# Environmental Product Declaration

In accordance with ISO 14025:2006 and EN 15804:2012+A2:2019/AC:2021 for:

# ALPOLIC™ NC/A1

from

## Mitsubishi Chemical Infratec Co., Ltd.

| | |
|---|---|
| Programme | The International EPD® System www.environdec.com |
| Programme operator | EPD International AB |
| EPD registration number | EPD-IES-0035825:001 |
| Version Date | 2026-10-29 |
| Validity Date | 2031-10-29 |

An EPD may be updated or depublished if conditions change. To find the latest version of the EPD and to confirm its validity, see www.environdec.com.



Mitsubishi Chemical Infratec Co., Ltd.

# General Information

## Programme information

| | |
|---|---|
| **Programme:** | The International EPD® System |
| **Address:** | EPD International AB<br>Box 210 60<br>SE-100 31 Stockholm<br>Sweden |
| **Website:** | www.environdec.com |
| **E-mail:** | support@environdec.com |

| **Accountabilities for PCR, LCA and independent, third-party verification** |
|---|
| **Product Category Rules (PCR)** |
| CEN standard EN 15804 serves as the Core Product Category Rules (PCR) |
| Product Category Rules (PCR): PCR 2019:14 Construction Products, version 2.0.1 |
| PCR review was conducted by: The Technical Committee of the International EPD System. See https://www.environdec.com/home for a list of members. Review chair: Rob Rouwette (chair), Noa Meron (co-chair). |
| **Life Cycle Assessment (LCA)** |
| LCA accountability:<br>Sustainability Solution Department, Mitsubishi Chemical Group https://www.mcgc.com/english/group/outline/index.html<br>Mitsubishi Chemical Research Corporation https://www.mitsubishichem-res.co.jp/en/ |
| **Third-party verification** |
| Independent third-party verification of the declaration and data, according to ISO 14025:2006, via:<br>☒ EPD verification by individual verifier<br><br>Third-party verifier: Mamoru Yanagisawa, EPA Corporation https://epa-jp.com/epa-corporation/<br>*<signature of the third-party verifier>*<br><br>Approved by: The International EPD® System |
| Procedure for follow-up of data during EPD validity involves third party verifier:<br>☒ Yes ☐ No |

The EPD owner has the sole ownership, liability, and responsibility for the EPD.
EPDs within the same product category but registered in different EPD programmes, or not compliant with EN 15804, may not be comparable. For two EPDs to be comparable, they must be based on the same PCR (including the same version number) or be based on fully-aligned PCRs or versions of PCRs; cover products with identical functions, technical performances and use (e.g. identical declared/functional units); have equivalent system boundaries and descriptions of data; apply equivalent data quality requirements, methods of data collection, and allocation methods; apply identical cut-off rules and impact assessment methods (including the same version of characterisation factors); have equivalent content declarations; and be valid at the time of comparison. For further information about comparability, see EN 15804 and ISO 14025.

# Information about EPD Owner

**Owner of the EPD:** Mitsubishi Chemical Infratec Co., Ltd.
**Address:** 1-1-1, Marunouchi, Chiyoda-ku, Tokyo 100-8251, Japan
**Contact:** ALPOLIC Business Unit
**LCA practitioner:**
Mitsubishi Chemical Research Corporation
Yotsuya TN Bldg. 5F, 16-1, Samoncho, Shinjuku-ku, Tokyo 160-0017, Japan
**Description of the organisation:** Manufacturing and sale of civil engineering materials, waterproofing and reinforcement, logistics materials, metal composite materials (MCM), industrial-use plates, plastic film-laminated steel sheets, synthetic resin products for housing materials, polyurethane system and equipment systems (water tanks, cooling towers, hot water floor heating systems)
https://mchem-infratec.com/english/corporate/
**Product-related certifications:** ISO 9001-2015 and 14001-2015 certificates

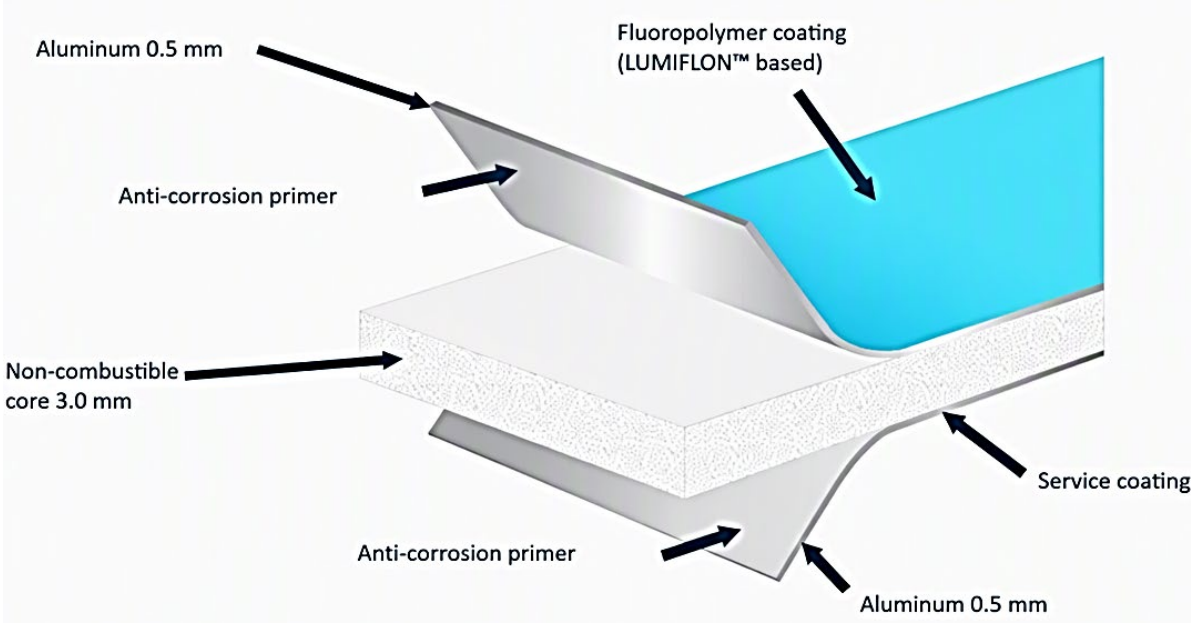
# Product Information

**Product name:** ALPOLIC™ NC/A1

**Product identification:**

ALPOLIC™ NC/A1: a fire safe metal composite material with a non-combustible core that contains zero polyethylene. ALPOLIC™ NC/A1 can be used as an exterior or interior cladding and roof coverings in both new buildings and re-clad applications wherever a non-combustible material is required.

**Composition of ALPOLIC™** Total thickness is 4 mm




**UN CPC code:** 314 Boards and panels

**Production site:**

Ueda Plant

2471-1, Fujiyama, Ueda-shi, Nagano 386-1212, Japan

**Geographical scope:** The geographical scope of our manufacturing is Japan (Ueda-shi, Nagano). Raw materials are supplied from domestic suppliers in Japan. Our products are shipped and consumed globally.

# Content Declaration

| Product components | Weight, kg | Post-consumer material, weight-% |
|---|---|---|
| Metal | 2.71 | 9.27 |
| Paint | 0.03 | 0 |
| Core | 5.86 | 0 |
| TOTAL | 8.6 | 9.27 |
| **Packaging materials** | **kg/m²** | **% (versus the product)** |
| Wood | 4.85 | 63.8 |
| TOTAL | 4.85 | 63.8 |

| Dangerous substances from the candidate list of SVHC for Authorisation | EC No. | CAS No. | Weight-% per functional or declared unit |
|---|---|---|---|
| one (no SVHC above 0.1% by weight) | N.A. | N.A. | N.A. |

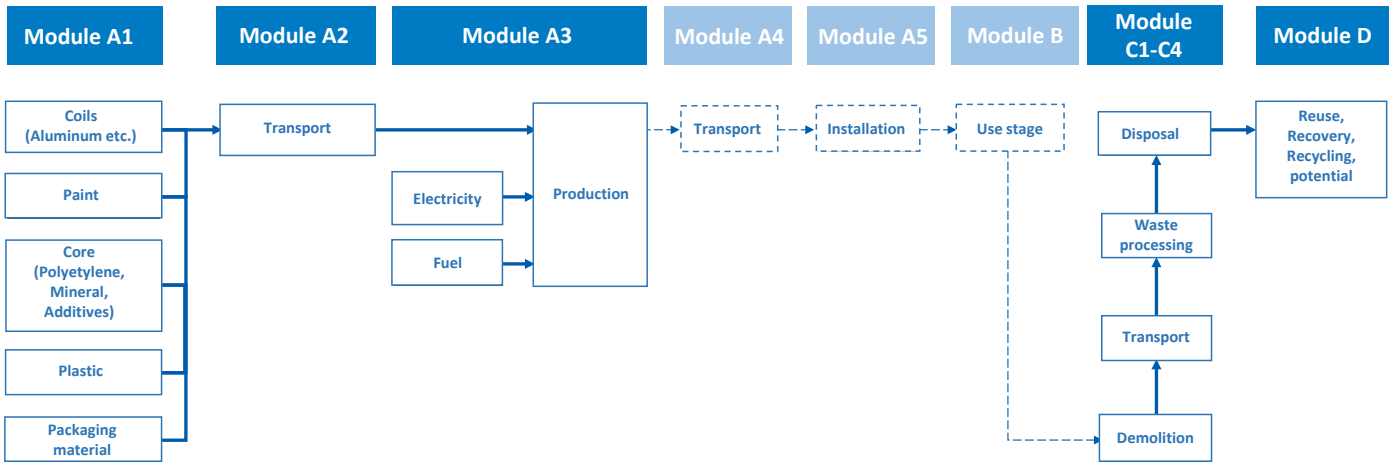
## LCA Information

**Declared unit:** 1 $m^2$ ALPOLIC™ NC/A1
Area-weighted average
**Conversion factor: 8.6kg/m²** for ALPOLIC™ NC/A1
**Reference period:** The data of the manufacturing processes in module A3 have been collected for the operating year FY2025 (from April 2025 to March 2026).
**Geographical reference area:** The geographical scope of our manufacturing is Japan (Ueda-shi, Nagano) and the suppliers of raw materials used in this product are also from Japan. The energy consumed in the manufacturing process is assessed as far as possible in line with actual geographical locations. However, for raw materials, there are no region-specific data that are representative of Japan, therefore, data representative of other regions or of the broader region have been used instead. The product is distributed globally. However, due to the difficulty of collecting actual data and the difficulty of setting up scenarios assuming a global assumption, a scenario assuming Japan is used in this assessment.
**Databases and LCA software used:** Managed LCA Content (2024), ecoinvent v3.10 (2024), LCA for Expert (Sphera)
**Characterisation method:** EN 15804 reference package based on EF 3.1 (EN 15804:2012+A2:2019/AC:2021); GWP100
**Description of system boundaries:** a) Cradle to gate with modules C1–C4 and module D (A1–A3 + C + D)

*Since packaging materials contain more than 5% biogenic carbon, biogenic CO2 emissions from packaging materials are included in the results of modules A1-A3 based on PCR.

**GWP-biogenic accounts for biogenic $CO_2$ uptake (negative contribution) and release (positive contribution), including carbon in wooden packaging. Equal uptake and release offset each other for the packaging $CO_2$ balance; this does not imply that the overall GWP-biogenic indicator is zero. The existing statement that packaging emissions are included in A1–A3 requires reconciliation with the reported results and confirmation against PCR 2019:14 v2.0.1, Annex 2 and Section 6.4.7.

**Process flow diagram:**




**Life-cycle stages which are not considered:** Modules A4, A5 and B1-B7 are not considered because of the difficulty in collecting data and calculating with high quality due to the wide variety of users and regions of use of the products.

**Cut-offs:** In A3, protective sheets including film, Miramat and both waste aluminium flows are assigned zero burden under "simple cut-off". Activity data are from the Ueda Plant cost accounting system (FY2025). The methodological basis and treatment boundary remain unverified; zero burden does not imply zero environmental impact. No quantitative cut-off threshold is documented.

**Allocation:** No allocation is performed in module A3 because there are no co-products other than the main product.

**Data quality:** The data quality of the life cycle inventory is assessed based on its precision, completeness, consistency, and representativeness. To address these aspects and thus ensure reliable results, foreground data specific to actual production site are collected for module A3. For module A2, data reflect the actual mode of transport and transport distances obtained using an online mapping service were used. Consistent background data from databases described in "Databases and LCA software used" were used.

**Modules declared, geographical scope and share of specific data in GWP-GHG results:**

X=Module declared
ND=Not declared
JP=Japan
GLO=Global

*As our products are shipped and used globally, module C-D is carried out on a global basis. However, due to the difficulty of collecting actual data and the difficulty of setting up scenarios assuming a global assumption, a scenario assuming Japan is used in this assessment.

*Since packaging materials contain more than 5% biogenic carbon, biogenic CO2 emissions from packaging materials are included in the results of modules A1-A3 based on PCR.

| | Product stage | | | Construction process stage | | Use stage | | | | | | | End of life stage | | | | Resource recovery stage |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Raw material supply | Transport | Manufacturing | Transport | Construction installation | Use | Maintenance | Repair | Replacement | Refurbishment | Operational energy use | Operational water use | De-construction demolition | Transport | Waste processing | Disposal | Reuse-Recovery-Recycling-potential |
| **Module** | **A1** | **A2** | **A3** | **A4** | **A5** | **B1** | **B2** | **B3** | **B4** | **B5** | **B6** | **B7** | **C1** | **C2** | **C3** | **C4** | **D** |
| Modules declared | X | X | X | ND | ND | ND | ND | ND | ND | ND | ND | ND | X | X | X | X | X |
| Geography | JP | JP | JP | GLO | GLO | GLO | GLO | GLO | GLO | GLO | GLO | GLO | GLO* | GLO* | GLO* | GLO* | GLO* |
| Primary data used | <1 % | | | ND | ND | ND | ND | ND | ND | ND | ND | ND | <1 % | <1 % | <1 % | <1 % | <1 % |
| Variation – products | <10% | | | ND | ND | ND | ND | ND | ND | ND | ND | ND | <10% | <10% | <10% | <10% | <10% |
| Variation – sites | ND | | | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |

**More information about each module:**

**- Module A1: Raw material supply**
All raw materials are supplied from Japan and delivered to the Ueda Plant of Mitsubishi Chemical Infratec Co., Ltd. Secondary data is used in the evaluation process, but when Japanese data is not available, data is substituted from other regions.

**-Module A2: Transport**
All raw materials are supplied from Japan and transported from the supplier to the Ueda Plant of Mitsubishi Chemical Infratec Co., Ltd. The transportation distances are calculated on an online map application and rounded up to the nearest 500 km to provide a conservative assessment. All transportation methods are land transportation, and the evaluation was made by combining secondary data corresponding to land transportation in Japan with transportation distances.

**-Module A3: Manufacturing**
Primary data on raw material consumption, energy consumption, waste generation, and product volume are collected as specific to the Ueda Plant of Mitsubishi Chemical Infratec Co., Ltd. The waste treatment of post-industrial waste is also located in Japan. Secondary data is used for emission factors for feedstocks, packaging materials, utilities, and waste treatment. However, when Japanese data are unavailable, data representative of other regions are used.
The electricity coefficient used here is the location based Japanese average value of 0.571 kg CO2 eq./kWh.

**-Module C - D:**
Although this product is supplied worldwide, the actual specific areas of use and areas where EoL disposal takes place are not tracked. Modules C and D are implemented worldwide, but due to limited available data, they were evaluated by substituting data from available regions.

**-Module C1: De-construction demolition**
Assuming the demolition of ALPOLIC™ installed in the building, the utility-derived burden for demolition was estimated using secondary data. Data for China was used as a substitute.

**-Module C2: Transport**
Assuming a transport distance of 1,000 km from the demolition site to the waste disposal site as land transportation, it is evaluated in combination with secondary data assuming transportation by 10-ton trucks in Japan.

**-Module C3: Waste processing**
ALPOLIC™ NC/A1 is a metal composite material with a three-layer structure, consisting of metal skins on both surfaces and a core made of resin mixed with inorganic materials. At disposal, it is separated into aluminium and core material through a peeling process. Offcuts generated in the manufacturing process are also collected within Japan. As the waste treatment of ALPOLIC™ NC/A1, peeling is carried out both in-house and by subcontractors. This peeling process is considered to be almost identical regardless of whether the input is process offcuts or EoL waste. Therefore, the process in module C3 is substituted with data on the peeling process in-house and at subcontractors. The electricity consumption of these processes was collected in-house and from subcontractors and evaluated in combination with secondary data corresponding to the Australian grid mix. In practice, not all of the waste undergoes peeling; however, this assessment assumes that the entire amount is peeled, thereby providing a conservative evaluation.

**-Module C4: Disposal**

The disposal of the aluminum and core material after separation was evaluated as follows.
Aluminum: For aluminum, the overall resource recovery rate of 89% for metal waste in the 2024–25 financial year, as reported in the Australian Government's National Waste and Resource Recovery Report 2026, was adopted as a proxy for regional aluminum management. This statistic covers both ferrous and non-ferrous metals and is not specific to aluminum composite panels. As no treatment breakdown is available for the remaining 11%, this share was conservatively modelled as final disposal.

The 89% figure represents a proxy scenario for the share of material sent to recycling and does not directly indicate the final yield of recycled aluminum. Losses in the separation from the composite panel, sorting and remelting processes are accounted for separately in C3 based on available process data. In Module D, in accordance with the applicable PCR and EN 15804, only the net flow of secondary material crossing the system boundary is evaluated, thereby avoiding double counting with the recycled content input already accounted for in the manufacturing stage.

In the sensitivity analysis, to account for the uncertainties associated with dismantling, sorting, peeling and recycling, a conservative case was defined with an aluminum recovery and treatment input rate of 80% and a final disposal rate of 20%. This 80% is not a measured value but a modelling assumption used to evaluate the uncertainty of applying general metal statistics to composite building materials.

Core material: As the core of ALPOLIC™ NC/A1 consists mainly of inorganic materials, it was assumed to be landfilled at end of life rather than incinerated or subjected to plastic recycling. The environmental burden of landfilling was calculated using secondary data corresponding to the landfilling of inorganic waste (Managed LCA Content (2026.1)). As no Australian data are available, available data from other regions were used as a substitute.

Plastic: The resin (approx. 5 % of the product) is impregnated in the core material and cannot be extracted from it. It is therefore not treated as a separate plastic waste stream, and no plastic recycling, incineration or other treatment is assumed for it. The resin is landfilled together with the core material (100 % landfill), using the same landfill data as described above for the core material. Consequently, only two end-of-life options exist for the product: all constituent materials landfilled (S1), or only the aluminium recycled with the core material including the resin landfilled (S2).

**-Module D: Reuse-Recovery-Recycling-potential**

Metal: The ingot production process is evaluated in combination with secondary data; however, since no Australian data are available, data covering the EU member states, the EFTA member states and Turkey (EU28+EFTA+Turkey) are used as a substitute. In addition, recovered ingots are deducted using US secondary data.

Core material: The core material, including the impregnated resin, is assumed to be 100 % landfilled. As no recycling of the core material or the resin takes place, no recycled resin production process is modelled and no credit is declared in Module D for the core material.

# Environmental Performance

## Mandatory impact category indicators according to EN 15804

| Impact Indicator | Unit | A1-A3 | C1 | C2 | C3 | C4 | D |
|---|---|---|---|---|---|---|---|
| GWP-fossil | kg $CO_2$ eq. | 4.978E+01 | 3.39E-02 | 1.07E+00 | 1.163E+01 | 1.057E-01 | -2.739E+01 |
| GWP-biogenic | kg $CO_2$ eq. | 5.670E-01 | 2.11E-05 | 4.32E-02 | 1.507E-02 | -4.345E-05 | 3.427E-03 |
| GWP-luluc | kg $CO_2$ eq. | 6.841E-02 | 1.18E-05 | 2.33E-05 | 1.019E-02 | 6.480E-05 | 5.056E-04 |
| GWP-total | kg $CO_2$ eq. | 5.041E+01 | 3.39E-02 | 1.11E+00 | 1.166E+01 | 1.057E-01 | -2.738E+01 |
| ODP | kg CFC 11 eq. | 1.135E-07 | 7.67E-10 | 7.90E-13 | 2.360E-10 | 5.009E-13 | -3.516E-08 |
| AP | mol $H^+$ eq. | 1.791E-01 | 1.54E-04 | 1.73E-03 | 5.945E-02 | 6.373E-04 | -2.516E-01 |
| EP-freshwater | kg P eq. | 3.194E-03 | 2.55E-06 | 2.01E-07 | 2.388E-06 | 1.291E-05 | -2.928E-06 |
| EP-marine | kg N eq. | 4.057E-02 | 6.21E-05 | 7.31E-04 | 1.291E-02 | 1.540E-04 | -2.500E-02 |
| EP-terrestrial | mol N eq. | 4.417E-01 | 6.73E-04 | 8.18E-03 | 1.423E-01 | 1.691E-03 | -2.732E-01 |
| POCP | kg NMVOC eq. | 1.260E-01 | 2.38E-04 | 2.15E-03 | 3.529E-02 | 4.719E-04 | -9.281E-02 |
| ADP-minerals&metals* | kg Sb eq. | 3.377E-04 | 1.14E-07 | 1.06E-08 | 1.064E-06 | 1.381E-08 | 7.203E-08 |
| ADP-fossil* | MJ | 5.937E+02 | 4.91E-01 | 1.46E+01 | 1.286E+02 | 1.612E+00 | -3.087E+02 |
| WDP* | $m^3$ world eq. deprived | 6.435E+00 | 4.29E-03 | 4.53E-03 | 5.054E+00 | 6.438E-03 | 2.081E-02 |
| Acronyms | GWP-fossil = Global Warming Potential fossil fuels; GWP-biogenic = Global Warming Potential biogenic; GWP-luluc = Global Warming Potential land use and land use change; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential, Accumulated Exceedance; EP-freshwater = Eutrophication potential, fraction of nutrients reaching freshwater end compartment; EP-marine = Eutrophication potential, fraction of nutrients reaching marine end compartment; EP-terrestrial = Eutrophication potential, Accumulated Exceedance; POCP = Formation potential of tropospheric ozone; ADP-minerals&metals = Abiotic depletion potential for non-fossil resources; ADP-fossil = Abiotic depletion for fossil resources potential; WDP = Water (user) deprivation potential, deprivation-weighted water consumption | | | | | | |

** Disclaimer:*
*(1) The estimated impact results are only relative statements which do not indicate the end points of the impact categories, exceeding threshold values, safety margins or risks.*
*(2) The results of the end-of-life stage (modules C1-C4) should be considered when using the results of the product stage (modules A1-A3).*

## Mandatory impact category indicators according to EN 15804 – end-of-life scenario analysis (S1–S2)

The following results show the effect of different end-of-life treatment assumptions for the declared unit (1 m² ALPOLIC™ NC/A1, 8.6 kg/m²). The resin (approx. 5 %) is impregnated in the core material and is therefore treated together with the core material, which is assumed to be 100 % landfilled in all scenarios. Scenario S1 assumes that all constituent materials (aluminium and core material including the impregnated resin) are 100 % landfilled. Scenario S2 applies the same conditions as S1, except that only the aluminium is treated by 100 % recycling. Only the aluminium recycling in Scenario S2 is evaluated in Module D; no recycling credit arises for the core material or the resin.

### Scenario settings

| Scenario | Aluminum | Core material (incl. impregnated resin) |
|---|---|---|
| S1 | 100 % landfill | 100 % landfill |
| S2 | 100 % recycling | 100 % landfill |

### Scenario 1 (S1): aluminum 100 % landfill, core material (incl. impregnated resin) 100 % landfill

| Impact Indicator | Unit | A1–A3 | C1 | C2 | C3 | C4 | D |
|---|---|---|---|---|---|---|---|
| GWP-fossil | kg $CO_2$ eq. | 4.98E+01 | 3.39E-02 | 1.07E+00 | 1.163E+01 | 1.919E-01 | 0.000E+00 |
| GWP-biogenic | kg $CO_2$ eq. | 5.67E-01 | 2.11E-05 | 4.32E-02 | 1.507E-02 | -1.100E-04 | 0.000E+00 |
| GWP-luluc | kg $CO_2$ eq. | 6.84E-02 | 1.18E-05 | 2.33E-05 | 1.019E-02 | 1.012E-04 | 0.000E+00 |
| GWP-total | kg $CO_2$ eq. | 5.04E+01 | 3.39E-02 | 1.11E+00 | 1.166E+01 | 1.919E-01 | 0.000E+00 |
| ODP | kg CFC 11 eq. | 1.14E-07 | 7.67E-10 | 7.90E-13 | 2.360E-10 | 8.725E-13 | 0.000E+00 |
| AP | mol $H^+$ eq. | 1.79E-01 | 1.54E-04 | 1.73E-03 | 5.945E-02 | 1.155E-03 | 0.000E+00 |
| EP-freshwater | kg P eq. | 3.19E-03 | 2.55E-06 | 2.01E-07 | 2.388E-06 | 1.298E-05 | 0.000E+00 |
| EP-marine | kg N eq. | 4.06E-02 | 6.21E-05 | 7.31E-04 | 1.291E-02 | 2.825E-04 | 0.000E+00 |
| EP-terrestrial | mol N eq. | 4.42E-01 | 6.73E-04 | 8.18E-03 | 1.423E-01 | 3.102E-03 | 0.000E+00 |
| POCP | kg NMVOC eq. | 1.26E-01 | 2.38E-04 | 2.15E-03 | 3.529E-02 | 8.637E-04 | 0.000E+00 |
| ADP-minerals&metals* | kg Sb eq. | 3.38E-04 | 1.14E-07 | 1.06E-08 | 1.064E-06 | 2.624E-08 | 0.000E+00 |
| ADP-fossil* | MJ | 5.94E+02 | 4.91E-01 | 1.46E+01 | 1.286E+02 | 2.899E+00 | 0.000E+00 |
| WDP* | $m^3$ world eq. deprived | 6.44E+00 | 4.29E-03 | 4.53E-03 | 5.054E+00 | 1.021E-02 | 0.000E+00 |

### Scenario 2 (S2): aluminum 100 % recycling, core material (incl. impregnated resin) 100 % landfill

| Impact Indicator | Unit | A1-A3 | C1 | C2 | C3 | C4 | D |
|---|---|---|---|---|---|---|---|
| GWP-fossil | kg $CO_2$ eq. | 4.98E+01 | 3.39E-02 | 1.07E+00 | 1.163E+01 | 9.507E-02 | -3.077E+01 |
| GWP-biogenic | kg $CO_2$ eq. | 5.67E-01 | 2.11E-05 | 4.32E-02 | 1.507E-02 | -3.522E-05 | 3.850E-03 |
| GWP-luluc | kg $CO_2$ eq. | 6.84E-02 | 1.18E-05 | 2.33E-05 | 1.019E-02 | 6.030E-05 | 5.681E-04 |
| GWP-total | kg $CO_2$ eq. | 5.04E+01 | 3.39E-02 | 1.11E+00 | 1.166E+01 | 9.510E-02 | -3.077E+01 |
| ODP | kg CFC 11 eq. | 1.14E-07 | 7.67E-10 | 7.90E-13 | 2.360E-10 | 4.550E-13 | -3.950E-08 |
| AP | mol $H^+$ eq. | 1.79E-01 | 1.54E-04 | 1.73E-03 | 5.945E-02 | 5.734E-04 | -2.827E-01 |
| EP-freshwater | kg P eq. | 3.19E-03 | 2.55E-06 | 2.01E-07 | 2.388E-06 | 1.291E-05 | -3.290E-06 |
| EP-marine | kg N eq. | 4.06E-02 | 6.21E-05 | 7.31E-04 | 1.291E-02 | 1.381E-04 | -2.809E-02 |
| EP-terrestrial | mol N eq. | 4.42E-01 | 6.73E-04 | 8.18E-03 | 1.423E-01 | 1.516E-03 | -3.070E-01 |
| POCP | kg NMVOC eq. | 1.26E-01 | 2.38E-04 | 2.15E-03 | 3.529E-02 | 4.235E-04 | -1.043E-01 |
| ADP-minerals&metals* | kg Sb eq. | 3.38E-04 | 1.14E-07 | 1.06E-08 | 1.064E-06 | 1.228E-08 | 8.093E-08 |
| ADP-fossil* | MJ | 5.637E+02 | 4.91E-01 | 1.46E+01 | 1.286E+02 | 1.453E+00 | -3.468E+02 |
| WDP* | $m^3$ world eq. deprived | 6.057E+00 | 4.29E-03 | 4.53E-03 | 5.054E+00 | 5.972E-03 | 2.339E-02 |

*A1 + A2–A3 correspond to the A1–A3 values of the base scenario. Module A4 is not declared. In S1 and S2, no recycling occurs, so Module D is shown as zero. EoL total = C1–C4 + D. * Disclaimer (1) and (2) above also apply to these results.*

## Additional mandatory and voluntary impact category indicators

| Indicator | Unit | A1-A3 | C1 | C2 | C3 | C4 | D |
|---|---|---|---|---|---|---|---|
| GWP-GHG | kg $CO_2$ eq. | 4.985E+01 | 0.000E+00 | 0.000E+00 | 1.164E+01 | 1.060E-01 | -2.739E+01 |

## Resource use indicators

| Indicator | Unit | A1-A3 | C1 | C2 | C3 | C4 | D |
|---|---|---|---|---|---|---|---|
| PERE | MJ | 3.862E+02 | 2.11E-03 | 1.02E-02 | 6.443E+01 | 2.558E-01 | 2.344E+00 |
| PERM | MJ | 0.000E+00 | 0.00E+00 | 0.00E+00 | 0.000E+00 | 0.000E+00 | 0.000E+00 |
| PERT | MJ | 3.862E+02 | 2.11E-03 | 1.02E-02 | 6.443E+01 | 2.558E-01 | 2.344E+00 |
| PENRE | MJ | 5.937E+02 | 5.71E-02 | 1.70E+00 | 1.286E+02 | 1.612E+00 | -3.087E+02 |
| PENRM | MJ | 0.000E+00 | 0.00E+00 | 0.00E+00 | 0.000E+00 | 0.000E+00 | 0.000E+00 |
| PENRT | MJ | 5.937E+02 | 5.71E-02 | 1.70E+00 | 1.286E+02 | 1.612E+00 | -3.087E+02 |
| SM | kg | 0.000E+00 | 0.00E+00 | 0.00E+00 | 0.000E+00 | 0.000E+00 | 0.000E+00 |
| RSF | MJ | 0.000E+00 | 0.00E+00 | 0.00E+00 | 0.000E+00 | 0.000E+00 | 0.000E+00 |
| NRSF | MJ | 0.000E+00 | 0.00E+00 | 0.00E+00 | 0.000E+00 | 0.000E+00 | 0.000E+00 |
| FW | $m^3$ | 2.139E-01 | 1.16E-05 | 1.13E-05 | 7.134E-02 | 2.154E-04 | 1.596E-03 |
| Acronyms | PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water | | | | | | |

## Waste indicators

| Indicator | Unit | A1-A3 | C1 | C2 | C3 | C4 | D |
|---|---|---|---|---|---|---|---|
| Hazardous waste disposed | kg | 5.505E+00 | 3.61E-04 | 2.33E-11 | 8.012E-08 | 4.367E-10 | 4.936E-09 |
| Non-hazardous waste disposed | kg | 3.729E+01 | 5.55E-03 | 3.84E-05 | 4.508E-02 | 4.620E+00 | 3.346E-02 |
| Radioactive waste disposed | kg | 1.522E-02 | 0.00E+00 | 3.93E-07 | 2.997E-05 | 1.426E-05 | 4.149E-04 |

## Output flow indicators

| Indicator | Unit | A1-A3 | C1 | C2 | C3 | C4 | D |
|---|---|---|---|---|---|---|---|
| Components for re-use | kg | 0.000E+00 | 0.000E+00 | 0.000E+00 | 0.000E+00 | 0.000E+00 | 0.000E+00 |
| Material for recycling | kg | 0.000E+00 | 0.000E+00 | 0.000E+00 | 0.000E+00 | 0.000E+00 | 0.000E+00 |
| Materials for energy recovery | kg | 0.000E+00 | 0.000E+00 | 0.000E+00 | 0.000E+00 | 0.000E+00 | 0.000E+00 |
| Exported energy, electricity | MJ | 0.000E+00 | 0.000E+00 | 0.000E+00 | 0.000E+00 | 0.000E+00 | 0.000E+00 |
| Exported energy, thermal | MJ | 0.000E+00 | 0.000E+00 | 0.000E+00 | 0.000E+00 | 0.000E+00 | 0.000E+00 |

## Additional Environmental Information

ALPOLIC™ NC/A1 is manufactured in Japan. At our production plants, our proprietary system collects metal skins, other metal components, and core material for recycling, supporting environmentally responsible operations. In addition, our production plants comply with ISO 9001 and ISO 14001 and are designated as wide-area industrial waste treatment facilities. This enables us to accept customer scrap for recycling in accordance with applicable operating standards.

## Additional Social and Economic Information

ALPOLIC™ NC/A1 is classified as a having a superior fire-safety grade, EN 13501-1 class A2-s1, d0.

## Version History

**Original Version of the EPD, 2026-10-30**

## Abbreviations

| Abbreviation | Definition |
|---|---|
| **General Abbreviations** | |
| EN | European Norm (Standard) |
| EF | Environmental Footprint |
| GPI | General Programme Instructions |
| ISO | International Organization for Standardization |
| CEN | European Committee for Standardization |
| CLC | Co-location centre |
| CPC | Central product classification |
| GHS | Globally harmonized system of classification and labelling of chemicals |
| GRI | Global Reporting Initiative |
| SVHC | Substances of Very High Concern |
| ND | Not Declared |

## References

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EPD
INTERNATIONAL EPD SYSTEM
www.environdec.com