

This appendix refers to the EPD MD-23224-EN, developed according to EN15804+A2:2019. Results in the appendix communicates LCA results in the format described in EN15804+A1:2013, in order to accommodate a need in the transition period between the two standard revisions. The appendix cannot stand alone, as the reference EPD describes the basis of the assessment.

ENVIRONMENTAL IMPACTS PER m ³ GLULAM SPRUCE COLUMN									
Parameter	Unit	A1	A2	A3	C1	C2	C3	C4	D
GWP	[kg CO ₂ -eq.]	-6,28E+02	4,58E+01	8,77E+01	3,15E-01	1,04E+01	8,12E+02	0,00E+00	-1,04E+02
ODP	[kg CFC11- eq.]	3,78E-10	6,79E-15	6,01E-14	3,30E-16	1,54E-15	1,83E-13	0,00E+00	-2,65E-12
AP	[kg SO ₂ - eq.]	3,41E-01	4,72E-02	2,35E-02	1,16E-03	2,90E-02	1,50E-01	0,00E+00	-3,47E-01
EP	[kg PO ₄ ³⁻ - eq.]	7,29E-02	1,00E-02	5,48E-03	1,27E-04	7,10E-03	3,73E-02	0,00E+00	-7,05E-02
POCP	[kg ethene- eq.]	3,35E-02	-4,86E-03	1,73E-03	1,69E-04	-1,07E-02	8,69E-03	0,00E+00	-3,07E-02
ADPE	[kg Sb- eq.]	1,25E-04	3,56E-06	7,70E-07	3,14E-08	8,06E-07	5,12E-06	0,00E+00	-4,31E-05
ADPF	[MJ]	1,00E+03	6,26E+02	2,19E+02	3,25E+01	1,42E+02	1,17E+02	0,00E+00	-9,51E+02
Caption	GWP = Global warming potential; ODP = Ozone depletion potential; AP = Acidification potential of soil and water; EP = Eutrophication potential; POCP = Photochemical ozone creation potential; ADPE = Abiotic depletion potential for non fossil resources; ADPF = Abiotic depletion potential for fossil resources								

RESOURCE USE PER m ³ GLULAM SPRUCE COLUMN									
Parameter	Unit	A1	A2	A3	C1	C2	C3	C4	D
PERE	[MJ]	8,66E+03	4,61E+01	3,11E+01	2,12E-01	1,05E+01	8,96E+01	0,00E+00	-7,81E+03
PERM	[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
PERT	[MJ]	8,66E+03	4,61E+01	3,11E+01	2,12E-01	1,05E+01	8,96E+01	0,00E+00	-7,81E+03
PENRE	[MJ]	4,69E+03	6,36E+02	2,76E+02	3,30E+01	1,44E+02	1,29E+02	0,00E+00	-1,11E+03
PENRM	[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
PENRT	[MJ]	4,69E+03	6,36E+02	2,76E+02	3,30E+01	1,44E+02	1,29E+02	0,00E+00	-1,11E+03
SM	[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
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
NRSF	[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
FW	[m ³]	1,05E+00	5,05E-02	1,20E-01	2,47E-04	1,15E-02	1,06E+00	0,00E+00	-9,44E-01
Caption	PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non renewable primary energy excluding non renewable primary 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 material; RSF = Use of renewable secondary fuels; NRSF = Use of non renewable secondary fuels; FW = Net use of fresh water								

WASTE CATEGORIES AND OUTPUT FLOWS PER m ³ GLULAM SPRUCE COLUMN									
Parameter	Unit	A1	A2	A3	C1	C2	C3	C4	D
HWD	[kg]	-3,52E-08	1,97E-09	1,24E-08	6,08E-11	4,47E-10	-2,06E-08	0,00E+00	4,39E-07
NHWD	[kg]	5,50E-01	9,70E-02	3,40E+00	0,00E+00	2,20E-02	3,04E+00	0,00E+00	-6,71E+00
RWD	[kg]	8,71E-02	1,19E-03	2,06E-02	5,50E-05	2,70E-04	3,99E-03	0,00E+00	-5,67E-02

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
MFR	[kg]	0,00E+00	0,00E+00	1,95E+01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
MER	[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
EEE	[MJ]	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	6,31E+02	0,00E+00	0,00E+00
EET	[MJ]	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	2,72E+03	0,00E+00	0,00E+00
Caption	HWD = Hazardous waste disposed; NHWD = Non hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EET = Exported thermal energy								

ENVIRONMENTAL IMPACTS PER m ³ GLULAM SPRUCE BEAM									
Parameter	Unit	A1	A2	A3	C1	C2	C3	C4	D
GWP	[kg CO ₂ - eq.]	-6,39E+02	4,73E+01	1,32E+02	3,15E-01	1,04E+01	8,12E+02	0,00E+00	-1,04E+02
ODP	[kg CFC11- eq.]	3,99E-10	7,03E-15	2,18E-14	3,30E-16	1,54E-15	1,83E-13	0,00E+00	-2,65E-12
AP	[kg SO ₂ - eq.]	3,50E-01	4,88E-02	2,73E-02	1,16E-03	2,90E-02	1,50E-01	0,00E+00	-3,47E-01
EP	[kg PO ₄ ³⁻ - eq.]	7,87E-02	1,04E-02	6,90E-03	1,27E-04	7,10E-03	3,73E-02	0,00E+00	-7,05E-02
POCP	[kg ethene- eq.]	3,22E-02	-5,03E-03	1,56E-03	1,69E-04	-1,07E-02	8,69E-03	0,00E+00	-3,07E-02
ADPE	[kg Sb- eq.]	1,34E-04	3,68E-06	8,74E-07	3,14E-08	8,06E-07	5,12E-06	0,00E+00	-4,31E-05
ADPF	[MJ]	1,11E+03	6,48E+02	6,20E+01	3,25E+01	1,42E+02	1,17E+02	0,00E+00	-9,51E+02
Caption	GWP = Global warming potential; ODP = Ozone depletion potential; AP = Acidification potential of soil and water; EP = Eutrophication potential; POCP = Photochemical ozone creation potential; ADPE = Abiotic depletion potential for non fossil resources; ADPF = Abiotic depletion potential for fossil resources								

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Parameter	Unit	A1	A2	A3	C1	C2	C3	C4	D
PERE	[MJ]	9,04E+03	4,77E+01	1,16E+01	2,12E-01	1,05E+01	8,96E+01	0,00E+00	-7,81E+03
PERM	[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
PERT	[MJ]	9,04E+03	4,77E+01	1,16E+01	2,12E-01	1,05E+01	8,96E+01	0,00E+00	-7,81E+03
PENRE	[MJ]	4,77E+03	6,58E+02	7,21E+01	3,30E+01	1,44E+02	1,29E+02	0,00E+00	-1,11E+03
PENRM	[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
PENRT	[MJ]	4,77E+03	6,58E+02	7,21E+01	3,30E+01	1,44E+02	1,29E+02	0,00E+00	-1,11E+03
SM	[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
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
NRSF	[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
FW	[m ³]	9,86E-01	5,23E-02	1,67E-01	2,47E-04	1,15E-02	1,06E+00	0,00E+00	-9,44E-01
Caption	PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non renewable primary energy excluding non renewable primary 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 material; RSF = Use of renewable secondary fuels; NRSF = Use of non renewable secondary fuels; FW = Net use of fresh water								

WASTE CATEGORIES AND OUTPUT FLOWS PER m ³ GLULAM SPRUCE BEAM									
Parameter	Unit	A1	A2	A3	C1	C2	C3	C4	D
HWD	[kg]	-9,08E-08	2,04E-09	8,62E-09	6,08E-11	4,47E-10	-2,06E-08	0,00E+00	4,39E-07
NHWD	[kg]	6,24E-01	1,00E-01	2,45E+00	0,00E+00	2,20E-02	3,04E+00	0,00E+00	-6,71E+00
RWD	[kg]	5,06E-02	1,23E-03	3,53E-03	5,50E-05	2,70E-04	3,99E-03	0,00E+00	-5,67E-02
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
MFR	[kg]	0,00E+00	0,00E+00	3,56E+01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
MER	[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
EEE	[MJ]	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	6,31E+02	0,00E+00	0,00E+00
EET	[MJ]	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	2,72E+03	0,00E+00	0,00E+00
Caption	HWD = Hazardous waste disposed; NHWD = Non hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EET = Exported thermal energy								

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