



ENVIRONMENTAL PRODUCT DECLARATION

October 10, 2024

STEICOtherm

Client



STEICO SE
Otto-Lilienthal-Ring 30
85622 Feldkirchen

GOAL AND SCOPE

Norm: EN 15804:2012+A2:2019 and ISO 14025

PCR: Determination method version 1.1 Stichting National Environmental Database

Scope: Modules A1-A5, B1-B5, C1-C4 and D

Author: A.M. Kloppenburg MSc (SHR)

Report: SHR report 23.0053

Verification: External, F. van der Burgh (Agrodome)

Product: Steico wood fiber board wet process (SteicoTherm, SteicoTherm SD, SteicoFloor, SteicoInternal)

Functional unit: 1m² of wood fiber insulation board with a thickness of 40 mm and a density of 160 kg/m³

Lifespan: 75 years

Composition: 94.5% wood, 4% water and 1.5% additives

Objective: Inclusion of the product in the National Environmental Database to enable calculations at the building level, in addition to informing buyers about the environmental impact of the product

Allocation: Allocation is avoided by separating into subprocesses, there are no multi-output processes

Validity: October 10, 2024 - October 10, 2029

Hazardous substances, REACH: The product does not contain REACH SVHC substances in amounts greater than 0.1% (1000 ppm)

Software and databases: SimaPro version 9.5, EcoInvent 3.6 and NMD process database version 3.7

General: EPDs from different programs need not be comparable. The producer owns and has the liability and responsibility for the EPD

STEICOtherm is wood fiber insulation based on natural wood fibers manufactured in a wet process. Wood fiber insulation is manufactured from wood chips, which are fiberized and then mixed with water and other additives, compressed and dried with the lignin as a binding agent. The board is then cut into smaller boards, which are then packaged and delivered to the customer.

Technical properties	
Thickness	20 – 100 mm
Fire class according to EN 13501-1	E
Coefficient of thermal conductivity λ_D	0.038 [W/ (m*K)]
Diffusion resistance of water vapor μ	5
Specific heat capacity c	2,100 [J/(kg*K)]
Density	160 kg/m ³

In modules A1-A3, extraction of raw materials, transportation to the production site, packaging materials and production were considered. In modules A4 and A5, transport to the construction site and installation on the construction site, construction waste and end of life of the packaging materials have been considered. In modules B1-B5 there is no maintenance or replacement therefore these modules are empty. In modules C1-C4, the end-of-life scenario was considered assuming incineration. Recycling has yet to take off so there is no realistic information available to include in the LCA study. In module D, benefits beyond system boundaries were considered.

Carbon captured:

per m² STEICOtherm insulation of 40 mm thickness, 3.02 kg of biogenic carbon is stored and thus 11.1 kg of CO₂ is captured. In the packaging, 0.66 kg of biogenic carbon is stored.

Scalability:

The results scale (linearly) with the thickness of the product.

LIFE CYCLE ANALYSIS AND INTERPRETATION



40 mm STEICOtherm, Set 2 according to the Bepalingsmethode

(Modules B1-B5, C1
and C4 are zero
because there is no
maintenance, manual
demolition and no
landfill)

IMPACT CATEGORY	UNIT	TOTAL	A1 – A3	A4	A5	B1 – B5	C1	C2	C3	C4	D
051. Climate change	kg CO2 eq	6,41E+00	-8,0E+00	9,48E-01	2,27E+00	0,0E+00	0,0E+00	1,30E-01	1,21E+01	0,0E+00	-1,09E+00
052. Climate change - Fossil	kg CO2 eq	6,40E+00	5,7E+00	9,47E-01	-2,92E-01	0,0E+00	0,0E+00	1,30E-01	1,03E+00	0,0E+00	-1,08E+00
053. Climate change - Biogenic	kg CO2 eq	5,39E-05	-1,4E+01	5,05E-04	2,56E+00	0,0E+00	0,0E+00	5,98E-05	1,11E+01	0,0E+00	3,45E-06
054. Climate change - Land use and LU ch	kg CO2 eq	1,08E-02	1,7E-02	3,31E-04	-1,37E-03	0,0E+00	0,0E+00	4,75E-05	1,59E-05	0,0E+00	-5,49E-03
055. Ozone depletion	kg CFC11 eq	3,98E-07	4,1E-07	2,15E-07	-4,32E-08	0,0E+00	0,0E+00	2,86E-08	7,64E-09	0,0E+00	-2,18E-07
056. Acidification	mol H+ eq	2,55E-02	3,7E-02	3,87E-03	-2,49E-03	0,0E+00	0,0E+00	7,51E-04	1,96E-03	0,0E+00	-1,60E-02
057. Eutrophication, freshwater	kg P eq	5,62E-04	6,2E-04	7,44E-06	-1,72E-05	0,0E+00	0,0E+00	1,31E-06	1,18E-06	0,0E+00	-4,95E-05
058. Eutrophication, marine	kg N eq	3,22E-03	6,2E-03	1,15E-03	-6,54E-04	0,0E+00	0,0E+00	2,65E-04	9,09E-04	0,0E+00	-4,68E-03
059. Eutrophication, terrestrial	mol N eq	7,35E-03	6,6E-02	1,27E-02	-8,63E-03	0,0E+00	0,0E+00	2,92E-03	1,04E-02	0,0E+00	-7,62E-02
060. Photochemical ozone formation	kg NMVOC eq	3,02E-02	3,9E-02	3,89E-03	-2,70E-03	0,0E+00	0,0E+00	8,33E-04	2,72E-03	0,0E+00	-1,36E-02
061. Resource use, minerals and metals	kg Sb eq	6,13E-05	4,5E-05	2,56E-05	-5,42E-06	0,0E+00	0,0E+00	3,28E-06	3,96E-07	0,0E+00	-7,15E-06
062. Resource use, fossils	MJ	7,95E+01	8,4E+01	1,43E+01	-6,03E+00	0,0E+00	0,0E+00	1,95E+00	6,27E-01	0,0E+00	-1,58E+01
063. Water use	m3 depriv.	1,64E+00	1,8E+00	3,98E-02	-9,31E-02	0,0E+00	0,0E+00	6,99E-03	1,51E-02	0,0E+00	-9,50E-02
064. Particulate matter	disease inc.	6,31E-08	2,3E-07	6,59E-08	-5,05E-08	0,0E+00	0,0E+00	1,16E-08	1,58E-08	0,0E+00	-2,11E-07
065. Ionising radiation	kBq U-235 eq	2,03E-01	1,7E-01	6,24E-02	-1,53E-02	0,0E+00	0,0E+00	8,19E-03	1,55E-03	0,0E+00	-2,72E-02
066. Ecotoxicity, freshwater	CTUe	9,66E+01	2,5E+02	1,14E+01	-1,54E+01	0,0E+00	0,0E+00	1,74E+00	1,61E+00	0,0E+00	-1,51E+02
067. Human toxicity, cancer	CTUh	1,43E-08	1,3E-08	3,21E-10	-8,39E-10	0,0E+00	0,0E+00	5,65E-11	3,02E-09	0,0E+00	-1,76E-09
068. Human toxicity, non-cancer	CTUh	1,48E-07	2,0E-07	1,25E-08	-9,32E-09	0,0E+00	0,0E+00	1,91E-09	9,41E-09	0,0E+00	-6,33E-08
069. Land use	Pt	3,05E+02	1,1E+03	9,85E+00	-2,01E+02	0,0E+00	0,0E+00	1,69E+00	2,10E-01	0,0E+00	-5,91E+02

LIFE CYCLE ANALYSIS AND INTERPRETATION

40 mm STEICOtherm, parameters

(Modules B1-B5, C1
and C4 are zero
because there is no
maintenance, manual
demolition and no
landfill)

IMPACT CATEGORY	UNIT	TOTAL	A1 – A3	A4	A5	B1 – B5	C1	C2	C3	C4	D
111. Energy, primary, renewable, excludi	MJ	4,23E+01	7,5E+01	2,02E-01	-3,12E+01	0,0E+00	0,0E+00	2,45E-02	1,22E+02	0,0E+00	-1,24E+02
113. Energy, primary, renewable, materia	MJ	0,00E+00	1,2E+02	0,00E+00	0,00E+00	0,0E+00	0,0E+00	0,00E+00	-1,22E+02	0,0E+00	0,00E+00
101. Energy, primary, renewable (MJ)	MJ	4,23E+01	2,0E+02	2,02E-01	-3,12E+01	0,0E+00	0,0E+00	2,45E-02	2,66E-02	0,0E+00	-1,24E+02
112. Energy, primary, non-renewable, exc	MJ	8,47E+01	7,8E+01	1,52E+01	-6,45E+00	0,0E+00	0,0E+00	2,07E+00	1,34E+01	0,0E+00	-1,73E+01
114. Energy, primary, non-renewable, mat	MJ	0,00E+00	1,3E+01	0,00E+00	0,00E+00	0,0E+00	0,0E+00	0,00E+00	-1,27E+01	0,0E+00	0,00E+00
102. Energy, primary, non-renewable (MJ)	MJ	8,47E+01	9,1E+01	1,52E+01	-6,45E+00	0,0E+00	0,0E+00	2,07E+00	6,76E-01	0,0E+00	-1,73E+01
108. Secondary material (kg)	kg	0,00E+00	0,0E+00	0,00E+00	0,00E+00	0,0E+00	0,0E+00	0,00E+00	0,00E+00	0,0E+00	0,00E+00
109. Secondary fuel, renewable (kg)	MJ	0,00E+00	0,0E+00	0,00E+00	0,00E+00	0,0E+00	0,0E+00	0,00E+00	0,00E+00	0,0E+00	0,00E+00
110. Secondary fuel, non-renewable (kg)	MJ	0,00E+00	0,0E+00	0,00E+00	0,00E+00	0,0E+00	0,0E+00	0,00E+00	0,00E+00	0,0E+00	0,00E+00
104. Water, fresh water use (m3)	m3	1,48E-01	1,5E-01	1,50E-03	-2,65E-03	0,0E+00	0,0E+00	2,38E-04	2,99E-03	0,0E+00	-2,10E-03
106. Waste, hazardous (kg)	kg	7,62E-05	7,8E-05	3,74E-05	-1,41E-05	0,0E+00	0,0E+00	4,95E-06	2,88E-06	0,0E+00	-3,31E-05
105. Waste, non hazardous (kg)	kg	1,28E+00	7,3E-01	6,83E-01	-8,34E-02	0,0E+00	0,0E+00	1,24E-01	5,55E-02	0,0E+00	-2,26E-01
107. Waste, radioactive (kg)	kg	2,24E-04	1,7E-04	9,74E-05	-1,81E-05	0,0E+00	0,0E+00	1,28E-05	1,88E-06	0,0E+00	-4,16E-05
120. Components for re-use (kg)	kg	0,00E+00	0,0E+00	0,00E+00	0,00E+00	0,0E+00	0,0E+00	0,00E+00	0,00E+00	0,0E+00	0,00E+00
121. Materials for recycling (kg)	kg	0,00E+00	0,0E+00	0,00E+00	0,00E+00	0,0E+00	0,0E+00	0,00E+00	0,00E+00	0,0E+00	0,00E+00
122. Materials for energy recovery (kg)	kg	0,00E+00	0,0E+00	0,00E+00	0,00E+00	0,0E+00	0,0E+00	0,00E+00	0,00E+00	0,0E+00	0,00E+00
123. Exported energy, electric (MJ)	MJ	2,42E+01	0,0E+00	0,00E+00	0,00E+00	0,0E+00	0,0E+00	0,00E+00	2,42E+01	0,0E+00	0,00E+00
124. Exported energy, thermal (MJ)	MJ	4,16E+01	0,0E+00	0,00E+00	0,00E+00	0,0E+00	0,0E+00	0,00E+00	4,16E+01	0,0E+00	0,00E+00

SIGNATURE

SHR is not responsible for information supplied by the client that may affect the validity of the results.

A handwritten signature in blue ink, appearing to be 'A.M. Kloppenburg', written over a faint circular stamp.

A.M. Kloppenburg MSc
Project manager