

# ENVIRONMENTAL PRODUCT DECLARATION

as per *ISO 14025* and *EN 15804+A2*

|                          |                                      |
|--------------------------|--------------------------------------|
| Owner of the Declaration | Fundermax GmbH                       |
| Publisher                | Institut Bauen und Umwelt e.V. (IBU) |
| Programme holder         | Institut Bauen und Umwelt e.V. (IBU) |
| Declaration number       | EPD-FMX-20250221-IBA1-EN             |
| Issue date               | 24.09.2025                           |
| Valid to                 | 23.09.2030                           |

**Polartest**

**Ranheim Paper & Board AS**

[www.ibu-epd.com](http://www.ibu-epd.com) | <https://epd-online.com>



## 1. General Information

### Ranheim Paper & Board AS

#### Programme holder

IBU – Institut Bauen und Umwelt e.V.  
 Hegelplatz 1  
 10117 Berlin  
 Germany

#### Declaration number

EPD-FMX-20250221-IBA1-EN

#### This declaration is based on the product category rules:

Wood-based panels, 01.08.2021  
 (PCR checked and approved by the SVR)

#### Issue date

24.09.2025

#### Valid to

23.09.2030



Dipl.-Ing. Hans Peters  
 (Chairman of Institut Bauen und Umwelt e.V.)



Florian Pronold  
 (Managing Director Institut Bauen und Umwelt e.V.)

### Polartest

#### Owner of the declaration

Fundermax GmbH  
 Klagenfurter Straße 87-89  
 9300 St. Veit/Glan  
 Austria

#### Declared product / declared unit

1 ton of Polartest paper (grammage 65-300 g/m<sup>2</sup>)

#### Scope:

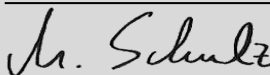
This EPD is based on a declared unit of 1 ton of Polartest paper (grammage 65-300 g/m<sup>2</sup>) manufactured at the Ranheim Paper & Board papermill in Ranheim, Norway.

The owner of the declaration shall be liable for the underlying information and evidence; the IBU shall not be liable with respect to manufacturer information, life cycle assessment data and evidences.

The EPD was created according to the specifications of EN 15804+A2. In the following, the standard will be simplified as *EN 15804*.

#### Verification

|                                                                                  |            |
|----------------------------------------------------------------------------------|------------|
| The standard EN 15804 serves as the core PCR                                     |            |
| Independent verification of the declaration and data according to ISO 14025:2011 |            |
| <input type="checkbox"/>                                                         | internally |
| <input checked="" type="checkbox"/>                                              | externally |



Matthias Schulz,  
 (Independent verifier)

## 2. Product

### 2.1 Product description/Product definition

Polartest is a testliner 3(TL3) paper, mainly used in the corrugating industry. Polartest is manufactured from 100 % recycled fibers from Old Corrugated Containers. *Regulation (EU) No. 305/2011 (CPR)* applies to the placing of the product on the market in the European Union/European Free trade Association (EU/EFTA) (with the exception of Switzerland). The product requires a declaration of performance taking into account *EN 13986:2004+A1:2015, Wood-based panels for use in construction. Characteristics, evaluation of conformity and marking* and the CE marking.

The use of the product is subject to the respective national regulations at the place of use, in Germany, for example the building regulations of the states, and the technical provisions based on these regulations.

### 2.2 Application

Polartest is mainly used in the corrugating industry in the production of packaging material.

### 2.3 Technical Data

The data in the declaration of performance apply to the performance values of the product.

#### Structural values

Typical range of values for Polartest 65 - 300 g/m<sup>2</sup>

| Name                            | Value   | Unit              |
|---------------------------------|---------|-------------------|
| Density ISO 534                 | ≥570    | kg/m <sup>3</sup> |
| Porosity, sec Gurley ISO 5636-5 | ≥ 30    | sec Gurley        |
| Cobb 60 ISO 535                 | ≥ 25    | g/m <sup>2</sup>  |
| SCT CD ISO 9895                 | 1.1-4.4 | kN/m              |
| Burst strength ISO 2758         | 180-470 | kPa               |

Performance data of the product with respect to its characteristics in accordance with the relevant technical provision (no CE-marking).

### 2.4 Delivery status

The Polartest is delivered as individual paper rolls, with a diameter and width according to customer specifications.

### 2.5 Base materials/Ancillary materials

Polartest between 65-300 g/m<sup>2</sup> consists of (in mass %):

- Recycled cellulose fibers from old corrugated containers approx. 91-92 %
- Water, approx. 7-8 %
- Functional chemicals approx. 1 %

Polartest comply with the regulations according to *REACH* Article 3 (3).

1) The product/article/at least one sub-article contains substances from the *ECHA* list of substances of very high concern (SVHC) that are eligible for authorization (date 25.06.2025) above 0.1 % by mass: no.

2) The product/article/at least one sub-article contains other carcinogenic, mutagenic, reprotoxic (CMR) substances of category 1A or 1B that are not on the candidate list, above 0.1 % by mass in at least one sub-article: no.

3) Biocidal products have been added to this construction product or it has been treated with biocidal products (it is therefore a treated article within the meaning of the *Biocidal Products Regulation (EU) No. 528/2012*): no

### 2.6 Manufacture

a) Recycled paper collection and sorting.

The process is initiated by a collection of recycled paper, whereby Old Corrugated Containers (OCC) is sorted out from the other paper fractions. The OCC is converted to bales and delivered to Ranheim Paper & Board AS.

b) Pulping and cleaning.

The bales of OCC are fed to the pulper and dissolved to a fibrous pulp suspension by using recycled process water. Impurities are removed from the suspension through several stages of screening. The pulp suspension is now at a consistency of 4 % (dry solids).

The pulp goes through additional screening, addition of functional chemicals and consistency adjustment before it is ready to enter the paper forming stage.

c) Paper forming, pressing and drying.

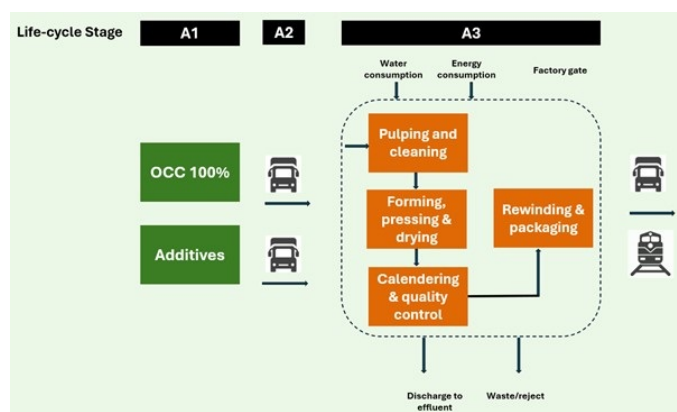
The diluted fiber suspension is transferred from the headbox, at a consistency of <1 %, as a laminar flow over a dewatering wire. The dewatering is carefully controlled to secure a solid base of the paper sheet. After the wire section the paper wet-web will have a dry substance of approx. 19 %, before it enters the press section. Further removal of water is done in a sequence of press- rolls and -felts. Before entering the drying section, the dry substance of the paper web is approx. 45 %. At this stage no more mechanical dewatering is possible, and the remaining water is removed by thermal heating in the drying section. The paper web is pressed against several steam-heated drying cylinders.

d) Surface finish and quality control.

After the drying section, the paper may be calendared to optimize surface properties. The paper web is controlled by means of a traversing measuring frame, which controls the profiles of basis weight, thickness, moisture and ash content. At the end of the drying section, the moisture content of Polartest reaches 7.5 % and the paper is rolled onto a steel cylinder to form a tambour of Polartest.

e) Winding and packaging.

The tambour of Polartest is transferred to the winder, where it is further processed to the final format for the end-customer (width, diameter, core size). All rolls are marked with labels before being sent to the storage, awaiting transport to end-customers.



### 2.7 Environment and health during manufacturing

Employees do not come into contact with any substances that are harmful to health during the production of Polartest. The pulp suspension is transported through closed storage chests and pipes. The functional additives are added via automatic dosing systems. The wire section, where the forming of the wet paper-web happens, has a temperature of approx. 45 degrees

celsius. The building has a dedicated ventilation system.

The process water is reused in the manufacturing process. The excess process water is filtered through a mechanical disc filter, before it is released as discharge to the effluent.

## 2.8 Product processing/Installation

Not applicable.

## 2.9 Packaging

Polartest rolls are delivered without extra packaging.

## 2.10 Condition of use

Polartest paper rolls must be stored in dry locations.

## 2.11 Environment and health during use

No special hazard information for humans (after inhalation, after skin contact, after eye contact, after ingestion, chronic effects, etc.). No special hazard information for the environment. No other hazard statements.

## 2.12 Reference service life

Due to the wide range of possible applications, no standardised service life can be specified. If stored correctly, Polartest can be used for several years after the production date.

## 2.13 Extraordinary effects

### Fire

Polartest has no extra treatment for fire retardancy.

### Water

In the presence of water, Polartest will absorb the water and separate into individual fibers in the water phase.

### Mechanical destruction

Polartest is compostable and biodegradable.

## 2.14 Re-use phase

Polartest will be reused as raw material for the production of new corrugated material.

## 2.15 Disposal

Polartest can be disposed of in the recycled paper system.

EWC code 20 01 01 paper and cardboard

## 2.16 Further information

Further information on the properties of Polartest can be found at the web-site: [www.ranheim-pb.no](http://www.ranheim-pb.no) or by contacting the sales- or R&D department.

# 3. LCA: Calculation rules

## 3.1 Declared Unit

This EPD refers to a declared unit of 1 ton of Polartest paper (grammage 65-300 g/m<sup>2</sup>) manufactured by Ranheim Paper & Board. The products are delivered without packaging.

### Declared Unit

| Name            | Value | Unit              |
|-----------------|-------|-------------------|
| Declared unit   | 1     | t                 |
| Gross density ≥ | 570   | kg/m <sup>3</sup> |

Polartest paper is manufactured at the Ranheim (Norway) site of Ranheim Paper & Board.

## 3.2 System boundary

The life cycle assessment of Polartest paper refers to a cradle-to-gate analysis of the environmental impacts with modules C1–C4 and D (A1–A3, + C, +D). The following life cycle phases are taken into consideration in the analysis:

### Module A1–A3 | Production stage

The production stage includes the upstream burdens of raw material supply, their transport and the manufacturing at the papermill in Ranheim (Norway). For the production, exclusively recycled paper (Old Corrugated Containers, OCC) is used. The production site is supplied with electricity from the Norwegian power grid (considered based on the Norwegian residual mix: 501 g CO<sub>2</sub>e/kWh) and thermal energy from liquefied natural gas. Material and energy flows for the production process are represented based on primary data from the papermill. The recycled paper is considered burden-free input material. The products are delivered without packaging.

### Module C1 | Deconstruction and demolition

The end of life of the products is highly dependent on their application. In the case of the products' application in the building context, manual disassembly of the product or deconstruction using smaller tools is to be expected as a realistic scenario. Referring energy demand is considered to be negligible, resulting in a declaration of '0' in module C1.

### Module C2 | Transport to disposal

Module C2 includes the transport to disposal. For this purpose,

transport by truck over a distance of 50 km is assumed as a scenario. In reality, this scenario may vary depending on the actual location of deconstruction and referring waste treatment.

### Module C3 | Waste treatment for material recycling

Product flows that reach Module D for recycling and with them the material-inherent properties leave the product system in C3. Environmental impacts from the energy demand during sorting are estimated in module C3.

### Module C4 | Disposal

This EPD declares a 100 % recycling scenario. As a result, module C4 is declared as '0'.

### Module D | Benefits and loads beyond the system boundary

The declared scenario assumes a recycling scenario of 100 % of the paper. Therefore, net material flows in module D are considered. For paper production at Ranheim, 100 % recycled fibre is used. As a result, the net flow of waste paper reaching module D for recycling represents a positive impact. This means, that more recycled paper is needed for the production of the product, than can be fed into the recycling stream after its end-of-life. This results in a potential environmental burden in module D, as more waste paper is needed for the declared life-cycle than can be used for the following product system.

## 3.3 Estimates and assumptions

Assumptions and approximations are applied in case of a lack of representative data. All assumptions and approximations are documented precisely and represent a best-guess representation of reality.

Regional applicability of the used background data refers to average data under European or Norwegian conditions. German data were used for the Norwegian market whenever European or Norwegian average data were not available.

## 3.4 Cut-off criteria

The LCA model covers all available input and output flows, which can be represented based on robust data and from which a significant contribution can be expected. Data gaps are filled

with conservative assumptions of average data or generic data if available and are documented accordingly. Only data with a contribution of less than 1 % were cut off. Thus, no data were neglected, of which a substantial impact is to be expected. All relevant data were collected comprehensively. Cut-off material and energy flows were chosen carefully based on their expected quantitative contribution as well as potential environmental impacts. Thus, it can be assumed that the sum of all neglected input flows does not account for more than 5 % of the total material, water and energy flows. Environmental impacts of machines, plant and infrastructure were not included.

### 3.5 Background data

This study uses generic background data for the evaluation of upstream environmental impacts from the *MLC* database version 2023.2.

### 3.6 Data quality

Data collection is based on industry-specific questionnaires. It follows an iterative process clarifying questions via e-mail, telephone calls or in personal and online meetings, respectively. Intensive discussions between Ranheim and Daxner & Merl result in an accurate mapping of product-related material and energy flows. This leads to a high quality of foreground data collected. Data collection relies on a consistent process according to *ISO 14044*.

The technological, geographical, and time-related representativeness of the database was kept in mind when selecting background data. Whenever specific data were missing, either generic datasets or representative average data were used instead. The implemented *MLC*- background datasets refer to the latest versions available and are carefully chosen.

### 3.7 Period under review

Foreground data were collected in the 2023 production year, and the data are based on the tonnages produced on an annual basis.

### 3.8 Geographic Representativeness

Land or region, in which the declared product system is manufactured, used or handled at the end of the product's lifespan: Norway

### 3.9 Allocation

All information for the allocation of given material and energy flows is based on the controlling-systems of the production site. The calculation of specific input quantities for the declared paper types is based on the respective recipe applied at the paper machine. The total annual energy consumption as well as waste quantities were broken down to the product under study based on their production share based on mass.

Ranheim Paper & Board uses waste paper as secondary material. Waste paper reaches its end of waste status after sorting of the paper. As a result, the upstream supply chain of waste paper is considered burden-free.

### 3.10 Comparability

Basically, a comparison or an evaluation of EPD data is only possible if all the data sets to be compared were created according to *EN 15804* and the building context, respectively the product-specific characteristics of performance, are taken into account.

The *MLC* 2023.2 background database in the *LCA FE* -software--version 10 was used to calculate the LCA.

## 4. LCA: Scenarios and additional technical information

### Characteristic product properties of biogenic carbon

During tree growth, the wood assimilates carbon dioxide and stores biogenic carbon. The carbon stored in the product is declared in the following table.

#### Information on describing the biogenic carbon content at factory gate

| Name                               | Value | Unit |
|------------------------------------|-------|------|
| Biogenic carbon content in product | 420   | kg C |

The products are delivered without packaging.

Note: 1 kg of biogenic carbon is equivalent to 44/12 kg of CO<sub>2</sub>.

### End of life (C1–C4)

A recycling scenario is assumed to be a likely scenario for the end of the products' life.

| Name                                          | Value | Unit |
|-----------------------------------------------|-------|------|
| Collected separately waste type (Waste paper) | 1000  | kg   |
| Recycling (C3)                                | 1000  | kg   |

### Re-Use, recovery and recycling potential (D), relevant scenario information

| Name         | Value | Unit |
|--------------|-------|------|
| Net flow (D) | -0.11 | t/t  |

The product reaches the end-of-waste status after sorting of the product.

Presuming the removal of the products, the end-of-life scenario assumes a recycling rate of 100 % for waste paper. The recycling of the paper is considered a realistic scenario. Due to the recycling potential of the material, paper production based on primary material can potentially be substituted. Resulting potentials are declared in module D. As a certain amount of waste paper is used to produce the input materials, net flows are to be calculated, arriving at the net substitution potential for other products. Therefore, the total waste paper input is subtracted from the amount of waste paper reaching module D at its end of life.

The declared products do not contain any hazardous substances that could limit recyclability. The end-of-life scenario must be adjusted in the respective application if necessary.

## 5. LCA: Results

The following table contains the life cycle assessment results for a declared unit of 1 ton of Polartest paper (grammage 65-300 g/m<sup>2</sup>) manufactured by Ranheim Paper & Board.

**DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; MND = MODULE OR INDICATOR NOT DECLARED; MNR = MODULE NOT RELEVANT)**

| Product stage       |           |               | Construction process stage          |          | Use stage |             |        |             |               |                        |                       | End of life stage          |           |                  |          | Benefits and loads beyond the system boundaries |
|---------------------|-----------|---------------|-------------------------------------|----------|-----------|-------------|--------|-------------|---------------|------------------------|-----------------------|----------------------------|-----------|------------------|----------|-------------------------------------------------|
| Raw material supply | Transport | Manufacturing | Transport from the gate to the site | Assembly | Use       | Maintenance | Repair | Replacement | Refurbishment | Operational energy use | Operational water use | De-construction demolition | Transport | 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      | MND       | MND         | MNR    | MNR         | MNR           | MND                    | MND                   | X                          | X         | X                | X        | X                                               |

### RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A2: 1 t Polartest paper

| Parameter                                                               | Unit                             | A1-A3     | C1 | C2       | C3       | C4 | D        |
|-------------------------------------------------------------------------|----------------------------------|-----------|----|----------|----------|----|----------|
| Global Warming Potential total (GWP-total)                              | kg CO <sub>2</sub> eq            | -5.29E+02 | 0  | 3.6E+00  | 1.55E+03 | 0  | 6.23E+01 |
| Global Warming Potential fossil fuels (GWP-fossil)                      | kg CO <sub>2</sub> eq            | 9.93E+02  | 0  | 3.56E+00 | 3.33E+00 | 0  | 6.21E+01 |
| Global Warming Potential biogenic (GWP-biogenic)                        | kg CO <sub>2</sub> eq            | -1.53E+03 | 0  | 9.67E-03 | 1.54E+03 | 0  | 1.1E-01  |
| Global Warming Potential luluc (GWP-luluc)                              | kg CO <sub>2</sub> eq            | 9.51E+00  | 0  | 3.33E-02 | 3E-04    | 0  | 5.8E-02  |
| Depletion potential of the stratospheric ozone layer (ODP)              | kg CFC11 eq                      | 1.06E-08  | 0  | 4.68E-13 | 4.63E-11 | 0  | 1.67E-10 |
| Acidification potential of land and water (AP)                          | mol H <sup>+</sup> eq            | 1.35E+00  | 0  | 7.23E-03 | 5.85E-03 | 0  | 2.92E-01 |
| Eutrophication potential aquatic freshwater (EP-freshwater)             | kg P eq                          | 1.02E-02  | 0  | 1.32E-05 | 9.41E-06 | 0  | 1.05E-03 |
| Eutrophication potential aquatic marine (EP-marine)                     | kg N eq                          | 5.49E-01  | 0  | 2.98E-03 | 1.49E-03 | 0  | 1.61E-01 |
| Eutrophication potential terrestrial (EP-terrestrial)                   | mol N eq                         | 4.18E+00  | 0  | 3.4E-02  | 1.57E-02 | 0  | 1.04E+00 |
| Formation potential of tropospheric ozone photochemical oxidants (POCP) | kg NMVOC eq                      | 1.04E+00  | 0  | 6.46E-03 | 4.05E-03 | 0  | 5.03E-01 |
| Abiotic depletion potential for non fossil resources (ADPE)             | kg Sb eq                         | 1.95E-03  | 0  | 2.39E-07 | 3.97E-07 | 0  | 3.09E-06 |
| Abiotic depletion potential for fossil resources (ADPF)                 | MJ                               | 1.78E+04  | 0  | 4.9E+01  | 6.64E+01 | 0  | 7.63E+02 |
| Water use (WDP)                                                         | m <sup>3</sup> world eq deprived | 5.5E+01   | 0  | 4.35E-02 | 5.6E-01  | 0  | 3.57E+01 |

### RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A2: 1 t Polartest paper

| Parameter                                                         | Unit           | A1-A3    | C1 | C2       | C3        | C4 | D        |
|-------------------------------------------------------------------|----------------|----------|----|----------|-----------|----|----------|
| Renewable primary energy as energy carrier (PERE)                 | MJ             | 3.4E+03  | 0  | 3.57E+00 | 3.16E+01  | 0  | 2.55E+03 |
| Renewable primary energy resources as material utilization (PERM) | MJ             | 1.15E+02 | 0  | 0        | -1.15E+02 | 0  | 0        |
| Total use of renewable primary energy resources (PERT)            | MJ             | 3.51E+03 | 0  | 3.57E+00 | -8.38E+01 | 0  | 2.55E+03 |
| Non renewable primary energy as energy carrier (PENRE)            | MJ             | 1.78E+04 | 0  | 4.92E+01 | 6.64E+01  | 0  | 7.63E+02 |
| Non renewable primary energy as material utilization (PENRM)      | MJ             | 2.39E+02 | 0  | 0        | -2.39E+02 | 0  | 0        |
| Total use of non renewable primary energy resources (PENRT)       | MJ             | 1.8E+04  | 0  | 4.92E+01 | -1.72E+02 | 0  | 7.63E+02 |
| Use of secondary material (SM)                                    | kg             | 1.12E+03 | 0  | 0        | 0         | 0  | -1.1E+02 |
| Use of renewable secondary fuels (RSF)                            | MJ             | 0        | 0  | 0        | 0         | 0  | 0        |
| Use of non renewable secondary fuels (NRSF)                       | MJ             | 0        | 0  | 0        | 0         | 0  | 0        |
| Use of net fresh water (FW)                                       | m <sup>3</sup> | 5.57E+00 | 0  | 3.91E-03 | 2.55E-02  | 0  | 9.01E-01 |

### RESULTS OF THE LCA - WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A2: 1 t Polartest paper

| Parameter                           | Unit | A1-A3    | C1 | C2       | C3       | C4 | D        |
|-------------------------------------|------|----------|----|----------|----------|----|----------|
| Hazardous waste disposed (HWD)      | kg   | 2.49E-06 | 0  | 1.52E-10 | 2.4E-09  | 0  | 2.31E-06 |
| Non hazardous waste disposed (NHWD) | kg   | 2.82E+01 | 0  | 7.5E-03  | 4.23E-02 | 0  | 9.26E-01 |
| Radioactive waste disposed (RWD)    | kg   | 1.58E+00 | 0  | 9.21E-05 | 8.4E-03  | 0  | 2.78E-02 |
| Components for re-use (CRU)         | kg   | 0        | 0  | 0        | 0        | 0  | 0        |
| Materials for recycling (MFR)       | kg   | 0        | 0  | 0        | 1E+03    | 0  | 0        |
| Materials for energy recovery (MER) | kg   | 0        | 0  | 0        | 0        | 0  | 0        |
| Exported electrical energy (EEE)    | MJ   | 0        | 0  | 0        | 0        | 0  | 0        |
| Exported thermal energy (EET)       | MJ   | 0        | 0  | 0        | 0        | 0  | 0        |

### RESULTS OF THE LCA - additional impact categories according to EN 15804+A2-optional: 1 t Polartest paper

| Parameter                                     | Unit              | A1-A3 | C1 | C2 | C3 | C4 | D  |
|-----------------------------------------------|-------------------|-------|----|----|----|----|----|
| Incidence of disease due to PM emissions (PM) | Disease incidence | ND    | ND | ND | ND | ND | ND |

|                                                              |             |    |    |    |    |    |    |
|--------------------------------------------------------------|-------------|----|----|----|----|----|----|
| Human exposure efficiency relative to U235 (IR)              | kBq U235 eq | ND | ND | ND | ND | ND | ND |
| Comparative toxic unit for ecosystems (ETP-fw)               | CTUe        | ND | ND | ND | ND | ND | ND |
| Comparative toxic unit for humans (carcinogenic) (HTP-c)     | CTUh        | ND | ND | ND | ND | ND | ND |
| Comparative toxic unit for humans (noncarcinogenic) (HTP-nc) | CTUh        | ND | ND | ND | ND | ND | ND |
| Soil quality index (SQP)                                     | SQP         | ND | ND | ND | ND | ND | ND |

The additional and optional impact categories according to *EN 15804+A2* are not declared, as the uncertainty of these indicators is classified as high.

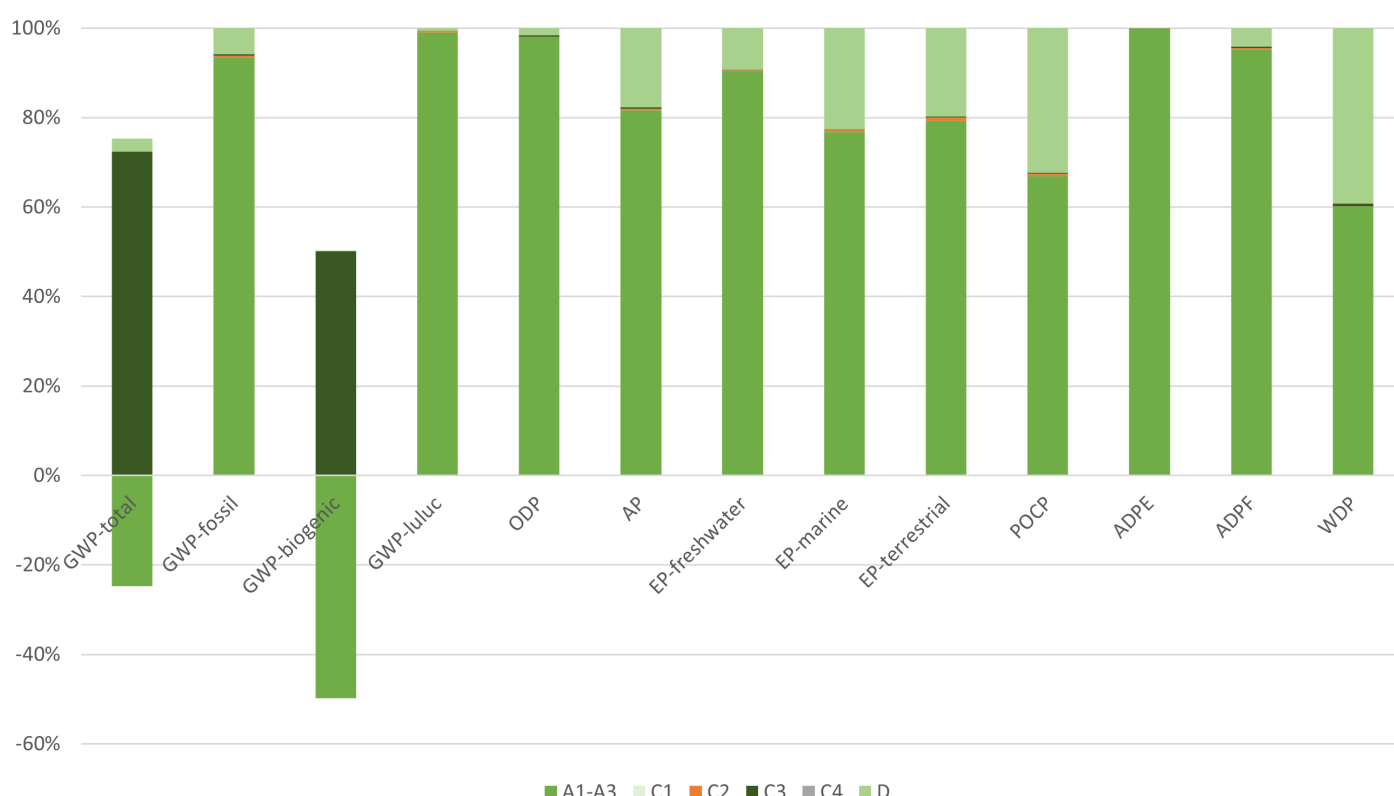
Disclaimer – for the indicators 'abiotic depletion potential for non-fossil resources', 'abiotic depletion potential for fossil resources', 'water (user) deprivation potential'. The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experience with the indicator.

## 6. LCA: Interpretation

The following interpretation contains a summary of the LCA results referenced to a declared unit of 1 ton of Polartest paper

(grammage 65-300 g/m<sup>2</sup>) manufactured by Ranheim Paper & Board.

### Hot-spot analysis of Polartest



The global warming potential (GWP) of the product shows negative values in the production phase (modules A1–A3). These negative impacts result from the use of renewable fibres as raw material. The biobased material sequesters biogenic carbon during plant growth. As long as the biogenic carbon is

stored in the biomass, it shows a negative contribution to global warming. After the products' use, the sequestered carbon might be released to the atmosphere. This is represented by biogenic carbon dioxide emissions in module C3.

## 7. Requisite evidence

Requisite evidence for formaldehyde and VOC emissions are not relevant for the products declared in this EPD.

### 7.1 Certification of compliance: Food packaging

Test laboratory: ISEGA, Forschungs- und Untersuchungs-Gesellschaft m bH Aschaffenburg  
 Test report: 59278 U 23, 12.04.2023

The paper and board grades may be used safely for food packaging and are in compliance with the rules of the *Regulation (EC) No 1935/2004 of the European Parliament and of the Council, the Foodstuffs, Consumer Goods and Animal Feed Code, the BfR Recommendation XXXVI, the Council of*

*Europe Resolution CM/Res(2020)9, the Technical guide on paper and board used in food contact materials and articles and the EN 71-9.*

### 7.2 Polycyclic aromatic hydrocarbons

Test laboratory: ISEGA, Forschungs- und Untersuchungs-Gesellschaft m bH Aschaffenburg  
 Test report: 12695/16, 12.04.2023

Examination period: 16 February 2023 to 22 March 2023  
 Analysis of a paper grade for polycyclic aromatic hydrocarbons. The determination was performed according to the draft standard by means of GCMS.

## Determination of polycyclic aromatic hydrocarbons (PAH)

| Name                  | Value | Unit  |
|-----------------------|-------|-------|
| Phenanthrene          | 0.05  | mg/kg |
| 2-Methyl phenanthrene | 0.02  | mg/kg |
| Fluoranthene          | 0.04  | mg/kg |
| Pyrene                | 0.04  | mg/kg |

## 8. References

### Standards

#### EN 71-9

DIN EN 71-9:2007, Safety of toys - Organic chemical compounds - Requirements.

#### EN 13986

EN 13986:2004 + A1:2015, Wood based panel for use in construction.

#### EN 15804

DIN EN 15804:2012-04+ A2:2019+AC:2021, Sustainability of construction works - Environmental Product Declarations - Core rules for the product category of construction products.

#### ISO 534

ISO 534:2011, Paper and Board - Determination of thickness, density and specific volume.

#### ISO 535

ISO 535:2023 Paper and Board - Determination of water absorptiveness - Cobb method.

#### ISO 2758

ISO 2758:2014 Paper - Determination of bursting strength.

#### ISO 5636-5

ISO 5636-5, Paper and Board - Determination of air permeance (medium range) Part 5: Gurley method.

#### ISO 9895

ISO 9895:2008 Paper and board - Compressive strength - Short-span test.

#### ISO 14025

DIN EN ISO 14025:2011-10, Environmental labels and declarations - Type III environmental declarations - Principles and procedures.

#### ISO 14044

DIN EN ISO 14044:2006-10, Environmental management. Life cycle assessment. Requirements and guidelines.

### Further literature

#### BfR Recommendation XXXVI

BfR Recommendation XXXVI. Paper and board for food contact, recasted by 62nd Announcement, Bundesgesundheitsblatt 14 (1971) 83, last amended by 226th Announcement, Bundesgesundheitsblatt 66 (2023) 216-217, as of 1 February 2023).

#### Biocidal Products Regulation

Regulation (EU) No 528/2012 of the European Parliament and of the Council of 22 May 2012 concerning the making available on the market and use of biocidal products.

Further compounds were not quantifiable.

### Candidate list

List of substances of very high concern for authorisation (25.06.2025), published in accordance with Article 59(10) of the REACH Regulation. European Chemicals Agency.

### Council of Europe Resolution CM/Res(2020)9

Council of Europe Resolution CM/Res(2020)9 on the safety and quality of materials and articles for contact with food of 7 October 2020, sections 3.1 and 3.3.

### CPR

Regulation (EU) No. 305/2011 of the European Parliament and the Council of 9 March 2012 laying down harmonised conditions for the marketing of the construction products and on repealing Directive 89/106/EEC of the Council.

### EWC

EWC European Waste Catalogue – EWC, Ordinance on the European Waste Catalogue (Waste Catalogue Ordinance) Waste Catalogue Ordinance of 10 December 2001 (BGBl. I S. 3379), last amended by Article 5 para. 22 of the law dated 24. February 2012 (BGBl. I S. 212)

### Foodstuffs, Consumer Goods and Animal Feed Code

Foodstuffs, Consumer Goods and Animal Feed Code (Foodstuffs and Animal Feed Code - LFGB) in the version of the notification of 15 September 2021 (BGBl. I p. 4253; 2022 I p. 28), last amended by article 2 paragraph 6 of the act of 20 December 2022 (BGBl. I p. 2752), §§ 30 and 31).

### IBU 2021

Institut Bauen und Umwelt e.V.: General Instructions for the EPD programme of Institut Bauen und Umwelt e.V., Version 2.0, Berlin: Institut Bauen und Umwelt e.V., 2021 [www.ibu-epd.com](http://www.ibu-epd.com)

### ISEGA

ISEGA, Forschungs- und Untersuchungs-Gesellschaft m bH Aschaffenburg

Test report: 59278 U 23, 12.04.2023

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### LCA FE

LCA FE 10, LCA for Experts Software System and Database for Life Cycle Engineering. Version 10.7.1.28. Sphera, 1992-2023.

### MLC

MLC 2023.2, Database for Life Cycle Engineering implemented in LCA for Experts software system. DB 2023.2. Sphera, 1992-2023. Available at: <https://lcadatabase.sphera.com/>.

### PCR Part A

Product category rules for building-related products and services. Part A: Calculation rules for the life cycle assessment and requirements for the project report in accordance with EN 15804+A2:2019. Version 1.4. Berlin: Institut Bauen und Umwelt e.V. (eds.), 2024.

**PCR Wood-based panels**

Product category rules for building-related products and services. Part B: EPD requirements for wood-based panels, Version 11, Berlin: Institut Bauen und Umwelt e.V., 1 August 2024.

**REACH Regulation**

Reach Regulation N° 1907:2006, Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006.

**Regulation (EC) No 1935/2004 of the European Parliament and of the Council**

Regulation (EC) No 1935/2004 of the European Parliament and of the Council of 27 October 2004 on materials and articles intended to come into contact with food and repealing Directives 80/590/EEC and 89/109/EEC, Official Journal of the European Union L 338/4 of 13.11.2004, lastly modified by

article 5 of the Regulation (EU) 2019/1381 of 20 June 2019, Official Journal of the European Union L 231/1 of 6 September 2019, article 3, 1. (a) and (b).

**Technical guide on paper and board used in food contact materials and articles**

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