



**ENVIRONMENTAL PRODUCT DECLARATION (EPD) FOR
BUILDING | CONSTRUCTION PANELS CELENIT N, N/C, R, RA, RAB AND FOR
ACOUSTIC | DESIGN PANELS CELENIT ABE, AB, AE, A, NB, ABE/A2, AB/A2,
AE/A2, A/A2 PRODUCED BY CELENIT S.P.A.**



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SUMMARY

| | |
|--|----|
| 1 PROGRAMME RELATED INFORMATION | 4 |
| 2 PRODUCT RELATED INFORMATION | 4 |
| 2.1 THE COMPANY..... | 4 |
| 2.2 THE PRODUCTS..... | 4 |
| 2.2.1 TECHNICAL CHARACTERISTICS OF THE PRODUCTS | 6 |
| 2.2.1.1 BUILDING CONSTRUCTION panels | 6 |
| 2.2.1.2 ACOUSTIC DESIGN panels | 8 |
| 2.2.2 PRODUCT COMPOSITION AND RECYCLED CONTENTS..... | 11 |
| 2.2.2.1 RECYCLED CONTENT..... | 12 |
| 2.2.3 ADDITIONAL INFORMATION ON RELEASE OF DANGEROUS SUBSTANCES TO SOIL, WATER AND LAND DURING THE USE STAGE..... | 12 |
| 3 ENVIRONMENTAL PRODUCT DECLARATION | 12 |
| 3.1 METHODOLOGY | 12 |
| 3.2 DECLARED UNIT..... | 12 |
| 3.3 SYSTEM BOUNDARY | 13 |
| 3.4 MAIN ASSUMPTIONS, CUT-OFFS, BACKGROUND DATA INFORMATION AND SCENARIOS..... | 14 |
| 3.4.1 DATA QUALITY | 14 |
| 3.4.2 ALLOCATION | 14 |
| 3.4.3 CUT-OFFS CRITERIA..... | 15 |
| 3.4.4 BACKGROUND DATA INFORMATION | 15 |
| 3.4.5 SCENARIOS FOR OPTIONAL MODULES..... | 15 |
| 3.5 PARAMETERS DESCRIBING THE ENVIRONMENTAL IMPACT | 16 |
| 3.5.1 BUILDING CONSTRUCTION PANELS | 17 |
| 3.5.2 ACOUSTIC DESIGN PANELS..... | 20 |
| 3.6 INDICATORS OF RESOURCES USE..... | 23 |
| 3.6.1 BUILDING CONSTRUCTION PANELS | 23 |
| 3.6.2 ACOUSTIC DESIGN PANELS..... | 26 |
| 3.7 INDICATORS OF WASTE AND OUTPUT FLOWS..... | 29 |
| 3.7.1 BUILDING CONSTRUCTION PANELS | 29 |

| | |
|--|----|
| 3.7.2 ACOUSTIC DESIGN PANELS..... | 32 |
| 3.8 INFORMATION ON BIOGENIC CARBON CONTENT..... | 35 |
| 3.8.1 BUILDING/CONSTRUCTION PANELS..... | 35 |
| 3.8.2 ACOUSTIC/DESIGN PANELS..... | 35 |
| 4 REFERENCE..... | 37 |
| 6 ADDITIONAL INFORMATION..... | 37 |
| 6.1 ADDITIONAL INFORMATION CONCERNING THE PROGRAMME AND THE EPD..... | 37 |
| 6.2 ADDITIONAL INFORMATION ON THE PRODUCT AND ON THE COMPANY..... | 37 |
| 7 VERIFICATION AND REGISTRATION..... | 38 |

1 PROGRAMME RELATED INFORMATION

This EPD is developed under the program The International EPD[®] System, in compliance with the General Program Instruction version 3 for the EPD development, the Product Category Rules (PCRs) for “Construction products” 2019:14 version 1.0 and the PCRs for thermal insulation products C-PCR-005 version 2019-12-20.

More information about the International EPD[®] System is available on the website:

<https://www.environdec.com/>

2 PRODUCT RELATED INFORMATION

2.1 THE COMPANY

CELENIT has made of sustainability its mission, producing, since 1963, thermal and acoustic insulating panels consisting of natural raw materials: wood, cement, marble powder and water. It deals with solutions of thermal and acoustic insulation, from the production of panels, up to technical support for designers and companies. CELENIT is also the name to identify the mixture at the core of all products, i.e. the mineralised fir wood wool bound with Portland cement.

The BUILDING | CONSTRUCTION division identifies the products for thermal and acoustic insulation for roofs, external walls, dividing partitions and concrete structures, both for traditional or innovative building. The ACOUSTIC | DESIGN division identifies high quality products for visible sound-absorbing coverings, with functional design and excellent acoustic performance.

The company is located in Onara di Tombolo (Padua, Italy), where all CELENIT panels are produced.

2.2 THE PRODUCTS

CELENIT wood wool panels are made of fir wood coming from sustainable management forests (PEFC[™] or FSC[®]) and mineral binders mainly Portland cement, white or grey, and marble powder.

The mix of the mentioned raw materials, the density of the mixture and the inclusion of additional layers/elements give the panels specific technical properties which make them very versatile multi-purpose products for many building applications. The cellular structure of wood gives the insulation panel lightness and elasticity. The gaps between the fibres gives sound absorption and excellent ability to adhere to all forms of mortar. The presence of Portland cement gives high resistance to water and frost and superior mechanical properties such as resistance to bending and compression and high fire resistance.

The products included in the present EPD are monolayer panels and are classified in two different divisions. **BUILDING | CONSTRUCTION** regards building insulation products, consisting mainly of grey Portland cement and 3 mm standard texture and includes the following panels: **CELENIT N** and **N/C** (monolayer, grey cement), **CELENIT R, RA** (monolayer with wooden laths) and **RAB** (same product as RA but with white cement). **ACOUSTIC | DESIGN** division is specific for sound absorbing applications and regards panels selected for their aesthetic quality, mainly with white Portland cement; it includes the following panels: **CELENIT ABE, AB** and **NB** (white cement and respectively extra-thin, thin and standard textures), **CELENIT AE, A** (grey cement and respectively extra-thin and thin textures), **ABE/A2, AB/A2, AE/A2, A/A2** (same descriptions for previous boards but in Euroclass A2-s1,d0).

The products are compliant to the **EN 13168** standard “Thermal insulation products for buildings. Factory made wood wool (WW) products” and to the **EN 13964** “Suspended ceilings. Requirements and test methods”.

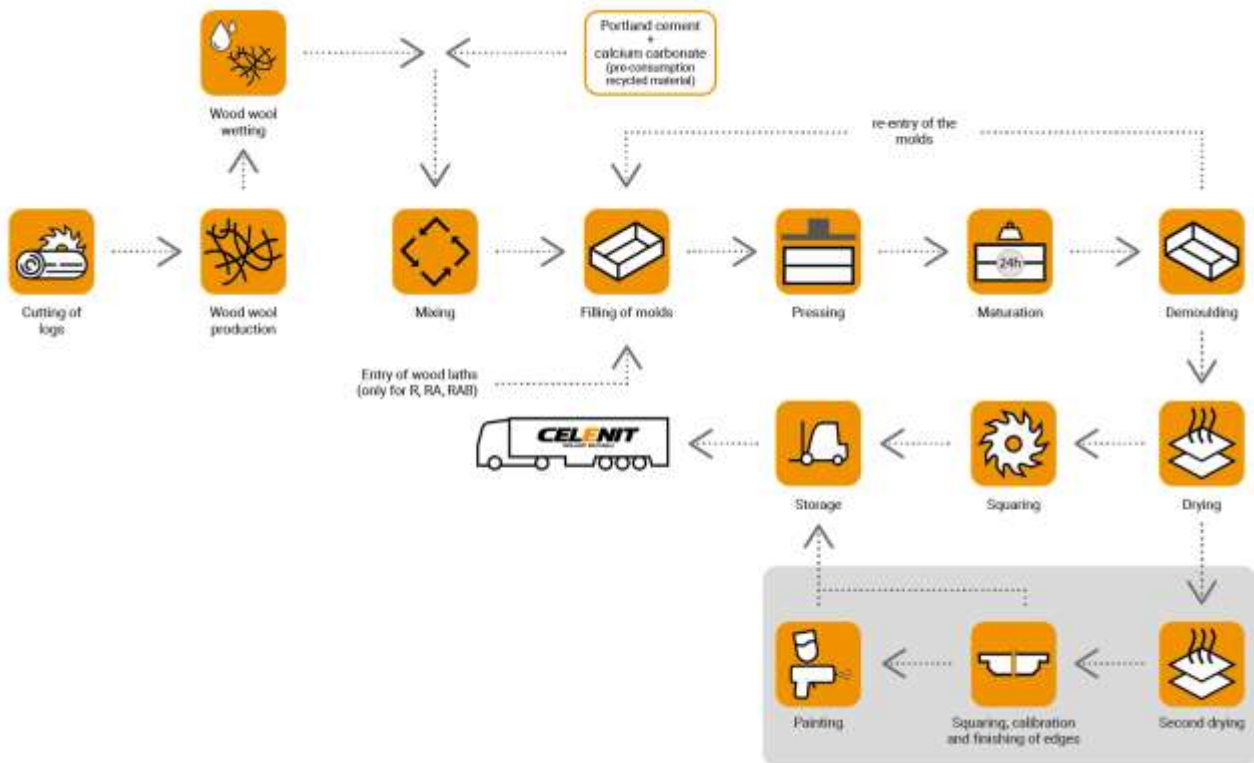


Figure 1: Production process of the panels

The production process consists in the cutting of fir trunks (timber spruce trunks) and in the production of the wood wool which is wet with water plus the addition of additives (calcium chloride and calcium formate). The wet wood wool is in a second step mixed with Portland cement (grey or white) and calcium carbonate and then distributed on moulds which are previously wet with linear alkylate (and on which wood bars are positioned for the case of R, RA and RAB). The mixture is pressed and then cured. A calibration is eventually performed (only for acoustic panels or panels to be plastered) before the squaring process. Panels can be provided both painted and not painted.

The CPC code of products covered by this EPD is 547 “Building completion and finishing services” and 546 “Installation services”.

2.2.1 TECHNICAL CHARACTERISTICS OF THE PRODUCTS

Table 1 summarizes the differences between the products analysed.

Table 1: Summary of technical differences between the analysed products

| Division | Name | Cement | | Texture | | | Euroclass | | Wooden laths |
|--------------------------|----------------|--------|-------|--------------------|-------------|------------------|-----------|----------|--------------|
| | | Grey | White | Extra-thin 1 mm | Thin 2mm | Standard 3 mm | B-s1,d0 | A2-s1,d0 | |
| BUILDING CONSTRUCTION | CELENIT N | ▪ | | | | ▪ | ▪ | | |
| | CELENIT N/C | ▪ | | | | ▪ | ▪ | | |
| | CELENIT R | ▪ | | | | ▪ | ▪ | | ▪ |
| | CELENIT RA | ▪ | | | ▪ | | ▪ | | ▪ |
| | CELENIT RAB | | ▪ | | ▪ | | ▪ | | ▪ |
| ACOUSTIC DESIGN | CELENIT ABE | | ▪ | ▪ | | | ▪ | | |
| | CELENIT AB | | ▪ | | ▪ | | ▪ | | |
| | CELENIT NB | | ▪ | | | ▪ | ▪ | | |
| | CELENIT AE | ▪ | | ▪ | | | ▪ | | |
| | CELENIT A | ▪ | | | ▪ | | ▪ | | |
| | CELENIT ABE/A2 | | ▪ | ▪ | | | | ▪ | |
| | CELENIT AB/A2 | | ▪ | | ▪ | | | ▪ | |
| | CELENIT AE/A2 | ▪ | | ▪ | | | | ▪ | |
| | CELENIT A/A2 | ▪ | | | ▪ | | | ▪ | |

2.2.1.1 BUILDING | CONSTRUCTION PANELS

Monolayer thermal and acoustic insulating panels, in Euroclass B-s1, d0 made of mineralized wood wool bound with grey or white Portland cement and mineral powder, plus eventual wooden lath (Figure 2 to Figure 3 and Table 2 to Table 4).

Figure 2: CELENIT N (left, representative for 50 mm thick) and N/C (right, representative for 25 mm thick)



Figure 3: CELENIT RA (left, representative for 50 mm thick) and RAB (right, representative for 50 mm thick)



Table 2: Characteristics of BUILDING | CONSTRUCTION panels N and N/C

| CELENIT N and N/C* | | | | | | | | | | |
|--|--------------------|---------------------|-----|------|------|-----|-------|------|------|--|
| Width of wood wool | mm | 3 | | | | | | | | |
| Thickness (EN 823) | mm | 15 | 20 | 25 | 30 | 35 | 40 | 50 | 75 | |
| Length (EN 822) | mm | 2400 - 2000 - 1200 | | | | | | | | |
| Width (EN 822) | mm | 600 | | | | | | | | |
| Weight (EN 1602) | kg/m ² | 8 | 10 | 11,5 | 13 | 14 | 16 | 18 | 26 | |
| Density (EN 1602) | kg/m ³ | 533 | 500 | 460 | 433 | 400 | 400 | 360 | 347 | |
| Declared thermal conductivity (EN 12667) | W/mK | 0,065 | | | | | | | | |
| Declared thermal resistance (EN 12667) | m ² K/W | 0,2 | 0,3 | 0,35 | 0,45 | 0,5 | 0,6 | 0,75 | 1,15 | |
| Compressive strength at 10% relative deformation (EN 826) | kPa | ≥ 200 | | | | | ≥ 150 | | | |
| Water vapour transmission (EN 13168 - 4.3.8) | - | 5 | | | | | | | | |
| Reaction to fire (EN 13501-1) | - | Euroclasse B-s1, d0 | | | | | | | | |
| Specific heat | kJ/kgK | 1,81 | | | | | | | | |
| *Thickness available for CELENIT N/C are: 25, 35, 50 and 75 mm - Length available only 1000 or 1200 mm | | | | | | | | | | |

Table 3: Characteristics of BUILDING | CONSTRUCTION panels R

| CELENIT R | | | | | | | | | | |
|---|--------------------|---------------------|--|--|--|------|--|--|--|--|
| Width of wood wool | mm | 3 | | | | | | | | |
| Thickness (EN 823) | mm | 50 | | | | 75 | | | | |
| Length (EN 822) | mm | 2400 - 2000 | | | | | | | | |
| Width (EN 822) | mm | 600 | | | | | | | | |
| Weight (EN 1602) | kg/m ² | 20 | | | | 28 | | | | |
| Density (EN 1602) | kg/m ³ | 400 | | | | 373 | | | | |
| Declared thermal resistance (EN 12667) | m ² K/W | 0,75 | | | | 1,10 | | | | |
| Compressive strength at 10% relative deformation (EN 826) | kPa | ≥ 150 | | | | | | | | |
| Water vapour transmission (EN 13168 - 4.3.8) | - | 5 | | | | | | | | |
| Reaction to fire (EN 13501-1) | - | Euroclasse B-s1, d0 | | | | | | | | |

Table 4: Characteristics of BUILDING | CONSTRUCTION panels RAB and RA

| CELENIT RAB and RA | | |
|---|--------------------|---------------------|
| Width of wood wool | mm | 2 |
| Thickness (EN 823) | mm | 50 |
| Length (EN 822) | mm | 2400 - 2000 |
| Width (EN 822) | mm | 600 |
| Weight (EN 1602) | kg/m ² | 24 |
| Density (EN 1602) | kg/m ³ | 480 |
| Declared thermal resistance (EN 12667) | m ² K/W | 0,7 |
| Compressive strength at 10% relative deformation (EN 826) | kPa | ≥ 200 |
| Water vapour transmission (EN 13168 - 4.3.8) | - | 5 |
| Reaction to fire (EN 13501-1) | - | Euroclasse B-s1, d0 |

2.2.1.2 ACOUSTIC | DESIGN PANELS

Monolayer sound absorbing panels, in Euroclass B-s1, d0 made of mineralized wood wool bound with white or grey Portland cement and mineral powder (Figure 4 to Figure 5 and Table 5 to Table 7).

Figure 4: Picture of textures of CELENIT ABE, AB and NB (from left to right)



Figure 5: Picture of textures of CELENIT AE and A (from left to right)

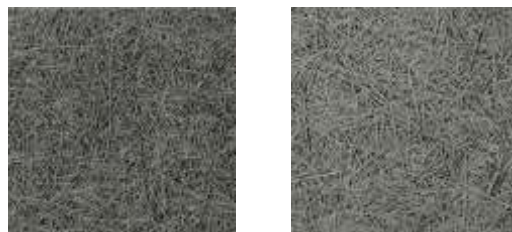


Table 5: Characteristics of ACOUSTIC | DESIGN panels ABE and AE

| CELENIT ABE and AE | | | | |
|---|--------------------|--|-----|------|
| Width of wood wool | mm | 1 | | |
| Thickness (EN 823) | mm | 15 | 25 | 35 |
| Length (EN 822) | mm | 2400 - 2000 - 1200 - 600 | | |
| Width (EN 822) | mm | 600 | | |
| Weight (EN 1602) | kg/m ² | 7,8 | 12 | 15 |
| Density (EN 1602) | kg/m ³ | 520 | 480 | 428 |
| Declared thermal conductivity (EN 12667) | W/mK | 0,075 | | |
| Declared thermal resistance (EN 12667) | m ² K/W | 0,2 | 0,3 | 0,45 |
| Compressive strength at 10% relative deformation (EN 826) | kPa | ≥ 300 | | |
| Reaction to fire (EN 13501-1) | - | Euroclass B-s1, d0 | | |
| Light reflection (EN 13964 - 4.9) | % | CELENIT ABE: 50,7 (nature) - 74,0 (white painted S05/15) CELENIT AE: 31,2 | | |

Table 6: Characteristics of ACOUSTIC | DESIGN panels AB and A

| CELENIT AB and A | | | | | | |
|---|--------------------|--|-----|------|-----|-----|
| Width of wood wool | mm | 2 | | | | |
| Thickness (EN 823) | mm | 11 | 15 | 25 | 35 | 50 |
| Length (EN 822) | mm | 2400 - 2000 - 1200 - 600 | | | | |
| Width (EN 822) | mm | 600 | | | | |
| Weight (EN 1602) | kg/m ² | 6,7 | 7,8 | 12 | 15 | 20 |
| Density (EN 1602) | kg/m ³ | 609 | 520 | 480 | 428 | 400 |
| Declared thermal conductivity (EN 12667) | W/mK | 0,07 | | | | |
| Declared thermal resistance (EN 12667) | m ² K/W | 0,15 | 0,2 | 0,35 | 0,5 | 0,7 |
| Compressive strength at 10% relative deformation (EN 826) | kPa | ≥ 200 | | | | |
| Reaction to fire (EN 13501-1) | - | Euroclass B-s1, d0 | | | | |
| Light reflection (EN 13964 - 4.9) | % | CELENIT AB: 50,7 (nature) - 74,0 (white painted S05/15) CELENIT A: 31,2 | | | | |

Table 7: Characteristics of ACOUSTIC | DESIGN panel NB

| CELENIT NB | | | | | |
|---|--------------------|---|------|-----|-------|
| Width of wood wool | mm | 3 | | | |
| Thickness (EN 823) | mm | 15 | 25 | 35 | 50 |
| Length (EN 822) | mm | 2400 - 2000 - 1200 - 600 | | | |
| Width (EN 822) | mm | 600 | | | |
| Weight (EN 1602) | kg/m ² | 8 | 11,5 | 14 | 18 |
| Density (EN 1602) | kg/m ³ | 533 | 460 | 400 | 360 |
| Declared thermal conductivity (EN 12667) | W/mK | 0,065 | | | |
| Declared thermal resistance (EN 12667) | m ² K/W | 0,2 | 0,35 | 0,5 | 0,75 |
| Compressive strength at 10% relative deformation (EN 826) | kPa | ≥ 200 | | | ≥ 150 |
| Reaction to fire (EN 13501-1) | - | Euroclass B-s1, d0 | | | |
| Light reflection (EN 13964 - 4.9) | % | 50,7 (nature) - 74,0 (white painted S05/15) | | | |

Monolayer sound absorbing panels, in Euroclass A2-s1, d0 made of mineralized wood wool bound with white or grey Portland cement and mineral powder (Figure 6 and Table 8 to Table 9).

Figure 6: Picture of CELENIT ABE/A2 and AB/A2
(from left to right, representative also for panels AE/A2 and A/A2, grey cement)



Table 8: Characteristics of ACOUSTIC | DESIGN panels ABE/A2 and AE/A2

| CELENIT ABE/A2 and AE/A2 | | | | |
|---|--------------------|--|------|------|
| Width of wood wool | mm | 1 | | |
| Thickness (EN 823) | mm | 15 | 25 | 35 |
| Length (EN 822) | mm | 2400 - 2000 - 1200 - 600 | | |
| Width (EN 822) | mm | 600 | | |
| Weight (EN 1602) | kg/m ² | 9,4 | 15,3 | 21,7 |
| Density (EN 1602) | kg/m ³ | 627 | 612 | 620 |
| Declared thermal conductivity (EN 12667) | W/mK | 0,100 | | |
| Declared thermal resistance (EN 12667) | m ² K/W | 0,15 | 0,25 | 0,35 |
| Compressive strength at 10% relative deformation (EN 826) | kPa | ≥ 300 | | |
| Reaction to fire (EN 13501-1) | - | Euroclass A2-s1, d0 | | |
| Light reflection (EN 13964 - 4.9) | % | CELENIT ABE/A2: 50,7 (nature) - 74,0 (white painted S05/15) CELENIT AE/A2: 31,2 | | |

Table 9: Characteristics of ACOUSTIC | DESIGN panels AB/A2 and A/A2

| CELENIT AB/A2 and A/A2 | | | | | | |
|--|--------------------|--|------|------|------|-----|
| Width of wood wool | mm | 2 | | | | |
| Thickness (EN 823) | mm | 10* | 15 | 25 | 35 | 50 |
| Length (EN 822) | mm | 2400 - 2000 - 1200 - 600 | | | | |
| Width (EN 822) | mm | 600 | | | | |
| Weight (EN 1602) | kg/m ² | 7,8 | 9,4 | 15,3 | 21,7 | 28 |
| Density (EN 1602) | kg/m ³ | 780 | 627 | 612 | 620 | 560 |
| Declared thermal conductivity (EN 12667) | W/mK | 0,100 | | | | |
| Declared thermal resistance (EN 12667) | m ² K/W | 0,1 | 0,15 | 0,25 | 0,35 | 0,5 |
| Compressive strength at 10% relative deformation (EN 826) | kPa | ≥ 300 | | | | |
| Reaction to fire (EN 13501-1) | - | Euroclass A2-s1, d0 | | | | |
| Light reflection (EN 13964 - 4.9) | % | CELENIT AB/A2: 50,7 (nature) - 74,0 (white painted S05/15) CELENIT A/A2: 31,2 | | | | |
| <i>*Only for AB/A2. AB/A2 does not have the CE marking</i> | | | | | | |

2.2.2 PRODUCT COMPOSITION AND RECYCLED CONTENTS

The composition of the product is reported in Table 10, for all analysed products. CELENIT panels do not contain SVHC.

Table 10: Bill of Materials (BoM) of BUILDING | CONSTRUCTION and ACOUSTIC | DESIGN monolayer panels

| Material/component | CELENIT ABE, AB, NB AE, A | CELENIT ABE/A2, AB/A2, AE/A2, A/A2 | CELENIT N, N/C | CELENIT R, RA, RAB |
|--|---|------------------------------------|----------------|--------------------|
| Cement | 37% | 32% | 37% | 34% |
| Wet wood wool (80% wood, 20% water) | 47,30% | 37,30% | 47,30% | 42,30% |
| Calcium carbonate* | 15% | 30% | 15% | 15% |
| Wooden laths | - | - | - | 8% |
| Calcium formate | 0,30% | 0,30% | 0,30% | 0,30% |
| Calcium chloride | 0,20% | 0,20% | 0,20% | 0,20% |
| Plus form synt (linear alkylate) | 0,20% | 0,20% | 0,20% | 0,20% |
| Painting (only for painted version) | 0,4 kg/m ² | | | |
| Packaging material | For all CELENIT product (kg/kg of CELENIT panel) | | | |
| Plastic straps | 0,00117 | | | |
| Cardboard angular | 0,00321 | | | |
| Cardboard box | 0,0133 | | | |
| Plastic film | 0,00321 | | | |
| Pallet | 0,186 | | | |

* See 2.2.2.1

2.2.2.1 RECYCLED CONTENT

Calcium carbonate is a pre-consumer material recovered from the marble extraction. In compliance to 14021, it is considered a recycled material.

2.2.3 ADDITIONAL INFORMATION ON RELEASE OF DANGEROUS SUBSTANCES TO SOIL, WATER AND LAND DURING THE USE STAGE

CELENIT wood wool panels are not dangerous for the human health: they are tested for the determination of formaldehyde release (according to the EN 717-1 standard) obtaining the E1 class. Furthermore, they do not contain asbestos and they are tested for the VOC emissions in the Eurofins Product Testing A/S and Istituto Giordano laboratories. The lab tests point out that the values are compliant with the most stringent regulatory requirements. These aspects together with a production process with reduced emissions to air and lower energy consumption have enabled the panels to obtain the ANAB-ICEA (Italian standard for green building) and natureplus® certifications. Recycled materials are used in the manufacturing such the calcium carbonate, which is the residual powder from the marble's extraction. For all these reasons, CELENIT panels can be used in projects that require building sustainability certificates such as Leed, Itaca protocol, SBtool, Bream.

3 ENVIRONMENTAL PRODUCT DECLARATION

3.1 METHODOLOGY

The study behind the present EPD has been performed according to the state of art of the LCA methodology, with specific reference to the construction sector, in accordance to the following standard and guidelines:

- EN ISO 14040:2006 Environmental management -- Life cycle assessment -- Principles and framework
- EN ISO 14044:2006 Environmental management -- Life cycle assessment -- Requirements and guidelines
- EN 15804:2012+A2:2019 Sustainability of construction works - Environmental product declarations - Core rules for the product category of construction products.
- General Programme Instructions (GPI) for the International EPD® VERSION 3.01
- The International EPD® System Product Category Rules (PCRs) for construction products 2019:14, version 1
- The International EPD® System Product Category Rules (PCRs) for thermal insulation products, C-PCR-005 (To PCR 2019:14), version 2019-12-20

The EPD is mainly addressed to the business-to-business communication. The data elaboration has been performed with the Gabi software, version 9.2.1.68. The database used are the most updated ones implemented in Gabi software. More in detail, main database used is ts. The Life Cycle Impact Assessment (LCIA) method used is the Environmental Footprint method, as implemented in the EN 15804:2012+A2:2019.

3.2 DECLARED UNIT

The declared unit is 1 m² of panel, plus its packaging.

3.3 SYSTEM BOUNDARY

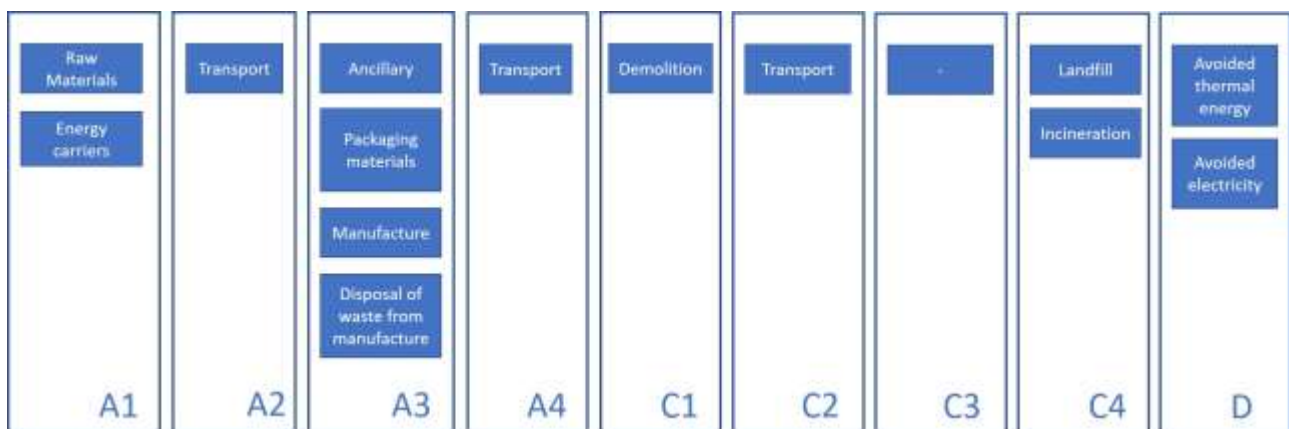
The EPD is a Cradle to Gate with options, modules C1-C4 and module D, as represented in Table 11 and in showed in Figure 7. Modules A5 and B1 to B7 are excluded as they are strongly dependent on the specific application case.

Table 11: Life cycle stages included in the study

| PRODUCT STAGE | | | CONSTRUCTION PROCESS STAGE | | USE STAGE | END-OF-LIFE STAGE | | | | BENEFITS and LOADS BEYOND SYSTEM BOUNDARY |
|---------------------|-----------|---------------|----------------------------|---------------------------|---|---------------------------|-----------|------------------|----------|---|
| A1 | A2 | A3 | A4 | A5 | B1 to B7 | C1 | C2 | C3 | C4 | D |
| Raw Material Supply | Transport | Manufacturing | Transport | Construction/Installation | Use, Maintenance, Repair, Replacement, Refurbishment, Operational energy use, Operational water use | Deconstruction/Demolition | Transport | Waste processing | Disposal | Reuse, Recycling potential |
| X | X | X | X | ND* | ND* | X | X | X | X | X |

* Module Not Declared

Figure 7: Representation of the system boundary of the study



The following stages are included in the study:

Raw Materials supply (A1). Production of raw materials used in the products as well as the production of energy carriers used in the production process.

Transport to the factory (A2). Transport to the factory of raw materials, packaging materials and ancillary

Manufacturing of the panels (A3). *It includes the following production phases:*

- Cutting of the wood trunks and implementation of the wet wood wool (including calcium chloride and calcium formate)
- Mixture implementation by adding Portland cement and calcium carbonate
- Moulding and pressing
- Curing
- Demoulding
- Drying
- Calibration (only for ACOUSTIC | DESIGN panels and CELENIT N/C)
- Squaring

Moreover, in module A3, the production of primary packaging and of the ancillary materials and the treatment of waste generated from the manufacturing processes are accounted for.

Transport to the user (A4)

Demolition/Deconstruction (C1)

Transport from collection to waste processing and disposal site (C2)

Waste processing (C3): No impact are accounted for in this module, as the waste is assumed to not be treated for recycling

Disposal (C4): landfill and incineration with energy recovery

Module D: benefit due to the avoided production of thermal energy and electricity from incineration in module C4.

The reference year of the study is 2019.

3.4 MAIN ASSUMPTIONS, CUT-OFFS, BACKGROUND DATA INFORMATION AND SCENARIOS

3.4.1 DATA QUALITY

Specific data used for all CELENIT's processes are based on the production year 2019. All background data used in the study are from LCI database and are not older than 5 years. With specific reference to the electricity used in the manufacturing processes, the electricity mix of the specific electricity supplier is used.

3.4.2 ALLOCATION

The allocation is made in accordance with the provisions of EN 15804. Energy and resources (water and ancillary) in input and waste and emissions in output from the site are allocated to the overall production of CELENIT boards (used in all CELENIT panels produced in 2019) based on the mass.

3.4.3 CUT-OFFS CRITERIA

Raw and packaging materials are fully included as well as the energy for manufacturing. In the same way, all manufacturing waste (including hazardous waste) and air emissions are accounted for.

The construction of the manufacturing site (capital goods) is not included.

3.4.4 BACKGROUND DATA INFORMATION

For the majority of the raw materials as well as for the packaging for the finished products a European production is considered. Raw materials road transport is assumed on a truck Euro 4 (> 32 t) with an utilisation ratio of 61%.

3.4.5 SCENARIOS FOR OPTIONAL MODULES

For the scenario for the transport towards clients, the average considered distance is reported in Table 12. Distances by transport means are based on the location of CELENIT's clients.

Table 12: Distance and transport means considered for module A4 for the ACOUSTIC | DESIGN panels and for BUILDING | CONSTRUCTION panels

| Transport information for module A4 | | |
|--|-----------------------|-------------------------|
| Transport mean | Utilisation ratio - % | Distance travelled - km |
| <i>ACOUSTIC DESIGN panels</i> | | |
| Diesel truck, Euro IV, > 32 t | 61 | 1200 |
| Container ship, 5,000 to 200,000 dwt payload capacity, ocean going | 70 | 500 |
| <i>BUILDING CONSTRUCTION panels</i> | | |
| Diesel truck, Euro IV, > 32 t | 61 | 800 |
| Container ship, 5,000 to 200,000 dwt payload capacity, ocean going | 70 | 50 |

When panels are applied with disassembly techniques as for example false ceilings or wall coverings, they can be potentially reused at their end of life, e.g. as insulation layer, however, this is currently an uncommon scenario. For the present EPD, a demolition process is assumed and demolition waste is considered to undergo an average final treatment mix, including incineration or landfill, according to the rates reported in Table 13. The scenario does not include any waste processing. For the demolition process a diesel consumption of 0,039 MJ/kg is considered. Table 14 reports transport information considered for module C2.

Table 13: Demolition waste treatment accounted for the End-of-life - module C4

| End-of-life – demolition waste treatment (C4) | |
|---|-----|
| Incineration with energy recovery | 45% |
| Landfill | 55% |

Table 14: Distance and transport means applied for the End-of-life - module C2

| End-of-life – transport information for module C2 | | |
|---|-----------------------|-------------------------|
| Transport mean | Utilisation ratio - % | Distance travelled - km |
| Diesel truck, Euro IV, > 32 t | 61 | 100 |

For module D, European electricity mix and European thermal energy from natural gas are considered to account for benefits from incineration occurring in C4.

3.5 PARAMETERS DESCRIBING THE ENVIRONMENTAL IMPACT

Environmental parameters reported in the following tables are:

- Climate Change (tot) – GWP_{tot} [kg CO₂ eq];
- Climate Change (fossil) – GWP_f [kg CO₂ eq];
- Climate Change (biogenic) – GWP_b [kg CO₂ eq];
- Climate Change (land use change) – GWPluc [kg CO₂ eq];
- Ozone Depletion – ODP [kg CFC11 eq];
- Acidification terrestrial and freshwater – AP [Mole of H⁺ eq.]
- Eutrophication freshwater – EP_{fr} [kg P eq.]
- Eutrophication marine – Ep_{mar} [kg N eq.]
- Eutrophication terrestrial – Ep_{ter} [Mole of N eq.]
- Photochemical ozone formation - human health – POCP [kg NMVOC eq.]
- Resource use, mineral and metals – ADP_e [kg Sb eq.]
- Resource use, energy carriers – ADP_f [MJ]
- Water scarcity – WS [m³ world equiv.]

The Global Warming Potential – GWP [kg CO₂ eq] is reported too. The indicator includes all greenhouse gases included in GWP-total but excludes biogenic carbon dioxide emissions and uptake and biogenic carbon stored in the product. The results of indicator WS, ADP_f and ADP_e shall be used with care as the uncertainty on this results are high or as there is limited experience with them.

The following additional environmental impact indicators are excluded from the present EPD:

- Respiratory inorganics
- Ionising radiation
- Ecotoxicity freshwater
- Cancer human health effects
- Non-cancer human health effects
- Land use

3.5.1 BUILDING | CONSTRUCTION PANELS

Table 15: Environmental profile of BUILDING | CONSTRUCTION panels N and N/C - Reference thickness is 50 mm. The maximum impact variation is reported for A1-A3, registered for the thickness 75 mm, maximum available thickness

| Impact category | | <i>Environmental profile of BUILDING CONSTRUCTION panels CELENIT N and N/C</i> | | | | | | | |
|-------------------------------------|-------------|--|-----------|-----------|-----------|-----------|----------|----------|-----------|
| | | A1-A3 | | A4 | C1 | C2 | C3 | C4 | D |
| | | 50 mm | 75 mm | 50 mm | 50 mm | 50 mm | 50 mm | 50 mm | 50 mm |
| GWPtot [kg CO ₂ eq] | Not painted | 1,11E+00 | 1,60E+00 | 1,52E+00 | 5,37E-02 | 1,17E-01 | 0,00E+00 | 1,11E+01 | -2,64E+00 |
| | Painted | 2,16E+00 | 2,65E+00 | 1,60E+00 | 5,67E-02 | 1,24E-01 | 0,00E+00 | 1,13E+01 | -2,79E+00 |
| GWPf [kg CO ₂ eq] | Not painted | 8,52E+00 | 1,23E+01 | 1,51E+00 | 5,57E-02 | 1,17E-01 | 0,00E+00 | 3,63E+00 | -2,64E+00 |
| | Painted | 9,56E+00 | 1,34E+01 | 1,59E+00 | 5,88E-02 | 1,23E-01 | 0,00E+00 | 3,83E+00 | -2,78E+00 |
| GWPb [kg CO ₂ eq] | Not painted | -7,42E+00 | -1,07E+01 | -2,38E-03 | -2,47E-03 | -2,02E-04 | 0,00E+00 | 7,48E+00 | -5,87E-03 |
| | Painted | -7,42E+00 | -1,07E+01 | -2,51E-03 | -2,61E-03 | -2,13E-04 | 0,00E+00 | 7,48E+00 | -6,20E-03 |
| GWPluc [kg CO ₂ eq] | Not painted | 1,18E-02 | 1,70E-02 | 1,17E-02 | 4,35E-04 | 9,56E-04 | 0,00E+00 | 7,16E-04 | -1,60E-03 |
| | Painted | 1,24E-02 | 1,77E-02 | 1,24E-02 | 4,59E-04 | 1,01E-03 | 0,00E+00 | 7,55E-04 | -1,69E-03 |
| Ozone Depletion – ODP [kg CFC11 eq] | Not painted | 3,94E-08 | 5,69E-08 | 1,81E-16 | 6,45E-18 | 1,42E-17 | 0,00E+00 | 3,00E-15 | -2,37E-14 |
| | Painted | 3,98E-08 | 5,73E-08 | 1,92E-16 | 6,81E-18 | 1,50E-17 | 0,00E+00 | 3,17E-15 | -2,50E-14 |
| AP [Mole of H ⁺ eq.] | Not painted | 2,45E-02 | 3,53E-02 | 1,14E-02 | 2,69E-04 | 1,37E-03 | 0,00E+00 | 5,33E-03 | -3,41E-03 |
| | Painted | 2,65E-02 | 3,73E-02 | 1,20E-02 | 2,84E-04 | 1,45E-03 | 0,00E+00 | 5,63E-03 | -3,60E-03 |
| EPfr [kg P eq.] | Not painted | 3,04E-05 | 4,39E-05 | 4,43E-06 | 1,63E-07 | 3,59E-07 | 0,00E+00 | 1,10E-06 | -2,95E-06 |
| | Painted | 3,72E-05 | 5,07E-05 | 4,67E-06 | 1,72E-07 | 3,79E-07 | 0,00E+00 | 1,16E-06 | -3,12E-06 |
| EPmar [kg N eq.] | Not painted | 9,59E-03 | 1,39E-02 | 4,92E-03 | 1,25E-04 | 6,92E-04 | 0,00E+00 | 1,90E-03 | -9,11E-04 |
| | Painted | 1,02E-02 | 1,44E-02 | 5,19E-03 | 1,32E-04 | 7,31E-04 | 0,00E+00 | 2,01E-03 | -9,62E-04 |
| EPpter [Mole of N eq.] | Not painted | 1,06E-01 | 1,53E-01 | 5,44E-02 | 1,38E-03 | 7,63E-03 | 0,00E+00 | 2,35E-02 | -9,80E-03 |
| | Painted | 1,12E-01 | 1,59E-01 | 5,74E-02 | 1,46E-03 | 8,05E-03 | 0,00E+00 | 2,48E-02 | -1,03E-02 |
| POCP [kg NMVOC eq.] | Not painted | 3,14E-02 | 4,54E-02 | 1,01E-02 | 3,51E-04 | 1,27E-03 | 0,00E+00 | 5,06E-03 | -2,64E-03 |
| | Painted | 3,36E-02 | 4,75E-02 | 1,07E-02 | 3,71E-04 | 1,34E-03 | 0,00E+00 | 5,35E-03 | -2,79E-03 |
| ADPe [kg Sb eq.] | Not painted | 2,20E-06 | 3,17E-06 | 1,06E-07 | 3,85E-09 | 8,46E-09 | 0,00E+00 | 5,09E-08 | -3,91E-07 |
| | Painted | 2,41E-06 | 3,38E-06 | 1,12E-07 | 4,06E-09 | 8,93E-09 | 0,00E+00 | 5,37E-08 | -4,13E-07 |
| ADPf [MJ] | Not painted | 7,54E+01 | 1,09E+02 | 2,02E+01 | 7,15E-01 | 1,57E+00 | 0,00E+00 | 6,44E+00 | -4,45E+01 |
| | Painted | 9,70E+01 | 1,31E+02 | 2,13E+01 | 7,54E-01 | 1,66E+00 | 0,00E+00 | 6,80E+00 | -4,69E+01 |
| WS [m ³ world equiv.] | Not painted | 1,64E+00 | 2,38E+00 | 1,31E-02 | 4,80E-04 | 1,06E-03 | 0,00E+00 | 1,29E+00 | -2,31E-01 |
| | Painted | 1,59E+00 | 2,32E+00 | 1,38E-02 | 5,06E-04 | 1,11E-03 | 0,00E+00 | 1,36E+00 | -2,44E-01 |
| GWP [kg CO ₂ eq] | Not painted | 8,53E+00 | 1,23E+01 | 1,52E+00 | 5,62E-02 | 1,18E-01 | 0,00E+00 | 3,63E+00 | -2,64E+00 |
| | Painted | 9,58E+00 | 1,34E+01 | 1,61E+00 | 5,93E-02 | 1,24E-01 | 0,00E+00 | 3,83E+00 | -2,79E+00 |

Table 16: Environmental profile of BUILDING | CONSTRUCTION panels R - Reference thickness is 50 mm. The maximum impact variation is reported for A1-A3, registered for the thickness 75 mm, maximum available thickness

| <i>Environmental profile of BUILDING CONSTRUCTION panels CELENIT R</i> | | | | | | | | | |
|--|-------------|-----------|-----------|-----------|-----------|-----------|----------|----------|-----------|
| Impact category | | A1-A3 | | A4 | C1 | C2 | C3 | C4 | D |
| | | 50 mm | 75 mm | 50 mm | 50 mm | 50 mm | 50 mm | 50 mm | 50 mm |
| GWPot [kg CO ₂ eq] | Not painted | -7,00E-02 | -9,79E-02 | 1,08E+00 | 5,97E-02 | 1,30E-01 | 0,00E+00 | 1,32E+01 | -2,94E+00 |
| | Painted | 9,80E-01 | 9,53E-01 | 1,13E+00 | 6,26E-02 | 1,37E-01 | 0,00E+00 | 1,34E+01 | -3,09E+00 |
| GWPf [kg CO ₂ eq] | Not painted | 9,04E+00 | 1,27E+01 | 1,07E+00 | 6,19E-02 | 1,30E-01 | 0,00E+00 | 4,03E+00 | -2,93E+00 |
| | Painted | 1,01E+01 | 1,37E+01 | 1,12E+00 | 6,50E-02 | 1,36E-01 | 0,00E+00 | 4,23E+00 | -3,08E+00 |
| GWPb [kg CO ₂ eq] | Not painted | -9,13E+00 | -1,28E+01 | -1,82E-03 | -2,74E-03 | -2,24E-04 | 0,00E+00 | 9,20E+00 | -6,52E-03 |
| | Painted | -9,12E+00 | -1,28E+01 | -1,92E-03 | -2,88E-03 | -2,35E-04 | 0,00E+00 | 9,20E+00 | -6,85E-03 |
| GWPluc [kg CO ₂ eq] | Not painted | 1,23E-02 | 1,72E-02 | 8,70E-03 | 4,83E-04 | 1,06E-03 | 0,00E+00 | 7,95E-04 | -1,78E-03 |
| | Painted | 1,29E-02 | 1,78E-02 | 9,13E-03 | 5,07E-04 | 1,12E-03 | 0,00E+00 | 8,35E-04 | -1,87E-03 |
| Ozone Depletion – ODP [kg CFC11 eq] | Not painted | 4,38E-08 | 6,12E-08 | 1,30E-16 | 7,17E-18 | 1,58E-17 | 0,00E+00 | 3,34E-15 | -2,63E-14 |
| | Painted | 4,42E-08 | 6,16E-08 | 1,36E-16 | 7,53E-18 | 1,66E-17 | 0,00E+00 | 3,51E-15 | -2,76E-14 |
| AP [Mole of H ⁺ eq.] | Not painted | 2,55E-02 | 3,56E-02 | 6,70E-03 | 2,99E-04 | 1,52E-03 | 0,00E+00 | 5,92E-03 | -3,79E-03 |
| | Painted | 2,75E-02 | 3,76E-02 | 7,03E-03 | 3,14E-04 | 1,60E-03 | 0,00E+00 | 6,22E-03 | -3,98E-03 |
| EPfr [kg P eq.] | Not painted | 3,37E-05 | 4,71E-05 | 3,27E-06 | 1,81E-07 | 3,99E-07 | 0,00E+00 | 1,22E-06 | -3,28E-06 |
| | Painted | 4,04E-05 | 5,39E-05 | 3,43E-06 | 1,90E-07 | 4,19E-07 | 0,00E+00 | 1,28E-06 | -3,44E-06 |
| EPmar [kg N eq.] | Not painted | 9,89E-03 | 1,38E-02 | 3,18E-03 | 1,39E-04 | 7,69E-04 | 0,00E+00 | 2,12E-03 | -1,01E-03 |
| | Painted | 1,05E-02 | 1,44E-02 | 3,34E-03 | 1,46E-04 | 8,08E-04 | 0,00E+00 | 2,22E-03 | -1,06E-03 |
| EPpter [Mole of N eq.] | Not painted | 1,09E-01 | 1,53E-01 | 3,52E-02 | 1,54E-03 | 8,47E-03 | 0,00E+00 | 2,61E-02 | -1,09E-02 |
| | Painted | 1,15E-01 | 1,59E-01 | 3,70E-02 | 1,62E-03 | 8,90E-03 | 0,00E+00 | 2,74E-02 | -1,14E-02 |
| POCP [kg NMVOC eq.] | Not painted | 3,35E-02 | 4,69E-02 | 6,19E-03 | 3,90E-04 | 1,41E-03 | 0,00E+00 | 5,63E-03 | -2,93E-03 |
| | Painted | 3,56E-02 | 4,90E-02 | 6,50E-03 | 4,10E-04 | 1,48E-03 | 0,00E+00 | 5,91E-03 | -3,08E-03 |
| ADPe [kg Sb eq.] | Not painted | 2,44E-06 | 3,42E-06 | 7,72E-08 | 4,28E-09 | 9,40E-09 | 0,00E+00 | 5,65E-08 | -4,34E-07 |
| | Painted | 2,66E-06 | 3,63E-06 | 8,11E-08 | 4,49E-09 | 9,87E-09 | 0,00E+00 | 5,94E-08 | -4,56E-07 |
| ADPf [MJ] | Not painted | 8,18E+01 | 1,14E+02 | 1,44E+01 | 7,94E-01 | 1,75E+00 | 0,00E+00 | 7,16E+00 | -4,94E+01 |
| | Painted | 1,03E+02 | 1,36E+02 | 1,51E+01 | 8,34E-01 | 1,83E+00 | 0,00E+00 | 7,52E+00 | -5,19E+01 |
| WS [m ³ world equiv.] | Not painted | 1,81E+00 | 2,53E+00 | 9,62E-03 | 5,33E-04 | 1,17E-03 | 0,00E+00 | 1,43E+00 | -2,57E-01 |
| | Painted | 1,76E+00 | 2,48E+00 | 1,01E-02 | 5,60E-04 | 1,23E-03 | 0,00E+00 | 1,50E+00 | -2,70E-01 |
| GWP [kg CO ₂ eq] | Not painted | 9,06E+00 | 1,27E+01 | 1,08E+00 | 6,24E-02 | 1,31E-01 | 0,00E+00 | 4,03E+00 | -2,93E+00 |
| | Painted | 1,01E+01 | 1,37E+01 | 1,13E+00 | 6,55E-02 | 1,37E-01 | 0,00E+00 | 4,23E+00 | -3,08E+00 |

Table 17: Environmental profile of BUILDING | CONSTRUCTION panels RA and RAB - Thickness 50 mm

| <i>Environmental profile of BUILDING CONSTRUCTION panels CELENIT RA and RAB</i> | | | | | | | | |
|---|-------------|----------------|-------------|-------------|-------------|-------------|-------------|------------|
| Impact category | | A1-A3 50 mm | A4 50 mm | C1 50 mm | C2 50 mm | C3 50 mm | C4 50 mm | D 50 mm |
| GWPtot [kg CO2 eq] | Not painted | -8,40E-02 | 1,29E+00 | 7,16E-02 | 1,57E-01 | 0,00E+00 | 1,59E+01 | -3,53E+00 |
| | Painted | 9,66E-01 | 1,35E+00 | 7,46E-02 | 1,63E-01 | 0,00E+00 | 1,63E+01 | -3,67E+00 |
| GWPf [kg CO2 eq] | Not painted | 1,09E+01 | 1,28E+00 | 7,43E-02 | 1,56E-01 | 0,00E+00 | 4,84E+00 | -3,52E+00 |
| | Painted | 1,19E+01 | 1,34E+00 | 7,74E-02 | 1,62E-01 | 0,00E+00 | 5,04E+00 | -3,66E+00 |
| GWPb [kg CO2 eq] | Not painted | -1,10E+01 | -2,19E-03 | -3,29E-03 | -2,69E-04 | 0,00E+00 | 1,10E+01 | -7,83E-03 |
| | Painted | -1,09E+01 | -2,28E-03 | -3,43E-03 | -2,80E-04 | 0,00E+00 | 1,13E+01 | -8,15E-03 |
| GWPluc [kg CO2 eq] | Not painted | 1,47E-02 | 1,04E-02 | 5,79E-04 | 1,27E-03 | 0,00E+00 | 9,54E-04 | -2,14E-03 |
| | Painted | 1,54E-02 | 1,09E-02 | 6,04E-04 | 1,33E-03 | 0,00E+00 | 9,94E-04 | -2,23E-03 |
| Ozone Depletion – ODP [kg CFC11 eq] | Not painted | 5,25E-08 | 1,56E-16 | 8,60E-18 | 1,89E-17 | 0,00E+00 | 4,01E-15 | -3,15E-14 |
| | Painted | 5,29E-08 | 1,62E-16 | 8,96E-18 | 1,97E-17 | 0,00E+00 | 4,17E-15 | -3,29E-14 |
| AP [Mole of H+ eq.] | Not painted | 3,05E-02 | 8,04E-03 | 3,59E-04 | 1,83E-03 | 0,00E+00 | 7,11E-03 | -4,55E-03 |
| | Painted | 3,26E-02 | 8,37E-03 | 3,74E-04 | 1,91E-03 | 0,00E+00 | 7,40E-03 | -4,74E-03 |
| EPfr [kg P eq.] | Not painted | 4,04E-05 | 3,92E-06 | 2,18E-07 | 4,78E-07 | 0,00E+00 | 1,46E-06 | -3,94E-06 |
| | Painted | 4,72E-05 | 4,08E-06 | 2,27E-07 | 4,98E-07 | 0,00E+00 | 1,52E-06 | -4,10E-06 |
| EPmar [kg N eq.] | Not painted | 1,19E-02 | 3,82E-03 | 1,67E-04 | 9,23E-04 | 0,00E+00 | 2,54E-03 | -1,22E-03 |
| | Painted | 1,24E-02 | 3,98E-03 | 1,74E-04 | 9,62E-04 | 0,00E+00 | 2,64E-03 | -1,27E-03 |
| EPpter [Mole of N eq.] | Not painted | 1,31E-01 | 4,22E-02 | 1,85E-03 | 1,02E-02 | 0,00E+00 | 3,13E-02 | -1,31E-02 |
| | Painted | 1,37E-01 | 4,40E-02 | 1,92E-03 | 1,06E-02 | 0,00E+00 | 3,26E-02 | -1,36E-02 |
| POCP [kg NMVOC eq.] | Not painted | 4,02E-02 | 7,43E-03 | 4,69E-04 | 1,69E-03 | 0,00E+00 | 6,75E-03 | -3,52E-03 |
| | Painted | 4,23E-02 | 7,74E-03 | 4,88E-04 | 1,76E-03 | 0,00E+00 | 7,03E-03 | -3,67E-03 |
| ADPe [kg Sb eq.] | Not painted | 2,93E-06 | 9,27E-08 | 5,13E-09 | 1,13E-08 | 0,00E+00 | 6,78E-08 | -5,21E-07 |
| | Painted | 3,15E-06 | 9,66E-08 | 5,35E-09 | 1,18E-08 | 0,00E+00 | 7,07E-08 | -5,43E-07 |
| ADPf [MJ] | Not painted | 9,81E+01 | 1,73E+01 | 9,53E-01 | 2,10E+00 | 0,00E+00 | 8,59E+00 | -5,93E+01 |
| | Painted | 1,20E+02 | 1,80E+01 | 9,93E-01 | 2,18E+00 | 0,00E+00 | 8,95E+00 | -6,18E+01 |
| WS [m³ world equiv.] | Not painted | 2,17E+00 | 1,15E-02 | 6,40E-04 | 1,41E-03 | 0,00E+00 | 1,72E+00 | -3,08E-01 |
| | Painted | 2,12E+00 | 1,20E-02 | 6,66E-04 | 1,47E-03 | 0,00E+00 | 1,79E+00 | -3,21E-01 |
| GWP [kg CO2 eq] | Not painted | 1,09E+01 | 1,30E+00 | 7,49E-02 | 1,57E-01 | 0,00E+00 | 4,84E+00 | -3,52E+00 |
| | Painted | 1,19E+01 | 1,35E+00 | 7,80E-02 | 1,63E-01 | 0,00E+00 | 5,04E+00 | -3,66E+00 |

3.5.2 ACOUSTIC | DESIGN PANELS

Table 18: Environmental profile of ACOUSTIC | DESIGN panels ABE, AB, AE and A - Reference thickness is 25 mm. The maximum impact variation is reported for A1-A3, registered for the thickness 50 mm, maximum available thickness

| Impact category | | <i>Environmental profile of ACOUSTIC DESIGN panels CELENIT ABE, AB, AE and A</i> | | | | | | | |
|-------------------------------------|-------------|--|-----------|-----------|-----------|-----------|----------|----------|-----------|
| | | A1-A3 | | A4 | C1 | C2 | C3 | C4 | D |
| | | 25 mm | 50 mm | 25 mm | 25 mm | 25 mm | 25 mm | 25 mm | 25 mm |
| GWPot [kg CO ₂ eq] | Not painted | 7,40E-01 | 1,23E+00 | 1,01E+00 | 3,58E-02 | 7,83E-02 | 0,00E+00 | 7,41E+00 | -1,76E+00 |
| | Painted | 1,79E+00 | 2,28E+00 | 1,10E+00 | 3,88E-02 | 8,48E-02 | 0,00E+00 | 7,61E+00 | -1,91E+00 |
| GWPf [kg CO ₂ eq] | Not painted | 5,68E+00 | 9,47E+00 | 1,01E+00 | 3,71E-02 | 7,78E-02 | 0,00E+00 | 2,42E+00 | -1,76E+00 |
| | Painted | 6,72E+00 | 1,05E+01 | 1,09E+00 | 4,02E-02 | 8,42E-02 | 0,00E+00 | 2,62E+00 | -1,90E+00 |
| GWPb [kg CO ₂ eq] | Not painted | -4,95E+00 | -8,25E+00 | -1,59E-03 | -1,65E-03 | -1,34E-04 | 0,00E+00 | 4,99E+00 | -3,91E-03 |
| | Painted | -4,94E+00 | -8,24E+00 | -1,72E-03 | -1,78E-03 | -1,46E-04 | 0,00E+00 | 4,99E+00 | -4,24E-03 |
| GWPluc [kg CO ₂ eq] | Not painted | 7,85E-03 | 1,31E-02 | 7,83E-03 | 2,90E-04 | 6,37E-04 | 0,00E+00 | 4,77E-04 | -1,07E-03 |
| | Painted | 8,49E-03 | 1,37E-02 | 8,48E-03 | 3,14E-04 | 6,90E-04 | 0,00E+00 | 5,17E-04 | -1,16E-03 |
| Ozone Depletion – ODP [kg CFC11 eq] | Not painted | 2,63E-08 | 4,38E-08 | 1,21E-16 | 4,30E-18 | 9,46E-18 | 0,00E+00 | 2,00E-15 | -1,58E-14 |
| | Painted | 2,67E-08 | 4,42E-08 | 1,31E-16 | 4,66E-18 | 1,02E-17 | 0,00E+00 | 2,17E-15 | -1,71E-14 |
| AP [Mole of H ⁺ eq.] | Not painted | 1,63E-02 | 2,72E-02 | 7,61E-03 | 1,80E-04 | 9,15E-04 | 0,00E+00 | 3,55E-03 | -2,28E-03 |
| | Painted | 1,83E-02 | 2,92E-02 | 8,24E-03 | 1,95E-04 | 9,91E-04 | 0,00E+00 | 3,85E-03 | -2,47E-03 |
| EPfr [kg P eq.] | Not painted | 2,02E-05 | 3,37E-05 | 2,95E-06 | 1,09E-07 | 2,39E-07 | 0,00E+00 | 7,31E-07 | -1,97E-06 |
| | Painted | 2,70E-05 | 4,05E-05 | 3,20E-06 | 1,18E-07 | 2,59E-07 | 0,00E+00 | 7,92E-07 | -2,13E-06 |
| EPmar [kg N eq.] | Not painted | 6,39E-03 | 1,07E-02 | 3,28E-03 | 8,34E-05 | 4,62E-04 | 0,00E+00 | 1,27E-03 | -6,08E-04 |
| | Painted | 6,97E-03 | 1,12E-02 | 3,55E-03 | 9,03E-05 | 5,00E-04 | 0,00E+00 | 1,37E-03 | -6,58E-04 |
| EPpter [Mole of N eq.] | Not painted | 7,06E-02 | 1,18E-01 | 3,62E-02 | 9,23E-04 | 5,08E-03 | 0,00E+00 | 1,57E-02 | -6,53E-03 |
| | Painted | 7,68E-02 | 1,24E-01 | 3,93E-02 | 1,00E-03 | 5,51E-03 | 0,00E+00 | 1,70E-02 | -7,08E-03 |
| POCP [kg NMVOC eq.] | Not painted | 2,10E-02 | 3,49E-02 | 6,73E-03 | 2,34E-04 | 8,44E-04 | 0,00E+00 | 3,38E-03 | -1,76E-03 |
| | Painted | 2,31E-02 | 3,71E-02 | 7,30E-03 | 2,54E-04 | 9,14E-04 | 0,00E+00 | 3,66E-03 | -1,91E-03 |
| ADPe [kg Sb eq.] | Not painted | 1,46E-06 | 2,44E-06 | 7,06E-08 | 2,57E-09 | 5,64E-09 | 0,00E+00 | 3,39E-08 | -2,61E-07 |
| | Painted | 1,68E-06 | 2,65E-06 | 7,65E-08 | 2,78E-09 | 6,11E-09 | 0,00E+00 | 3,67E-08 | -2,82E-07 |
| ADPf [MJ] | Not painted | 5,03E+01 | 8,38E+01 | 1,35E+01 | 4,76E-01 | 1,05E+00 | 0,00E+00 | 4,30E+00 | -2,97E+01 |
| | Painted | 7,19E+01 | 1,05E+02 | 1,46E+01 | 5,16E-01 | 1,14E+00 | 0,00E+00 | 4,65E+00 | -3,21E+01 |
| WS [m ³ world equiv.] | Not painted | 1,10E+00 | 1,83E+00 | 8,73E-03 | 3,20E-04 | 7,03E-04 | 0,00E+00 | 8,58E-01 | -1,54E-01 |
| | Painted | 1,04E+00 | 1,77E+00 | 9,46E-03 | 3,47E-04 | 7,62E-04 | 0,00E+00 | 9,29E-01 | -1,67E-01 |
| GWP [kg CO ₂ eq] | Not painted | 5,69E+00 | 9,48E+00 | 1,01E+00 | 3,74E-02 | 7,84E-02 | 0,00E+00 | 2,42E+00 | -1,76E+00 |
| | Painted | 6,73E+00 | 1,05E+01 | 1,10E+00 | 4,06E-02 | 8,49E-02 | 0,00E+00 | 2,62E+00 | -1,91E+00 |

Table 19: Environmental profile of ACOUSTIC | DESIGN panels NB - Reference thickness is 25 mm. The maximum impact variation is reported for A1-A3, registered for the thickness 50 mm, maximum available thickness

| Impact category | | Environmental profile of ACOUSTIC DESIGN panel CELENIT NB | | | | | | | |
|-------------------------------------|-------------|---|-----------|-----------|-----------|-----------|----------|----------|-----------|
| | | A1-A3 | | A4 | C1 | C2 | C3 | C4 | D |
| | | 25 mm | 50 mm | 25 mm | 25 mm | 25 mm | 25 mm | 25 mm | 25 mm |
| GWPtot [kg CO ₂ eq] | Not painted | 7,09E-01 | 1,11E+00 | 9,70E-01 | 3,43E-02 | 7,50E-02 | 0,00E+00 | 7,10E+00 | -1,69E+00 |
| | Painted | 1,76E+00 | 2,16E+00 | 1,05E+00 | 3,73E-02 | 8,15E-02 | 0,00E+00 | 7,30E+00 | -1,84E+00 |
| GWPf [kg CO ₂ eq] | Not painted | 5,44E+00 | 8,52E+00 | 9,64E-01 | 3,56E-02 | 7,45E-02 | 0,00E+00 | 2,32E+00 | -1,68E+00 |
| | Painted | 6,49E+00 | 9,56E+00 | 1,05E+00 | 3,87E-02 | 8,10E-02 | 0,00E+00 | 2,52E+00 | -1,83E+00 |
| GWPb [kg CO ₂ eq] | Not painted | -4,74E+00 | -7,42E+00 | -1,52E-03 | -1,58E-03 | -1,29E-04 | 0,00E+00 | 4,78E+00 | -3,75E-03 |
| | Painted | -4,74E+00 | -7,42E+00 | -1,65E-03 | -1,71E-03 | -1,40E-04 | 0,00E+00 | 4,78E+00 | -4,08E-03 |
| GWPluc [kg CO ₂ eq] | Not painted | 7,53E-03 | 1,18E-02 | 7,50E-03 | 2,78E-04 | 6,11E-04 | 0,00E+00 | 4,57E-04 | -1,02E-03 |
| | Painted | 8,16E-03 | 1,24E-02 | 8,16E-03 | 3,02E-04 | 6,64E-04 | 0,00E+00 | 4,97E-04 | -1,11E-03 |
| Ozone Depletion – ODP [kg CFC11 eq] | Not painted | 2,52E-08 | 3,94E-08 | 1,16E-16 | 4,12E-18 | 9,07E-18 | 0,00E+00 | 1,92E-15 | -1,51E-14 |
| | Painted | 2,56E-08 | 3,98E-08 | 1,26E-16 | 4,48E-18 | 9,85E-18 | 0,00E+00 | 2,09E-15 | -1,64E-14 |
| AP [Mole of H ⁺ eq.] | Not painted | 1,56E-02 | 2,45E-02 | 7,29E-03 | 1,72E-04 | 8,77E-04 | 0,00E+00 | 3,41E-03 | -2,18E-03 |
| | Painted | 1,76E-02 | 2,65E-02 | 7,92E-03 | 1,87E-04 | 9,53E-04 | 0,00E+00 | 3,70E-03 | -2,37E-03 |
| EPfr [kg P eq.] | Not painted | 1,94E-05 | 3,04E-05 | 2,83E-06 | 1,04E-07 | 2,29E-07 | 0,00E+00 | 7,01E-07 | -1,89E-06 |
| | Painted | 2,62E-05 | 3,72E-05 | 3,07E-06 | 1,13E-07 | 2,49E-07 | 0,00E+00 | 7,62E-07 | -2,05E-06 |
| EPmar [kg N eq.] | Not painted | 6,13E-03 | 9,59E-03 | 3,14E-03 | 7,99E-05 | 4,42E-04 | 0,00E+00 | 1,22E-03 | -5,82E-04 |
| | Painted | 6,71E-03 | 1,02E-02 | 3,42E-03 | 8,68E-05 | 4,81E-04 | 0,00E+00 | 1,32E-03 | -6,33E-04 |
| EPpter [Mole of N eq.] | Not painted | 6,77E-02 | 1,06E-01 | 3,47E-02 | 8,85E-04 | 4,87E-03 | 0,00E+00 | 1,50E-02 | -6,26E-03 |
| | Painted | 7,38E-02 | 1,12E-01 | 3,78E-02 | 9,62E-04 | 5,30E-03 | 0,00E+00 | 1,63E-02 | -6,80E-03 |
| POCP [kg NMVOC eq.] | Not painted | 2,01E-02 | 3,14E-02 | 6,45E-03 | 2,25E-04 | 8,09E-04 | 0,00E+00 | 3,24E-03 | -1,69E-03 |
| | Painted | 2,22E-02 | 3,36E-02 | 7,02E-03 | 2,44E-04 | 8,79E-04 | 0,00E+00 | 3,52E-03 | -1,83E-03 |
| ADPe [kg Sb eq.] | Not painted | 1,40E-06 | 2,20E-06 | 6,77E-08 | 2,46E-09 | 5,41E-09 | 0,00E+00 | 3,25E-08 | -2,50E-07 |
| | Painted | 1,61E-06 | 2,41E-06 | 7,36E-08 | 2,67E-09 | 5,88E-09 | 0,00E+00 | 3,53E-08 | -2,71E-07 |
| ADPf [MJ] | Not painted | 4,82E+01 | 7,54E+01 | 1,29E+01 | 4,57E-01 | 1,00E+00 | 0,00E+00 | 4,12E+00 | -2,84E+01 |
| | Painted | 6,98E+01 | 9,70E+01 | 1,40E+01 | 4,96E-01 | 1,09E+00 | 0,00E+00 | 4,47E+00 | -3,09E+01 |
| WS [m ³ world equiv.] | Not painted | 1,05E+00 | 1,64E+00 | 8,37E-03 | 3,07E-04 | 6,74E-04 | 0,00E+00 | 8,22E-01 | -1,48E-01 |
| | Painted | 9,98E-01 | 1,59E+00 | 9,10E-03 | 3,33E-04 | 7,33E-04 | 0,00E+00 | 8,93E-01 | -1,60E-01 |
| GWP [kg CO ₂ eq] | Not painted | 5,45E+00 | 8,53E+00 | 9,72E-01 | 3,59E-02 | 7,51E-02 | 0,00E+00 | 2,32E+00 | -1,69E+00 |
| | Painted | 6,50E+00 | 9,58E+00 | 1,06E+00 | 3,90E-02 | 8,17E-02 | 0,00E+00 | 2,52E+00 | -1,83E+00 |

Table 20: Environmental profile of ACOUSTIC | DESIGN panels ABE/A2, AB/A2, AE/A2 and A/A2 - Reference thickness is 25 mm. The maximum impact variation is reported for A1-A3, registered for the thickness 50 mm, maximum available thickness

| Impact category | | Environmental profile of ACOUSTIC DESIGN panels CELENIT ABE/A2, AB/A2, AE/A2 and A/A2 | | | | | | | |
|-------------------------------------|-------------|---|-----------|-----------|-----------|-----------|----------|----------|-----------|
| | | A1-A3 | | A4 | C1 | C2 | C3 | C4 | D |
| | | 25 mm | 50 mm | 25 mm | 25 mm | 25 mm | 25 mm | 25 mm | 25 mm |
| GWPtot [kg CO ₂ eq] | Not painted | 1,55E+00 | 2,83E+00 | 1,29E+00 | 4,56E-02 | 9,98E-02 | 0,00E+00 | 8,10E+00 | -2,25E+00 |
| | Painted | 2,60E+00 | 3,88E+00 | 1,38E+00 | 4,86E-02 | 1,06E-01 | 0,00E+00 | 8,30E+00 | -2,39E+00 |
| GWPf [kg CO ₂ eq] | Not painted | 6,50E+00 | 1,19E+01 | 1,28E+00 | 4,74E-02 | 9,91E-02 | 0,00E+00 | 3,08E+00 | -2,24E+00 |
| | Painted | 7,55E+00 | 1,29E+01 | 1,37E+00 | 5,05E-02 | 1,06E-01 | 0,00E+00 | 3,28E+00 | -2,39E+00 |
| GWPb [kg CO ₂ eq] | Not painted | -4,96E+00 | -9,09E+00 | -2,02E-03 | -2,10E-03 | -1,71E-04 | 0,00E+00 | 5,02E+00 | -4,99E-03 |
| | Painted | -4,96E+00 | -9,08E+00 | -2,15E-03 | -2,24E-03 | -1,83E-04 | 0,00E+00 | 5,02E+00 | -5,32E-03 |
| GWPluc [kg CO ₂ eq] | Not painted | 8,62E-03 | 1,58E-02 | 9,98E-03 | 3,69E-04 | 8,12E-04 | 0,00E+00 | 6,08E-04 | -1,36E-03 |
| | Painted | 9,26E-03 | 1,64E-02 | 1,06E-02 | 3,94E-04 | 8,66E-04 | 0,00E+00 | 6,48E-04 | -1,45E-03 |
| Ozone Depletion – ODP [kg CFC11 eq] | Not painted | 3,35E-08 | 6,13E-08 | 1,54E-16 | 5,48E-18 | 1,21E-17 | 0,00E+00 | 2,55E-15 | -2,01E-14 |
| | Painted | 3,39E-08 | 6,17E-08 | 1,64E-16 | 5,84E-18 | 1,28E-17 | 0,00E+00 | 2,72E-15 | -2,14E-14 |
| AP [Mole of H ⁺ eq.] | Not painted | 1,79E-02 | 3,27E-02 | 9,70E-03 | 2,29E-04 | 1,17E-03 | 0,00E+00 | 4,53E-03 | -2,90E-03 |
| | Painted | 1,99E-02 | 3,47E-02 | 1,03E-02 | 2,44E-04 | 1,24E-03 | 0,00E+00 | 4,83E-03 | -3,09E-03 |
| EPfr [kg P eq.] | Not painted | 2,49E-05 | 4,56E-05 | 3,76E-06 | 1,39E-07 | 3,05E-07 | 0,00E+00 | 9,32E-07 | -2,51E-06 |
| | Painted | 3,17E-05 | 5,23E-05 | 4,01E-06 | 1,48E-07 | 3,25E-07 | 0,00E+00 | 9,93E-07 | -2,67E-06 |
| EPmar [kg N eq.] | Not painted | 6,88E-03 | 1,26E-02 | 4,18E-03 | 1,06E-04 | 5,88E-04 | 0,00E+00 | 1,62E-03 | -7,75E-04 |
| | Painted | 7,46E-03 | 1,32E-02 | 4,45E-03 | 1,13E-04 | 6,27E-04 | 0,00E+00 | 1,72E-03 | -8,25E-04 |
| EPpter [Mole of N eq.] | Not painted | 7,61E-02 | 1,39E-01 | 4,62E-02 | 1,18E-03 | 6,48E-03 | 0,00E+00 | 2,00E-02 | -8,33E-03 |
| | Painted | 8,22E-02 | 1,45E-01 | 4,92E-02 | 1,25E-03 | 6,91E-03 | 0,00E+00 | 2,13E-02 | -8,87E-03 |
| POCP [kg NMVOC eq.] | Not painted | 2,37E-02 | 4,34E-02 | 8,59E-03 | 2,99E-04 | 1,08E-03 | 0,00E+00 | 4,30E-03 | -2,24E-03 |
| | Painted | 2,59E-02 | 4,56E-02 | 9,15E-03 | 3,18E-04 | 1,15E-03 | 0,00E+00 | 4,59E-03 | -2,39E-03 |
| ADPe [kg Sb eq.] | Not painted | 1,82E-06 | 3,33E-06 | 9,00E-08 | 3,27E-09 | 7,19E-09 | 0,00E+00 | 4,32E-08 | -3,32E-07 |
| | Painted | 2,03E-06 | 3,54E-06 | 9,59E-08 | 3,49E-09 | 7,66E-09 | 0,00E+00 | 4,61E-08 | -3,54E-07 |
| ADPf [MJ] | Not painted | 5,91E+01 | 1,08E+02 | 1,72E+01 | 6,07E-01 | 1,34E+00 | 0,00E+00 | 5,48E+00 | -3,78E+01 |
| | Painted | 8,07E+01 | 1,30E+02 | 1,83E+01 | 6,47E-01 | 1,42E+00 | 0,00E+00 | 5,83E+00 | -4,03E+01 |
| WS [m ³ world equiv.] | Not painted | 1,37E+00 | 2,50E+00 | 1,11E-02 | 4,08E-04 | 8,97E-04 | 0,00E+00 | 1,09E+00 | -1,96E-01 |
| | Painted | 1,32E+00 | 2,45E+00 | 1,19E-02 | 4,34E-04 | 9,56E-04 | 0,00E+00 | 1,17E+00 | -2,09E-01 |
| GWP [kg CO ₂ eq] | Not painted | 6,51E+00 | 1,19E+01 | 1,29E+00 | 4,77E-02 | 9,99E-02 | 0,00E+00 | 3,08E+00 | -2,24E+00 |
| | Painted | 7,56E+00 | 1,30E+01 | 1,38E+00 | 5,09E-02 | 1,06E-01 | 0,00E+00 | 3,29E+00 | -2,39E+00 |

3.6 INDICATORS OF RESOURCES USE

3.6.1 BUILDING | CONSTRUCTION PANELS

Table 21: Indicators of resources use for BUILDING | CONSTRUCTION panels N and N/C - Reference thickness is 50 mm. The maximum impact variation is reported for A1-A3, registered for the thickness 75 mm, maximum available thickness

| Impact category | <i>Indicators of resources use for BUILDING CONSTRUCTION panels CELENIT N and N/C</i> | | | | | | | | |
|--|---|----------|----------|----------|----------|----------|----------|----------|-----------|
| | | A1-A3 | | A4 | C1 | C2 | C3 | C4 | D |
| | | 50 mm | 75 mm | 50 mm | 50 mm | 50 mm | 50 mm | 50 mm | 50 mm |
| Use of non renewable secondary fuels [MJ] | Not painted | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
| | Painted | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
| Use of renewable secondary fuels [MJ] | Not painted | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
| | Painted | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
| Use of secondary materials [kg] | Not painted | 3,00E+00 | 4,20E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
| | Painted | 3,00E+00 | 4,20E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
| Use of renewable primary energy used as raw materials [MJ] | Not painted | 6,32E-09 | 8,84E-09 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
| | Painted | 6,32E-09 | 8,84E-09 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
| Use of renewable primary energy, excluding renewable primary energy used as raw materials [MJ] | Not painted | 1,32E+02 | 1,85E+02 | 8,04E-01 | 4,46E-02 | 9,82E-02 | 0,00E+00 | 1,13E+00 | -9,31E+00 |
| | Painted | 1,34E+02 | 1,87E+02 | 8,45E-01 | 4,69E-02 | 1,03E-01 | 0,00E+00 | 1,19E+00 | -9,78E+00 |
| Use of non-renewable primary energy used as raw material [MJ] | Not painted | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
| | Painted | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
| Use of non-renewable primary energy, excluding renewable primary energy used as raw materials [MJ] | Not painted | 7,69E+01 | 1,07E+02 | 1,44E+01 | 7,95E-01 | 1,75E+00 | 0,00E+00 | 7,16E+00 | -4,94E+01 |
| | Painted | 9,84E+01 | 1,29E+02 | 1,51E+01 | 8,35E-01 | 1,84E+00 | 0,00E+00 | 7,52E+00 | -5,19E+01 |
| Total use of renewable primary energy resources [MJ] | Not painted | 1,32E+02 | 1,85E+02 | 8,04E-01 | 4,46E-02 | 9,82E-02 | 0,00E+00 | 1,13E+00 | -9,31E+00 |
| | Painted | 1,34E+02 | 1,87E+02 | 8,45E-01 | 4,69E-02 | 1,03E-01 | 0,00E+00 | 1,19E+00 | -9,78E+00 |
| Total use of non-renewable primary energy resources [MJ] | Not painted | 7,69E+01 | 1,07E+02 | 1,44E+01 | 7,95E-01 | 1,75E+00 | 0,00E+00 | 7,16E+00 | -4,94E+01 |
| | Painted | 9,84E+01 | 1,29E+02 | 1,51E+01 | 8,35E-01 | 1,84E+00 | 0,00E+00 | 7,52E+00 | -5,19E+01 |
| Use of net fresh water [m3] | Not painted | 3,59E-02 | 5,02E-02 | 9,32E-04 | 5,17E-05 | 1,14E-04 | 0,00E+00 | 3,39E-02 | -1,07E-02 |
| | Painted | 4,48E-02 | 5,91E-02 | 9,78E-04 | 5,43E-05 | 1,19E-04 | 0,00E+00 | 3,56E-02 | -1,13E-02 |

Table 22: Indicators of resources use for BUILDING | CONSTRUCTION panels R - Reference thickness is 50 mm. The maximum impact variation is reported for A1-A3, registered for the thickness 75 mm, maximum available thickness

| Impact category | | Indicators of resources use for BUILDING CONSTRUCTION panels CELENIT R | | | | | | | |
|--|-------------|--|----------|----------|----------|----------|----------|----------|-----------|
| | | A1-A3 | | A4 | C1 | C2 | C3 | C4 | D |
| | | 50 mm | 75 mm | 50 mm | 50 mm | 50 mm | 50 mm | 50 mm | 50 mm |
| Use of non renewable secondary fuels [MJ] | Not painted | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
| | Painted | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
| Use of renewable secondary fuels [MJ] | Not painted | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
| | Painted | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
| Use of secondary materials [kg] | Not painted | 2,70E+00 | 3,90E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
| | Painted | 2,70E+00 | 3,90E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
| Use of renewable primary energy used as raw materials [MJ] | Not painted | 5,69E-09 | 8,22E-09 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
| | Painted | 5,69E-09 | 8,22E-09 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
| Use of renewable primary energy, excluding renewable primary energy used as raw materials [MJ] | Not painted | 1,19E+02 | 1,72E+02 | 7,24E-01 | 4,02E-02 | 8,83E-02 | 0,00E+00 | 1,02E+00 | -8,38E+00 |
| | Painted | 1,21E+02 | 1,74E+02 | 7,64E-01 | 4,24E-02 | 9,33E-02 | 0,00E+00 | 1,07E+00 | -8,85E+00 |
| Use of non-renewable primary energy used as raw material [MJ] | Not painted | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
| | Painted | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
| Use of non-renewable primary energy, excluding renewable primary energy used as raw materials [MJ] | Not painted | 6,92E+01 | 1,00E+02 | 1,30E+01 | 7,15E-01 | 1,57E+00 | 0,00E+00 | 6,44E+00 | -4,45E+01 |
| | Painted | 9,08E+01 | 1,22E+02 | 1,37E+01 | 7,55E-01 | 1,66E+00 | 0,00E+00 | 6,80E+00 | -4,70E+01 |
| Total use of renewable primary energy resources [MJ] | Not painted | 1,19E+02 | 1,72E+02 | 7,24E-01 | 4,02E-02 | 8,83E-02 | 0,00E+00 | 1,02E+00 | -8,38E+00 |
| | Painted | 1,21E+02 | 1,74E+02 | 7,64E-01 | 4,24E-02 | 9,33E-02 | 0,00E+00 | 1,07E+00 | -8,85E+00 |
| Total use of non-renewable primary energy resources [MJ] | Not painted | 6,92E+01 | 1,00E+02 | 1,30E+01 | 7,15E-01 | 1,57E+00 | 0,00E+00 | 6,44E+00 | -4,45E+01 |
| | Painted | 9,08E+01 | 1,22E+02 | 1,37E+01 | 7,55E-01 | 1,66E+00 | 0,00E+00 | 6,80E+00 | -4,70E+01 |
| Use of net fresh water [m ³] | Not painted | 3,23E-02 | 4,67E-02 | 8,38E-04 | 4,65E-05 | 1,02E-04 | 0,00E+00 | 3,05E-02 | -9,67E-03 |
| | Painted | 4,12E-02 | 5,56E-02 | 8,85E-04 | 4,91E-05 | 1,08E-04 | 0,00E+00 | 3,22E-02 | -1,02E-02 |

Table 23: Indicators of resources use for BUILDING | CONSTRUCTION panels RA and RAB - Thickness 50 mm

| Impact category | | Indicators of resources use for BUILDING CONSTRUCTION panels CELENIT RA and RAB | | | | | | |
|--|-------------|---|-------------|-------------|-------------|-------------|-------------|------------|
| | | A1-A3 50 mm | A4 50 mm | C1 50 mm | C2 50 mm | C3 50 mm | C4 50 mm | D 50 mm |
| Use of non renewable secondary fuels [MJ] | Not painted | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
| | Painted | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
| Use of renewable secondary fuels [MJ] | Not painted | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
| | Painted | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
| Use of secondary materials [kg] | Not painted | 3,60E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
| | Painted | 3,60E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
| Use of renewable primary energy used as raw materials [MJ] | Not painted | 7,58E-09 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
| | Painted | 7,58E-09 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
| Use of renewable primary energy, excluding renewable primary energy used as raw materials [MJ] | Not painted | 1,58E+02 | 9,65E-01 | 5,36E-02 | 1,18E-01 | 0,00E+00 | 1,36E+00 | -1,12E+01 |
| | Painted | 1,61E+02 | 1,01E+00 | 5,58E-02 | 1,23E-01 | 0,00E+00 | 1,41E+00 | -1,16E+01 |
| Use of non-renewable primary energy used as raw material [MJ] | Not painted | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
| | Painted | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
| Use of non-renewable primary energy, excluding renewable primary energy used as raw materials [MJ] | Not painted | 9,22E+01 | 1,73E+01 | 9,54E-01 | 2,10E+00 | 0,00E+00 | 8,59E+00 | -5,93E+01 |
| | Painted | 1,14E+02 | 1,80E+01 | 9,94E-01 | 2,19E+00 | 0,00E+00 | 8,95E+00 | -6,18E+01 |
| Total use of renewable primary energy resources [MJ] | Not painted | 1,58E+02 | 9,65E-01 | 5,36E-02 | 1,18E-01 | 0,00E+00 | 1,36E+00 | -1,12E+01 |
| | Painted | 1,61E+02 | 1,01E+00 | 5,58E-02 | 1,23E-01 | 0,00E+00 | 1,41E+00 | -1,16E+01 |
| Total use of non-renewable primary energy resources [MJ] | Not painted | 9,22E+01 | 1,73E+01 | 9,54E-01 | 2,10E+00 | 0,00E+00 | 8,59E+00 | -5,93E+01 |
| | Painted | 1,14E+02 | 1,80E+01 | 9,94E-01 | 2,19E+00 | 0,00E+00 | 8,95E+00 | -6,18E+01 |
| Use of net fresh water [m³] | Not painted | 4,30E-02 | 1,12E-03 | 6,20E-05 | 1,36E-04 | 0,00E+00 | 4,07E-02 | -1,29E-02 |
| | Painted | 5,20E-02 | 1,16E-03 | 6,46E-05 | 1,42E-04 | 0,00E+00 | 4,23E-02 | -1,34E-02 |

3.6.2 ACOUSTIC | DESIGN PANELS

Table 24: Indicators of resources use for ACOUSTIC | DESIGN panels ABE, AB, AE and A - Reference thickness is 25 mm. The maximum impact variation is reported for A1-A3, registered for the thickness 50 mm, maximum available thickness

| Impact category | <i>Indicators of resources use for ACOUSTIC DESIGN panels CELENIT ABE, AB, AE and A</i> | | | | | | | | |
|--|---|----------|----------|----------|----------|----------|----------|----------|-----------|
| | | A1-A3 | | A4 | C1 | C2 | C3 | C4 | D |
| | | 25 mm | 50 mm | 25 mm | 25 mm | 25 mm | 25 mm | 25 mm | 25 mm |
| Use of non renewable secondary fuels [MJ] | Not painted | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
| | Painted | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
| Use of renewable secondary fuels [MJ] | Not painted | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
| | Painted | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
| Use of secondary materials [kg] | Not painted | 1,80E+00 | 3,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
| | Painted | 1,80E+00 | 3,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
| Use of renewable primary energy used as raw materials [MJ] | Not painted | 3,43E-09 | 5,72E-09 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
| | Painted | 3,43E-09 | 5,72E-09 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
| Use of renewable primary energy, excluding renewable primary energy used as raw materials [MJ] | Not painted | 7,31E+01 | 1,22E+02 | 7,26E-01 | 2,68E-02 | 5,89E-02 | 0,00E+00 | 6,78E-01 | -5,59E+00 |
| | Painted | 7,52E+01 | 1,24E+02 | 7,86E-01 | 2,90E-02 | 6,38E-02 | 0,00E+00 | 7,34E-01 | -6,05E+00 |
| Use of non-renewable primary energy used as raw material [MJ] | Not painted | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
| | Painted | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
| Use of non-renewable primary energy, excluding renewable primary energy used as raw materials [MJ] | Not painted | 4,73E+01 | 7,89E+01 | 1,35E+01 | 4,77E-01 | 1,05E+00 | 0,00E+00 | 4,30E+00 | -2,97E+01 |
| | Painted | 6,89E+01 | 1,00E+02 | 1,46E+01 | 5,17E-01 | 1,14E+00 | 0,00E+00 | 4,65E+00 | -3,21E+01 |
| Total use of renewable primary energy resources [MJ] | Not painted | 7,31E+01 | 1,22E+02 | 7,26E-01 | 2,68E-02 | 5,89E-02 | 0,00E+00 | 6,78E-01 | -5,59E+00 |
| | Painted | 7,52E+01 | 1,24E+02 | 7,86E-01 | 2,90E-02 | 6,38E-02 | 0,00E+00 | 7,34E-01 | -6,05E+00 |
| Total use of non-renewable primary energy resources [MJ] | Not painted | 4,73E+01 | 7,89E+01 | 1,35E+01 | 4,77E-01 | 1,05E+00 | 0,00E+00 | 4,30E+00 | -2,97E+01 |
| | Painted | 6,89E+01 | 1,00E+02 | 1,46E+01 | 5,17E-01 | 1,14E+00 | 0,00E+00 | 4,65E+00 | -3,21E+01 |
| Use of net fresh water [m ³] | Not painted | 2,18E-02 | 3,63E-02 | 8,42E-04 | 3,10E-05 | 6,82E-05 | 0,00E+00 | 2,03E-02 | -6,45E-03 |
| | Painted | 3,07E-02 | 4,52E-02 | 9,12E-04 | 3,36E-05 | 7,39E-05 | 0,00E+00 | 2,20E-02 | -6,98E-03 |

Table 25: Indicators of resources use for ACOUSTIC | DESIGN panels NB - Reference thickness is 25 mm. The maximum impact variation is reported for A1-A3, registered for the thickness 50 mm, maximum available thickness

| Impact category | | Indicators of resources use for ACOUSTIC DESIGN panels CELENIT NB | | | | | | | |
|--|-------------|---|----------|----------|----------|----------|----------|----------|-----------|
| | | A1-A3 | | A4 | C1 | C2 | C3 | C4 | D |
| | | 25 mm | 50 mm | 25 mm | 25 mm | 25 mm | 25 mm | 25 mm | 25 mm |
| Use of non renewable secondary fuels [MJ] | Not painted | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
| | Painted | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
| Use of renewable secondary fuels [MJ] | Not painted | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
| | Painted | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
| Use of secondary materials [kg] | Not painted | 1,73E+00 | 2,70E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
| | Painted | 1,73E+00 | 2,70E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
| Use of renewable primary energy used as raw materials [MJ] | Not painted | 3,29E-09 | 5,14E-09 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
| | Painted | 3,29E-09 | 5,14E-09 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
| Use of renewable primary energy, excluding renewable primary energy used as raw materials [MJ] | Not painted | 7,01E+01 | 1,10E+02 | 6,95E-01 | 2,57E-02 | 5,64E-02 | 0,00E+00 | 6,49E-01 | -5,36E+00 |
| | Painted | 7,21E+01 | 1,12E+02 | 7,56E-01 | 2,79E-02 | 6,14E-02 | 0,00E+00 | 7,06E-01 | -5,82E+00 |
| Use of non-renewable primary energy used as raw material [MJ] | Not painted | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
| | Painted | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
| Use of non-renewable primary energy, excluding renewable primary energy used as raw materials [MJ] | Not painted | 4,53E+01 | 7,10E+01 | 1,29E+01 | 4,57E-01 | 1,01E+00 | 0,00E+00 | 4,12E+00 | -2,84E+01 |
| | Painted | 6,69E+01 | 9,26E+01 | 1,41E+01 | 4,97E-01 | 1,09E+00 | 0,00E+00 | 4,47E+00 | -3,09E+01 |
| Total use of renewable primary energy resources [MJ] | Not painted | 7,01E+01 | 1,10E+02 | 6,95E-01 | 2,57E-02 | 5,64E-02 | 0,00E+00 | 6,49E-01 | -5,36E+00 |
| | Painted | 7,21E+01 | 1,12E+02 | 7,56E-01 | 2,79E-02 | 6,14E-02 | 0,00E+00 | 7,06E-01 | -5,82E+00 |
| Total use of non-renewable primary energy resources [MJ] | Not painted | 4,53E+01 | 7,10E+01 | 1,29E+01 | 4,57E-01 | 1,01E+00 | 0,00E+00 | 4,12E+00 | -2,84E+01 |
| | Painted | 6,69E+01 | 9,26E+01 | 1,41E+01 | 4,97E-01 | 1,09E+00 | 0,00E+00 | 4,47E+00 | -3,09E+01 |
| Use of net fresh water [m ³] | Not painted | 2,09E-02 | 3,27E-02 | 8,06E-04 | 2,97E-05 | 6,54E-05 | 0,00E+00 | 1,95E-02 | -6,18E-03 |
| | Painted | 2,98E-02 | 4,16E-02 | 8,77E-04 | 3,23E-05 | 7,10E-05 | 0,00E+00 | 2,12E-02 | -6,71E-03 |

Table 26: Indicators of resources use for ACOUSTIC | DESIGN panels ABE/A2, AB/A2, AE/A2 and A/A2 - Reference thickness is 25 mm. The maximum impact variation is reported for A1-A3, registered for the thickness 50 mm, maximum available thickness

| Impact category | | Indicators of resources use for ACOUSTIC DESIGN panels CELENIT ABE/A2, AB/A2, AE/A2 and A/A2 | | | | | | | |
|--|-------------|--|----------|----------|----------|----------|----------|----------|-----------|
| | | A1-A3 | | A4 | C1 | C2 | C3 | C4 | D |
| | | 25 mm | 50 mm | 25 mm | 25 mm | 25 mm | 25 mm | 25 mm | 25 mm |
| Use of non renewable secondary fuels [MJ] | Not painted | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
| | Painted | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
| Use of renewable secondary fuels [MJ] | Not painted | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
| | Painted | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
| Use of secondary materials [kg] | Not painted | 4,59E+00 | 8,40E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
| | Painted | 4,59E+00 | 8,40E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
| Use of renewable primary energy used as raw materials [MJ] | Not painted | 3,45E-09 | 6,31E-09 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
| | Painted | 3,45E-09 | 6,31E-09 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
| Use of renewable primary energy, excluding renewable primary energy used as raw materials [MJ] | Not painted | 7,70E+01 | 1,41E+02 | 9,25E-01 | 3,41E-02 | 7,51E-02 | 0,00E+00 | 8,64E-01 | -7,12E+00 |
| | Painted | 7,90E+01 | 1,43E+02 | 9,86E-01 | 3,64E-02 | 8,00E-02 | 0,00E+00 | 9,20E-01 | -7,59E+00 |
| Use of non-renewable primary energy used as raw material [MJ] | Not painted | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
| | Painted | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
| Use of non-renewable primary energy, excluding renewable primary energy used as raw materials [MJ] | Not painted | 5,53E+01 | 1,01E+02 | 1,72E+01 | 6,08E-01 | 1,34E+00 | 0,00E+00 | 5,48E+00 | -3,78E+01 |
| | Painted | 7,69E+01 | 1,23E+02 | 1,83E+01 | 6,48E-01 | 1,42E+00 | 0,00E+00 | 5,84E+00 | -4,03E+01 |
| Total use of renewable primary energy resources [MJ] | Not painted | 7,70E+01 | 1,41E+02 | 9,25E-01 | 3,41E-02 | 7,51E-02 | 0,00E+00 | 8,64E-01 | -7,12E+00 |
| | Painted | 7,90E+01 | 1,43E+02 | 9,86E-01 | 3,64E-02 | 8,00E-02 | 0,00E+00 | 9,20E-01 | -7,59E+00 |
| Total use of non-renewable primary energy resources [MJ] | Not painted | 5,53E+01 | 1,01E+02 | 1,72E+01 | 6,08E-01 | 1,34E+00 | 0,00E+00 | 5,48E+00 | -3,78E+01 |
| | Painted | 7,69E+01 | 1,23E+02 | 1,83E+01 | 6,48E-01 | 1,42E+00 | 0,00E+00 | 5,84E+00 | -4,03E+01 |
| Use of net fresh water [m ³] | Not painted | 2,66E-02 | 4,87E-02 | 1,07E-03 | 3,95E-05 | 8,70E-05 | 0,00E+00 | 2,59E-02 | -8,22E-03 |
| | Painted | 3,56E-02 | 5,61E-02 | 1,14E-03 | 4,21E-05 | 9,26E-05 | 0,00E+00 | 2,76E-02 | -8,75E-03 |

3.7 INDICATORS OF WASTE AND OUTPUT FLOWS

3.7.1 BUILDING | CONSTRUCTION PANELS

Table 27: Indicators of waste and output flows for BUILDING | CONSTRUCTION panels N and N/C - Reference thickness is 50 mm. The maximum impact variation is reported for A1-A3, registered for the thickness 75 mm, maximum available thickness

| Impact category | <i>Indicators of waste and output flows for BUILDING CONSTRUCTION panels CELENIT N and N/C</i> | | | | | | | | |
|-----------------------------------|--|----------|----------|----------|----------|----------|----------|----------|-----------|
| | | A1-A3 | | A4 | C1 | C2 | C3 | C4 | D |
| | | 50 mm | 75 mm | 50 mm | 50 mm | 50 mm | 50 mm | 50 mm | 50 mm |
| Hazardous waste disposed [kg] | Not painted | 5,43E-07 | 7,84E-07 | 6,00E-07 | 3,33E-08 | 7,32E-08 | 0,00E+00 | 4,44E-08 | -1,77E-08 |
| | Painted | 6,76E-09 | 2,48E-07 | 6,33E-07 | 3,51E-08 | 7,73E-08 | 0,00E+00 | 4,68E-08 | -1,87E-08 |
| Non-hazardous waste disposed [kg] | Not painted | 5,53E-02 | 7,99E-02 | 1,98E-03 | 1,09E-04 | 2,41E-04 | 0,00E+00 | 1,10E+01 | -1,91E-02 |
| | Painted | 6,69E-02 | 9,15E-02 | 2,09E-03 | 1,16E-04 | 2,54E-04 | 0,00E+00 | 1,16E+01 | -2,02E-02 |
| Radioactive waste disposed [kg] | Not painted | 1,48E-03 | 2,14E-03 | 1,61E-05 | 8,85E-07 | 1,95E-06 | 0,00E+00 | 2,26E-04 | -2,85E-03 |
| | Painted | 1,97E-03 | 2,63E-03 | 1,69E-05 | 9,35E-07 | 2,06E-06 | 0,00E+00 | 2,38E-04 | -3,01E-03 |
| Materials for Recycling [kg] | Not painted | 3,27E-01 | 4,72E-01 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
| | Painted | 3,27E-01 | 4,72E-01 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
| Material for Energy Recovery [kg] | Not painted | 8,13E+00 | 1,17E+01 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
| | Painted | 8,58E+00 | 1,22E+01 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
| Exported electrical energy [MJ] | Not painted | 5,57E-03 | 8,05E-03 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 9,98E+00 | 0,00E+00 |
| | Painted | 5,57E-03 | 8,05E-03 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 1,05E+01 | 0,00E+00 |
| Exported thermal energy [MJ] | Not painted | 1,13E-02 | 1,64E-02 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 2,27E+01 | 0,00E+00 |
| | Painted | 1,13E-02 | 1,64E-02 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 2,40E+01 | 0,00E+00 |

Table 28: Indicators of waste and output flows for BUILDING | CONSTRUCTION panels R - Reference thickness is 50 mm. The maximum impact variation is reported for A1-A3, registered for the thickness 75 mm, maximum available thickness

| Impact category | <i>Indicators of waste and output flows for BUILDING CONSTRUCTION panels CELENIT R</i> | | | | | | | | |
|-----------------------------------|--|----------|----------|----------|----------|----------|----------|----------|-----------|
| | | A1-A3 | | A4 | C1 | C2 | C3 | C4 | D |
| | | 50 mm | 75 mm | 50 mm | 50 mm | 50 mm | 50 mm | 50 mm | 50 mm |
| Hazardous waste disposed [kg] | Not painted | 5,44E-07 | 7,61E-07 | 6,66E-07 | 3,70E-08 | 8,13E-08 | 0,00E+00 | 4,93E-08 | -1,96E-08 |
| | Painted | 7,76E-09 | 2,25E-07 | 7,00E-07 | 3,88E-08 | 8,54E-08 | 0,00E+00 | 5,18E-08 | -2,06E-08 |
| Non-hazardous waste disposed [kg] | Not painted | 5,91E-02 | 8,26E-02 | 2,20E-03 | 1,22E-04 | 2,68E-04 | 0,00E+00 | 1,22E+01 | -2,12E-02 |
| | Painted | 7,07E-02 | 9,43E-02 | 2,31E-03 | 1,28E-04 | 2,81E-04 | 0,00E+00 | 1,29E+01 | -2,23E-02 |
| Radioactive waste disposed [kg] | Not painted | 1,63E-03 | 2,27E-03 | 1,78E-05 | 9,84E-07 | 2,16E-06 | 0,00E+00 | 2,51E-04 | -3,17E-03 |
| | Painted | 2,11E-03 | 2,75E-03 | 1,87E-05 | 1,03E-06 | 2,27E-06 | 0,00E+00 | 2,64E-04 | -3,33E-03 |
| Materials for Recycling [kg] | Not painted | 3,63E-01 | 5,08E-01 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
| | Painted | 3,63E-01 | 5,08E-01 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
| Material for Energy Recovery [kg] | Not painted | 9,03E+00 | 1,26E+01 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
| | Painted | 9,48E+00 | 1,31E+01 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
| Exported electrical energy [MJ] | Not painted | 6,19E-03 | 8,66E-03 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 1,11E+01 | 0,00E+00 |
| | Painted | 6,19E-03 | 8,66E-03 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 1,16E+01 | 0,00E+00 |
| Exported thermal energy [MJ] | Not painted | 1,26E-02 | 1,76E-02 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 2,53E+01 | 0,00E+00 |
| | Painted | 1,26E-02 | 1,76E-02 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 2,65E+01 | 0,00E+00 |

Table 29: Indicators of waste and output flows for BUILDING | CONSTRUCTION panels RA and RAB - Thickness 50 mm

| Impact category | | <i>Indicators of waste and output flows for BUILDING CONSTRUCTION panels CELENIT RA and RAB</i> | | | | | | |
|-----------------------------------|-------------|---|-------------|-------------|-------------|-------------|-------------|------------|
| | | A1-A3 50 mm | A4 50 mm | C1 50 mm | C2 50 mm | C3 50 mm | C4 50 mm | D 50 mm |
| Hazardous waste disposed [kg] | Not painted | 6,53E-07 | 8,00E-07 | 4,44E-08 | 9,76E-08 | 0,00E+00 | 5,92E-08 | -2,36E-08 |
| | Painted | 1,17E-07 | 8,33E-07 | 4,62E-08 | 1,02E-07 | 0,00E+00 | 6,16E-08 | -2,46E-08 |
| Non-hazardous waste disposed [kg] | Not painted | 7,09E-02 | 2,64E-03 | 1,46E-04 | 3,21E-04 | 0,00E+00 | 1,47E+01 | -2,55E-02 |
| | Painted | 8,25E-02 | 2,75E-03 | 1,52E-04 | 3,34E-04 | 0,00E+00 | 1,53E+01 | -2,66E-02 |
| Radioactive waste disposed [kg] | Not painted | 1,95E-03 | 2,14E-05 | 1,18E-06 | 2,60E-06 | 0,00E+00 | 3,01E-04 | -3,80E-03 |
| | Painted | 2,43E-03 | 2,23E-05 | 1,23E-06 | 2,70E-06 | 0,00E+00 | 3,14E-04 | -3,96E-03 |
| Materials for Recycling [kg] | Not painted | 4,36E-01 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
| | Painted | 4,36E-01 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
| Material for Energy Recovery [kg] | Not painted | 1,08E+01 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
| | Painted | 1,13E+01 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
| Exported electrical energy [MJ] | Not painted | 7,43E-03 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 1,33E+01 | 0,00E+00 |
| | Painted | 7,43E-03 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 1,39E+01 | 0,00E+00 |
| Exported thermal energy [MJ] | Not painted | 1,51E-02 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 3,03E+01 | 0,00E+00 |
| | Painted | 1,51E-02 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 3,16E+01 | 0,00E+00 |

3.7.2 ACOUSTIC | DESIGN PANELS

Table 30: Indicators of waste and output flows for ACOUSTIC | DESIGN panels ABE, AB, AE and A - Reference thickness is 25 mm. The maximum impact variation is reported for A1-A3, registered for the thickness 50 mm, maximum available thickness

| Impact category | | <i>Indicators of waste and output flows for ACOUSTIC DESIGN panels CELENIT ABE, AB, AE and A</i> | | | | | | | |
|-----------------------------------|-------------|--|----------|----------|----------|----------|----------|----------|-----------|
| | | A1-A3 | | A4 | C1 | C2 | C3 | C4 | D |
| | | 25 mm | 50 mm | 25 mm | 25 mm | 25 mm | 25 mm | 25 mm | 25 mm |
| Hazardous waste disposed [kg] | Not painted | 3,62E-07 | 6,03E-07 | 6,00E-07 | 2,22E-08 | 4,88E-08 | 0,00E+00 | 2,96E-08 | -1,18E-08 |
| | Painted | -1,74E-07 | 6,71E-08 | 6,50E-07 | 2,40E-08 | 5,29E-08 | 0,00E+00 | 3,21E-08 | -1,28E-08 |
| Non-hazardous waste disposed [kg] | Not painted | 3,69E-02 | 6,14E-02 | 2,03E-03 | 7,30E-05 | 1,61E-04 | 0,00E+00 | 7,34E+00 | -1,27E-02 |
| | Painted | 4,85E-02 | 7,31E-02 | 2,20E-03 | 7,91E-05 | 1,74E-04 | 0,00E+00 | 7,96E+00 | -1,38E-02 |
| Radioactive waste disposed [kg] | Not painted | 9,90E-04 | 1,65E-03 | 1,66E-05 | 5,90E-07 | 1,30E-06 | 0,00E+00 | 1,51E-04 | -1,90E-03 |
| | Painted | 1,47E-03 | 2,13E-03 | 1,80E-05 | 6,39E-07 | 1,41E-06 | 0,00E+00 | 1,63E-04 | -2,06E-03 |
| Materials for Recycling [kg] | Not painted | 2,18E-01 | 3,63E-01 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
| | Painted | 2,18E-01 | 3,63E-01 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
| Material for Energy Recovery [kg] | Not painted | 5,42E+00 | 9,03E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
| | Painted | 5,87E+00 | 9,48E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
| Exported electrical energy [MJ] | Not painted | 3,71E-03 | 6,19E-03 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 6,65E+00 | 0,00E+00 |
| | Painted | 3,71E-03 | 6,19E-03 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 7,21E+00 | 0,00E+00 |
| Exported thermal energy [MJ] | Not painted | 7,55E-03 | 1,26E-02 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 1,52E+01 | 0,00E+00 |
| | Painted | 7,55E-03 | 1,26E-02 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 1,64E+01 | 0,00E+00 |

Table 31: Indicators of waste and output flows for ACOUSTIC | DESIGN panels NB - Reference thickness is 25 mm. The maximum impact variation is reported for A1-A3, registered for the thickness 50 mm, maximum available thickness

| Impact category | <i>Indicators of waste and output flows for ACOUSTIC DESIGN panel CELENIT NB</i> | | | | | | | | |
|-----------------------------------|--|-----------|----------|----------|----------|----------|----------|----------|-----------|
| | | A1-A3 | | A4 | C1 | C2 | C3 | C4 | D |
| | | 25 mm | 50 mm | 25 mm | 25 mm | 25 mm | 25 mm | 25 mm | 25 mm |
| Hazardous waste disposed [kg] | Not painted | 3,47E-07 | 5,43E-07 | 5,75E-07 | 2,13E-08 | 4,68E-08 | 0,00E+00 | 2,84E-08 | -1,13E-08 |
| | Painted | -1,89E-07 | 6,76E-09 | 6,25E-07 | 2,31E-08 | 5,08E-08 | 0,00E+00 | 3,08E-08 | -1,23E-08 |
| Non-hazardous waste disposed [kg] | Not painted | 3,53E-02 | 5,53E-02 | 1,95E-03 | 6,99E-05 | 1,54E-04 | 0,00E+00 | 7,04E+00 | -1,22E-02 |
| | Painted | 4,70E-02 | 6,69E-02 | 2,12E-03 | 7,60E-05 | 1,67E-04 | 0,00E+00 | 7,65E+00 | -1,33E-02 |
| Radioactive waste disposed [kg] | Not painted | 9,49E-04 | 1,48E-03 | 1,59E-05 | 5,66E-07 | 1,24E-06 | 0,00E+00 | 1,44E-04 | -1,82E-03 |
| | Painted | 1,43E-03 | 1,97E-03 | 1,73E-05 | 6,15E-07 | 1,35E-06 | 0,00E+00 | 1,57E-04 | -1,98E-03 |
| Materials for Recycling [kg] | Not painted | 2,09E-01 | 3,27E-01 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
| | Painted | 2,09E-01 | 3,27E-01 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
| Material for Energy Recovery [kg] | Not painted | 5,19E+00 | 8,13E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
| | Painted | 5,64E+00 | 8,58E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
| Exported electrical energy [MJ] | Not painted | 3,56E-03 | 5,57E-03 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 6,37E+00 | 0,00E+00 |
| | Painted | 3,56E-03 | 5,57E-03 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 6,93E+00 | 0,00E+00 |
| Exported thermal energy [MJ] | Not painted | 7,23E-03 | 1,13E-02 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 1,45E+01 | 0,00E+00 |
| | Painted | 7,23E-03 | 1,13E-02 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 1,58E+01 | 0,00E+00 |

Table 32: Indicators of waste and output flows for ACOUSTIC | DESIGN panels ABE/A2, AB/A2, AE/A2 and A/A2- Reference thickness is 25 mm. The maximum impact variation is reported for A1-A3, registered for the thickness 50 mm, maximum available thickness

| <i>Indicators of waste and output flows for ACOUSTIC DESIGN panels CELENIT ABE/A2, AB/A2, AE/A2 and A/A2</i> | | | | | | | | | |
|--|-------------|-----------|----------|----------|----------|----------|----------|----------|-----------|
| Impact category | | A1-A3 | | A4 | C1 | C2 | C3 | C4 | D |
| | | 25 mm | 50 mm | 25 mm | 25 mm | 25 mm | 25 mm | 25 mm | 25 mm |
| Hazardous waste disposed [kg] | Not painted | 3,54E-07 | 6,48E-07 | 7,65E-07 | 2,83E-08 | 6,22E-08 | 0,00E+00 | 3,77E-08 | -1,50E-08 |
| | Painted | -1,82E-07 | 1,12E-07 | 8,15E-07 | 3,01E-08 | 6,63E-08 | 0,00E+00 | 4,02E-08 | -1,60E-08 |
| Non-hazardous waste disposed [kg] | Not painted | 4,24E-02 | 7,77E-02 | 2,59E-03 | 9,31E-05 | 2,05E-04 | 0,00E+00 | 9,36E+00 | -1,62E-02 |
| | Painted | 5,41E-02 | 8,93E-02 | 2,76E-03 | 9,91E-05 | 2,18E-04 | 0,00E+00 | 9,98E+00 | -1,73E-02 |
| Radioactive waste disposed [kg] | Not painted | 1,10E-03 | 2,01E-03 | 2,12E-05 | 7,53E-07 | 1,66E-06 | 0,00E+00 | 1,92E-04 | -2,42E-03 |
| | Painted | 1,58E-03 | 2,49E-03 | 2,26E-05 | 8,02E-07 | 1,76E-06 | 0,00E+00 | 2,05E-04 | -2,58E-03 |
| Materials for Recycling [kg] | Not painted | 2,78E-01 | 5,08E-01 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
| | Painted | 2,78E-01 | 5,08E-01 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
| Material for Energy Recovery [kg] | Not painted | 6,91E+00 | 1,26E+01 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
| | Painted | 7,36E+00 | 1,31E+01 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
| Exported electrical energy [MJ] | Not painted | 4,74E-03 | 8,67E-03 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 8,48E+00 | 0,00E+00 |
| | Painted | 4,74E-03 | 8,67E-03 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 9,03E+00 | 0,00E+00 |
| Exported thermal energy [MJ] | Not painted | 9,62E-03 | 1,76E-02 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 1,93E+01 | 0,00E+00 |
| | Painted | 9,62E-03 | 1,76E-02 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 2,06E+01 | 0,00E+00 |

3.8 INFORMATION ON BIOGENIC CARBON CONTENT

3.8.1 BUILDING/CONSTRUCTION PANELS

| | | CELENIT N and N/C | |
|--|-------------|-------------------|----------|
| | | 50 mm | 75 mm |
| Biogenic carbon content in the product [kg] | Not painted | 2,74E+01 | 3,95E+01 |
| | Painted | 2,74E+01 | 3,95E+01 |
| Biogenic carbon content in the packaging [kg] | Not painted | 1,09E-01 | 1,57E-01 |
| | Painted | 1,15E-01 | 1,63E-01 |

| | | CELENIT R | |
|--|-------------|-----------|----------|
| | | 50 mm | 75 mm |
| Biogenic carbon content in the product [kg] | Not painted | 2,72E+01 | 3,80E+01 |
| | Painted | 2,72E+01 | 3,80E+01 |
| Biogenic carbon content in the packaging [kg] | Not painted | 1,21E-01 | 1,69E-01 |
| | Painted | 1,27E-01 | 1,75E-01 |

| | | CELENIT RA and RAB | |
|--|-------------|--------------------|--|
| | | 50 mm | |
| Biogenic carbon content in the product [kg] | Not painted | 3,26E+01 | |
| | Painted | 3,26E+01 | |
| Biogenic carbon content in the packaging [kg] | Not painted | 1,45E-01 | |
| | Painted | 1,51E-01 | |

3.8.2 ACOUSTIC/DESIGN PANELS

| | | CELENIT A, AE, AB and ABE | |
|--|-------------|---------------------------|----------|
| | | 25 mm | 50 mm |
| Biogenic carbon content in the product [kg] | Not painted | 1,82E+01 | 3,04E+01 |
| | Painted | 1,82E+01 | 3,04E+01 |
| Biogenic carbon content in the packaging [kg] | Not painted | 7,24E-02 | 1,21E-01 |
| | Painted | 7,84E-02 | 1,27E-01 |

| | | CELENIT NB | |
|--|-------------|------------|----------|
| | | 25 mm | 50 mm |
| Biogenic carbon content in the product [kg] | Not painted | 1,75E+01 | 2,74E+01 |
| | Painted | 1,75E+01 | 2,74E+01 |
| Biogenic carbon content in the packaging [kg] | Not painted | 6,94E-02 | 1,09E-01 |
| | Painted | 7,54E-02 | 1,15E-01 |

| CELENIT A/A2, AE/A2, AB/A2 and ABE/A2 | | | |
|--|-------------|----------|----------|
| | | 25 mm | 50 mm |
| Biogenic carbon content in the product [kg] | Not painted | 1,83E+01 | 3,36E+01 |
| | Painted | 1,83E+01 | 3,36E+01 |
| Biogenic carbon content in the packaging [kg] | Not painted | 9,23E-02 | 1,69E-01 |
| | Painted | 9,84E-02 | 1,75E-01 |

4 REFERENCE

Ecoinnovazione, 2020. Technical report: LCA study of acoustic and thermal panels produced by CELENIT S.p.A.

EN 15804:2012+A1:2019 “Sustainability of construction works – Environmental product declarations – Core rules for the product category of construction products”

International EPD® System, 2018. General Programme Instructions for the International EPD System, vers. 3.01

International EPD® System, 2019. PCR 2019:14 Construction products and construction services, version 1

International Organisation for Standardization (ISO), 2006a Environmental management – Life Cycle assessment – Principles and framework. ISO 14040:2006, Geneva

International Organisation for Standardization (ISO), 2006b Environmental management – Life Cycle assessment – Requirements and guidelines. ISO 14040:2006, Geneva

International Organisation for Standardization (ISO), 2006c Environmental labels and declarations -- Type III environmental declarations -- Principles and procedures. ISO 14025:2006, Geneva

6 ADDITIONAL INFORMATION

6.1 ADDITIONAL INFORMATION CONCERNING THE PROGRAMME AND THE EPD

EPDs within the same product category but from different programme may not be comparable.

EPDs of construction products may not be comparable if they do not comply with EN 15804. Environmental product declarations within the same product category from different programs may not be comparable. This EPD and the PCR 2019:14 “Construction products” are available on the website of The International EPD® System (www.environdec.com).

The verifier and the Programme Operator do not make any claim nor have any responsibility of the legality of the products included in the present EPD.


The LCA study and the present EPD have been issued with the technical scientific support of Ecoinnovazione S.r.l., spin-off ENEA (<http://ecoinnovazione.it/?lang=en>).

6.2 ADDITIONAL INFORMATION ON THE PRODUCT AND ON THE COMPANY

To get more information about products and this environmental declaration or about CELENIT S.p.A. activities please contact: arch. Piero Svegliado (techsupport@celenit.com; ph. +39 049 5993544).

More information about technical information, safe and effective installation, use and disposal are available on the website: www.celenit.com.

7 VERIFICATION AND REGISTRATION

| CEN standard EN 15804 served as core PCR | |
|---|--|
| EPD Programme: | The International EPD® System For more information – www.environdec.it |
| PCR: | PCR 2019:14 Construction products version 1 |
| PCR review was conducted by: | The Technical Committee of the International EPD® System. Chair of the TC: Massimo Marino Contact: info@environdec.com |
| EPD Registration n°: | S-P-02275 |
| EPD validity: | 5 years |
| EPD valid within the following geographical area: | Global |
| Technical support: | Ecoinnovazione S.r.l. – spin-off ENEA Via d'Azeglio 51, 40123 Bologna  ecoinnovazione spin off ENEA www.ecoinnovazione.it |
| Independent verification of the declaration and data according to ISO 14025: | External |
| Third party verifier: | TECNALIA R&I Certification |
| Accredited by: | Accreditation no. 125/C-PR283 by ENAC |