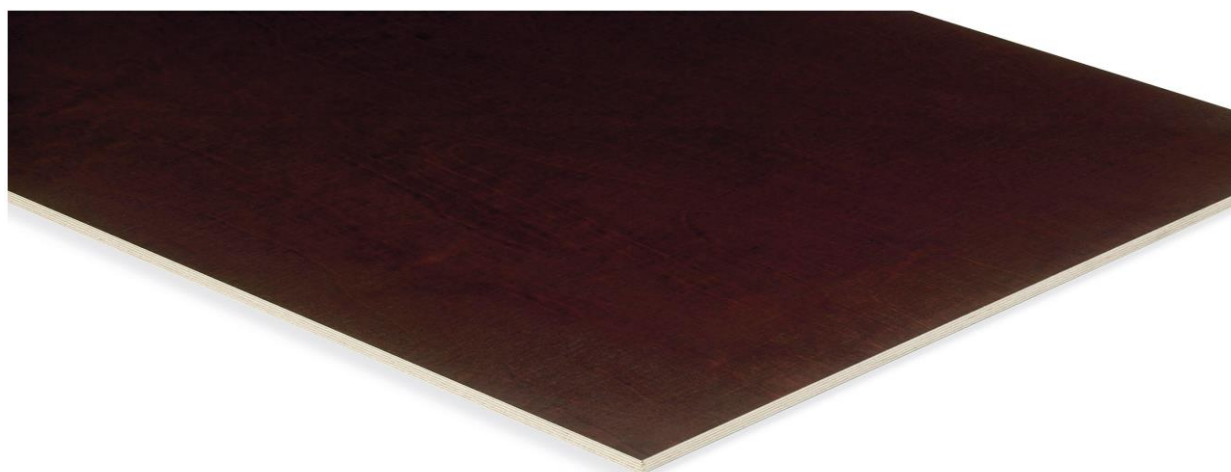




KOSKISEN



**Rakennustietosäätiö RTS  
Building Information  
Foundation RTS**

RTS EPD,  
RTS\_EPD\_39\_19  
Birch plywood  
phenol coated

**Scope of the declaration**

This environmental product declaration covers the environmental impacts of phenol coated birch plywood. The declaration has been prepared in accordance with EN 15804:2012A1: 2013 and ISO 14025 standards and the additional requirements stated in the RTS PCR (English version, 14.6.2018). This declaration covers the life cycle stages from from cradle-to-gate with options including transportation to installation site, deconstruction, transportation, treatment and recovery of the product at its end-of-life.

**RAKENNUSTIETO**

14.11.2019  
Building Information Foundation  
RTS  
Malminkatu 16 A  
00100 Helsinki

<http://epd.rts.fi>

Committee secretary

RTS managing director



This verified Environmental Product Declaration was created with One Click LCA - the world leading life-cycle assessment, life-cycle costing and sustainability metrics tool designed by Bionova Ltd, Finland, [www.oneclicklca.com](http://www.oneclicklca.com).



**KOSKISEN**

## General information, declaration scope and verification (7.1)

### 1. Owner of the declaration, manufacturer

Koskisen Oy  
Tehdastie 2, 16600 Järvelä, Finland  
Riitta Ahokas  
358 40 5534 410  
riitta.ahokas@koskisen.com

### 2. Product name and number

Birch plywood, coated with phenol formaldehyde impregnated papers; KoskiForm, KoskiCrown, KoskiCarat,

### 3. Place of production

Järvelä mill, Finland

### 4. Additional information

www.koskisen.com

### 5. Product Category Rules and the scope of the declaration

This EPD has been prepared in accordance with EN 15804:2012A1:2013 and ISO 14025 standards together with the RTS PCR (English version, 14.6.2018). Product specific category rules have not been applied in this EPD. EPD of construction materials may not be comparable if they do not comply with EN 15804 and seen in a building context.

### 6. Author of the life-cycle assessment and declaration

Riitta Ahokas  
Koskisen Oy

### 7. Verification

This EPD has been verified according to the requirements of ISO 14025:2010, EN 15804: 2012A1:2013 and RTS PCR by a third party. The verification has been carried out by Bionova Oy, Anastasia Sipari

### 8. Declaration issue date and validity

14.11.2019-18.10.2024

#### European standard EN 15804: 2014 A1 serves as the core PCR

Independent verification of the declaration and data, according to ISO14025:2010



Internal



External

Third party verifier:

Bionova Oy/ Anastasia Sipari

## Product information

### 9. Product description

This EPD represents product exterior glued birch plywood coated with phenol overlays produced in Järvelä, Finland. Coated plywood is a Finnish plywood with high-quality. Wood species used are certified according to PEFC and FSC Chain Custody and certified ISO 9001 and environmental ISO 14001 Management system.

### 10. Technical specifications

KoskiCrown, KoskiCarat, KoskiRuby, KoskiDeck and KoskiForm are phenol overlaid plywood which are made of Finnish birch and phenol formaldehyde resin. The plywood is produced in various thicknesses ranging from 4 mm up to 50 mm in several dimensions.

The coated plywood can be used in various end uses like Vehicles, heavy trailers and light delivery vans as well as construction. The nominal density of the product is as average 680 kg/m<sup>3</sup>. More information on web-page [www.koskisen.com](http://www.koskisen.com)

### 11. Product standards

EN 636-3 Plywood specifications; Part 3: Requirements for plywood for use in exterior conditions

### 12. Physical properties

The dimensions of the panels are available up to 1880x4000 mm in various qualities. For more details see product leaflets in Koskisen web-pages [www.koskisen.com](http://www.koskisen.com). Also some technical details are shown in Handbook of Finnish plywood

In order to adapt results of EPD to plywood of different size the conversion factors presented below can be applied

Panel thickness mm	kg/m <sup>2</sup>	m <sup>2</sup> /m <sup>3</sup>
4	2,7	250,00
6,5	4,4	153,85
9	6,1	111,11
12	8,2	83,33
12,2	10,2	81,97
18	12,2	55,56
21	14,3	47,62
24	16,3	41,67
27	18,4	37,04
30	20,4	33,33
35	23,8	28,57
40	27,2	25,00
45	30,6	22,22
50	34	20,00

### 13. Raw-materials of the product

Product structure / composition / raw-material	Amount %
Wood	89,3 %
Phenolic resin	5,3 %
Paper (lamination)	1,6 %
Phenolic resin (lamination)	2,9 %
Limestone aggregate	0,5 %
Hardeners	0,3 %
Polypropylene	0,0 %
Total	100,0 %

### 14. Substances under European Chemicals Agency's REACH, SVHC restrictions

Name	EC Number	CAS Number
------	-----------	------------

The product does not contain REACH SVHC substances.

## 15. Functional / declared unit

m<sup>3</sup> of plywood

## 16. System boundary

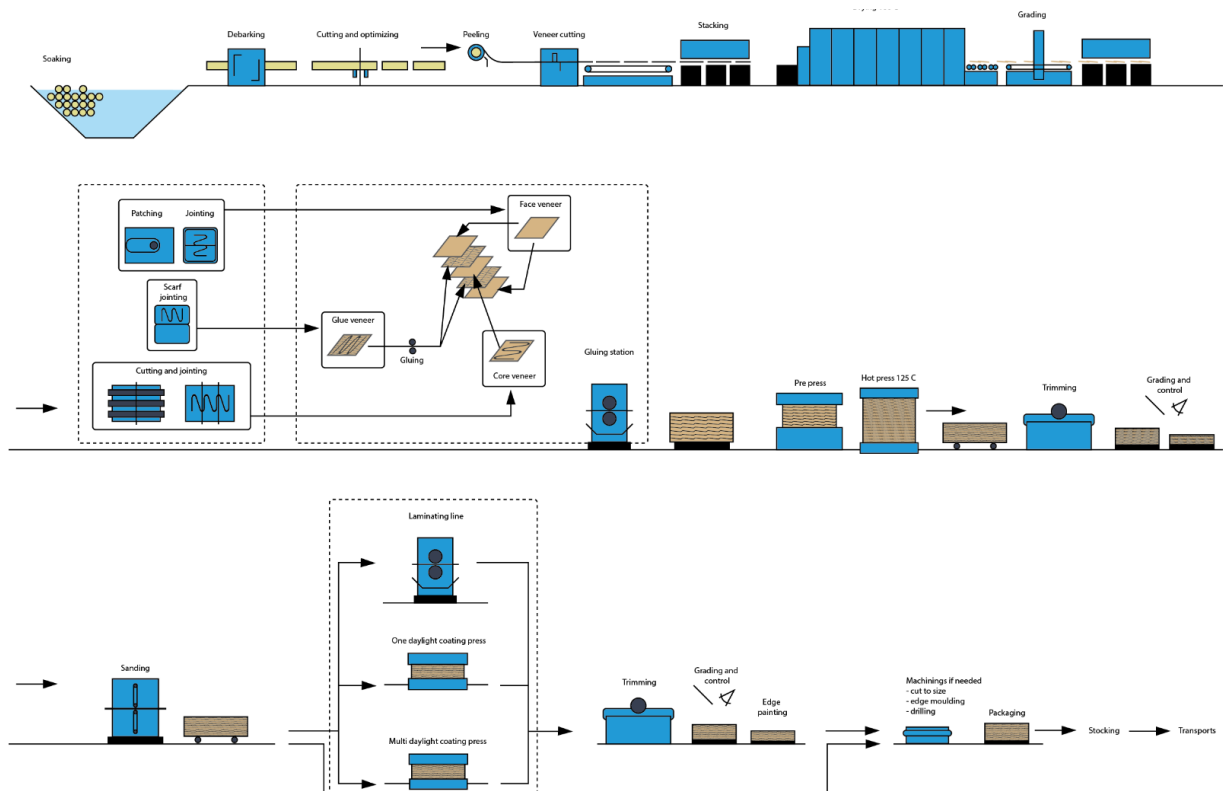
This EPD covers the following modules; A1 (Raw material supply), A2 (Transport), A3 (Manufacturing) and A4 (Transportation of the product to the building site) as well as C1 (Deconstruction), C2 (Transport at end-of-life), C3 (Waste processing) and C4 (Disposal). In addition, module D - benefits and loads beyond the system boundary - have been included.

## 17. Cut-off criteria

All used materials, energy, packaging, transportation fuel and waste treatment until the end-of-waste state have been included in the product stage (A1-A3). Results for the product stage have been provided as an aggregate. A4 transportation has been estimated to be 100 km, the return trip has not been considered. Module B information has not been presented or included in the LCA calculation. Energy consumption of demolition (C1) is assumed to be negligible. Transportation distance to treatment facility is assumed to be 100 km. Collected chipboard is shredded and incinerated for energy production purposes (C3), generated ash is landfilled (C4). Module D considers the benefits of energy recovery which replaces district heat.

## 18. Production process

The product is manufactured from birch logs certified according to PEFC/FSC and phenol formaldehyde resin for exterior applications and with urea formaldehyde for interior applications. The logs are peeled into veneers and then various thicknesses are laid up from the veneers in various construction.





**KOSKISEN**

## Scope of the Life-Cycle Assessment (7.2.1-2)

Mark all the covered modules of the EPD with X. Mandatory modules are marked with blue in the table below. This declaration covers "cradle-to-gate with options". For other fields mark MND (module not declared) or MNR (module not relevant)

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	MND	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	De-construction demolition	Transport	Waste processing	Disposal	Reuse	Recovery	Recycling

	Mandatory modules
	Mandatory as per the RTS PCR section 6.2.1 rules and terms
	Optional modules based on scenarios

## Environmental impacts and raw-material use (7.2.3-7.2.4)

### 19. Environmental impacts

The results of a life cycle assessment are relative. They do not predict impact on category endpoints, exceeding of limit values, safety margins or risks. The impacts are presented per declared unit, 1 m3 of product. The impacts are mainly caused by the manufacturing process(A3).

Environmental impact								
Parameter	Unit	A1-A3	A4	C1	C2	C3	C4	D
Global warming potential	kg CO2 -eqv	4,38E2	3,47E0	0E0	2,6E0	6,15E0	3,68E-2	-6,55E2
Depletion of stratospheric ozone layer	kg CFC11-eqv	4,12E-4	7,84E-7	0E0	5,14E-7	7,14E-7	9,43E-9	-3,34E-5
Formation of photochemical ozone	kg C2H4 -eqv	9,2E-1	5,66E-4	0E0	1,47E-4	1,99E-3	1,18E-5	-1,94E-1
Acidification	kg SO2 -eqv	4,15E0	1,78E-2	0E0	1,2E-2	1,5E-1	2,53E-4	-3,63E0
Eutrophication	kg PO4 3--eqv	1,05E0	4,15E-3	0E0	2,61E-3	1,97E-1	7,63E-5	-4,94E-1
Abiotic depletion of non fossil resources	kg Sb-eqv	3,77E0	1,10E-5	0E0	1,89E-2	1,6E-5	4,86E-8	-7,75E-5
Abiotic depletion of fossil resources	MJ	8,97E3	9,36E1	0E0	7,43E1	6,05E1	8,67E-1	-6,49E3



**KOSKISEN**

## 20. Use of natural resources

Resource use								
Parameter	Unit	A1-A3	A4	C1	C2	C3	C4	D
Renewable primary energy resources used as energy carrier	MJ	1,7E4	1,31E0	0E0	1,22E-1	2,41E0	2,73E-2	-1,77E2
Renewable primary energy resources used as raw materials	MJ	8,52E3	0E0	0E0	0E0	0E0	0E0	0E0
Total use of renewable primary energy resources	MJ	2,55E4	1,31E0	0E0	1,22E-1	2,41E0	2,73E-2	-1,77E2
Nonrenewable primary energy resources used as energy carrier	MJ	1,08E4	1,00E2	0E0	7,4E1	6,87E1	9,43E-1	-7,06E3
Nonrenewable primary energy resources used as materials	MJ	3,29E1	0E0	0E0	0E0	0E0	0E0	0E0
Total use of non-renewable primary energy resources	MJ	1,08E4	1,00E2	0E0	7,4E1	6,87E1	9,43E-1	-7,06E3
Use of secondary materials	kg	4,96E-1	0E0	0E0	0E0	0E0	0E0	0E0
Use of renewable secondary fuels	MJ	0E0	0E0	0E0	0E0	0E0	0E0	0E0
Use of non-renewable secondary fuels	MJ	3,38E0	0E0	0E0	0E0	0E0	0E0	0E0
Use of net fresh water	m3	5,29E0	3,18E-3	0E0	0E0	7,07E-1	9,33E-5	-4,1E-1

## 21. End of life - Waste

Waste								
Parameter	Unit	A1-A3	A4	C1	C2	C3	C4	D
Hazardous waste	kg	7,89E-1	3,50E-5	0E0	1,02E-5	1,75E-4	6,97E-7	-2,23E-3
Non-hazardous waste	kg	6,68E1	8,24E0	0E0	7,93E-3	6,68E0	3,47E0	-1,62E1
Radioactive waste	kg	4,15E-2	4,66E-4	0E0	2,91E-4	2,12E-4	5,38E-6	-1,35E-2

## 22. End of life - Output flow

Output flow								
Parameter	Unit	A1-A3	A4	C1	C2	C3	C4	D
Components for reuse	kg	0E0	0E0	0E0	0E0	0E0	0E0	0E0
Materials for recycling	kg	1,61E-3	0E0	0E0	0E0	0E0	0E0	0E0
Materials for energy recovery	kg	3,33E-3E0	0E0	0E0	0E0	6,8E2	0E0	0E0
Exported energy	MJ	0E0	0E0	0E0	0E0	0E0	0E0	-2,44E0

**KOSKISEN****Scenarios and additional technical information (7.3)****23. Electricity in the manufacturing phase (7.3.A3)**

A3 data quality of electricity and CO2 emission kg CO2 eq. / kWh	<b>FI 0,23</b>	Based on country specific fuel mixes for the production year 2016 from IEA . Imported electricity has been considered. The environmental impacts of the fuels are based on ecoinvent 3,4 database. The impacts include all upstream processes as well as transmission losses.
--	----------------	---

**24. Transport from production place to user (7.3.2 A4)**

Variable	Amount	Data quality
Fuel type and consumption in <b>liters / 100 km</b>	38	Source: Driver
Transportation distance <b>km</b>	100	Transportation report
Transport capacity utilization %	100	Full load transport to production area.
Bulk density of transported products <b>kg/m<sup>3</sup></b>	680	Producer data
Volume capacity utilisation factor (factor: =1 or <1 or ≥ 1 for compressed or nested packaged products)	1	Assumption

**25. End-of-life process description (7.3.4)**

Process	Unit(expressed per functional unit or per declared unit of components products or materials and by type of material)	Amount kg/m3 Data quality
Collection process specified by type	kg collected separately	680
	kg collected with mixed construction waste	0
Recovery system specified by type	kg for re-use	0
	kg for recycling	0
	kg for energy recovery	680
Disposal specified by type	kg product or material for final deposition	4
Assumptions for scenario development, e.g. transportation	units as appropriate	Transportation distance estimation based on average recycling facility locations; 100 km



## 26. Additional technical information

Biogenic carbon of studied product is calculated in accordance to NS-EN 16449:2014 Dry wood content of plywood is 607 kg per m<sup>3</sup> that is equal to biogenic carbon content 1113 kg CO<sub>2</sub> per m<sup>3</sup> of the plywood.

## 27. Product data sheet

### Technical specifications – KoskiForm

Base plywood	Koskisen Finnish birch plywood
Bonding	Phenolic resin according to EN 314-2/ class 3 exterior conditions  Formaldehyde emission levels of panels fulfil requirements of Class E1 (EN13986), CARB Phase II, ULEF (Ultra Low Emitting Formaldehyde)
Coating	Brown phenolic film from 120 g/m <sup>2</sup> to 440g/m <sup>2</sup> .
Standard thicknesses	6.5, 9, 12, 15, 18, 21, 24, 27 and 30 mm. Other thicknesses on request.
Standard sizes	1200/1220/1250 x 2400/2440/2500 mm 1500/1525 x 3000/3050 mm  Other sizes on request up to 2900 x 13000 mm
Density	Approx 700 kg/m <sup>3</sup>
Edge treatment	Brown acrylic paint against moisture pick up
Wear resistance	Taber value from 800 R to 1500 R (EN 438-2)
Fire classification	E17 118R11 Type Approved FMVSS 302 Approval 95/28/EC Approval for vehicle floors
Machining	Drilling of holes edge machining like T&G, chamfer and rebate on request.
Other data	Detailed technical values can be found in Koskisen's Declaration of Performance (DoP). Please visit <a href="http://koskisen.com/download">koskisen.com/download</a> .

## Additional information

### Environment

Our raw material, wood is an ecological and renewable material and it stores carbon during its whole life cycle. Koskisen plywood products are manufactured in Finland according to the strictest sustainability principles. Koskisen is a pioneer in the Finnish forest industry in paying attention to the environment and the wood's supply chain is always known in detail. Finnish forests are primarily privately owned and the owners are guided by a strong commitment to long-term forestry and forest cultivation. Yearly, Finnish forests grow more than they are harvested. This guarantees a sustainable and environmentally sound raw material.

### Additional information

Wood is a living material and every panel is unique. Therefore a photograph or a sample piece cannot represent a full sized panel as regards colours, shades, figure, knots etc. Please note that a slight colour variation is accepted between panels.

The information, although based on extensive testing, is intended as a guideline only and comes without warranty. We reserve the right to amend specifications without notice. Any defects other than those caused by clearly verified production or service faults by the supplier are the responsibility of the user. Any claim for compensation is limited to the value of the defective panels. The Seller makes no guarantee that the goods are fit for a particular purpose, unless it provides a written declaration of their suitability.

**Koskisen Panel Industry**  
Tehdastie 2, 16600 Järvelä, FINLAND  
tel. +358 20 553 41  
fax +358 20 553 4207

[www.koskisen.com](http://www.koskisen.com)  
committedto**wood.koskisen.com**



## **28. Additional information (7.4)**

Air, soil and water impacts during the use phase have not been studied.

## **29. 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. EN 15804:2012A1 Sustainability in construction works – Environmental product declarations – Core rules for the product category of construction products. RTS PCR 14.6.2018 RTS PCR protocol: EPDs published by the Building Information Foundation RTS sr. PT 18 RT EPD Committee. (English version)  
NS-EN 16449:2014 Wood and wood-based products - Calculation of the biogenic carbon content of wood and conversion to carbon dioxide  
NS-EN 16485:2014 Round and sawn timber - Environmental Product Declaration - Product category rules for wood and wood-based products for use in construction