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# Rakennustietosäätiö RTS Building information Foundation RTS

RTS EPD,
No. RTS-EPD_40_19
KoskiMel
melamine coated chipboard

## Scope of the declaration

This environmental product declaration covers the environmental impacts of KoskiMel melamine coated chipboard. The declaration has been prepared in accordance with EN 15804:2012+A1: 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 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
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3rd PARTY VERIFIED · RTS FOUNDATION · THE BUILDING INFORMATION

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

### 1. Owner of the declaration, manufacturer

Koskisen Oy Levyteollisuus
Tehdastie 2, 16600 Järvelä, Finland
Riitta Ahokas
+358 40 5534 410
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### 2. Product name and number

KoskiMel- melamine coated chipboard

### 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 15804:2012+A1:2013 and ISO 14025 standards together with the RTS PCR (Eglish 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: 2012+A1:2013 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, valid 18.10.2019-18.10.2024

| 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 KoskiMel produced in Järvelä,Finland. KoskiMel is coated chipboard with various colouring White, Grey, Beech, Oak etc. The market area of the product is Scandinavia.

### 10. Technical specifications

The panels are produced according to EN 312. The board types are divided based on their applications as P1, P2, P3, P4, P5 and P6. The nominal density of the studied product is 720 kg/m3. Chipboard with melamine faced overlay is used mainly in interior design and furniture applications.

### 11. Product standards

The product is produced according to the requirements in the standard EN 13986: 2004 + A1 2015; Floor and ceiling panels for buildings.

### 12. Physical properties

The product is available in thicknesses ranging from 8-30 mm. The coating is melamine impregnated paper in various designs. Detailed physical properties are available at the product leaflet www.koskisen.com.

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

| Board thickness mm | Board mass kg/m2 | Area per m3 m2/m3 |
|---|---|---|
| 4 | 2,8 | 250,00 |
| 6 | 4,2 | 166,67 |
| 8 | 5,6 | 125,00 |
| 9 | 6,3 | 111,11 |
| 10 | 7,0 | 100,00 |
| 12 | 8,4 | 83,33 |
| 15 | 10,5 | 66,67 |
| 16 | 11,2 | 62,50 |
| 18 | 12,6 | 55,56 |
| 19 | 13,3 | 52,63 |
| 22 | 15,4 | 45,45 |
| 25 | 17,5 | 40,00 |
| 28 | 19,6 | 35,71 |
| 30 | 21 | 33,33 |
| 34 | 23,8 | 29,41 |
| 36 | 25,2 | 27,78 |
| 38 | 26,6 | 26,32 |
| 40 | 28 | 25,00 |
| 50 | 35 | 20,00 |

## 13. Raw-materials of the product

Detailed physical properties available at the product leaflet www.koskisen.com

| Product structure / composition / raw-material | Amount % |
|---|---|
| Wood, dry | 89 % |
| Urea formaldehyde resin | 6 % |
| Melamine urea formaldehyde resin | 2 % |
| Wax | 0,3 % |
| Ammonium sulphate | 0,1 % |
| Lamination paper | 1 % |
| Melamine resin, lamination | 2 % |
| Tot. | 100 % |

## 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

m3

## 16. System boundary

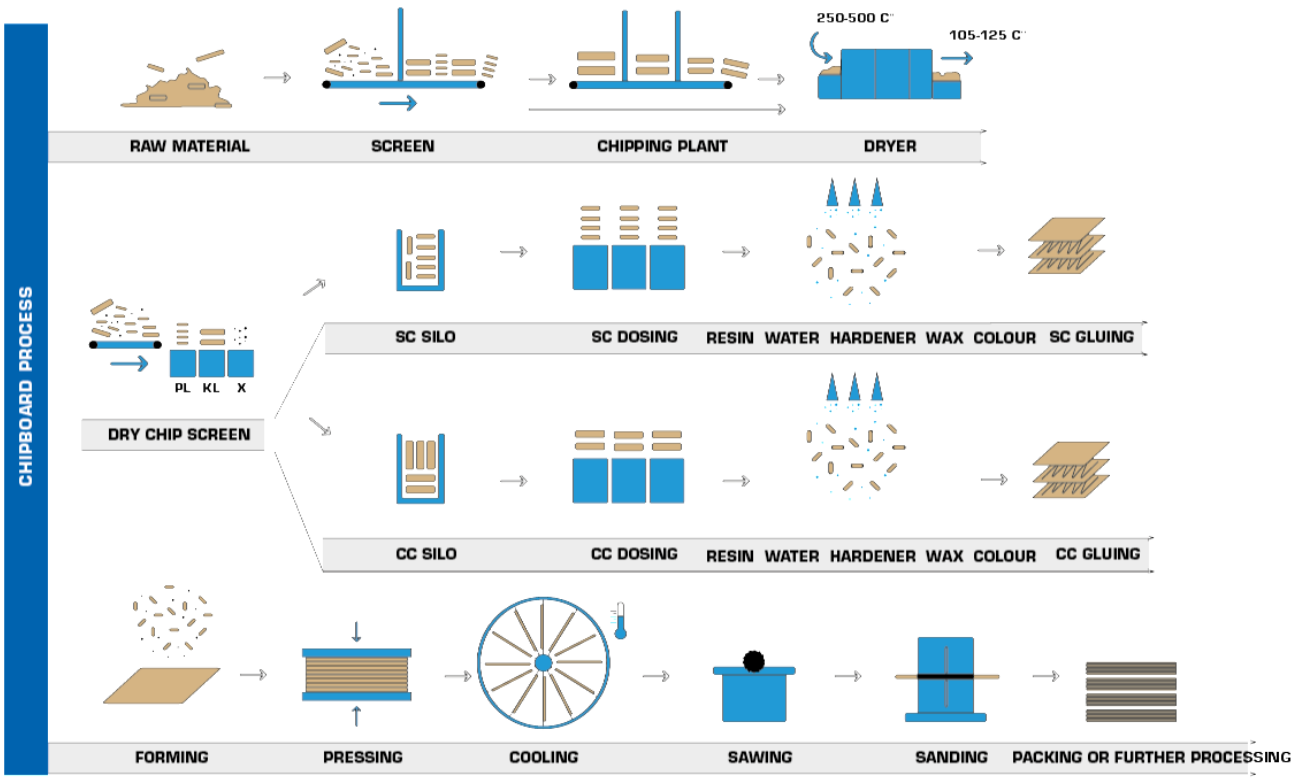
This EPD covers the following modules; A1 (Raw material supply), A2 (Transport), A3 (Manufacturing) and A4 (Transportation of the product to the building site) as well as C1 (Deconstruction), C2 (Transport at end-of-life), C3 (Waste processing) and C4 (Disposal). In addition, module D - benefits and 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 produced at Koskisen saw mill plant area. Chips are dried and sorted according to the size of the particles. Chips are glued with urea based resins and the panel is formed into the special construction (surface layer - core layer), pressed in a continuous press, edge-trimmed and sanded. The panels are coated with various melamine designs.



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## 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 | 3,98E+02 | 3,57E+00 | 0E0 | 2,68E+00 | 6,33E+00 | 3,78E-02 | -6,74E+02 |
| Depletion of stratospheric ozone layer | kg CFC11-eqv | 2,20E-04 | 8,07E-07 | 0E0 | 5,29E-07 | 7,35E-07 | 9,71E-09 | -3,43E-05 |
| Formation of photochemical ozone | kg C2H4 -eqv | 4,29E-01 | 5,82E-04 | 0E0 | 1,51E-04 | 2,05E-03 | 1,21E-05 | -2,00E-01 |
| Acidification | kg SO2 -eqv | 3,53E+00 | 1,84E-02 | 0E0 | 1,23E-02 | 1,54E-01 | 2,61E-04 | -3,74E+00 |
| Eutrophication | kg PO4 3--eqv | 6,52E-01 | 4,27E-03 | 0E0 | 2,69E-03 | 2,03E-01 | 7,85E-05 | -5,09E-01 |
| Abiotic depletion of non fossil resources | kg Sb-eqv | 2,43E+00 | 1,13E-05 | 0E0 | 1,94E-02 | 1,64E-05 | 5,00E-08 | -7,98E-05 |
| Abiotic depletion of fossil resources | MJ | 6,53E+03 | 9,63E+01 | 0E0 | 7,65E+01 | 6,23E+01 | 8,92E-01 | -6,68E+03 |

## 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 | 5,16E+03 | 1,35E+00 | 0E0 | 1,26E-01 | 2,49E+00 | 2,81E-02 | -1,82E+02 |
| Renewable primary energy resources used as raw materials | MJ | 3,95E-01 | 0E0 | 0E0 | 0E0 | 0E0 | 0E0 | 0E0 |
| Total use of renewable primary energy resources | MJ | 5,16E+03 | 1,35E+00 | 0E0 | 1,26E-01 | 2,49E+00 | 2,81E-02 | -1,82E+02 |
| Nonrenewable primary energy resources used as energy carrier | MJ | 7,63E+03 | 1,03E+02 | 0E0 | 7,62E+01 | 7,07E+01 | 9,71E-01 | -7,27E+03 |
| Nonrenewable primary energy resources used as materials | MJ | 9,49E+00 | 0E0 | 0E0 | 0E0 | 0E0 | 0E0 | 0E0 |
| Total use of non-renewable primary energy resources | MJ | 7,63E+03 | 1,03E+02 | 0E0 | 7,62E+01 | 7,07E+01 | 9,71E-01 | -7,27E+03 |
| Use of secondary materials | kg | 3,86E-01 | 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 | 9,84E-02 | 0E0 | 0E0 | 0E0 | 0E0 | 0E0 | 0E0 |
| Use of net fresh water | m3 | 3,25E+00 | 3,27E-03 | 0E0 | 0E0 | 7,28E-01 | 9,60E-05 | -4,22E-01 |

## 21. End of life – Waste

| Waste | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Parameter | Unit | A1-A3 | A4 | C1 | C2 | C3 | C4 | D |
| Hazardous waste | kg | 1,29E+00 | 3,60E-05 | 0E0 | 1,05E-05 | 1,80E-04 | 7,18E-07 | -2,30E-03 |
| Non-hazardous waste | kg | 8,52E+01 | 8,49E+00 | 0E0 | 8,17E-03 | 6,88E+00 | 3,57E+00 | -1,67E+01 |
| Radioactive waste | kg | 4,47E-02 | 4,80E-04 | 0E0 | 2,99E-04 | 2,18E-04 | 5,53E-06 | -1,39E-02 |

## 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 | 9,00-04 | 0E0 | 0E0 | 0E0 | 0E0 | 0E0 | 0E0 |
| Materials for energy recovery | kg | 9,01E-02 | 0E0 | 0E0 | 0E0 | 7,2E+2 | 0E0 | 0E0 |
| Exported energy | MJ | 0E0 | 0E0 | 0E0 | 0E0 | 0E0 | 0E0 | -2,59E+3 |

## 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 | **FI 0,23** | Based on country specific fuel mixes for the production year 2017 from IEA .<br>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 liters / 100 km | 38 | Source: Driver |
| Transportation distance km | 100 | Transportation to Helsinki, according RTS PCR |
| Transport capacity utilization % | 100 | Full load transport to production area. |
| Bulk density of transported products kg/$m^3$ | 720 | 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)

| **Processes** | **Unit** (expressed per functional unit or per declared unit of components products or materials and by type of material) | **Amount kg/m3**<br>**Data quality** |
|---|---|---|
| Collection process specified by type | kg collected separately | 700 |
| | 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 | 700 |
| 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 |

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## 26. Additional technical information

The properties of the panels are according to EN 312.
Biogenic carbon of studied product is calculated in accordance to NS-EN 16449:2014. Dry wood content of chipboard is 620 kg per m3 that makes 1138 kg CO2 per m3 of the chipboard.

## 27. Product data sheet

# Technical specifications – KoskiMel

| | |
|---|---|
| Raw material | Saw dust and wood chips from our own wood industry |
| Base board | Chipboard to meet standard EN 312 |
| Formaldehyde class | Class E1 EN 312 |
| Coating | Melamine impregnated paper. Possibility for coating multiple layers (2-3). |
| Colours | White, black, grey, wood imitations, paint base film, about 20 different special colours. Colour card can be seen at www.koskisen.com. Colour samples are sent on request. |
| Standard thicknesses & sizes | 8-32 mm: 1830 x 2750 mm, thicker boards until 40mm 1830 x 2630 mm. |
| Density | Depends on the thickness and type of the board 620-770 kg/m³ (P5), 550-740 kg/m³ (P2) |
| Emission Classification | M1 emission class for building material |
| Embossing | Wood grain (WG), crystal (CR), soft (SF), smooth (SM), glossline (GL), matt (MT) |
| Cleaning | Clean with soft paper or textiles and weak alkaline detergent; very dirty surfaces can be cleaned with alcohol or with detergent containing alcohol |
| Other data | Detailed technical values can be found in Koskisen's Declaration of Performance (DoP). Please visit koskisen.com/download. |

**Pallet sizes**
Koskimel stock thicknesses and qualities are **bolded**. Stock products are available in pallets, special dimensions needs to be separately agreed. Over 30mm products are in color white.

| Thickness | 1830 x 2750 mm |
|---|---|
| 8 | 50 **P2** |
| 10 | 46 **P2** |
| 12 | 40 **P2**, **P5** |
| 15 | 30 **P2**, **P5** |
| 18 | 26 **P2**, **P5** |
| 19 | 24 **P2** |
| 22 | 20 **P2**, **P5** |
| 25 | 18 **P2**, **P5** |
| 28 | 16 **P2** |
| 30 | 16 **P2** |
| 38 | 12 **P2** (1830 x 2630) |

# Additional information

**Environment**
Our raw material, wood is an ecological and renewable material and it stores carbon during its whole life cycle. Koskisen chipboard 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**
Koskisen chipboard is made from our own sawmill's sawdust and contains 85% real wood. Our professional quality control ensures that Koskisen chipboard is always pure and does not include sand or other impurities. Pure and high-quality chipboard is easy to machine and it doesn't damage saw blades.



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## 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 15804:2012+A1 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