

Environmental Product Declaration



In accordance with ISO 14025 and EN 15804 for:

Raw birch plywood (Riga Ply) with lignin based glue RIGA ECOlogical

from:

AS Latvijas Finieris

| | |
|--------------------------|---|
| Programme: | The International EPD® System, www.environdec.com |
| Programme operator: | EPD International AB |
| EPD registration number: | S-P-02273 |
| Publication date: | 2020-10-01 |
| Valid until: | 2025-05-25 |



Programme information

| | |
|-------------------|--|
| Programme: | <p>The International EPD[®] System</p> <p>EPD International AB Box 210 60 SE-100 31 Stockholm Sweden</p> <p>www.environdec.com info@environdec.com</p> |
|-------------------|--|

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|---|
| <p>Product category rules (PCR): <i>PCR 2012:01 Construction products and construction services, Version 2.31</i> <i>Sub-PCR-E to PCR 2012:01: Wood and wood-based products for use in construction, Version 2019-12-20, UN CPC 031, 311-316, 319</i></p> |
| <p>PCR review was conducted by: The Technical Committee of the International EPD[®] System. The review panel may be contacted via info@environdec.com.</p> |
| <p>Independent third-party verification of the declaration and data, according to ISO 14025:2006:</p> <p><input type="checkbox"/> EPD process certification <input checked="" type="checkbox"/> EPD verification</p> |
| <p>Third party verifier: <i>Camilla Landén and Anders Nordenlöf at Bureau Veritas Certification Sweden</i></p> <p>Approved by: SWEDAC, Swedish accreditation body</p> |
| <p>Procedure for follow-up of data during EPD validity involves third party verifier:</p> <p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p> |

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Company information

Owner of the EPD

AS Latvijas Finieris (Address: Bauskas street 59, Riga LV-1004, Latvia; Phone: +371 67067207; E-mail: info@finieris.lv; web: www.finieris.com)

Description of the organisation

AS Latvijas Finieris is a closed joint stock company. Together with numerous subsidiary companies it forms multi-sectoral Latvijas Finieris Group. The key operational areas of Latvijas Finieris are production and sales of birch plywood under the brand RIGA, development of new birch plywood products and supply of related services. Our birch veneer and plywood production facilities are located in Latvia, Lithuania, Estonia and Finland.

Other key activities of the Group include birch nursery and planting, forestry and logging, production of synthetic resins, phenol films and wood-plastic composite overlays, as well as purchase and distribution of complementary panel products. We are also active in machinery manufacture. Overall, the Group provides work to an average of 2,500 people a month.

Our Vision:

To be the global leader of performance oriented birch plywood based product solutions.

Our Mission:

To enable customers, forest owners, cooperation partners, employees and other stakeholders of the company to develop long-term partnership: responsible work, responsible profit and responsible investments.

Our Conviction:

Plywood products are and will remain among the most beneficial industrial uses of birch wood, at the same time other birch based products will play increasing role in bioeconomy development.

Our Values:

SAFETY. We create a safe environment and act in a sustainable manner.

RESPECT. We respect each other and promote honesty, loyalty and mutual trust

DEVELOPMENT. We strive for self-improvement and encourage the growth of others

LEADERSHIP. We are the owners of our work, we take initiative to get job done.

Latvijas Finieris Around the World:

The origins of Latvijas Finieris can be traced back to the small woodworking factory established in 1873 where the production of plywood was launched for the first time in Latvia in 1909 using a hydraulic press. Today our products are sold in more than 60 countries, providing high-quality, service and tailored technology solutions to customers. Network of 12 fully owned Riga Wood product development and sales offices cover whole Europe and key markets Overseas. This enables our customers to have direct and professional contacts with our product development.

Latvijas Finieris Group core competence is birch based products, mainly excellence in birch plywood production. We are convinced that plywood production is and will remain one of the most beneficial industrial uses of birch wood, still presenting considerable development opportunities – in the nearest future this will ensure our core business profitability. However, the growing potential of bioeconomy calls for active and regular assessment of other birch based products and wood products in general – their



technological and commercial readiness to fully utilise Latvijas Finieris Group core competence in birch products and learn new ones. Active and ongoing marketing, sales & product development processes are a key factor for our success.

Compliance with EU Regulations. Product related certifications:

| Regulation – Certification - Standard | |
|---|----------------|
| Class E1 EN 13986+A1 | V |
| CARB Phase 2 and EPA TSCA Title VI | On request |
| EU REACH Regulation 1907/2006 | V |
| EU RoHS Directive 2011/65/EC | V |
| EU Construction Products Regulation 305/2011 CE 2+; CE 4 | Structural use |
| EU Timber Regulation 995/2010 | V |
| FSC wood supply chain | On request |
| PEFC wood supply chain | On request |

Birch plywood RIGA contributes toward satisfying Credit IEQ 4.4 under LEED®

It meets the testing requirements and is found compliant with the requirements of both - the US Environmental Protection Agency Toxic Substances Control Act (TSCA) Title VI and the California Air Resource Board (CARB) Airborne Toxic Control Measure (ATCM) Final Regulation Order (FRO) § 93120.2 (a) table 1.

Birch plywood RIGA is manufactured from timber with only legal origin and complying with sustainable forest management principles. It can be ordered and supplied as FSC® and PEFC® certified product contributing toward the MR 7 certified wood credit for LEED project works.

Name and location of production sites

Birch veneer mills:

- Likmere in Ukmergė, Lithuania (A1)
- Sastamala mill in Sastamala, Finland (A1)

Birch plywood mills:

- Lignums in Riga, Latvia (A3)
- Furniers in Riga, Latvia (A3)
- Verems in Rezekne county, Latvia (A3)
- Kohila Vineer in Kohila, Estonia (A3)

Birch plywood further processing units:

- Hapaks in Riga, Latvia (A3)
- Troja in Riga, Latvia (A3)



Product information

Raw birch plywood (Riga Ply) with lignin based glue RIGA ECOlogical

Latvijas Finieris has developed for its well-known RIGA Birch Plywood a new Green Glue RIGA ECOlogical, where Bio-Based Renewable Lignin to a significant extent is used as replacement of the traditional Fossil Phenol. All technical properties of RIGA Plywood remain unchanged when the environmentally friendly glue is applied. The carbon footprint of RIGA Plywood is reduced from production to all its end-uses, offering to all RIGA customers a significant competitive advantage in the increasingly green business environment.

All Woods contain 20-30% of Lignin, a polymeric substance which together with Cellulose forms the woody cell walls of trees and binds together the wood fibers and cells. This strong and rigid structure allows the trees to stand and grow upright. Industrial Lignin is usually extracted from wood as a powderous by-product in chemical "Kraft" Pulp production. Still until the 2000's, the main use of Lignin has been energy production by burning, with calorific values comparable to carbon.

Lignin is a recyclable and ecologically friendly product, abundantly available in the entire world in trees and plants. Therefore, it has recently become important subject to active research, to develop new and more sophisticated uses for it. This rising technological wave with most promising results belongs today to the World's Megatrends. RIGA ECOlogical is one of them.



Doing Our Part
for the Planet



LCA information

Functional unit / declared unit

Declared unit of 1m³ of plywood.

Reference service life

No reference service life is relevant due to the scope of the system boundaries.

Time representativeness for specific data

2018

Database(s) and LCA software used

Databases: Ecoinvent, ELCD

LCA Software: SimaPro

Description of system boundaries

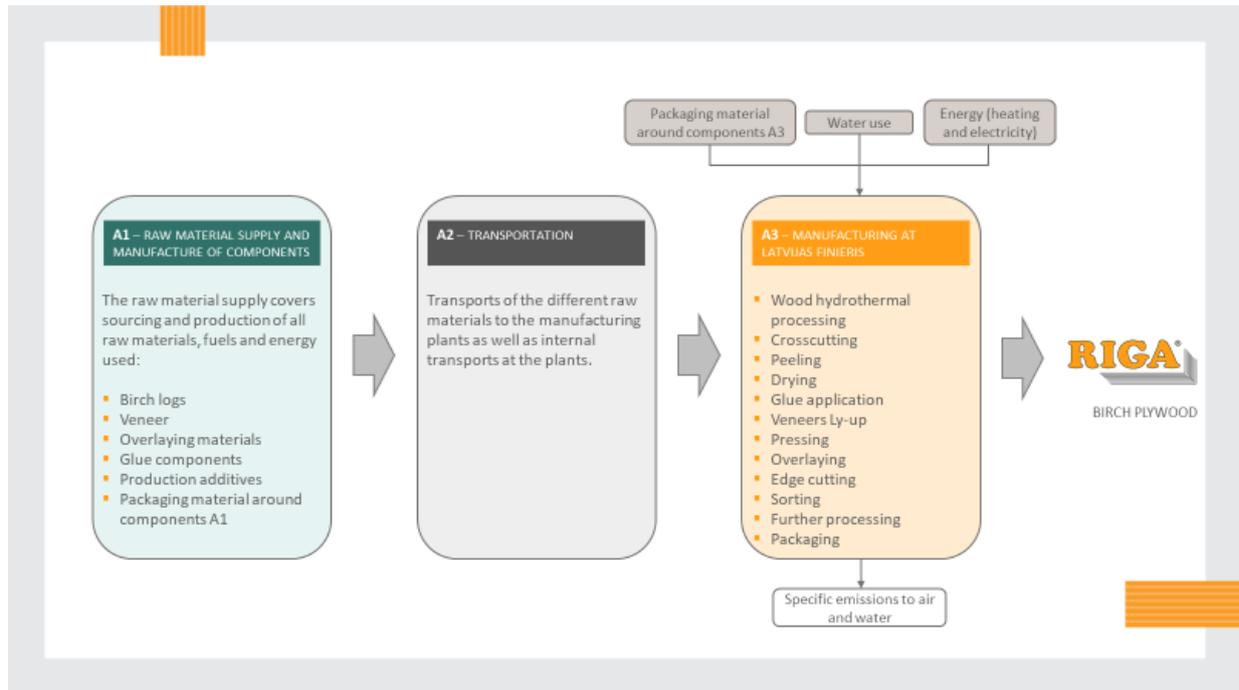
This EPD comprises the Product stage (Cradle-to-Gate) of the LCA

| Product stage | | | Construction / installation stage | | Use stage | | | | | | | End of life stage | | | | Benefits and loads beyond the system boundary |
|---------------------|----------------|---------------|-----------------------------------|--|-----------|------------------------------------|-------------------------------|------------------------------------|--------------------------------------|------------------------|-----------------------|--|----------------|------------------|----------|---|
| Raw material supply | Transportation | Manufacturing | Transportation | Construction / installation / assembly | Use | Maintenance (incl. transportation) | Repair (incl. transportation) | Replacement (incl. transportation) | Refurbishment (incl. transportation) | Operational energy use | Operational water use | De-installation / demolition / disassembly | Transportation | Waste processing | Disposal | Reuse / recovery / recycling potential |
| A1 | A2 | A3 | A4 | A5 | B1 | B2 | B3 | B4 | B5 | B6 | B7 | C1 | C2 | C3 | C4 | D |
| x | x | x | MND | MND | MNR | MND | MND | MND | MNR | MNR | MNR | MND | MND | MND | MND | MND |

X – included MNR – not relevant MND – not declared

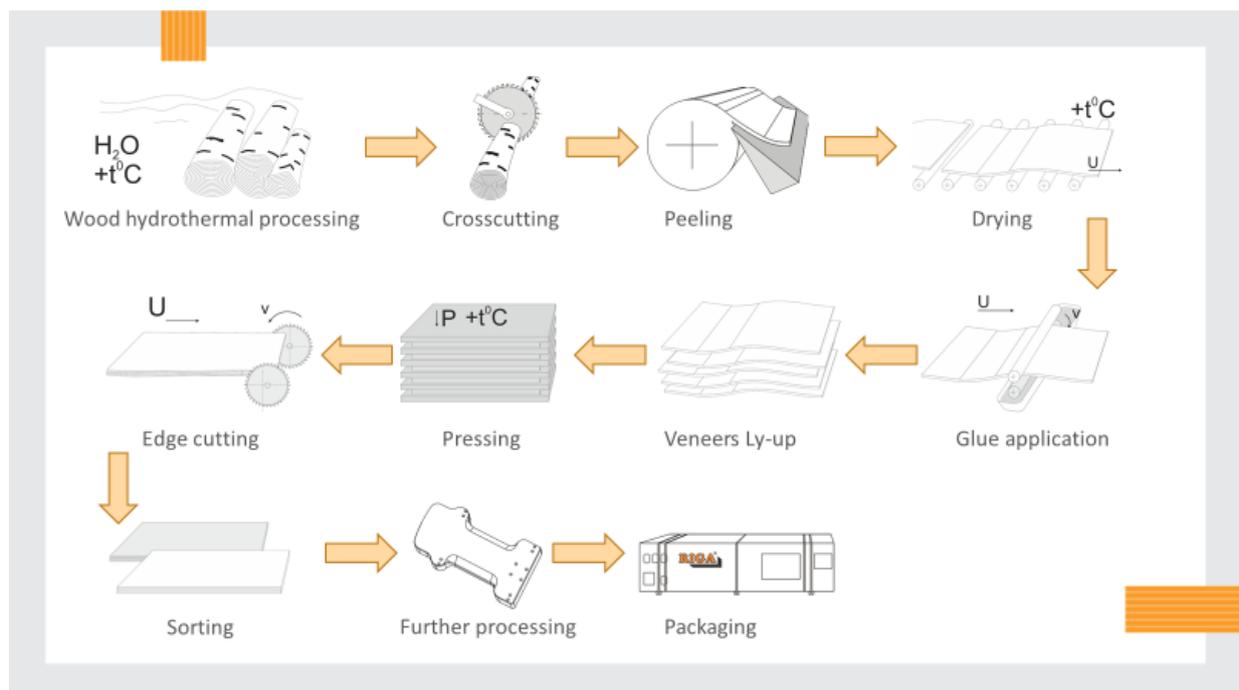


System diagram



The product stage of the LCA constitute of modules A1-A3. Module A1 encompasses the extraction and refinement of raw materials as well as production of components by the suppliers of Latvijas Finieris. In some cases (veneer and resin production) the production of the materials in A1 are done close to the site of the manufacturing unit for A3. Transports of the main components, from suppliers to Latvijas Finieris core production unit, are included in the A2 module. The internal transports between the production processes before the core manufacturing processes of A3 is also accounted for in the A2 module.

The box “Manufacturing at Latvijas Finieris” represents the A3 module, where the components of the panel wall are assembled, and the plywood products are produced:



Content declaration

Product

Composition of Raw Birch Plywood with lignin based glue RIGA ECOlogical, % (represents all thickness range)

| | |
|-------------------------------|------|
| Wood | 90,4 |
| RIGA ECOlogical Resins | 6,4 |
| Powder extender - Hardener | 2,4 |
| Overlays, composite materials | 0 |
| Other | 0,8 |

Release of dangerous substances to indoor air, soil and water

Product Categories Rules PCR 2012:01 9.2.6

Birch plywood under the trade name RIGA® is manufactured by application of chemicals fulfilling requirements of REACH registration, including requirements of REACH Annex XVII “Restrictions on the manufacture, placing on the market and use of certain dangerous substances, preparations and articles”. Regardless of formaldehyde, being significantly below indicated limit values, RIGA® birch plywood does not contain any substances listed in both the REACH Annex for prohibited hazardous substances and the Candidate List of Substances of Very High Concern for Authorization

Packaging

Distribution packaging: The packaging materials used to transport the materials from the production units of Latvijas Finieris consist of the materials presented in Table X.

| Components | Material | Weight (kg/DU Raw birch plywood with lignin-based glue) |
|-----------------|--------------------------|---|
| Wooden pallet | Wood | 14,3 |
| Plastic film | Low density polyethylene | 0,13 |
| Plastic wraps | PET | 0,21 |
| Paper packaging | Corrugated board box | 1,01 |
| Steel tape | Steel | 0,01 |

Recycled material

Provenience of recycled materials (pre-consumer or post-consumer) in the product:

The plastics, paper and steel waste materials arising from the core production are recycled.



Environmental performance

Potential environmental impact

| PARAMETER | UNIT | A1 | A2 | A3 | TOTAL A1-A3 |
|--|--------------------------------------|----------|----------|----------|-------------|
| Global warming potential (GWP) | kg CO ₂ eq. | 2,86E+02 | 3,50E+01 | 2,91E+02 | 6,12E+02 |
| Depletion potential of the stratospheric ozone layer (ODP) | kg CFC 11 eq. | 3,91E-05 | 6,95E-06 | 7,28E-06 | 5,33E-05 |
| Acidification potential (AP) | kg SO ₂ eq. | 2,14E-01 | 5,60E-03 | 1,24E-01 | 3,44E-01 |
| Eutrophication potential (EP) | kg PO ₄ ³⁻ eq. | 1,45E+00 | 1,13E-01 | 1,76E+00 | 3,33E+00 |
| Formation potential of tropospheric ozone (POCP) | kg C ₂ H ₄ eq. | 4,40E-01 | 2,49E-02 | 3,66E-01 | 8,31E-01 |
| Abiotic depletion potential – Elements | kg Sb eq. | 7,75E-04 | 6,80E-05 | 9,60E-05 | 9,39E-04 |
| Abiotic depletion potential – Fossil resources | MJ, net calorific value | 3,97E+03 | 5,54E+02 | 2,12E+03 | 6,65E+03 |

Use of resources

| PARAMETER | UNIT | A1 | A2 | A3 | TOTAL A1-A3 | |
|--|-------------------------|-------------------------|----------|----------|-------------|----------|
| Primary energy resources – Renewable | Use as energy carrier | MJ, net calorific value | 3,94E+04 | 9,91E+00 | 6,24E+02 | 4,00E+04 |
| | Used as raw materials | MJ, net calorific value | 1,20E+04 | 0,00E+00 | 0,00E+00 | 1,20E+04 |
| | TOTAL | MJ, net calorific value | 5,14E+04 | 9,91E+00 | 6,24E+02 | 5,20E+04 |
| Primary energy resources – Non-renewable | Use as energy carrier | MJ, net calorific value | 5,96E+02 | 4,48E+03 | 2,33E+03 | 7,40E+03 |
| | Used as raw materials | MJ, net calorific value | 9,20E+00 | 0,00E+00 | 0,00E+00 | 9,20E+00 |
| | TOTAL | MJ, net calorific value | 6,05E+02 | 4,48E+03 | 2,33E+03 | 7,41E+03 |
| Secondary material | kg | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | |
| Renewable secondary fuels | MJ, net calorific value | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | |
| Non-renewable secondary fuels | MJ, net calorific value | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | |
| Net use of fresh water | m ³ | 3,65E+02 | 0,00E+00 | 6,20E+01 | 4,27E+02 | |

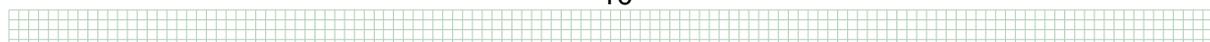
Waste production and output flows

Waste production:

| PARAMETER | UNIT | A1 | A2 | A3 | TOTAL A1-A3 |
|------------------------------|------|----------|----------|----------|-------------|
| Hazardous waste disposed | kg | 1,09E-02 | 2,88E-04 | 1,94E+00 | 1,95E+00 |
| Non-hazardous waste disposed | kg | 1,17E+02 | 4,91E+01 | 1,42E+01 | 1,80E+02 |
| Radioactive waste disposed | kg | 2,26E-02 | 4,01E-03 | 1,43E-03 | 2,80E-02 |

Output flows:

| PARAMETER | UNIT | A1 | A2 | A3 | TOTAL A1-A3 |
|-------------------------------|------|----------|----------|----------|-------------|
| Components for reuse | kg | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
| Material for recycling | kg | 4,13E-04 | 0,00E+00 | 2,52E+00 | 0,00E+00 |
| Materials for energy recovery | kg | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
| Exported energy, electricity | MJ | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
| Exported energy, thermal | MJ | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |



Riga Birch Plywood – Your Sustainable Choice

Latvijas Finieris Group has established strict measures in order to guarantee that the production processes strive to minimize the impact on human health as well as on the environment. In addition, we implement and support sustainable forest management system which is friendly for the nature and the surrounding societies.

We are part of Nordic region, which is a global benchmark of sustainability practices. We ensure energy efficient production with as low impact on the environment as possible with current technology, including low mileage of our raw material. We are also active in the social dimension – as a responsible employer, integrating local economy into global value chain and involving our key stakeholders in the overall sustainability process.

Latvijas Finieris wood supply chain is certified according to world's leading sustainable forest management schemes confirming that our timber processing system, from logging to manufacture and delivery, meets the internationally recognised sustainable forest management principles. Our purchasing and manufacturing processes comply with requirements of EU Timber Regulation Nr.955/2010. All our long-term supply partners manage their forests respecting all national laws and regulations and according to best sustainable forestry practices. According to the Latvijas Finieris purchasing policy, the company accepts roundwood exclusively from legal and verified sources. Specialists of Latvijas Finieris make regular supply and supplier audits, in order to assure that they meet FSC or PEFC requirements.

Latvijas Finieris is also actively involved in forest management. In 1998 Latvijas Finieris founded a tree nursery that was one of the first in the country to commence the production of birch container plants. Today, the total production of our nursery has reached 1.5 million saplings per year.

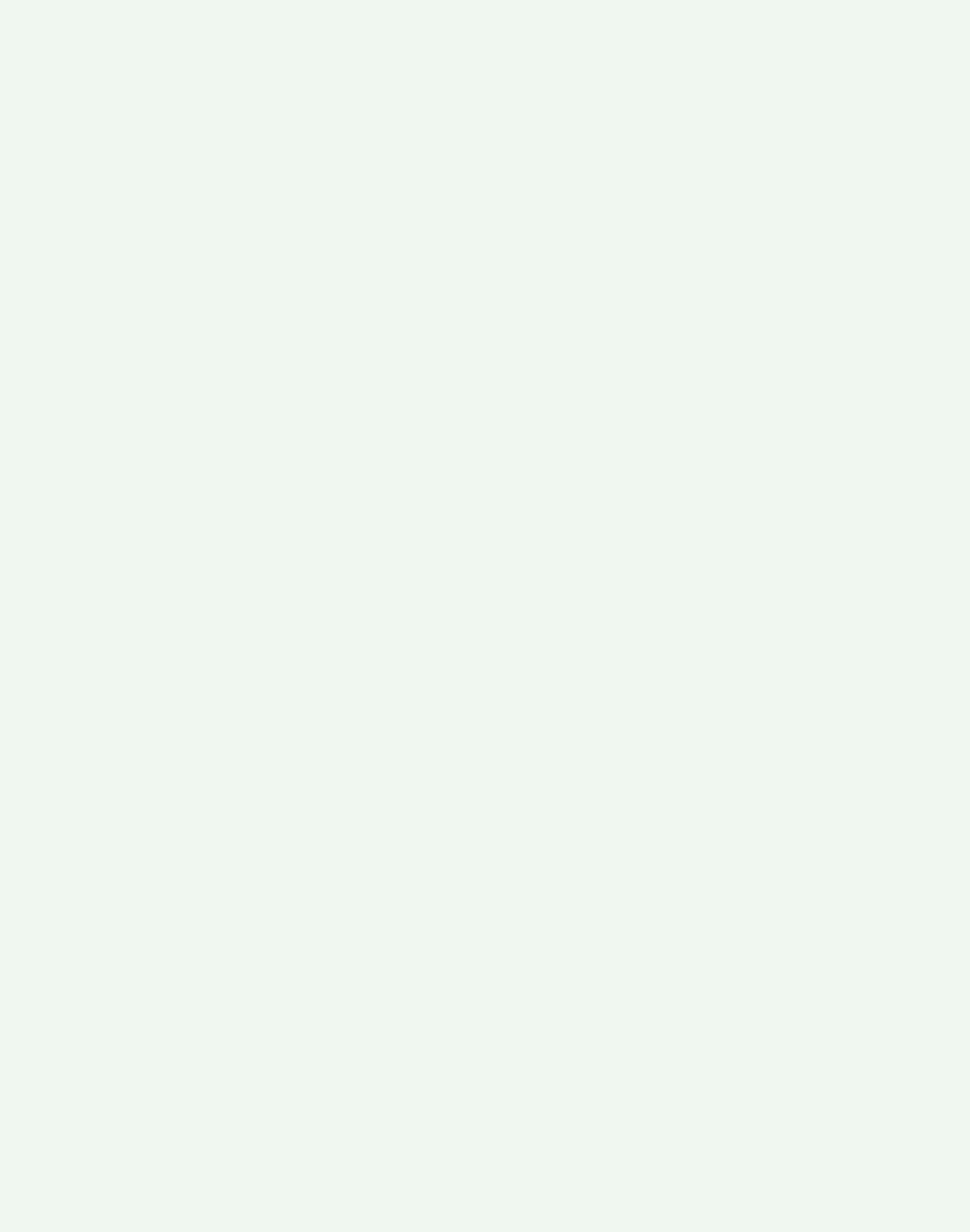
Based on national laws, EU directives and other international norms, Latvijas Finieris runs regular environmental risk assessments and continuously invests in more efficient technology to reduce impacts on environment, for example research and development of lignin-based glue, heat energy recovery, material and resource recycling in manufacturing. Latvijas Finieris Energy management system is certified by Bureau Veritas as complying to ISO 50001. The certificate demonstrates that the company follows systematic approach in achieving continual improvement of energy performance, including energy efficiency, security, use and consumption. This gives more confidence to customers, stakeholders and employees that the company continually reduces its energy use and greenhouse gas emissions.



References

- General Programme Instructions of the International EPD[®] System. Version 3.01
- PCR, EPD International, 2019 - PCR for Wood and wood-based products for use in construction. C-PCR-006 (to PCR 2012:01), published by EPD International, 2019-12-20
- ISO 14025:2010 – Environmental labels and declarations - Type III environmental declarations - Principles and procedures
- ISO 14044:2006 - Environmental management - Life cycle assessment - Requirements and guidelines
- EN 15804:2012+A1:2013 - Sustainability of construction works - Environmental product declaration - Core rules for the product category of construction products
- ISO 21930:2007 - Sustainability in building construction - Environmental declaration of building products
- LCI/LCA Report - Background report for Eco Panel. Report number: LCA-report Sweco 2020-01





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