

**Environmental  
Product  
Declaration**

According to EN15804+A2 (+indicators A1)

This declaration is for:  
**Arturo PU3320**

Provided by:  
**Uzin Utz**



MRPI® registration:

**1.1.00696.2025**

Program operator:

**Stichting MRPI®**

Publisher:

**Stichting MRPI®**

**www.mrpi.nl**

Date of first issue:

**4-6-2025**

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**4-6-2025**

Expiry date:

**4-6-2030**

## COMPANY INFORMATION

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## MRPI® REGISTRATION

1.1.00696.2025

## DATE OF THIS ISSUE

4-6-2025

## EXPIRY DATE

4-6-2030

## SCOPE OF DECLARATION

This MRPI®-EPD certificate is verified by Tim Mol, EcoReview. The LCA study has been done by Nadine Schuurmans, Uzin Utz. The certificate is based on an LCA-dossier according to EN15804+A2 (+indicators A1). It is verified according to the 'MRPI®-EPD verification protocol November 2020.v4.0'. EPDs of construction products may not be comparable if they do not comply with EN15804+A2. Declaration of SVHC that are listed on the 'Candidate list of Substances of Very High Concern for authorisation' when content exceeds the limits for registration with ECHA.

## PROGRAM OPERATOR

Stichting MRPI®  
 Kingsfordweg 151  
 1043 GR  
 Amsterdam

## PRODUCT

Arturo PU3320

## DECLARED UNIT / FUNCTIONAL UNIT

1 Weight per piece (kg)

## DESCRIPTION OF PRODUCT

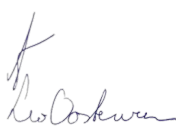
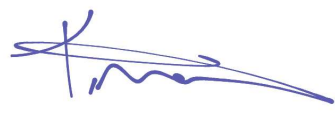
Waterborne, UV-stable, coloured coating with satin finish

## VISUAL PRODUCT



## MORE INFORMATION

<https://int.arturoflooring.com/detail/product/16790/arturo-pu3320>

<p>Ing. L. L. Oosterveen MSc. MBA                  Managing Director MRPI</p>	<p><b>DEMONSTRATION OF VERIFICATION</b></p>
	<p>CEN standard EN15804 serves as the core PCR [1]</p>
	<p>Independent verification of the declaration and data according to EN15804+A2 (+indicators A1)</p> <p>Internal: _____ External: X</p>
	<p>Third party verifier: Tim Mol, EcoReview</p> 
	<p>[1] PCR = Product Category Rules</p>

## DETAILED PRODUCT DESCRIPTION

The Arturo products are for resin floor systems, which include primers, scratch coats, self-smoothing floors, coatings and sealers. This means that multiple products (primer, scratch coat, self-smoothing floor and top coat) are always needed for a complete floor system. Arturo PU3320 consists of an A and a B component. Both components are packed separately and combined before application. In the model, it is assumed that for component A, a 9,3L bucket is used and for component B, a 1L flask is used. A cardboard box is used to pack 10 flasks of B component. The product life span for Arturo PU3320 is 10 years, providing that the prescribed maintenance is applied. The minimum use of Arturo PU3320 on the floor is 0,1 kg/m<sup>2</sup>.

The production process takes place on the site of Pallmann GmbH in Würzburg. First, the materials are mixed in the right amount and order. Then the mixture is filled into buckets or flasks and transported to the building site. There, the two components are mixed together and applied on the floor. During the use phase, the floor is cleaned regularly. At the end of life, the floor is demolished together with the building. The building waste is transported to a waste processor and processed as waste. Avoided materials and energy are calculated for the recycled and incinerated materials during the life cycle.

Component (> 1%)	(kg / %)
Polymer dispersion	Confidential
Isocyanate	Confidential
Water	Confidential
Additives	Confidential
Filler	Confidential

## SCOPE AND TYPE

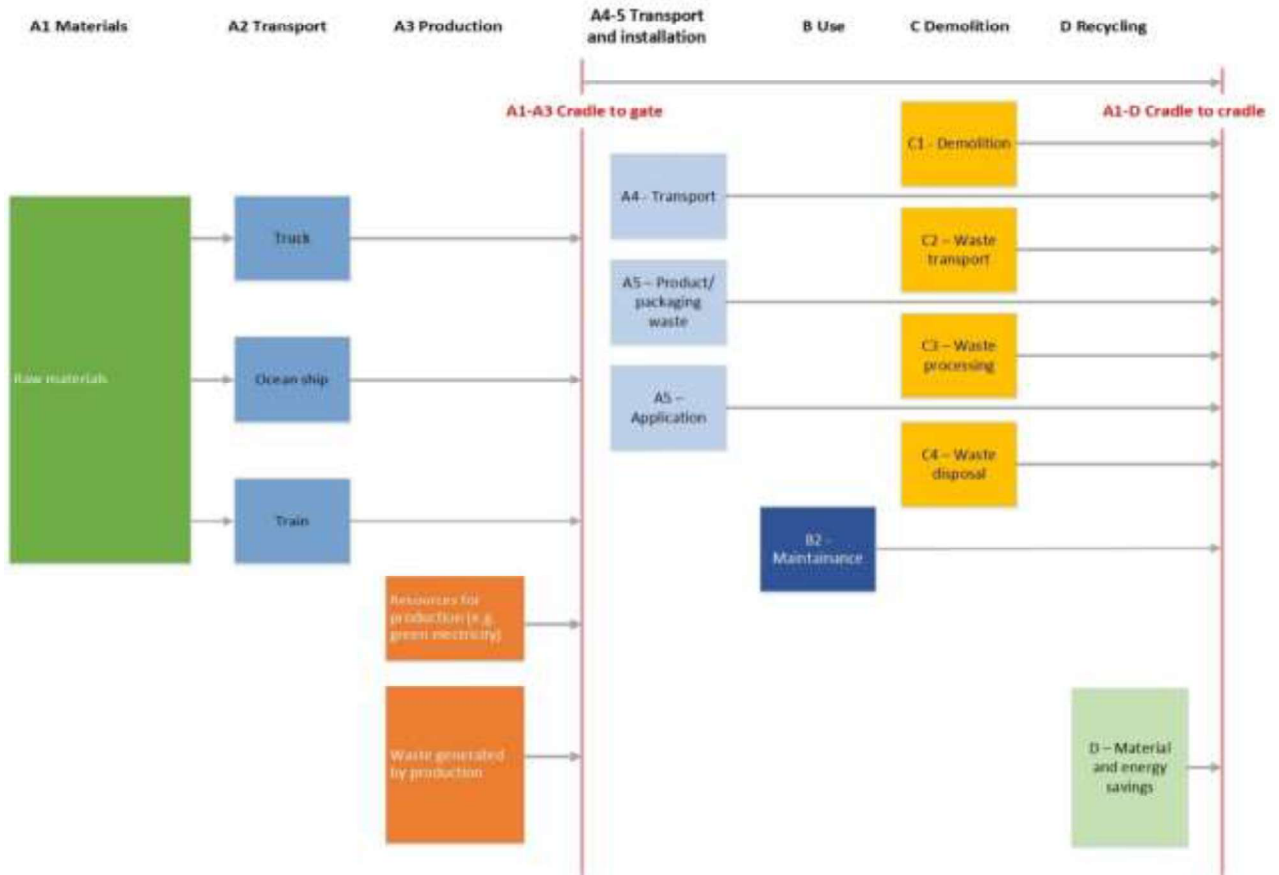
The LCA study is cradle-to-grave (A-D) in accordance with EN15804+A2:2019 and the Dutch 'Bepalingsmethode 1.1'. EcolInvent 3.6 data is used, and the LCA is specifically modelled for this product. Production takes place in Würzburg. The processes used in the production of Arturo products are geographically representative, meaning that the production location of Arturo products lies within the region for which the relevant EcolInvent environmental records have been selected.

In this LCA, the waste processes are allocated in the relevant module. In the case of using secondary materials or energy recovered from secondary fuels, the system boundary between the system under study and the previous system (providing the secondary materials) is set where outputs of the previous system, e.g., materials, products, building elements, or energy, reach the end-of-waste state.

PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARIES
Raw material supply	Transport	Manufacturing	Transport gate to 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	X	X	X	X	X	X	X	X	X	X	X	X	X	X

X = Modules Assessed

ND = Not Declared



## REPRESENTATIVENESS

The EPD is specific to the product.

**ENVIRONMENTAL IMPACT per functional unit or declared unit (indicators A1)**

	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
ADPE	kg Sb eq.	2,15E-04	1,43E-06	2,18E-06	2,19E-04	5,13E-07	1,16E-05	0,00E+00	1,30E-04	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,73E-08	5,13E-07	2,95E-07	0,00E+00	-9,03E-06
ADPF	MJ	5,40E+01	9,47E-01	1,35E+00	5,63E+01	3,07E-01	3,46E+00	0,00E+00	1,45E+02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,53E-01	3,07E-01	3,75E-01	0,00E+00	-2,30E+01
GWP	kg CO2 eq.	2,92E+00	6,38E-02	1,85E-01	3,16E+00	2,01E-02	4,70E-01	0,00E+00	4,23E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,12E-02	2,01E-02	5,20E-01	0,00E+00	-1,28E+00
ODP	kg CFC11 eq.	3,42E-05	1,11E-08	2,22E-08	3,42E-05	3,56E-09	1,71E-06	0,00E+00	4,71E-07	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,93E-09	3,56E-09	3,87E-09	0,00E+00	-1,40E-07
POCP	kg ethene eq.	2,45E-03	4,65E-05	-1,44E-05	2,48E-03	1,21E-05	1,51E-04	0,00E+00	4,93E-03	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,14E-05	1,21E-05	1,45E-05	0,00E+00	-1,88E-04
AP	kg SO2 eq.	1,47E-02	5,20E-04	3,44E-04	1,55E-02	8,83E-05	9,29E-04	0,00E+00	2,66E-02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	8,41E-05	8,83E-05	2,31E-04	0,00E+00	-1,00E-03
EP	kg (PO4) 3 eq.	2,77E-03	7,72E-05	1,02E-04	2,94E-03	1,73E-05	1,87E-04	0,00E+00	2,22E-03	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,91E-05	1,73E-05	8,35E-05	0,00E+00	-1,50E-04

**Toxicity indicators and ECI (Dutch market)**

HTP	kg DCB eq.	2,20E+00	2,84E-02	2,76E-02	2,25E+00	8,45E-03	1,37E-01	0,00E+00	2,77E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	4,13E-03	8,45E-03	9,11E-02	0,00E+00	-9,65E-02
FAETP	kg DCB eq.	5,57E-02	7,50E-04	4,45E-03	6,09E-02	2,47E-04	7,69E-03	0,00E+00	5,21E-02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	5,75E-05	2,47E-04	2,84E-02	0,00E+00	-1,02E-03
MAETP	kg DCB eq.	9,10E+01	2,81E+00	9,55E+00	1,03E+02	8,88E-01	1,85E+01	0,00E+00	1,59E+02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	2,00E-01	8,88E-01	1,65E+02	0,00E+00	-4,15E+00
TETP	kg DCB eq.	8,34E-03	9,67E-05	1,79E-03	1,02E-02	2,99E-05	6,71E-04	0,00E+00	3,01E-02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	6,80E-06	2,99E-05	5,82E-04	0,00E+00	-3,57E-04
ECI	euro	4,48E-01	9,00E-03	1,53E-02	4,73E-01	2,42E-03	4,39E-02	0,00E+00	6,27E-01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,50E-03	2,42E-03	5,34E-02	0,00E+00	-8,06E-02
ADPF	kg Sb eq.	2,60E-02	4,56E-04	6,49E-04	2,71E-02	1,48E-04	1,67E-03	0,00E+00	6,99E-02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	7,36E-05	1,48E-04	1,80E-04	0,00E+00	-1,11E-02

- ADPE = Abiotic Depletion Potential for non-fossil resources
- ADPF = Abiotic Depletion Potential for fossil resources
- GWP = Global Warming Potential
- ODP = Depletion potential of the stratospheric ozone layer
- POCP = Formation potential of tropospheric ozone photochemical oxidants
- AP = Acidification Potential of land and water
- EP = Eutrophication Potential
- HTP = Human Toxicity Potential
- FAETP = Fresh water aquatic ecotoxicity potential
- MAETP = Marine aquatic ecotoxicity potential
- TETP = Terrestrial ecotoxicity potential
- ECI = Environmental Cost Indicator
- ADPF = Abiotic Depletion Potential for fossil resources

## ENVIRONMENTAL IMPACT per functional unit or declared unit (core indicators A2)

Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP-total kg CO2 eq.	3,04E+00	6,44E-02	1,83E-01	3,28E+00	2,03E-02	4,83E-01	0,00E+00	4,29E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,13E-02	2,03E-02	5,22E-01	0,00E+00	-1,29E+00
GWP-fossil kg CO2 eq.	3,02E+00	6,43E-02	1,83E-01	3,27E+00	2,02E-02	4,63E-01	0,00E+00	4,36E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,13E-02	2,02E-02	5,22E-01	0,00E+00	-1,29E+00
GWP-biogenic kg CO2 eq.	1,03E-02	2,26E-05	1,20E-03	1,15E-02	7,55E-06	2,06E-02	0,00E+00	1,05E-02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,89E-06	7,55E-06	3,39E-05	0,00E+00	-3,81E-03
GWP-luluc kg CO2 eq.	2,44E-03	2,72E-05	1,15E-04	2,58E-03	7,42E-06	1,52E-04	0,00E+00	2,67E-03	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	8,89E-07	7,42E-06	8,13E-06	0,00E+00	-7,79E-05
ODP kg CFC11 eq.	2,57E-05	1,40E-08	2,57E-08	2,58E-05	4,47E-09	1,29E-06	0,00E+00	4,72E-07	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	2,44E-09	4,47E-09	4,40E-09	0,00E+00	-1,59E-07
AP mol H+ eq.	1,80E-02	6,69E-04	4,69E-04	1,91E-02	1,17E-04	1,15E-03	0,00E+00	3,14E-02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,18E-04	1,17E-04	3,18E-04	0,00E+00	-1,30E-03
EP-fresh water kg PO4 eq.	1,40E-04	5,83E-07	9,74E-06	1,50E-04	2,04E-07	8,45E-06	0,00E+00	1,70E-04	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	4,11E-08	2,04E-07	5,93E-07	0,00E+00	-2,95E-06
EP-marine kg N eq.	3,71E-03	1,97E-04	1,61E-04	4,07E-03	4,14E-05	2,80E-04	0,00E+00	4,53E-03	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	5,21E-05	4,14E-05	1,37E-04	0,00E+00	-3,84E-04
EP-terrestrial mol N eq.	3,61E-02	2,18E-03	1,82E-03	4,01E-02	4,56E-04	2,53E-03	0,00E+00	5,07E-02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	5,71E-04	4,56E-04	1,42E-03	0,00E+00	-4,26E-03
POCP kg NMVOC eq.	1,13E-02	5,97E-04	3,46E-04	1,22E-02	1,30E-04	7,82E-04	0,00E+00	2,06E-02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,57E-04	1,30E-04	3,52E-04	0,00E+00	-1,33E-03
ADP-minerals & metals kg Sb eq.	2,15E-04	1,43E-06	2,18E-06	2,19E-04	5,13E-07	1,16E-05	0,00E+00	1,30E-04	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,73E-08	5,13E-07	2,95E-07	0,00E+00	-9,03E-06
ADP-fossil MJ, net calorific value	5,05E+01	9,45E-01	1,24E+00	5,27E+01	3,05E-01	3,24E+00	0,00E+00	1,36E+02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,55E-01	3,05E-01	3,47E-01	0,00E+00	-2,04E+01
WDP m3 world eq. Deprived	1,83E+00	3,08E-03	-5,32E-03	1,82E+00	1,09E-03	1,46E-01	0,00E+00	2,60E+01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	2,08E-04	1,09E-03	6,83E-02	0,00E+00	-1,13E-01

- GWP-total = Global Warming Potential total
- GWP-fossil = Global Warming Potential fossil fuels
- GWP-biogenic = Global Warming Potential biogenictotal
- GWP-luluc = Global Warming Potential land use and land use change
- ODP = Depletion potential of the stratospheric ozone layer
- AP = Acidification Potential, Accumulated Exceedence
- 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 Exceedence
- POCP = Formation potential of tropospheric ozone photochemical oxidants
- ADP-minerals & metals = Abiotic Depletion Potential for non-fossil resources [1]
- ADP-fossil = Abiotic Depletion for fossil resources potential [1]
- WDP = Water (user) deprivation potential, deprivation-weighted water consumption [1]

### Disclaimer [1]:

- 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.

## ENVIRONMENTAL IMPACT per functional unit or declared unit (additional indicators A2)

Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
PM Disease incidence	1,86E-07	5,12E-09	5,30E-09	1,96E-07	1,82E-09	1,16E-08	0,00E+00	3,12E-07	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	3,12E-09	1,82E-09	2,81E-09	0,00E+00	-5,62E-09
IRP kBq U235 eq.	7,62E-02	3,97E-03	7,03E-03	8,72E-02	1,28E-03	5,01E-03	0,00E+00	9,50E-02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	6,65E-04	1,28E-03	9,14E-04	0,00E+00	-8,20E-03
ETP-fw CTUe	2,11E+02	8,07E-01	1,96E+00	2,14E+02	2,72E-01	1,14E+01	0,00E+00	1,07E+02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	9,36E-02	2,72E-01	2,63E+00	0,00E+00	-3,29E+00
HTP-c CTUh	1,34E-08	2,95E-11	6,44E-11	1,35E-08	8,83E-12	7,41E-10	0,00E+00	1,45E-08	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	3,27E-12	8,83E-12	1,44E-10	0,00E+00	-1,10E-10
HTP-nc CTUh	1,75E-07	8,56E-10	7,42E-09	1,84E-07	2,98E-10	1,05E-08	0,00E+00	1,69E-07	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	8,03E-11	2,98E-10	5,49E-09	0,00E+00	-2,07E-09
SQP -	8,83E+00	7,16E-01	1,39E+00	1,09E+01	2,65E-01	7,01E-01	0,00E+00	1,73E+01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,98E-02	2,65E-01	1,99E-01	0,00E+00	-1,52E+00

- PM = Potential incidence of disease due to PM emissions
- IRP = Potential Human exposure efficiency relative to U235 [1]
- ETP-fw = Potential Comparative Toxic Unit for ecosystems [2]
- HTP-c = Potential Comparative Toxic Unit for humans [2]
- HTP-nc = Potential Comparative Toxic Unit for humans, non-cancer [2]
- SQP = Potential soil quality index [2]

### Disclaimer [1]:

- This impact category deals mainly with the eventual impact of low dose ionizing radiation on human health of the nuclear fuel cycle. It does not consider effects due to possible nuclear accidents, occupational exposure nor due to radioactive waste.

### Disclaimer [2]:

- 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.

## OUTPUT FLOWS AND WASTE CATEGORIES per functional unit or declared unit (A1 en A2)

	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
HWD	kg	5,54E-05	2,16E-06	2,22E-06	5,98E-05	7,74E-07	3,84E-06	0,00E+00	1,16E-04	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	4,23E-07	7,74E-07	1,07E-06	0,00E+00	-2,60E-05
NHWD	kg	4,62E-01	5,13E-02	6,97E-02	5,83E-01	1,94E-02	6,25E-02	0,00E+00	5,00E-01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,84E-04	1,94E-02	5,76E-02	0,00E+00	-1,62E-02
RWD	kg	7,16E-05	6,26E-06	1,01E-05	8,79E-05	2,00E-06	5,21E-06	0,00E+00	9,66E-05	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,08E-06	2,00E-06	1,23E-06	0,00E+00	-1,17E-05
CRU	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
MFR	kg	0,00E+00	0,00E+00	7,01E-05	7,01E-05	0,00E+00	3,89E-06	0,00E+00	2,72E-04	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
MER	kg	0,00E+00	0,00E+00	4,37E-06	4,37E-06	0,00E+00	2,42E-07	0,00E+00	1,65E-05	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
EEE	MJ	0,00E+00	0,00E+00	6,89E-05	6,89E-05	0,00E+00	4,23E-06	0,00E+00	5,53E-04	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
ETE	MJ	0,00E+00	0,00E+00	1,19E-04	1,19E-04	0,00E+00	7,30E-06	0,00E+00	9,52E-04	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

- HWD = Hazardous Waste Disposed
- NHWD = Non Hazardous Waste Disposed
- RWD = Radioactive Waste Disposed
- CRU = Components for reuse
- MFR = Materials for recycling
- MER = Materials for energy recovery
- EEE = Exported Electrical Energy
- ETE = Exported Thermal Energy



## RESOURCE USE per functional unit or declared unit (A1 and A2)

	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
PERE	MJ	2,68E+00	1,10E-02	2,83E-01	2,97E+00	3,82E-03	1,67E-01	0,00E+00	3,53E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	8,40E-04	3,82E-03	1,20E-02	0,00E+00	-1,69E-01
PERM	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,88E-04	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PERT	MJ	2,68E+00	1,10E-02	2,83E-01	2,97E+00	3,82E-03	1,67E-01	0,00E+00	3,53E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	8,40E-04	3,82E-03	1,20E-02	0,00E+00	-1,69E-01
PENRE	MJ	5,41E+01	1,00E+00	1,36E+00	5,65E+01	3,24E-01	3,46E+00	0,00E+00	1,45E+02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,65E-01	3,24E-01	3,74E-01	0,00E+00	-2,26E+01
PENRM	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	9,92E-03	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PENRT	MJ	5,41E+01	1,00E+00	1,36E+00	5,65E+01	3,24E-01	3,47E+00	0,00E+00	1,45E+02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,65E-01	3,24E-01	3,74E-01	0,00E+00	-2,26E+01
SM	kg	0,00E+00	0,00E+00	2,03E-05	2,03E-05	0,00E+00	1,13E-06	0,00E+00	7,96E-05	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
RSF	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
NSRF	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
FW	m3	4,66E-02	1,05E-04	5,41E-04	4,73E-02	3,72E-05	3,66E-03	0,00E+00	6,12E-01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	7,99E-06	3,72E-05	1,17E-03	0,00E+00	-1,82E-03

- PERE = Use of renewable energy excluding renewable primary energy resources
- PERM = Use of renewable energy resources used as raw materials
- PERT = Total use of renewable primary energy resources
- PENRE = Use of non-renewable primary energy resources excluding non-renewable 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 resources
- SM = Use of secondary materials
- RSF = Use of renewable secondary fuels
- NSRF = Use of non-renewable secondary fuels
- FW = Use of net fresh water

## BIOGENIC CARBON CONTENT per functional unit or declared unit (A1 and A2)

	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
BBCpr	kg C	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
BCCpa	kg C	9,17E-04	0,00E+00	0,00E+00	9,17E-04	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

- BCCpr = Biogenic carbon content in product
- BCCpa = Biogenic carbon content in packaging

## CALCULATION RULES

Data flows have been modelled as realistic as possible. The data quality is based on the principle that the primary data used for processes occurring at the production site, must be of higher quality than background data of other processes. Unfortunately no relevant LCA data has been received from the suppliers. Therefore, public references, industry statistics and literature has been used instead. Based on this information, representative background data have been selected. This LCA has taken into account all relevant inputs and outputs, such as emissions, energy, and materials. In accordance with EN15804+A2:2019, the total neglected input flows per module do not exceed 5% of energy usage and mass. All data relating to the manufacturing of Arturo products and the background processes for environmental impacts are from 2022. For the electricity during production, a location-based approach is used. The dataset is up-to-date and representative of the current technology used in manufacturing the product.

## SCENARIOS AND ADDITIONAL TECHNICAL INFORMATION

### Materials (A1)

Module A1 includes all relevant materials needed for the product. The compositions are based on the Bills of Materials used for all components and the most used packaging option.

### Transport (A2)

Module A2 includes the transport from the materials to the production location. The products' materials are transported from various locations to Pallmann GmbH in Würzburg.

### Production (A3)

The production processes are modelled using specific values from primary data collection at the production site. The production location uses gas and electricity for production. The energy reference that was used to model the energy during production is 'market for electricity, low voltage, Germany | Cut-off ' which has a GWP of 5,77E-01 kg CO<sub>2</sub> eq. per kWh. There are no relevant emissions to air, soil, or water during the production.

### Transport and installation at the building site (A4-A5)

The transportation between the production location of Pallmann GmbH and the building site is calculated in A4. In A5, the installation of the product is considered. Installation of Arturo products is done as follows. First, the B component is added to the A component, and the two components are mixed together with a mixer. Then, the substance is poured into a new bucket and mixed again. For water-based products, 5-10% water is also added to achieve the right viscosity. The substance is applied on the floor. After installation, can and/or polypropylene packaging is disposed of, and tools are cleaned. An estimated material residue of 5% stays in the packaging. After installation of the floor, it needs to be cleaned before use.

### Use phase (B1-B7)

The applied materials do not cause significant emissions in B1, but maintenance (module B2) is considered in the study. During the lifespan, an Arturo floor requires regular cleaning. Vacuuming and cleaning every week with water and cleaning agents is advised. Next, intensive cleaning is advised every three months with water and a cleaning agent. A floor consists of four product layers. Maintenance is allocated to the top coat, as this layer will be cleaned. There are no other significant emissions during the use phase.

### Demolition and processing phases (C1-C4)

For the end-of-life scenario of the Arturo floor, it is assumed that floors in civil houses first serve as subfloors, after which they are demolished with the building. For floors in utility and commercial buildings, it is assumed that the floor is demolished with the building directly after its service life. For the epoxy-based Arturo products, it is modelled that it is 90% landfilled and 10% incinerated. However, the Arturo products, which are based on polyurethane, are 100% incinerated. In C1, the demolition of the building is taken into account. In C2, building waste is transported to the waste processor and then to the landfill and incineration installation. Phase C3 models the processing and incineration of the building waste, and lastly, landfill is accounted for in C4.

### Environmental loads and benefits of recycling and product use (D)

Module D consists of recycling and incineration of the packaging material, its use as a subfloor after its service life and some incineration of materials during installation.

## DECLARATION OF SVHC

The product does not contain any substances from the SVHC list.

## REFERENCES

NEN-EN 15804+A2: Duurzaamheid van bouwwerken - Milieuverklaringen van producten - Basisregels voor de productgroep bouwproducten', NEN-EN 15804:2012+A2:2019.

Bepalingsmethode Milieuprestatie Bouwwerken version 1.1 – Nationale Milieudatabase – March 2022