

# Environmental Product Declaration

according to ISO 14025 and EN 15804



This declaration is for:  
**Hakwood Duoplank®** in European Oak  
or European Ash in 15mm (5/8") and  
20mm (3/4")

Provided by:  
**Hakwood**

The Hakwood logo consists of the word 'Hakwood' in a white, bold, sans-serif font, centered within a solid maroon square background.



program operator  
**Stichting MRPI®**  
publisher  
**Stichting MRPI®**  
[www.mrpi.nl](http://www.mrpi.nl)

MRPI® registration  
**1.1.00059.2019**  
EPD registration  
**00000957**  
date of first issue  
**16-07-2019**  
date of this issue  
**16-07-2019**  
expiry date  
**16-07-2024**

**NL/SfB class.**  
*43.20 - vloerafwerkingen; niet verhoogd, algemeen*



**PROGRAM OPERATOR**

Stichting MRPI®  
 Kingsfordweg 151  
 1043GR  
 Amsterdam

**COMPANY INFORMATION**



*Hakwood*  
 Leemansstraat 2  
 4251LD  
 Werkendam  
 0031 (0)6 183 504 266  
 info@hakwood.com - www.hakwood.com

**SCOPE OF DECLARATION**

This MRPI®-EPD certificate is verified by **Bob Roijen, SGS Intron**.  
 The LCA study has been done by **Rick Scholtes, NIBE BV**.  
 The certificate is based on an LCA-dossier according to ISO14025 and NEN-EN15804+A1. It is verified according to the 'EPD-MRPI verification protocol May 2017'. EPD's of construction products may not be comparable if they do not comply with NEN-EN15804+A1. Declaration of SVHC that are listed on the 'Candidate List of Substances of Very High Concern for authorisation' when content exceeds the limits for registration with ECHA.

**VISUAL PRODUCT**



**PRODUCT**

Hakwood Duoplank® in European Oak or European Ash in 15mm (5/8") and 20mm (3/4")

**MRPI® REGISTRATION**

1.1.00059.2019

**EPD REGISTRATION**

00000957

**DATE OF ISSUE**

16-07-2019

**EXPIRY DATE**

16-07-2024

**DECLARED UNIT/FUNCTIONAL UNIT**

1 m2 (10.76 s.f.)  
 Flooring, applied in an office for a period of 50 years, per 1 m2.

**DESCRIPTION OF PRODUCT**

Engineered wood flooring: expertly dried European hardwood adhered to water resistant plywood for dimensional stability. Prefinished & unfinished plank, chevron, herringbone and tiles.

**MORE INFORMATION**

<https://www.hakwood.com>

**DEMONSTRATION OF VERIFICATION**

CEN standard EN15804 serves as the core PCR[a]

Independent verification of the declaration and data,  
 according to EN ISO 14025:2010:  
 internal:            external: X

(where appropriate[b]) Third party verifier:

Bob Roijen, SGS Intron B.V.

[a] Product Category Rules [b] Optional for B-to-B communication, mandatory for B-to-C communication (see EN ISO 14025:2010, 9.4).

### DETAILED PRODUCT DESCRIPTION

Hakwood is the inventor of the Duoplank®, the current standard for wide width, long length engineered wood flooring. Hakwood Duoplank® consists of an expertly dried European hardwood top layer adhered to high grade, water resistant plywood to produce balanced and dimensionally stable wood flooring. Offered in a variety of surface treatments and colours, the Hakwood Duoplank provides the look and feel of a solid wood floor combined with the installation flexibility of an engineered product. Hakwood Duoplank® is available in planks, chevron and herringbone; 15mm (5/8") and 20mm (3/4") thick.

Hakwood flooring products are extensively tested inhouse and by independent labs for quality and performance (fire classification, formaldehyde emission, determination of anti-skid properties, determination of anti-slip property, indentation resistance). All products are available FSC on request.

#### *Advantages of the Hakwood Duoplank*

- dimensionally stable
- can be used in combination with underfloor heating
- can be used in combination with underfloor cooling
- available in multiple grades
- available in two thicknesses
- available in plank, herringbone & chevron
- various installation methods possible

COMPONENT (*)	15 mm (5/8")	20 mm (3/4")
Stain/oil	2%	2%
Oak/Ash	37%	24%
Glue	2%	2%
Multiply	59%	73%

(\*) > 1% of total mass

### SCOPE AND TYPE

This EPD is representative for the production of Hakwood Duoplank® with a thickness of 15 (5/8") or 20 mm (3/4") and with an average finish. It includes the production of Oak and Ash in Europe, shipment to the Netherlands and a variance of operations at Hakwood (Werkendam, Netherlands). The waste treatment of the flooring is situated in the Netherlands (by using the default waste treatment scenarios from the Dutch National LCA database).



PRODUCT STAGE	CONSTRUCTION					USE STAGE							END OF LIFE			BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARIES
	PROCESS					STAGE							STAGE			
	STAGE															
Raw material supply	Transport	Manufacturing	Transport gate to site	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
<b>A1</b>	<b>A2</b>	<b>A3</b>	<b>A4</b>	<b>A5</b>	<b>B1</b>	<b>B2</b>	<b>B3</b>	<b>B4</b>	<b>B5</b>	<b>B6</b>	<b>B7</b>	<b>C1</b>	<b>C2</b>	<b>C3</b>	<b>C4</b>	<b>D</b>
X	X	X	X	X	MNA	X	X	MNA	MNA	MNA	MNA	MNA	X	MNA	X	X

X = Module assessed

MNA = Module Not Assessed

### REPRESENTATIVENESS

Not applicable as this is an environmental product declaration for a specific product from a specific manufacturer.

**ENVIRONMENTAL IMPACT per functional unit or declared unit**

	UNIT	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
ADPE	kg Sb-eq.	2.78 E -5	9.49 E -6	7.51 E -6	4.48 E -5	1.90 E -6	2.31 E -6	0	2.59 E -5	9.92 E -7	INA	INA	INA	INA	INA	7.25 E -7	INA	4.59 E -7	-1.51 E -6
ADPF	MJ	5.82 E -2	2.48 E -2	2.67 E -2	1.10 E -1	4.97 E -3	3.09 E -3	0	3.73 E -2	9.65 E -4	INA	INA	INA	INA	INA	1.89 E -3	INA	1.08 E -3	-4.80 E -2
GWP	kg CO2-eq.	6.87 E +0	3.36 E +0	3.50 E +0	1.37 E +1	6.74 E -1	5.23 E -1	0	7.48 E +0	1.98 E -1	INA	INA	INA	INA	INA	2.57 E -1	INA	6.18 E -1	-5.90 E +0
ODP	kg CFC11-eq.	9.12 E -7	6.26 E -7	3.09 E -7	1.85 E -6	1.26 E -7	7.24 E -8	0	6.25 E -7	2.21 E -8	INA	INA	INA	INA	INA	4.78 E -8	INA	4.22 E -8	-5.39 E -7
POCP	kg ethene-eq.	2.58 E -2	2.02 E -3	3.31 E -3	3.11 E -2	4.06 E -4	1.55 E -3	0	4.41 E -3	3.94 E -3	INA	INA	INA	INA	INA	1.55 E -4	INA	5.59 E -4	-9.95 E -4
AP	kg SO2-eq.	4.78 E -2	1.48 E -2	1.17 E -2	7.42 E -2	2.97 E -3	3.63 E -3	0	2.52 E -2	1.42 E -3	INA	INA	INA	INA	INA	1.13 E -3	INA	3.07 E -3	-7.70 E -3
EP	kg (PO4)3--eq.	9.85 E -3	2.91 E -3	2.37 E -3	1.51 E -2	5.84 E -4	7.58 E -4	0	5.04 E -3	5.97 E -4	INA	INA	INA	INA	INA	2.22 E -4	INA	7.57 E -4	-1.39 E -3
Toxicity indicators (only for Dutch market)																			
HTP	kg DCB-eq.	4.03 E +0	1.35 E +0	9.77 E -1	6.36 E +0	2.70 E -1	3.27 E -1	0	1.90 E +0	7.80 E -2	INA	INA	INA	INA	INA	1.03 E -1	INA	3.43 E -1	-5.22 E -1
FAETP	kg DCB-eq.	4.30 E -1	4.01 E -2	4.62 E -2	5.16 E -1	8.05 E -3	2.68 E -2	0	3.82 E -1	5.96 E -2	INA	INA	INA	INA	INA	3.07 E -3	INA	1.45 E -2	-1.53 E -2
MAETP	kg DCB-eq.	6.69 E +2	1.44 E +2	1.18 E +2	9.31 E +2	2.89 E +1	4.66 E +1	0	2.81 E +2	1.19 E +1	INA	INA	INA	INA	INA	1.10 E +1	INA	9.95 E +0	-6.12 E +1
TETP	kg DCB-eq.	1.78 E -1	4.85 E -3	2.99 E -2	2.13 E -1	9.74 E -4	1.06 E -2	0	6.06 E -2	2.00 E -2	INA	INA	INA	INA	INA	3.71 E -4	INA	5.87 E -4	-3.67 E -3

INA = Indicator Not Assessed

ADPE = Abiotic depletion potential for non-fossil resources;

GWP = Global warming potential;

POCP = Formation potential of tropospheric ozone photochemical oxidants;

EP = Eutrophication potential.

HTP = Human toxicity potential;

MAETP = Marine aquatic ecotoxicity potential;

ADPF = Abiotic depletion potential for fossil resources;

ODP = Depletion potential of the stratospheric ozone layer;

AP = Acidification potential of land and water;

FAETP = Fresh water aquatic ecotoxicity potential;

TETP = Terrestrial ecotoxicity potential.

**RESOURCE USE per functional unit or declared unit**

	UNIT	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
PERE	MJ	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
PERM	MJ	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
PERT	MJ	5.49 E +2	7.14 E -1	8.41 E +1	6.34 E +2	1.43 E -1	3.07 E +1	0	1.12 E +1	1.30 E +0	INA	INA	INA	INA	INA	5.46 E -2	INA	1.23 E -1	-1.68 E +1
PENRE	MJ	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
PENRM	MJ	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
PENRT	MJ	1.36 E +2	5.54 E +1	5.74 E +1	2.49 E +2	1.11 E +1	7.61 E +0	0	8.13 E +1	2.15 E +0	INA	INA	INA	INA	INA	4.23 E +0	INA	2.25 E +0	-9.81 E +1
SM	kg	0	0	2.06 E +1	2.06 E +1	0	1.03 E +0	0	0	0	INA	INA	INA	INA	INA	0	INA	0	0
RSF	MJ	0	0	0	0	0	0	0	0	0	INA	INA	INA	INA	INA	0	INA	0	0
NRSF	MJ	0	0	0	0	0	0	0	0	0	INA	INA	INA	INA	INA	0	INA	0	0
FW	m3	2.73 E -2	1.00 E -2	1.42 E -2	5.16 E -2	2.01 E -3	2.63 E -3	0	6.69 E -2	5.30 E -3	INA	INA	INA	INA	INA	7.64 E -4	INA	1.44 E -2	-1.48 E -2

INA = Indicator Not Assessed

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 resources excluding non renewable primary energy resources used as materials;

PENRM = Use of non-renewable primary energy used as raw materials;

PENRT = Total use of non-renewable primary energy resources;

SM = Use of secondary materials;

RSF = Use of renewable secondary fuels;

NRSF = Use of non-renewable secondary fuels;

FW = Use of net fresh water.

**OUTPUT FLOWS AND WASTE CATEGORIES IMPACT per functional unit or declared unit**

	UNIT	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
HWD	kg	6.91 E -4	3.87 E -4	2.86 E -4	1.36 E -3	7.77 E -5	5.39 E -5	0	3.50 E -4	1.12 E -5	INA	INA	INA	INA	INA	2.96 E -5	INA	1.78 E -5	-3.63 E -4
NHWD	kg	1.31 E +0	3.16 E +0	9.82 E -1	5.44 E +0	6.33 E -1	3.68 E -1	0	2.97 E +0	8.44 E -2	INA	INA	INA	INA	INA	2.41 E -1	INA	1.13 E +0	-1.78 E -1
RWD	kg	5.79 E -4	3.56 E -4	2.01 E -4	1.14 E -3	7.15 E -5	5.19 E -5	0	2.65 E -4	9.60 E -6	INA	INA	INA	INA	INA	2.72 E -5	INA	8.04 E -6	-1.81 E -4
CRU	kg	0	0	0	0	0	0	0	0	0	INA	INA	INA	INA	INA	0	INA	0	0
MFR	kg	0	0	0	0	0	2.10 E -3	0	0	0	INA	INA	INA	INA	INA	0	INA	0	0
MER	kg	0	0	0	0	0	0	0	0	0	INA	INA	INA	INA	INA	0	INA	0	0
EEE	MJ	0	0	4.83 E +0	4.83 E +0	0	1.88 E +0	0	3.73 E +0	8.44 E -2	INA	INA	INA	INA	INA	0	INA	0	2.83 E +1
ETE	MJ	0	0	5.44 E +0	5.44 E +0	0	2.11 E +0	0	4.20 E +0	9.50 E -2	INA	INA	INA	INA	INA	0	INA	0	3.18 E +1

INA = Indicator Not Assessed

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;

ETE = Exported thermal energy.



## CALCULATION RULES

### *Cut off rules*

There is no cut-off of inputs and outputs in any of the processes during the life cycle stage, hence the environmental impact of all unit processes of each life cycle stage are considered.

### *Data quality*

Specific data was collected from Hakwood through a questionnaire. In the case of missing data, a relevant proxy was searched and adjusted to the corresponding unit process.

### *Data collection period*

Production data concerning the material composition are collected in the period 2018 and relate to the year 2017-2018. The energy and gas data for production originate from the year 2017.

### *Allocations*

Proces	Allocation procedure
Multi input processes	Landfill is a multi input process. For the modelling of landfill of the materials the EcoInvent method was followed. Incineration is a multi input process. For the modelling of landfill of the materials the EcoInvent method was followed as well as the guidelines of the Dutch PCR for construction products (Dutch Assessment method).
Multi output processes	No multi output processes were applied

## SCENARIOS AND ADDITIONAL TECHNICAL INFORMATION

### *A1. Raw materials supply*

This module considers the extraction and processing of all raw materials and energy which occur upstream to the Hakwood Duoplank® manufacturing process, as well as waste processing up to the end-of waste state.

### *A2. Transport of raw materials to manufacturer*

This includes the transport distance of the raw materials to the manufacturing facility via road, boat and/or train. The transport characteristics for this life cycle stage are the following:

Transport type	Truck
Ecoinvent Process	Lorry (Truck), unspecified (default)

### *A3. Manufacturing*

This module covers the manufacturing of Hakwood Duoplank® flooring and includes all processes linked to production such as sanding, staining, wire brushing, burning, fine-sawing, manually-crafted, hand-scraping, aging, fuming, finishing and packing. Use of electricity and fuels production are taken into account as well. The manufacturing process takes place at one production site. For upstream (raw material processes) and downstream processes (application, use, and waste processing)

generic data is used when no specific data is obtained. The manufacture of production equipment and infrastructure is not included in the system boundary. Packaging-related flows in the production process and all up-stream packaging are included in the manufacturing module.

#### *A4. Transport to customer*

This module has been declared for the Dutch scenario. The estimated distance to the building site has been set at 150 km (standard A4 transport distance for construction products in the Netherlands). The steps of loading and unloading have not been taken into account.

The transport needed for 1000 m<sup>2</sup> is shown below:

#### **Transport process** Lorry (Truck), unspecified (default)

#### *A5. Application and use*

This module has been declared for an average scenario. Output materials as result of waste processing at the building are 5% (conform Dutch Assessment method).

#### *B2. Maintenance*

The maintenance cycle depends on the usage of the floor. For the scenario of this EPD is a cycle of 10 years applied. In this scenario, every 10 years the floor will be sanded and a new finishing will be applied.

#### *C2. Transport to incineration, landfill or recycling*

This module has been declared for the Dutch scenario. The following distances are assumed (standard C2 transport distances for construction products in the Netherlands):

- Transport from demolition to sorting location and recycling: 50 km
- Transport from demolition to sorting location and landfill: 100 km
- Transport from demolition to sorting location and incineration: 150 km

#### *Additional note*

The waste scenarios have been declared for the Dutch scenario.

#### **DECLARATION OF SVHC**

None of the substances contained in the product are listed in the "Candidate List of Substances of Very High Concern for authorisation", or they do not exceed the threshold with the European Chemicals Agency.

#### **REFERENCES**

- Applicable PCR: SBK; Milieuprestaties Gebouwen en GWW Werken, version 2.0, November 2014
- Dutch National LCA database (NMDv2.2)
- Ecoinvent database 3.3

#### **REMARKS**

None