



ENVIRONMENTAL PRODUCT DECLARATION

October 10, 2024

STEICOflex 036

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: STEICOflex 036

Functional unit: 1 m² flexible wood fibre insulation with a thickness of 140 mm

Lifespan: 75 years

Composition: 86.5% wood, 4% water and 9.5% additives (including BiCO fibres)

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

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

Validity: October 10, 2024 – October 10, 2029

Hazardous substances, REACH: The product contains no 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 programmes need not be comparable. The producer owns and has the liability and responsibility for the EPD

STEICOflex 036 is a flexible wood fibre insulation board. The wood fibre insulation board is manufactured from wood chips, which are fiberised and then dried. The dry fibres are mixed with the additives and then shaped and heated. The wood fibre insulation mats are then sawn to the right size, packed and delivered to the customer.

Technical properties	
Thickness	30 - 240 mm
Fire class according to EN 13501-1	E
Thermal conductivity coefficient λ_D	0.036 [W/ (m*K)]
Diffusion resistance of water vapour μ	2
Specific heat capacity c	2,100 [J/(kg*K)]
Plate dimensions	1,220 * 575 [mm]
Density	50 kg/m ³

In modules A1-A3, extraction of raw materials, transport to the production site, packaging materials and production were considered. In modules A4 and A5, transport to the construction site (volume transport) and manual installation on the construction site 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 be included in the LCA study. In module D, benefits outside system boundaries were considered.

Carbon captured:

per m² STEICOflex insulation of 140 mm thickness, 3.0 kg of biogenic carbon is stored and thus 11.1 kg of CO₂ is captured.

Scalability:

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

LIFE CYCLE ANALYSIS AND INTERPRETATION



140 mm STEICOflex 036, Set 2 according to the “Bepalingsmethode”

(Modules B1-B5 and C1 are zero because there is no maintenance and demolition is done manually)

IMPACT CATEGORY	UNIT	TOTAL	A1 - A3	A4	A5	B1 - B5	C1	C2	C3	C4	D
051. Climate change	kg CO2 eq	9,1E+00	-4,7E+00	1,3E+00	8,3E-01	0,0E+00	0,0E+00	2,8E-01	1,3E+01	0,0E+00	-1,8E+00
052. Climate change - Fossil	kg CO2 eq	9,1E+00	7,1E+00	1,3E+00	9,1E-02	0,0E+00	0,0E+00	2,8E-01	2,1E+00	0,0E+00	-1,7E+00
053. Climate change - Biogenic	kg CO2 eq	-2,0E-03	-1,2E+01	6,6E-04	7,4E-01	0,0E+00	0,0E+00	1,3E-04	1,1E+01	0,0E+00	-3,5E-05
054. Climate change - Land use and LU ch	kg CO2 eq	1,0E-02	1,5E-02	5,8E-04	-3,5E-04	0,0E+00	0,0E+00	1,0E-04	1,8E-05	0,0E+00	-5,7E-03
055. Ozone depletion	kg CFC11 eq	5,2E-07	4,9E-07	3,0E-07	-3,0E-08	0,0E+00	0,0E+00	6,3E-08	8,8E-09	0,0E+00	-3,1E-07
056. Acidification	mol H+ eq	3,1E-02	3,9E-02	5,4E-03	-9,3E-04	0,0E+00	0,0E+00	1,6E-03	2,1E-03	0,0E+00	-1,7E-02
057. Eutrophication, freshwater	kg P eq	6,4E-04	6,8E-04	1,2E-05	-3,2E-06	0,0E+00	0,0E+00	2,9E-06	1,3E-06	0,0E+00	-5,1E-05
058. Eutrophication, marine	kg N eq	3,8E-03	5,9E-03	1,5E-03	-2,3E-04	0,0E+00	0,0E+00	5,8E-04	9,7E-04	0,0E+00	-5,0E-03
059. Eutrophication, terrestrial	mol N eq	1,5E-02	6,5E-02	1,7E-02	-4,1E-03	0,0E+00	0,0E+00	6,4E-03	1,1E-02	0,0E+00	-8,0E-02
060. Photochemical ozone formation	kg NMVOC eq	2,4E-02	2,9E-02	5,2E-03	-7,1E-04	0,0E+00	0,0E+00	1,8E-03	2,9E-03	0,0E+00	-1,5E-02
061. Resource use, minerals and metals	kg Sb eq	9,1E-05	4,3E-05	4,8E-05	-4,3E-07	0,0E+00	0,0E+00	7,2E-06	4,9E-07	0,0E+00	-7,5E-06
062. Resource use, fossils	MJ	9,7E+01	1,0E+02	2,0E+01	-3,3E+00	0,0E+00	0,0E+00	4,3E+00	7,3E-01	0,0E+00	-2,7E+01
063. Water use	m3 depriv.	1,6E+00	1,7E+00	6,1E-02	-1,9E-02	0,0E+00	0,0E+00	1,5E-02	1,1E-02	0,0E+00	-1,4E-01
064. Particulate matter	disease inc.	5,7E-08	1,6E-07	8,1E-08	-1,2E-08	0,0E+00	0,0E+00	2,5E-08	1,7E-08	0,0E+00	-2,2E-07
065. Ionising radiation	kBq U-235 eq	2,1E-01	1,3E-01	8,7E-02	-2,3E-03	0,0E+00	0,0E+00	1,8E-02	1,8E-03	0,0E+00	-3,1E-02
066. Ecotoxicity, freshwater	CTUe	-1,8E+01	1,3E+02	1,7E+01	-9,4E+00	0,0E+00	0,0E+00	3,8E+00	1,9E+00	0,0E+00	-1,6E+02
067. Human toxicity, cancer	CTUh	6,5E-09	3,2E-09	5,2E-10	4,2E-11	0,0E+00	0,0E+00	1,2E-10	4,4E-09	0,0E+00	-1,9E-09
068. Human toxicity, non-cancer	CTUh	6,9E-08	1,0E-07	1,8E-08	-3,2E-09	0,0E+00	0,0E+00	4,2E-09	1,4E-08	0,0E+00	-6,6E-08
069. Land use	Pt	2,7E+02	9,0E+02	1,2E+01	-3,7E+01	0,0E+00	0,0E+00	3,7E+00	2,5E-01	0,0E+00	-6,1E+02

LIFE CYCLE ANALYSIS AND INTERPRETATION

140 mm STEICOflex 036, parameters

(Modules B1-B5 and C1 are zero because there is no maintenance and demolition is done manually)

IMPACT CATEGORY	UNIT	TOTAL	A1 - A3	A4	A5	B1 - B5	C1	C2	C3	C4	D
111. Energy, primary, renewable, excludi	MJ	2,7E+01	2,9E+01	3,4E-01	-7,7E+00	0,0E+00	0,0E+00	5,4E-02	1,3E+02	0,0E+00	-1,3E+02
113. Energy, primary, renewable, materia	MJ	0,0E+00	1,3E+02	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	-1,3E+02	0,0E+00	0,0E+00
101. Energy, primary, renewable (MJ)	MJ	2,7E+01	1,6E+02	3,4E-01	-7,7E+00	0,0E+00	0,0E+00	5,4E-02	3,0E-02	0,0E+00	-1,3E+02
112. Energy, primary, non-renewable, exc	MJ	1,0E+02	7,6E+01	2,1E+01	-3,7E+00	0,0E+00	0,0E+00	4,5E+00	3,5E+01	0,0E+00	-3,0E+01
114. Energy, primary, non-renewable, mat	MJ	0,0E+00	3,4E+01	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	-3,4E+01	0,0E+00	0,0E+00
102. Energy, primary, non-renewable (MJ)	MJ	1,0E+02	1,1E+02	2,1E+01	-3,7E+00	0,0E+00	0,0E+00	4,5E+00	7,9E-01	0,0E+00	-3,0E+01
108. Secondary material (kg)	kg	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00
109. Secondary fuel, renewable (kg)	MJ	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00
110. Secondary fuel, non-renewable (kg)	MJ	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00
104. Water, fresh water use (m3)	m3	1,5E-01	1,5E-01	2,4E-03	-5,8E-05	0,0E+00	0,0E+00	5,2E-04	3,1E-03	0,0E+00	-2,8E-03
106. Waste, hazardous (kg)	kg	1,3E-03	1,3E-03	5,4E-05	-4,4E-06	0,0E+00	0,0E+00	1,1E-05	4,3E-06	0,0E+00	-4,8E-05
105. Waste, non hazardous (kg)	kg	1,6E+00	7,0E-01	7,8E-01	3,1E-03	0,0E+00	0,0E+00	2,7E-01	7,4E-02	0,0E+00	-2,4E-01
107. Waste, radioactive (kg)	kg	2,5E-04	1,3E-04	1,3E-04	-3,5E-06	0,0E+00	0,0E+00	2,8E-05	2,2E-06	0,0E+00	-4,8E-05
120. Components for re-use (kg)	kg	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00
121. Materials for recycling (kg)	kg	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00
122. Materials for energy recovery (kg)	kg	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00
123. Exported energy, electric (MJ)	MJ	3,0E+01	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	3,0E+01	0,0E+00	0,0E+00
124. Exported energy, thermal (MJ)	MJ	5,2E+01	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	5,2E+01	0,0E+00	0,0E+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