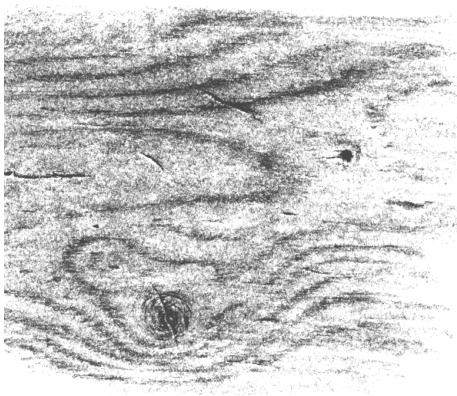


BIO-BASED MATERIAL CATALOGUE



Jan Zawadzki | Delft | 2025

BIO-BASED MATERIAL CATALOGUE

A collection of bio-based materials suitable for masonry building refurbishment.



Insulation



Structure



Finishing

Images and EPD data obtained from manufacturers websites.

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Grass Fibre | Gramitherm

Main Material	Grass Fibre
Main Purpose	Insulation
Short Description	Soft and flexible grass fibre insulation boards

GWP A1-3 [kg CO ₂ eq/m ³]	-50.1
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Standard Thickness [mm]	100
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Density [kg/m ³]	40
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Thermal Conductivity [$\lambda_{W/mK}$]	0.04
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Primary Energy A1-3 [MJ/m ³]	1298
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Fire Resistance Class	E
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Organic Content [%]	92
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Compostable	No
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Flex | STEICO

Main Material	Wood Fibre
Main Purpose	Insulation
Short Description	Soft and flexible wood fibre insulation boards
GWP A1-3 [kg CO ₂ eq/m ³]	-28.27
Standard Thickness [mm]	100
Density [kg/m ³]	50
Thermal Conductivity [$\lambda_{W/mK}$]	0.04
Primary Energy A1-3 [MJ/m ³]	2149
Fire Resistance Class	E
Organic Content [%]	95
Compostable	Yes



Special dry | STEICO

Main Material	Wood Fibre
Main Purpose	Insulation
Short Description	Stiff and rigid wood fibre insulation boards
GWP A1-3 [kg CO ₂ eq/m ³]	-81.57
Standard Thickness [mm]	100
Density [kg/m ³]	140
Thermal Conductivity [$\lambda_{W/mK}$]	0.04
Primary Energy A1-3 [MJ/m ³]	5616
Fire Resistance Class	E
Organic Content [%]	91
Compostable	Yes



Zell | STEICO

Main Material	Wood Fibre
Main Purpose	Insulation
Short Description	Air-blown wood fibre insulation

GWP A1-3 [kg CO ₂ eq/m ³]	-13.986
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Standard Thickness [mm]	200
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Density [kg/m ³]	35
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Thermal Conductivity [$\lambda_{W/mK}$]	0.04
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Primary Energy A1-3 [MJ/m ³]	1210
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Fire Resistance Class	E
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Organic Content [%]	99
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Compostable	Yes
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Floc | STEICO

Main Material	Cellulose
Main Purpose	Insulation
Short Description	Air-blown cellulose insulation

GWP A1-3 [kg CO ₂ eq/m ³]	-66
Standard Thickness [mm]	200
Density [kg/m ³]	50
Thermal Conductivity [$\lambda_{W/mK}$]	0.04
Primary Energy A1-3 [MJ/m ³]	286
Fire Resistance Class	E
Organic Content [%]	0
Compostable	Yes



Cellulose | Eko-Izolacje

Main Material	Cellulose
Main Purpose	Insulation
Short Description	Air-blown cellulose insulation

GWP A1-3 [kg CO ₂ eq/m ³]	not listed
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Standard Thickness [mm]	not listed
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Density [kg/m ³]	not listed
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Thermal Conductivity [$\lambda_{W/mK}$]	not listed
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Primary Energy A1-3 [MJ/m ³]	not listed
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Fire Resistance Class	not listed
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Organic Content [%]	not listed
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Compostable



Canna Panel | Vicarius

Main Material	Hemp Fibre
Main Purpose	Insulation
Short Description	Rigid-soft hemp fibre insulation boards

GWP A1-3 [kg CO ₂ eq/m ³]	not listed
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Standard Thickness [mm]	100
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Density [kg/m ³]	100
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Thermal Conductivity [W/mK]	0.04
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Primary Energy A1-3 [MJ/m ³]	not listed
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Fire Resistance Class	E
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Organic Content [%]	99
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Compostable	Yes
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Canna Flex | Vicarius

Main Material	Hemp Fibre
Main Purpose	Insulation
Short Description	Soft Flexible hemp fibre insulation panels
GWP A1-3 [kg CO ₂ eq/m ³]	not listed
Standard Thickness [mm]	100
Density [kg/m ³]	35
Thermal Conductivity [W/mK]	0.04
Primary Energy A1-3 [MJ/m ³]	not listed
Fire Resistance Class	D
Organic Content [%]	99
Compostable	Yes



NaturFlax | Vicarius

Main Material	Flax Fibre
Main Purpose	Insulation
Short Description	Soft and flexible flax insulation boards
GWP A1-3 [kg CO ₂ eq/m ³]	not listed
Standard Thickness [mm]	100
Density [kg/m ³]	32
Thermal Conductivity [W/mK]	0.04
Primary Energy A1-3 [MJ/m ³]	not listed
Fire Resistance Class	E
Organic Content [%]	99
Compostable	Yes



Eco Hemp Flex | KOBE-CZ

Main Material	Hemp Fibre
Main Purpose	Insulation
Short Description	Soft-Rigid hemp fibre insulation boards

GWP A1-3 [kg CO ₂ eq/m ³]	-22.2
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Standard Thickness [mm]	100
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Density [kg/m ³]	32
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Thermal Conductivity [$\lambda_{W/mK}$]	0.04
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Primary Energy A1-3 [MJ/m ³]	731
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Fire Resistance Class	D
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Organic Content [%]	97
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Compostable	Yes
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HempCrete | Hemp System

Main Material	HempCrete
Main Purpose	Structure, Insulation
Short Description	Hempcrete blocks or blown in material
GWP A1-3 [kg CO ₂ eq/m ³]	-72.16
Standard Thickness [mm]	300
Density [kg/m ³]	320
Thermal Conductivity [W/mK]	0.07
Primary Energy A1-3 [MJ/m ³]	967.7
Fire Resistance Class	B
Organic Content [%]	80
Compostable	No



Loose Perlite | Perlit Polska

Main Material	Perlite
Main Purpose	Insulation
Short Description	Loose blown-in expanded perlite insulation
GWP A1-3 [kg CO ₂ eq/m ³]	20
Standard Thickness [mm]	100
Density [kg/m ³]	85
Thermal Conductivity [$\lambda_{W/mK}$]	0.04
Primary Energy A1-3 [MJ/m ³]	608
Fire Resistance Class	A
Organic Content [%]	99
Compostable	Yes



TecTem perlite | Knauff

Main Material	Perlite
Main Purpose	Insulation
Short Description	Expanded perlite blocks

GWP A1-3 [kg CO ₂ eq/m ³]	not listed
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Standard Thickness [mm]	100
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Density [kg/m ³]	95
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Thermal Conductivity [W/mK]	0.05
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Primary Energy A1-3 [MJ/m ³]	not listed
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Fire Resistance Class	A
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Organic Content [%]	99
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Compostable	Yes
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Feeling Wood | Thermocell

Main Material	Wood Fibre
Main Purpose	Insulation
Short Description	Soft and spngy wood fibre insulation boards

GWP A1-3 [kg CO ₂ eq/m ³]	8.9
Standard Thickness [mm]	95
Density [kg/m ³]	41
Thermal Conductivity [$\lambda_{W/mK}$]	0.04
Primary Energy A1-3 [MJ/m ³]	1037.6
Fire Resistance Class	E
Organic Content [%]	80
Compostable	Yes



Metisse | VRK isolatie

Main Material	Recycled Textile
Main Purpose	Insulation
Short Description	Soft and flexible recycled textile insulation boards
GWP A1-3 [kg CO ₂ eq/m ³]	28.6
Standard Thickness [mm]	100
Density [kg/m ³]	20
Thermal Conductivity [$\lambda_{W/mK}$]	0.04
Primary Energy A1-3 [MJ/m ³]	1864
Fire Resistance Class	B
Organic Content [%]	
Compostable	



Expanded Cork Board | Amorim

Main Material	Cork
Main Purpose	Insulation
Short Description	Expanded insulation cork boards
GWP A1-3 [kg CO₂ eq/m³]	-2040
Standard Thickness [mm]	100
Density [kg/m³]	140
Thermal Conductivity [W/mK]	0.04
Primary Energy A1-3 [MJ/m³]	47120
Fire Resistance Class	E
Organic Content [%]	100
Compostable	Yes



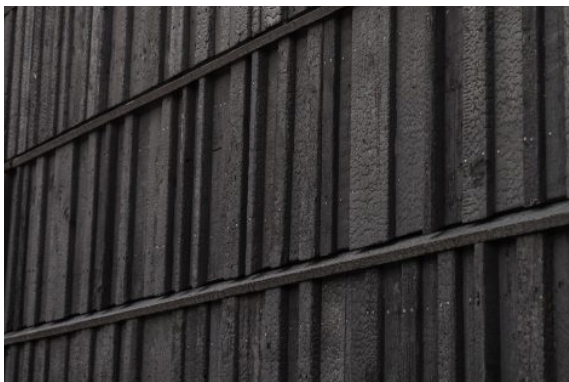
Acoustic Mats | Søuld

Main Material	Seaweed
Main Purpose	Finishing
Short Description	Soft and Rigid seaweed sound insulation panel
GWP A1-3 [kg CO2 eq/m3]	-91.8
Standard Thickness [mm]	35
Density [kg/m3]	120
Thermal Conductivity [W/mK]	0.04
Primary Energy A1-3 [MJ/m3]	4452
Fire Resistance Class	D
Organic Content [%]	not listed
Compostable	Yes



Softwood Cladding | Latvia Timber

Main Material	Wood
Main Purpose	Finishing
Short Description	Plained softwood products for finishing elements eg. cladding
GWP A1-3 [kg CO ₂ eq/m ³]	-647
Standard Thickness [mm]	20
Density [kg/m ³]	438.95
Thermal Conductivity [W/mK]	not listed
Primary Energy A1-3 [MJ/m ³]	17500
Fire Resistance Class	not listed
Organic Content [%]	100
Compostable	Yes



Burnt Wood | ØkoTømerer

Main Material	Wood
Main Purpose	Finishing
Short Description	Charred reused pine wood cladding

GWP A1-3 [kg CO2 eq/m3]	-677.25
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Standard Thickness [mm]	46
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Density [kg/m3]	430
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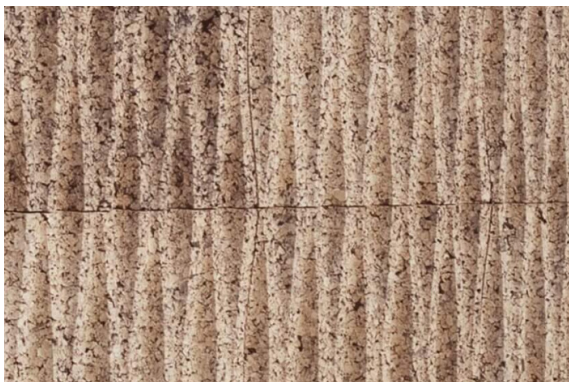
Thermal Conductivity $\lambda_{W/mK}$	not listed
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Primary Energy A1-3 [MJ/m3]	11061
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Fire Resistance Class	not listed
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Organic Content [%]	98
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Compostable	Yes
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MD Cork Façade | Amorim

Main Material	Cork
Main Purpose	Finishing
Short Description	Stiff cork boards for exterior or interior cladding
GWP A1-3 [kg CO ₂ eq/m ³]	-2040
Standard Thickness [mm]	100
Density [kg/m ³]	140
Thermal Conductivity [$\lambda_{W/mK}$]	0.04
Primary Energy A1-3 [MJ/m ³]	47120
Fire Resistance Class	E
Organic Content [%]	100
Compostable	Yes



Clay Plaster | Clayworks

Main Material	Clay
Main Purpose	Finishing
Short Description	Unfired clay mixed with minerals and pigments for interior finishing
GWP A1-3 [kg CO ₂ eq/m ³]	199
Standard Thickness [mm]	1.5
Density [kg/m ³]	1722
Thermal Conductivity [W/mK]	0.97
Primary Energy A1-3 [MJ/m ³]	2576
Fire Resistance Class	not listed
Organic Content [%]	not listed
Compostable	not listed



Silent Reed | Stilleverzet

Main Material	Reed
Main Purpose	Finishing
Short Description	Stiff reed sound insulation panel
GWP A1-3 [kg CO ₂ eq/m ³]	not listed
Standard Thickness [mm]	not listed
Density [kg/m ³]	not listed
Thermal Conductivity [W/mK]	not listed
Primary Energy A1-3 [MJ/m ³]	not listed
Fire Resistance Class	
Organic Content [%]	
Compostable	



MDF | Egger

Main Material	Wood
Main Purpose	Finishing
Short Description	Medium Density Fibreboard uncoated

GWP A1-3 [kg CO ₂ eq/m ³]	-709
Standard Thickness [mm]	30
Density [kg/m ³]	736
Thermal Conductivity [$\lambda_{W/mK}$]	2.00
Primary Energy A1-3 [MJ/m ³]	19360
Fire Resistance Class	B
Organic Content [%]	88
Compostable	Yes



Straw Panel | EcoCocon

Main Material	Straw
Main Purpose	Structure
Short Description	Straw insulated wall panel braced in a wooden frame

GWP A1-3 [kg CO ₂ eq/m ³]	-273
Standard Thickness [mm]	400
Density [kg/m ³]	115
Thermal Conductivity [$\lambda_{W/mK}$]	0.06
Primary Energy A1-3 [MJ/m ³]	3450
Fire Resistance Class	B
Organic Content [%]	98
Compostable	Yes



Structural Wood | Egger

Main Material	Wood
Main Purpose	Structure
Short Description	Structural pine or spruce wood
GWP A1-3 [kg CO ₂ eq/m ³]	-696
Standard Thickness [mm]	100
Density [kg/m ³]	503
Thermal Conductivity [W/mK]	0.13
Primary Energy A1-3 [MJ/m ³]	9870
Fire Resistance Class	D
Organic Content [%]	100
Compostable	Yes



CLT | Mayr-Melnhof Holz

Main Material	Wood
Main Purpose	Structure
Short Description	Cross Laminated Timber

GWP A1-3 [kg CO ₂ eq/m ³]	-642
Standard Thickness [mm]	100
Density [kg/m ³]	470
Thermal Conductivity [$\lambda_{W/mK}$]	0.12
Primary Energy A1-3 [MJ/m ³]	12850
Fire Resistance Class	D
Organic Content [%]	99
Compostable	No



OSB Ecoboard | Sonae Arauco

Main Material	Wood
Main Purpose	Structure
Short Description	Oriented Strand Boards

GWP A1-3 [kg CO2 eq/m3]	-658
Standard Thickness [mm]	20
Density [kg/m3]	600
Thermal Conductivity [W/mK]	0.13
Primary Energy A1-3 [MJ/m3]	30530
Fire Resistance Class	D
Organic Content [%]	95
Compostable	No



OSB SwissKrono | Swiss Krono

Main Material	Wood
Main Purpose	Structure
Short Description	Oriented Strand Boards

GWP A1-3 [kg CO ₂ eq/m ³]	-890
Standard Thickness [mm]	20
Density [kg/m ³]	614
Thermal Conductivity [W/mK]	0.13
Primary Energy A1-3 [MJ/m ³]	17450
Fire Resistance Class	D
Organic Content [%]	95
Compostable	No

Product	Manufacturer	Website Link
Grass Fibre	Gramitherm	https://gramitherm.eu/products/?lang=en
Air-Blown Celulose	Eko-Izolacje	https://www.eko-izolacje.pl/oferta/
Flex	STEICO	https://www.steico.com/pl/produkty/termoizolacja/termoizolacja-pustek-miedzy-elementami-konstrukcyjnymi/sprezys-te-maty-termoizolacyjne/steicoflex-036
Special dry	STEICO	https://www.steico.com/pl/produkty/termoizolacja/termoizolacja-dachow/plyty-nak-rokwiowe/steicospecial-dry
Zell	STEICO	https://www.steico.com/pl/produkty/termoizolacja/termoizolacja-pustek-miedzy-elementami-konstrukcyjnymi/termoizolacja-do-wdmuchiwania/steicozell
Floc	STEICO	https://www.steico.com/pl/produkty/termoizolacja/termoizolacja-pustek-miedzy-elementami-konstrukcyjnymi/termoizolacja-do-wdmuchiwania/steicofloc
Canna Panel	Vicarius	http://www.hanf-daemmstoffe.com/en/products/vicarius-canna-panel-2/
Canna Flex	Vicarius	http://www.hanf-daemmstoffe.com/en/products/vicarius-canna-flex-2/
NaturFlax	Vicarius	http://naturflax.cz/cz/produkty/naturflax/
Eco Hemp Flex	KOBE-CZ	https://www.kobe-cz.eu/en/vyroba/prirodni-vlakna/kobe-eco-hemp-flex/
Hemp-Crete	Hemp System	https://hempsystem.pl/
Loose Perlite	Perlit Polska	https://www.perlit.com.pl/perlit-ekspandowany-ep-180/
TecTem perlite	Knauff	https://www.sklep.pkcomplex.pl/tectem%C2%AE-insulation-board-indoor.html
Feeling Wood	Thermocell	https://woodfibre.dk/feelingwood/download-materiale/
Metisse	VRK isolatie	https://vrk-isolatie.nl/thermisch-akoestisch/

Product	Manufacturer	Website Link
Silent Reed	Stilleverzet	https://www.stilleverzet.nl/akoestische-oplossingen/akoestisch-riet/
Acoustic Mats	Søuld	https://www.sould.dk/building-materials
Structural Wood	Egger	https://www.egger.com/pl/produkty/produkty-budowlane/asortyment-produktow/?country=PL
CLT	Mayr-Melnhof Holz	http://woodchoice.pl/dla-firm/
OSB Eco-board	Sonae Arauco	https://www.sonaearauco.com/pl/configuration/matrix/products-list/osb-3-ecoboard/
OSB Swiss-Krono	Swiss Krono	https://www.swisskrono.com/pl-pl/produkty/produkty-budowlane/plyty-osb/#/
Softwood Cladding	Latvia Timber Int	https://www.latviatimber.lv/en/catalog
Burnt Wood	ØkoTømerer	https://www.burntwood.dk/
MD Cork Façade	Amorim	https://www.amorimcorkinsulation.com/en/products/MDFacade/84/
Expanded Cork Board	Amorim	https://www.amorimcorkinsulation.com/en/products/Expanded-Insulation-Cork-board/60/
Clay Plaster	Clayworks	https://clay-works.com/application-2/
Straw Panel	EcoCocon	https://ecococon.eu/gb/professionals/downloads
MDF	Egger	https://www.egger.com/nl/meubels-en-interieurbouw/products/mdfe05st