

Environmental Product Declaration

In accordance with ISO 14025:2006 and EN 15804:2012+A2:2019/AC:2021 for:

High Performance Plywood



Programme

The International EPD® System,
www.environdec.com

EPD registered through the fully aligned regional hub

EPD Southeast Asia,
<https://www.epd-southeastasia.com/>

Programme operator

EPD International AB

Regional Hub

EPD Southeast Asia

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An EPD should provide current information and may be updated if conditions change. The stated validity is therefore subject to the continued registration and publication at www.environdec.com



PT Kayu Lapis Indonesia

Desa Mororejo, Kaliwungu, Kendal,

Jawa Tengah 51372 - Indonesia

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GENERAL INFORMATION

Programme information

| | | |
|-----------|--|--|
| Programme | The International EPD® System EPD registered through the fully aligned regional hub: EPD Southeast Asia | |
| Address: | EPD International AB Box 210 60, SE-100 31 Stockholm, Sweden EPD Southeast Asia Kencana Tower Level M, Business Park Kebon Jeruk Jl. Raya Meruya Ilir No. 89, Jakarta Barat 11620, Indonesia | Website www.environdec.com www.epd-southeastasia.com Email info@environdec.com |

Accountabilities for PCR, LCA and independent, third-party verification

Product category rules (PCR):

CEN standard EN 15804 serves as the Core Product Category Rules (PCR)

Product Category Rules (PCR): Product Category Rules (PCR) of Construction Products (PCR 2019:14 Version 1.2.5), c-PCR-006 Wood and Wood-Based Products for use in construction (EN 16485) and UN CPC 314

PCR review was conducted by:

The Technical Committee of the International EPD® System.

Review chair:

Hüdai Kara from Metsims Sustainability Consulting.
The review panel may be contacted via the Secretariat www.environdec.com/contact.

Life Cycle Assessment (LCA)

LCA accountability: PT Life Cycle Indonesia

Third-party verification

Independent third-party verification of the declaration and data, according to ISO 14025:2006, via:
 EPD verification by individual verifier

Third party verifier:

Hüdai Kara from Metsims Sustainability Consulting

Approved by:

The International EPD® System

Procedure for follow-up of data during EPD validity involves third party verifier:

Yes No

The EPD owner has the sole ownership, liability, and responsibility for the EPD.

EPDs within the same product category but registered in different EPD programmes, or not compliant with EN 15804, may not be comparable. For two EPDs to be comparable, they must be based on the same PCR (including the same version number) or be based on fully-aligned PCRs or versions of PCRs; cover products with identical functions, technical performances and use (e.g. identical declared/functional units); have equivalent system boundaries and descriptions of data; apply equivalent data quality requirements, methods of data collection, and allocation methods; apply identical cut-off rules and impact assessment methods (including the same version of characterisation factors); have equivalent content declarations; and be valid at the time of comparison. For further information about comparability, see EN 15804 and ISO 14025.

COMPANY INFORMATION

Owner of the EPD

PT Kayu Lapis Indonesia

Email

marketing@pt-kli.com

Description of the organisation

Kayu Lapis Indonesia (KLI) founded in 1978 is an integrated timber company that applies the highest standards and constant innovation to surpass market requirements while maximizing yield to promote superior value for money, nature sustainability, and people empowerment.

With decades of existence in Indonesian timber industry, KLI continues to place itself at the forefront by fulfilling its threefold commitment toward nature, toward quality, and toward society.

Kayu Lapis Indonesia's product line includes various types of plywood, solid and engineered wooden flooring, solid and engineered timber moulding products including decking, door frame, finger joint laminated (FJL) wood components, glued laminated timber (GLULAM), and decorative wooden wall panel / cladding.

Product-related or management system-related certifications

- CARB Standard Phase 2 ASTM D 5582-14, Certificate no. TPC 6/CARB-ATCM/M001-HWPW001
- EPA Standard, ASTM D 5582-14, Certificate no. TPC 6/EPA-TSCA/M001-HWPW001
- EPA – ULEF Standard, Certificate no. TPC 6/EPA-TSCA-ULEF/M001-HWPW001
- ULEF – CARB Standard, Certificate no. EO N-23-160
- JAS Standard 2018, Certificate no. MALQ / P 01-LF / 005, MALQ / P 02 / 005, MALQ / P 04-LF / 005, MALQ / P 02-LF / 005
- CE Marking Standard, Certificate no. 2812-CPR-0129
- UKCA Marking Standard, Certificate no. 1224-CPR-1217
- COC FSC Standard, - Licence code of FSC-C007486 and Certificate code of SA-COC-013224
- SVLK, Certificate no. No.0001/MHI-VLK and No.0012/MHI-VLK
- ISO 9001 2015, Certificate no. QMS/006



Name and location of production site(s)

Desa Mororejo, Kaliwungu, Kendal, Jawa Tengah 51372 - Indonesia

PRODUCT INFORMATION

Product name

Plywood

Product identification

UN CPC 314

Product description

Plywood products from Kayu Lapis Indonesia are comprised of High-Performance Plywood and Multi-Purpose Interior Plywood. All panels are offered in a variety of wood species, grading, widths, lengths, thicknesses, and surface treatments, making it suitable for various types of industries and applications

The provided data represents the weighted average environmental performance of various specifications of the high-performance plywood products, taking into account the total production of KLI's wood products over a one-year period within the study timeframe. The plywood product specifications as listed below.

High-Performance Plywood

High grade hardwood plywood made from FSC-certified wood with optimum performance classification, fully compliant for use in all construction applications. It meets the highest standards of quality, durability and environmental responsibility. It is ideal for applications that require strength, stability and resistance to harsh conditions.

Table 1 presents the main characteristics of the high-performance plywood, while Illustration 1 has a visualisation of the product.

Table 1. Product Specification of High-Performance Plywood

| | | |
|--------------------------------|---|-------------|
| Thickness (mm) | 3.6 mm - 25.0 mm | |
| Dimensions (feet) | Width | 3 - 5 feet |
| | Length | 6 - 10 feet |
| Number of layers | 3 - 13 plies | |
| Density | 500 - 650 kg/m ³ | |
| Moisture Content (%) | 8 - 14 % | |
| Formaldehyde Emission Standard | Phenol Formaldehyde that complies with EN 13986, CARB2, US EPA and JAS standard | |
| Product Standard | UKCA, CE Marking, EN 13986 2004+A1:2015, IHPA and General use certification for JAS | |
| Forestry certification | CoC FSC STD 40.004 v.3.1 & FSC STD 50.001 v.2.1 | |

UN CPC code

UN CPC 314 - Boards and panels

Geographical scope:

Manufactured in Indonesia, supplied to United Kingdom, United States, and many other countries.



LCA INFORMATION



Functional unit / declared unit

1 m³ of plywood

Time representativeness

Specific data for the manufacturing collected from 2022-01-01 to 2022-12-31. The 10-year age requirement for generic data has been met.

Reference service life

If installed properly and moisture exposure is low or moderate, the service life of the plywood board is 100 years at minimum

Database(s) and LCA software used

Generic data for upstream and downstream processes use Ecoinvent 3.8 and USLCI database and modelled by using SimaPro Developer software version 9.3.0.3. No datasets older than 10 years were used.

Description of system boundaries

The system boundary was chosen based on the goal and scope of the study and in accordance with EN 15804:2012+A2:2019, i.e. “cradle-to-gate” with the end of life stage as well as benefits and loads beyond the system boundary (module A1-A3, C1-C4, D). The processes below are included in the product system to be studied:

Upstream (A1-A2)

- Production of raw materials (i.e., log and veneer)
- Production of auxiliary materials (e.g., Chemicals, Diesel, etc.)
- Production of packaging (e.g., Plastic, Strapping Band, etc.)
- Production of electricity
- Transportation of raw/auxiliary materials from the supplier to the manufacturing plant

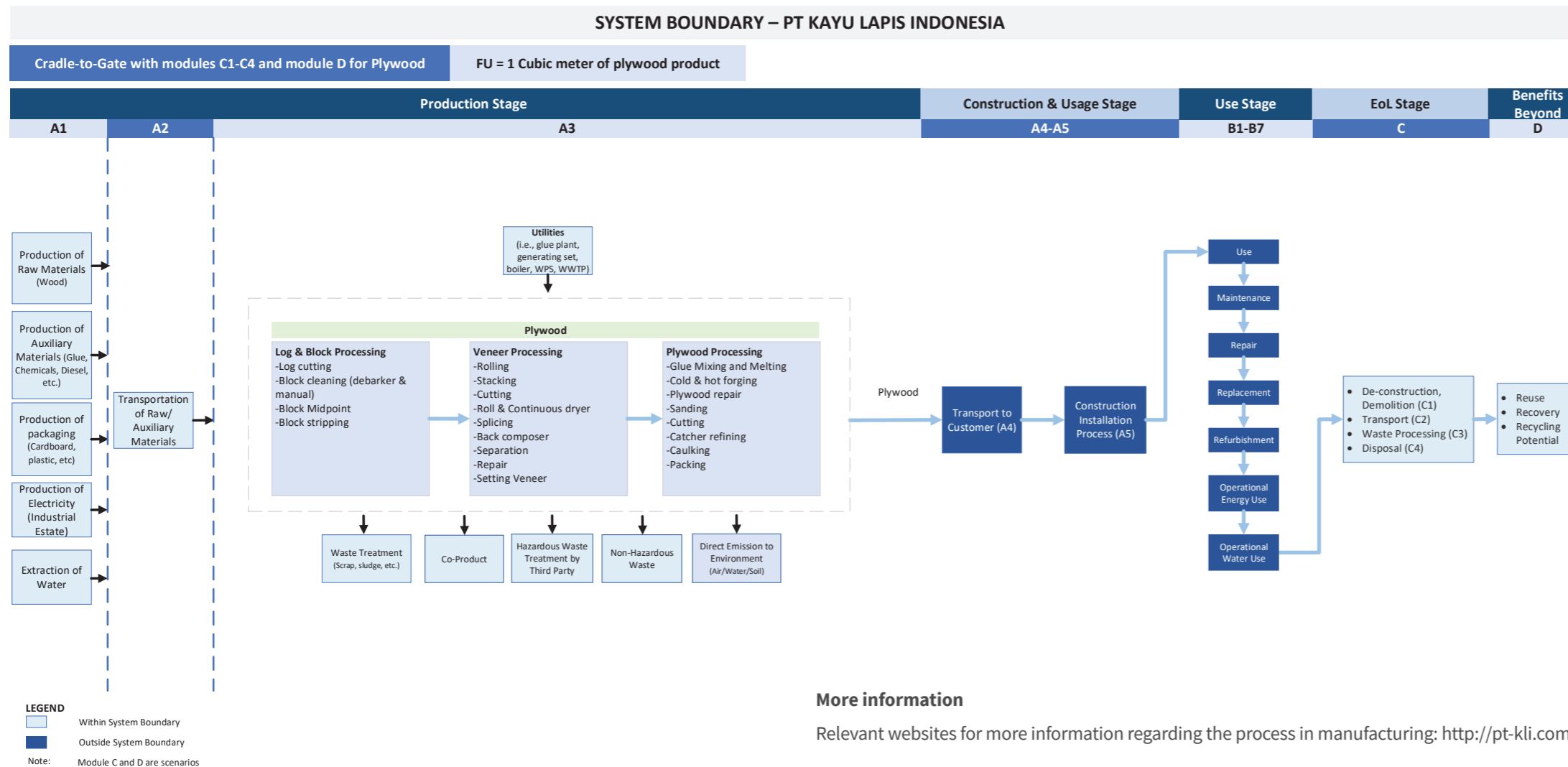
Core (A3)

- Log & Block Processing: Log cutting, block cleaning (debarker & manual), block centre point, block stripping.
- Veneer Processing: Winding, stacking, cutting, roll & continuous dryer, bonding, back composer, separating, repairing, veneer setting.
- Plywood Processing: Glue mixing, hot & cold compression, plywood repairing, sanding, cutting, catcher smelting, caulking, packing.
- Storing and Loading
- Waste treatment (used scraped, used saw blade, etc.)
- Hazardous and non-hazardous waste sold to the third party
- Direct emission to the environment

Downstream (A4, C1-C4, D)

- Transport to customer
- Deconstruction & Demolition
- Transport to waste processing unit
- Waste processing including waste treatment process by a registered third party for hazardous waste
- Disposal
- Reuse/Recovery/Recycling of the end of life of the products

System diagram



More information

Relevant websites for more information regarding the process in manufacturing: <http://pt-kli.com/>

Key Assumptions and Limitations

- Production process of materials in upstream process taken from Ecoinvent database reflects average or generic production and therefore does not correspond to actual suppliers.
- Land use change emissions in module A3 were considered immaterial. The plant is in an industrial zone which was established in 1977 (more than 46 years ago).
- Energy consumption and emissions from the transportation process (suppliers to manufacturing plant or from manufacturing plant to downstream process including transport to waste processing) are modelled using data available in the Ecoinvent database by considering the type of transportation used and the transport distance.
- Emission to air is only measured on boiler, generator, hotpress machine and drying machine, where the sampling is conducted semi-annually.

Cut-off rules

In case of insufficient input data or data gaps for a unit process, the cut-off criteria shall be 1 % of renewable and non-renewable primary energy usage and 1 % of the total mass input of that unit process. The total of neglected input flows per module, e.g. per module A1-A4, C1-C4 and module D shall be a maximum of 5 % of energy usage and mass. In this study, all data in the product system is included. If there is missing specific data, generic data from the database or literature was used.

Data Quality

- Time related coverage: specific data were collected from 2022-01-01 to 2022-12-31, and generic data are representative of the year 2022.
- Geographic coverage: specific data were collected from area under study, i.e., Central Java, Indonesia. Generic data were collected from global average data.
- Technological coverage: specific data were collected from current wood making process under study. Generic data from global average with technology aspects were similar with what described in the process under study, but merits improvement as processes were not modelled with specific data.
- Data quality for both specific and generic data were sufficient to conduct life cycle assessment in accordance with the defined goal and scope.

Allocation

Mass allocation was applied in accordance with EN 15804:2012+A2:2019. Allocation was applied to allocate the electricity used in the manufacturing process. For the end-of-life of waste generated in the manufacturing process, polluter pays principle are applied for each type of waste. This means that KLI will carry the full environmental impact until the end-of-waste state is reached.

In the wood product system, utilizing wood scrap in the production process is considered environmentally beneficial as it can reduce the impact of virgin wood cutting and prevent the negative consequences of poorly managed wood scrap. To allocate the benefits and burdens of the recycling procedure, two types of recycling processes are utilized - open and closed loop recycling. Open loop recycling involves recycling materials into a new product or when material properties change, while closed loop recycling involves recycling products to produce the same type of product or when material properties remain unchanged. Open loop recycling is commonly used for wood recycling, where wood waste is formed into new raw material.

The impacts assigned to the credit or burden that comes from module D are calculated by adding impact connected to secondary wood production into particleboard (beyond system boundary) and subtracting the impacts resulting from primary wood production as wood chips. The difference between 100% primary wood production and 100% secondary wood production is the result of the module D.

The benefit beyond system boundary (module D) is a credit estimation resulted from the system because in real-life there is a trans-continent boundary of the market in USA, United Kingdom, Philippine and South Korea and producers in Indonesia which do not share the recycled material market. The assessed products are exported to USA, United Kingdom, Philippines and South Korea. Therefore, the recovery rate for recycling is adjusted to the rate in each country, i.e., 17.14% in USA, 88.89% in United Kingdom, 26.50% in Philippines and 33% in South Korea. The unrecycled wood scrap is considered as material losses that will go to another disposal scenario to landfill.

LCA Scenarios and Additional Technical Information

- Electricity grid in module A3 was based on Ecoinvent database for Indonesia that was modified to represent JAMALI (Java-Madura-Bali) electricity network. The composition of electricity mixed for JAMALI and the amount of electricity losses were adjusted based on Statistic from Directorate General of Electricity (2019) which is highly reliant on coal (66%), gas fired (27.5%), hydropower (4%), geothermal (2%), and diesel (<1%). The climate impact of the electricity is 1.2 kg CO₂ eq./kWh.
- The 'Resource depletion - water' (RDW) indicator requires water scarcity data for the production areas, and these were modelled using the specific watershed scarcity data for Kendal, West Java, i.e., 19.2 m³/m³ for the characterisation factor.
- Log wood and veneer is sent to KLI in solid form from the supplier in Indonesia. Therefore, the global Ecoinvent database is modified by using available Indonesia Ecoinvent databases, i.e. for input water, coal, electricity and wastewater.
- Transportation using truck in Indonesia use EURO3 to represent the current condition. Meanwhile in the distributed countries, EURO5 is used as a standard emission.
- Transportation in US were estimated based on US statistic for average rigid truck travelled 276.68 kilometres a day (2020).
- Transportation in United Kingdom were estimated based on UK statistic for average truck travelled 71 kilometres a day (2021).
- Transportation in Philippine were estimated based on Philippine statistic for average truck travelled 71 kilometres a day (2019).
- Transportation in South Korea were estimated based on statistic for average truck travelled 51.5 kilometres a day (2015).
- Amount of electricity used for the demolition process is modelled using the Ecoinvent database for global data, i.e 0.02 kWh/m³ wood.
- Amount of supporting material and electricity consumption for waste processing is modelled using the Ecoinvent database for global data on processing and chipping wood scrap, i.e 2.04E-06 kg lubricating oil/kg wood and 0.02 kWh/kg wood. Electricity is modelled using the Ecoinvent database for each country.
- Electricity was modelled using Ecoinvent database for Indonesia, USA, United Kingdom, Philippine and South Korea.
- The wood recycling rate in the USA is 17.14% according to the US Environment Protection Agency (2018). Average recycling rate for wood is 88.89% in the United Kingdom according to the Community Wood Recycling (2020). Average recycling rate for wood is 26.50% in the Philippine according to UNEP (2017). South Korea have the recycling rate of 33% according to Korea Research Institute (2020).
- The wood energy recovery rate in the USA is 15.70% according to the US Environment Protection Agency (2018). Average energy recovery rate for wood is 10.62% in the United Kingdom according to the Europe Union (2018). Average energy recovery rate for wood is 0% in the Philippine according to World Bank Group (2018) because it is not a high income country. South Korea have the recycling rate of 25% according to World Bank Group (2018).



Modules declared, geographical scope, share of specific data (in GWP-GHG results) and data variation (in GWP-GHG results):

| | Product stage | | | Construction process stage | | Use stage | | | | | | | End of life stage | | | | Resource recovery stage |
|----------------------|---------------------|-----------|---------------|----------------------------|---------------------------|-----------|-------------|--------|-------------|---------------|------------------------|-----------------------|----------------------------|-----------|------------------|----------|---------------------------|
| | Raw material supply | Transport | Manufacturing | Transport | Construction installation | Use | Maintenance | Repair | Replacement | Refurbishment | Operational energy use | Operational water use | De-construction demolition | Transport | Waste processing | Disposal | Reuse-Recycling-potential |
| Module | A1 | A2 | A3 | A4 | A5 | B1 | B2 | B3 | B4 | B5 | B6 | B7 | C1 | C2 | C3 | C4 | D |
| Modules declared | X | X | X | ND | ND | ND | ND | ND | ND | ND | ND | ND | X | X | X | X | X |
| Geography | GLO | GLO | ID | - | - | - | - | - | -- | - | - | - | GLO | GLO | GLO | GLO | GLO |
| Specific data used | >90% | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Variation – products | <10% | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Variation – sites | Not Relevant | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



CONTENT INFORMATION

| Product components | Weight, kg | Post-consumer material, weight-% | Biogenic material, weight-% and kg C/kg |
|-------------------------|---------------|----------------------------------|---|
| Timber | 608.92 | 0% | 100%, 1.44 kg C/kg |
| Phenolic resin adhesive | 26.60 | 0% | - |
| Wheat Flour | 2.39 | 0% | 100%, 1.61 kg C/kg |
| Hardener | 5.11 | 0% | - |
| TOTAL | 643.02 | | |

| Packaging materials | Weight, kg | Weight-% (versus the product) | Weight biogenic carbon, kg C/kg |
|---------------------|--------------|-------------------------------|---------------------------------|
| Wood | 38.23 | 6.7% | 1.38 kg C/kg |
| Plastic | 1.81 | 0.3% | - |
| Steel | 1.12 | 0.2% | - |
| Paper Board | 0.38 | 0.1% | 1.71 kg C/kg |
| TOTAL | 41.54 | | |



RESULTS OF THE ENVIRONMENTAL PERFORMANCE INDICATORS

Mandatory impact category indicators according to EN 15804:2012+A2:2019

| Results per 1 m ³ of plywood | | | | | | | |
|---|------------------------|-----------|----------|----------|----------|----------|----------|
| Indicator | Unit | A1-A3 | C1 | C2 | C3 | C4 | D |
| GWP-fossil | kg CO ₂ eq. | 7.78E+02 | 1.06E-02 | 1.19E+01 | 1.06E-02 | 3.11E+01 | 2.21E+02 |
| GWP-biogenic | kg CO ₂ eq. | -2.19E+03 | 2.50E-05 | 3.21E-03 | 2.24E+03 | 1.03E-01 | 5.41E-01 |
| GWP-luluc | kg CO ₂ eq. | 1.83E+00 | 4.87E-06 | 1.92E-04 | 4.88E-06 | 4.50E-04 | 1.64E-01 |
| GWP-total | kg CO ₂ eq. | -1.40E+03 | 1.06E-02 | 1.19E+01 | 2.24E+03 | 3.12E+01 | 2.22E+02 |
| ODP | kg CFC 11 eq. | 7.32E-05 | 4.70E-10 | 2.69E-06 | 4.72E-10 | 7.08E-06 | 2.96E-05 |
| AP | mol H ⁺ eq. | 1.35E+01 | 4.94E-05 | 4.19E-02 | 4.95E-05 | 1.13E-01 | 3.37E+00 |
| EP-freshwater | kg P eq. | 8.02E-02 | 7.80E-07 | 2.75E-05 | 7.80E-07 | 7.26E-05 | 4.75E-03 |
| EP-marine | kg N eq. | 5.54E+00 | 7.21E-06 | 1.32E-02 | 7.21E-06 | 3.62E-02 | 8.32E-01 |
| EP-terrestrial | mol N eq. | 6.02E+01 | 8.19E-05 | 1.46E-01 | 8.19E-05 | 3.99E-01 | 9.42E+00 |
| POCP | kg NMVOC eq. | 1.48E+01 | 2.25E-05 | 3.94E-02 | 2.25E-05 | 1.07E-01 | 2.62E+00 |
| ADP-minerals & metals | kg Sb eq. | 3.28E-04 | 1.72E-08 | 9.78E-07 | 1.72E-08 | 2.59E-06 | 1.87E-04 |
| ADP-fossil | MJ | 1.20E+04 | 1.71E-01 | 1.66E+02 | 1.71E-01 | 4.34E+02 | 3.40E+03 |
| WDP | m ³ | 2.10E+03 | 1.44E-03 | 6.03E-02 | 1.44E-03 | 2.58E-01 | 1.68E+02 |

Acronyms

- **GWP-fossil** : Global Warming Potential fossil fuels
- **GWP-biogenic** : Global Warming Potential biogenic
- **GWP-luluc** : Global Warming Potential land use and land use change
- **ODP** : Depletion potential of the stratospheric ozone layer
- **AP** : Acidification potential, Accumulated Exceedance
- **EP-freshwater** : Eutrophication potential, fraction of nutrients reaching freshwater end compartment
- **EP-marine** : Eutrophication potential, fraction of nutrients reaching marine end compartment
- **EP-terrestrial** : Eutrophication potential, Accumulated Exceedance
- **POCP** : Formation potential of tropospheric ozone
- **ADP-minerals&metals** : Abiotic depletion potential for non-fossil resources
- **ADP-fossil** : Abiotic depletion for fossil resources potential
- **WDP** : Water (user) deprivation potential, deprivation-weighted water consumption

* Disclaimer: The results of this environmental impact indicator shall be used with care as the uncertainties of these results are high or as there is limited experience with the indicator.

Potential environmental impact – additional environmental information according to EN 15804:2012+A2:2019

| Results per 1 m ³ of plywood | | | | | | | |
|---|-------------------|----------|----------|----------|----------|----------|----------|
| Indicator | Unit | A1-A3 | C1 | C2 | C3 | C4 | D |
| PM | Disease incidence | 4.10E-04 | 1.59E-10 | 7.30E-07 | 1.60E-10 | 1.94E-06 | 1.79E-05 |
| IRP | kBq U235 eq. | 1.34E+01 | 1.50E-03 | 7.09E-01 | 1.50E-03 | 1.84E+00 | 1.08E+01 |
| ETP-fw | CTUe | 1.20E+04 | 1.34E-01 | 7.29E+01 | 1.34E-01 | 1.92E+02 | 4.06E+03 |
| HTP-c | CTUh | 9.70E-07 | 2.34E-12 | 9.28E-10 | 2.35E-12 | 2.48E-09 | 1.83E-06 |
| HTP-nc | CTUh | 9.60E-05 | 6.79E-11 | 9.65E-08 | 6.79E-11 | 2.56E-07 | 2.92E-06 |
| SQP | dimensionless | 9.46E+05 | 3.68E-02 | 8.76E-01 | 3.68E-02 | 2.90E+00 | 1.23E+04 |

Acronyms

- PM:** Particulate Matter emissions
- IRP:** Ionizing radiation - human health
- ETP-fw:** Eco-toxicity – freshwater
- HTP-c:** Human toxicity - cancer effects
- HTP-nc:** Human toxicity - non-cancer effects
- SQP:** Land use related impacts / soil quality

Additional mandatory and voluntary impact category indicators according to IPCC 2013 GWP 100a (incl CO2 Uptake)

| Results per 1 m ³ of plywood | | | | | | | |
|---|------------|-----------|----------|----------|----------|----------|----------|
| Indicator | Unit | A1-A3 | C1 | C2 | C3 | C4 | D |
| GWP-GHG | kg CO2 eq. | -1.43E+03 | 1.05E-02 | 9.46E+00 | 2.24E+03 | 2.48E+01 | 2.18E+02 |

Resource use indicators

| Results per 1 m ³ of plywood | | | | | | | |
|---|----------------|----------|----------|----------|----|----------|----------|
| Indicator | Unit | A1-A3 | C1 | C2 | C3 | C4 | D |
| PERE | MJ | 6.26E+04 | 2.07E-02 | 0 | 0 | 4.54E-01 | 2.11E+03 |
| PERM | MJ | 0 | 0 | 0 | 0 | 0 | 0 |
| PERT | MJ | 6.26E+04 | 2.07E-02 | 0 | 0 | 4.54E-01 | 2.11E+03 |
| PENRE | MJ | 1.31E+04 | 1.81E-01 | 1.41E+02 | 0 | 3.68E+02 | 0 |
| PENRM | MJ | 0 | 0 | 0 | 0 | 0 | 0 |
| PENRT | MJ | 1.31E+04 | 1.81E-01 | 1.41E+02 | 0 | 3.68E+02 | 3.65E+03 |
| SM | kg | 0 | 0 | 0 | 0 | 0 | 0 |
| RSF | MJ | 1.35E+04 | 0 | 0 | 0 | 0 | 0 |
| NRSF | MJ | 0 | 0 | 0 | 0 | 0 | 0 |
| FW | m ³ | 3.86E+01 | 5.48E-04 | 0 | 0 | 9.59E-02 | 1.12E+01 |

Acronyms

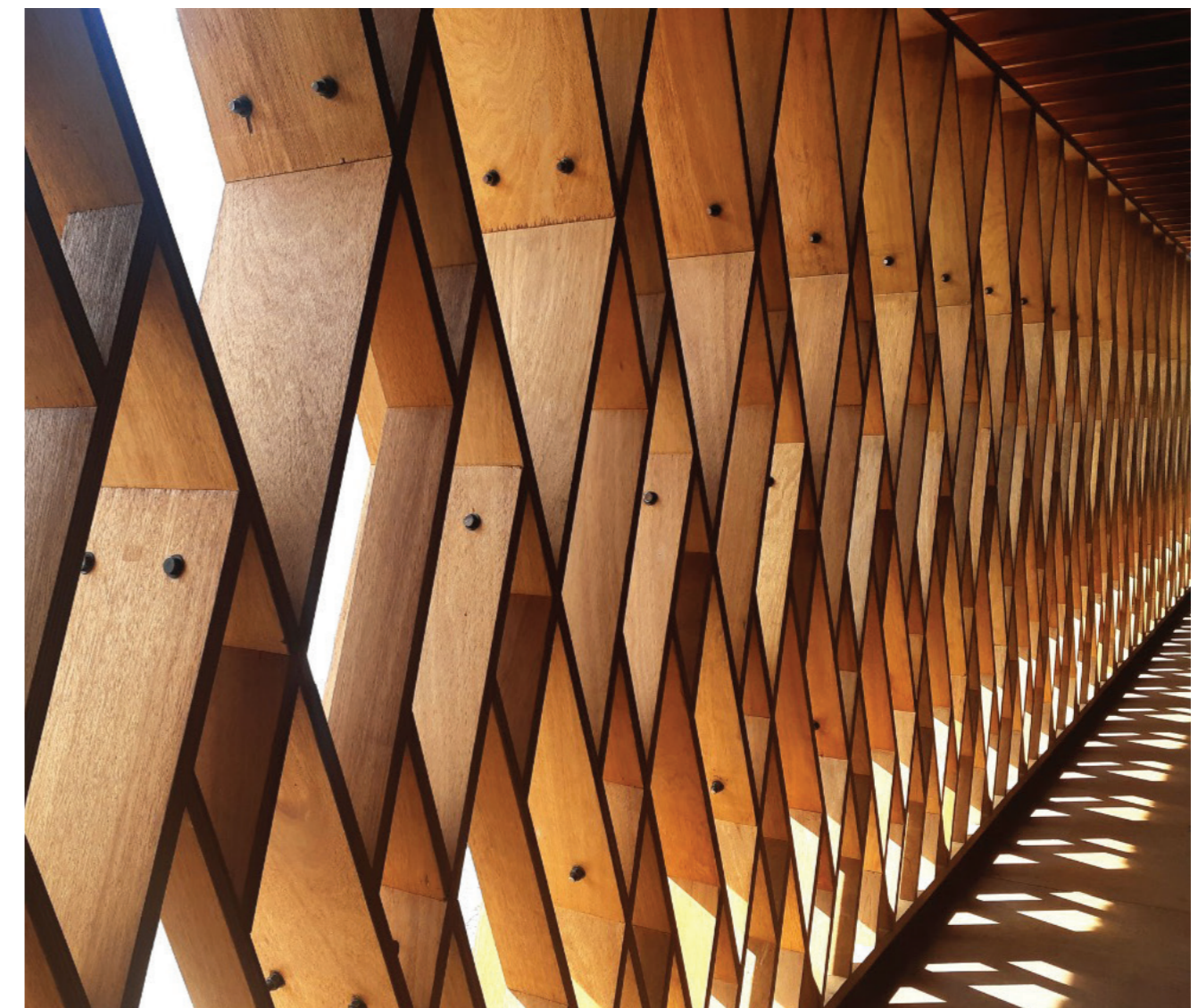
- PERE:** Use of renewable primary energy excluding renewable primary energy resources used as raw materials
- PERM:** Use of renewable primary energy resources used as raw materials
- PERT:** Total use of renewable primary energy resources
- PENRE:** Use of non-renewable primary energy excluding non-renewable 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 re-sources
- 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 indicators

| Results per 1 m ³ of plywood | | | | | | | |
|---|------|----------|----|----|----|----------|---|
| Indicator | Unit | A1-A3 | C1 | C2 | C3 | C4 | D |
| Hazardous waste disposed | kg | 1.95E-04 | 0 | 0 | 0 | 0 | 0 |
| Non-hazardous waste disposed | kg | 0 | 0 | 0 | 0 | 2.00E+00 | 0 |
| Radioactive waste disposed | kg | 0 | 0 | 0 | 0 | 0 | 0 |

Output flow indicators

| Results per 1 m ³ of plywood | | | | | | | |
|---|------|----------|----|----|----------|----|---|
| Parameter | Unit | A1-A3 | C1 | C2 | C3 | C4 | D |
| Components for re-use | kg | 1.32E-01 | 0 | 0 | 0 | 0 | 0 |
| Material for recycling | kg | 0 | 0 | 0 | 2.15E+02 | 0 | 0 |
| Materials for energy recovery | kg | 0 | 0 | 0 | 8.00E+01 | 0 | 0 |
| Exported energy, electricity | MJ | 0 | 0 | 0 | 0 | 0 | 0 |
| Exported energy, thermal | MJ | 0 | 0 | 0 | 0 | 0 | 0 |



INTERPRETATION OF RESULTS

- Module A1-A3 contributes significantly to the impact generated by the whole life cycle.
- The electricity production process is the largest contributor to majority of the potential impacts followed by veneer production.
- Sensitivity analysis was conducted for different electricity consumption. The results show insignificant changes with average overall variation is no more than 20%. Therefore, the results are representative.



ADDITIONAL ENVIRONMENTAL INFORMATION

PT Kayu Lapis Indonesia company cares for the environment and plays a role in spatial planning, the proportion of green open spaces according to UU no. 26/2007, the company participates in watershed restoration programs, planting mangroves and providing plant seeds for the surrounding community.

- Planting of mangroves and vetiver around the company area has been running as many as 9856 and 525 trees
- Participation in the River Basin Recovery Program in the CDK IV Region:
 - 10,000 falcata tree seeds, for a group of farmers in District of Blado Batang
 - 10,000 falcata tree seeds, for a group of farmers in Village of Kaliputih Singorojo
- Plant Seed Assistance:
 - Mangrove 300, Trembesi 50, Ketapang 100, Palem Putri 50 for Environmental Association, Kendal
 - Mangrove 300, Trembesi 50, Ketapang 100, Palem Putri 50 for Departemen of Transportation, Kendal



ADDITIONAL SOCIAL AND ECONOMIC INFORMATION

For socio-economic activities, PT Kayu Lapis Indonesia provide social assistance on a routine or incidental basis, including the following :

- Ambulance services to take patients to hospitals
- Participation in building a prayer room, Korowelang Kulon village, Cepiring District
- Routine social assistance for the provision of electricity for village mosques
- Routine social assistance for the provision of clean water for villages
- Routine Social Fund assistance for Mororejo Village Development

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Environmental Product Declaration



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