

Environmental and Health Product Declaration

In accordance with standard EN 15804+A2
and its national supplement EN 15804+A2/CN

GranuTex 44 Bio >360 mm

Insutex

(Range EPD)



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Disclaimer

The information contained in this declaration is provided under the responsibility of the company **Insutex** in accordance with **EN 15804+A2** and the national supplement **EN 15804+A2/CN**.

Any use, whether full or partial, of the information provided in this document must at a minimum be accompanied by the full reference to the original EPD as well as to its producer, who can provide a complete copy.

The **EN 15804+A2** standard from CEN and its national supplement **EN 15804+A2/CN** serve as the **Product Category Rules (PCR)**.

Reading Guide

The environmental impact results and indicators of resource use, waste categories, and outgoing flows, listed in §5 are presented with **only three significant figures**, to reflect the typical uncertainty levels associated with LCA results (around **20 to 30%**).

Considering three significant figures —e.g. assuming one can distinguish between results differing by 100 g CO₂ eq—implies a relative uncertainty of $100 / 15,000 = 0,67\%$, which is already much lower than the usual uncertainty of LCA results.

The data is presented in scientific notation.

Example: -9,0 E -03 = $-9,0 \times 10^{-3}$

The following display rules apply:

- When the inventory calculation result is zero, the value **0** is displayed.
- Abbreviations used:
 - **N/A**: Not Applicable
 - **FU**: Functional Unit
- The units used are specified before each flow: kilogram (**kg**), gram (**g**), kilowatt-hour (**kWh**), megajoule (**MJ**), square meter (**m²**), kelvin (**K**), watt (**W**), kilometre (**km**), millimetre (**mm**).

Precautions for using the EPD for product comparison

EPDs (Environmental Product Declarations) of construction products may not be comparable if they do not comply with the **EN 15804+A2** standard.

Section 5.3 "Comparability of EPDs for construction products" of the **EN 15804+A2** standard defines the conditions under which construction products can be compared, based on the information provided by the EPD:

"A comparison of the environmental performance of construction products using EPD information shall be based on the use of the products and their impacts on the building and shall consider the entire life cycle (all information modules)."

Disclaimers for the Reporting of Environmental Impact Indicators (References and Additional)

ILCD Classification	Indicator	Disclaimer
ILCD Type 1	Global warming potential (GWP)	None
	Stratospheric Ozone Depletion Potential	None
	Potential Impact of Diseases Due to Fine Particle Emissions	None
ILCD Type 2	Acidification Potential, Cumulative Exceedance (AP)	None
	Eutrophication Potential, Nutrient Fraction Reaching Final Freshwater Compartment (EP-Freshwater)	None
	Eutrophication Potential, Nutrient Fraction Reaching Final Marine Compartment (EP-Freshwater)	None
	Acidification Potential, Cumulative Exceedance (EP- Terrestrial)	None
	Tropospheric Ozone Formation Potential (POCP)	None
	Potential Human Exposure Efficiency to U235 Isotope (PIR)	1
ILCD Type 3	Abiotic Depletion Potential for Non-Fossil Resources (ADP – Minerals & Metals)	2
	Abiotic Depletion Potential for Fossil Resources (ADP- Fossil)	2
	Potential Water Deprivation (User-related), Deprivation-Weighted Water Consumption (WDP)	2
	Potential Comparative Toxic Unit for Ecosystems (ETP – fw)	2
	Potential Comparative Toxic Unit for Human Health (HTP – c)	2

	Potential Comparative Toxic Unit for Human Health (HTP-nc)	2
	Potential Soil Quality Index (SQP)	2
Disclaimer 1 – This impact category concerns the potential impact on human health from low-dose ionizing radiation associated with the nuclear fuel cycle. It does not account for the potential consequences of nuclear accidents, occupational exposure and the disposal of radioactive waste in underground facilities. Potential ionizing radiation from soil, radon and certain building materials are also not measured by this indicator.		
Disclaimer 2 – The results for this environmental impact indicator should be used with caution, as uncertainty within these results is high or the experience and data related to this indicator are limited.		

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General Information

Declarant:

INSUTEX

Otto Busses Vej 27,
2450 Copenhagen

Type of FDES:

FDES « Cradle-to-Grave », Range FDES

Reference Product:

GranuTex 44 Bio bag 12,5kg 620mm

Covered Commercial Reference:

GranuTex 44 Bio >360 mm R= 12 m²K/W

Covered Production Site:

The EPD is representative of the products sold and produced by Insutex at a European factory for a European market.

Scope of validity:

All products covered by this EPD have impacts that are lower than or equal to the impacts of the reference product.

The standard EN 15804+A2 from CEN serves as the PCR
Independent verification of the declaration and data, in accordance with EN ISO 14025:2010 ☐ Internal ☒ External
Third Party Verification: Etienne Lees-Perasso
INIES Registration Number compliant with ISO 14025: 20230634390
Date of First Publication: 01/10/2025
Date of Update: 21/07/2025
Date of Verification: 21/07/2025
Validity Period: ☒ 5 years ☐ 2 years from the date of first publication

Description of the Functional Unit (FU) and Product

Functional Unit:

To provide a thermal insulation on 1 m² of wall surface, in the form of a panel with a thermal resistance of up to R=12 m².K/W, with a thickness greater than 360 mm and a reference lifetime of 50 years.

Product & Packaging Description:

GranuTex 44 Bio, which is a blow-in insulation material, is intended for the thermal insulation of unused attic space.

Product Usage:

The Insutex product covered by this EPD is intended for the insulation of unused attic spaces, converted attic spaces, and walls.

Primary Performance:

The thermal resistance value of the reference product is 12 m²K/W.

Other Technical Characteristics Not Included in Functional Unit:

Other technical characteristics of the product covered by this EPD are available on the Insutex brand website: <http://www.insutex.dk>.

Description of Main Components of Product:

Parameters	Details
Product Materials	Recycled Textile fibers (cotton): 6,25 kg/FU
Distribution Packaging	• Pallets: 0,14 kg/FU • LDPE film: 0,0000011 kg/FU • Stretch film: 0,000056 kg/FU
Complementary Installation Products	Pneumatic blowing machine: 0,08 kWh/kg

Declaration of Content:

No substance classified as a Substance of Very High Concern (SVHC) according to the candidate list in Annex XIV of the REACH regulation is present in the product at a concentration greater than 0.1% by mass.

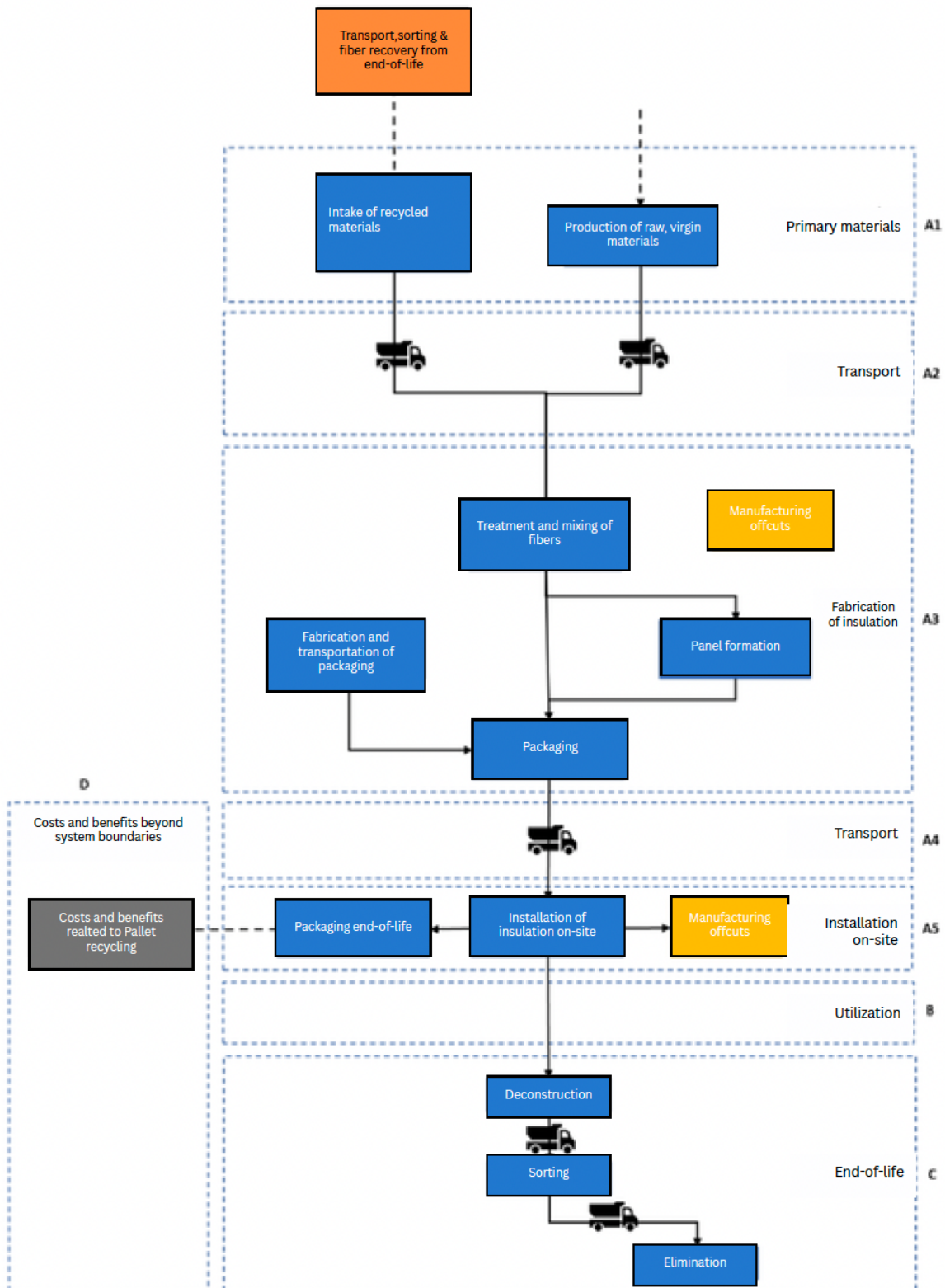
Distribution Circuit:

B2B and B2C

Parameters	Values
Reference lifespan	50 years
Theoretical application parameters (if imposed by the manufacturer), including references to appropriate requirements and application codes	Installation is assumed to comply with the manufacturer's recommendations.
Presumed quality of workmanship, when the installation complies with the manufacturer's instructions	Work must comply with the manufacturer's recommendations and the DTU.
Indoor environment (for indoor applications), e.g., temperature, humidity, exposure to chemicals	The products are to be installed in interior spaces, in accordance with the manufacturer's recommendations and the aforementioned technical guideline
Outdoor environment (for outdoor applications), e.g., weather, pollutants, exposure to UV and wind, building orientation, shading, temperature	Not applicable
Conditions of use, e.g., frequency of use, mechanical exposure	Not applicable
Maintenance scenario for upkeep	Not applicable

Biogenic Carbon Content	Unit (Per Function Unit/ Declared Unit)
Biogenic Carbon Content of Product (Upon Departure from Factory)	1,84 kgC/FU
Biogenic Carbon Content of Associated Packaging (Upon Departure from Factory)	0,06 kgC/FU

Life cycle stages



Description of System Boundaries (X = Included in LCA; MND= Module Not Declared)														
Production	Construction		Utilization							End-of-life				Beyond System boundaries
Raw Material Transport Manufacturing	Transport	Installation	Usage	Maintenance	Repair	Replacement	Renovation	Use of energy	Use of water	Deconstruction	Transport	Treatment	Final Disposal	Possibility of re-use, recovery and recycling
A1/A2/A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

Production stage, A1-A3

The production stage includes the following three modules:

- A1 Raw material supply
- A2 Upstream transport of raw materials and packaging to the manufacturing site
- A3 Manufacture of insulation and production of packaging

Construction stage, A4-A5

The construction stage comprises two modules:

- A4 The transport of the product from the factory to the field
- A5 Installation in the building

A4 - Transport to the field

This module includes the transport to the site of manufacture to trading and up to the construction site. The transport is calculated based on a scenario including the following parameters:

Scenario Information	Unit (Per Function Unit/ Declared Unit)
Type of fuel and vehicle consumption or type of vehicle used for transport, e.g. long-distance truck, boat, etc.	24 ton diesel truck (Commission Directive 2007/37/EC [European Emissions Standard])
Distance to field	375.8 km on average from the factory to the dealer's site. 25 km from the dealer to the construction site
Capacity utilization (including empty returns)	Average load 5.79t (average utilization 24%)
Bulk density of transported products	Bulk density of the transported product 10,16 kg/m ³
Volume capacity utilization coefficient	Coefficient: > 1

A5 - Installation in Building

This module includes the materials required for the installation of the product in the building.

Parameters	Value
Auxiliary inputs for installation (specified by material)	Pneumatic blowing machine: 0,08 kWh/kg
Water use	Not applicable
Use of other resources	Not applicable
Quantitative description of the type of energy (regional mix) and consumption during the installation process	Not applicable
Waste materials on the construction site before the treatment of waste generated by the installation of the product (specified by type)	Packaging waste: Pallets: 0,14 kg/FU LDPE film: 0,0000011 kg/FU Stretch film: 0,000056 kg/FU
Output materials (specified by type) produced by waste treatment on the construction site, e.g., collection for recycling, energy recovery, disposal (specified by method)	Site waste follows the same end-of-life scenarios as products during deconstruction. The recovery rate for wooden pallets is 92,3% (43.19% material recovery, 49.11% energy recovery in plants and cement works), with the remainder going to landfill. Plastic packaging waste follows the national scenario (62% incineration, 38% landfill). Cardboard packaging waste is recycled at 73%, with the remainder following the European scenario (62% incineration, 38% landfilling).
Direct emissions in ambient air, ground and water	Not applicable

Use Stage (Excluding Potential Savings), B1-B7

The utilization stage is divided into seven modules:

- B1: Usage of installed product

- B2: Maintenance
- B3: Repair
- B4: Replacement
- B5: Renovation
- B6: Energy requirements during operational phase
- B7: Water requirements during operational phase

No operations are required during the utilization phase, up to the end of life.
Therefore, the insulation panels have no impact during this stage.

End-of-life stage, C1-C4

This stage consists of the four following end-of-life modules:

- C1: Deconstruction, demolition
- C2: Transport to waste treatment site
- C3: Waste treatment for reuse, recovery and recycling
- C4: Final Disposal

Process	Units (Per functional unit/ declared unit of components, products, or materials specified by material type)
Collection process specified by type	Collection with mixed construction waste for landfill: 6,25 kg, i.e. 100% of the insulation material
Recovery system specified by type	Not applicable
Elimination specified by type	100% of the product is destined for disposal in landfills.
Hypothesis for elaboration of scenarios (e.g. transport)	Distance of transport between the deconstruction and the waste management centre: 50km Transport achieved by 24-ton truck

Costs and Benefits (Possibility for Recycling/Reuse/Recovery), D

Module D quantifies the costs and benefits associated with the recovery of the product and packaging at the end of its lifecycle. To date, insulation materials are not part of a recovery system that justifies the benefits induced by recovery.

For packaging, the following table describes the stages and/or input-output flows considered:

Recovered materials extending beyond system boundaries	Recycling process beyond system boundaries	Saved materials/substances	Associated quantities
Pallet wood	Preparation of wood offcuts for reintegration into the manufacturing of wood products (e.g. particle boards)	Mix of logs, sawmill byproducts, and byproducts from secondary wood processing	0,059903 kg (packaging)
Pallet wood	Energy recovery in biomass boilers	Natural gas in the network	0,05775 kg (packaging)
Pallet wood	Energy & material recovery in cement plants	Substitution for coke and oil combustion	0,010458 kg (packaging)

Information for Life Cycle Assessment Calculation

The LCA model, data aggregation and environmental impacts are calculated using the Simapro 9.5 software, the latest update available when the study was conducted.

RCP used	The EN 15804+A2 standard and national complement EN 15804+A2/CN
System boundaries	System boundaries comply with the limits set by regulations, the EN 15804+A2 standard, and its national complement
Allowances	A mass allocation method was applied to assign the production site's resource consumption in different products
Cut-off rule	In addition to elements permitted by the EN 15804+A2/CN standard, only storage of products and benefits related to cardboard recycling are included within the cut-off criteria
Geographical representativeness and temporal representativeness of primary data	The primary data used comes from production plants in Europe for the years 2021/2022. The database used is ecoinvent 3.9.1, the latest available update at the time of study

Variable of results (for multi-product FDES)	The reference product for this FDES is the product with the highest score across all indicators: • Global warming • Depletion of abiotic resources – fossil fuels • Use of non-renewable primary energy, excluding non-renewable primary energy resources used as raw materials • Non-hazardous waste disposed
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Life Cycle Assessment Result

Below are the tables summarizing the LCA results. Due to rounding, totals may not correspond exactly to the sum of the rounded values.

MNE: Module Not Evaluated

Application of the Annex I of the EN15804+A2/CN

[illegible]

Additional environmental impact indicators																
Environmental impacts	Production A1-A3	Construction		Utilization							End-of-life				Beyond system boundaries	
		A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D	
		Transport	Installation	Usage	Maintenance	Repair	Replacement	Renovation	Use of energy	Use of water	Deconstruction	Transport	Treatment	Final Disposal	Possibility of re-use, recovery and recycling	
Fine particle emissions Disease Index / FU	7,64E-08	3,82E-08	7,86E-09	0	0	0	0	0	0	0	0	4,66E-09	0	7,65E-09	-5,29E-10	
Ionizing Radiation (Human Health) - kBq of U235 equiv/FU	0,260	3,43E-03	0,0223	0	0	0	0	0	0	0	0	4,18E-04	0	9,59E-04	-0,004	
Ecotoxicity (freshwater) CTUe / FU	8,23	3,37	1,31	0	0	0	0	0	0	0	0	0,412	0	0,499	-0,219	
Human Toxicity, Carcinogenic Effects - CTUh/FU	1,54E-09	2,19E-10	1,20E-10	0	0	0	0	0	0	0	0	2,67E-11	0	1,09E-11	-6,32E-12	
Human Toxicity, NonCancer Effects - CTUh/FU	1,34E-08	4,81E-09	3,47E-09	0	0	0	0	0	0	0	0	5,87E-10	0	8,89E-10	-5,42E-12	
Land Use Impacts / Soil Quality Dimensionless / FU	22,7	4,07	1,46	0	0	0	0	0	0	0	0	0,497	0	1,12	-1,13	



Resource Utilization																
Resource Utilization	Production	Construction			Utilization							End-of-life				Beyond system boundaries
		A4	A5	Installation	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	
		Transport			Usage	Maintenance	Repair	Replacement	Renovation	Use of energy	Use of water	Deconstruction	Transport	Treatment	Final Disposal	
Use Of renewable primary energy, excluding renewable primary energy resources used as raw materials - MJ/FU	A1-A3 Production															D Possibility of re-use, recovery and recycling
Use of renewable primary energy resources as raw materials - MJ/FU	3,20E+00	1,06E-01	1,28E+00		0	0	0	0	0	0	0	0	1,29E-02	0	4,08E-02	-2,74E-01
Total use of renewable primary energy resources (primary energy and primary energy resources used as raw materials) - MJ/FU	1,02E+02	0,00E+00	3,14E+00		0	0	0	0	0	0	0	0	0,00E+00	0	0,00E+00	-3,60E-01
Use of non-renewable primary energy, excluding primary energy resources, non-renewable used as raw materials - MJ/FU	1,05E+02	1,06E-01	4,42E+00		0	0	0	0	0	0	0	0	1,29E-02	0	4,08E-02	-6,33E-01
Use of non-renewable primary energy resources as raw materials - MJ/FU	7,10E+01	6,95E+00	4,91E+00		0	0	0	0	0	0	0	0	8,49E-01	0	4,22E-01	-1,27E+00
Total use of non-renewable primary energy resources (primary energy and primary energy resources used as raw materials) - MJ/FU	2,46E-03	0,00E+00	1,23E-04		0	0	0	0	0	0	0	0	0	0	0,00E+00	0,00E+00
Use of secondary material use - kg/FU	6,25	0	0,313		0	0	0	0	0	0	0	0	0	0	0	-0,0153
Use of non-renewable secondary fuels - MJ/FU	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0
Net Freshwater Use - m3/FU	0,0207	8,32E-04	1,34E-03		0	0	0	0	0	0	0	0	1,02E-04	0	1,35E-04	-1,42E-04



Waste Categories																
Production		Construction		Utilization								End-of-life			Beyond system boundaries	
A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D		
Waste Categories																
Production	Transport	Installation	Usage	Maintenance	Repair	Replacement	Renovation	Use of energy	Use of water	Deconstruction	Transport	Treatment	Final Disposal	D	Possibility of re-use, recovery and recycling	
0,0425	6,51E-03	2,81E-03	0	0	0	0	0	0	0	0	7,94E-04	0	4,16E-04	0		
1,06	0,388	0,391	0	0	0	0	0	0	0	0	0,0474	0	6,25	0		
3,31E-04	2,22E-06	2,81E-05	0	0	0	0	0	0	0	0	2,71E-07	0	5,15E-07	0		
Outgoing Flows																
Production		Construction		Utilization								End-of-life			Beyond system boundaries	
A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D		
Outgoing Flows																
Production	Transport	Installation	Usage	Maintenance	Repair	Replacement	Renovation	Use of energy	Use of water	Deconstruction	Transport	Treatment	Final Disposal	D	recovery and recycling	
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
0	0	0,0606	0	0	0	0	0	0	0	0	0	0	0	-0,0597		
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
0	0	0,753	0	0	0	0	0	0	0	0	0	0	0	-0,753		
0	0	0,0292	0	0	0	0	0	0	0	0	0	0	0	-0,0292		
0	0	0,724	0	0	0	0	0	0	0	0	0	0	0	-0,724		

ENVIRONMENTAL IMPACTS						
Aggregation of the different modules to achieve a "Total Stage" or a "Total Life Cycle"						
Impacts/Flux	Production	Construction	Utilization	End-of-life	Total life Cycle	Beyond system boundaries
Baseline Environmental Impact Indicators						
Climate change- total kg CO2 equiv/FU	-4,06	0,917	0	7,84	4,70	-0,0678
Climate change — fossil fuels kg CO2 equiv/FU	2,40	0,641	0	0,0894	3,13	-0,0654
Biogenic climate change kg CO2 equiv/FU	-6,46	0,277	0	7,75	1,57	-0,002
Climate change — land usage & land usage transformation kg CO2 equiv/FU	9,31E-04	2,98E-04	0	3,28E-05	1,26E-03	-1,75E-05
Ozone depletion kg of CFC 11 equiv	9,60E-08	1,72E-08	0	1,77E-09	1,15E-07	-1,00E-08
Acidification mole of H+ equiv / FU	6,29E-03	2,13E-03	0	4,69E-04	8,89E-03	-8,71E-05
Aquatic eutrophication, freshwater kg of P equiv / FU	3,15E-05	5,86E-06	0	8,04E-07	3,82E-05	-4,36E-07
Aquatic eutrophication, marine kg of N equiv / FU	1,81E-03	7,10E-04	0	3,71E-04	2,89E-03	-1,99E-05
Terrestrial eutrophication mole N equiv / FU	0,0161	7,43E-03	0	2,07E-03	0,0256	-2,08E-04
Photochemical ozone formation kg of NMCOV equiv/FU	7,57E-03	3,00E-03	0	8,40E-04	0,0114	-7,56E-05
Depletion of abiotic resources (minerals & metals) kg Sb equiv/FU	6,22E-06	2,01E-06	0	2,14E-07	8,44E-06	-3,64E-08
Depletion of abiotic resources (fossil fuels) MJ/FU	66,8	11,5	0	1,26	79,5	-1,27
Water demand, m3 of equivalent deprivation in the world / FU	0,615	0,0628	0	4,50E-03	0,683	-0,002
Additional environmental impact indicators						
Fine particle emissions Disease Index / FU	7,64E-08	4,61E-08	0	1,23E-08	1,35E-07	-5,29E-10
Ionizing Radiation (Human Health) - kBq of U235 equiv/FU	0,260	0,0258	0	1,38E-03	0,287	-0,004
Ecotoxicity (freshwater) CTUe / FU	8,23	4,69	0	0,910	13,8	-0,219

Human Toxicity, Carcinogenic Effects - CTUh/FU	1,54E-09	3,39E-10	0	3,77E-11	1,92E-09	-6,32E-12
Human Toxicity, NonCancer Effects - CTUh/FU	1,34E-08	8,29E-09	0	1,48E-09	2,31E-08	-5,42E-12
Land Use Impacts / Soil Quality - Dimensionless / FU	22,7	5,53	0	1,62	29,8	-1,13
Resource Utilization						
Use of renewable primary energy, excluding renewable primary energy resources used as raw materials - MJ/FU	3,20E+00	1,38E+00	0,00E+00	5,38E-02	4,64E+00	-2,74E-01
Use of renewable primary energy resources as raw materials - MJ/FU	1,02E+02	3,14E+00	0,00E+00	0,00E+00	1,05E+02	-3,60E-01
Total use of renewable primary energy resources (primary energy and primary energy resources used as raw materials) - MJ/FU	1,05E+02	4,52E+00	0,00E+00	5,38E-02	1,10E+02	-6,33E-01
Use of non-renewable primary energy, excluding primary energy resources, non-renewable used as raw materials - MJ/FU	7,10E+01	1,19E+01	0,00E+00	1,27E+00	8,41E+01	-1,27E+00
Use of non-renewable primary energy resources as raw materials - MJ/FU	2,46E-03	1,23E-04	0,00E+00	0,00E+00	2,59E-03	0,00E+00
Total use of non-renewable primary energy resources (primary energy and primary energy resources used as raw materials) - MJ/FU	7,10E+01	1,19E+01	0,00E+00	1,27E+00	8,41E+01	-1,27E+00
Secondary material use - kg/FU	6,25	0,313	0	0	6,56	-0,0153
Use of secondary renewable fuels MJ/FU	0	0	0	0	0	0
Use of non-renewable secondary fuels - MJ/FU	0	0	0	0	0	0
Net Freshwater Use - m3/FU	0,0207	2,17E-03	0	2,37E-04	0,0231	-1,42E-04
Categories of waste						
Hazardous waste disposed of - kg/FU	0,0425	9,32E-03	0	1,21E-03	0,0531	0
Non-hazardous waste disposed of - kg/FU	1,06	0,779	0	6,30	8,14	0
Radioactive waste disposed of - kg/FU	3,31E-04	3,03E-05	0	7,86E-07	3,62E-04	0
Outflows						

Components for reuse - kg/FU	0	0	0	0	0	0
Materials for recycling - kg/FU	0	0,0606	0	0	0,0606	-0,0597
Materials for energy recovery - kg/FU	0	0	0	0	0	0
Electrical Energy Supplied Outdoors - MJ/FU	0	0,753	0	0	0,753	-0,753
Steam Energy Supplied Outdoors - MJ/FU	0	0,0292	0	0	0,0292	-0,0292
Gas and process energy supplied externally -MJ/FU	0	0,724	0	0	0,724	-0,724

Additional Information on the Release of Hazardous Substances into Interior Air, Soil and Water During Utilization Stage

Interior Air VOCs & Formaldehyde

The product has been classified as “A+” according to the decree of April 19, 2011, regarding the labelling of construction or wall and floor covering products, as well as paints and varnishes, based on their emissions of volatile pollutants.

The test was conducted by the WESSLING laboratory

Resistance to Fungal Growth

The product is resistant to fungal growth. It has undergone mold resistance testing.

Radioactive Emissions

Not applicable

Soil and Water

Not tested

Product Contribution to Indoor Environmental Quality

Product Features Contributing to Hygrothermal Comfort in Buildings

Insulation enhances both thermal and humidity-related comfort within a building. Its performance is evaluated based on thermal insulation and summer comfort.

Thermal insulation helps reduce heat loss, thereby lowering energy consumption. It is measured by thermal conductivity and certified by ACERMI to ensure the reliability of the declared performance. The thermal conductivity of GranuTex 44 Bio is 0,044 W/m.K .

Summer comfort, or thermal phase shift, refers to the insulation's ability to slow the transfer of outdoor heat to the interior during summer. Cotton and wool have good thermal inertia in this regard.

Product Features Contributing to Acoustic Comfort in Buildings

GranuTex 44 Bio, composed of textile fibers, is naturally effective for both sound insulation and acoustic correction. These same fibers are commonly used in the automotive sector to soundproof vehicle interiors.

Product Features Contributing to Visual Comfort in Buildings

Not applicable (the product is not visible under normal conditions of use).

Product Features Contributing to Olfactory Comfort in Buildings

Not tested.

Additional Information

The insulation is made from recycled materials such as end-of-life garments and textile production scraps that would otherwise be destroyed. These are shredded to produce textile fibers, the main component of the insulation.

In addition, the manufacturing process is low-energy and does not use water. This approach, rooted in circular economy principles, addresses sustainable development challenges and helps protect the planet.