# ENVIRONMENTAL PRODUCT DECLARATION

as per *ISO 14025* and *EN 15804+A2*

| | |
|---|---|
| Owner of the Declaration | HALTON FOODSERVICE |
| Publisher | Institut Bauen und Umwelt e.V. (IBU) |
| Programme holder | Institut Bauen und Umwelt e.V. (IBU) |
| Declaration number | EPD-HAL-20240073-IBA1-EN |
| Issue date | 27/08/2024 |
| Valid to | 26/08/2029 |

## UVI/F - Capture Ray™ hood

# HALTON FOOD SERVICE

www.ibu-epd.com | https://epd-online.com

# 1. General Information

## HALTON FOOD SERVICE

**Programme holder**

IBU – Institut Bauen und Umwelt e.V.
Hegelplatz 1
10117 Berlin
Germany

**Declaration number**

EPD-HAL-20240073-IBA1-EN

**This declaration is based on the product category rules:**

Ventilation systems for commercial kitchens, 24/01/2024
(PCR checked and approved by the SVR)

**Issue date**

27/08/2024

**Valid to**

26/08/2029

Dipl.-Ing. Hans Peters
(Chairman of Institut Bauen und Umwelt e.V.)

Florian Pronold
(Managing Director Institut Bauen und Umwelt e.V.)

## UVI/F - Capture Ray™ hood

**Owner of the declaration**

HALTON FOODSERVICE
Zone Technoparc Futura CS 80102
62402 BETHUNE Cedex
France

**Declared product / declared unit**

1 linear metre of UVI/F hood, used to extract heat and cooking steam for 365 days a year, for 8 hours a day, for 15 years

**Scope:**

This document refers to UVI/F hood produced by HALTON FOODSERVICE in France.
This EPD represents the declaration of a specific product UVI/F Hood, with the declared unit of 1 linear metre of hood, used to extract heat and cooking steam for 365 days a year, for 8 hours a day, for 15 years.
The data collection for the ecological assessment occurred plant specific with current annual data. Consequently, the Life Cycle Assessment is representative for this product.
The owner of the declaration shall be liable for the underlying information and evidence; the IBU shall not be liable with respect to manufacturer information, life cycle assessment data and evidences.

The EPD was created according to the specifications of EN 15804+A2. In the following, the standard will be simplified as *EN 15804*.

**Verification**

| |
|---|
| The standard EN 15804 serves as the core PCR |
| Independent verification of the declaration and data according to ISO 14025:2011 |
| ☐ internally ☒ externally |

Dr. Matthew Fishwick,
(Independent verifier)

## 2. Product

### 2.1 Product description/Product definition

The UVI/F reduces the grease build up in the ductwork to a negligible level. Capture Ray™ technology is based on the use of UV-C lamps. The Neutralization of grease particles and vapors as well as the mitigation of the cooking odors depend on two simultaneous reactions. Photolysis is the direct effect of UV-C radiation. It works by photodecomposition whereby grease molecules are broken down by photons. Ozonolysis is the oxidation of grease molecules by ozone that is generated by the lamps. As ozone is a gas, it is carried with the airflow. Oxidation therefore takes place in the hoods and ventilated ceilings' exhaust plenum as well as in the ductwork. The product is manufactured from steel, electronics, aluminium, plastic.

The Capture Jet™ technology (KVI/F) is related to the association of two sets of nozzles supplied with an extremely low supply air volume (a maximum of 30 m³/h/m of hood). These nozzles fit to the lower part of the hood front as well as the sides, encircling the perimeter of the covered cooking areas. The horizontal nozzles increase the push/pull of the thermal plume and smoke from the lower part of the hood front due to the Venturi effect. It provides an assist to push vapours back towards the filters. For the placing on the market of the product in the European Union/European Free Trade Association (EU/EFTA) (with the exception of Switzerland) *Regulation (EU) No. 305/2011 (CPR)* applies. The product needs a declaration of performance taking into consideration EN and the CE-marking.
For the application and use the respective national provisions apply.

### 2.2 Application

The UVI/F hood is used for professional kitchens. They can be installed above the cooking appliances and is used to remove fumes, odors, heat, humidity, and any airborne grease from the environment.

### 2.3 Technical Data

The technical properties are project-dependent (Airflow range). The dimensions of the reference product is specified in the table below.

**Constructional Data**

| Name | Value | Unit |
|---|---|---|
| Length | 1000 | mm |
| Width | 1400 | mm |
| Height | 500 | mm |
| Weight | 120 | kg |
| power consumption (operation) | 457 | W |

Performance data of the product with respect to its characteristics in accordance with the relevant technical provision (no CE-marking).

### 2.4 Delivery status

The products vary in size as they are not catalogue products.

### 2.5 Base materials/Ancillary materials

This product/article/at least one partial article contains other Carcinogenic, mutagenic, reprotoxic (CMR) substances in categories 1A or 1B which are not on the candidate list, exceeding 0.1 percentage by mass: **no**.

Biocide products were added to this construction product or it has been treated with biocide products (this then concerns a treated product as defined by the (EU) *Ordinance on Biocide Products No. 528/2012)*: **no**.

### 2.6 Manufacture

Manufacturing and packaging of the UVI/F hood at the production site. In this case, manufacturing mainly refers to the assembling, configuring, and testing of the hoods from pre-made parts. The assessment covers the electricity, LPG consumption for forklifts and water use needed during the production process. The electricity is modelled as site-specific energy mixes provided by local energy companies.The waste streams from the manufacturing site include, wastewater, wood waste, cardboard, plastic and metal scrap (stainless steel and galvanised steel sheets).
Any production waste generated is disposed of according by Halton's waste contractor.

### 2.7 Environment and health during manufacturing

Workplace and emission limits are regularly monitored and are far below the prescribed limits.

### 2.8 Product processing/Installation

The hood is installed in about 10 hours by 2 employees. The hood is fixed by hand to the ceiling with the help of a lifter and some fixation devices.

### 2.9 Packaging

For product protection the hoods are individually packed in a cardboard box. All packaged products are wrapped with (low density polyethylene) PEBD/LDPE film on a wood pallet.

### 2.10 Condition of use

To ensure the longevity of the product, a weekly cleaning (using water with 1.5% soap) and annual check-up on different hood parameters (Capture jets state, lighting state, filters (state and number), k factor, exhaust rates in intake rates) are recommended.

### 2.11 Environment and health during use

The products do not emit any contaminants or substances that are harmful to the environment or health during the use phase.

### 2.12 Reference service life

The service life is validated if the hood is installed following the installation procedure. Reference service life for the cooker hoods is assumed **15 years.**
The reference service life is based on the empirical value for the hoods when used in accordance with the care instructions.

### 2.13 Extraordinary effects

**Fire**
The products are not classified as building materials (building products) and are not subject to *DIN 4102* and *EN 13501-1*.
**Water**
No water-hazardous, toxic substances are washed-out to the environment and water.

**Mechanical destruction**
There are no relevant environmental impacts associated with mechanical destruction.

### 2.14 Re-use phase

The UVI/F are not taken back by the manufacturer for the purpose of reuse. Users can disassemble the products repeatedly within the reference utilization period and reuse it elsewhere.

### 2.15 Disposal

Disassembly of the products consists of the same steps as assembly, in reverse order. The product falls under the Waste from Electrical and Electronic Equipment (*WEEE*).

### 2.16 Further information

Additional information about our products can be found on Halton-website: www.halton.com.

## 3. LCA: Calculation rules

### 3.1 Declared Unit

The declared unit is: '1 linear metre of hood, used to extract heat and cooking steam for 365 days a year, for 8 hours a day, for 15 years'.'

**Declared unit**

| Name | Value | Unit |
|---|---|---|
| Declared unit | 1 | rm |
| Mass per Unit | 120 | kg |
| linear density | 120 | kg/rm |

Other declared units are allowed if the conversion is shown transparently.

### 3.2 System boundary

This representative EPD follows the EPD type "cradle to grave". The following life cycle modules are declared:

**Modules A1-A3**

The product stage begins with considering the production of the necessary raw materials (metals, electronics, packaging materials), including all corresponding upstream chains and the actual procurement transports.
Furthermore, the entire manufacturing phase was mapped, including the treatment of production waste until the end-of waste status (EoW) was reached.

**Module A4**

The transport model considers a construction site in Europe. The scenario for the distribution stage considers a average distance to serve the entire European area from the Halton's plant. The quantity transported corresponds to the transport of products and their packaging to the construction site.

**Module A5**

The hood is delivered at the right size on the installation site. It is installed in about 10 hours by 2 employees. The hood is fixed to the ceiling with the help of a lifter and some fixation devices.

Complementary products for installation include a ceiling beam in galvanised steel. This additional product is supplied by Halton. Their production and packaging are considered in A1, their transport in A3 and A4 and the end-of-life of their packaging in A5.

Others complementary products are used to fix the MUPRO Ceiling beam (clip, pin, screw). They must be purchased by the installer because they depend on ceiling type (metallic, concrete or wood). They are not considered in this study.

The application phase considers:
- Transportation of material lifter to installation site : 2500 kg on 30 km.
- Waste treatment (product packaging) :

**Modules B1 & B3-B5 & B7**

These modules were considered but evaluated as not relevant for the products and considered as zero. Products do not require repair (B3)/replacement (B4)/rehabilitation (B5).

The hoods haven't significant impact for emission in indoor air or in water during use.

**Module B2:**

- a weekly cleaning with 5L of water containing 1,5% soap.
- annual check-up by a technician on different hood parameters (Capture jets state, lighting state, filters (state and number), k factor, exhaust rates in intake rates) modelled with transportation of one technician in light commercial vehicle (100 km).
- 2 UV light replacements during the reference life service.
- End-of-life treatment of 2 UV light tubes during SLR with transportation included

**Module B6 et B7**

The hood is designed for heavy duty industrial usage. To reflect the most average scenario the hood will be functioning 8 hours a days 7 days a week. Electricity (B6) is required to use the products.

**Modules C1-C4**

The module includes the environmental impacts for dismantling of the products and the treatment of the UVI/F hood waste until the end-of-waste status (EoW) is reached, including the associated transports at the end of the product life cycle.
The product is assumed to be removed manually at the same time as the building is demolished. No scenario has been developed for stage C1.

The hood and the ceiling beam are removed separately. Dismantling of product components at recycling facility. Based on the material, components are either recycled, incinerated, or landfilled depending on the material.

Stage C3 represents the impact of a conventional scrap processing site, with sorting, shearing, shredding, separation.

**Module D**

Identification of the benefits and costs of the product outside the system boundary.
Recycling of metal scrap results in credits of the respective raw materials for the primary material portion of the input. The loads of the waste incineration and recycling processes are assigned to the respective modules (A3, A5 and C3) and not to module D.

### 3.3 Estimates and assumptions

Energy and water consumption during production could only be determined on existing products and not on the average product.

### 3.4 Cut-off criteria

Cut-off criteria follow EN15804 and PCR Part A. No flows have been deliberately omitted from the system boundaries.

### 3.5 Background data

All background data was considered using data from the *Ecoinvent 3.7.1* database or literary sources.

### 3.6 Data quality

Site-specific production data has been collected for 2021 from the production site. The upstream and downstream processes

have been modelled based on environmental data from generic databases *ecoinvent.* The collected data was reviewed in terms of consistency, and it is estimated as good quality.

### 3.7 Period under review

The data is therefore based on 2021. All information is based on averaged data for 12 consecutive months.

### 3.8 Geographic Representativeness

Land or region, in which the declared product system is manufactured, used or handled at the end of the product´s lifespan: Europe

### 3.9 Allocation

Allocation has been avoided whenever possible by collecting product specific environmental data. In case of manufacturing energy use, where allocation could not be avoided, the consumption of electricity and water in Halton's plant were allocated per working hours for assembly of each product. No other allocations were made in this assessment. The cut-off end-of-life allocation approach was used throughout.

### 3.10 Comparability

Basically, a comparison or an evaluation of EPD data is only possible if all the data sets to be compared were created according to *EN 15804* and the building context, respectively the product-specific characteristics of performance, are taken into account. According to the *EN 15804* standard, environmental declarations for construction products may not be comparable if they have not been prepared in accordance with that standard or if a different notified unit has been used.The LCA was conducted using *SimaPro 9.2.0.2.* software. All background data was considered using data from the ecoinvent 3.7.1 (cut-off) database or literary sources.

## 4. LCA: Scenarios and additional technical information

**Characteristic product properties of biogenic carbon**

The biogenic carbon content quantifies the amount of biogenic carbon in a construction product leaving the factory gate, and it shall be separately declared for the product and for any accompanying packaging.

The mass of packaging containing biogenic carbon is declared.

Note: 1 kg of biogenic carbon is equivalent to 44/12 kg of $CO_2$.

| Name | Value | Unit |
|---|---|---|
| Biogenic carbon content of the product | 0 | kg.C |
| Biogenic carbon content of associated packaging | 15.2 | kg.C |

The scenarios and assumptions applied in this study for all the life cycle stages included are based on data provided by Halton and correspond to the most likely scenario. The following scenarios and general assumptions were made in the studied lifecycle stages:

**Transport to the building site (A4)**

| Name | Value | Unit |
|---|---|---|
| Transport of distance | 1631.4 | km |
| Capacity utilization (including empty runs) | ~19 | % |

**Installation into the building (A5)**

| Name | Value | Unit |
|---|---|---|
| Material loss | 0 | % |

The following end of life scenarios are considered for packaging:

NHW Plastic : 1.43E+00 kg → 41% recycling, 37% incineration without energy recovery, 22% landfill.

NHW Cardboard : 4.33E+00 kg → 82% recycling, 9% incineration without energy recovery, 9% landfill.
NHW Wood : 3.00E+01 kg → 31% recycling, 31% incineration without energy recovery, 38% landfill.

**Service Life**

HALTON declares a Service Life of 15 years as an empirical value for the hoods when used in accordance with the care instructions.

**Maintenance (B2)**

| Name | Value | Unit |
|---|---|---|
| Total number of check-up during SRL | 60 | |
| Estimated distance for round trip | 100 | km |
| Estimated weight of technician doing the check up. | 80 | kg |
| 2 replacements of UV light during SLR | 5.40E-01 | kg |
| Weekly cleaning | 3.09E+03 | m3 of water containing 1,5% soap /DVR |

**Operational energy use (B6-B7)**

| Name | Value | Unit |
|---|---|---|
| Energy demand | 1334 | kWh/year |

**End of life (C1-C4)**

| Name | Value | Unit |
|---|---|---|
| Transport to treatment site | 50 | km |

The following end of life scenarios are considered for the product:

NHW Plastic : 1.27E+00 kg → 41% recycling, 37% incineration without energy recovery, 22% landfill
NHW Steel : 1.12E+02 kg → 90% recycling, 10% landfill
NHW Glass : 6.97E-01 kg → 100% landfill
NHW WEE : 8.79E+00 kg → 74,7% recycling, 1.8% reuse, 9.7% incineration without energy recovery, 13.8% landfill.

## 5. LCA: Results

The following table shows the result of the LCA for 1 m of a UVI/F hood.

**DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; MND = MODULE OR INDICATOR NOT DECLARED; MNR = MODULE NOT RELEVANT)**

| Product stage | | | Construction process stage | | Use stage | | | | | | | End of life stage | | | | Benefits and loads beyond the system boundaries |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Raw material supply | Transport | Manufacturing | Transport from the gate to the site | Assembly | Use | Maintenance | Repair | Replacement | Refurbishment | Operational energy use | Operational water use | De-construction demolition | Transport | Waste processing | Disposal | Reuse-Recovery-Recycling-potential |
| **A1** | **A2** | **A3** | **A4** | **A5** | **B1** | **B2** | **B3** | **B4** | **B5** | **B6** | **B7** | **C1** | **C2** | **C3** | **C4** | **D** |
| X | X | X | X | X | MND | X | MNR | MNR | MNR | X | MND | X | X | X | X | X |

**RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A2: 1 m UVIF Hood**

| Parameter | Unit | A1-A3 | A4 | A5 | B2 | B6 | C1 | C2 | C3 | C4 | D |
|---|---|---|---|---|---|---|---|---|---|---|---|
| GWP-total | kg $CO_2$ eq | 4.33E+03 | 3.26E+01 | 1.14E+02 | 1.44E+03 | 8.39E+03 | 0 | 9.95E-01 | 2.62E+00 | 4.15E+00 | -1.72E+02 |
| GWP-fossil | kg $CO_2$ eq | 4.36E+03 | 3.26E+01 | 4.6E+01 | 1.27E+03 | 8.32E+03 | 0 | 9.95E-01 | 6.79E-01 | 3.6E+00 | -1.72E+02 |
| GWP-biogenic | kg $CO_2$ eq | -3.56E+01 | 1.26E-02 | 6.8E+01 | 2.1E+01 | 4.8E+01 | 0 | 3.83E-04 | 1.94E+00 | 5.48E-01 | -3.35E-01 |
| GWP-luluc | kg $CO_2$ eq | 6.74E+00 | 1.12E-02 | 2.17E-02 | 1.45E+02 | 1.73E+01 | 0 | 3.41E-04 | 6.03E-04 | 7.33E-05 | -7.18E-02 |
| ODP | kg CFC11 eq | 3.17E-04 | 7.41E-06 | 8.64E-06 | 2.09E-04 | 4.22E-04 | 0 | 2.26E-07 | 1.35E-07 | 4.81E-08 | -6.75E-06 |
| AP | mol $H^+$ eq | 2.67E+01 | 9.07E-02 | 1.55E-01 | 7.41E+00 | 4.54E+01 | 0 | 2.77E-03 | 7.26E-03 | 1.76E-03 | -6.24E-01 |
| EP-freshwater | kg P eq | 6.72E-01 | 2.44E-04 | 4.88E-04 | 7.82E-01 | 8.82E-01 | 0 | 7.45E-06 | 6.35E-05 | 8.53E-06 | -8.54E-03 |
| EP-marine | kg N eq | 5.3E+00 | 1.85E-02 | 5.78E-02 | 3.03E+00 | 6.06E+00 | 0 | 5.63E-04 | 4.04E-03 | 1.26E-03 | -1.47E-01 |
| EP-terrestrial | mol N eq | 6.04E+01 | 2.05E-01 | 4.75E-01 | 2.4E+01 | 6.97E+01 | 0 | 6.26E-03 | 2.72E-02 | 7.48E-03 | -1.58E+00 |
| POCP | kg NMVOC eq | 1.59E+01 | 7.86E-02 | 1.51E-01 | 6.91E+00 | 1.9E+01 | 0 | 2.4E-03 | 6.59E-03 | 2.18E-03 | -7.82E-01 |
| ADPE | kg Sb eq | 1.25E+00 | 1.2E-04 | 2.61E-04 | 2.5E-02 | 7.57E-02 | 0 | 3.66E-06 | 6.69E-05 | 6.27E-07 | -2.42E-04 |
| ADPF | MJ | 5.57E+04 | 4.95E+02 | 6.03E+02 | 1.79E+04 | 1.76E+05 | 0 | 1.51E+01 | 6.42E+00 | 2.87E+00 | -1.7E+03 |
| WDP | $m^3$ world eq deprived | 1.1E+03 | 1.43E+00 | 2.29E+00 | 7.67E+02 | 1.8E+03 | 0 | 4.36E-02 | -1.29E-01 | 1.94E-01 | 1.3E+00 |

GWP = Global warming potential; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential of land and water; EP = Eutrophication potential; POCP = Formation potential of tropospheric ozone photochemical oxidants; ADPE = Abiotic depletion potential for non-fossil resources; ADPF = Abiotic depletion potential for fossil resources; WDP = Water (user) deprivation potential)

**RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A2: 1 m UVIF Hood**

| Parameter | Unit | A1-A3 | A4 | A5 | B2 | B6 | C1 | C2 | C3 | C4 | D |
|---|---|---|---|---|---|---|---|---|---|---|---|
| PERE | MJ | 7.22E+03 | 6.76E+00 | 1.26E+01 | 2.13E+03 | 3.17E+04 | 0 | 2.06E-01 | 1.86E+00 | 7.49E-02 | -2.38E+02 |
| PERM | MJ | 5.66E+02 | 0 | -2.15E+02 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| PERT | MJ | 7.78E+03 | 6.76E+00 | -2.03E+02 | 2.13E+03 | 3.17E+04 | 0 | 2.06E-01 | 1.86E+00 | 7.49E-02 | -2.38E+02 |
| PENRE | MJ | 5.55E+04 | 4.95E+02 | 6.28E+02 | 1.81E+04 | 1.73E+05 | 0 | 1.51E+01 | 6.31E+00 | 2.87E+00 | -1.69E+03 |
| PENRM | MJ | 1.12E+02 | 0 | -2.52E+01 | 0 | 0 | 0 | 0 | 0 | -4.79E+00 | 0 |
| PENRT | MJ | 5.56E+04 | 4.95E+02 | 6.02E+02 | 1.8E+04 | 1.73E+05 | 0 | 1.51E+01 | 6.3E+00 | -1.92E+00 | -1.69E+03 |
| SM | kg | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| RSF | MJ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| NRSF | MJ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| FW | $m^3$ | 6.51E+01 | 6.76E-02 | 1.19E-01 | 2.64E+01 | 1.45E+02 | 0 | 2.06E-03 | 1.97E-03 | 5.56E-03 | -1.33E-01 |

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

**RESULTS OF THE LCA – WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A2: 1 m UVIF Hood**

| Parameter | Unit | A1-A3 | A4 | A5 | B2 | B6 | C1 | C2 | C3 | C4 | D |
|---|---|---|---|---|---|---|---|---|---|---|---|
| HWD | kg | 7.83E+02 | 3.4E-01 | 3.31E+00 | 7.39E+01 | 1.94E+02 | 0 | 1.04E-02 | 5.39E-01 | 2.24E-01 | -1.72E+01 |
| NHWD | kg | 6.1E+03 | 2.81E+01 | 3.8E+01 | 9.98E+02 | 3.18E+03 | 0 | 8.59E-01 | 2.38E+00 | 1.15E+01 | -4.05E+02 |
| RWD | kg | 1.77E-01 | 3.38E-03 | 4.02E-03 | 1.03E-01 | 1.24E+00 | 0 | 1.03E-04 | 1.01E-04 | 1.58E-05 | -2.89E-03 |
| CRU | kg | 0 | 0 | 0 | 7.39E+01 | 1.94E+02 | 0 | 0 | 5.39E-01 | 0 | -1.72E+01 |
| MFR | kg | 4.05E+01 | 0 | 1.34E+01 | 9.98E+02 | 3.18E+03 | 0 | 0 | 2.38E+00 | 0 | -4.05E+02 |
| MER | kg | 0 | 0 | 0 | 1.03E-01 | 1.24E+00 | 0 | 0 | 1.01E-04 | 0 | -2.89E-03 |
| EEE | MJ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1.58E-01 | 0 | 0 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| EET | MJ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EET = Exported thermal energy

**RESULTS OF THE LCA – additional impact categories according to EN 15804+A2-optional:**
**1 m UVIF Hood**

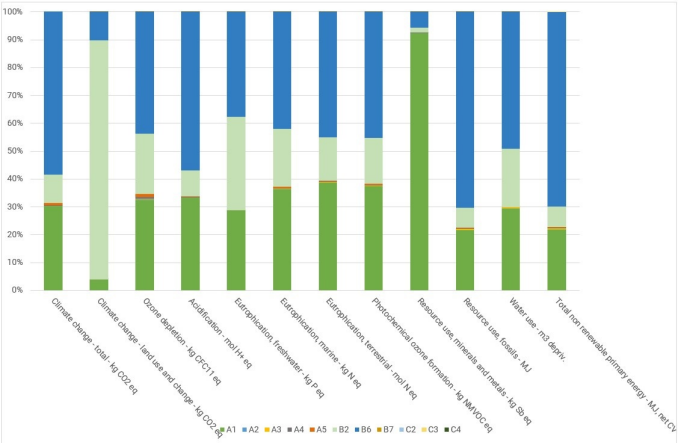
| Parameter | Unit | A1-A3 | A4 | A5 | B2 | B6 | C1 | C2 | C3 | C4 | D |
|---|---|---|---|---|---|---|---|---|---|---|---|
| PM | Disease incidence | 2.31E-04 | 2.05E-06 | 2.11E-06 | 1.19E-04 | 1.2E-04 | 0 | 6.27E-08 | 1.13E-07 | 3.4E-08 | -1.08E-05 |
| IR | kBq U235 eq | 2.27E+02 | 2.17E+00 | 2.66E+00 | 7.82E+01 | 1.52E+03 | 0 | 6.63E-02 | 9.28E-02 | 1.07E-02 | -2.64E+00 |
| ETP-fw | CTUe | 3.21E+05 | 3.8E+02 | 5.97E+02 | 3.55E+04 | 1.1E+05 | 0 | 1.16E+01 | 2.79E+02 | 8.11E+01 | -4.08E+03 |
| HTP-c | CTUh | 1.53E-05 | 1.35E-08 | 2.54E-08 | 1.97E-06 | 3.27E-06 | 0 | 4.11E-10 | 1.98E-09 | 1.29E-09 | -1.04E-06 |
| HTP-nc | CTUh | 1.34E-04 | 3.71E-07 | 5.5E-07 | 2.23E-05 | 8.64E-05 | 0 | 1.13E-08 | 4.37E-08 | 1.54E-08 | -3.59E-06 |
| SQP | SQP | 4.73E+04 | 5.06E+02 | 4.24E+02 | 3.12E+04 | 5.65E+04 | 0 | 1.54E+01 | 1.08E+02 | 4.55E+00 | -2.34E+03 |

PM = Potential incidence of disease due to PM emissions; IR = Potential Human exposure efficiency relative to U235; ETP-fw = Potential comparative Toxic Unit for ecosystems; HTP-c = Potential comparative Toxic Unit for humans (cancerogenic); HTP-nc = Potential comparative Toxic Unit for humans (not cancerogenic); SQP = Potential soil quality index

Disclaimer 1 – for the indicator “Potential Human exposure efficiency relative to U235”. This impact category deals mainly with the eventual impact of low-dose ionizing radiation on human health of the nuclear fuel cycle. It does not consider effects due to possible nuclear accidents, occupational exposure or radioactive waste disposal in underground facilities. Potential ionizing radiation from the soil, radon and from some construction materials is also not measured by this indicator.

Disclaimer 2 – for the indicators “abiotic depletion potential for non-fossil resources”, “abiotic depletion potential for fossil resources”, “water (user) deprivation potential, deprivation-weighted water consumption”, “potential comparative toxic unit for ecosystems”, “potential comparative toxic unit for humans – cancerogenic”, “Potential comparative toxic unit for humans - not cancerogenic”, “potential soil quality index”. The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high as there is limited experience with the indicator.

## 6. LCA: Interpretation




The dominance analysis shows that modules B6 and A1 are the dominant life cycle stages in most of the categories. B6 dominates most indicators due the energy demand in electricity for using. The modules A1-A3 have great contributions to all categories especially for the Depletion of abiotic resources - minerals and metals. In this indicator the provision of electronics component has the largest contribution. The end-of-life stage has no significant influence on the environmental indicators. The environmental burdens from the transports (modules A4 and C2) account less than 1% of the total burdens from the transports in all cases.

## 7. Requisite evidence

## 8. References

**PCR 2020, Part A**
Institut Bauen und Umwelt e.V., Berlin (pub.): Product Category Rule for Construction Products from the range of Environmental Product Declarations of Institute Bauen und Umwelt (IBU), Part A: Calculation rules for the Life Cycle Assessment and requirements on the project report according to EN 15804+A2. Version 2020-07.
www.ibu-epd.com

**PCR 2024, Part B**
Product Category Rules for Construction Products, Part B: Ventilations systems for commercial kitchens, 24/01/2024

**EN 15804**
EN 15804:2012+A2:2019+AC:2021, Sustainability of construction works — Environmental Prouct Declarations — Core rules for the product category of construction products.

**ISO 14025**
EN ISO 14025:2011, Environmental labels and declarations — Type III environmental declarations — Principles and procedures.

**DIN 4102-1**
DIN 4102-1: Fire behaviour of building materials and building components - Part 1: Building materials; concepts, requirements and tests. 1998-05

**DIN EN 13501-1**
DIN EN 13501-1:2019-05: Fire classification of construction

products and building elements - Part 1: Classification using data from reaction to fire tests; German version EN 13501-1:2018

**/Further References**

**SimaPro 9.2.0.2**

**WEEE**
Waste Electrical and Electronic Equipment Directive : Act governing the requirements on utilisation and disposal of WEEE.

**REACH Regulation**
Regulation (EC) No. 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/45/EC and repealing Council Regulation (EEC) No. 793/93, Commission Regulation (EC) No. 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC, 2006-12.

**Biocide Guideline**
Regulation (EU) No. 528/2012 of the European Parliament and of the Council of 22 May 2012 concerning the making available on the market and use of biocidal products

**CPR**
Directive (EU) No. 305/2011 of the European Parliament and Council dated 9 March 2011 establishing harmonised conditions for marketing construction products and replacing Council Guideline 89/106/EEC

**Ecoinvent**
Ecoinvent database version 3.7.1

**IBU 2021**
Institut Bauen und Umwelt e.V.: General Instructions for the EPD programme of Institut Bauen und Umwelt e.V., Version 2.0, Berlin: Institut Bauen und Umwelt e.V., 2021 www.ibu-epd.com

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