

Owner: Junckers Industrier A/S  
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Issued: 28-02-2020  
Valid to: 28-02-2025

3<sup>rd</sup> PARTY VERIFIED

**EPD**

VERIFIED ENVIRONMENTAL PRODUCT DECLARATION | ISO 14025 & EN 15804



**Owner of declaration**

Junckers Industrier A/S  
 Værftsvej 4  
 DK-4600 Køge  
 VAT no. 66920216



**Issued:**  
28-02-2020

**Valid to:**  
28-02-2025

**Basis of calculation**

This EPD is developed in accordance with the European standard EN 15804.

**Comparability**

EPDs of construction products may not be comparable if they do not comply with the requirements in EN 15804. EPD data may not be comparable if the datasets used are not developed in accordance with EN 15804 and if the background systems are not based on the same database.

**Validity**

This EPD has been verified in accordance with ISO 14025 and is valid for 5 years from the date of issue.

**Use**

The intended use of an EPD is to communicate scientifically based environmental information for construction products, for the purpose of assessing the environmental performance of buildings.

**EPD type**

- Cradle-to-gate
- Cradle-to-gate with options
- Cradle-to-grave

**Programme operator**

Danish Technological Institute  
 www.dti.dk



**Programme**

EPD Danmark  
 www.epddanmark.dk



**Declared products**

Plank floors Oak 20,5 x 140mm (B 5.0)  
 Plank floors Oak 20,5 x 185mm (B 6.0)  
 Plank floors Oak 15 x 129mm (B 7.0)

The EPD cover six surface treatments grouped into three surface treatment groups.

**Production site**


Production site of Nørre Alslev and Køge in Denmark

**Products use**

The product is a solid plank floor, which is ready to be installed in accordance to Junckers Laying Instructions. The floor is intended for indoor use and the products are sold world-wide.

**Declared unit**

1 m<sup>2</sup> of solid hardwood plank floor with surface treatment ready to be installed. Dimensions of the plank floors and wood type is specified under section Declared products. The products are sold world-wide.

CEN standard EN 15804 serves as the core PCR
Independent verification of the declaration and data, according to EN ISO 14025
<input type="checkbox"/> internal <input checked="" type="checkbox"/> external
Third party verifier:  Linda Høiby, COWI A/S

Henrik Fred Larsen  
 EPD Danmark

Life cycle stages and modules (MND = module not declared)

Product			Construction process		Use								End of life				Beyond the system boundary
Raw material supply	Transport	Manufacturing	Transport	Installation process	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Re-use, recovery and recycling potential	
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D	
X	X	X	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	

# Product information

## Product description

The main product components are shown in the table below.

Material	Weight-% of declared product
Wood dry, weight	>90%
Water in wood	8%
Lacquers and oils, dry weight	<2%

## Representativity

This declaration, including data collection and the modelled foreground system including results, represents the production of 1 m<sup>2</sup> of Solid hardwood plank floor from the production site located in Nørre Alslev and Køge in Denmark. Product specific data are based on average values and has been collected for the year 2018. Background data are based on GaBi ts 9.2.0.58 incl. databases 2019 Edition, Ecoinvent 3.5 and CEPE 3.0 and are less than 10 years old.

## Dangerous substances

The product does not contain substances listed in the "Candidate List of Substances of Very High Concern for authorization" whose content exceeds 0.1 weight percent.

(<http://echa.europa.eu/candidate-list-table>)

## Essential characteristics (CE)

The hardwood plank floors are covered by harmonised technical specification EN 13226 and EN 14342. Furthermore, a DoP (Declaration of Performance) can be found at:

<https://www.junckers.com/about/sustainability-environment-and-quality>

Further technical information can be obtained by contacting the manufacturer or on the manufacturers website:

Plank floors Oak 20,5 x 140mm (B 5.0)

[www.junckers.com/planktechinfo20-5x140mm](http://www.junckers.com/planktechinfo20-5x140mm)

Plank floors Oak 20,5 x 185mm (B 6.0)

[www.junckers.com/planktechinfo20-5x185mm](http://www.junckers.com/planktechinfo20-5x185mm)

Plank floors Oak 15 x 129mm (B 7.0)

[www.junckers.com/planktechinfo15x129mm](http://www.junckers.com/planktechinfo15x129mm)

## Reference Service Life (RSL)

The reference service life is not declared, as this EPD is based on a cradle-to-gate assessment where the service life is not relevant.

# LCA background

## Declared unit

The LCI and LCIA results in this EPD relates to 1 m<sup>2</sup> of solid hardwood plank floor in oak.

Product	Declared unit	Weight per m <sup>2</sup> (kg/m <sup>2</sup> )	Density (kg/m <sup>3</sup> )	Conversion factor to 1 kg
Plank floors Oak 20,5 x 140mm (B 5.0)	1 m <sup>2</sup>	16,02	790	0,062
Plank floors Oak 20,5 x 185mm (B 6.0)	1 m <sup>2</sup>	16,02	790	0,062
Plank floors Oak 15 x 129mm (B 7.0)	1 m <sup>2</sup>	12,06	790	0,083

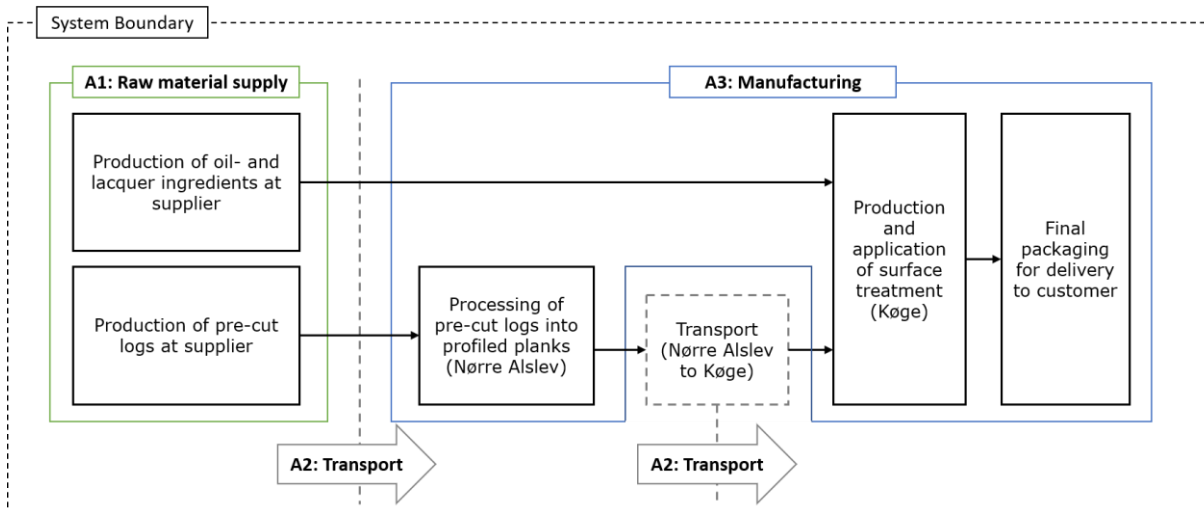
The EPD covers six surface treatments grouped into three surface treatment groups.

Surface treatment group	Surface treatment
Lacquers 1	Ultra matt, ammonia treated Nordic and ultra matt
Lacquers 2	Silk matt Ultra matt
Oil	Clear oil Clear oil, ammonia treated

## PCR

This EPD is developed according to the core rules for the product category of construction products in EN 15804.

## Flow diagram



### System boundaries

This EPD is based on a cradle-to-gate LCA, in which 100 weight-% has been accounted for.

The general rules for the exclusion of inputs and outputs follows the requirements in EN 15804, 6.3.5, where the total of neglected input flows per module shall be a maximum of 5 % of energy usage and mass and 1 % of energy usage and mass for unit processes.

#### **Product stage (A1-A3) includes:**

- A1 – Extraction and processing of raw materials
- A2 – Transport to the production site
- A3 – Manufacturing processes

The product stage comprises the acquisition of all raw materials, products and energy, transport to the production site, packaging and waste processing up to the "end-of-waste" state or final disposal. The LCA results are declared in aggregated form for the product stage, which means, that the sub-modules A1, A2 and A3 are declared as one module A1-A3.

# LCA results – Lacquers 1

“Ultra matt (ammonia treated)” and “Nordic and ultra matt”.

ENVIRONMENTAL IMPACTS PER M <sup>2</sup>				
Parameter	Unit	Oak 20,5 x 140mm	Oak 20,5 x 185mm	Oak 15 x 129mm
		A1-A3	A1-A3	A1-A3
GWP	[kg CO <sub>2</sub> -eq.] excl. biogenic	1,55E+01	1,56E+01	1,32E+01
GWP	[kg CO <sub>2</sub> -eq.]	-1,13E+01	-1,12E+01	-6,93E+00
ODP	[kg CFC11-eq.]	1,04E-07	1,04E-07	9,27E-08
AP	[kg SO <sub>2</sub> -eq.]	8,04E-02	8,10E-02	6,80E-02
EP	[kg PO <sub>4</sub> <sup>3-</sup> -eq.]	1,65E-02	1,66E-02	1,41E-02
POCP	[kg ethene-eq.]	2,43E-02	2,45E-02	2,00E-02
ADPE	[kg Sb-eq.]	8,48E-06	8,51E-06	7,63E-06
ADPF	[MJ]	2,01E+02	2,02E+02	1,70E+02
Caption	GWP = Global warming potential; ODP = Ozone depletion potential; AP = Acidification potential of soil and water; EP = Eutrophication potential; POCP = Photochemical ozone creation potential; ADPE = Abiotic depletion potential for non fossil resources; ADPF = Abiotic depletion potential for fossil resources			

RESOURCE USE PER M <sup>2</sup>				
Parameter	Unit	Oak 20,5 x 140mm	Oak 20,5 x 185mm	Oak 15 x 129mm
		A1-A3	A1-A3	A1-A3
PERE	[MJ]	2,30E+02	2,34E+02	2,18E+02
PERM	[MJ]	2,64E+02	2,64E+02	1,99E+02
PERT	[MJ]	4,94E+02	4,98E+02	4,17E+02
PENRE	[MJ]	2,13E+02	2,15E+02	1,81E+02
PENRM	[MJ]	1,07E+01	1,07E+01	8,74E+00
PENRT	[MJ]	2,24E+02	2,26E+02	1,90E+02
SM	[kg]	-	-	-
RSF	[MJ]	-	-	-
NRSF	[MJ]	-	-	-
FW	[m <sup>3</sup> ]	2,76E-01	2,77E-01	2,68E-01
Caption	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 material; RSF = Use of renewable secondary fuels; NRSF = Use of non renewable secondary fuels; FW = Use of net fresh water			

WASTE CATEGORIES AND OUTPUT FLOWS PER M <sup>2</sup>				
Parameter	Unit	Oak 20,5 x 140mm	Oak 20,5 x 185mm	Oak 15 x 129mm
		A1-A3	A1-A3	A1-A3
HWD	[kg]	3,91E-02	3,91E-02	3,91E-02
NHWD	[kg]	6,22E-01	6,25E-01	5,71E-01
RWD	[kg]	8,88E-03	8,94E-03	7,70E-03
CRU	[kg]	-	-	-
MFR	[kg]	-	-	-
MER	[kg]	-	-	-
EEE	[MJ]	-	-	-
EET	[MJ]	-	-	-
Caption	HWD = Hazardous waste disposed; NHWD = Non hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EET = Exported thermal energy			

# LCA results – Lacquer group 2

Silk matt and Ultra matt

ENVIRONMENTAL IMPACTS PER M <sup>2</sup>				
Parameter	Unit	Oak 20,5 x 140mm	Oak 20,5 x 185mm	Oak 15 x 129mm
		A1-A3	A1-A3	A1-A3
GWP	[kg CO <sub>2</sub> -eq.] excl. biogenic	1,50E+01	1,51E+01	1,27E+01
GWP	[kg CO <sub>2</sub> -eq.]	-1,19E+01	-1,18E+01	-7,41E+00
ODP	[kg CFC11-eq.]	6,82E-08	6,82E-08	5,65E-08
AP	[kg SO <sub>2</sub> -eq.]	7,87E-02	7,94E-02	6,64E-02
EP	[kg PO <sub>4</sub> <sup>3-</sup> -eq.]	1,54E-02	1,55E-02	1,31E-02
POCP	[kg ethene-eq.]	2,40E-02	2,42E-02	1,97E-02
ADPE	[kg Sb-eq.]	7,12E-06	7,15E-06	6,27E-06
ADPF	[MJ]	1,94E+02	1,95E+02	1,63E+02
Caption	GWP = Global warming potential; ODP = Ozone depletion potential; AP = Acidification potential of soil and water; EP = Eutrophication potential; POCP = Photochemical ozone creation potential; ADPE = Abiotic depletion potential for non fossil resources; ADPF = Abiotic depletion potential for fossil resources			

RESOURCE USE PER M <sup>2</sup>				
Parameter	Unit	Oak 20,5 x 140mm	Oak 20,5 x 185mm	Oak 15 x 129mm
		A1-A3	A1-A3	A1-A3
PERE	[MJ]	2,30E+02	2,34E+02	2,17E+02
PERM	[MJ]	2,64E+02	2,64E+02	1,99E+02
PERT	[MJ]	4,94E+02	4,98E+02	4,16E+02
PENRE	[MJ]	2,10E+02	2,12E+02	1,78E+02
PENRM	[MJ]	7,03E+00	7,06E+00	5,09E+00
PENRT	[MJ]	2,17E+02	2,19E+02	1,83E+02
SM	[kg]	-	-	-
RSF	[MJ]	-	-	-
NRSF	[MJ]	-	-	-
FW	[m <sup>3</sup> ]	1,65E-01	1,65E-01	1,57E-01
Caption	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 material; RSF = Use of renewable secondary fuels; NRSF = Use of non renewable secondary fuels; FW = Use of net fresh water			



WASTE CATEGORIES AND OUTPUT FLOWS PER M <sup>2</sup>				
Parameter	Unit	Oak 20,5 x 140mm	Oak 20,5 x 185mm	Oak 15 x 129mm
		A1-A3	A1-A3	A1-A3
HWD	[kg]	3,91E-02	3,91E-02	3,91E-02
NHWD	[kg]	6,21E-01	6,24E-01	5,69E-01
RWD	[kg]	8,84E-03	8,90E-03	7,67E-03
CRU	[kg]	-	-	-
MFR	[kg]	-	-	-
MER	[kg]	-	-	-
EEE	[MJ]	-	-	-
EET	[MJ]	-	-	-
Caption	HWD = Hazardous waste disposed; NHWD = Non hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EET = Exported thermal energy			

# LCA results – Oil

“Clear oil” and “Clear oil, ammonia treated”

ENVIRONMENTAL IMPACTS PER M <sup>2</sup>				
Parameter	Unit	Oak 20,5 x 140mm	Oak 20,5 x 185mm	Oak 15 x 129mm
		A1-A3	A1-A3	A1-A3
GWP	[kg CO <sub>2</sub> -eq.] excl. biogenic	1,44E+01	1,45E+01	1,22E+01
GWP	[kg CO <sub>2</sub> -eq.]	-1,24E+01	-1,23E+01	-8,00E+00
ODP	[kg CFC11-eq.]	3,27E-08	3,27E-08	2,11E-08
AP	[kg SO <sub>2</sub> -eq.]	7,62E-02	7,68E-02	6,38E-02
EP	[kg PO <sub>4</sub> <sup>3-</sup> -eq.]	1,45E-02	1,46E-02	1,22E-02
POCP	[kg ethene-eq.]	2,36E-02	2,38E-02	1,93E-02
ADPE	[kg Sb-eq.]	5,15E-06	5,18E-06	4,30E-06
ADPF	[MJ]	1,83E+02	1,85E+02	1,52E+02
Caption	GWP = Global warming potential; ODP = Ozone depletion potential; AP = Acidification potential of soil and water; EP = Eutrophication potential; POCP = Photochemical ozone creation potential; ADPE = Abiotic depletion potential for non fossil resources; ADPF = Abiotic depletion potential for fossil resources			

RESOURCE USE PER M <sup>2</sup>				
Parameter	Unit	Oak 20,5 x 140mm	Oak 20,5 x 185mm	Oak 15 x 129mm
		A1-A3	A1-A3	A1-A3
PERE	[MJ]	2,30E+02	2,34E+02	2,17E+02
PERM	[MJ]	2,64E+02	2,64E+02	1,99E+02
PERT	[MJ]	4,94E+02	4,98E+02	4,16E+02
PENRE	[MJ]	2,01E+02	2,02E+02	1,69E+02
PENRM	[MJ]	4,84E+00	4,87E+00	2,90E+00
PENRT	[MJ]	2,06E+02	2,07E+02	1,72E+02
SM	[kg]	-	-	-
RSF	[MJ]	-	-	-
NRSF	[MJ]	-	-	-
FW	[m <sup>3</sup> ]	8,20E-02	8,24E-02	7,40E-02
Caption	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 material; RSF = Use of renewable secondary fuels; NRSF = Use of non renewable secondary fuels; FW = Use of net fresh water			

WASTE CATEGORIES AND OUTPUT FLOWS PER M <sup>2</sup>				
Parameter	Unit	Oak 20,5 x 140mm	Oak 20,5 x 185mm	Oak 15 x 129mm
		A1-A3	A1-A3	A1-A3
HWD	[kg]	3,93E-02	3,93E-02	3,93E-02
NHWD	[kg]	6,19E-01	6,22E-01	5,67E-01
RWD	[kg]	8,79E-03	8,85E-03	7,61E-03
CRU	[kg]	-	-	-
MFR	[kg]	-	-	-
MER	[kg]	-	-	-
EEE	[MJ]	-	-	-
EET	[MJ]	-	-	-
Caption	HWD = Hazardous waste disposed; NHWD = Non hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EET = Exported thermal energy			

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**Indoor air**

*The EPD does not give information on release of dangerous substances to indoor air because the horizontal standards on measurement of release of regulated dangerous substances from construction products using harmonised test methods according to the provisions of the respective technical committees for European product standards are not available.*

**Soil and water**

*The EPD does not give information on release of dangerous substances to soil and water because the horizontal standards on measurement of release of regulated dangerous substances from construction products using harmonised test methods according to the provisions of the respective technical committees for European product standards are not available.*

## References

<b>Publisher</b>	 <a href="http://www.epddanmark.dk">http://www.epddanmark.dk</a>
<b>Programme operator</b>	Danish Technological Institute Buildings & Environment Gregersensvej DK-2630 Taastrup <a href="http://www.teknologisk.dk">http://www.teknologisk.dk</a>
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<b>LCA software /background data</b>	GaBi ts 9.2.0.58 incl. databases 2019 Edition
<b>3<sup>rd</sup> party verifier</b>	Linda Højbye COWI A/S Parallelsvej 2 2800 Kgs. Lyngby Email: <a href="mailto:LAN@cowi.com">LAN@cowi.com</a>

### General programme instructions

Version 1.9

[www.epddanmark.dk](http://www.epddanmark.dk)

#### EN 15804

DS/EN 15804:2012 + A1:2013 - "Sustainability of construction works – Environmental product declarations – Core rules for the product category of construction products"

#### EN 15942

DS/EN 15942:2011 – " Sustainability of construction works – Environmental product declarations – Communication format business-to-business"

#### ISO 14025

DS/EN ISO 14025:2010 – " Environmental labels and declarations – Type III environmental declarations – Principles and procedures"

#### ISO 14040

DS/EN ISO 14040:2008 – " Environmental management – Life cycle assessment – Principles and framework"

#### ISO 14044

DS/EN ISO 14044:2008 – " Environmental management – Life cycle assessment – Requirements and guidelines"