

Table S1. Overview of reported substitution factors for wood-based products

Product category	Study	Focus area	Life cycle stages	Product considered	Material substituted	Substitution factor (kg C/kg C)
Cross-Laminated Timber	[43]	Australia	Production, use and end-of-life stages	Nine-storey building featuring CLT panels as the main structural material	Reinforced concrete	1.95
	[44]	Canada	Production and end-of-life stages	Residential building (four-storey CLT versus)	Concrete slab with light gauge steel studded walls	0.46 (0.38-0.56)*
	[45]	Germany (North Rhine-Westphalia)	Production and end-of-life stages	Softwood based glued timber products (glulam, CLT)	Concrete, steel, bricks	1.30
	[46]	United Kingdom	Production and end-of-life stages	Multistorey buildings (≥8 storeys)	Reinforced concrete	0.58
					Steel	1.02
	[47]	Global	Production stage	Mid-rise urban construction (4–12 storeys), with CLT wall and floordeck. Floorspace: 9.2 m ² /capita	Concrete and steel	0.16
				<i>Idem.</i> Floorspace: 30 m ² /capita		0.28
				<i>Idem.</i> Floorspace: 79.1 m ² /capita		0.48

Table S1. (continued)

Product category	Study	Focus area	Life cycle stages	Product considered	Material substituted	Substitution factor (kg C/kg C)
Man-Made Cellulosic Fibres	[89]	Global	Production stage	Viscose (Asia): fibres produced from market pulp in Asia	Cotton fibres produced in United States and China	-1.09
				Lyocell: fibres produced in Austria		0.54
				Lyocell (2012): fibres produced in Austria, using energy recovered from municipal solid waste incineration		1.18
				Modal: fibres produced in Austria		1.21
				Viscose (Austria): fibres produced in integrated pulp and fibre mill in Austria		1.36
				Viscose (Asia)	Polyester produced in West Europe	0.18
				Lyocell		1.82
				Lyocell (2012)		2.45
				Modal		2.51
				Viscose (Austria)		2.63
				Viscose (Asia)	Polyolefin ester produced in West Europe	-0.61
				Lyocell		1.03
				Lyocell (2012)		1.67
				Modal		1.71
				Viscose (Austria)		1.85

Table S1. (continued)

Product category	Study	Focus area	Life cycle stages	Product considered	Material substituted	Substitution factor (kg C/kg C)
Man-Made Cellulosic Fibres	[73]	Europe	Production, and end-of-life stages	Viscose	Fibres from petroleum derivatives (PET, recycled PET, polyamides)	3.10 (2.53-3.13)*
	[74]	Finland	Production and end-of-life stages	Dissolving pulp used for producing textile fibres (74% viscose, 26% other fibres)	Cotton	4.00
Paper and paper products	[75]	Sweden	Production, use and end-of-life stages	Interior design magazine	Tablet	-0.4 - +0.23
	[45,74]	Germany / Finland	Production and end-of-life stages	Packaging (container boards, carton boards, and sack paper)	Plastic, glass, and metal packaging	1.35
	[76]	Europe	Production, use and end-of-life stages	Single use cardboard packaging box	Reusable plastic crates	-1.86
Biochemicals	[73]	Europe	Production and end-of-life stages	Lignin-based polyol	Fossil-based phenol	1.35 (1.26-1.59)*

*Reported range in substitution factors reflects different assumptions on energy mix and end-of-life practices

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