

**Declaration Owner****Ceilume**

9270 Graton Road, PO Box 511

Graton, CA 95444

[info@ceilume.com](mailto:info@ceilume.com) | +1 (800) 557-0654

[www.ceilume.com](http://www.ceilume.com)

**Product:**

Feather-Light Tiles and Panels

**Functional Unit**

The functional unit is 0.093 m<sup>2</sup> (1 ft<sup>2</sup>) of installed panel with a reference service life (RSL) of 30 years

**EPD Number and Period of Validity**

SCS-EPD-10590

Valid through February 13, 2026, through February 12, 2031

**Product Category Rule**

UL Product Category Rule (PCR) Guidance for Building-Related Products and Service, Part A: Life Cycle Assessment Calculation Rule and Report Requirements. Version 4.0. March 2022.

UL Product Category Rule (PCR) Guidance for Building-Related Products and Services, Part B: Non-Metal Ceiling and Interior Wall Panel System EPD Requirements. Version 2.0. April 13, 2021.

**Program Operator**

SCS Global Services

2000 Powell Street, Ste. 600, Emeryville, CA 94608

+1.510.452.8000 | [www.SCSglobalServices.com](http://www.SCSglobalServices.com)



|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Declaration owner:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Ceilume                                                                                                                                                                                                                                                                        |
| <b>Address:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 9270 Graton Road, PO Box 511 Graton, CA 95444                                                                                                                                                                                                                                  |
| <b>Declaration Number:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | SCS-EPD-10590                                                                                                                                                                                                                                                                  |
| <b>Date of Issue:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | February 13, 2026                                                                                                                                                                                                                                                              |
| <b>Declaration Validity Period:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | February 13, 2026 through February 12, 2031                                                                                                                                                                                                                                    |
| <b>Program Operator:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | SCS Global Services, 2000 Powell Street, Ste. 600, Emeryville, CA 94608 USA                                                                                                                                                                                                    |
| <b>Declaration URL Link:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | <a href="https://www.scsglobalservices.com/certified-green-products-guide">https://www.scsglobalservices.com/certified-green-products-guide</a>                                                                                                                                |
| <b>General Program Instructions:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | SCS Type III Environmental Declaration Program: Program Operator Manual. V12.0 December 2023.                                                                                                                                                                                  |
| <b>Product(s):</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Feather-Light Tiles and Panels                                                                                                                                                                                                                                                 |
| <b>Declared Unit or Functional Unit:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 0.093 m2 (1 ft2) of installed panel with a reference service life (RSL) of 30 years                                                                                                                                                                                            |
| <b>Product's Intended Application and Use:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | For installation in drop ceiling grid systems                                                                                                                                                                                                                                  |
| <b>Product RSL (if applicable):</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 30 years                                                                                                                                                                                                                                                                       |
| <b>Markets of Applicability:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | North America                                                                                                                                                                                                                                                                  |
| <b>EPD Type:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Product specific                                                                                                                                                                                                                                                               |
| <b>EPD Scope:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Cradle to grave                                                                                                                                                                                                                                                                |
| <b>Year(s) of Reported Manufacturer Primary Data:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 2023-2024                                                                                                                                                                                                                                                                      |
| <b>LCA Software &amp; Version Number:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | OpenLCA 2.4.0                                                                                                                                                                                                                                                                  |
| <b>LCI Database(s) &amp; Version Number:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | EcoInvent 3.11                                                                                                                                                                                                                                                                 |
| <b>LCIA Methodology &amp; Version Number:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | TRACI 2.1                                                                                                                                                                                                                                                                      |
| <b>Reference PCR:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | UL Product Category Rule (PCR) Guidance for Building-Related Products and Services, Part B: Non-Metal Ceiling and Interior Wall Panel System EPD Requirements. Version 2.0. April 13, 2021.                                                                                    |
| <b>Sub-category PCR review:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Lindita Bushi, Sustainable Materials Institute, Tom Gloria, Industrial Ecology Consultants; Olivia Palmer, Simpson Gumpertz & Heger                                                                                                                                            |
| <b>LCA Practitioner:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Milly Gabriel, SCS Global Services                                                                                                                                                                                                                                             |
| <b>Independent critical review of the LCA and data, according to ISO 14044 and the PCR:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | <input type="checkbox"/> internal <input checked="" type="checkbox"/> external                                                                                                                                                                                                 |
| <b>LCA Reviewer:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | <br>Lindita Bushi, PhD., Athena Sustainable Materials Institute                                                                                                                             |
| <b>Independent verification of the declaration and data, according to ISO 14025 and the PCR:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | <input type="checkbox"/> internal <input checked="" type="checkbox"/> external                                                                                                                                                                                                 |
| <b>EPD Verifier:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | <br>Lindita Bushi, PhD., Athena Sustainable Materials Institute                                                                                                                            |
| <b>Declaration Contents:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 1. Ceilume .....2<br>2. Product.....2<br>3. LCA: Calculation Rules.....4<br>4. LCA: Scenarios and Additional Technical Information.....9<br>5. LCA: Results.....11<br>6. LCA: Interpretation .....14<br>7. Additional Environmental Information.....16<br>8. References.....17 |
| <p><b>Disclaimers:</b> This EPD conforms to ISO 14025, 14040, 14044, and ISO 21930.</p> <p><b>Scope of Results Reported:</b> The PCR requirements limit the scope of the LCA metrics such that the results exclude environmental and social performance benchmarks and thresholds, and exclude impacts from the depletion of natural resources, land use ecological impacts, ocean impacts related to greenhouse gas emissions, risks from hazardous wastes and impacts linked to hazardous chemical emissions.</p> <p><b>Accuracy of Results:</b> Due to PCR constraints, this EPD provides estimations of potential impacts that are inherently limited in accuracy.</p> <p><b>Comparability:</b> The PCR this EPD was based on was not written to support comparative assertions. EPDs based on different PCRs, or different calculation models, may not be comparable. When attempting to compare EPDs or life cycle impacts of products from different companies, the user should be aware of the uncertainty in the final results, due to and not limited to, the practitioner's assumptions, the source of the data used in the study, and the specifics of the product modeled.</p> <p>In accordance with ISO 21930:2017, EPDs are comparable only if they comply with the core PCR, use the same sub-category PCR where applicable, include all relevant information modules and are based on equivalent scenarios with respect to the context of construction works. The owner of the declaration shall be liable for the underlying information and evidence; SCS shall not be liable with respect to manufacturer information, life cycle assessment data, and evidence supplied or made available to SCS.</p> |                                                                                                                                                                                                                                                                                |

## 1. Ceilume

Ceilume is committed to providing customers with high quality, sustainable products, and dedicated to preserving natural resources and minimizing the environmental impacts associated with manufacturing. They source their raw material from responsible companies located within the United States, have in place an extensive program to reuse materials that might otherwise end up in a landfill, and routinely reevaluate ways in which they can make their processes more efficient and environmentally friendly.

## 2. Feather-Light Tiles and Panels

### 2.1 PRODUCT DESCRIPTION

Ceilume's tiles (2 ft x 2 ft) and panels (2 ft x 4 ft) are thermoformed from rigid vinyl plastic and are designed for use in both commercial and private spaces. They are composed of a polyvinylchloride (PVC) base, some with a laminate composite covering, and are available in a variety of styles and colors. All Ceilume tiles and panels are Class A fire rated, 100% recyclable, completely waterproof, Greenguard Gold Certified for indoor air quality, and made in the USA.



**Figure 1.** A salon featuring Ceilume's Stratford ceiling tiles.

### 2.2 PRODUCT SPECIFICATION

The Ceilume products covered in this study belong to the Construction Specification Institute (CSI) codes 09 56 00 (Textured Ceiling Panels) and 09 72 16.16 (Rigid Sheet Vinyl Wall Coverings) and the following UNSPSC codes: 30161602 (Ceiling Panels) and 30161500 (Wall Panels).

## 2.3 FLOW DIAGRAM

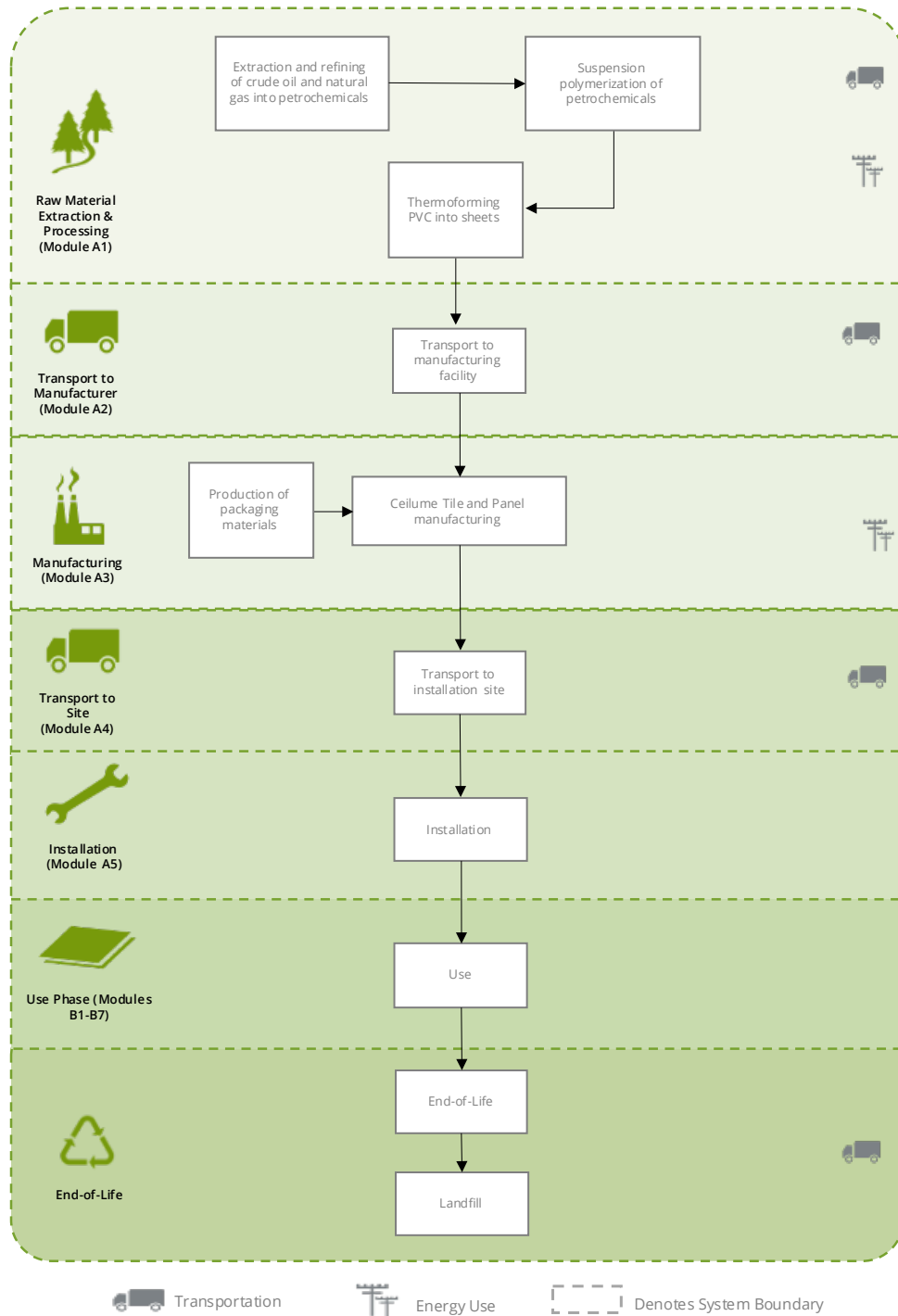


Figure 2. Flow diagram and system boundaries for the life cycle of the Ceilume products in this study.

## 2.4 PRODUCT AVERAGE

All products were assessed on the basis of a representative product that is 0.093 m<sup>2</sup> (1 ft<sup>2</sup>) in area. As such the distinction between tiles (2 ft x 2 ft) and panels (2 ft x 4 ft) is irrelevant. The product may be referred to as ceiling panels in the remainder of this document, and it should be understood to be a reference to 0.093 m<sup>2</sup> of tiles and panels that

can be applied either to a ceiling or a wall. Results were calculated based on manufacturer provided data representing a mass-based average of product materials, packaging materials, and total annual production.

## 2.5 APPLICATION

The Ceilume products in this study are designed for installation in the drop ceiling grid systems of residential and commercial buildings and have both decorative and functional applications.

## 2.6 TECHNICAL REQUIREMENTS

Ceilume panels are Greenguard Gold Certified for low-volatile organic compound (VOC) emissions. They comply with California's Department of Public Health Services Standard Practice for Specification Section 01350 for chemical emissions from building products used in schools, healthcare and critical facilities. Other qualities such as light reflectivity and burning characteristics can be found below in Table 1.

**Table 1.** *Technical specifications for Ceilume panels in scope for this study.*

| Technical Data                                                                                                                                                           | Unit                         | Feather-Light |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|---------------|
| Sound absorption coefficient (ASTM C423)                                                                                                                                 | n/a                          | 0.25          |
| Light reflectance (ASTM E1477)                                                                                                                                           | %                            | 8.99 – 90.44  |
| Interzone Attenuation of Open Office Components (ASTM E1111 and ASTM E1110)                                                                                              | n/a                          | n/a           |
| Sound Transmission Class (ASTM E413 and ASTM E90)                                                                                                                        | dB                           | 10            |
| Sound Attenuation Between Rooms Sharing a Common Ceiling Plenum (ASTM E1414 and Classification E413)                                                                     | dB                           | 14            |
| Surface burning characteristics of building materials (ASTM E84, ASTM E1264)                                                                                             | Flame spread/smoke developed | Class A       |
| Flood Damage-Resistant Material Requirements for Buildings Located in Special Flood Hazard Areas under the National Flood Insurance Program; Technical Bulletin 2 (2008) | n/a                          | Class 4       |

## 2.7 PROPERTIES OF DECLARED PRODUCT AS DELIVERED

Properties of the declared panels in this study reported above can be found in the Safety Data Sheet for Ceilume ceiling tiles and panels at the following link: <https://static.ceilume.com/static/pdfs/ceilume-safety-data-sheet.pdf>

# 3. LCA: Calculation Rules

## 3.1 FUNCTIONAL UNIT

According to ISO 14044, the functional unit is “the quantified performance of a product system, for use as a reference unit.” The functional unit for Ceilume Feather-Light tiles and panels is defined as 0.093 m<sup>2</sup> of installed panel with a reference service life (RSL) of 30 years..

**Table 2.** *Functional unit properties for the Ceilume panels in scope for this study.*

| Property                           | Unit              | Feather-Light         |
|------------------------------------|-------------------|-----------------------|
| Functional Unit                    | m <sup>2</sup>    | 0.093                 |
| Thickness                          | mm                | 3.30x10 <sup>-2</sup> |
| Surface Weight per Functional Unit | kg/m <sup>2</sup> | 4.21x10 <sup>-2</sup> |
| Density per Functional Unit        | kg/m <sup>3</sup> | 1367                  |

## 3.2 SYSTEM BOUNDARY

The scope of the EPD is cradle-to-grave, including raw material extraction and processing, transportation, product manufacture, product delivery, installation, maintenance, and product disposal. The life cycle phases included in the EPD scope are described in Table 3 below.

**Table 3.** System boundary for the Ceilume panels in this study.

| Product                                |                           |               | Construction |                             | Use |             |        |             |               |                        |                       | End-of-life               |           |                  |          | Benefits and loads beyond the system boundary |
|----------------------------------------|---------------------------|---------------|--------------|-----------------------------|-----|-------------|--------|-------------|---------------|------------------------|-----------------------|---------------------------|-----------|------------------|----------|-----------------------------------------------|
| A1                                     | A2                        | A3            | A4           | A5                          | B1  | B2          | B3     | B4          | B5            | B6                     | B7                    | C1                        | C2        | C3               | C4       | D                                             |
| Raw material extraction and processing | Transport to manufacturer | Manufacturing | Transport    | Construction - installation | Use | Maintenance | Repair | Replacement | Refurbishment | Operational energy use | Operational water use | Deconstruction demolition | Transport | Waste processing | Disposal | Reuse, recovery and/or recycling potential    |
| X                                      | X                         | X             | X            | X                           | X   | X           | X      | X           | X             | X                      | X                     | X                         | X         | X                | X        | MND                                           |

X = Module Included | MND = Module Not Declared

### 3.3 REFERENCE SERVICE LIFE AND ESTIMATED BUILDING SERVICE LIFE

The tiles and panels in this study have a Reference Service Life (RSL) of 30 years and Estimated Building Service Life (ESL) of 75 years according to the Product Category Rule (PCR).

### 3.4 ALLOCATION

This study follows the allocation guidelines of ISO 14044 and sought to minimize the use of allocation wherever possible. In general, manufacturing facilities may produce multiple products, and in such cases it is necessary to divide the environmental impacts between the different products. The Part A PCR and Part B PCR require the use of mass or other physical relationship (e.g., mass, volume) for allocation of multi-input and output processes. Resource and electricity use for the manufacturing facility was allocated using a mass-based approach based on the total production of Feather-Light tiles and panels for the Graton, California facility. Note that no green power is used in this EPD project and no CO<sub>2</sub> certificates are used in this EPD project.

The secondary databases used for the product system apply allocation based primarily on physical relationships (e.g., volume, energy content, or mass-based relationships). Impacts from the transportation, including product distribution to the installation site, were allocated based on the mass of material and distance transported.

### 3.5 CUT-OFF RULES

No data gaps were allowed which were expected to significantly affect the outcome of the indicator results. No known flows are deliberately excluded from this EPD. No burdens are allocated across the system boundary with secondary material, secondary fuel, or recovered energy flows arising from waste.

### 3.6 DATA SOURCES

The life cycle inventory (LCI) of each unit process comprises material and energy inputs, emissions, and wastes. Primary data, as well as datasets from commercial LCI databases are used to model each unit process within the product system and include data quantifying the elementary and technology flows necessary to calculate environmental impacts in each LCIA phase. These include the following general types of data:

- Inputs from nature: biotic and abiotic resources
- Inputs from the technosphere: ancillary materials, services such as waste management and transport, energy inputs, etc.; and

- Outputs to nature: emission to air, water, and soil.

To the extent available, primary data are used for foreground processes (e.g., product manufacturing), while background processes are modeled using secondary data sourced from the Ecoinvent 3.11 LCI databases with a bias towards the most recent and representative data.

Unit processes were developed with the OpenLCA v2.4.0 LCI model, drawing data from multiple sources. Primary data were provided by Ceilume for the manufacturing facility in Graton, California. The principal source of secondary LCI data is the Ecoinvent database. The datasets used in the LCA model to represent the manufacture of the panels in this study are shown below in Table 4.

**Table 4.** LCI datasets and associated databases used to model the Ceilume panels in this study.

| Flow                        | Dataset                                                                                                                            | Data Source    | Publication Date |
|-----------------------------|------------------------------------------------------------------------------------------------------------------------------------|----------------|------------------|
| <b>Raw Materials</b>        |                                                                                                                                    |                |                  |
| Body                        | market for polyvinylchloride, suspension polymerised   polyvinylchloride, suspension polymerised   Cutoff, U - GLO                 | Ecoinvent 3.11 | 2024             |
|                             | market for thermoforming of plastic sheets   thermoforming of plastic sheets   Cutoff, U - GLO                                     | Ecoinvent 3.11 | 2024             |
| Laminate                    | market for polyvinylchloride, suspension polymerised   polyvinylchloride, suspension polymerised   Cutoff, U - GLO                 | Ecoinvent 3.11 | 2024             |
|                             | market for thermoforming of plastic sheets   thermoforming of plastic sheets   Cutoff, U - GLO                                     | Ecoinvent 3.11 | 2024             |
| <b>Packaging</b>            |                                                                                                                                    |                |                  |
| Cardboard                   | market for corrugated board box   corrugated board box   Cutoff, U - US (modified to reflect 37% recycled content)                 | Ecoinvent 3.11 | 2024             |
| Foam Pads                   | market for polyurethane, flexible foam   polyurethane, flexible foam   Cutoff, U - RoW                                             | Ecoinvent 3.11 | 2024             |
| <b>Manufacturing Inputs</b> |                                                                                                                                    |                |                  |
| Electricity                 | market for electricity, medium voltage   electricity, medium voltage   (modified for regional electricity grid using eGRID data)   | Ecoinvent 3.11 | 2024             |
| Water                       | market for tap water   tap water   Cutoff, U - RoW                                                                                 | Ecoinvent 3.11 | 2024             |
| <b>Transport</b>            |                                                                                                                                    |                |                  |
| Truck Transport             | market for transport, freight, lorry 16-32 metric ton, EURO4   transport, freight, lorry 16-32 metric ton, EURO4   Cutoff, U - RoW | Ecoinvent 3.11 | 2024             |
| <b>Waste Outputs</b>        |                                                                                                                                    |                |                  |
| Wastewater                  | market for wastewater, average   wastewater, average   Cutoff, U - RoW                                                             | Ecoinvent 3.11 | 2024             |
| Polyvinylchloride           | treatment of waste polyvinylchloride, sanitary landfill   waste polyvinylchloride   Cutoff, U - RoW                                | Ecoinvent 3.11 | 2024             |
| Foam Pads                   | treatment of waste polyurethane foam, collection for final disposal   waste polyurethane foam   Cutoff, U - RoW                    | Ecoinvent 3.11 | 2024             |
| Cardboard                   | treatment of waste paperboard, inert material landfill   waste paperboard   Cutoff, U - RoW                                        | Ecoinvent 3.11 | 2024             |
|                             | treatment of waste paperboard, municipal incineration   waste paperboard   Cutoff, U - GLO                                         | Ecoinvent 3.11 | 2024             |

### 3.7. DATA QUALITY

The data quality assessment addressed the following parameters: time-related coverage, geographical coverage, technological coverage, precision, completeness, representativeness, consistency, reproducibility, sources of data, and uncertainty.

**Table 5.** *Data quality assessment.*

| Data Quality Parameter                                                                                                                                                                                            | Data Quality Discussion                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Time-Related Coverage:</b><br>Age of data and the minimum length of time over which data is collected                                                                                                          | The manufacturer provided primary data on product manufacturing for the Graton, California facility on an annual production scale for 2024. Representative datasets (secondary data) for upstream and background processes are generally less than 5 years old.                                                                                                                                                                                                                                                                                                              |
| <b>Geographical Coverage:</b><br>Geographical area from which data for unit processes is collected to satisfy the goal of the study                                                                               | The data used in the analysis provide the best possible representation available with current data. Electricity use for products manufactured is modeled using representative data modelled for the specific electricity grids represented in this study. Surrogate data used in the assessment are representative of global operations and are considered sufficiently similar to actual processes.                                                                                                                                                                         |
| <b>Technology Coverage:</b><br>Specific technology or technology mix                                                                                                                                              | For the most part, data are representative of the actual technologies used for processing, transportation, and manufacturing operations. Representative component datasets, specific to the type of material, are used to represent the actual processes, as appropriate.                                                                                                                                                                                                                                                                                                    |
| <b>Precision:</b><br>Measure of the variability of the data values for each data expressed                                                                                                                        | Precision of results are not quantified due to a lack of data. Data collected for operations were typically averaged for one more years and over multiple operations, which is expected to reduce the variability of results.                                                                                                                                                                                                                                                                                                                                                |
| <b>Completeness:</b><br>Percentage of flow that is measured or estimated                                                                                                                                          | The LCA model included all known mass and energy flows for production of the products. In some instances, surrogate data used to represent upstream and downstream operations may be missing some data which is propagated in the model. No known processes or activities contributing to more than 1% of the total environmental impact for each indicator are excluded.                                                                                                                                                                                                    |
| <b>Representativeness:</b><br>Qualitative assessment of the degree to which the data set reflects the true population of interest                                                                                 | Data used in the assessment represents typical or average processes as currently reported from multiple data sources and are therefore generally representative of the range of actual processes and technologies for production of these materials. Considerable deviation may exist among actual processes on a site-specific basis; however, such a determination would require detailed data collection throughout the supply chain back to resource extraction.                                                                                                         |
| <b>Consistency:</b><br>Qualitative assessment of whether the study methodology is applied uniformly to the various components of the analysis                                                                     | The consistency of the assessment is considered to be high. Data sources of similar quality and age are used; with a bias towards the most recent dataset where available. Different portions of the product life cycle are equally considered.                                                                                                                                                                                                                                                                                                                              |
| <b>Reproducibility:</b><br>Qualitative assessment of the extent to which information about the methodology and data values would allow an independent practitioner to reproduce the results reported in the study | Based on the description of the data and assumptions used, this assessment would be reproducible by other practitioners. All assumptions, models, and data sources are documented.                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>Sources of the Data:</b><br>Description of all primary and secondary data sources                                                                                                                              | Data representing energy use at the Graton California facility represent a 12-month average and are considered of high quality due to the length of time over which these data are collected, as compared to a snapshot that may not accurately reflect fluctuations in production. For secondary LCI data, Ecoinvent v3.10 data are used.                                                                                                                                                                                                                                   |
| <b>Uncertainty of the Information:</b><br>Uncertainty related to data, models, and assumptions                                                                                                                    | Uncertainty related to materials in the products and packaging is low. Actual supplier data for upstream operations was not available for all suppliers and the study relied upon the use of existing representative datasets. These datasets contained relatively recent data (<10 years) but lacked geographical representativeness. Uncertainty related to the impact assessment methods used in the study are high. The impact assessment methodology includes impact potentials, which lack characterization of providing and receiving environments or tipping points. |

### 3.8 PERIOD UNDER REVIEW

The period of review is October 1<sup>st</sup>, 2023 through September 30<sup>th</sup>, 2024.

### 3.9 COMPARABILITY AND BENCHMARKING

The PCR this EPD was based on was not written to support comparative assertions. EPDs based on different PCRs, or different calculation models, may not be comparable. When attempting to compare EPDs or life cycle impacts of products from different companies, the user should be aware of the uncertainty in the final results, due to and not limited to, the practitioner's assumptions, the source of the data used in the study, and the specifics of the product modeled.

### 3.10 ESTIMATES AND ASSUMPTIONS

The assessment relied on a number of assumptions related to material composition, processing, installation, use and end-of-life disposal. The major assumptions used in the assessment are described below.

- Total facility production for each product type over a 12-month period from October 1<sup>st</sup>, 2023 to September 30<sup>th</sup>, 2024 was provided by Ceilume.
- Installation of the products is assumed to be manual, requiring no additional energy use.
- Product waste from installation is assumed to be 7% per the PCR Part B.
- Transport of the packaging waste at installation is assumed to be 100 km by truck.
- Packaging waste is disposed of in accordance with the packaging disposal assumptions by region laid out in the PCR Part A for the United States.
- The product is assumed to require no repair or refurbishment over its RSL.
- The ESL of the building/construction works was assumed to be 75 years, per the PCR, in order to be consistent with ASHRAE 189.1 (2014, Section 9.5.1).
- According to the manufacturer, the product can be cleaned at any point during its lifetime using a soapy water solution, but it is not necessary to do so. Therefore cleaning was excluded from this life cycle assessment.
- The product requires no operational energy or operational water usage during its service life.
- Transport of the product at end-of-life to waste processing and disposal is assumed to be 100 km by truck.
- For the product end-of-life, disposal of product is assumed to be in a landfill.

### 3.11 UNITS

All data and results are presented using SI units.

## 4. LCA: Scenarios and Additional Technical Information

### 4.1 MATERIAL COMPOSITION

Table 6 summarizes the components by weight and material type for each product line, including product scrap, as well as the packaging materials for each product. Also presented are the material components as a percent of total mass.

**Table 6.** Material component summary for Feather-Light Ceilume products in this study, per 0.093 m<sup>2</sup> of panel.

| Raw Materials                                | Recycled Content (%) | Mass Final Product (kg)                       | Percent of Product (%) |
|----------------------------------------------|----------------------|-----------------------------------------------|------------------------|
| Polyvinylchloride                            | 0.00                 | 4.07x10 <sup>-2</sup>                         | 97                     |
| Laminate                                     | 0.00                 | 1.43x10 <sup>-3</sup>                         | 3                      |
| <b>Total:</b>                                |                      | <b>4.21x10<sup>-2</sup></b>                   | <b>100</b>             |
| <b>Biogenic Carbon Content in Product:</b>   |                      | <b>0.00 kg CO<sub>2</sub></b>                 |                        |
| Packaging                                    |                      | Mass (kg)                                     | Packaging (%)          |
| Cardboard                                    | 37                   | 3.18x10 <sup>-3</sup>                         | 89                     |
| Foam Pads                                    | 0.00                 | 3.76x10 <sup>-4</sup>                         | 11                     |
| <b>Total:</b>                                |                      | <b>3.55x10<sup>-3</sup></b>                   | <b>100</b>             |
| <b>Biogenic Carbon Content in Packaging:</b> |                      | <b>5.83x10<sup>-3</sup> kg CO<sub>2</sub></b> |                        |

\*May not sum due to rounding

### 4.2 MANUFACTURE

Ceilume ceiling tiles and panels are manufactured in Graton, California. During the manufacturing process, rolled sheet vinyl is pulled out flat through a heating element which softens the vinyl. The sheet is then pulled down onto a mold with small vacuum holes throughout. The vacuum pulls down the heated vinyl onto the mold, and a trim die cuts the shaped tile material away from the surrounding scrap. Scrap is pulled off the machine in rolls to be recycled as the tiles are stacked and counted for boxing. The manufacturer provided primary data for twelve months of manufacturing data for the process described including production, resource, electricity consumption, and waste generation at the facility. Electricity consumption is modeled using Ecoinvent datasets for the region.

### 4.3 PACKAGING

The thin nature of the product allows it to be shipped efficiently and with minimal packaging. The product is shipped inside cardboard boxes along with foam pads to protect the product's corners.

### 4.4 TRANSPORTATION

Transportation for the LCA model is based on data provided by the manufacturer for transport from the component manufacturer (1st tier supplier) to the production facility in Graton, California. Transportation data for 2nd tier suppliers (material supplier to component manufacturer) are based on data embedded in the representative LCI datasets. Transport from manufacturer to installation is modeled through primary data provided by Ceilume and was calculated based on percentages of each product transported to major regions of the United States. Road transport is assumed to be by diesel truck.

**Table 7.** Distribution transportation summary for Ceilume panels in this study, per 0.093 m<sup>2</sup> of panel.

| Name                                                   | Unit              | Feather-Light Panel   |
|--------------------------------------------------------|-------------------|-----------------------|
| Vehicle type                                           | -                 | Truck                 |
| Fuel type                                              | -                 | Diesel                |
| Lites of fuel                                          | l/100km           | 18.7                  |
| Transport distance                                     | km                | 3412                  |
| Capacity utilization                                   | %                 | -                     |
| Gross density of products transported                  | kg/m <sup>3</sup> | -                     |
| Capacity utilization volume factor                     | -                 | 1                     |
| Gross mass of products transported including packaging | kg                | 4.57x10 <sup>-2</sup> |

#### 4.5 INSTALLATION IN THE BUILDING

Installation of the panels is completed manually without the aid of machinery. Waste is generated from the disposal of the packaging material and is modeled as required in the Part A PCR. Table 8 summarizes the modeling parameters for the product installation phase including scrap losses.

**Table 8.** *Installation summary for Ceilume panels in this study, per 0.093 m<sup>2</sup>.*

| Name                                                                                                | Unit               | Value                 |
|-----------------------------------------------------------------------------------------------------|--------------------|-----------------------|
| Ancillary materials                                                                                 | kg                 | 0.00                  |
| Net freshwater consumption specified by water source                                                | m <sup>3</sup>     | 0.00                  |
| Other resources                                                                                     | kg                 | 0.00                  |
| Electricity consumption                                                                             | kWh                | 0.00                  |
| Other energy carriers                                                                               | MJ                 | 0.00                  |
| Product loss per functional unit                                                                    |                    |                       |
| Feather-Light Panel                                                                                 | kg                 | 2.94x10 <sup>-3</sup> |
| Waste materials at the construction site before waste processing, generated by product installation |                    |                       |
| Feather-Light Panel                                                                                 | kg                 | 2.94x10 <sup>-3</sup> |
| Output materials resulting from on-site waste processing (specified by route)                       |                    |                       |
|                                                                                                     | kg                 | 0.00                  |
|                                                                                                     | kg                 | 0.00                  |
| Mass of packaging waste specified by type                                                           |                    |                       |
| Recycle                                                                                             | kg                 | 0.00                  |
| Landfill                                                                                            |                    |                       |
| Feather-Light Panel                                                                                 | kg                 | 3.55x10 <sup>-3</sup> |
| Biogenic carbon contained in packaging                                                              |                    |                       |
| Feather-Light Panel                                                                                 | kg CO <sub>2</sub> | 5.83x10 <sup>-3</sup> |
| Direct emissions to ambient air, soil and water                                                     | kg                 | 0.00                  |
| VOC emissions                                                                                       | µg/m <sup>3</sup>  | 0.00                  |

#### 4.6 PRODUCT USE

This study includes impacts associated with use phase scenarios. Module B1 is assumed to have no impacts. Module B2 includes the maintenance of the product, which is not required as specified by the manufacturer. Module B2 is then assumed to have no impacts. Module B3 includes the impacts associated with the repair of the product. No repairs of the product are required, as indicated by the manufacturer. The Reference Service Life (RSL) of the product is 30 years. During the Estimated Service Life (ESL) of 75 years the product will have to be replaced 1.5 times, the impacts of which are captured in Module B4. Modules B5 through B7 are assumed to have no impacts.

#### 4.7 END-OF-LIFE

Impacts for deconstruction and dismantling processes (Module C1) were not applicable to this study as it is a manual process with hand tools and does not require energy for the removal of the product. Transport of the waste material at end-of-life is assumed to be 100 km. Module C3 (Waste Processing) is not applicable to this study as the end-of-life disposal is assumed to be 100% landfilled with a transportation distance of 100 km from the installation site to landfill. Module C4 represents the typical disposal of Ceilume products. Table 10 summarizes the relevant information for the end-of-life of Ceilume products within the system boundaries.

**Table 9.** End-of-Life summary for Ceilume panels, per 0.093 m<sup>2</sup>.

| Name                                              |                                             | Unit   | Feather-Light Panel   |
|---------------------------------------------------|---------------------------------------------|--------|-----------------------|
| Assumptions for scenario development              |                                             |        |                       |
| Collection process (specified by type)            | Collected separately                        | kg     | 0.00                  |
|                                                   | Collected with mixed construction waste     | kg     | 4.21x10 <sup>-2</sup> |
| Recovery (specified by type)                      | Reuse                                       | kg     | 0.00                  |
|                                                   | Recycling                                   | kg     | 0.00                  |
|                                                   | Landfill                                    | kg     | 0.00                  |
|                                                   | Incineration                                | kg     | 0.00                  |
|                                                   | Incineration with energy recovery           | kg     | 0.00                  |
|                                                   | Energy conversion (specify efficiency rate) |        | 0.00                  |
| Disposal (Landfill for final disposal)            | Product or material for final deposition    | kg     | 4.21x10 <sup>-2</sup> |
| Removals of biogenic carbon (excluding packaging) |                                             | kg CO2 | 0.00                  |

## 5. LCA: Results

Results of the Life Cycle Assessment are presented below. It is noted that LCA results are relative expressions and do not predict impacts on category endpoints, the exceeding of thresholds, safety margins or risks.

The following environmental impact category indicators are reported using characterization factors based on TRACI 2.1 characterization methodology. These six impact categories are globally deemed mature enough to be included in Type III environmental declarations. Other categories are being developed and defined and LCA should continue making advances in their development. However, the EPD users shall not use additional measures for comparative purposes. Results reported in MJ are calculated using lower heating values. All values are rounded to three significant digits and are reported for 0.093 m<sup>2</sup> of installed panel with a reference service life (RSL) of 30 years.

| TRACI 2.1 Impact Category                                                                                | Unit                  |
|----------------------------------------------------------------------------------------------------------|-----------------------|
| Global Warming Potential (GWP) - 100, IPCC 2013 AR5                                                      | kg CO <sub>2</sub> eq |
| Ozone Depletion Potential (ODP)                                                                          | kg CFC-11 eq          |
| Eutrophication Potential (EP)                                                                            | kg N eq               |
| Acidification Potential (AP)                                                                             | kg SO <sub>2</sub> eq |
| Smog Formation Potential (SFP)                                                                           | kg O <sub>3</sub> eq  |
| Abiotic Resource Depletion Potential of Non-renewable (fossil) energy resources (ADP <sub>fossil</sub> ) | MJ, LHV               |

## 5.1 Ceilume Feather-Light Product Results

**Table 10.** TRACI 2.1 Impact Results for Ceilume Feather-Light panel products, per 0.093 m<sup>2</sup> of installed panel.

| Module              | Global Warming Potential    | Ozone Depletion Potential   | Eutrophication Potential    | Acidification Potential     | Smog Formation Potential    | Fossil Fuel Depletion       |
|---------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|
|                     | kg CO <sub>2</sub> eq       | kg CFC-11 eq                | kg N eq                     | kg SO <sub>2</sub> eq       | kg O <sub>3</sub> eq        | MJ, LHV                     |
| A1                  | 1.94x10 <sup>-1</sup>       | 4.82x10 <sup>-8</sup>       | 1.10x10 <sup>-3</sup>       | 7.50x10 <sup>-4</sup>       | 9.63x10 <sup>-3</sup>       | 4.21x10 <sup>-1</sup>       |
| A2                  | 3.50x10 <sup>-2</sup>       | 5.52x10 <sup>-10</sup>      | 3.86x10 <sup>-5</sup>       | 1.30x10 <sup>-4</sup>       | 3.58x10 <sup>-3</sup>       | 6.90x10 <sup>-2</sup>       |
| A3                  | 9.39x10 <sup>-3</sup>       | 2.77x10 <sup>-11</sup>      | 3.50x10 <sup>-4</sup>       | 4.65x10 <sup>-4</sup>       | 2.15x10 <sup>-4</sup>       | 2.50x10 <sup>-2</sup>       |
| <b>A1-A3 Total:</b> | <b>2.38x10<sup>-1</sup></b> | <b>4.88x10<sup>-8</sup></b> | <b>1.49x10<sup>-3</sup></b> | <b>1.35x10<sup>-3</sup></b> | <b>1.34x10<sup>-2</sup></b> | <b>5.15x10<sup>-1</sup></b> |
| A4                  | 3.08x10 <sup>-2</sup>       | 4.90x10 <sup>-10</sup>      | 3.43x10 <sup>-5</sup>       | 1.17x10 <sup>-4</sup>       | 3.18x10 <sup>-3</sup>       | 6.11x10 <sup>-2</sup>       |
| A5                  | 1.90x10 <sup>-1</sup>       | 3.45x10 <sup>-8</sup>       | 1.15x10 <sup>-3</sup>       | 1.12x10 <sup>-3</sup>       | 1.17x10 <sup>-2</sup>       | 4.04x10 <sup>-1</sup>       |
| B1                  | 0.00                        | 0.00                        | 0.00                        | 0.00                        | 0.00                        | 0.00                        |
| B2                  | 0.00                        | 0.00                        | 0.00                        | 0.00                        | 0.00                        | 0.00                        |
| B3                  | 0.00                        | 0.00                        | 0.00                        | 0.00                        | 0.00                        | 0.00                        |
| B4                  | 7.20x10 <sup>-1</sup>       | 1.26x10 <sup>-7</sup>       | 5.40x10 <sup>-3</sup>       | 5.82x10 <sup>-3</sup>       | 4.33x10 <sup>-2</sup>       | 1.49                        |
| B5                  | 0.00                        | 0.00                        | 0.00                        | 0.00                        | 0.00                        | 0.00                        |
| B6                  | 0.00                        | 0.00                        | 0.00                        | 0.00                        | 0.00                        | 0.00                        |
| B7                  | 0.00                        | 0.00                        | 0.00                        | 0.00                        | 0.00                        | 0.00                        |
| C1                  | 0.00                        | 0.00                        | 0.00                        | 0.00                        | 0.00                        | 0.00                        |
| C2                  | 7.90x10 <sup>-4</sup>       | 1.26x10 <sup>-11</sup>      | 8.82x10 <sup>-7</sup>       | 3.02x10 <sup>-6</sup>       | 8.18x10 <sup>-5</sup>       | 1.20x10 <sup>-2</sup>       |
| C3                  | 0.00                        | 0.00                        | 0.00                        | 0.00                        | 0.00                        | 0.00                        |
| C4                  | 1.98x10 <sup>-2</sup>       | 5.81x10 <sup>-11</sup>      | 9.29x10 <sup>-4</sup>       | 1.30x10 <sup>-3</sup>       | 4.44x10 <sup>-4</sup>       | 2.86x10 <sup>-3</sup>       |

Table 11 summarizes the nomenclature and reporting units for the additional inventory parameters (energy and waste flows), as specified in the PCR, while Tables 12 and 13 present these results according to the life cycle module definitions for the ceiling tiles and panels.

**Table 11.** Nomenclature and reporting units for resource use and waste flows.

| Parameter                                                                      | Units          |
|--------------------------------------------------------------------------------|----------------|
| <b>Resources</b>                                                               |                |
| Renewable primary resources used as energy carrier (RPR <sub>E</sub> )         | MJ, LHV        |
| Renewable primary resources used as material (RPR <sub>M</sub> )               | MJ, LHV        |
| Non-renewable primary resources used as an energy carrier (NRPR <sub>E</sub> ) | MJ, LHV        |
| Non-renewable primary resources used as material (NRPR <sub>M</sub> )          | MJ, LHV        |
| Secondary materials (SM)                                                       | kg             |
| Renewable secondary fuels (RSF)                                                | MJ, LHV        |
| Non-renewable secondary fuels (NRSF)                                           | MJ, LHV        |
| Recovered energy (RE)                                                          | MJ, LHV        |
| Use of net freshwater resources (FW)                                           | m <sup>3</sup> |
| <b>Wastes</b>                                                                  |                |
| Non-hazardous waste disposed (NHWD)                                            | kg             |
| Hazardous waste disposed (NWD)                                                 | kg             |
| High-level radioactive waste (HLRW)                                            | kg             |
| Intermediate- and low-level radioactive waste (ILLRW)                          | kg             |
| Components for re-use (CRU)                                                    | kg             |
| Materials for recycling (MR)                                                   | kg             |
| Materials for energy recovery (MER)                                            | kg             |
| Recovered energy exported from the product system (EE)                         | MJ             |

**Table 12.** Resource use indicator results for Ceilume Feather-Light panel products, per 0.093 m<sup>2</sup> of installed panel.

| Module              | RPR <sub>E</sub>            | RPR <sub>M</sub> | NRPR <sub>E</sub>     | NRPR <sub>M</sub>     | SM          | RSF         | NRSF        | RE          | FW                          |
|---------------------|-----------------------------|------------------|-----------------------|-----------------------|-------------|-------------|-------------|-------------|-----------------------------|
|                     | MJ                          | MJ               | MJ                    | MJ                    | kg          | MJ          | MJ          | MJ          | m <sup>3</sup>              |
| A1                  | 2.46x10 <sup>-1</sup>       | 0.00             | 3.68                  | 1.03                  | 0.00        | 0.00        | 0.00        | 0.00        | 4.40x10 <sup>-2</sup>       |
| A2                  | 6.62x10 <sup>-3</sup>       | 0.00             | 4.93x10 <sup>-1</sup> | 0.00                  | 0.00        | 0.00        | 0.00        | 0.00        | 2.77x10 <sup>-3</sup>       |
| A3                  | 6.88x10 <sup>-3</sup>       | 0.00             | 2.63x10 <sup>-2</sup> | 2.72x10 <sup>-1</sup> | 0.00        | 0.00        | 0.00        | 0.00        | 1.85x10 <sup>-4</sup>       |
| <b>A1-A3 Total:</b> | <b>2.59x10<sup>-1</sup></b> | <b>0.00</b>      | <b>4.20</b>           | <b>1.30</b>           | <b>0.00</b> | <b>0.00</b> | <b>0.00</b> | <b>0.00</b> | <b>4.70x10<sup>-2</sup></b> |
| A4                  | 5.79x10 <sup>-3</sup>       | 0.00             | 4.37x10 <sup>-1</sup> | 0.00                  | 0.00        | 0.00        | 0.00        | 0.00        | 2.46x10 <sup>-3</sup>       |
| A5                  | 1.86x10 <sup>-1</sup>       | 0.00             | 3.25                  | 1.44x10 <sup>-1</sup> | 0.00        | 0.00        | 0.00        | 0.00        | 3.46x10 <sup>-2</sup>       |
| B1                  | 0.00                        | 0.00             | 0.00                  | 0.00                  | 0.00        | 0.00        | 0.00        | 0.00        | 0.00                        |
| B2                  | 0.00                        | 0.00             | 0.00                  | 0.00                  | 0.00        | 0.00        | 0.00        | 0.00        | 0.00                        |
| B3                  | 0.00                        | 0.00             | 0.00                  | 0.00                  | 0.00        | 0.00        | 0.00        | 0.00        | 0.00                        |
| B4                  | 6.79x10 <sup>-1</sup>       | 0.00             | 11.9                  | 3.30                  | 0.00        | 0.00        | 0.00        | 0.00        | 1.27x10 <sup>-1</sup>       |
| B5                  | 0.00                        | 0.00             | 0.00                  | 0.00                  | 0.00        | 0.00        | 0.00        | 0.00        | 0.00                        |
| B6                  | 0.00                        | 0.00             | 0.00                  | 0.00                  | 0.00        | 0.00        | 0.00        | 0.00        | 0.00                        |
| B7                  | 0.00                        | 0.00             | 0.00                  | 0.00                  | 0.00        | 0.00        | 0.00        | 0.00        | 0.00                        |
| C1                  | 0.00                        | 0.00             | 0.00                  | 0.00                  | 0.00        | 0.00        | 0.00        | 0.00        | 0.00                        |
| C2                  | 1.51x10 <sup>-4</sup>       | 0.00             | 1.14x10 <sup>-2</sup> | 0.00                  | 0.00        | 0.00        | 0.00        | 0.00        | 1.18x10 <sup>-5</sup>       |
| C3                  | 0.00                        | 0.00             | 0.00                  | 0.00                  | 0.00        | 0.00        | 0.00        | 0.00        | 0.00                        |
| C4                  | 1.52x10 <sup>-3</sup>       | 0.00             | 2.38x10 <sup>-2</sup> | 7.55x10 <sup>-1</sup> | 0.00        | 0.00        | 0.00        | 0.00        | 5.65x10 <sup>-4</sup>       |

**Table 13.** Waste and output indicator results for Ceilume Feather-Light panel products, per 0.093 m<sup>2</sup> of installed panel.

| Module              | HWD         | NHWD                        | HLRW        | ILLRW       | CRU         | MFR         | MER         | EEE         | EET         |
|---------------------|-------------|-----------------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
|                     | kg          | kg                          | kg          | kg          | kg          | kg          | kg          | MJ Surplus  | MJ Surplus  |
| A1                  | 0.00        | 0.00                        | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        |
| A2                  | 0.00        | 0.00                        | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        |
| A3                  | 0.00        | 1.60x10 <sup>-2</sup>       | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        |
| <b>A1-A3 Total:</b> | <b>0.00</b> | <b>1.60x10<sup>-2</sup></b> | <b>0.00</b> | <b>0.00</b> | <b>0.00</b> | <b>0.00</b> | <b>0.00</b> | <b>0.00</b> | <b>0.00</b> |
| A4                  | 0.00        | 0.00                        | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        |
| A5                  | 0.00        | 1.93x10 <sup>-2</sup>       | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        |
| B1                  | 0.00        | 0.00                        | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        |
| B2                  | 0.00        | 0.00                        | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        |
| B3                  | 0.00        | 0.00                        | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        |
| B4                  | 0.00        | 1.16x10 <sup>-1</sup>       | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        |
| B5                  | 0.00        | 0.00                        | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        |
| B6                  | 0.00        | 0.00                        | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        |
| B7                  | 0.00        | 0.00                        | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        |
| C1                  | 0.00        | 0.00                        | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        |
| C2                  | 0.00        | 0.00                        | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        |
| C3                  | 0.00        | 0.00                        | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        |
| C4                  | 0.00        | 4.20x10 <sup>-2</sup>       | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        |

## 5.2 Ceilume Feather-Light Product Results with Take-Back Participation

Ceilume offers a take-back program where tiles and panels at the end of their service life are sent back to the manufacturing facility for re-use as an input material into Ceilume's Random Gray tile line, made from 100% repurposed scrap and product. The following results represent a Feather-Light product made from virgin materials that is then sent back to the manufacturing facility at end of life instead of being sent to a landfill.

**Table 14.** TRACI 2.1 Impact Results for Ceilume Feather-Light panel products that participate in a take-back program, per 0.093 m<sup>2</sup> of installed panel.

| Module              | Global Warming Potential    | Ozone Depletion Potential   | Eutrophication Potential    | Acidification Potential     | Smog Formation Potential    | Fossil Fuel Depletion       |
|---------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|
|                     | kg CO <sub>2</sub> eq       | kg CFC-11 eq                | kg N eq                     | kg SO <sub>2</sub> eq       | kg O <sub>3</sub> eq        | MJ, LHV                     |
| A1                  | 1.94x10 <sup>-1</sup>       | 4.82x10 <sup>-8</sup>       | 1.10x10 <sup>-3</sup>       | 7.50x10 <sup>-4</sup>       | 9.63x10 <sup>-3</sup>       | 4.21x10 <sup>-1</sup>       |
| A2                  | 3.50x10 <sup>-2</sup>       | 5.52x10 <sup>-10</sup>      | 3.86x10 <sup>-5</sup>       | 1.30x10 <sup>-4</sup>       | 3.58x10 <sup>-3</sup>       | 6.90x10 <sup>-2</sup>       |
| A3                  | 9.39x10 <sup>-3</sup>       | 2.77x10 <sup>-11</sup>      | 3.50x10 <sup>-4</sup>       | 4.65x10 <sup>-4</sup>       | 2.15x10 <sup>-4</sup>       | 2.50x10 <sup>-2</sup>       |
| <b>A1-A3 Total:</b> | <b>2.38x10<sup>-1</sup></b> | <b>4.88x10<sup>-8</sup></b> | <b>1.49x10<sup>-3</sup></b> | <b>1.35x10<sup>-3</sup></b> | <b>1.34x10<sup>-2</sup></b> | <b>5.15x10<sup>-1</sup></b> |
| A4                  | 3.08x10 <sup>-2</sup>       | 4.90x10 <sup>-10</sup>      | 3.43x10 <sup>-5</sup>       | 1.17x10 <sup>-4</sup>       | 3.18x10 <sup>-3</sup>       | 6.11x10 <sup>-2</sup>       |
| A5                  | 1.90x10 <sup>-1</sup>       | 3.45x10 <sup>-8</sup>       | 1.15x10 <sup>-3</sup>       | 1.12x10 <sup>-3</sup>       | 1.17x10 <sup>-2</sup>       | 4.04x10 <sup>-1</sup>       |
| B1                  | 0.00                        | 0.00                        | 0.00                        | 0.00                        | 0.00                        | 0.00                        |
| B2                  | 0.00                        | 0.00                        | 0.00                        | 0.00                        | 0.00                        | 0.00                        |
| B3                  | 0.00                        | 0.00                        | 0.00                        | 0.00                        | 0.00                        | 0.00                        |
| B4                  | 7.34x10 <sup>-1</sup>       | 1.26x10 <sup>-7</sup>       | 4.06x10 <sup>-3</sup>       | 4.03x10 <sup>-3</sup>       | 4.69x10 <sup>-2</sup>       | 1.56                        |
| B5                  | 0.00                        | 0.00                        | 0.00                        | 0.00                        | 0.00                        | 0.00                        |
| B6                  | 0.00                        | 0.00                        | 0.00                        | 0.00                        | 0.00                        | 0.00                        |
| B7                  | 0.00                        | 0.00                        | 0.00                        | 0.00                        | 0.00                        | 0.00                        |
| C1                  | 0.00                        | 0.00                        | 0.00                        | 0.00                        | 0.00                        | 0.00                        |
| C2                  | 3.01x10 <sup>-2</sup>       | 4.79x10 <sup>-10</sup>      | 3.35x10 <sup>-5</sup>       | 1.10x10 <sup>-4</sup>       | 2.92x10 <sup>-3</sup>       | 5.98x10 <sup>-2</sup>       |
| C3                  | 0.00                        | 0.00                        | 0.00                        | 0.00                        | 0.00                        | 0.00                        |
| C4                  | 0.00                        | 0.00                        | 0.00                        | 0.00                        | 0.00                        | 0.00                        |

**Table 15.** Resource use indicator results for Ceilume Feather-Light panel products that participate in a take-back program, per 0.093 m<sup>2</sup> of installed panel.

| Module              | RPR <sub>E</sub>            | RPR <sub>M</sub> | NRPR <sub>E</sub>     | NRPR <sub>M</sub>     | SM          | RSF         | NRSF        | RE          | FW                          |
|---------------------|-----------------------------|------------------|-----------------------|-----------------------|-------------|-------------|-------------|-------------|-----------------------------|
|                     | MJ                          | MJ               | MJ                    | MJ                    | kg          | MJ          | MJ          | MJ          | m <sup>3</sup>              |
| A1                  | 2.46x10 <sup>-1</sup>       | 0.00             | 3.68                  | 1.03                  | 0.00        | 0.00        | 0.00        | 0.00        | 4.40x10 <sup>-2</sup>       |
| A2                  | 6.62x10 <sup>-3</sup>       | 0.00             | 4.93x10 <sup>-1</sup> | 0.00                  | 0.00        | 0.00        | 0.00        | 0.00        | 2.77x10 <sup>-3</sup>       |
| A3                  | 6.88x10 <sup>-3</sup>       | 0.00             | 2.63x10 <sup>-2</sup> | 0.272                 | 0.00        | 0.00        | 0.00        | 0.00        | 1.85x10 <sup>-4</sup>       |
| <b>A1-A3 Total:</b> | <b>2.59x10<sup>-1</sup></b> | <b>0.00</b>      | <b>4.20</b>           | <b>1.30</b>           | <b>0.00</b> | <b>0.00</b> | <b>0.00</b> | <b>0.00</b> | <b>4.70x10<sup>-2</sup></b> |
| A4                  | 5.79x10 <sup>-3</sup>       | 0.00             | 4.37x10 <sup>-1</sup> | 0.00                  | 0.00        | 0.00        | 0.00        | 0.00        | 2.46x10 <sup>-3</sup>       |
| A5                  | 1.86x10 <sup>-1</sup>       | 0.00             | 3.25                  | 1.44x10 <sup>-1</sup> | 0.00        | 0.00        | 0.00        | 0.00        | 3.46x10 <sup>-2</sup>       |
| B1                  | 0.00                        | 0.00             | 0.00                  | 0.00                  | 0.00        | 0.00        | 0.00        | 0.00        | 0.00                        |
| B2                  | 0.00                        | 0.00             | 0.00                  | 0.00                  | 0.00        | 0.00        | 0.00        | 0.00        | 0.00                        |
| B3                  | 0.00                        | 0.00             | 0.00                  | 0.00                  | 0.00        | 0.00        | 0.00        | 0.00        | 0.00                        |
| B4                  | 6.85x10 <sup>-1</sup>       | 0.00             | 12.5                  | 2.17                  | 0.00        | 0.00        | 0.00        | 0.00        | 1.30x10 <sup>-1</sup>       |
| B5                  | 0.00                        | 0.00             | 0.00                  | 0.00                  | 0.00        | 0.00        | 0.00        | 0.00        | 0.00                        |
| B6                  | 0.00                        | 0.00             | 0.00                  | 0.00                  | 0.00        | 0.00        | 0.00        | 0.00        | 0.00                        |
| B7                  | 0.00                        | 0.00             | 0.00                  | 0.00                  | 0.00        | 0.00        | 0.00        | 0.00        | 0.00                        |
| C1                  | 0.00                        | 0.00             | 0.00                  | 0.00                  | 0.00        | 0.00        | 0.00        | 0.00        | 0.00                        |
| C2                  | 5.66x10 <sup>-3</sup>       | 0.00             | 4.28x10 <sup>-1</sup> | 0.00                  | 0.00        | 0.00        | 0.00        | 0.00        | 2.52x10 <sup>-3</sup>       |
| C3                  | 0.00                        | 0.00             | 0.00                  | 0.00                  | 0.00        | 0.00        | 0.00        | 0.00        | 0.00                        |
| C4                  | 0.00                        | 0.00             | 0.00                  | 0.00                  | 0.00        | 0.00        | 0.00        | 0.00        | 0.00                        |

**Table 16.** Waste and output indicator results for Ceilume Feather-Light panel products that participate in a take-back program, per 0.093 m<sup>2</sup> of installed panel.

| Module              | HWD         | NHWD                        | HLRW        | ILLRW       | CRU         | MFR         | MER         | EEE         | EET         |
|---------------------|-------------|-----------------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
|                     | kg          | kg                          | kg          | kg          | kg          | kg          | kg          | MJ Surplus  | MJ Surplus  |
| A1                  | 0.00        | 0.00                        | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        |
| A2                  | 0.00        | 0.00                        | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        |
| A3                  | 0.00        | 1.60x10 <sup>-2</sup>       | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        |
| <b>A1-A3 Total:</b> | <b>0.00</b> | <b>1.60x10<sup>-2</sup></b> | <b>0.00</b> | <b>0.00</b> | <b>0.00</b> | <b>0.00</b> | <b>0.00</b> | <b>0.00</b> | <b>0.00</b> |
| A4                  | 0.00        | 0.00                        | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        |
| A5                  | 0.00        | 1.93x10 <sup>-2</sup>       | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        |
| B1                  | 0.00        | 0.00                        | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        |
| B2                  | 0.00        | 0.00                        | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        |
| B3                  | 0.00        | 0.00                        | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        |
| B4                  | 0.00        | 5.30x10 <sup>-2</sup>       | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        |
| B5                  | 0.00        | 0.00                        | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        |
| B6                  | 0.00        | 0.00                        | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        |
| B7                  | 0.00        | 0.00                        | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        |
| C1                  | 0.00        | 0.00                        | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        |
| C2                  | 0.00        | 0.00                        | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        |
| C3                  | 0.00        | 0.00                        | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        |
| C4                  | 0.00        | 0.00                        | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        |

## 6. LCA: Interpretation

Excluding Module B4 which represents the replacement of the product over a building's lifetime, contributions to total impact indicator results for these Ceilume products are dominated by the A1 module stemming from raw material extraction and processing of materials - mainly the suspension polymerization of polyvinyl chloride. Module C4 in which impacts from product disposal are captured also contributes a large percentage to the overall product impacts. The impacts associated with manufacturing at the Graton facility are relatively low due to the low energy requirements for manufacture of the tile and panel products. Overall the results of this study highlight the impacts of Module A1 and the potential benefits of recycling product materials when possible to reduce impacts at the end of a product's life.

## 7. Additional Environmental Information

### 7.1 ENVIRONMENT AND HEALTH DURING MANUFACTURING

The Safety Data Sheet (SDS) for Ceilume ceiling tiles and panels can be found at the following link: <https://static.ceilume.com/static/pdfs/ceilume-safety-data-sheet.pdf>

### 7.2 ENVIRONMENT AND HEALTH DURING INSTALLATION

Please see the aforementioned Safety Data Sheet.

### 7.3 EXTRAORDINARY EFFECTS

Product performance ratings and approvals for use in building construction include:

- California State Fire Marshal Listing 2200-1622:100
- FM Global Class Number 4651
- IAPMO-UES Evaluation Report 310
- UL BLME.R4036
- Class A Fired Rated per ASTM E84
- Greenguard Gold Certified for Indoor Air Quality

### 7.4 ENVIRONMENTAL ACTIVITIES AND CERTIFICATIONS

Ceilume tiles and panels have also received the following environmental building credits and codes:

- ASHRAE 189.1
  - 8.4.2.6: Ceiling & Wall Systems
  - 8.5.2 c: Ceiling Tiles
- CHPS
  - 2.2.6: Ceiling Systems
- Green Globes
  - 3.7.2.1.4: Volatile Organic Compound - Flooring & Other Interior Products
- Green Guide for Health Care 2.2
  - EP Credit 3.1: Ceiling Systems
- International Green Construction Code
  - 806.5 (2): Ceiling & Wall Systems
  - A108.5: TVOC Project Elective

### 7.5 FURTHER INFORMATION

Further information about these products can be found on the company website: [www.ceilume.com](http://www.ceilume.com)

## 8. References

- Life Cycle Assessment of Ceilume Products. SCS Global Services Report. Prepared for Ceilume Ceiling Tiles. January 2026.
- ISO 14025:2006 Environmental labels and declarations – Type III environmental declarations – Principles and Procedures.
- ISO 14040: 2006/Amd1:2020 - Environmental Management – Life cycle assessment – Principles and Framework
- ISO 14044: 2006 Amd1 2017/Amd2 2020 Environmental Management – Life cycle assessment – Requirements and Guidelines.
- ISO 21930: 2017 - Sustainability in buildings and civil engineering works — Core rules for environmental product declarations of construction products and services
- SCS Type III Environmental Declaration Program: Program Operator Manual. V12.0 December 2023. SCS Global Services.
- UL Product Category Rule (PCR) Guidance for Building-Related Products and Service, Part A: Life Cycle Assessment Calculation Rule and Report Requirements. Version 4.0. March 2022.
- UL Product Category Rule (PCR) Guidance for Building-Related Products and Services, Part B: Non-Metal Ceiling and Interior Wall Panel System EPD Requirements. Version 2.0. April 13, 2021.
- OpenLCA 2.4.0, GreenDelta, 2024. <https://www.openlca.org/releases/>
- Ecoinvent Centre (2024) ecoinvent data from v3.11. Swiss Center for Life Cycle Inventories, Dubendorf, 2024. <http://www.ecoinvent.org>
- EPA Clean Energy Resource eGRID2024, January 17<sup>th</sup> 2025. <https://www.epa.gov/cleanenergy/energy-resources/egrid>

For more information, contact:



**Ceilume**

9270 Graton Rd, PO Box 511, Graton, CA 95444

[www.ceilume.com](http://www.ceilume.com)

[info@ceilume.com](mailto:info@ceilume.com) | +1 (800) 557-0654



**SCS Global Services**

2000 Powell Street, Ste. 600, Emeryville, CA 94608 USA

Main +1.510.452.8000 | fax +1.510.452.8001