LCA background report

Isolatie (akoestisch) Cyclin ® Puur

Cyclin B.V.

Programme operator:	Cyclin B.V.
Calculation number:	ReTHiNK-61675
Generation on:	20-09-2024
Issue date:	
Valid until:	
Status:	resubmitted

R<THiNK

2 General

2.1 INTRODUCTION

This report for review is a result of a life cycle analysis (LCA) made by using the R<THINK application. The report is based on the following chapters which correspond to the phases of a LCA.

- Goal and Scope Definition
- Life Cycle Inventory
- Impact assessment
- Interpretation of results

2.2 COMPANY INFORMATION / DECLARATION OWNER

Manufacturer: Cyclin B.V.

Address: Huiskensstraat 54, 5916PN Venlo

E-mail: info@cyclin.nl

Website: http://www.cyclin.nl/

Production location: Cyclin B.V.

Address production location: Huiskensstraat 54, 5916PN Venlo

2.3 INFORMATION LCA CALCULATION

LCA calculation for: Isolatie (akoestisch) Cyclin ® Puur

Calculation number: ReTHiNK-61675

Generation on: 20-09-2024

Date of issue:

End of validity:

Version calculation core R<THINK: v2.0

Version Environmental Profile database: v3.17 (2024-05-22)

PCR: EN15804+A2:2019

2.4 COMPARABILITY

In principle, a comparison or assessment of the environmental impacts of different products is only possible if they have been prepared in accordance with EN 15804+A2. For the evaluation of the comparability, the following aspects have to be considered in particular: PCR used, functional or declared unit, geographical reference, the definition of the system boundary, declared modules, data selection (primary or secondary data, background database, data quality), scenarios used for use and disposal phases, and the life cycle inventory (data collection, calculation methods, allocations, validity period). PCRs and general program instructions of different EPD program operators may differ. Comparability needs to be evaluated. For further guidance, see EN 15804+A2 (5.3 Comparability of EPD for construction products) and ISO 14025 (6.7.2 Requirements for comparability).

2.5 CALCULATION BASIS

LCA method R<THINK: NMD Determination method v 1.1 | set1+2

LCA software*: Simapro 9.1.1

Characterization method: Bepalingsmethode 'set 1', 'set2' & param (NMD 3.4) v1.00

LCA database profiles: EcoInvent version 3.6

Version database: v3.17 (2024-05-22)

* Simapro is used for calculating the characterized results of the Environmental profiles within R<THINK.

7 Results

For the impact assessment, the characterisation factors of the LCIA method Bepalingsmethode 'set 1', 'set2' & param (NMD 3.4) v1.00 are used. Long-term emissions (>100 years) are not considered in the impact assessment. The results of the impact assessment are only relative statements that do not make any statements about end-points of the impact categories, exceedance of threshold values, safety margins or risks. The following tables show the results of the indicators of the impact assessment, of the use of resources as well as of waste and other output flows.

7.1 ENVIRONMENTAL IMPACT INDICATORS PER M2

CORE ENVIRONMENTAL IMPACT INDICATORS EN15804+A2

Abbr.	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	C1	C2	C3	C4	D	Total
AP	mol H+ eqv.	6.52E-3	4.19E-4	5.02E-4	7.44E-3	5.99E-4	2.16E-5	0.00E+0	0.00E+0	0.00E+0	0.00E+0	2.14E-4	1.83E-3	0.00E+0	-2.95E-3	7.16E-3
GWP-total	kg CO2 eqv.	-4.24E+0	1.46E-1	2.60E-1	-3.83E+0	1.03E-1	6.09E-3	0.00E+0	0.00E+0	0.00E+0	0.00E+0	3.71E-2	6.32E+0	0.00E+0	-6.52E-1	1.98E+0
GWP-b	kg CO2 eqv.	-5.67E+0	7.84E-5	6.76E-3	-5.66E+0	4.77E-5	2.97E-4	0.00E+0	0.00E+0	0.00E+0	0.00E+0	1.75E-5	5.77E+0	0.00E+0	-2.73E-3	1.08E-1
GWP-f	kg CO2 eqv.	1.45E+0	1.46E-1	2.50E-1	1.84E+0	1.03E-1	5.78E-3	0.00E+0	0.00E+0	0.00E+0	0.00E+0	3.71E-2	4.29E-1	0.00E+0	-6.46E-1	1.77E+0
GWP-luluc	kg CO2 eqv.	3.95E-3	5.19E-5	5.01E-5	4.06E-3	3.78E-5	5.15E-6	0.00E+0	0.00E+0	0.00E+0	0.00E+0	1.35E-5	1.46E-4	0.00E+0	-2.87E-3	1.39E-3
EP-m	kg N eqv.	1.43E-3	8.29E-5	9.97E-5	1.62E-3	2.11E-4	3.30E-6	0.00E+0	0.00E+0	0.00E+0	0.00E+0	7.54E-5	6.34E-4	0.00E+0	-6.80E-4	1.86E-3
EP-fw	kg P eq	7.93E-5	1.16E-6	3.99E-6	8.45E-5	1.04E-6	7.22E-7	0.00E+0	0.00E+0	0.00E+0	0.00E+0	3.71E-7	6.08E-6	0.00E+0	-2.65E-5	6.62E-5
EP-T	mol N eqv.	1.41E-2	9.27E-4	1.10E-3	1.61E-2	2.33E-3	4.54E-5	0.00E+0	0.00E+0	0.00E+0	0.00E+0	8.31E-4	6.80E-3	0.00E+0	-8.14E-3	1.80E-2
ODP		9.99E-8	3.32E-8	3.11E-8	1.64E-7	2.28E-8	3.98E-10	0.00E+0	0.00E+0	0.00E+0	0.00E+0	8.21E-9	4.80E-8	0.00E+0	-4.04E-8	2.03E-7

AP=Acidification (AP) | **GWP-total**=Global warming potential (GWP-total) | **GWP-b**=Global warming potential - Biogenic (GWP-b) | **GWP-f**=Global warming potential - Fossil (GWP-f) | **GWP-luluc**=Global warming potential - Land use and land use change (GWP-luluc) | **EP-m**=Eutrophication marine (EP-m) | **EP-fw**=Eutrophication, freshwater (EP-fw) | **EP-T**=Eutrophication, terrestrial (EP-T) | **ODP**=Ozone depletion (ODP) | **POCP**=Photochemical ozone formation - human health (POCP) | **ADP-f**=Resource use, fossils (ADP-f) | **ADP-mm**=Resource use, minerals and metals (ADP-mm) | **WDP**=Water use (WDP)

7 Results

ILCD classification	Indicator	Disclaimer
	Potential Soil quality index (SQP)	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 disposal in underground facilities. Potential ionizing radiation from the soil, from radon and from some construction materials is also not measured by this indicator.

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 experienced with the indicator.

CORE ENVIRONMENTAL IMPACT INDICATORS EN15804+A1

Abbr.	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	C1	C2	C3	C4	D	Total
ADPE	Kg Sb	2.11E-5	4.02E-6	3.41E-6	2.86E-5	2.62E-6	5.43E-8	0.00E+0	0.00E+0	0.00E+0	0.00E+0	9.28E-7	1.01E-5	0.00E+0	-6.85E-6	3.54E-5
GWP	Kg CO2 Equiv.	1.41E+0	1.45E-1	2.47E-1	1.80E+0	1.02E-1	5.76E-3	0.00E+0	0.00E+0	0.00E+0	0.00E+0	3.68E-2	4.64E-1	0.00E+0	-6.25E-1	1.79E+0
ODP	Kg CFC-11 Equiv.	8.68E-8	2.65E-8	2.74E-8	1.41E-7	1.82E-8	4.23E-10	0.00E+0	0.00E+0	0.00E+0	0.00E+0	6.55E-9	3.98E-8	0.00E+0	-3.64E-8	1.69E-7
POCP	Kg Ethene Equiv.	1.94E-3	7.20E-5	6.42E-5	2.08E-3	6.18E-5	1.21E-6	0.00E+0	0.00E+0	0.00E+0	0.00E+0	2.22E-5	3.75E-4	0.00E+0	-8.24E-4	1.72E-3
AP	Kg SO2 Equiv.	5.36E-3	3.43E-4	4.11E-4	6.11E-3	4.50E-4	1.74E-5	0.00E+0	0.00E+0	0.00E+0	0.00E+0	1.61E-4	1.38E-3	0.00E+0	-2.31E-3	5.80E-3
EP	Kg PO43- Equiv.	8.68E-4	5.33E-5	5.18E-5	9.73E-4	8.84E-5	3.72E-6	0.00E+0	0.00E+0	0.00E+0	0.00E+0	3.16E-5	2.81E-4	0.00E+0	-3.97E-4	9.81E-4

ADPE=Depletion of abiotic resources-elements | **GWP**=Global warming | **ODP**=Ozone layer depletion | **POCP**=Photochemical oxidants creation | **AP**=Acidification of soil and water | **EP**=Eutrophication

7 Results

7.3 INFORMATION ON BIOGENIC CARBON CONTENT PER M2

BIOGENIC CARBON CONTENT

The following Information describes the biogenic carbon content in (the main parts of) the product at the factory gate per m2:

Biogenic carbon content	Amount	Unit
Biogenic carbon content in the product	2.397	kg C
Biogenic carbon content in accompanying packaging	0	kg C

UPTAKE OF BIOGENIC CARBON DIOXIDE

The following amount of carbon dioxide uptake is taken into account. Related uptake and release of carbon dioxide in downstream processes are not taken into account in this number although they do appear in the presented results. One kilogram of biogenic Carbon content is equivalent to 44/12 kg of biogenic carbon dioxide uptake.

Uptake Biogenic Carbon dioxide	Amount	Unit
product	8.797	kg CO2 (biogenic)

7 Results

7.4 ENVIRONMENTAL COST INDICATOR NL PER M2

Using the environmental cost indicator (ECI) method, which is presented in the NMD Determination Method (2020), the results are aggregated to the single-point score. The ECI is a relevant valuation method, especially in the Dutch construction sector. In the Netherlands, it is a prerequisite for public tenders. The aim of the indicator is to show the shadow price for environmental impacts of a product or project. The application of single-point scores is an additional assessment tool for eco-balance results. However, it must be pointed out that weightings are always based on a value maintenance and not on a scientific basis (EN 14040). The ECI results are shown in the following table.

Module EN15804	ECI NL	Share in total (%)
A1 Raw Materials Supply	€ 0.16	74,5 %
A2 Transport	€ 0.02	7,0 %
A3 Manufacturing	€ 0.02	10,4 %
A4 Transport from the gate to the site	€ 0.01	5,7 %
A5 Construction - Installation process	€ 0.00	0,2 %
B1 Use	€ 0.00	0,0 %
B2 Maintenance	€ 0.00	0,0 %
B3 Repair	€ 0.00	0,0 %
C1 De-construction / demolition	€ 0.00	0,0 %
C2 Transport	€ 0.00	2,0 %
C3 Waste processing	€ 0.06	29,2 %
C4 Disposal	€ 0.00	0,0 %
D Benefits and loads beyond the product system boundary	€ -0.06	-29,1 %
ECI NL per functional unit	**€ 0.22**	