# ENVIRONMENTAL PRODUCT DECLARATION

In accordance with ISO 14025 and EN 15804+A2

| | |
|---|---|
| Owner of the declaration | Schüco International KG |
| Programme holder | Institut Bauen und Umwelt e.V. (IBU) |
| Publisher | Institut Bauen und Umwelt e.V. (IBU) |
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| Date of issue | 30/07/2025 |
| Valid until | 29/07/2030 |

**Schüco AWS 75.SI W x H: 1230 mm x 1480 mm**
**Project: EPD [Esempi]**
**Item: Finestra**

## Schüco International KG

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# 1. General Information

**Schüco International KG**

**Programme holder**

IBU - Institut Bauen und Umwelt e.V.
Hegelplatz 1
10117 Berlin
Deutschland

**Declaration number**

IBU-SCH-SCH 2402001-DE24007616-IPUG001-EN
IBU-SCH-SCH 2402001-DE24007616-IPUG002-EN
IBU-SCH-SCH 2402001-DE24007616-IPUG003-EN

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

This declaration is based on the product category rules
PCR for windows and doors: v8 (05/07/2023)
(PCR checked and approved by the independent German Council of Economic Experts (SVR))

**Date of issue**

30/07/2025

**Valid until**

29/07/2030

**Owner of the declaration**

Schüco International KG
Karolinenstr. 1-15
33609 Bielefeld
Germany

**Declared product / declared unit**

Schüco AWS 75.SI W x H: 1230 mm x 1480 mm
Finestra

**Scope**

The environmental product declaration refers to a specific Schüco window, door or facade-system with a specific dimension. The LCA results in chapter 5 relate to the three grades of Schüco aluminium profile of Standard, Low Carbon and Ultra Low Carbon aluminium. This document combines the three resulting EPDs. The properties of the system components on which the life cycle assessment is based on, are provided by Schüco International KG.
The production site is the location of the sytem manufacturer. The system manufacturer is responsible for the specification and manufacture of the unit described in this EPD. When using Low Carbon glass, the system manufacturer is responsible for providing a vaild glass certificate. The LCA results in the annex to this EPD refer to the declared product without glazing. These LCA results can be used in combination with a specific EPD for the glazing used.
The owner of the declaration is liable for the underlying information and evidence; the IBU cannot be held liable for manufacturer information, life cycle assessment data and evidence.

**Verification**

The CEN standard /EN 15804/ serves as core PCR
Verification of the EPD by an independent third party in accordance with ISO 14205

☐ intern ☒ extern

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

Florian Pronold
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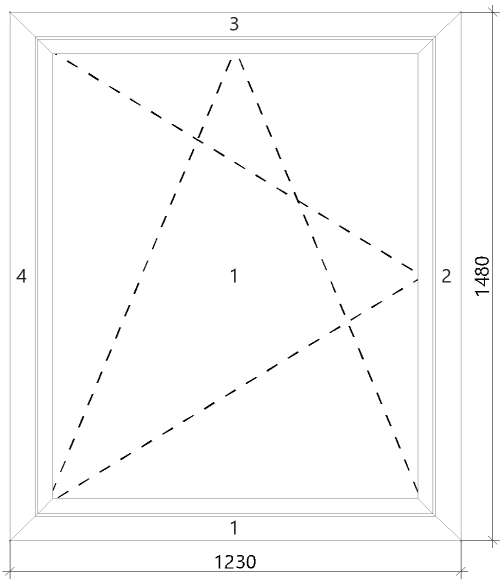
Dr. Wolfram Trinius,
(Independent verifier)

# 2. Product

### 2.1 Product description

The Schüco window system consists of thermally insulated aluminium composite profiles. The Schüco window system integrates technical functionalities combined with architectural and design features. Benefits such as high thermal insulation, narrow face widths, concealed, classic manual or integrated mechatronic fittings are combined in components that are tailored to one another. The system consists of the basic depths 50, 60, 65, 70, 75, 90, 112 and 120 mm. Different opening types can be combined with fixed fields of the system. The profile surfaces of the window units can be anodised or powder coated as required.

The declaration describes the following Schüco unit:




Esterno
DIN EN 12519

System design: Schüco AWS 75.SI
W x H: 1230 mm x 1480 mm
Profile surfaces:
Appendices: Unit overview
Regulation (EU) No. 305/2011 (CPR) applies to bringing the product into circulation in the EU/EFTA (with the exception of Switzerland).
The product requires a Declaration of Performance taking account of the harmonised product standard DIN EN 14351-1: 2016-12 for windows and doors and CE labelling. With regard to use, the respective national regulations apply.

### 2.2 Use

The product lets light in and an exchange of air if the windows can be opened. The window can be installed in the walls of buildings or in curtain walling. Windows can be combined with fixed glazed panels.

### 2.3 Technical data

In accordance with the CE labelling, the following construction data must be given for the unit:

| Description | Value | Unit |
|---|---|---|
| Thermal transmittance of glass in accordance with DIN EN 673 | 0,60 | W/(m²K) |
| Thermal transmittance of the frame in accordance with DIN EN 10077-2 | 1,4 | W/(m²K) |
| Thermal transmittance of the window/door in accordance with DIN EN 10077-1 | 1,1 | W/(m²K) |
| Total solar energy transmittance of the glazing in accordance with EN 410 | npd | - |
| Air permeability in accordance with EN 14351-1 | npd | Class |
| Watertightness in accordance with EN 14351-1 | npd | Pa |
| Sound insulation against external noise in accordance with DIN EN ISO 10140 and DIN EN ISO 717 | -*) | dB |
| Resistance to wind load in accordance with EN 14351 | npd | Class |
| Deformation due to vertical loads in accordance with EN 947 | -*) | mm |
| Fire resistance class (for fire-resistant doors and windows) | -*) | - |
| Basic depth | 75 | mm |
| Sound reduction class (class 1 – 6), optional | -*) | - |
| Sound reduction index, Rw, (c,ctr) | -*) | dB |
| Burglar resistance class 1 – 4 (optional) | -*) | - |

*) Omitted as there are no mandatory properties in accordance with the product standard EN 14351.

Performance values of the product corresponding to the Declaration of Performance in relation to its essential characteristics in accordance with EN 14351-1: 2016-12, windows and doors – product standard, performance characteristics.

### 2.4 Condition upon delivery

The unit is installed on the building in the dimensions described under 2.1.

### 2.5 Basic materials / auxiliary materials

The unit considered here consists of the following:

| | |
|---|---|
| Aluminium/stainless steel | 1.6 kg |
| Aluminium/steel | 0.16 kg |
| Die-cast aluminium | 0.36 kg |
| Aluminum Profile | 16.34 kg |
| EPDM | 2.56 kg |
| Stainless steel | 0.08 kg |
| Stainless steel A2 | 0.01 kg |
| Plastic | 0.17 kg |
| PA | 0.01 kg |
| PA 6.6 GF 25 / wire | 1.67 kg |
| PA 6.6 GF 25 / wire / PU | 2.76 kg |
| PA6 | 0.25 kg |

| | |
|---|---|
| PE foam | 0.2 kg |
| PT | 3.73 kg |
| Die-cast zinc | 0.49 kg |
| Glass triple unit | 45.66 kg |
| Total weight | 76.04 kg |

**2.6 Manufacture**

The surfaces of the aluminium profiles can be finished by means of powder coating or anodising. The surface-finished aluminium profiles are cut to size and fabricated for the appropriate frame size. The resulting off-cuts from the aluminium profiles are recycled. The insulation profiles are fixed securely to the aluminium profiles. The profiles on the building structure are then securely fastened to the frame and the gaskets are inserted in the appropriate grooves. Then the glazing is inserted and secured with glazing profiles. This is followed by a check for correct operation.

**2.7 Environment and health and safety during production**

The production of Schüco units does not require any measures for health and safety or environmental protection that go beyond the national regulations applicable in Germany or the provisions of the European Union. The environmental management system of Schüco International KG at the company headquarters in Bielefeld is certified in accordance with the international environmental management standard ISO 14001 and the quality management is certified in accordance with the quality management standard ISO 9001.

**2.8 Product fabrication / installation**

The Schüco construction and installation instructions for the system must be observed for production, installation and commissioning. No measures beyond standard health and safety measures have to be taken for installation and commissioning.

**2.9 Packaging**

In general, the units are unpackaged. In rare cases, a PE foil is used as protection. The surfaces of the aluminium profiles are often covered with a protective foil. The plastic foils are conveyed into the regional waste separation system. The packed units are placed in transport racks and these are put onto euro pallets. Reusable frames are used for transportation to the building site.

**2.10 Condition during use**

There are no changes to the material composition during use.

**2.11 Environment and health & safety during use**

No emissions are produced during its service life.

Therefore, no adverse effects on health are expected during its service life.
If used as intended, there are no risks to soil, air or water.

**2.12 Reference service life**

In accordance with the service life of components for the lifecycle analyses in accordance with the assessment system for sustainable building (BNB), the service life of systems with an aluminium frame is over 50 years. The service life given is independent of the warranty of the manufacturer. The actual service life of the product system may be even longer. A regular maintenance and/or repair of the product are required to assure a longer service life. Such maintenance and repair activities are not considered in the EPD, as they depend on the overall construction and use of the declared product system.

**2.13 Exceptional effects**

**Fire**

Information on the building material class in accordance with EN 13501-1.

**Fire Protection**

| Name | Building material class in accordance with DIN EN 13501-1 |
|---|---|
| Aluminium profiles | A1 |
| EPDM gaskets | E |
| Glass | A1 |

**Water**

No adverse effects on the environment are known due to the impact of flooding. No substances are released.

**Environmental impact**

The Schüco surface coating is free from chromium (VI). Schüco powder coatings are generally free of heavy metals. The Schüco powder coatings do not contain any volatile organic compounds (VOC).

**Mechanical destruction**

No hazardous substances are released in the event of mechanical destruction.

**2.14 Re-use phase**

The end-of-life processes consist of three steps:

- Dismantling
- Shredding and/or sorting
- Remelting / incinerating / final disposal

Dismantling takes place either on the construction site or at the recycling plant after transportation of the uninstalled units. After sorting, the materials are used as follows:

- Metal and glass: material recycling
- Plastics: thermal reuse

**2.15 Disposal**

The waste classification code in accordance with the waste catalogue is:

| Name | Waste classification code |
|---|---|
| Aluminium | 17 04 02 |
| Steel | 17 04 05 |
| Glass | 17 02 02 |
| Plastics | 17 02 03 |

**2.16 Further information**

You can find additional information about the products and safety data sheets on the Schüco homepage (www.schueco.com).

# 3. LCA: Calculation rules

### 3.1 Declared unit

The unit which is the subject of this declaration is a Window unit with the dimensions 1230 mm x 1480 mm. Profile surface finish: .

**Declared unit**

| Description | Value | Unit |
|---|---|---|
| Declared unit | 1 | pc |
| Mass per piece | 76.04 | kg/pc |
| Measures | 1230 x 1480 | mm x mm |
| Conversion rate for 1 kg | 0.0132 | 1/kg |
| Conversion rate for 1 m² | 0.549 | 1/m² |
| Frame proportion | 39.95 | % |

The frame proportion describes the mass ratio of the frame components in relation to all system components.

For non-homogeneous building components made from different materials, conversion to other dimensions using factors leads to deviations compared to the exact calculation.

Glazing with special characteristics such as electrochromic glass or tempered safety glass cannot be mapped in the used LCA-Tool. In the case of a configuration with such glazing, the LCA results of the annex to this EPD must be used in combination with an EPD of the specific glass system used.

### 3.2 System boundary

Type of EPD: cradle-to-gate with options.

**Modules A1-A3** cover the extraction of raw materials for the production of the intermediate products, energy carriers, generation of thermal energy, electrical energy, production of ancillary materials and intermediate products including transports for module A2.

**Module A4** includes the transportation to the construction site.

**Module A5** considers the installation efforts with the use of an electric crane.

**Module B6** is included if electrical components are part of the declared system.

**Module C1** considers the deconstruction efforts with the use of an electric crane.

**Module C2** includes the transportation to waste processing sites.

**Module C3** includes waste processing and recycling processes at the products end-of-life.

**Module C4** includes the disposal of inert materials, collection losses at the end-of-life and materials that are not suitable for energy recovery processes.

**Module D** includes recycling processes and recycling potentials for avoided primary material production as well as potential benefits from thermal treatment of materials with a heating value.

### 3.3 Estimates and assumptions

Module A2: For the transportation of the raw materials to the production site, a distance of 500 km with a Diesel-driven truck is assumed.

Module C1: As an estimate, the same effort as for installation in module A5 is taken into account.

Module C3: For aluminium, a collection rate of 96% is assumed. Disposal in landfill is assumed for the remainder (module C4). For other metal parts such as steel components, a collection rate of 100% is assumed. It is assumed that metal scrap and float glass waste reaches its end of waste state immediately after it is generated.

Module D: Impacts and potential benefits from recycling processes are not considered for glass waste in module D.

### 3.4 Cut-off criteria

All components that are part of the specific product configuration are considered in the life cycle assessment.

Packaging is neglected as its environmental impacts are considered as negligible in relation to the impacts related to the product.

### 3.5 Background data materials

All background data used is taken from the Sphera MLC databases. All upstream processes are mapped using background data.

### 3.6 Data quality

The final revision of the Sphera MLC background data used took place in 2023. The data quality and the representativeness of the data used in the LCA-Tool is considered as good.

### 3.7 Period under review

This declaration was created on 30/07/2025 and is based on the LCA-Tool version IBU-SCH-SCH-2402001-DE24 developed by Sphera.

### 3.8 Geographical 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

The manufacturing of the declared product does not deliver any co-products. The applied software model does not contain any allocation.

Post-consumer scrap enters the product system without environmental burdens.

Environmental impacts from scrap treatment (remelting and casting) are always taken into account when metal scrap is used or reused in modules A1-A3. These impacts are also considered when potential benefits in module D are calculated.

Generally, scrap that is generated during production (A1-A3) is assumed to be reused in a cycle (closed loop). Remaining net scrap amounts are processed in module D. Potential benefits from net scrap amounts leaving the product system are declared in module D. Those benefits are quantified by the inversion of the environmental impacts of the production of primary raw materials/ ingots using average European data.

Potential benefits from incineration of production waste are not considered. Potential benefits from incineration are only calculated and assigned to module D at the end-of-life treatment of the products. Those benefits are quantified by the inversion of the environmental impacts from the generation of electricity and thermal energy from natural gas using average European data.

### 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. The used database for the life cycle assessment in this declaration is MLC (GaBi), version 2023.2.

# 4. LCA: Scenarios and additional technical information

The following technical information is the basis for the declared modules or can be used for the development of specific scenarios in the context of a building assessment if modules are not declared (MND).

**Information on describing the biogenic carbon content at the factory gate**

Packaging materials are not taken into account in this assessment due to their overall negligible influence on the product system. The amount of biogenic carbon in packaging is therefore not declared.

| Description | Value | Unit |
|---|---|---|
| Biogenic carbon in the product | 0 | kg C |
| Biogenic carbon content in accompanying packaging | - | kg C |

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

**Information on the electricity mix used in module A3.**

| Description | Value | Unit |
|---|---|---|
| Global Warming Potential (GWP-total acc. EN 15804, EF3.1) of electricity mix | 0.67 | $CO_2$ eq / kWh |

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

| Description | Value | Unit |
|---|---|---|
| **Transport distance** | | |
| Lorry up to 12t gross weight | 0 | km |
| Lorry up to 28t gross weight | 130 | km |
| Lorry up to 40t gross weight | 0 | km |
| Lorry, electric, up to 7.5t gross weight | 0 | km |
| Lorry, electric, up to 12t gross weight | 0 | km |
| Lorry, electric, up to 20t gross weight | 0 | km |
| Lorry, electric, up to 26t gross weight | 0 | km |
| Lorry, electric, more than 32t gross weight | 0 | km |
| Train | 0 | km |
| Aeroplane | 0 | km |
| Ship | 0 | km |

**Energy requirement for installation (A5)**

| Description | Value | Unit |
|---|---|---|
| Electrical energy requirement (per kg of product) | 0.01 | kWh/kg |

**Reference service life Description**

| Description | Value | Unit |
|---|---|---|
| Reference service life | 50 | a |

**Operational energy (B6)**

| Description | Value | Unit |
|---|---|---|
| Electricity consumption | 0.00 | kWh/a |

The declared electricity demand and LCA results in module B6 refer to an average value for one year of use considering standby and active mode if electrical components are part of the product. As the use of an average value leads to uncertainties in the LCA results in module B6, LCA results of Module B6 can be scaled to the specific energy demand if this is known.

**Energy demand for dismantling (C1).**

| Description | Value | Unit |
|---|---|---|
| Electrical energy demand (per kg of product) | 0.01 | kWh/kg |

**Transport at end-of-life (C2); diesel lorry up to 28t gross weight**

| Description | Value | Unit |
|---|---|---|
| Transport distance | 50 | km |

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

| Description | Value | Unit |
|---|---|---|
| Collected and separated according to waste type | 76.04 | kg |
| Collected as mixed construction waste | 0 | kg |
| For reuse | 0 | kg |
| For recycling (C3/D) | 64.23 | kg |
| For energy recovery (C3) | 11.09 | kg |
| For landfill (C4) | 0.72 | kg |

# 5. LCA: Results

The results of the impact assessment indicators, resource use, waste and other output streams are presented below in relation to the Schüco AWS 75.SI with specific dimensions of 1230 mm x 1480 mm. See chapter 3.1 for the conversion. The results are evaluated using characterisation factors in accordance with EF 3.1.

**Acronyms:**

**ENVIRONMENTAL IMPACT INDICATORS:**

GWP = Global Warming Potential; ODP = Ozone Depletion Potential; AP = Acidification potential; EP = Eutrophication Potential; POCP = Photochemical Oxidant Creation Potential; ADPE = Abiotic Depletion Potential - Elements (non-fossil fuels) (ADP- minerals and metals); ADPF = Abiotic Depletion Potential - Fossil Fuels (ADP-fossil resources); WDP = Water Depletion Potential (user).

**INDICATORS DESCRIBING RESOURCE USE:**

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 = Net use of fresh water.

**OUTPUT STREAMS AND WASTE CATEGORIES:**

HWD = Hazardous Waste Disposed; NHWD = Non-Hazardous Waste Disposed; RWD = Radioactive Waste Disposed; CRU = Components for Reuse; MFR = Materials for Recycling; MER = Materials for Energy Recovery; EEE = Exported Energy - electric; EET = Exported Energy - thermic.

**ADDITONAL IMPACT CATEGORIES**

PM = Particulate Matter, disease incidence; IR = Ionising Radiation, potential human exposure efficiency relative to U235; ETP-fw = Ecotoxicity Potential, freshwater; HTP-c = Human Toxicity Potential, cancer; HTP-nc = Human Toxicity Potential, non-cancer; SQP = Soil Quality Potential Index.

**Restriction notes:**

Restriction note 1 - applies to the indicator "Potential human exposure efficiency relative to U235".

This impact category primarily deals with the possible effects of low-dose ionising 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 ionising radiation from the soil, from radon and from some construction materials is also not measured by this indicator.

Restriction note 2 - applies to the indicators "Abiotic Depletion Potential - Elements (non-fossil fuels)", "Abiotic Depletion Potential - Fossil Fuels", "Water Depletion Potential (user)", "Ecotoxicity Potential, freshwater", "Human Toxicity Potential, cancer", "Human Toxicity Potential, non-cancer", "Soil Quality Potential Index".

The results of these environmental impact indicators must be used with caution, as the degree of uncertainty for these results is high or there is only limited experience with the indicator.

SCHÜCO

# 5.1 LCA: Results - Use of Schüco Standard Aluminium profile

The following results relate to the system configuration described in chapter 2.1 with the use of Schüco Standard Aluminium profiles in accordance with EPD declaration number: EPD-SCH-20230390-CBA1-EN.

| SPECIFICATION OF THE SYSTEM LIMITS (X = INCLUDED IN LIFE CYCLE ASSESSMENT; MND = MODULE NOT DECLARED) | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Production stage | | | Construction process stage | | Use stage | | | | | | | End of life stage | | | | Benefits and loads beyond the system boundary |
| Raw material supply | Transport | Manufacturing | Transport | Construction installation | Use | Maintenance | Repair | Replacement | Refurbishment | Operational energy use | Operational water use | Deconstruction/ demolition | Transport | Waste processing | Disposal | Reuse, 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 | MND | MND | MND | MND | X | MND | X | X | X | X | X |

**RESULT OF THE LIFE CYCLE ASSESSMENT - ENVIRONMENTAL IMPACT in accordance with EN 15804+A2:**
**Schüco AWS 75.SI W x H 1230 mm x 1480 mm with Schüco Standard Aluminium profile**
**EDP declaration number: IBU-SCH-SCH 2402001-DE24007616-IPUG001-EN**

| Parameters | Unit | A1-A3 | A4 | A5 | B6 | C1 | C2 | C3 | C4 | D |
|---|---|---|---|---|---|---|---|---|---|---|
| GWP - total | kg $CO_2$ eq. | 2.28E+02 | 8.49E-01 | 2.47E-01 | 0 | 2.47E-01 | 2.79E-01 | 2.36E+01 | 1.07E-02 | -1.19E+02 |
| GWP - fossil | kg $CO_2$ eq. | 2.27E+02 | 8.39E-01 | 2.45E-01 | 0 | 2.45E-01 | 2.76E-01 | 2.36E+01 | 1.07E-02 | -1.19E+02 |
| GWP - biogenic | kg $CO_2$ eq. | 8.06E-01 | 1.92E-03 | 2.13E-03 | 0 | 2.13E-03 | 6.31E-04 | 1.53E-03 | 7.56E-06 | -3.68E-01 |
| GWP - luluc | kg $CO_2$ eq. | 1.46E-01 | 7.86E-03 | 2.67E-05 | 0 | 2.67E-05 | 2.58E-03 | 1.78E-04 | 3.37E-05 | -2.48E-02 |
| ODP | kg CFC11 eq. | 1.32E-09 | 1.10E-13 | 4.53E-12 | 0 | 4.53E-12 | 3.63E-14 | 2.55E-12 | 2.76E-14 | -9.60E-10 |
| AP | Mole of $H^+$ eq. | 8.96E-01 | 8.35E-04 | 5.24E-04 | 0 | 5.24E-04 | 2.76E-04 | 2.01E-02 | 7.70E-05 | -4.54E-01 |
| EP - freshwater | kg P eq. | 2.39E-04 | 3.10E-06 | 9.15E-07 | 0 | 9.15E-07 | 1.02E-06 | 1.06E-06 | 2.19E-08 | -7.35E-05 |
| EP - marine | kg N eq. | 2.11E-01 | 2.35E-04 | 1.25E-04 | 0 | 1.25E-04 | 7.84E-05 | 9.98E-03 | 1.99E-05 | -6.55E-02 |
| EP- terrestrial | Mole N eq. | 2.42E+00 | 2.98E-03 | 1.31E-03 | 0 | 1.31E-03 | 9.88E-04 | 1.13E-01 | 2.19E-04 | -7.13E-01 |
| POCP | kg NMVOC eq. | 5.91E-01 | 6.97E-04 | 3.34E-04 | 0 | 3.34E-04 | 2.30E-04 | 2.56E-02 | 6.00E-05 | -2.03E-01 |
| ADPE | kg Sb eq. | 8.23E-04 | 5.63E-08 | 3.79E-08 | 0 | 3.79E-08 | 1.85E-08 | 2.48E-08 | 5.02E-10 | -7.84E-04 |
| ADPF | MJ | 3.54E+03 | 1.16E+01 | 5.16E+00 | 0 | 5.16E+00 | 3.80E+00 | 8.37E+00 | 1.44E-01 | -1.75E+03 |
| WDP | $m^3$ world equiv. deprivet | 1.11E+01 | 1.03E-02 | 5.47E-02 | 0 | 5.47E-02 | 3.37E-03 | 2.59E+00 | 1.19E-03 | -6.60E+00 |

**RESULT OF THE LIFE CYCLE ASSEMENT - INDICATORS DESCRIBING RESUOURCE USE in accordance with EN 15804+A2:**
**Schüco AWS 75.SI W x H 1230 mm x 1480 mm with Schüco Standard Aluminium profile**
**EDP declaration number: IBU-SCH-SCH 2402001-DE24007616-IPUG001-EN**

| Indicator | Unit | A1-A3 | A4 | A5 | B6 | C1 | C2 | C3 | C4 | D |
|---|---|---|---|---|---|---|---|---|---|---|
| PERE | MJ | 1.04E+03 | 8.42E-01 | 3.09E+00 | 0 | 3.09E+00 | 2.77E-01 | 1.52E+00 | 2.36E-02 | -8.02E+02 |
| PERM | MJ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| PERT | MJ | 1.04E+03 | 8.42E-01 | 3.09E+00 | 0 | 3.09E+00 | 2.77E-01 | 1.52E+00 | 2.36E-02 | -8.02E+02 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| PENRE | MJ | 3.25E+03 | 1.16E+01 | 5.16E+00 | 0 | 5.16E+00 | 3.81E+00 | 3.01E+02 | 1.45E-01 | -1.75E+03 |
| PENRM | MJ | 2.92E+02 | 0 | 0 | 0 | 0 | 0 | -2.92E+02 | 0 | 0 |
| PENRT | MJ | 3.54E+03 | 1.16E+01 | 5.16E+00 | 0 | 5.16E+00 | 3.81E+00 | 8.37E+00 | 1.45E-01 | -1.75E+03 |
| SM | kg | 3.71E+00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1.77E+01 |
| RSF | MJ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| NRSF | MJ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| FW | $m^3$ | 1.76E+00 | 9.22E-04 | 2.49E-03 | 0 | 2.49E-03 | 3.03E-04 | 6.11E-02 | 3.65E-05 | -1.37E+00 |

**RESULT OF THE LIFE CYCLE ASSEMENT OUTPUT STREAMS AND WASTE CATEGORIES in accordance with EN 15804+A2:**
**Schüco AWS 75.SI W x H 1230 mm x 1480 mm with Schüco Standard Aluminium profile**
**EDP declaration number: IBU-SCH-SCH 2402001-DE24007616-IPUG001-EN**

| Parameters | Unit | A1-A3 | A4 | A5 | B6 | C1 | C2 | C3 | C4 | D |
|---|---|---|---|---|---|---|---|---|---|---|
| HWD | kg | 9.15E-05 | 3.59E-11 | 1.13E-12 | 0 | 1.13E-12 | 1.18E-11 | 7.78E-10 | 3.14E-12 | -9.93E-07 |
| NHWD | kg | 4.23E+01 | 1.77E-03 | 3.78E-03 | 0 | 3.78E-03 | 5.81E-04 | 9.68E-01 | 7.23E-01 | -3.24E+01 |
| RWD | kg | 2.24E-01 | 2.17E-05 | 8.21E-04 | 0 | 8.21E-04 | 7.14E-06 | 2.95E-04 | 1.65E-06 | -1.89E-01 |
| CRU | kg | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| MFR | kg | 0 | 0 | 0 | 0 | 0 | 0 | 6.42E+01 | 0 | 0 |
| MER | kg | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| EEE | MJ | 0 | 0 | 0 | 0 | 0 | 0 | 3.83E+01 | 0 | 0 |
| EET | MJ | 0 | 0 | 0 | 0 | 0 | 0 | 6.93E+01 | 0 | 0 |

**RESULT OF THE LIFE CYCLE ASSEMENT - additional impact categories in accordance with EN 15804+A2-optional:**
**Schüco AWS 75.SI W x H 1230 mm x 1480 mm with Schüco Standard Aluminium profile**
**EDP declaration number: IBU-SCH-SCH 2402001-DE24007616-IPUG001-EN**

| Indicator | Unit | A1-A3 | A4 | A5 | B6 | C1 | C2 | C3 | C4 | D |
|---|---|---|---|---|---|---|---|---|---|---|
| PM | Disease incidences | 1.04E-05 | 6.42E-09 | 4.41E-09 | 0 | 4.41E-09 | 2.10E-09 | 6.53E-08 | 9.47E-10 | -7.18E-06 |
| IR | kBq U235 eq. | 4.32E+01 | 3.24E-03 | 1.37E-01 | 0 | 1.37E-01 | 1.06E-03 | 4.51E-02 | 1.91E-04 | -3.79E+01 |
| ETF-fw | CTUe | 2.72E+03 | 8.28E+00 | 1.43E+00 | 0 | 1.43E+00 | 2.72E+00 | 3.06E+00 | 1.05E-01 | -4.07E+02 |
| HTP-c | CTUh | 6.41E-07 | 1.68E-10 | 7.60E-11 | 0 | 7.60E-11 | 5.52E-11 | 1.98E-10 | 1.21E-11 | -2.85E-08 |
| HTP-nc | CTUh | 2.35E-06 | 7.48E-09 | 1.21E-09 | 0 | 1.21E-09 | 2.46E-09 | 9.12E-09 | 1.28E-09 | 1.59E-07 |
| SQP | SQP | 2.38E+02 | 4.83E+00 | 2.03E+00 | 0 | 2.03E+00 | 1.59E+00 | 1.72E+00 | 3.51E-02 | -7.65E+01 |

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# 5.2 LCA: Results - Use of Schüco Low Carbon Aluminium profile

The following results relate to the system configuration described in chapter 2.1 with the use of Schüco Low Carbon Aluminium profiles in accordance with EPD declaration number: EPD-SCH-20230391-CBA1-EN.

| SPECIFICATION OF THE SYSTEM LIMITS (X = INCLUDED IN LIFE CYCLE ASSESSMENT; MND = MODULE NOT DECLARED) | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Production stage | | | Construction process stage | | Use stage | | | | | | | End of life stage | | | | Benefits and loads beyond the system boundary |
| Raw material supply | Transport | Manufacturing | Transport | Construction installation | Use | Maintenance | Repair | Replacement | Refurbishment | Operational energy use | Operational water use | Deconstruction/ demolition | Transport | Waste processing | Disposal | Reuse, 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 | MND | MND | MND | MND | X | MND | X | X | X | X | X |

**RESULT OF THE LIFE CYCLE ASSESSMENT - ENVIRONMENTAL IMPACT in accordance with EN 15804+A2:**
**Schüco AWS 75.SI W x H 1230 mm x 1480 mm with Schüco Low Carbon Aluminium profile**
**EDP declaration number: IBU-SCH-SCH 2402001-DE24007616-IPUG002-EN**

| Parameters | Unit | A1-A3 | A4 | A5 | B6 | C1 | C2 | C3 | C4 | D |
|---|---|---|---|---|---|---|---|---|---|---|
| GWP - total | kg $CO_2$ eq. | 1.83E+02 | 8.49E-01 | 2.47E-01 | 0 | 2.47E-01 | 2.79E-01 | 2.36E+01 | 1.07E-02 | -7.67E+01 |
| GWP - fossil | kg $CO_2$ eq. | 1.82E+02 | 8.39E-01 | 2.45E-01 | 0 | 2.45E-01 | 2.76E-01 | 2.36E+01 | 1.07E-02 | -7.60E+01 |
| GWP - biogenic | kg $CO_2$ eq. | 1.23E+00 | 1.92E-03 | 2.13E-03 | 0 | 2.13E-03 | 6.31E-04 | 1.53E-03 | 7.56E-06 | -7.59E-01 |
| GWP - luluc | kg $CO_2$ eq. | 1.28E-01 | 7.86E-03 | 2.67E-05 | 0 | 2.67E-05 | 2.58E-03 | 1.78E-04 | 3.37E-05 | -1.32E-02 |
| ODP | kg CFC11 eq. | 5.85E-09 | 1.10E-13 | 4.53E-12 | 0 | 4.53E-12 | 3.63E-14 | 2.55E-12 | 2.76E-14 | -5.13E-09 |
| AP | Mole of $H^+$ eq. | 8.04E-01 | 8.35E-04 | 5.24E-04 | 0 | 5.24E-04 | 2.76E-04 | 2.01E-02 | 7.70E-05 | -3.62E-01 |
| EP - freshwater | kg P eq. | 4.69E-04 | 3.10E-06 | 9.15E-07 | 0 | 9.15E-07 | 1.02E-06 | 1.06E-06 | 2.19E-08 | -2.87E-04 |
| EP - marine | kg N eq. | 2.18E-01 | 2.35E-04 | 1.25E-04 | 0 | 1.25E-04 | 7.84E-05 | 9.98E-03 | 1.99E-05 | -7.07E-02 |
| EP- terrestrial | Mole N eq. | 2.49E+00 | 2.98E-03 | 1.31E-03 | 0 | 1.31E-03 | 9.88E-04 | 1.13E-01 | 2.19E-04 | -7.65E-01 |
| POCP | kg NMVOC eq. | 5.94E-01 | 6.97E-04 | 3.34E-04 | 0 | 3.34E-04 | 2.30E-04 | 2.56E-02 | 6.00E-05 | -2.03E-01 |
| ADPE | kg Sb eq. | 8.36E-04 | 5.63E-08 | 3.79E-08 | 0 | 3.79E-08 | 1.85E-08 | 2.48E-08 | 5.02E-10 | -7.96E-04 |
| ADPF | MJ | 2.51E+03 | 1.16E+01 | 5.16E+00 | 0 | 5.16E+00 | 3.80E+00 | 8.37E+00 | 1.44E-01 | -7.85E+02 |
| WDP | $m^3$ world equiv. deprivet | 1.13E+01 | 1.03E-02 | 5.47E-02 | 0 | 5.47E-02 | 3.37E-03 | 2.59E+00 | 1.19E-03 | -6.70E+00 |

**RESULT OF THE LIFE CYCLE ASSEMENT - INDICATORS DESCRIBING RESUOURCE USE in accordance with EN 15804+A2:**
**Schüco AWS 75.SI W x H 1230 mm x 1480 mm with Schüco Low Carbon Aluminium profile**
**EDP declaration number: IBU-SCH-SCH 2402001-DE24007616-IPUG002-EN**

| Indicator | Unit | A1-A3 | A4 | A5 | B6 | C1 | C2 | C3 | C4 | D |
|---|---|---|---|---|---|---|---|---|---|---|
| PERE | MJ | 2.82E+03 | 8.42E-01 | 3.09E+00 | 0 | 3.09E+00 | 2.77E-01 | 1.52E+00 | 2.36E-02 | -2.44E+03 |
| PERM | MJ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| PERT | MJ | 2.82E+03 | 8.42E-01 | 3.09E+00 | 0 | 3.09E+00 | 2.77E-01 | 1.52E+00 | 2.36E-02 | -2.44E+03 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| PENRE | MJ | 2.22E+03 | 1.16E+01 | 5.16E+00 | 0 | 5.16E+00 | 3.81E+00 | 3.01E+02 | 1.45E-01 | -7.86E+02 |
| PENRM | MJ | 2.92E+02 | 0 | 0 | 0 | 0 | 0 | -2.92E+02 | 0 | 0 |
| PENRT | MJ | 2.52E+03 | 1.16E+01 | 5.16E+00 | 0 | 5.16E+00 | 3.81E+00 | 8.37E+00 | 1.45E-01 | -7.86E+02 |
| SM | kg | 6.62E+00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1.46E+01 |
| RSF | MJ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| NRSF | MJ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| FW | $m^3$ | 5.50E-01 | 9.22E-04 | 2.49E-03 | 0 | 2.49E-03 | 3.03E-04 | 6.11E-02 | 3.65E-05 | -2.36E-01 |

**RESULT OF THE LIFE CYCLE ASSEMENT OUTPUT STREAMS AND WASTE CATEGORIES in accordance with EN 15804+A2:**
**Schüco AWS 75.SI W x H 1230 mm x 1480 mm with Schüco Low Carbon Aluminium profile**
**EDP declaration number: IBU-SCH-SCH 2402001-DE24007616-IPUG002-EN**

| Parameters | Unit | A1-A3 | A4 | A5 | B6 | C1 | C2 | C3 | C4 | D |
|---|---|---|---|---|---|---|---|---|---|---|
| HWD | kg | 9.07E-05 | 3.59E-11 | 1.13E-12 | 0 | 1.13E-12 | 1.18E-11 | 7.78E-10 | 3.14E-12 | -2.87E-07 |
| NHWD | kg | 4.57E+01 | 1.77E-03 | 3.78E-03 | 0 | 3.78E-03 | 5.81E-04 | 9.68E-01 | 7.23E-01 | -3.50E+01 |
| RWD | kg | 4.85E-02 | 2.17E-05 | 8.21E-04 | 0 | 8.21E-04 | 7.14E-06 | 2.95E-04 | 1.65E-06 | -2.47E-02 |
| CRU | kg | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| MFR | kg | 0 | 0 | 0 | 0 | 0 | 0 | 6.42E+01 | 0 | 0 |
| MER | kg | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| EEE | MJ | 0 | 0 | 0 | 0 | 0 | 0 | 3.83E+01 | 0 | 0 |
| EET | MJ | 0 | 0 | 0 | 0 | 0 | 0 | 6.93E+01 | 0 | 0 |

**RESULT OF THE LIFE CYCLE ASSEMENT - additional impact categories in accordance with EN 15804+A2-optional:**
**Schüco AWS 75.SI W x H 1230 mm x 1480 mm with Schüco Low Carbon Aluminium profile**
**EDP declaration number: IBU-SCH-SCH 2402001-DE24007616-IPUG002-EN**

| Indicator | Unit | A1-A3 | A4 | A5 | B6 | C1 | C2 | C3 | C4 | D |
|---|---|---|---|---|---|---|---|---|---|---|
| PM | Disease incidences | 1.18E-05 | 6.42E-09 | 4.41E-09 | 0 | 4.41E-09 | 2.10E-09 | 6.53E-08 | 9.47E-10 | -8.33E-06 |
| IR | kBq U235 eq. | 7.10E+00 | 3.24E-03 | 1.37E-01 | 0 | 1.37E-01 | 1.06E-03 | 4.51E-02 | 1.91E-04 | -4.12E+00 |
| ETF-fw | CTUe | 2.71E+03 | 8.28E+00 | 1.43E+00 | 0 | 1.43E+00 | 2.72E+00 | 3.06E+00 | 1.05E-01 | -4.00E+02 |
| HTP-c | CTUh | 8.52E-07 | 1.68E-10 | 7.60E-11 | 0 | 7.60E-11 | 5.52E-11 | 1.98E-10 | 1.21E-11 | -2.23E-07 |
| HTP-nc | CTUh | 2.48E-06 | 7.48E-09 | 1.21E-09 | 0 | 1.21E-09 | 2.46E-09 | 9.12E-09 | 1.28E-09 | 3.58E-08 |
| SQP | SQP | 8.29E+02 | 4.83E+00 | 2.03E+00 | 0 | 2.03E+00 | 1.59E+00 | 1.72E+00 | 3.51E-02 | -6.25E+02 |

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# 5.3 LCA: Results - Use of Schüco Ultra Low Carbon Aluminium profile

The following results relate to the system configuration described in chapter 2.1 with the use of Schüco Ultra Low Carbon Aluminium profiles in accordance with EPD declaration number: EPD-SCH-20230392-CBA1-EN.

| SPECIFICATION OF THE SYSTEM LIMITS (X = INCLUDED IN LIFE CYCLE ASSESSMENT; MND = MODULE NOT DECLARED) | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Production stage | | | Construction process stage | | Use stage | | | | | | | End of life stage | | | | Benefits and loads beyond the system boundary |
| Raw material supply | Transport | Manufacturing | Transport | Construction installation | Use | Maintenance | Repair | Replacement | Refurbishment | Operational energy use | Operational water use | Deconstruction/ demolition | Transport | Waste processing | Disposal | Reuse, 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 | MND | MND | MND | MND | X | MND | X | X | X | X | X |

**RESULT OF THE LIFE CYCLE ASSESSMENT - ENVIRONMENTAL IMPACT in accordance with EN 15804+A2:**
**Schüco AWS 75.SI W x H 1230 mm x 1480 mm with Schüco Ultra Low Carbon Aluminium profile**
**EDP declaration number: IBU-SCH-SCH 2402001-DE24007616-IPUG003-EN**

| Parameters | Unit | A1-A3 | A4 | A5 | B6 | C1 | C2 | C3 | C4 | D |
|---|---|---|---|---|---|---|---|---|---|---|
| GWP - total | kg $CO_2$ eq. | 1.46E+02 | 8.49E-01 | 2.47E-01 | 0 | 2.47E-01 | 2.79E-01 | 2.36E+01 | 1.07E-02 | -3.76E+01 |
| GWP - fossil | kg $CO_2$ eq. | 1.45E+02 | 8.39E-01 | 2.45E-01 | 0 | 2.45E-01 | 2.76E-01 | 2.36E+01 | 1.07E-02 | -3.75E+01 |
| GWP - biogenic | kg $CO_2$ eq. | 5.46E-01 | 1.92E-03 | 2.13E-03 | 0 | 2.13E-03 | 6.31E-04 | 1.53E-03 | 7.56E-06 | -1.09E-01 |
| GWP - luluc | kg $CO_2$ eq. | 1.24E-01 | 7.86E-03 | 2.67E-05 | 0 | 2.67E-05 | 2.58E-03 | 1.78E-04 | 3.37E-05 | -8.64E-03 |
| ODP | kg CFC11 eq. | 6.45E-10 | 1.10E-13 | 4.53E-12 | 0 | 4.53E-12 | 3.63E-14 | 2.55E-12 | 2.76E-14 | -2.82E-10 |
| AP | Mole of $H^+$ eq. | 5.75E-01 | 8.35E-04 | 5.24E-04 | 0 | 5.24E-04 | 2.76E-04 | 2.01E-02 | 7.70E-05 | -1.33E-01 |
| EP - freshwater | kg P eq. | 1.96E-04 | 3.10E-06 | 9.15E-07 | 0 | 9.15E-07 | 1.02E-06 | 1.06E-06 | 2.19E-08 | -3.21E-05 |
| EP - marine | kg N eq. | 1.66E-01 | 2.35E-04 | 1.25E-04 | 0 | 1.25E-04 | 7.84E-05 | 9.98E-03 | 1.99E-05 | -2.00E-02 |
| EP- terrestrial | Mole N eq. | 1.92E+00 | 2.98E-03 | 1.31E-03 | 0 | 1.31E-03 | 9.88E-04 | 1.13E-01 | 2.19E-04 | -2.17E-01 |
| POCP | kg NMVOC eq. | 4.51E-01 | 6.97E-04 | 3.34E-04 | 0 | 3.34E-04 | 2.30E-04 | 2.56E-02 | 6.00E-05 | -6.17E-02 |
| ADPE | kg Sb eq. | 8.00E-04 | 5.63E-08 | 3.79E-08 | 0 | 3.79E-08 | 1.85E-08 | 2.48E-08 | 5.02E-10 | -7.61E-04 |
| ADPF | MJ | 2.35E+03 | 1.16E+01 | 5.16E+00 | 0 | 5.16E+00 | 3.80E+00 | 8.37E+00 | 1.44E-01 | -5.65E+02 |
| WDP | $m^3$ world equiv. deprivet | 7.51E+00 | 1.03E-02 | 5.47E-02 | 0 | 5.47E-02 | 3.37E-03 | 2.59E+00 | 1.19E-03 | -3.01E+00 |

**RESULT OF THE LIFE CYCLE ASSEMENT - INDICATORS DESCRIBING RESUOURCE USE in accordance with EN 15804+A2:**
**Schüco AWS 75.SI W x H 1230 mm x 1480 mm with Schüco Ultra Low Carbon Aluminium profile**
**EDP declaration number: IBU-SCH-SCH 2402001-DE24007616-IPUG003-EN**

| Indicator | Unit | A1-A3 | A4 | A5 | B6 | C1 | C2 | C3 | C4 | D |
|---|---|---|---|---|---|---|---|---|---|---|
| PERE | MJ | 4.63E+02 | 8.42E-01 | 3.09E+00 | 0 | 3.09E+00 | 2.77E-01 | 1.52E+00 | 2.36E-02 | -2.30E+02 |
| PERM | MJ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| PERT | MJ | 4.63E+02 | 8.42E-01 | 3.09E+00 | 0 | 3.09E+00 | 2.77E-01 | 1.52E+00 | 2.36E-02 | -2.30E+02 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| PENRE | MJ | 2.06E+03 | 1.16E+01 | 5.16E+00 | 0 | 5.16E+00 | 3.81E+00 | 3.01E+02 | 1.45E-01 | -5.66E+02 |
| PENRM | MJ | 2.92E+02 | 0 | 0 | 0 | 0 | 0 | -2.92E+02 | 0 | 0 |
| PENRT | MJ | 2.35E+03 | 1.16E+01 | 5.16E+00 | 0 | 5.16E+00 | 3.81E+00 | 8.37E+00 | 1.45E-01 | -5.66E+02 |
| SM | kg | 1.60E+01 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4.64E+00 |
| RSF | MJ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| NRSF | MJ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| FW | $m^3$ | 7.67E-01 | 9.22E-04 | 2.49E-03 | 0 | 2.49E-03 | 3.03E-04 | 6.11E-02 | 3.65E-05 | -3.78E-01 |

**RESULT OF THE LIFE CYCLE ASSEMENT OUTPUT STREAMS AND WASTE CATEGORIES in accordance with EN 15804+A2:**
**Schüco AWS 75.SI W x H 1230 mm x 1480 mm with Schüco Ultra Low Carbon Aluminium profile**
**EDP declaration number: IBU-SCH-SCH 2402001-DE24007616-IPUG003-EN**

| Parameters | Unit | A1-A3 | A4 | A5 | B6 | C1 | C2 | C3 | C4 | D |
|---|---|---|---|---|---|---|---|---|---|---|
| HWD | kg | 9.07E-05 | 3.59E-11 | 1.13E-12 | 0 | 1.13E-12 | 1.18E-11 | 7.78E-10 | 3.14E-12 | -2.41E-07 |
| NHWD | kg | 1.78E+01 | 1.77E-03 | 3.78E-03 | 0 | 3.78E-03 | 5.81E-04 | 9.68E-01 | 7.23E-01 | -7.81E+00 |
| RWD | kg | 8.92E-02 | 2.17E-05 | 8.21E-04 | 0 | 8.21E-04 | 7.14E-06 | 2.95E-04 | 1.65E-06 | -5.45E-02 |
| CRU | kg | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| MFR | kg | 0 | 0 | 0 | 0 | 0 | 0 | 6.42E+01 | 0 | 0 |
| MER | kg | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| EEE | MJ | 0 | 0 | 0 | 0 | 0 | 0 | 3.83E+01 | 0 | 0 |
| EET | MJ | 0 | 0 | 0 | 0 | 0 | 0 | 6.93E+01 | 0 | 0 |

**RESULT OF THE LIFE CYCLE ASSEMENT - additional impact categories in accordance with EN 15804+A2-optional:**
**Schüco AWS 75.SI W x H 1230 mm x 1480 mm with Schüco Ultra Low Carbon Aluminium profile**
**EDP declaration number: IBU-SCH-SCH 2402001-DE24007616-IPUG003-EN**

| Indicator | Unit | A1-A3 | A4 | A5 | B6 | C1 | C2 | C3 | C4 | D |
|---|---|---|---|---|---|---|---|---|---|---|
| PM | Disease incidences | 5.30E-06 | 6.42E-09 | 4.41E-09 | 0 | 4.41E-09 | 2.10E-09 | 6.53E-08 | 9.47E-10 | -2.02E-06 |
| IR | kBq U235 eq. | 1.58E+01 | 3.24E-03 | 1.37E-01 | 0 | 1.37E-01 | 1.06E-03 | 4.51E-02 | 1.91E-04 | -1.05E+01 |
| ETF-fw | CTUe | 2.44E+03 | 8.28E+00 | 1.43E+00 | 0 | 1.43E+00 | 2.72E+00 | 3.06E+00 | 1.05E-01 | -1.34E+02 |
| HTP-c | CTUh | 6.19E-07 | 1.68E-10 | 7.60E-11 | 0 | 7.60E-11 | 5.52E-11 | 1.98E-10 | 1.21E-11 | -6.48E-09 |
| HTP-nc | CTUh | 1.87E-06 | 7.48E-09 | 1.21E-09 | 0 | 1.21E-09 | 2.46E-09 | 9.12E-09 | 1.28E-09 | 6.27E-07 |
| SQP | SQP | 2.01E+02 | 4.83E+00 | 2.03E+00 | 0 | 2.03E+00 | 1.59E+00 | 1.72E+00 | 3.51E-02 | -4.28E+01 |

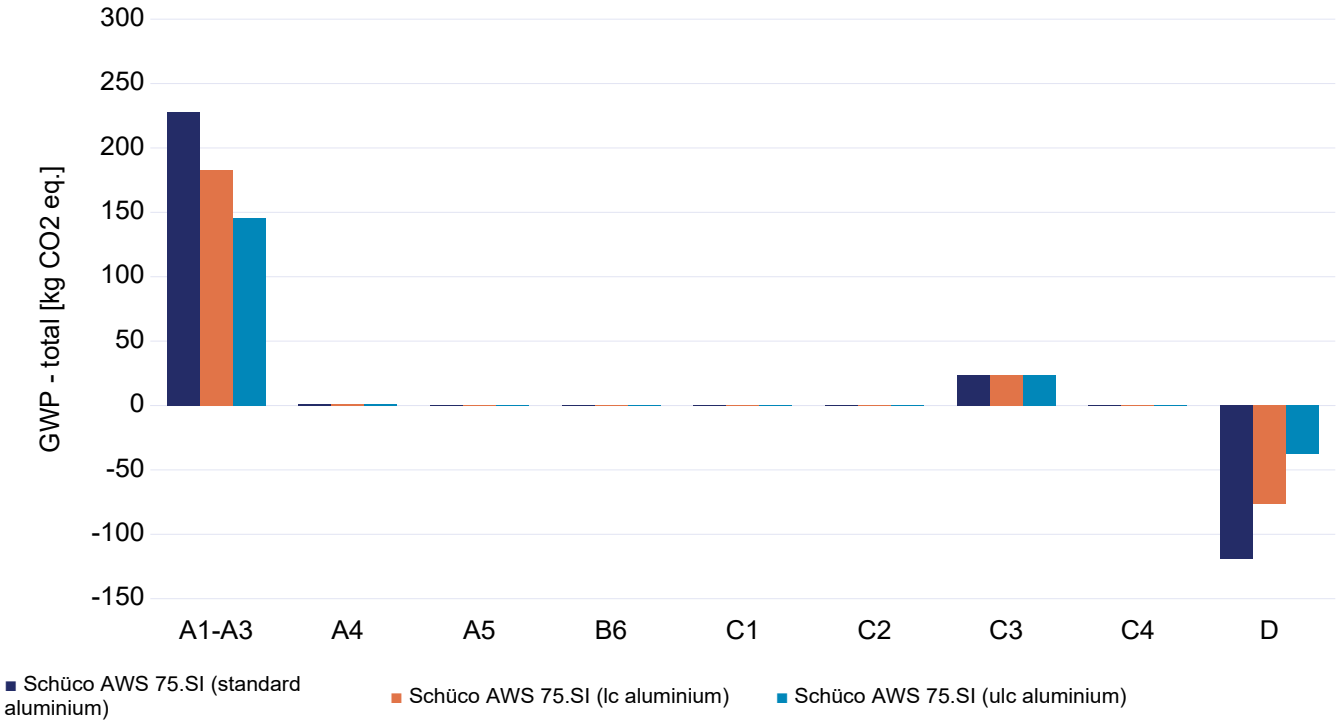
# 6. LCA: Interperetion

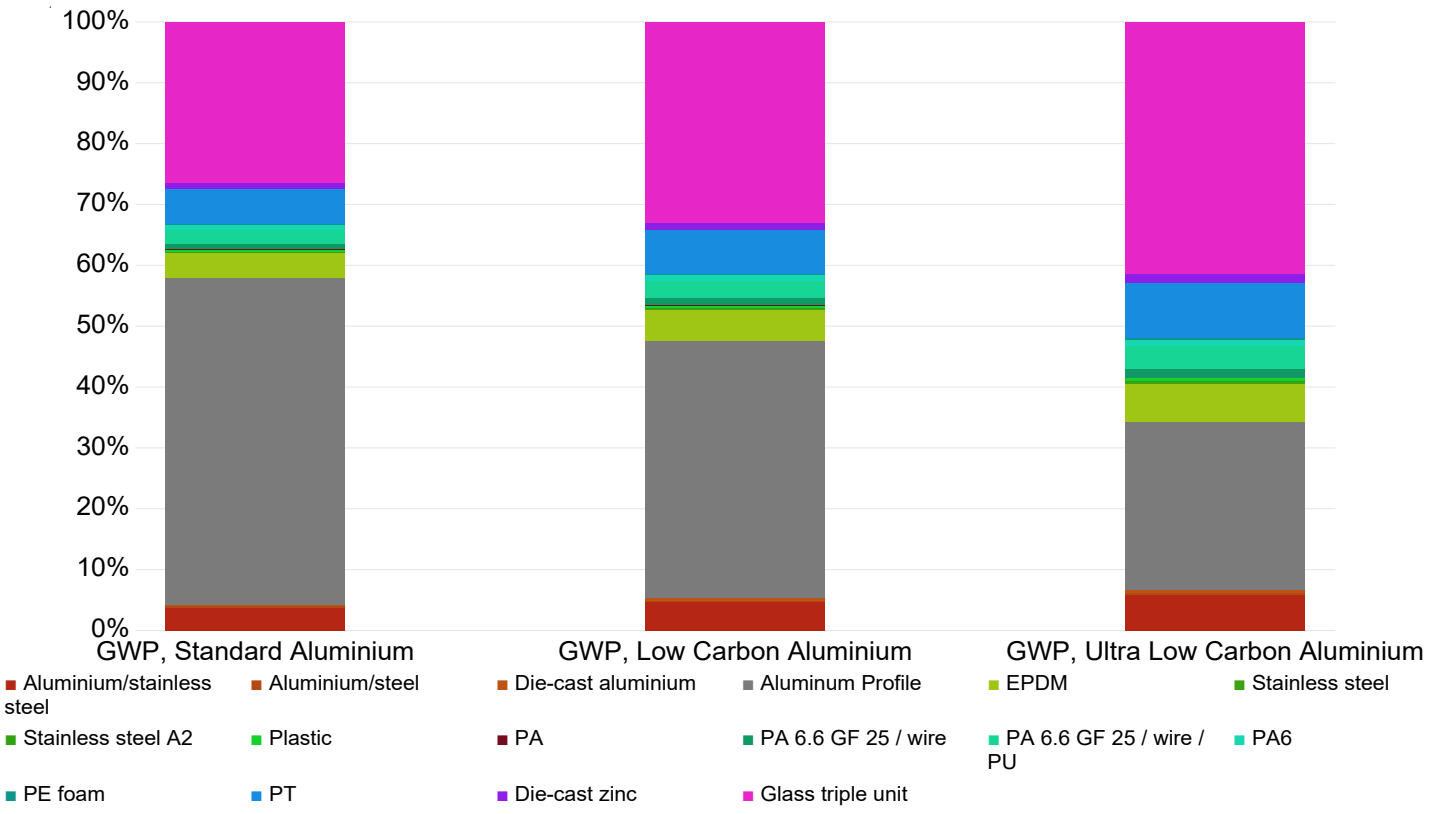
The production stage (modules A1-A3) dominates the results of the life cycle assessment of the product system. Within the production stage, the raw material supply is considered most important. In typical product configurations, the supply chain of aluminium profiles and glazing dominate the results of the production stage.

In case of the use of electrical components, the use stage (module B6) can contribute to a relevant or even significant share on the results of the life cycle assessment.

Modules C3 and C4 have a minor influence on the results of the life cycle assessment as most of the components are recyclable.

Potential benefits declared in module D are mainly related to the use of aluminium that can be recycled and used in other product systems. A detailed interpretation of the LAC-results can be provided by Schüco upon request.






# 7. Evidence

### 7.1 Flame smoke toxicity

Aluminium window, door and facade systems are composed of up to 97-98% non-flammable materials. Proof of flame smoke toxicity is therfore not relevant.

### 7.2 Leaching

Aluminium window, door and facade systems are composed of up to 99% glass and hard profile surfaces. Proof of leaching is therfore not relevant.

# 8. Reference works


**IBU 2022**
IBU 2022, Allgemeine EPD-Programmanleitung des Institut Bauen und Umwelt e.V. (IBU). Version 2.1, Institut Bauen und Umwelt e.V., Berlin

**EN ISO 14025**
DIN EN ISO 14025:2011-10, Environmental labels and declarations - Type III environmental declarations - Principles and procedures

**EN 15804**
EN 15804:2012+A2:2019, Sustainability of construction works - Environmental product declarations - Core rules for the product category of construction products

**Product category rules for construction products Part A**
Product category rules for building-related products and services, Part A: Calculation rules for the life cycle assessment and requirements of the background report, Version 1.4. Berlin: Institut Bauen und Umwelt e.V. (Hrsg.), 2024

**Product category rules for construction products Part B**
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**Regulation (EU) No. 305/2011**
Regulation (EU) No 305/2011 of the European Parliament and of the Council of 9 March 2011 laying down harmonised conditions for the marketing of construction products and repealing Council Directive 89/106/EEC (CPR)

**BNB**
BMVBS (Hrsg.), Nutzungsdauern von Bauteilen für Lebenszyklusanalysen nach Bewertungssystem Nachhaltiges Bauen (BNB), Version 02/2017, http://www.nachhaltigesbauen.de/baustoff-undgebaeudedaten/nutzungsdauern-von-bauteilen.html

**LCA-Tool and MLC database**
LCA-Tool number IBU-SCH-SCH-2402001-DE24 based on LCA FE software and MLC databases (GaBi) developed by Sphera. Database Version CUP 2023.2. Sphera Solutions GmbH, https://lcadatabase.sphera.com/, 2023

**SchüCal**
Calculation software for processing quotations and orders as well as for job planning for Schüco window, door, façade and conservatory systems, Schüco Digital GmbH

**EN 14351**
DIN EN 14351-1: 2016-12, Windows and doors – Product standard Performance characteristics – Part 1: Windows and external pedestrian doorsets without resistance to fire and/or smoke leakage characteristics; German version of EN 14351-1:2006+A1:2010

**ISO 14001**
ISO 14001:2015 Environmental management systems. Requirements with guidance for use

**ISO 9001**
ISO 9001:2015 Quality management systems – Requirements

**EN 410**
DIN EN 410:2011-04, Glass in building - Determination of luminous and solar characteristics of glazing; German version of EN 410:2011

**EN 673**
DIN EN 673:2011-04, Glass in building – Determination of thermal transmittance (U value) – Calculation method; German version of EN 673:2011

**EN ISO 10077-1 2010-05**
DIN EN ISO 10077-1:2020-10, Thermal performance of windows, doors and shutters – Calculation of thermal transmittance – Part 1: General (ISO 10077-1:2017 + Cor. 2020-02); German version of EN ISO 10077-1:2017

**EN ISO 10077-2: 2018-01**
DIN EN ISO 10077-2:2018-01, Thermal performance of windows, doors and shutters – Calculation of thermal transmittance –Part 2: Numerical method for frames (ISO 10077-2:2017); German version of EN ISO 10077-2:2017

**EN ISO 10140**
DIN EN ISO 10140-1:2021-09, Acoustics – Laboratory measurement of sound insulation of building elements – Part 1: Application rules for specific products (ISO 10140- 1:2021); German version of EN ISO 10140-1:2021

**EN ISO 717**
DIN EN ISO 717-1:2021-05, Acoustics – Rating of sound insulation in buildings and of building elements – Part 1: Airborne sound insulation (ISO 717-1:2013); German version of EN ISO 717-1:2020

**EN 12207**
DIN EN 12207:2017-03, Windows and doors - Air permeability - Classification; German version of EN 12207:2016

**EN 12208**
DIN EN 12208:2000-06, Windows and doors – Watertightness – Classification; German version of EN 12208:1999

**EN 12210**
DIN EN 12210:2016-09, Windows and doors – Resistance to wind load – Classification Fenster und Türen (includes Corrigendum AC:2002); German version of EN 12210:2016

**EN 947**
DIN EN 947:1999-05, Hinged or pivoted doors – Determination of the resistance to vertical load; German version of EN 947:1998

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# Annex 1. LCA: Results - System without glass

The results of the impact assessment indicators, resource use, waste and other output streams are presented below in relation to the Schüco AWS 75.SI with specific dimensions of 1230 mm x 1480 mm, execulding glass. For the use of conversion factors defined in 3.1 the frame proportion needs to be considered. The results are evaluated using characterisation factors in accordance with EF 3.1.

**Acronyms:**

**ENVIRONMENTAL IMPACT INDICATORS:**
GWP = Global Warming Potential; ODP = Ozone Depletion Potential; AP = Acidification potential; EP = Eutrophication Potential; POCP = Photochemical Oxidant Creation Potential; ADPE = Abiotic Depletion Potential - Elements (non-fossil fuels) (ADP- minerals and metals); ADPF = Abiotic Depletion Potential - Fossil Fuels (ADP-fossil resources); WDP = Water Depletion Potential (user)

**INDICATORS DESCRIBING RESOURCE USE:**
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 = Net use of fresh water

**OUTPUT STREAMS AND WASTE CATEGORIES:**
HWD = Hazardous Waste Disposed; NHWD = Non-Hazardous Waste Disposed; RWD = Radioactive Waste Disposed; CRU = Components for Reuse; MFR = Materials for Recycling; MER = Materials for Energy Recovery; EEE = Exported Energy - electric; EET = Exported Energy - thermic

**ADDITONAL IMPACT CATEGORIES**
PM = Particulate Matter, disease incidence; IR = Ionising Radiation, potential human exposure efficiency relative to U235; ETP-fw = Ecotoxicity Potential, freshwater; HTP-c = Human Toxicity Potential, cancer; HTP-nc = Human Toxicity Potential, non-cancer; SQP = Soil Quality Potential Index

**Restriction notes:**

Restriction note 1 - applies to the indicator "Potential human exposure efficiency relative to U235".

This impact category primarily deals with the possible effects of low-dose ionising 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 ionising radiation from the soil, from radon and from some construction materials is also not measured by this indicator.

Restriction note 2 - applies to the indicators "Abiotic Depletion Potential - Elements (non-fossil fuels)", "Abiotic Depletion Potential - Fossil Fuels", "Water Depletion Potential (user)", "Ecotoxicity Potential, freshwater", "Human Toxicity Potential, cancer", "Human Toxicity Potential, non-cancer", "Soil Quality Potential Index".

The results of these environmental impact indicators must be used with caution, as the degree of uncertainty for these results is high or there is only limited experience with the indicator.

# Annex 1.1 LCA: Results - System without glass - Use of Schüco Standard Aluminium profile

The results relate to the system configuration described in chapter 2.1, excluding glass, with the use of Schüco Standard Aluminium profiles in accordance with EPD declaration number: EPD-SCH-20230390-CBA1-EN.

| SPECIFICATION OF THE SYSTEM LIMITS (X = INCLUDED IN LIFE CYCLE ASSESSMENT; MND = MODULE NOT DECLARED) | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Production stage | | | Construction process stage | | Use stage | | | | | | | End of life stage | | | | Benefits and loads beyond the system boundary |
| Raw material supply | Transport | Manufacturing | Transport | Construction installation | Use | Maintenance | Repair | Replacement | Refurbishment | Operational energy use | Operational water use | Deconstruction/ demolition | Transport | Waste processing | Disposal | Reuse, 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 | MND | MND | MND | MND | X | MND | X | X | X | X | X |

**RESULT OF THE LIFE CYCLE ASSESSMENT - ENVIRONMENTAL IMPACT in accordance with EN 15804+A2:**
**Schüco AWS 75.SI W x H 1230 mm x 1480 mm with Schüco Standard Aluminium profile**

| Parameters | Unit | A1-A3 | A4 | A5 | B6 | C1 | C2 | C3 | C4 | D |
|---|---|---|---|---|---|---|---|---|---|---|
| GWP - total | kg $CO_2$ eq. | 1.68E+02 | 3.39E-01 | 9.89E-02 | 0 | 9.89E-02 | 1.11E-01 | 2.36E+01 | 1.07E-02 | -1.19E+02 |
| GWP - fossil | kg $CO_2$ eq. | 1.67E+02 | 3.35E-01 | 9.80E-02 | 0 | 9.80E-02 | 1.10E-01 | 2.36E+01 | 1.07E-02 | -1.19E+02 |
| GWP - biogenic | kg $CO_2$ eq. | 6.33E-01 | 7.67E-04 | 8.52E-04 | 0 | 8.52E-04 | 2.52E-04 | 1.53E-03 | 7.56E-06 | -3.68E-01 |
| GWP - luluc | kg $CO_2$ eq. | 1.19E-01 | 3.14E-03 | 1.07E-05 | 0 | 1.07E-05 | 1.03E-03 | 1.78E-04 | 3.37E-05 | -2.48E-02 |
| ODP | kg CFC11 eq. | 1.22E-09 | 4.41E-14 | 1.81E-12 | 0 | 1.81E-12 | 1.45E-14 | 2.55E-12 | 2.76E-14 | -9.60E-10 |
| AP | Mole of $H^+$ eq. | 5.79E-01 | 3.34E-04 | 2.09E-04 | 0 | 2.09E-04 | 1.10E-04 | 2.01E-02 | 7.70E-05 | -4.54E-01 |
| EP - freshwater | kg P eq. | 1.83E-04 | 1.24E-06 | 3.66E-07 | 0 | 3.66E-07 | 4.07E-07 | 1.06E-06 | 2.19E-08 | -7.35E-05 |
| EP - marine | kg N eq. | 9.68E-02 | 9.41E-05 | 5.01E-05 | 0 | 5.01E-05 | 3.13E-05 | 9.98E-03 | 1.99E-05 | -6.55E-02 |
| EP- terrestrial | Mole N eq. | 1.04E+00 | 1.19E-03 | 5.23E-04 | 0 | 5.23E-04 | 3.95E-04 | 1.13E-01 | 2.19E-04 | -7.13E-01 |
| POCP | kg NMVOC eq. | 2.97E-01 | 2.78E-04 | 1.34E-04 | 0 | 1.34E-04 | 9.18E-05 | 2.56E-02 | 6.00E-05 | -2.03E-01 |
| ADPE | kg Sb eq. | 8.20E-04 | 2.25E-08 | 1.52E-08 | 0 | 1.52E-08 | 7.39E-09 | 2.48E-08 | 5.02E-10 | -7.84E-04 |
| ADPF | MJ | 2.77E+03 | 4.62E+00 | 2.06E+00 | 0 | 2.06E+00 | 1.52E+00 | 8.37E+00 | 1.44E-01 | -1.75E+03 |
| WDP | $m^3$ world equiv. deprivet | 1.07E+01 | 4.10E-03 | 2.18E-02 | 0 | 2.18E-02 | 1.35E-03 | 2.59E+00 | 1.19E-03 | -6.60E+00 |

**RESULT OF THE LIFE CYCLE ASSEMENT - INDICATORS DESCRIBING RESUOURCE USE in accordance with EN 15804+A2:**
**Schüco AWS 75.SI W x H 1230 mm x 1480 mm with Schüco Standard Aluminium profile**

| Indicator | Unit | A1-A3 | A4 | A5 | B6 | C1 | C2 | C3 | C4 | D |
|---|---|---|---|---|---|---|---|---|---|---|
| PERE | MJ | 9.79E+02 | 3.36E-01 | 1.23E+00 | 0 | 1.23E+00 | 1.10E-01 | 1.52E+00 | 2.36E-02 | -8.02E+02 |
| PERM | MJ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| PERT | MJ | 9.79E+02 | 3.36E-01 | 1.23E+00 | 0 | 1.23E+00 | 1.10E-01 | 1.52E+00 | 2.36E-02 | -8.02E+02 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| PENRE | MJ | 2.48E+03 | 4.64E+00 | 2.06E+00 | 0 | 2.06E+00 | 1.52E+00 | 3.01E+02 | 1.45E-01 | -1.75E+03 |
| PENRM | MJ | 2.92E+02 | 0 | 0 | 0 | 0 | 0 | -2.92E+02 | 0 | 0 |
| PENRT | MJ | 2.77E+03 | 4.64E+00 | 2.06E+00 | 0 | 2.06E+00 | 1.52E+00 | 8.37E+00 | 1.45E-01 | -1.75E+03 |
| SM | kg | 3.71E+00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1.77E+01 |
| RSF | MJ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| NRSF | MJ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| FW | $m^3$ | 1.64E+00 | 3.68E-04 | 9.95E-04 | 0 | 9.95E-04 | 1.21E-04 | 6.11E-02 | 3.65E-05 | -1.37E+00 |

**RESULT OF THE LIFE CYCLE ASSEMENT OUTPUT STREAMS AND WASTE CATEGORIES in accordance with EN 15804+A2: Schüco AWS 75.SI W x H 1230 mm x 1480 mm with Schüco Standard Aluminium profile**

| Parameters | Unit | A1-A3 | A4 | A5 | B6 | C1 | C2 | C3 | C4 | D |
|---|---|---|---|---|---|---|---|---|---|---|
| HWD | kg | 9.14E-05 | 1.44E-11 | 4.51E-13 | 0 | 4.51E-13 | 4.72E-12 | 7.78E-10 | 3.14E-12 | -9.93E-07 |
| NHWD | kg | 3.72E+01 | 7.07E-04 | 1.51E-03 | 0 | 1.51E-03 | 2.32E-04 | 9.68E-01 | 7.23E-01 | -3.24E+01 |
| RWD | kg | 2.19E-01 | 8.68E-06 | 3.28E-04 | 0 | 3.28E-04 | 2.85E-06 | 2.95E-04 | 1.65E-06 | -1.89E-01 |
| CRU | kg | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| MFR | kg | 0 | 0 | 0 | 0 | 0 | 0 | 1.86E+01 | 0 | 0 |
| MER | kg | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| EEE | MJ | 0 | 0 | 0 | 0 | 0 | 0 | 3.83E+01 | 0 | 0 |
| EET | MJ | 0 | 0 | 0 | 0 | 0 | 0 | 6.93E+01 | 0 | 0 |

**RESULT OF THE LIFE CYCLE ASSEMENT - additional impact categories in accordance with EN 15804+A2-optional: Schüco AWS 75.SI W x H 1230 mm x 1480 mm with Schüco Standard Aluminium profile**

| Indicator | Unit | A1-A3 | A4 | A5 | B6 | C1 | C2 | C3 | C4 | D |
|---|---|---|---|---|---|---|---|---|---|---|
| PM | Disease incidences | 8.41E-06 | 2.56E-09 | 1.76E-09 | 0 | 1.76E-09 | 8.37E-10 | 6.53E-08 | 9.47E-10 | -7.18E-06 |
| IR | kBq U235 eq. | 4.26E+01 | 1.29E-03 | 5.46E-02 | 0 | 5.46E-02 | 4.25E-04 | 4.51E-02 | 1.91E-04 | -3.79E+01 |
| ETF-fw | CTUe | 7.93E+02 | 3.31E+00 | 5.73E-01 | 0 | 5.73E-01 | 1.09E+00 | 3.06E+00 | 1.05E-01 | -4.07E+02 |
| HTP-c | CTUh | 6.35E-07 | 6.72E-11 | 3.03E-11 | 0 | 3.03E-11 | 2.21E-11 | 1.98E-10 | 1.21E-11 | -2.85E-08 |
| HTP-nc | CTUh | 2.04E-06 | 2.99E-09 | 4.84E-10 | 0 | 4.84E-10 | 9.82E-10 | 9.12E-09 | 1.28E-09 | 1.59E-07 |
| SQP | SQP | 1.79E+02 | 1.93E+00 | 8.09E-01 | 0 | 8.09E-01 | 6.34E-01 | 1.72E+00 | 3.51E-02 | -7.65E+01 |

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# Annex 1.2 LCA: Results - System without glass - Use of Schüco Low Carbon Aluminium profile

The results relate to the system configuration described in chapter 2.1, excluding glass, with the use of Schüco Low Carbon Aluminium profiles in accordance with EPD declaration number: EPD-SCH-20230391-CBA1-EN.

| SPECIFICATION OF THE SYSTEM LIMITS (X = INCLUDED IN LIFE CYCLE ASSESSMENT; MND = MODULE NOT DECLARED) | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Production stage | | | Construction process stage | | Use stage | | | | | | | End of life stage | | | | Benefits and loads beyond the system boundary |
| Raw material supply | Transport | Manufacturing | Transport | Construction installation | Use | Maintenance | Repair | Replacement | Refurbishment | Operational energy use | Operational water use | Deconstruction/ demolition | Transport | Waste processing | Disposal | Reuse, 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 | MND | MND | MND | MND | X | MND | X | X | X | X | X |

**RESULT OF THE LIFE CYCLE ASSESSMENT - ENVIRONMENTAL IMPACT in accordance with EN 15804+A2:**
**Schüco AWS 75.SI W x H 1230 mm x 1480 mm with Schüco Low Carbon Aluminium profile**

| Parameters | Unit | A1-A3 | A4 | A5 | B6 | C1 | C2 | C3 | C4 | D |
|---|---|---|---|---|---|---|---|---|---|---|
| GWP - total | kg $CO_2$ eq. | 1.23E+02 | 3.39E-01 | 9.89E-02 | 0 | 9.89E-02 | 1.11E-01 | 2.36E+01 | 1.07E-02 | -7.67E+01 |
| GWP - fossil | kg $CO_2$ eq. | 1.22E+02 | 3.35E-01 | 9.80E-02 | 0 | 9.80E-02 | 1.10E-01 | 2.36E+01 | 1.07E-02 | -7.60E+01 |
| GWP - biogenic | kg $CO_2$ eq. | 1.06E+00 | 7.67E-04 | 8.52E-04 | 0 | 8.52E-04 | 2.52E-04 | 1.53E-03 | 7.56E-06 | -7.59E-01 |
| GWP - luluc | kg $CO_2$ eq. | 1.01E-01 | 3.14E-03 | 1.07E-05 | 0 | 1.07E-05 | 1.03E-03 | 1.78E-04 | 3.37E-05 | -1.32E-02 |
| ODP | kg CFC11 eq. | 5.74E-09 | 4.41E-14 | 1.81E-12 | 0 | 1.81E-12 | 1.45E-14 | 2.55E-12 | 2.76E-14 | -5.13E-09 |
| AP | Mole of $H^+$ eq. | 4.86E-01 | 3.34E-04 | 2.09E-04 | 0 | 2.09E-04 | 1.10E-04 | 2.01E-02 | 7.70E-05 | -3.62E-01 |
| EP - freshwater | kg P eq. | 4.13E-04 | 1.24E-06 | 3.66E-07 | 0 | 3.66E-07 | 4.07E-07 | 1.06E-06 | 2.19E-08 | -2.87E-04 |
| EP - marine | kg N eq. | 1.03E-01 | 9.41E-05 | 5.01E-05 | 0 | 5.01E-05 | 3.13E-05 | 9.98E-03 | 1.99E-05 | -7.07E-02 |
| EP- terrestrial | Mole N eq. | 1.11E+00 | 1.19E-03 | 5.23E-04 | 0 | 5.23E-04 | 3.95E-04 | 1.13E-01 | 2.19E-04 | -7.65E-01 |
| POCP | kg NMVOC eq. | 3.00E-01 | 2.78E-04 | 1.34E-04 | 0 | 1.34E-04 | 9.18E-05 | 2.56E-02 | 6.00E-05 | -2.03E-01 |
| ADPE | kg Sb eq. | 8.33E-04 | 2.25E-08 | 1.52E-08 | 0 | 1.52E-08 | 7.39E-09 | 2.48E-08 | 5.02E-10 | -7.96E-04 |
| ADPF | MJ | 1.74E+03 | 4.62E+00 | 2.06E+00 | 0 | 2.06E+00 | 1.52E+00 | 8.37E+00 | 1.44E-01 | -7.85E+02 |
| WDP | $m^3$ world equiv. deprivet | 1.08E+01 | 4.10E-03 | 2.18E-02 | 0 | 2.18E-02 | 1.35E-03 | 2.59E+00 | 1.19E-03 | -6.70E+00 |

**RESULT OF THE LIFE CYCLE ASSEMENT - INDICATORS DESCRIBING RESUOURCE USE in accordance with EN 15804+A2:**
**Schüco AWS 75.SI W x H 1230 mm x 1480 mm with Schüco Low Carbon Aluminium profile**

| Indicator | Unit | A1-A3 | A4 | A5 | B6 | C1 | C2 | C3 | C4 | D |
|---|---|---|---|---|---|---|---|---|---|---|
| PERE | MJ | 2.76E+03 | 3.36E-01 | 1.23E+00 | 0 | 1.23E+00 | 1.10E-01 | 1.52E+00 | 2.36E-02 | -2.44E+03 |
| PERM | MJ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| PERT | MJ | 2.76E+03 | 3.36E-01 | 1.23E+00 | 0 | 1.23E+00 | 1.10E-01 | 1.52E+00 | 2.36E-02 | -2.44E+03 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| PENRE | MJ | 1.45E+03 | 4.64E+00 | 2.06E+00 | 0 | 2.06E+00 | 1.52E+00 | 3.01E+02 | 1.45E-01 | -7.86E+02 |
| PENRM | MJ | 2.92E+02 | 0 | 0 | 0 | 0 | 0 | -2.92E+02 | 0 | 0 |
| PENRT | MJ | 1.75E+03 | 4.64E+00 | 2.06E+00 | 0 | 2.06E+00 | 1.52E+00 | 8.37E+00 | 1.45E-01 | -7.86E+02 |
| SM | kg | 6.62E+00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1.46E+01 |
| RSF | MJ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| NRSF | MJ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| FW | $m^3$ | 4.26E-01 | 3.68E-04 | 9.95E-04 | 0 | 9.95E-04 | 1.21E-04 | 6.11E-02 | 3.65E-05 | -2.36E-01 |

**RESULT OF THE LIFE CYCLE ASSEMENT OUTPUT STREAMS AND WASTE CATEGORIES in accordance with EN 15804+A2:**
**Schüco AWS 75.SI W x H 1230 mm x 1480 mm with Schüco Low Carbon Aluminium profile**

| Parameters | Unit | A1-A3 | A4 | A5 | B6 | C1 | C2 | C3 | C4 | D |
|---|---|---|---|---|---|---|---|---|---|---|
| HWD | kg | 9.06E-05 | 1.44E-11 | 4.51E-13 | 0 | 4.51E-13 | 4.72E-12 | 7.78E-10 | 3.14E-12 | -2.87E-07 |
| NHWD | kg | 4.06E+01 | 7.07E-04 | 1.51E-03 | 0 | 1.51E-03 | 2.32E-04 | 9.68E-01 | 7.23E-01 | -3.50E+01 |
| RWD | kg | 4.29E-02 | 8.68E-06 | 3.28E-04 | 0 | 3.28E-04 | 2.85E-06 | 2.95E-04 | 1.65E-06 | -2.47E-02 |
| CRU | kg | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| MFR | kg | 0 | 0 | 0 | 0 | 0 | 0 | 1.86E+01 | 0 | 0 |
| MER | kg | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| EEE | MJ | 0 | 0 | 0 | 0 | 0 | 0 | 3.83E+01 | 0 | 0 |
| EET | MJ | 0 | 0 | 0 | 0 | 0 | 0 | 6.93E+01 | 0 | 0 |

**RESULT OF THE LIFE CYCLE ASSEMENT - additional impact categories in accordance with EN 15804+A2-optional:**
**Schüco AWS 75.SI W x H 1230 mm x 1480 mm with Schüco Low Carbon Aluminium profile**

| Indicator | Unit | A1-A3 | A4 | A5 | B6 | C1 | C2 | C3 | C4 | D |
|---|---|---|---|---|---|---|---|---|---|---|
| PM | Disease incidences | 9.79E-06 | 2.56E-09 | 1.76E-09 | 0 | 1.76E-09 | 8.37E-10 | 6.53E-08 | 9.47E-10 | -8.33E-06 |
| IR | kBq U235 eq. | 6.50E+00 | 1.29E-03 | 5.46E-02 | 0 | 5.46E-02 | 4.25E-04 | 4.51E-02 | 1.91E-04 | -4.12E+00 |
| ETF-fw | CTUe | 7.85E+02 | 3.31E+00 | 5.73E-01 | 0 | 5.73E-01 | 1.09E+00 | 3.06E+00 | 1.05E-01 | -4.00E+02 |
| HTP-c | CTUh | 8.46E-07 | 6.72E-11 | 3.03E-11 | 0 | 3.03E-11 | 2.21E-11 | 1.98E-10 | 1.21E-11 | -2.23E-07 |
| HTP-nc | CTUh | 2.17E-06 | 2.99E-09 | 4.84E-10 | 0 | 4.84E-10 | 9.82E-10 | 9.12E-09 | 1.28E-09 | 3.58E-08 |
| SQP | SQP | 7.69E+02 | 1.93E+00 | 8.09E-01 | 0 | 8.09E-01 | 6.34E-01 | 1.72E+00 | 3.51E-02 | -6.25E+02 |

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# Annex 1.3 LCA: Results - System without glass - Use of Schüco Ultra Low Carbon Aluminium profile

The results relate to the system configuration described in chapter 2.1, excluding glass, with the use of Schüco Ultra Low Carbon Aluminium profiles in accordance with EPD declaration number: EPD-SCH-20230392-CBA1-EN.

| SPECIFICATION OF THE SYSTEM LIMITS (X = INCLUDED IN LIFE CYCLE ASSESSMENT; MND = MODULE NOT DECLARED) | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Production stage | | | Construction process stage | | Use stage | | | | | | | End of life stage | | | | Benefits and loads beyond the system boundary |
| Raw material supply | Transport | Manufacturing | Transport | Construction installation | Use | Maintenance | Repair | Replacement | Refurbishment | Operational energy use | Operational water use | Deconstruction/ demolition | Transport | Waste processing | Disposal | Reuse, 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 | MND | MND | MND | MND | X | MND | X | X | X | X | X |

**RESULT OF THE LIFE CYCLE ASSESSMENT - ENVIRONMENTAL IMPACT in accordance with EN 15804+A2:**
**Schüco AWS 75.SI W x H 1230 mm x 1480 mm with Schüco Ultra Low Carbon Aluminium profile**

| Parameters | Unit | A1-A3 | A4 | A5 | B6 | C1 | C2 | C3 | C4 | D |
|---|---|---|---|---|---|---|---|---|---|---|
| GWP - total | kg $CO_2$ eq. | 8.56E+01 | 3.39E-01 | 9.89E-02 | 0 | 9.89E-02 | 1.11E-01 | 2.36E+01 | 1.07E-02 | -3.76E+01 |
| GWP - fossil | kg $CO_2$ eq. | 8.51E+01 | 3.35E-01 | 9.80E-02 | 0 | 9.80E-02 | 1.10E-01 | 2.36E+01 | 1.07E-02 | -3.75E+01 |
| GWP - biogenic | kg $CO_2$ eq. | 3.72E-01 | 7.67E-04 | 8.52E-04 | 0 | 8.52E-04 | 2.52E-04 | 1.53E-03 | 7.56E-06 | -1.09E-01 |
| GWP - luluc | kg $CO_2$ eq. | 9.68E-02 | 3.14E-03 | 1.07E-05 | 0 | 1.07E-05 | 1.03E-03 | 1.78E-04 | 3.37E-05 | -8.64E-03 |
| ODP | kg CFC11 eq. | 5.39E-10 | 4.41E-14 | 1.81E-12 | 0 | 1.81E-12 | 1.45E-14 | 2.55E-12 | 2.76E-14 | -2.82E-10 |
| AP | Mole of $H^+$ eq. | 2.58E-01 | 3.34E-04 | 2.09E-04 | 0 | 2.09E-04 | 1.10E-04 | 2.01E-02 | 7.70E-05 | -1.33E-01 |
| EP - freshwater | kg P eq. | 1.40E-04 | 1.24E-06 | 3.66E-07 | 0 | 3.66E-07 | 4.07E-07 | 1.06E-06 | 2.19E-08 | -3.21E-05 |
| EP - marine | kg N eq. | 5.15E-02 | 9.41E-05 | 5.01E-05 | 0 | 5.01E-05 | 3.13E-05 | 9.98E-03 | 1.99E-05 | -2.00E-02 |
| EP- terrestrial | Mole N eq. | 5.50E-01 | 1.19E-03 | 5.23E-04 | 0 | 5.23E-04 | 3.95E-04 | 1.13E-01 | 2.19E-04 | -2.17E-01 |
| POCP | kg NMVOC eq. | 1.56E-01 | 2.78E-04 | 1.34E-04 | 0 | 1.34E-04 | 9.18E-05 | 2.56E-02 | 6.00E-05 | -6.17E-02 |
| ADPE | kg Sb eq. | 7.97E-04 | 2.25E-08 | 1.52E-08 | 0 | 1.52E-08 | 7.39E-09 | 2.48E-08 | 5.02E-10 | -7.61E-04 |
| ADPF | MJ | 1.58E+03 | 4.62E+00 | 2.06E+00 | 0 | 2.06E+00 | 1.52E+00 | 8.37E+00 | 1.44E-01 | -5.65E+02 |
| WDP | $m^3$ world equiv. deprivet | 7.06E+00 | 4.10E-03 | 2.18E-02 | 0 | 2.18E-02 | 1.35E-03 | 2.59E+00 | 1.19E-03 | -3.01E+00 |

**RESULT OF THE LIFE CYCLE ASSEMENT - INDICATORS DESCRIBING RESUOURCE USE in accordance with EN 15804+A2:**
**Schüco AWS 75.SI W x H 1230 mm x 1480 mm with Schüco Ultra Low Carbon Aluminium profile**

| Indicator | Unit | A1-A3 | A4 | A5 | B6 | C1 | C2 | C3 | C4 | D |
|---|---|---|---|---|---|---|---|---|---|---|
| PERE | MJ | 4.06E+02 | 3.36E-01 | 1.23E+00 | 0 | 1.23E+00 | 1.10E-01 | 1.52E+00 | 2.36E-02 | -2.30E+02 |
| PERM | MJ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| PERT | MJ | 4.06E+02 | 3.36E-01 | 1.23E+00 | 0 | 1.23E+00 | 1.10E-01 | 1.52E+00 | 2.36E-02 | -2.30E+02 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| PENRE | MJ | 1.29E+03 | 4.64E+00 | 2.06E+00 | 0 | 2.06E+00 | 1.52E+00 | 3.01E+02 | 1.45E-01 | -5.66E+02 |
| PENRM | MJ | 2.92E+02 | 0 | 0 | 0 | 0 | 0 | -2.92E+02 | 0 | 0 |
| PENRT | MJ | 1.58E+03 | 4.64E+00 | 2.06E+00 | 0 | 2.06E+00 | 1.52E+00 | 8.37E+00 | 1.45E-01 | -5.66E+02 |
| SM | kg | 1.60E+01 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4.64E+00 |
| RSF | MJ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| NRSF | MJ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| FW | $m^3$ | 6.42E-01 | 3.68E-04 | 9.95E-04 | 0 | 9.95E-04 | 1.21E-04 | 6.11E-02 | 3.65E-05 | -3.78E-01 |

**RESULT OF THE LIFE CYCLE ASSEMENT OUTPUT STREAMS AND WASTE CATEGORIES in accordance with EN 15804+A2:**
**Schüco AWS 75.SI W x H 1230 mm x 1480 mm with Schüco Ultra Low Carbon Aluminium profile**

| Parameters | Unit | A1-A3 | A4 | A5 | B6 | C1 | C2 | C3 | C4 | D |
|---|---|---|---|---|---|---|---|---|---|---|
| HWD | kg | 9.06E-05 | 1.44E-11 | 4.51E-13 | 0 | 4.51E-13 | 4.72E-12 | 7.78E-10 | 3.14E-12 | -2.41E-07 |
| NHWD | kg | 1.27E+01 | 7.07E-04 | 1.51E-03 | 0 | 1.51E-03 | 2.32E-04 | 9.68E-01 | 7.23E-01 | -7.81E+00 |
| RWD | kg | 8.37E-02 | 8.68E-06 | 3.28E-04 | 0 | 3.28E-04 | 2.85E-06 | 2.95E-04 | 1.65E-06 | -5.45E-02 |
| CRU | kg | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| MFR | kg | 0 | 0 | 0 | 0 | 0 | 0 | 1.86E+01 | 0 | 0 |
| MER | kg | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| EEE | MJ | 0 | 0 | 0 | 0 | 0 | 0 | 3.83E+01 | 0 | 0 |
| EET | MJ | 0 | 0 | 0 | 0 | 0 | 0 | 6.93E+01 | 0 | 0 |

**RESULT OF THE LIFE CYCLE ASSEMENT - additional impact categories in accordance with EN 15804+A2-optional:**
**Schüco AWS 75.SI W x H 1230 mm x 1480 mm with Schüco Ultra Low Carbon Aluminium profile**

| Indicator | Unit | A1-A3 | A4 | A5 | B6 | C1 | C2 | C3 | C4 | D |
|---|---|---|---|---|---|---|---|---|---|---|
| PM | Disease incidences | 3.28E-06 | 2.56E-09 | 1.76E-09 | 0 | 1.76E-09 | 8.37E-10 | 6.53E-08 | 9.47E-10 | -2.02E-06 |
| IR | kBq U235 eq. | 1.52E+01 | 1.29E-03 | 5.46E-02 | 0 | 5.46E-02 | 4.25E-04 | 4.51E-02 | 1.91E-04 | -1.05E+01 |
| ETF-fw | CTUe | 5.15E+02 | 3.31E+00 | 5.73E-01 | 0 | 5.73E-01 | 1.09E+00 | 3.06E+00 | 1.05E-01 | -1.34E+02 |
| HTP-c | CTUh | 6.13E-07 | 6.72E-11 | 3.03E-11 | 0 | 3.03E-11 | 2.21E-11 | 1.98E-10 | 1.21E-11 | -6.48E-09 |
| HTP-nc | CTUh | 1.56E-06 | 2.99E-09 | 4.84E-10 | 0 | 4.84E-10 | 9.82E-10 | 9.12E-09 | 1.28E-09 | 6.27E-07 |
| SQP | SQP | 1.41E+02 | 1.93E+00 | 8.09E-01 | 0 | 8.09E-01 | 6.34E-01 | 1.72E+00 | 3.51E-02 | -4.28E+01 |