ENVIRONMENTAL PRODUCT DECLARATION

IN ACCORDANCE WITH ISO 21930:2017

SmartEPD-2023-008-0022-01

NAIMA Mineral Wool Insulation Industry Average EPD | Light Density Board Product

NAIMA
North American Insulation Manufacturers Association

SMART EPD
CERTIFIED
ENVIRONMENTAL PRODUCT DECLARATION

Date of Issue: Dec 04, 2023

Expiration: Dec 04, 2028

Last updated: Mar 11, 2024

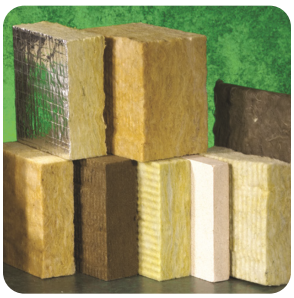
General Information

NAIMA

2013 Olde Regent Way, Suite 150, Box 120, Leland, NC 28451

703-684-00084

sfitzgerald-redd@naima.org insulationinstitute.org



Product Name:	NAIMA Mineral Wool Insulation Industry Average EPD | Light Density Board Product
Functional Unit:	1 m2 of material with RSI = 1m2K/W
Declaration Number:	SmartEPD-2023-008-0022-01
Date of Issue:	December 04, 2023
Expiration:	December 04, 2028
Last updated:	March 11, 2024
EPD Scope:	Cradle to gate with other options A1 - A3, A4, A5, C1 - C4
Market(s) of Applicability:	North America

Reference Standards

Standard(s):	ISO 21930:2017
Core PCR:	UL PCR for Building-Related Products and Services Part A v.4, ISO 21930:2017 Date of issue: March 01, 2022
Sub-category PCR:	UL Part B: Building Envelope Thermal Insulation Products v.3 Date of issue: April 10, 2023 Valid until:
Sub-category PCR review panel:	Contact Smart EPD for more information.
General Program Instructions:	Smart EPD General Program Instructions v.1.0, November 2022

Verification Information

LCA Author/Creator:	Jana Fogarty | TrueNorth Collective | info@truenorthcollective.net
EPD Program Operator:	Smart EPD | info@smartepd.com | www.smartepd.com | 585 Grove St., Ste. 145 PMB 966, Herndon, VA 20170, USA

Verification:

Independent critical review of the LCA and data, according to ISO 14044 and ISO 14071 : External

Lindita Bushi | Athena Sustainable Materials Institute
lindita.bushi@athenasmi.org

Independent external verification of EPD, according to ISO 14025 and reference PCR(s) : External

Lindita Bushi | Athena Sustainable Materials Institute
lindita.bushi@athenasmi.org

Limitations, Liability, and Ownership

Environmental declarations from different programs (ISO 14025) may not be comparable. Comparison of the environmental performance of products using EPD information shall be based on the product's use and impacts at the building level, and therefore EPDs may not be used for comparability purposes when not considering the whole building life cycle. EPD comparability is only possible when all stages of a life cycle have been considered. However, variations and deviations are possible. Example of variations: Different LCA software and background LCI datasets may lead to differences results for upstream or downstream of the life cycle stages declared.

The EPD owner has sole ownership, liability, and responsibility for the EPD.

This EPD is declared under a "cradle-to-installation with end-of-life" system boundary. Life cycle stages A1-A5 and C1-C4 are included.

Per the PCR, the assessment was conducted using a building service life of 75 years. Allocation of manufacturing and energy inputs was done on a mass-bases. Allocation of transportation was based on mass with inclusion of utilization rate.

Recycled content and disposal at end-of-life. system boundaries were consistent with the cut-off allocation approach. No know flows are deliberately excluded from this EPD.

A manufacturer shall not make claims based on an industry-average EPD which leads the market to believe the industry-average is representative of manufacturer-specific or product-specific results.

Organization Information

The North American Insulation Manufacturers Association (NAIMA) is a trade association of North American manufactures that advances energy efficiency through the use of fiber glass, rockwool and slag wool insulation products. NAIMA and its member companies seek to improve their understanding of their mineral wool insulation products: light-density board, high-density board, and loose fill. NAIMA (North American Insulation Manufacturers Association) is the recognized voice of the insulation industry, bringing together North American manufacturers of fiberglass and mineral wool insulation products. Through the Insulation Institute, NAIMA leverages the collective insulation expertise of our organization and our members to empower homeowners and professionals to make informed insulation choices. Their mission is to enable a more comfortable, energy efficient and sustainable future through insulation.

Further information can be found at: insulationinstitute.org

Product Description

Mineral wool insulation is used to promote energy efficiency and comes in a variety of forms and sizes. It resists mold, fungi and bacteria growth, offers protection again moisture infiltration and is not corrosive and contains no chemicals that can degrade pipes and wires.

Mineral board materials are used in: curtain walls, commercial roofs, basement walls, floor over unheated or open spaces and other building envelope applications. Board insulation is extensively employed in industrial processes. Further, the greater density of mineral wool insulation allows the materials to achieve higher R-values and insulating power. This results in increased year-round comfort and significant energy savings.

The fibrous composition of mineral wool insulation provides a flexibility and versatility not found in most other insulations. Mineral wool insulation comes in a wide variety of forms, shapes and sizes including board, batt, loose-fill, spray-applied and pipe for many common and specialized applications including but not limited to:

- Residential (thermal, acoustical, foundation drainage systems)
- Commercial (thermal, fire stopping and containment, acoustical applications and ceiling tiles)
- Industrial (thermal, fire stopping and containment, acoustical, emissions control, pipe and mechanical systems, fillers)

Further information can be found at:

Product Information

Functional Unit:	1 m2 of material with RSI = 1m2K/W
Mass:	1.4 kg
Product Specificity:	✗ Product Average
	✗ Product Specific

Averaging:

Required data was obtained and the associated flows were normalized to the reference flows based on the functional unit (1 m2 of insulation material with a thickness that gives an average thermal resistance RSI = 1 m2·K/W (RIP = 5.68 ft2·°F·hr/Btu)), system modeling was performed using the commercial LCA software SimaPro (version 9.5.0), developed by PRé Sustainability, the Netherlands. This software allows the calculation of life cycle inventories and impact assessment, contribution analysis, parameterization, and related sensitivity analysis.

The study uses a combination of primary and secondary data. Where primary data were not available, default databases were used from ecoinvent v3.9.1 , Cut-off at Classification. For generation of electricity used in manufacturing the DATASMART LCI Package was used. Both databases contain detailed peer reviewed LCI data was used. Secondary data are sourced from a variety of literature sources, verified public reports and widely used databases. Each data point was reviewed and verified individually.

NAIMA member companies collected primary manufacturing data and data from key suppliers. Representative unit processes were customized based on the type of material and recycled content, to represent the characteristics of actual input raw materials to the greatest extent possible. Primary data was collected through customizable templates and reviewed internally to ensure completeness and credibility. Common practices such as mass balance, energy balance and stoichiometry were considered. Final model inputs were reviewed by the client to verify key assumptions.

Annual facility-wide manufacturing and production data was provided by participating member companies for a 12 month reference year. Manufacturing inventories were assigned using a mass allocation approach based on provided data of production volumes.

In order to ensure confidentiality results presented in this study are aggregated such that it is not possible to identify the specific data or results for any one company. Datasets are aggregated vertically within each of the NAIMA companies since they consist of a single production line. For each product type, results are then production volume-weighted aggregated horizontally across the relevant companies to calculate the industry average

Manufacturing sites were chosen based on which member companies were willing to participate as well which products were produced for sale on the market. A weighted average based on manufacturing site volumes was calculated for each product.

NAIMA covers all North American mineral wool insulation manufacturers and prefers not to disclose manufacturing site size, utilization rates or other company details to ensure anonymity. Use of this EPD is limited to NAIMA member companies.

The following activities were excluded from the scope and boundaries for this study:
-Modules B1-B7 are not declared, they are identified as optional life cycle stages according to the PCR. Resulting reductions in heating and cooling energy are construction and site specific, use phase energy savings resulting from insulation use are not included in this study.
-Human activities (e.g., employee travel to and from work)
-R&D (i.e., the laboratory and inputs related to the development of the technologies)
-Services (e.g., the use of purchased marketing, consultancy services and business travel).
-Construction of capital equipment and maintenance and operation of support equipment
-Maintenance and operation of support equipment
-Manufacture and transport of packaging materials not associated with final product

The end-of-life stages C1 and C3 are declared as having zero impact as deconstruction is done manually and insulation is not recycled.

Capital equipment and plant infrastructure are not included in the foreground data however, background data from ecoinvent include the infrastructure components.

Emissions listed only account for on-site emissions and do not include any upstream energy production. Approach uses ecoinvent library processes for coke and natural gas, accounting for both upstream and combustion emissions. These proxies specify emissions per unit of fuel combusted. Supplied emissions data varies between participating companies including but not limited to coke combustion in furnaces, natural gas in curing ovens, etc.

For the processes within the system boundary, all energy and material flows have been included in the model. No known flows are excluded. All upstream and downstream activities are included using a combination of primary and secondary data. While the majority of inventory data are sourced from primary resources, representative proxies are used to close gaps in the absence of primary data.

Participating Manufacturers

- Rolan
- Johns Manville
- Owens Corning

Product Specifications

Product SKU(s):	Light Density Mineral Wool Board Insulation
Product Classification Codes:	Masterformat - 07 21 13.19 EC3 - Thermal/Moisture Prot. -> Insulation -> Board
Form Factor:	Mechanical Insulation
Insulation type:	Mineral Wool
Density:	38.3 kg/m3
Thickness for R value of 1:	36.6 mm
Intended Application:	Wall & General
Thermal resistance:	1 m2K/W

Material Composition

Material/Component Category	Origin	% Mass
Natural Rock	US	61.35
Slag	US	35.12
Binder Resin	US	2.28
Binder Urea	US	1.11
Binder Additives	US	0.11
Dedusting Oil	US	0.03

Packaging Material	Origin	kg Mass
Pallet	US	1.36E-02
Plastic Film	US	1.02E-02
Label	US	4.70E-08

Hazardous Materials
No regulated hazardous or dangerous substances are included in this product.

EPD Data Specificity

Primary Data Year: 12 months window; varies by participating member company (2020-2022)

Manufacturing Specificity:

- ✓ Industry Average
- ✗ Manufacturer Average
- ✗ Facility Specific

Software and LCI Data Sources

LCA Software: SimaPro v. 9.5

LCI Foreground Database(s): Ecoinvent v. 3.9.1 | Cut-Off by Classification

LCI Background Database(s): Ecoinvent v. 3.9.1 | Cut-Off by Classification | DATASMART LCI Package v. 2021 | Cut-Off by Classification

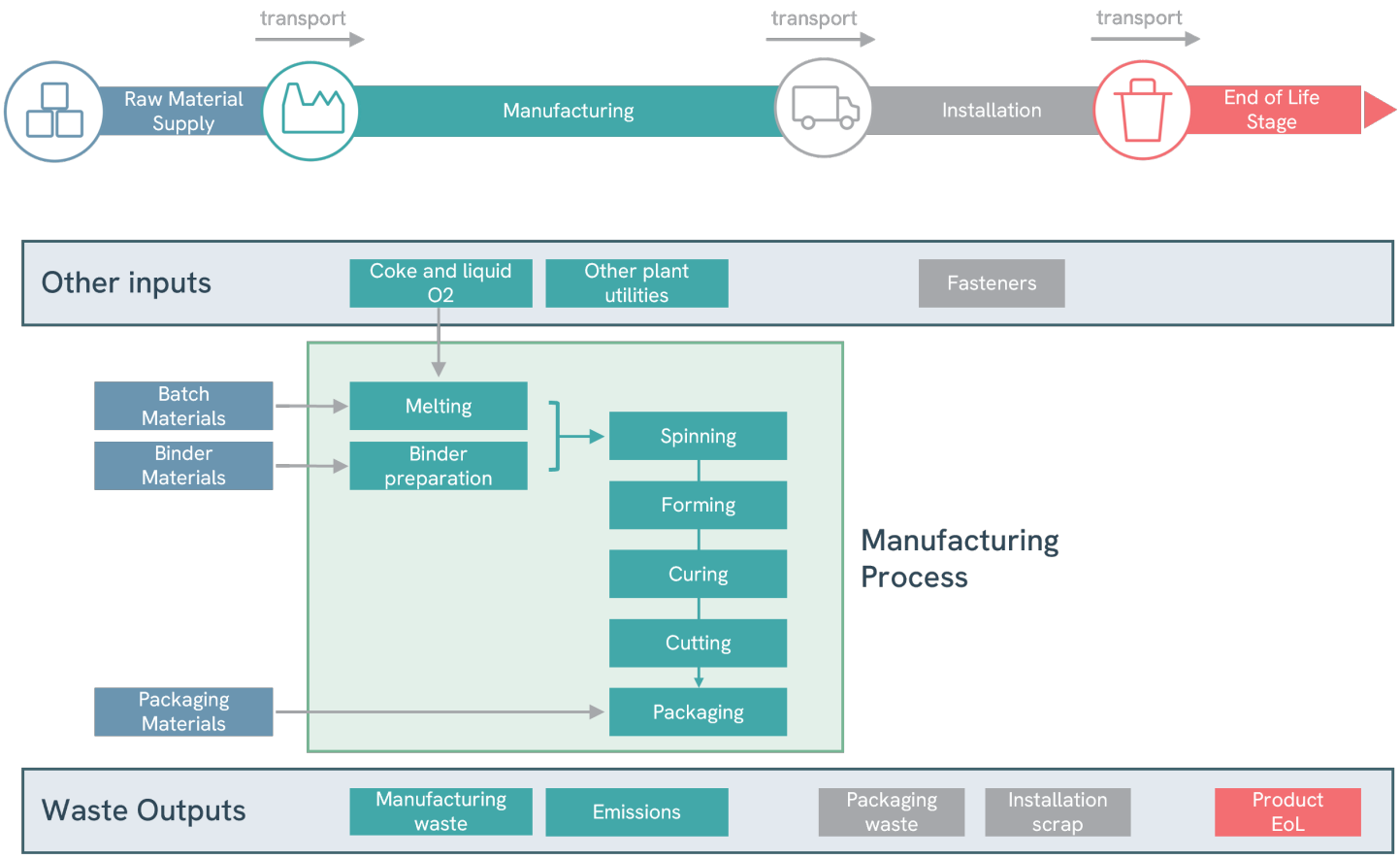
Renewable Electricity

Renewable electricity is used: No

System Boundary

Production	A1	Raw material supply	✓
	A2	Transport	✓
	A3	Manufacturing	✓
Construction	A4	Transport to site	✓
	A5	Assembly / Install	✓
Use	B1	Use	ND
	B2	Maintenance	ND
	B3	Repair	ND
	B4	Replacement	ND
	B5	Refurbishment	ND
	B6	Operational Energy Use	ND
	B7	Operational Water Use	ND
End of Life	C1	Deconstruction	✓
	C2	Transport	✓
	C3	Waste Processing	✓
	C4	Disposal	✓
Benefits & Loads Beyond System Boundary	D	Recycling, Reuse Recovery Potential	ND

Product Flow Diagram



Life Cycle Module Descriptions

Manufacturing of mineral wool insulation products includes several processing steps.
1.Raw materials including rock and/or blast furnace slag (waste produce from the production of steel from iron ore) are added to a cupola furnace.
2.Coke is added to the cupola furnace and oxygen is injected to enhance combustion. This provides the energy to melt the rock and slag. The high melting temperature requires continuous operation and minimal downtime is critical to ensuring energy management is maintained for each kilogram of wool produced.
3.Additional raw materials are added. These raw materials vary due to the differences in the natural occurring materials as well as by manufacturers and their respective processes. Additional raw materials include: basalt, brick chips, concrete, "ACBF" slag, dolomite, feldspar, fly ash, iron, ore, limestone and sand. Tables 9 and 10 provide detail of the additional materials added per functional unit.
4.The melted materials are dropped onto a cooled spinning wheel where fiber is formed and rapidly cooled. The centrifugal force of the spinning wheel in combination with the products chemical composition determines the fiber diameter, strength and thermal conductivity of the fiber and wool that is produced.
5.Board formation requires the use of a specific type of binder. The binder used is a water suspension of phenol formaldehyde (phenolic resin). The upstream production of the binder materials is included along with the emissions associated with the curing of the insulation product. The wool fiber produced is coated with the binder suspension and pressurized air is used for form a mat that is then pressed with a consolidation board to achieve the desired gauge and density. Curing is done with hot air through convection (oven is powered with both natural gas and electricity). Finished boards are cut to size and packaged using shrink film as well as other general packaging materials.
6. The insulation is then packaged with various package sizing using materials described. Packaging materials are not assumed to be reused and disposal assumptions follow the PCR as no primary data is available.

The manufacturing module includes manufacturing of products and co-products:
-A3, use of various fuel sources within the manufacturing process
-A3, generation of electricity from primary energy resources used in manufacturing including their extraction, refining and transport
-A3, water use within the manufacturing process
-A3, emissions from the combustion of secondary fuels and waste used in the manufacturing process
-A3, waste management from manufacturing and manufacturing wastages transport up to the recycler or disposal

Emissions listed only account for on-site emissions and do not include any upstream energy production. Approach uses ecoinvent library processes for coke and natural gas, accounting for both upstream and combustion emissions. Proxies specify emissions per unit of fuel combusted.

Insulation product manufacturing impacts and emissions was provided by the participating companies and included within the model. Processes representing the manufacturing activities and emissions were calculated using a weighted average to ensure discretion between company specific data.

Transportation modes, distances and mass utilization rates were provided by the participating companies and calculated using a weighted average. Installation is assumed to last the entire lifetime of the building; no maintenance or replacement is required.

Board insulation estimates four 1 ½" fasteners per square meter are necessary for installation and includes a 3% scrap rate to account for product losses during installation.

Removal at the end of life requires only human labor and does not contribute to lifetime environmental impacts. In addition as mineral wool insulation is not recycled, the following modules are included but have zero impacts
-Deconstruction (C1)
-Waste Processing (C3)

After removal, the board is transported to the landfill site and disposed.

LCA Discussion

While conducting an LCA, if the life cycles of more than one product are connected, allocation of the process inputs should be avoided by using the system boundary expansion approach. In accordance with the guiding PCR, mass should be used as the primary basis for co-product allocation. The allocations of relevance for calculation (appropriation of impacts across various products) shall be indicated, at least:

- Allocation in the use of recycled and/or secondary raw materials.
- Allocation of energy, ancillary and operating materials used for individual products in a factory.

No multi-output allocation was necessary in the foreground of the study. Allocation of secondary data taken from ecoinvent v3.9.1 cut-off by classification has allocation applied to it.

This study uses the cut-off approach method for recycling. According to this approach, the first life of a material bears the environmental burdens of its production (e.g., raw material extraction and processing) and the second life (e.g., scrap input) bears the burdens of refurbishment (e.g., collection and refining of scrap). The burdens from waste treatment are taken on by the next life of the product and not included in this study.

Consistency and reproducibility:

To ensure consistency, primary data were collected at the same level of granularity. All input and output information, modelling assumptions and dataset choices are provided in this report for the purpose of reproducibility.

Representativeness:

Refer to the sections above for details about representativeness.

There are no exceptions in inclusion of value-add activities and all flows are included in this study.

Technology Coverage

This study uses a mix of primary and secondary data modeled using Ecoinvent v3.9.1 database to represent the raw material supply, transportation and manufacturing energy inputs.

Geographic Coverage

NAIMA covers all North American mineral wool insulation manufacturers and prefers not to disclose manufacturing site size, utilization rates or other company details to ensure anonymity. Participating member companies and their locations are shown in Table 8 in the LCI Data Collection section. More granular data has been provided to the reviewer in the confidential appendix.

Time Coverage

Primary data from participating member companies represents operations in years 2018-2022. In addition, secondary data are modeled using Ecoinvent v3.9.1.

Treatment of Missing data

No known data was excluded in this study.

Results

Environmental Impact Assessment Results

IPCC AR5 GWP 100, TRACI 2.1

per 1 m2 of material with RSI = 1m2K/W.

LCIA results are relative expressions and do not predict impacts on category endpoints, the exceeding of thresholds, safety margins or risks.

Impact Category	Unit	A1A2A3	A4	A5	C1	C2	C3	C4
GWP-total	kg CO2 eq	2.68e+0	1.29e+0	1.35e-1	0	1.03e-1	0	8.53e-3
ODP	kg CFC 11 eq	1.56e-6	2.20e-8	4.77e-8	0	1.75e-9	0	2.65e-10
AP	kg SO2 eq	1.21e-2	5.53e-3	5.71e-4	0	4.41e-4	0	5.76e-5
EP	kg N eq	6.35e-3	1.24e-3	3.91e-4	0	9.91e-5	0	9.82e-6
POCP	kg O3 eq	1.37e-1	1.44e-1	9.28e-3	0	1.14e-2	0	1.53e-3
ADP-fossil	MJ	2.70e+0	2.58e+0	1.70e-1	0	2.06e-1	0	3.09e-2

Abbreviations:

GWP = Global Warming Potential, 100 years (may also be denoted as GWP-total, GWP-fossil (fossil fuels), GWP-biogenic (biogenic sources), GWP-luluc (land use and land use change)), ODP = Ozone Depletion Potential, AP = Acidification Potential, EP = Eutrophication Potential, SFP = Smog Formation Potential, POCP = Photochemical oxidant creation potential, ADP-Fossil = Abiotic depletion potential for fossil resources, ADP-Minerals&Metals = Abiotic depletion potential for non-fossil resources, WDP = Water deprivation potential, PM = Particular Matter Emissions, IRP = Ionizing radiation, human health, ETP-fw = Eco-toxicity (freshwater), HTP-c = Human toxicity (cancer), HTP-nc = Human toxicity (non-cancer), SQP = Soil quality index.

Comparisons cannot be made between product-specific or industry average EPDs at the design stage of a project, before a building has been specified. Comparisons may be made between product-specific or industry average EPDs at the time of product purchase when product performance and specifications have been established and serve as a functional unit for comparison. Environmental impact results shall be converted to a functional unit basis before any comparison is attempted. Any comparison of EPDs shall be subject to the requirements of ISO 21930 or EN 15804. EPDs are not comparative assertions and are either not comparable or have limited comparability when they have different system boundaries. EPDs are not comparative assertions and are either not comparable or have limited comparability when they have different system boundaries, are based on different product category rules or are missing relevant environmental impacts. Such comparison can be inaccurate, and could lead to erroneous selection of materials or products which are higher-impact, at least in some impact categories.

Resource Use Indicators

per 1 m2 of material with RSI = 1m2K/W.

Indicator	Unit	A1A2A3	A4	A5	C1	C2	C3	C4
RPRE	MJ	1.18e+0	2.42e-1	4.58e-2	0	1.93e-2	0	1.80e-3
RPRM	MJ	0	0	0	0	0	0	0
RPRT	MJ	1.18e+0	2.42e-1	4.58e-2	0	1.93e-2	0	1.80e-3
NRPRE	MJ	3.44e+1	1.96e+1	1.76e+0	0	1.56e+0	0	2.26e-1
NRPRM	MJ	1.82e+0	0	5.45e-2	0	0	0	0
NRPRT	MJ	3.62e+1	1.96e+1	1.81e+0	0	1.56e+0	0	2.26e-1
SM	kg	4.30e-1	0	1.29e-2	0	0	0	0
RSF	MJ	0	0	0	0	0	0	0
NRSF	MJ	0	0	0	0	0	0	0
RE	MJ	0	0	0	0	0	0	0
FW	m3	5.10e-5	0	1.53e-6	0	0	0	0

Abbreviations:

RPRE or PERE = Renewable primary resources used as energy carrier (fuel), RPRM or PERM = Renewable primary resources with energy content used as material, RPRT or PERT = Total use of renewable primary resources with energy content, NRPRE or PENRE = Non-renewable primary resources used as an energy carrier (fuel), NRPRM or PENRM = Non-renewable primary resources with energy content used as material, NRPRT or PENRT = Total non-renewable primary resources with energy content, SM: Secondary materials, RSF = Renewable secondary fuels, NRSF = Non-renewable secondary fuels, RE = Recovered energy, ADPF = Abiotic depletion potential, FW = Use of net freshwater resources, VOCs = Volatile Organic Compounds.

Waste and Output Flow Indicators

per 1 m2 of material with RSI = 1m2K/W.

Indicator	Unit	A1A2A3	A4	A5	C1	C2	C3	C4
HWD	kg	5.20e-3	0	1.56e-4	0	0	0	0
NHWD	kg	8.16e-1	0	8.16e-2	0	0	0	1.40e+0
HLRW	kg	0	0	0	0	0	0	0
ILLRW	kg	0	0	0	0	0	0	0
CRU	kg	0	0	0	0	0	0	0
MFR	kg	1.17e-1	0	6.40e-3	0	0	0	0
MER	kg	0	0	0	0	0	0	0
EE	MJ, LHV	0	0	0	0	0	0	0

Abbreviations:

HWD = Hazardous waste disposed, NHWD = Non-hazardous waste disposed, RWD = Radioactive waste disposed, HLRW = High-level radioactive waste, ILLRW = Intermediate- and low-level radioactive waste, CRU = Components for re-use, MFR or MR = Materials for recycling, MER = Materials for energy recovery, MNER = Materials for incineration, no energy recovery, EE or EEE = Recovered energy exported from the product system, EET = Exported thermal energy.

Carbon Emissions and Removals

per 1 m2 of material with RSI = 1m2K/W.

Indicator	Unit	A1A2A3	A4	A5	C1	C2	C3	C4
BCRP	kg CO2	0	0	0	0	0	0	0
BCEP	kg CO2	0	0	0	0	0	0	0
BCRK	kg CO2	-1.31e-2	0	3.23e-3	0	0	0	0
BCEK	kg CO2	0	0	2.15e-3	0	0	0	0

Abbreviations:

BCRP = Biogenic Carbon Removal from Product, BCEP = Biogenic Carbon Emission from Product, BCRK = Biogenic Carbon Removal from Packaging, BCEK = Biogenic Carbon Emission from Packaging, BCEW = Biogenic Carbon Emission from Combustion of Waste from Renewable Sources Used in Production Processes, CCE = Calcination Carbon Emissions, CCR = Carbonation Carbon Removals, CWNR = Carbon Emissions from Combustion of Waste from Non-Renewable Sources used in Production Processes, GWP-luc = Carbon Emissions from Land-use Change.

Scenarios

Transport to the building/construction site (A4)

A4 Module

Fuel Type:	Diesel
Liters of Fuel:	44.5 l/100km
Vehicle Type:	Truck
Transport Distance:	1244 km
Capacity Utilization:	20.9 %
Packaging Mass:	0.0237 kg
Gross density of products transported:	38.3 kg/m3
Capacity utilization volume factor:	=1

Installation in to the building/construction site (A5)

A5 Module

Installation Scrap Rate Assumed:	3 %
Ancillary Materials:	0.00395 kg
Product Lost per Functional Unit:	0.0421 kg
Waste Materials at the Construction Site Before Waste Processing:	0.067 kg
Biogenic Carbon Contained in Packaging:	0.0131 kg
Output materials resulting from on-site waste processing: for recycling:	0.0047 kg
Output materials resulting from on-site waste processing: for disposal:	0.062 kg
Packaging waste: paper:	4.85E-08 kg
Packaging waste: plastic:	1.05E-02 kg
Packaging waste: wood:	1.40E-02 kg

End of Life

C1 - C4 Modules

Collection Process

Collected Separately:	1.402 kg

Recovery

Landfill:	1.402 kg

Disposal

Product or Material for Final Disposal:	1.402 kg

Assumptions for scenario development:

At end-of-life, insulation is removed from deconstructed building. The waste is then transported 100km and disposed in a landfill per PCR requirements.

The end-of-life stages C1 and C3 are declared as having zero impact as deconstruction is done manually and insulation is not recycled.

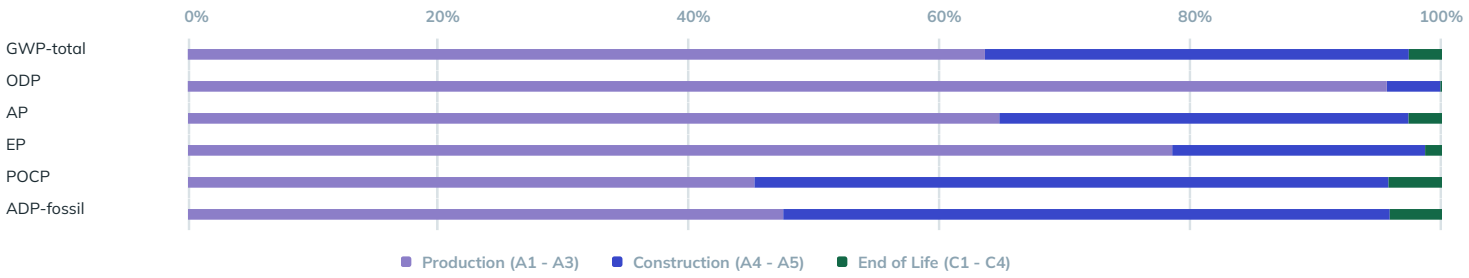
Interpretation

For light density mineral wool board insulation products analyzed in this study, raw material supply (A1), raw material transport (A2), manufacturing (A3) contributed 45% to 90% of all potential impacts. Transportation of products to installation was most significant for eutrophication potential (EP) and smog formation potential (SFP). Potential environmental impacts from installation and end-of-life for all products were the least significant contributors.

For light density mineral wool board insulation products studied the global warming potential impacts were largely due to emissions from electricity and combustion of hard coals and natural gas within the manufacturing process. While this is expected it also gives the largest opportunity of potential with the expansion of green energy in North America. Efficiency or renewable energy improvements made to support the processes of melting, forming or finishing energy would advance continued impact reduction efforts. Reduction in operations downtime would also optimize impact potential.

Greater participation from member companies would improve the geographical and technological coverage of the mineral wool insulation products manufactured in North America.

LCA results are based on a relative approach and indicate potential environmental effects therefore do not predict actual impacts on category impacts.



Additional Environmental Information

The technical specifications apply to products considered in this EPD:
- ASTM C553 | Standard Specification for Mineral Fiber Blanket Thermal Insulation for Commercial and Industrial Applications
- ASTM C612 | Standard Specification for Mineral Fiber Block and Board Thermal Insulation
- ASTM C726 | Standard Specification for Mineral Wool Roof Insulation Board

Additionally, fire-related standards and test methods apply:
- NFPA 220 | Standard on Types of Building Construction
- ASTM E136 | Standard Test Method for Behavior of Materials in a Vertical Tube Furnace at 750C
- ASTM E84 | Standard Test Method for Surface Burning Characteristics of Building Materials
- NFPA 101 | Life Safety Code

EXTRAORDINARY EFFECTS

The performance of building materials in a fire is a key factor in protecting the occupants of the building and allowing them to escape safely. Mineral wool insulation is naturally non-combustible and remains this way for the life of the product without the addition of harsh and potentially dangerous chemical fire retardants. The insulation can resist temperatures in excess of 2000F. Because of the high melting temperature there is a wide variety of applications that can utilize these unique properties.

Due to these properties, mineral wool insulation can be used as a passive fire protection in many buildings. Manufacturers of these products encourage a balanced design, which includes a combination of active, detective and passive fire protection in building codes to ensure the safety of building occupants.

These products should meet NFPA 220 and ASTM E136 standards and test methods and are Class A product tested per ASTM E84 and NFPA 101.

HEALTH IMPACTS

NAIMA and its member companies are committed to ensuring that mineral wool insulation products can be safely manufactured, installed and used. NAIMA member companies have funded extensive research at leading independent laboratories and universities. The scientific research shows no association between exposure to mineral wool fibers and respiratory disease or cancer in humans.

Scientific evidence demonstrates that mineral wool is safe to manufacture, install and use when recommended work practices are followed. Following these work practices will help to reduce any irritation. Irritation is considered a mechanical irritation and does not meet the U.S. OSHA HAZCOM definition of "irritation".

References

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