00430701_A_EN). Konformitätserklärung vom 09.10.2025 bestätigt die materielle Übereinstimmung mit dem geprüften Produkt			

Kriterium	Pos. / Relevante Bauteile / Bau-Materialien / Flächen	Betrachtete Stoffe / Aspekte	Qualitätsstufe
ENV 1.2 Risiken für die lokale Umwelt, 29.05.2025 (4. Auflage)	47c Bodenbeläge in der Innenanwendung (aus Holzwerkstoffen)	VVOC, VOC, SVOC Emissionen und Gehalt an gefährlichen Stoffen	Qualitätsstufe: 4
Nachweis: Emission nach 28. Tg ≤ DE-UZ 176 nachgewiesen durch Prüfbericht des Instituts Eurofins Product Testing A/S vom 10.11.2022 (Nr. 392-2022-00430701_A_EN). Konformitätserklärung vom 09.10.2025 bestätigt die materielle Übereinstimmung mit dem geprüften Produkt			

Produkt:
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DGNB Neubau 2018

Das DGNB-System (Deutsche Gesellschaft für Nachhaltiges Bauen) bewertet die Nachhaltigkeit von Gebäuden verschiedener Art. Das System ist sowohl anwendbar für private und gewerbliche Großprojekte als auch für kleinere Wohngebäude.

Kriterium	Pos. / Relevante Bauteile / Bau-Materialien / Flächen	Betrachtete Stoffe / Aspekte	Qualitätsstufe
ENV 1.2 Risiken für die lokale Umwelt	47a Industriell hergestellte Erzeugnisse Serienerzeugnisse / Fertigprodukte aus Holzwerkstoffen in Innenräumen: Spanplatten, Furnierplatten, Faserplatten	Formaldehyd	Qualitätsstufe: 4
Nachweis: Emission nach 28. Tg ≤ DE-UZ 176 nachgewiesen durch Prüfbericht des Instituts Eurofins Product Testing A/S vom 10.11.2022 (Nr. 392-2022-00430701_A_EN). Konformitätserklärung vom 09.10.2025 bestätigt die materielle Übereinstimmung mit dem geprüften Produkt			

Produkt:
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Produktsiegel

In der Baubranche spielt die Auswahl qualitativ hochwertiger Materialien eine zentrale Rolle für die Gesundheit in Gebäuden und deren Nachhaltigkeit. Produktlabels und Zertifikate bieten Orientierung, um diesen Anforderungen gerecht zu werden. Allerdings besitzt jedes Zertifikat und Label eigene Prüfkriterien, die genau betrachtet werden sollten, um sicherzustellen, dass sie den spezifischen Bedürfnissen eines Bauvorhabens entsprechen.

Dieses Produkt ist schadstoffgeprüft und wird vom Sentinel Holding Institut empfohlen. Gesundes Bauen, Modernisieren und Betreiben von Immobilien erfolgt dank des Sentinel Holding Konzepts nach transparenten und nachvollziehbaren Kriterien.

Produkte mit dem QNG-ready Siegel des Sentinel Holding Instituts eignen sich für Projekte, für welche das Qualitätssiegel Nachhaltiges Gebäude (QNG) angestrebt wird. QNG-ready Produkte erfüllen die Anforderungen des QNG Anhangdokument 3.1.3 "Schadstoffvermeidung in Baumaterialien". Das KfW-Kreditprogramm Klimafreundlicher Neubau mit QNG kann eine höhere Fördersumme ermöglichen.

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Rechtliche Hinweise

(*) Die Kriterien dieses Steckbriefs beziehen sich auf das gesamte Bauobjekt. Die Bewertung erfolgt auf der Ebene des Gebäudes. Im Rahmen einer sachgemäßen Planung und fachgerechten Installation können einzelne Produkte einen positiven Beitrag zum Gesamtergebnis der Bewertung leisten. Das Sentinel Holding Institut stützt sich einzig auf die Angaben des Herstellers.

Alle Kriterien finden Sie unter:
https://www.sentinel-holding.eu/de/Themenwelten/Pr%C3%BCfkriterien%20f%C3%BCr%20Produkte

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Herausgeber

Sentinel Holding Institut GmbH
Bötzinger Str. 38
79111 Freiburg im Breisgau
Tel.: +49 761 59048170
info@sentinel-holding.eu
www.sentinel-holding.eu

EUROPEAN COLLECTION

Eiche Garmisch

Aufbau	3-Schicht
Besonderheiten	gebürstet, 4-seitig gefast
Nutzschicht	ca. 3,2 mm
Mittellage / Gegenzug	Nadelholz / Echtholz
Verbindung	Woodloc 5s
Design	1-Stab
Fußbodenheizung	geeignet

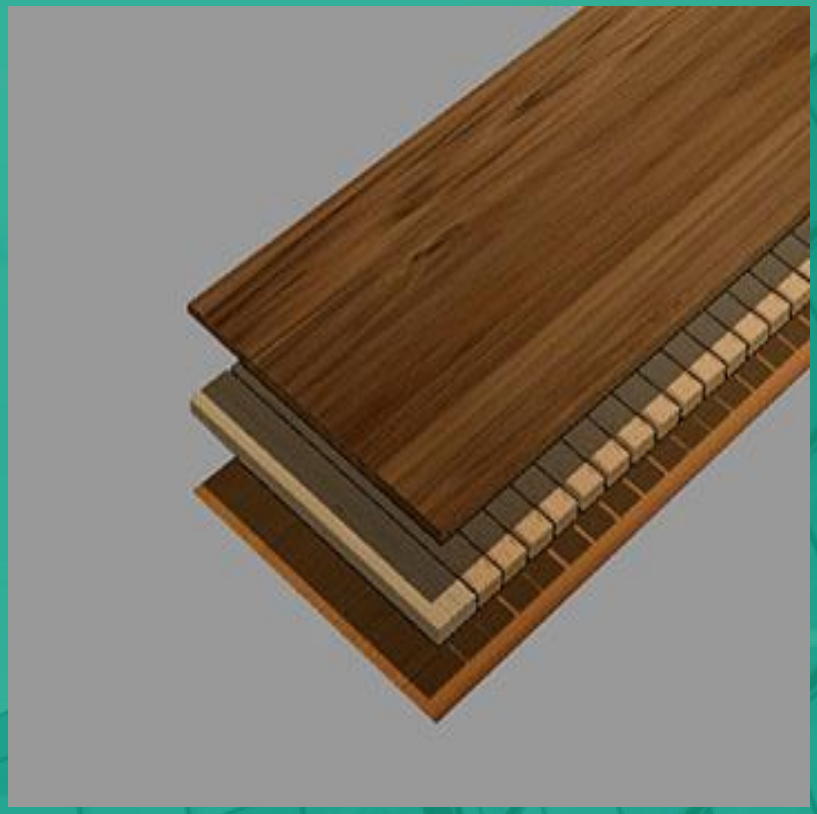
Sortierung (nach Werksnorm)	Dynamic
Beschreibung	Alle natürlichen Farbvariationen. Unbegrenzte Größe und Anzahl von Ästen. Kleine gespachtelte Risse am Dielenende möglich. Viele Dielen mit Splint.

Artikelnummer	Oberfläche	Abmessung (mm)	Dielen / Paket	m² / Paket	kg / Paket
151N9AEKFVKW240	Naturöl	2420 x 187 x 15	6	2,72	21,8

Der Originalboden kann vom Bild abweichen. Holz ist ein Naturmaterial. Die Sortierung dieses Produkts ist nicht willkürlich, jedoch den natürlichen Schwankungen in Farbe und Struktur ausgesetzt.

ENVIRONMENTAL PRODUCT DECLARATION

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



KÄHRS 15MM, 14MM, 13MM ENGINEERED WOOD FLOORS

KÄHRS GROUP

GENERAL INFORMATION

MANUFACTURER INFORMATION

Manufacturer	Kährs Group
Address	Ångbåtsbron 1, 211 20 Malmö, Sweden
Contact details	info@kahrs.se
Website	www.kahrs.com

PRODUCT IDENTIFICATION

Product name	Kährs 15mm, 14mm, 13mm Engineered Wood Floors
Additional label(s)	Kährs, Karelia. Additional brands available on request.
Product number / reference	Wood floor coverings according to EN 13489:2017 and EN 14342:2013
Place(s) of production	Nybro, Sweden

Jessica Karhu

RTS EPD Committee secretary

Laura Apilo

Managing Director

EPD INFORMATION

EPDs of construction products 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	Building Information Foundation RTS sr / Building Information Ltd Malminkatu 16 A, 00100 Helsinki, Finland http://cer.rts.fi
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 RTS PCR (English version 26.8.2020) is used.
EPD author	Bruce Uhler, Kährs Group, bruce.uhler@kahrs.com
EPD verification	Independent verification of this EPD and data, according to ISO 14025: □ Internal certification ☑ External verification
Verification date	27.04.2021
EPD verifier	Silvia Vilčeková, Silcert, s.r.o.
EPD number	RTS_117_21
Publishing date	29.04.2021
EPD valid until	27.04.2026

PRODUCT INFORMATION

PRODUCT DESCRIPTION

Kährs 3-layer floors consist of a surface layer, core layer, and backing. The core material is made from pine/spruce lamella. The total thickness of the floor is 13 mm, 14 mm, 15 mm. The surface layer can be re-sanded 3-4 times. Our 3-layer floors can both be installed floating on a level, solid surface such as concrete, particleboard, wood or glued down. Products can have either an oil or lacquer surface treatment and various species. Our lamella-constructed wood floors are not only strong and stable, they also use raw materials more effectively so they have a lower environmental impact.

PRODUCT APPLICATION

The multi-layered engineered flooring board was originally invented by Kährs. Its use and design possibilities combined with ease of installation and long-lasting beauty has made this type of wood flooring the most preferred choice globally, for homes and commercial use.

TECHNICAL SPECIFICATIONS

All Kährs lamella floors are constructed in three layers. The surface layer that you see and walk on every day is always made of solidwood. The other two layers make up the floor's foundation and the material of these layers varies depending on the manufacturer. Ours are made from pinewood and spruce. All the layers have a combined thickness of between 13 and 15 millimetres. You can lay the floors floating or glue them down.

PRODUCT STANDARDS

Kährs is certified at all sites ISO 9001, ISO 14001. All sites are certified to FSC® 019122 and PEFC TM. The parquet meets the requirements of EN13489 and the CE DOP.

PHYSICAL PROPERTIES OF THE PRODUCT

https://www.kahrs.com/en/how-to/technical-documentation/

ADDITIONAL TECHNICAL INFORMATION

Further information can be found at www.kahrs.com.

PRODUCT RAW MATERIAL COMPOSITION

Material (for 13-15 mm)	Weight, kg	Post consumer %	Renewable %	Country / Region of origin
Wood	6.6 - 7.9	0	100	EU
Other	0.4	0	0	EU

PRODUCT RAW MATERIAL MAIN COMPOSITION

Raw material category (for 13-15 mm)	Amount, mass- %	Material origin
Metals	-	-
Minerals	-	-
Fossil materials	5% - 6%	EU
Bio-based materials	94% - 95%	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)

Quality control is involved with every process step of production. The raw material is sourced from hundreds of forest owners each year as logs and also sourced as sawn planks or backside veneers. The material is sawn and dried for core and top layer material. The surface material is graded, then strip glued then glued to core/backside material. Then as needed filler, sanding, lacquering/oil applied. Profiling of the board. Final inspection and then packing of flooring, then placed in our warehouse and shipped to the customer.

TRANSPORT AND INSTALLATION (A4-A5)

Transportation of warehouse material is shipped to customers.Initially, shipment is by truck/lorry to either end-user customer ortaken to a harbor for shipment to overseas markets. (A4) covers all transport from the factory to the final customer. Installing a woodfloor from Kährs is quick and simple and glueless, thanks to our innovative locking joint system Woodloc®. The Woodloc-systemlocks the boards together mechanically, eliminating gapping in between the boards. The superior fit also enhances the floors performance and durability. Environmental impacts from installation into the building (A5) include the product installation losses and packaging waste of the product.

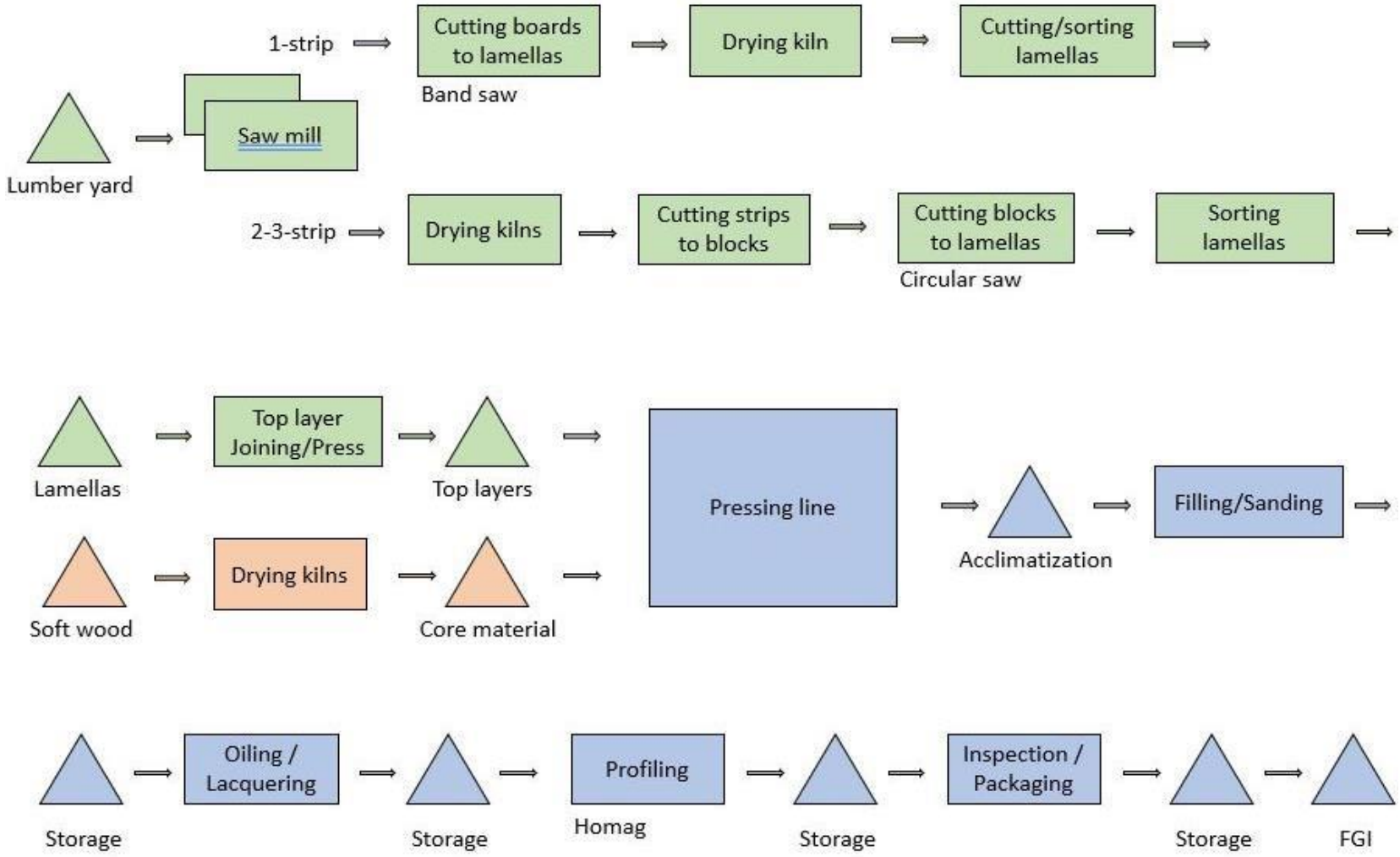
PRODUCT USE AND MAINTENANCE (B1-B7)

This EPD does not cover use phase. Air, soil and water impacts during the use phase have not been studied.

PRODUCT END OF LIFE (C1-C4, D)

All of the end-of-life product is assumed to be sent to the closest facility. End-of-life scenarios for wood products is almost 100% incineration with energy recovery, as it is assumed that it is the most probable treatment for the product. The transport between a construction site and waste/energy facility is by truck.

MANUFACTURING PROCESS



LIFE-CYCLE ASSESSMENT

LIFE-CYCLE ASSESSMENT INFORMATION

Period for data	Calendar year 2019

DECLARED AND FUNCTIONAL UNIT

Declared unit	1 square meter
Mass per declared unit	7,0 kg (13 mm thickness)
Mass per declared unit	7,9 kg (14 mm thickness)
Mass per declared unit	8,3 kg (15 mm thickness)

BIOGENIC CARBON CONTENT

Product's biogenic carbon content at the factory gate

Biogenic carbon content in product, kg C	3,30 (13 mm)
Biogenic carbon content in product, kg C	3,76 (14 mm)
Biogenic carbon content in product, kg C	3,96 (15 mm)
Biogenic carbon content in packaging, kg C	0,06 (13, 14, 15 mm)

SYSTEM BOUNDARY

This EPD covers cradle to gate with options scope with following modules; A1 (Raw material supply), A2 (Transport) and A3 (Manufacturing), A4 (Transport), A5 (Assembly) as well as 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
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. Modules not relevant = MNR.

CUT-OFF CRITERIA

The study does not exclude any modules or processes which are stated mandatory in the EN 15804:2012+A2:2019
The study includes all major raw material and energy consumption. All inputs and outputs of the unit processes which data are available for are included in the calculation. There is no neglected unit process more than 1% of total mass and energy flows. The total neglected input and output flows do also not exceed 5% of energy usage or mass. The life cycle analysis includes all industrial processes from raw material acquisition to production, distribution and end-of-life stages.

ALLOCATION, ESTIMATES AND ASSUMPTIONS

Allocation is based on annual production rate and made with high accuracy and precision. The values for 1 m2 of the produced product which is used within this study are calculated by considering the total product area per annual production. The product output is fixed to 1 m2 and the corresponding amount of product is used in the calculations.

In the production plants, same products with 3 different thickness are produced; since the production processes of these products are same, the annual production percentages are taken into consideration for allocation of raw materials. Energy consumption and packaging materials do not differ as per the thickness, so the allocation is based on the annual production.

There is no waste as an output since the only outputs are the product itself and by-product wood chip which is sold to a pellet factory for fuel production. Allocation for by-product is handled by mass ratio. Since the shares of raw materials in the main product and by-product is known, allocation is done considering these shares, energy consumption is allocated considering final produced amounts.

Electricity is contracted from green hydropower. Independent research suggests that use of hydropower instead of fossil fuels for electricity generation has helped to avoid more than 100 billion tonnes of carbon dioxide in the past 50 years alone, exceedingly even the emissions averted by nuclear power. That's roughly equivalent to the total annual carbon footprint of the United States for 20 years.

All estimates and assumptions are given below:

- Module A2, A4 & C2: Vehicle capacity utilization volume factor is assumed to be 1 which means full load. In reality it may vary but as the role of transportation emission in total results is small and so the variety in load assumed to be negligible. Empty returns are not taken into account as it is assumed that return trip is used by transportation companies to serve the needs of other clients.

- Module A4: Transportation doesn't cause losses as products are packaged properly. The volume capacity utilisation factor is assumed to be 1 for the nested packaged products. Additionally, transportation distances and vehicle types are assumed according to the exports in the last year.

- Module A5: The impacts of the ancillary materials and consumed energy during installation are assumed zero since they are negligible. Weight loss from product is assumed as 1% by mass.
- Module C1: The impacts of the disassembly stage are assumed zero, since the consumption of energy and natural resources for disassembling the end-of-life product is negligible.

- Module C2: Transportation distance to the closest disposal area is estimated as 50 km and the transportation method is assumedas lorry which is the most common.

- Module C3, C4, D: 100% of the end-of-life product is assumed to be recovered to energy.

ENVIRONMENTAL IMPACT DATA

NOTE: ENVIRONMENTAL IMPACTS - EN 15804+A1, CML / ISO 21930 ARE PRESENTED IN ANNEX.

15 MM 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
Climate change – total	kg CO2e	-1.53E+01	8.31E-01	1.11E-01	-1.44E+01	2.88E-01	3.83E-01	MND	MND	MND	MND	MND	MND	MND	0.00E+00	5.26E-02	1.68E+01	0.00E+00	-7.05E+00
Climate change – fossil	kg CO2e	1.38E+00	8.30E-01	2.94E-01	2.51E+00	2.88E-01	1.29E-01	MND	MND	MND	MND	MND	MND	MND	0.00E+00	5.25E-02	1.20E-01	0.00E+00	-7.05E+00
Climate change – biogenic	kg CO2e	-1.67E+01	4.91E-04	-1.84E-01	-1.69E+01	1.76E-04	2.54E-01	MND	MND	MND	MND	MND	MND	MND	0.00E+00	3.21E-05	1.66E+01	0.00E+00	-3.36E-03
Climate change – LULUC	kg CO2e	8.71E-03	3.06E-04	1.06E-03	1.01E-02	9.90E-05	2.19E-06	MND	MND	MND	MND	MND	MND	MND	0.00E+00	1.85E-05	2.32E-05	0.00E+00	-2.92E-04
Ozone depletion	kg CFC11e	4.92E-07	1.89E-07	3.28E-08	7.14E-07	6.66E-08	1.11E-09	MND	MND	MND	MND	MND	MND	MND	0.00E+00	1.20E-08	9.61E-09	0.00E+00	-1.45E-06
Acidification	mol H+e	7.87E-03	3.69E-03	2.69E-03	1.43E-02	2.12E-03	7.21E-05	MND	MND	MND	MND	MND	MND	MND	0.00E+00	2.16E-04	1.35E-03	0.00E+00	-3.66E-02
Eutrophication, aquatic freshwater	kg PO4e	9.88E-05	7.09E-06	3.79E-05	1.44E-04	2.23E-06	9.15E-08	MND	MND	MND	MND	MND	MND	MND	0.00E+00	4.53E-07	1.60E-06	0.00E+00	-1.38E-05
Eutrophication, aquatic marine	kg Ne	1.59E-03	1.08E-03	7.27E-04	3.40E-03	5.81E-04	3.23E-05	MND	MND	MND	MND	MND	MND	MND	0.00E+00	6.40E-05	6.38E-04	0.00E+00	-6.66E-03
Eutrophication, terrestrial	mol Ne	1.74E-02	1.19E-02	1.03E-02	3.97E-02	6.44E-03	3.40E-04	MND	MND	MND	MND	MND	MND	MND	0.00E+00	7.07E-04	6.79E-03	0.00E+00	-6.78E-02
Photochemical ozone formation	kg NMVOCe	6.77E-03	3.64E-03	2.35E-03	1.28E-02	1.89E-03	8.56E-05	MND	MND	MND	MND	MND	MND	MND	0.00E+00	2.22E-04	1.67E-03	0.00E+00	-1.91E-02
Abiotic depletion, minerals & metals	kg Sbe	3.00E-05	2.12E-05	3.59E-06	5.47E-05	4.60E-06	1.45E-07	MND	MND	MND	MND	MND	MND	MND	0.00E+00	1.31E-06	1.58E-06	0.00E+00	-4.13E-06
Abiotic depletion of fossil resources	MJ	2.69E+01	1.25E+01	6.22E+00	4.56E+01	4.39E+00	8.55E-02	MND	MND	MND	MND	MND	MND	MND	0.00E+00	8.01E-01	1.05E+00	0.00E+00	-8.97E+01
Water use	m3e depr.	8.73E-01	4.19E-02	1.57E-01	1.07E+00	1.57E-02	4.22E-03	MND	MND	MND	MND	MND	MND	MND	0.00E+00	2.84E-03	-9.29E-02	0.00E+00	-2.64E+00

EN 15804+A2 disclaimer for Abiotic depletion and Water use indicators and all 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.

Eutrophication aquatic freshwater is reported as *kg PO_4 eq,* although the reference given ("EUTREND model, Struijs et al., 2009b, as implemented in ReCiPe") uses the unit *kg P eq.*

14 MM 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
Climate change – total	kg CO2e	-1.44E+01	7.85E-01	1.06E-01	-1.35E+01	2.75E-01	3.77E-01	MND	MND	MND	MND	MND	MND	MND	0.00E+00	5.00E-02	1.59E+01	0.00E+00	-6.72E+00
Climate change – fossil	kg CO2e	1.37E+00	7.84E-01	2.89E-01	2.45E+00	2.75E-01	1.29E-01	MND	MND	MND	MND	MND	MND	MND	0.00E+00	5.00E-02	1.14E-01	0.00E+00	-6.72E+00
Climate change – biogenic	kg CO2e	-1.58E+01	4.66E-04	-1.84E-01	-1.60E+01	1.68E-04	2.48E-01	MND	MND	MND	MND	MND	MND	MND	0.00E+00	3.06E-05	1.58E+01	0.00E+00	-3.20E-03
Climate change – LULUC	kg CO2e	8.37E-03	2.89E-04	1.02E-03	9.67E-03	9.44E-05	2.16E-06	MND	MND	MND	MND	MND	MND	MND	0.00E+00	1.76E-05	2.21E-05	0.00E+00	-2.78E-04
Ozone depletion	kg CFC11e	4.89E-07	1.78E-07	3.15E-08	6.99E-07	6.35E-08	1.09E-09	MND	MND	MND	MND	MND	MND	MND	0.00E+00	1.15E-08	9.15E-09	0.00E+00	-1.38E-06
Acidification	mol H+e	7.87E-03	3.50E-03	2.56E-03	1.39E-02	2.02E-03	7.13E-05	MND	MND	MND	MND	MND	MND	MND	0.00E+00	2.06E-04	1.28E-03	0.00E+00	-3.49E-02
Eutrophication, aquatic freshwater	kg PO4e	9.68E-05	6.70E-06	3.56E-05	1.39E-04	2.12E-06	9.03E-08	MND	MND	MND	MND	MND	MND	MND	0.00E+00	4.32E-07	1.52E-06	0.00E+00	-1.31E-05
Eutrophication, aquatic marine	kg Ne	1.57E-03	1.02E-03	6.88E-04	3.28E-03	5.54E-04	3.20E-05	MND	MND	MND	MND	MND	MND	MND	0.00E+00	6.10E-05	6.08E-04	0.00E+00	-6.35E-03
Eutrophication, terrestrial	mol Ne	1.72E-02	1.13E-02	9.64E-03	3.82E-02	6.14E-03	3.36E-04	MND	MND	MND	MND	MND	MND	MND	0.00E+00	6.74E-04	6.47E-03	0.00E+00	-6.46E-02
Photochemical ozone formation	kg NMVOCe	6.66E-03	3.44E-03	2.24E-03	1.23E-02	1.80E-03	8.46E-05	MND	MND	MND	MND	MND	MND	MND	0.00E+00	2.11E-04	1.59E-03	0.00E+00	-1.82E-02
Abiotic depletion, minerals & metals	kg Sbe	2.99E-05	1.99E-05	3.52E-06	5.34E-05	4.39E-06	1.43E-07	MND	MND	MND	MND	MND	MND	MND	0.00E+00	1.25E-06	1.50E-06	0.00E+00	-3.94E-06
Abiotic depletion of fossil resources	MJ	2.67E+01	1.18E+01	6.16E+00	4.47E+01	4.19E+00	8.44E-02	MND	MND	MND	MND	MND	MND	MND	0.00E+00	7.63E-01	1.00E+00	0.00E+00	-8.55E+01
Water use	m3e depr.	8.74E-01	3.96E-02	1.55E-01	1.07E+00	1.49E-02	4.26E-03	MND	MND	MND	MND	MND	MND	MND	0.00E+00	2.71E-03	-8.85E-02	0.00E+00	-2.52E+00

EN 15804+A2 disclaimer for Abiotic depletion and Water use indicators and all 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.

Eutrophication aquatic freshwater is reported as *kg PO_4 eq,* although the reference given ("EUTREND model, Struijs et al., 2009b, as implemented in ReCiPe") uses the unit *kg P eq.*

13 MM 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
Climate change – total	kg CO2e	-1.27E+01	7.08E-01	1.01E-01	-1.18E+01	2.44E-01	3.64E-01	MND	MND	MND	MND	MND	MND	MND	0.00E+00	4.43E-02	1.41E+01	0.00E+00	-5.95E+00
Climate change – fossil	kg CO2e	1.37E+00	7.07E-01	2.84E-01	2.36E+00	2.44E-01	1.29E-01	MND	MND	MND	MND	MND	MND	MND	0.00E+00	4.43E-02	1.01E-01	0.00E+00	-5.95E+00
Climate change – biogenic	kg CO2e	-1.41E+01	4.14E-04	-1.84E-01	-1.42E+01	1.49E-04	2.35E-01	MND	MND	MND	MND	MND	MND	MND	0.00E+00	2.71E-05	1.40E+01	0.00E+00	-2.84E-03
Climate change – LULUC	kg CO2e	7.50E-03	2.60E-04	9.72E-04	8.74E-03	8.39E-05	2.11E-06	MND	MND	MND	MND	MND	MND	MND	0.00E+00	1.56E-05	1.96E-05	0.00E+00	-2.47E-04
Ozone depletion	kg CFC11e	4.87E-07	1.61E-07	3.03E-08	6.78E-07	5.65E-08	1.06E-09	MND	MND	MND	MND	MND	MND	MND	0.00E+00	1.02E-08	8.11E-09	0.00E+00	-1.23E-06
Acidification	mol H+e	8.02E-03	3.14E-03	2.43E-03	1.36E-02	1.80E-03	6.93E-05	MND	MND	MND	MND	MND	MND	MND	0.00E+00	1.82E-04	1.14E-03	0.00E+00	-3.09E-02
Eutrophication, aquatic freshwater	kg PO4e	9.24E-05	6.03E-06	3.33E-05	1.32E-04	1.89E-06	8.77E-08	MND	MND	MND	MND	MND	MND	MND	0.00E+00	3.83E-07	1.35E-06	0.00E+00	-1.16E-05
Eutrophication, aquatic marine	kg Ne	1.54E-03	9.19E-04	6.49E-04	3.11E-03	4.93E-04	3.11E-05	MND	MND	MND	MND	MND	MND	MND	0.00E+00	5.40E-05	5.39E-04	0.00E+00	-5.62E-03
Eutrophication, terrestrial	mol Ne	1.69E-02	1.02E-02	9.00E-03	3.60E-02	5.46E-03	3.27E-04	MND	MND	MND	MND	MND	MND	MND	0.00E+00	5.97E-04	5.73E-03	0.00E+00	-5.73E-02
Photochemical ozone formation	kg NMVOCe	6.40E-03	3.09E-03	2.12E-03	1.16E-02	1.60E-03	8.22E-05	MND	MND	MND	MND	MND	MND	MND	0.00E+00	1.87E-04	1.41E-03	0.00E+00	-1.61E-02
Abiotic depletion, minerals & metals	kg Sbe	3.02E-05	1.81E-05	3.45E-06	5.18E-05	3.90E-06	1.39E-07	MND	MND	MND	MND	MND	MND	MND	0.00E+00	1.11E-06	1.33E-06	0.00E+00	-3.49E-06
Abiotic depletion of fossil resources	MJ	2.68E+01	1.07E+01	6.10E+00	4.36E+01	3.72E+00	8.19E-02	MND	MND	MND	MND	MND	MND	MND	0.00E+00	6.76E-01	8.86E-01	0.00E+00	-7.57E+01
Water use	m3e depr.	8.91E-01	3.56E-02	1.54E-01	1.08E+00	1.33E-02	4.35E-03	MND	MND	MND	MND	MND	MND	MND	0.00E+00	2.40E-03	-7.84E-02	0.00E+00	-2.23E+00

EN 15804+A2 disclaimer for Abiotic depletion and Water use indicators and all 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.

Eutrophication aquatic freshwater is reported as *kg PO_4 eq,* although the reference given ("EUTREND model, Struijs et al., 2009b, as implemented in ReCiPe") uses the unit *kg P eq*

15 MM 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
Renewable PER used as energy	MJ	1.65E+01	1.80E-01	2.89E+01	4.56E+01	5.28E-02	1.95E-03	MND	MND	MND	MND	MND	MND	MND	0.00E+00	1.14E-02	2.40E-02	0.00E+00	-2.53E-01
Renewable PER used as materials	MJ	1.72E+02	0.00E+00	1.79E+00	1.74E+02	0.00E+00	0.00E+00	MND	MND	MND	MND	MND	MND	MND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total use of renewable PER	MJ	1.89E+02	1.80E-01	3.07E+01	2.20E+02	5.28E-02	1.95E-03	MND	MND	MND	MND	MND	MND	MND	0.00E+00	1.14E-02	2.40E-02	0.00E+00	-2.53E-01
Non-renew. PER used as energy	MJ	1.91E+01	1.25E+01	3.79E+00	3.55E+01	4.39E+00	8.55E-02	MND	MND	MND	MND	MND	MND	MND	0.00E+00	8.01E-01	1.05E+00	0.00E+00	-8.97E+01
Non-renew. PER used as materials	MJ	7.73E+00	0.00E+00	2.42E+00	1.02E+01	0.00E+00	0.00E+00	MND	MND	MND	MND	MND	MND	MND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total use of non-renewable PER	MJ	2.69E+01	1.25E+01	6.22E+00	4.56E+01	4.39E+00	8.55E-02	MND	MND	MND	MND	MND	MND	MND	0.00E+00	8.01E-01	1.05E+00	0.00E+00	-8.97E+01
Use of secondary materials	kg	6.13E-03	0.00E+00	8.10E-04	6.94E-03	0.00E+00	0.00E+00	MND	MND	MND	MND	MND	MND	MND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of renewable secondary fuels	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	MND	MND	MND	MND	MND	MND	MND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of non-renew. secondary fuels	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	MND	MND	MND	MND	MND	MND	MND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of net fresh water	m3	9.67E-03	2.21E-03	2.66E-03	1.45E-02	8.67E-04	2.59E-04	MND	MND	MND	MND	MND	MND	MND	0.00E+00	1.52E-04	2.10E-03	0.00E+00	-1.07E-02

PER abbreviation stands for primary energy resources

14 MM 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
Renewable PER used as energy	MJ	1.59E+01	1.70E-01	2.66E+01	4.27E+01	5.04E-02	1.93E-03	MND	MND	MND	MND	MND	MND	MND	0.00E+00	1.08E-02	2.28E-02	0.00E+00	-2.41E-01
Renewable PER used as materials	MJ	1.63E+02	0.00E+00	1.79E+00	1.65E+02	0.00E+00	0.00E+00	MND	MND	MND	MND	MND	MND	MND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total use of renewable PER	MJ	1.79E+02	1.70E-01	2.84E+01	2.07E+02	5.04E-02	1.93E-03	MND	MND	MND	MND	MND	MND	MND	0.00E+00	1.08E-02	2.28E-02	0.00E+00	-2.41E-01
Non-renew. PER used as energy	MJ	1.90E+01	1.18E+01	3.73E+00	3.46E+01	4.19E+00	8.44E-02	MND	MND	MND	MND	MND	MND	MND	0.00E+00	7.63E-01	1.00E+00	0.00E+00	-8.55E+01
Non-renew. PER used as materials	MJ	7.70E+00	0.00E+00	2.42E+00	1.01E+01	0.00E+00	0.00E+00	MND	MND	MND	MND	MND	MND	MND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total use of non-renewable PER	MJ	2.67E+01	1.18E+01	6.16E+00	4.47E+01	4.19E+00	8.44E-02	MND	MND	MND	MND	MND	MND	MND	0.00E+00	7.63E-01	1.00E+00	0.00E+00	-8.55E+01
Use of secondary materials	kg	6.21E-03	0.00E+00	8.10E-04	7.02E-03	0.00E+00	0.00E+00	MND	MND	MND	MND	MND	MND	MND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of renewable secondary fuels	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	MND	MND	MND	MND	MND	MND	MND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of non-renew. secondary fuels	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	MND	MND	MND	MND	MND	MND	MND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of net fresh water	m3	9.65E-03	2.09E-03	2.62E-03	1.44E-02	8.27E-04	2.57E-04	MND	MND	MND	MND	MND	MND	MND	0.00E+00	1.45E-04	2.00E-03	0.00E+00	-1.02E-02

PER abbreviation stands for primary energy resources

13 MM 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
Renewable PER used as energy	MJ	1.48E+01	1.53E-01	2.43E+01	3.92E+01	4.48E-02	1.88E-03	MND	MND	MND	MND	MND	MND	MND	0.00E+00	9.60E-03	2.02E-02	0.00E+00	-2.13E-01
Renewable PER used as materials	MJ	1.45E+02	0.00E+00	1.79E+00	1.46E+02	0.00E+00	0.00E+00	MND	MND	MND	MND	MND	MND	MND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total use of renewable PER	MJ	1.59E+02	1.53E-01	2.61E+01	1.86E+02	4.48E-02	1.88E-03	MND	MND	MND	MND	MND	MND	MND	0.00E+00	9.60E-03	2.02E-02	0.00E+00	-2.13E-01
Non-renew. PER used as energy	MJ	1.91E+01	1.07E+01	3.67E+00	3.34E+01	3.72E+00	8.19E-02	MND	MND	MND	MND	MND	MND	MND	0.00E+00	6.76E-01	8.86E-01	0.00E+00	-7.57E+01
Non-renew. PER used as materials	MJ	7.73E+00	0.00E+00	2.42E+00	1.02E+01	0.00E+00	0.00E+00	MND	MND	MND	MND	MND	MND	MND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total use of non-renewable PER	MJ	2.68E+01	1.07E+01	6.10E+00	4.36E+01	3.72E+00	8.19E-02	MND	MND	MND	MND	MND	MND	MND	0.00E+00	6.76E-01	8.86E-01	0.00E+00	-7.57E+01
Use of secondary materials	kg	6.58E-03	0.00E+00	8.10E-04	7.39E-03	0.00E+00	0.00E+00	MND	MND	MND	MND	MND	MND	MND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of renewable secondary fuels	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	MND	MND	MND	MND	MND	MND	MND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of non-renew. secondary fuels	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	MND	MND	MND	MND	MND	MND	MND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of net fresh water	m3	9.70E-03	1.88E-03	2.58E-03	1.42E-02	7.35E-04	2.55E-04	MND	MND	MND	MND	MND	MND	MND	0.00E+00	1.28E-04	1.78E-03	0.00E+00	-9.06E-03

PER abbreviation stands for primary energy resources

15 MM 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	9.33E-02	1.30E-02	1.56E-02	1.22E-01	4.35E-03	2.68E-03	MND	MND	MND	MND	MND	MND	MND	0.00E+00	8.33E-04	0.00E+00	0.00E+00	-2.94E-02
Non-hazardous waste	kg	2.06E+00	9.36E-01	4.56E-01	3.45E+00	4.34E-01	2.26E-01	MND	MND	MND	MND	MND	MND	MND	0.00E+00	6.92E-02	0.00E+00	0.00E+00	-4.31E-01
Radioactive waste	kg	5.65E-05	8.59E-05	1.21E-05	1.54E-04	3.02E-05	3.85E-07	MND	MND	MND	MND	MND	MND	MND	0.00E+00	5.47E-06	0.00E+00	0.00E+00	-6.50E-04

14 MM 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	9.37E-02	1.23E-02	1.53E-02	1.21E-01	4.14E-03	2.66E-03	MND	MND	MND	MND	MND	MND	MND	0.00E+00	7.93E-04	0.00E+00	0.00E+00	-2.80E-02
Non-hazardous waste	kg	2.06E+00	8.87E-01	4.48E-01	3.39E+00	4.14E-01	2.22E-01	MND	MND	MND	MND	MND	MND	MND	0.00E+00	6.60E-02	0.00E+00	0.00E+00	-4.10E-01
Radioactive waste	kg	5.57E-05	8.10E-05	1.17E-05	1.48E-04	2.88E-05	3.80E-07	MND	MND	MND	MND	MND	MND	MND	0.00E+00	5.22E-06	0.00E+00	0.00E+00	-6.19E-04

13 MM 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	9.67E-02	1.10E-02	1.49E-02	1.23E-01	3.69E-03	2.61E-03	MND	MND	MND	MND	MND	MND	MND	0.00E+00	7.03E-04	0.00E+00	0.00E+00	-2.48E-02
Non-hazardous waste	kg	2.10E+00	7.91E-01	4.40E-01	3.33E+00	3.68E-01	2.13E-01	MND	MND	MND	MND	MND	MND	MND	0.00E+00	5.85E-02	0.00E+00	0.00E+00	-3.64E-01
Radioactive waste	kg	5.43E-05	7.31E-05	1.13E-05	1.39E-04	2.56E-05	3.68E-07	MND	MND	MND	MND	MND	MND	MND	0.00E+00	4.62E-06	0.00E+00	0.00E+00	-5.49E-04

15 MM 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 reuse	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	MND	MND	MND	MND	MND	MND	MND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for recycling	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	MND	MND	MND	MND	MND	MND	MND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for energy recovery	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	MND	MND	MND	MND	MND	MND	MND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Exported energy	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	MND	MND	MND	MND	MND	MND	MND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

14 MM 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 reuse	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	MND	MND	MND	MND	MND	MND	MND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for recycling	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	MND	MND	MND	MND	MND	MND	MND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for energy recovery	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	MND	MND	MND	MND	MND	MND	MND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Exported energy	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	MND	MND	MND	MND	MND	MND	MND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

13 MM 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 reuse	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	MND	MND	MND	MND	MND	MND	MND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for recycling	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	MND	MND	MND	MND	MND	MND	MND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for energy recovery	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	MND	MND	MND	MND	MND	MND	MND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Exported energy	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	MND	MND	MND	MND	MND	MND	MND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

15 MM KEY INFORMATION TABLE (RTS) – KEY INFORMATION PER KG OF PRODUCT

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Climate change – total	kg CO2e	-1.84E+00	9.99E-02	1.34E-02	-1.73E+00	3.46E-02	4.60E-02	MND	MND	MND	MND	MND	MND	MND	0.00E+00	6.31E-03	1.46E+00	0.00E+00	-8.48E-01
Abiotic depletion, minerals & metals	kg Sbe	3.61E-06	2.54E-06	4.32E-07	6.58E-06	5.53E-07	1.74E-08	MND	MND	MND	MND	MND	MND	MND	0.00E+00	1.57E-07	1.89E-07	0.00E+00	-4.97E-07
Abiotic depletion of fossil resources	MJ	3.23E+00	1.51E+00	7.47E-01	5.49E+00	5.28E-01	1.03E-02	MND	MND	MND	MND	MND	MND	MND	0.00E+00	9.62E-02	1.26E-01	0.00E+00	-1.08E+01
Water use	m3e depr.	1.05E-01	5.04E-03	1.88E-02	1.29E-01	1.88E-03	5.07E-04	MND	MND	MND	MND	MND	MND	MND	0.00E+00	3.42E-04	-1.12E-02	0.00E+00	-3.18E-01
Use of secondary materials	kg	7.37E-04	0.00E+00	9.74E-05	8.34E-04	0.00E+00	0.00E+00	MND	MND	MND	MND	MND	MND	MND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Biogenic carbon content in product	kg C	N/A	N/A	4.75E-01	N/A	N/A	N/A	MND	MND	MND	MND	MND	MND	MND	N/A	N/A	N/A	N/A	N/A
Biogenic carbon content in packaging	kg C	N/A	N/A	7.20E-03	N/A	N/A	N/A	MND	MND	MND	MND	MND	MND	MND	N/A	N/A	N/A	N/A	N/A

14 MM KEY INFORMATION TABLE (RTS) – KEY INFORMATION PER KG OF PRODUCT

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Climate change – total	kg CO2e	-1.82E+00	9.90E-02	1.34E-02	-1.71E+00	3.47E-02	4.76E-02	MND	MND	MND	MND	MND	MND	MND	0.00E+00	6.31E-03	1.46E+00	0.00E+00	-8.48E-01
Abiotic depletion, minerals & metals	kg Sbe	3.78E-06	2.51E-06	4.44E-07	6.73E-06	5.54E-07	1.80E-08	MND	MND	MND	MND	MND	MND	MND	0.00E+00	1.57E-07	1.89E-07	0.00E+00	-4.97E-07
Abiotic depletion of fossil resources	MJ	3.37E+00	1.49E+00	7.77E-01	5.65E+00	5.28E-01	1.06E-02	MND	MND	MND	MND	MND	MND	MND	0.00E+00	9.62E-02	1.26E-01	0.00E+00	-1.08E+01
Water use	m3e depr.	1.10E-01	5.00E-03	1.96E-02	1.35E-01	1.89E-03	5.37E-04	MND	MND	MND	MND	MND	MND	MND	0.00E+00	3.42E-04	-1.12E-02	0.00E+00	-3.18E-01
Use of secondary materials	kg	7.84E-04	0.00E+00	1.02E-04	8.86E-04	0.00E+00	0.00E+00	MND	MND	MND	MND	MND	MND	MND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Biogenic carbon content in product	kg C	N/A	N/A	4.73E-01	N/A	N/A	N/A	MND	MND	MND	MND	MND	MND	MND	N/A	N/A	N/A	N/A	N/A
Biogenic carbon content in packaging	kg C	N/A	N/A	7.55E-03	N/A	N/A	N/A	MND	MND	MND	MND	MND	MND	MND	N/A	N/A	N/A	N/A	N/A

13 MM KEY INFORMATION TABLE (RTS) – KEY INFORMATION PER KG OF PRODUCT

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Climate change – total	kg CO2e	-1.81E+00	1.01E-01	1.43E-02	-1.69E+00	3.48E-02	5.18E-02	MND	MND	MND	MND	MND	MND	MND	0.00E+00	6.31E-03	1.46E+00	0.00E+00	-8.48E-01
Abiotic depletion, minerals & metals	kg Sbe	4.31E-06	2.58E-06	4.91E-07	7.38E-06	5.56E-07	1.98E-08	MND	MND	MND	MND	MND	MND	MND	0.00E+00	1.57E-07	1.89E-07	0.00E+00	-4.97E-07
Abiotic depletion of fossil resources	MJ	3.82E+00	1.52E+00	8.68E-01	6.21E+00	5.30E-01	1.17E-02	MND	MND	MND	MND	MND	MND	MND	0.00E+00	9.62E-02	1.26E-01	0.00E+00	-1.08E+01
Water use	m3e depr.	1.27E-01	5.06E-03	2.20E-02	1.54E-01	1.89E-03	6.20E-04	MND	MND	MND	MND	MND	MND	MND	0.00E+00	3.42E-04	-1.12E-02	0.00E+00	-3.18E-01
Use of secondary materials	kg	9.37E-04	0.00E+00	1.15E-04	1.05E-03	0.00E+00	0.00E+00	MND	MND	MND	MND	MND	MND	MND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Biogenic carbon content in product	kg C	N/A	N/A	4.70E-01	N/A	N/A	N/A	MND	MND	MND	MND	MND	MND	MND	N/A	N/A	N/A	N/A	N/A
Biogenic carbon content in packaging	kg C	N/A	N/A	8.55E-03	N/A	N/A	N/A	MND	MND	MND	MND	MND	MND	MND	N/A	N/A	N/A	N/A	N/A

SCENARIO DOCUMENTATION

Manufacturing energy scenario documentation

Scenario parameter	Value
Electricity data source and quality	Electricity production, hydro, run-of-river, Ecoinvent v3.6, Sweden data has been used as per the LCA model
Electricity CO2e / kWh	0.0039 kg CO2e /kWh
District heating data source and quality	Heat and power co-generation, wood chips, 6667 kw, state-of-the-art 2014, Ecoinvent v3.6, Sweden data has been used as per the LCA model
District heating CO2e / kWh	0.0009 kg CO2e /kWh

Transport scenario documentation

Scenario parameter	Value
A4 specific transport CO2e emissions, kg CO2e / tkm	0,0819
A4 average transport distance, km	733

End of life scenario documentation

Scenario parameter	Value
Collection process – kg collected separately	7.6895
Collection process – kg collected with mixed waste	0
Recovery process – kg for re-use	0
Recovery process – kg for recycling	0
Recovery process – kg for energy recovery	7.6895
Disposal (total) – kg for final deposition	0
Scenario assumptions e.g. transportation	End-of-life product is transported 50 km with an average lorry

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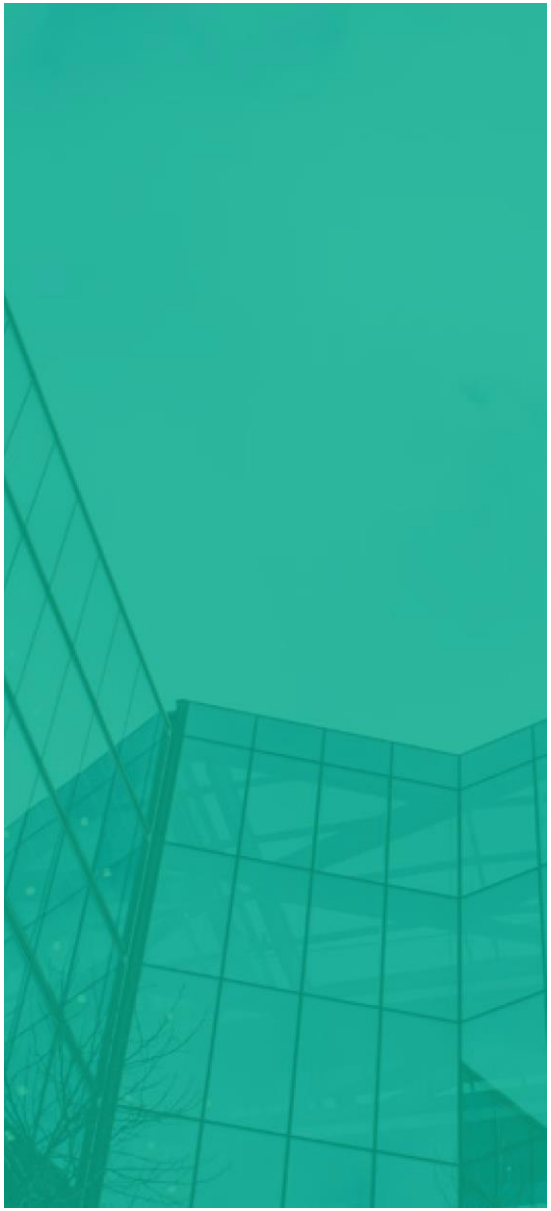

ABOUT THE MANUFACTURER

Kährs has been working with wood for more than 160 years and is today one of the oldest and most innovative manufacturers of engineered wood floors in the world. Kährs' long history is lined with a series of innovations that have shaped the entire global wood flooring industry over the years – from the invention of the multi-layer board to the glue-less Woodloc® locking joint. The wood knowledge we have accumulated over the years has been passed down from generation to generation. We are constantly discussing new ideas how to improve our floors. At work, we are trying, testing and eventually succeeding. But the goal is always the same: how to find ways to make our floors even better looking, stronger, easier to install and more sustainable. We're proud that people all over the world appreciate the result. Today, our floors can be found in homes, offices, shops, hotels, concert halls, theaters and sports arenas from Europe and Asia to the Americas. Kährs supplies products to more than 70 countries and holds a leading market position in Sweden and a strong presence in Europe and the UK. Over the decades, Kährs, in cooperation with its customers, became a leader in providing flooring offering high expectations of quality and design and innovative and sustainable solutions. Sustainability and environmental actions are at the heart of Kährs Group.

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EPD program operator	Building Information Foundation RTS sr / Building Information Ltd Malminkatu 16 A, 00100 Helsinki, Finland http://cer.rts.fi
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 for Wood and Plant Fiber Based Products

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

15 MM 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 potential	kg CO2e	1.33E+00	8.23E-01	2.83E-01	2.44E+00	2.86E-01	1.29E-01	MND	MND	MND	MND	MND	MND	MND	0.00E+00	5.20E-02	1.17E-01	0.00E+00	-7.02E+00
Depletion of stratospheric ozone	kg CFC11e	7.23E-07	1.50E-07	3.26E-08	9.06E-07	5.29E-08	9.74E-10	MND	MND	MND	MND	MND	MND	MND	0.00E+00	9.57E-09	8.08E-09	0.00E+00	-1.15E-06
Acidification	kg SO2e	6.46E-03	1.92E-03	1.83E-03	1.02E-02	1.36E-03	4.61E-05	MND	MND	MND	MND	MND	MND	MND	0.00E+00	1.07E-04	9.36E-04	0.00E+00	-3.06E-02
Eutrophication	kg PO4 3e	2.09E-03	3.74E-04	6.90E-04	3.15E-03	1.98E-04	4.52E-05	MND	MND	MND	MND	MND	MND	MND	0.00E+00	2.22E-05	1.05E-03	0.00E+00	-3.05E-03
Photochemical ozone formation	kg C2H4e	6.36E-04	1.15E-04	1.35E-04	8.87E-04	5.48E-05	1.30E-06	MND	MND	MND	MND	MND	MND	MND	0.00E+00	6.91E-06	1.94E-05	0.00E+00	-1.03E-03
Abiotic depletion of non-fossil res.	kg Sbe	3.00E-05	2.12E-05	3.59E-06	5.47E-05	4.60E-06	1.45E-07	MND	MND	MND	MND	MND	MND	MND	0.00E+00	1.31E-06	1.58E-06	0.00E+00	-4.13E-06
Abiotic depletion of fossil resources	MJ	2.69E+01	1.25E+01	6.22E+00	4.56E+01	4.39E+00	8.55E-02	MND	MND	MND	MND	MND	MND	MND	0.00E+00	8.01E-01	1.05E+00	0.00E+00	-8.97E+01

MND abbreviation stands for Module Not Declared

14 MM 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 potential	kg CO2e	1.33E+00	7.77E-01	2.78E-01	2.38E+00	2.72E-01	1.29E-01	MND	MND	MND	MND	MND	MND	MND	0.00E+00	4.95E-02	1.12E-01	0.00E+00	-6.68E+00
Depletion of stratospheric ozone	kg CFC11e	7.19E-07	1.42E-07	3.14E-08	8.93E-07	5.05E-08	9.63E-10	MND	MND	MND	MND	MND	MND	MND	0.00E+00	9.12E-09	7.70E-09	0.00E+00	-1.09E-06
Acidification	kg SO2e	6.50E-03	1.82E-03	1.75E-03	1.01E-02	1.30E-03	4.55E-05	MND	MND	MND	MND	MND	MND	MND	0.00E+00	1.02E-04	8.92E-04	0.00E+00	-2.91E-02
Eutrophication	kg PO4 3e	2.07E-03	3.54E-04	6.62E-04	3.09E-03	1.89E-04	4.45E-05	MND	MND	MND	MND	MND	MND	MND	0.00E+00	2.12E-05	1.00E-03	0.00E+00	-2.90E-03
Photochemical ozone formation	kg C2H4e	6.27E-04	1.09E-04	1.32E-04	8.68E-04	5.23E-05	1.28E-06	MND	MND	MND	MND	MND	MND	MND	0.00E+00	6.58E-06	1.85E-05	0.00E+00	-9.83E-04
Abiotic depletion of non-fossil res.	kg Sbe	2.99E-05	1.99E-05	3.52E-06	5.34E-05	4.39E-06	1.43E-07	MND	MND	MND	MND	MND	MND	MND	0.00E+00	1.25E-06	1.50E-06	0.00E+00	-3.94E-06
Abiotic depletion of fossil resources	MJ	2.67E+01	1.18E+01	6.16E+00	4.47E+01	4.19E+00	8.44E-02	MND	MND	MND	MND	MND	MND	MND	0.00E+00	7.63E-01	1.00E+00	0.00E+00	-8.55E+01

MND abbreviation stands for Module Not Declared

13 MM 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 potential	kg CO2e	1.32E+00	7.01E-01	2.73E-01	2.30E+00	2.42E-01	1.29E-01	MND	MND	MND	MND	MND	MND	MND	0.00E+00	4.39E-02	9.88E-02	0.00E+00	-5.92E+00
Depletion of stratospheric ozone	kg CFC11e	7.20E-07	1.28E-07	3.02E-08	8.78E-07	4.49E-08	9.39E-10	MND	MND	MND	MND	MND	MND	MND	0.00E+00	8.08E-09	6.82E-09	0.00E+00	-9.70E-07
Acidification	kg SO2e	6.71E-03	1.63E-03	1.67E-03	1.00E-02	1.15E-03	4.43E-05	MND	MND	MND	MND	MND	MND	MND	0.00E+00	9.03E-05	7.90E-04	0.00E+00	-2.58E-02
Eutrophication	kg PO4 3e	2.07E-03	3.18E-04	6.34E-04	3.02E-03	1.68E-04	4.31E-05	MND	MND	MND	MND	MND	MND	MND	0.00E+00	1.88E-05	8.87E-04	0.00E+00	-2.57E-03
Photochemical ozone formation	kg C2H4e	6.06E-04	9.80E-05	1.29E-04	8.33E-04	4.65E-05	1.25E-06	MND	MND	MND	MND	MND	MND	MND	0.00E+00	5.84E-06	1.64E-05	0.00E+00	-8.71E-04
Abiotic depletion of non-fossil res.	kg Sbe	3.02E-05	1.81E-05	3.45E-06	5.18E-05	3.90E-06	1.39E-07	MND	MND	MND	MND	MND	MND	MND	0.00E+00	1.11E-06	1.33E-06	0.00E+00	-3.49E-06
Abiotic depletion of fossil resources	MJ	2.68E+01	1.07E+01	6.10E+00	4.36E+01	3.72E+00	8.19E-02	MND	MND	MND	MND	MND	MND	MND	0.00E+00	6.76E-01	8.86E-01	0.00E+00	-7.57E+01

MND abbreviation stands for Module Not Declared