



YOUR EPD

ENVIRONMENTAL
PRODUCT
DECLARATION

Sapa AMBIAL Folding
door, 3-glass, coated



YOUR EPD

YOUR PRODUCT CARBON FOOTPRINT



(GWP > Global Warming Potential)

91% of the aluminium used in this project is CIRCAL



CIRCAL 75R = 2.3 kg CO2 per kg Aluminium

Hydro CIRCAL is a range of products made with recycled, post consumer scrap. Through the use of recycled content we reduce energy use drastically while still being able to offer high quality products. We can always guarantee a CO2 footprint below 2.3 kg CO2 per 1 kg Aluminium produced with Hydro CIRCAL.

Hydro is today the only producer in the world capable of supplying prime quality, end-of-life, recycled Aluminium

0% of the Aluminium used in this project is REDUXA*



REDUXA 4.0 = 4 kg CO2 per kg Aluminium

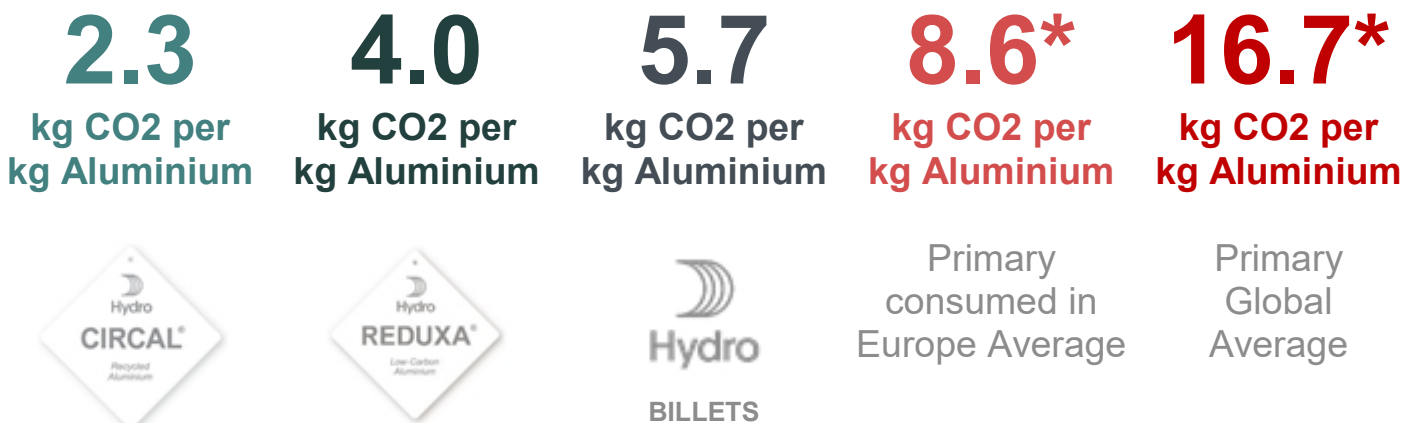
Hydro REDUXA is our series of low carbon aluminium. Through the use of renewable energy sources like hydro power we reduce the carbon footprint per kg aluminium to less than a fourth of the global average. The result is the world's lowest carbon aluminium to date



9% of the Aluminium used in this project is Hydro Primary Billets

Hydro Primary Billets = 5.7 kg CO2 per kg Aluminium

Aluminium CO2 Footprint by Origin



*8.6 = primary aluminium used in Europe (cradle to gate) - European Aluminium 2018 report

**Global average: 16.7 kgCO2e / kg (Source: IAI 2018 report based on 2015 data)

EPD YOUR PROJECT DETAILS

YOUR PRODUCT CARBON FOOTPRINT



(GWP > Global Warming Potential)



By using our solutions on this project, you reduce by:

| | | |
|----------------|-------------|--|
| -405.99 kg CO2 | -46% | The carbon footprint of your systems, compared to using primary Aluminium consumed in Europe |
| -956.06 kg CO2 | -66% | The carbon footprint of your systems, compared to using primary Aluminium global average |



DID YOU KNOW?

You can ask your sales expert to have this project exclusively in CIRCAL to reduce even more the carbon footprint of your building systems

If you decide to use exclusively CIRCAL on this project, you reduce by:

| | | |
|----------------|-------------|--|
| -427.83 kg CO2 | -48% | The carbon footprint of your systems, compared to using primary Aluminium consumed in Europe |
| -977.90 kg CO2 | -68% | The carbon footprint of your systems, compared to using primary Aluminium global average |

*Europe = 8.6 kg CO2 / kg Aluminium = primary Aluminium used in Europe (cradle to gate).

European Aluminium 2018 report

**Global average: 16.7 kgCO2e / kg (Source: IAI 2018 report based on 2015 data)

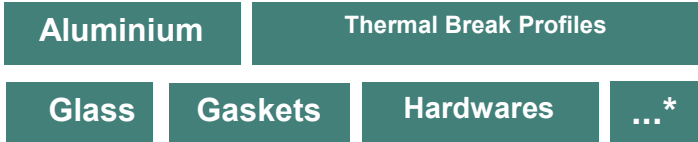
EPD >> HOW TO READ IT



Your EPD is generated by IBU (IBU - Institut Bauen und Umwelt e.V.), verified by an independent third party according to ISO 14025. The CEN standard EN 15804 serves as the core PCR

This EPD was automatically generated for your project

It includes all systems described including their components as well as the selected glazing, in the given dimensions



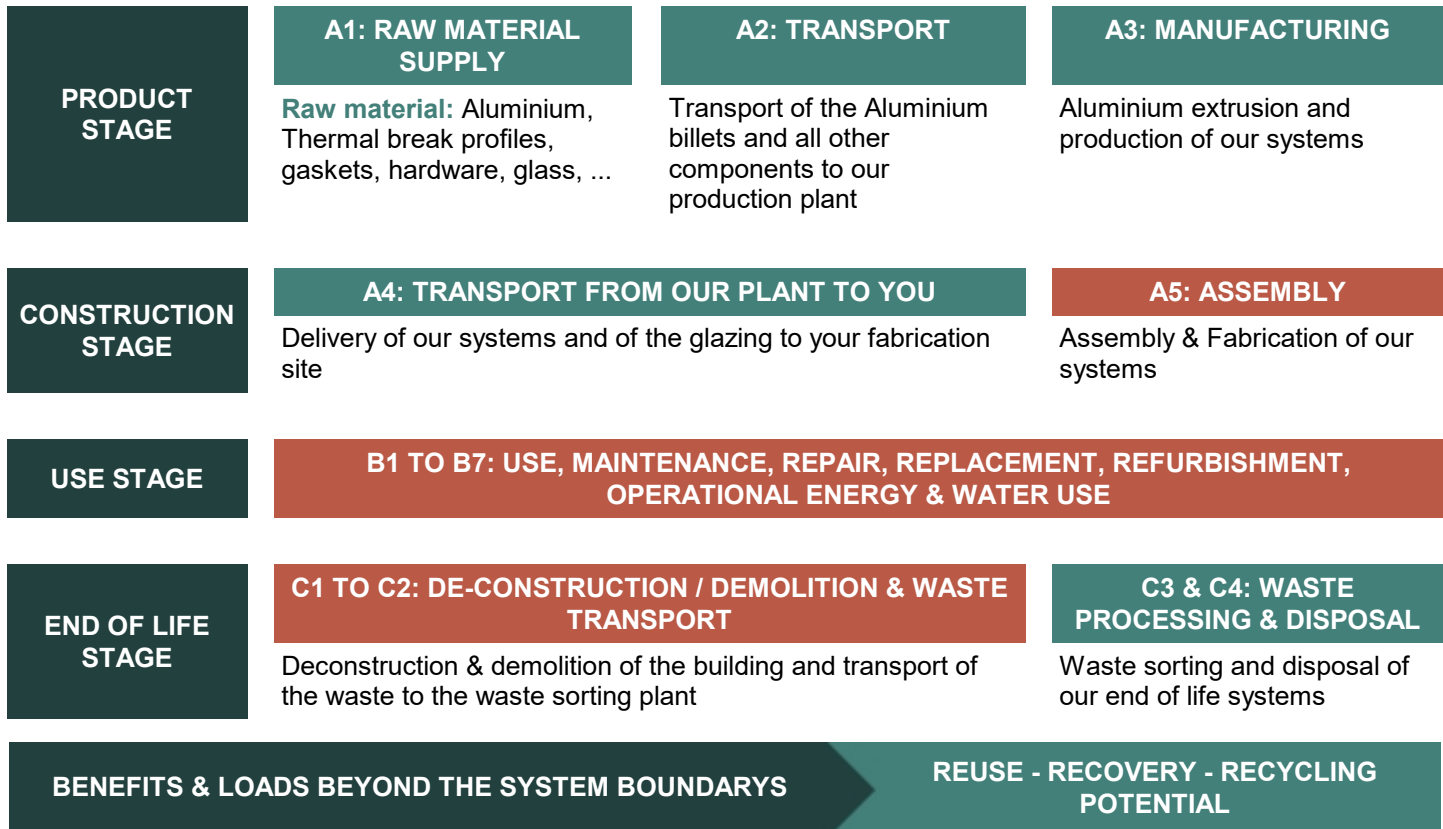
* All other components that you are ordering from Sapa

Your Project

Materials included in this EPD

All other building materials are excluded from this EPD

SCOPE OF YOUR EPD



Is included in your EPD



Is excluded from your EPD

Environmental product declaration

Summarized EPD



Declaration owner: Hydro Building Systems Germany GmbH
Construction project: EPD - Rapport
Publisher: Hydro Building Systems Sweden AB

Date of issue: 24/04/2023



The Summarized EPD includes the following listed products

| Declaration number | Declared product | Declared unit (mm) |
|--|-----------------------------------|--------------------|
| Sapa AMBIAL Folding door, 3-glass, coated | K.EPD_Rapport.4.5.2023.6.48.51 AM | 2,400 x 2,600 |

LCA: Results

The results of the impact assessment, resource use and waste and other output streams are shown below
The results are calculated from the values of the individual EPDs.

SPECIFICATION OF THE SYSTEM LIMITS (X = INCLUDED IN LIFE CYCLE ASSESSMENT, MND = MODULE NOT DECLARED)

| PRODUCT STAGE | | | CONSTRUCTION PROCESS STAGE | | USE STAGE | | | | | | | | END OF LIFE STAGE | | | | BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARYS |
|---------------------|-----------|---------------|-------------------------------------|----------|-----------|-------------|--------|---------------------------|-----------------------------|------------------------|-----------------------|----------------------------|-------------------|------------------|----------|------------------------------------|--|
| Raw material supply | Transport | Manufacturing | Transport from the gate to the site | Assembly | Use | Maintenance | Repair | Replacement ¹⁾ | Refurbishment ¹⁾ | 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 | MND | MND | MND | MND | MND | MND | MND | MND | MND | MND | X | X | X | |

RESULTS OF THE LIFE CYCLE ASSESSMENT ENVIRONMENTAL IMPACT:

| Parameter | Parameter | Unit | A1-A3 | A4 | C3 | C4 | D |
|-----------|---|--|-----------|--------|----------|----------|-----------|
| GWP | Global warming potential | [kg CO ₂ -Eq.] | 485.99 | 10.24 | 49.96 | 7.13E-03 | -94.48 |
| ODP | Depleting the stratospheric ozone layer | [kg CFC ₁₁ -Eq.] | 8.93E-06 | 0.00 | 5.98E-07 | 1.62E-15 | -3.45E-06 |
| AP | Acidification potential of soil and water | [kg SO ₂ -Eq.] | 3.02E00 | 0.03 | 5.82E-02 | 4.22E-05 | -4.28E-01 |
| EP | Eutrophication | [kg (PO ₄) ³⁻ -Eq.] | 2.74E-01 | 0.01 | 1.36E-02 | 5.84E-06 | -2.59E-02 |
| POCP | Forming potential for tropospheric ozone | [kg Ethen-Eq.] | -6.81E-02 | -0.01 | 2.81E-03 | 3.28E-06 | -3.24E-02 |
| ADPE | Potential for the abiotic degradation of non-fossil resources | [kg Sb-Eq.] | 8.91E-03 | 0.00 | 1.03E-04 | 2.74E-09 | -6.21E-03 |
| ADPF | Potential for the abiotic degradation of fossil fuels | [MJ] | 7,716.33 | 139.55 | 91.33 | 9.22E-02 | -1,010.66 |

RESULTS OF THE LIFE CYCLE ASSESSMENT RESOURCE ACCOUNT:

| Parameter | Parameter | Unit | A1-A3 | A4 | C3 | C4 | D |
|-----------|--|-------------------|----------|--------|----------|----------|-----------|
| PERE | Renewable primary energy as an energy source | [MJ] | 946.21 | 7.71 | 1.06E01 | 0.00E00 | -170.93 |
| PERM | Renewable primary energy to the material use | [MJ] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| PERT | Total renewable primary energy | [MJ] | 946.21 | 7.71 | 1.19E01 | 1.19E-02 | -368.35 |
| PENRE | Non-renewable primary energy as an energy source | [MJ] | 6,098.68 | 139.55 | 637.47 | 0.00E00 | -426.72 |
| PENRM | Non-renewable primary energy to the material use | [MJ] | 532.70 | 0.00 | -532.70 | 0.00 | 0.00 |
| PENRT | Total non-renewable primary energy | [MJ] | 6,632.99 | 139.55 | 104.77 | 9.57E-02 | -1,231.26 |
| SM | Use of secondary materials | [kg] | 95.95 | 0.00 | 0.00 | 0.00 | 0.00 |
| RSF | Renewable secondary fuels | [MJ] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| NRSF | Non-renewable secondary fuels | [MJ] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| FW | Use of freshwater resources | [m ³] | 2.02E00 | 0.01 | 1.26E-01 | 1.83E-05 | -8.19E-01 |

RESULTS OF LIFE CYCLE ASSESSMENT OUTPUT RIVERS AND WASTE CATEGORIES:

| Parameter | Parameter | Unit | A1-A3 | A4 | C3 | C4 | D |
|-----------|-----------------------------------|------|----------|------|----------|----------|-----------|
| HWD | Hazardous waste of landfill | [kg] | 5.61E-02 | 0.00 | 3.79E-01 | 1.65E-09 | 3.66E-02 |
| NHWD | Discarded non-hazardous waste | [kg] | 93.39 | 0.01 | 7.34E01 | 2.91E00 | -25.06 |
| RWD | Discarded radioactive waste | [kg] | 1.42E-01 | 0.00 | 7.53E-04 | 1.39E-06 | -6.06E-02 |
| CRU | Components for reuse | [kg] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| MFR | Materials for recycling | [kg] | 0.00 | 0.00 | 57.37 | 0.00 | 180.93 |
| MER | Materials for the energy recovery | [kg] | 0.00 | 0.00 | 1.66 | 0.00 | 0.00 |
| EEE | Exported electrical energy | [MJ] | 0.00 | 0.00 | 59.28 | 0.00 | 0.00 |
| EET | Exported thermal energy | [MJ] | 0.00 | 0.00 | 106.61 | 0.00 | 0.00 |

LCA: Scenarios and technical information

(according table chapter 4)

The following informations are basis for the declared modules and products in this summary EPD:

Transport to construction site (A4)

| Designation | Value | Unit |
|------------------------------------|---------|------------|
| Liters of fuel | | |
| Train (electric) | 0.01158 | l / 100 km |
| Plane (kerosine) | 0.42164 | l / 100 km |
| 40 t truck (Diesel) | 0.00165 | l / 100 km |
| 7,5 t truck (Diesel) | 0.00591 | l / 100 km |
| 22 t truck (Diesel) | 0.00231 | l / 100 km |
| Ship (heavy heating oil) | 0.00040 | l / 100 km |
| Transport distance | | |
| Train | 0.00 | km |
| Plane | 0.00 | km |
| 40 t truck | 0.00 | km |
| 7,5 t truck | 0.00 | km |
| 22 t truck | 500.00 | km |
| Ship | 0.00 | km |
| Utilisation (including empty runs) | | |
| Train | 51 | % |
| Plane | 61 | % |
| 40 t truck | 55 | % |
| 7,5 t truck | 40 | % |
| 22 t truck | 66 | % |
| Ship | 48 | % |
| Volume utilisation factor | 1 | - |

*) The transport distance indicates the easy distance from the place of manufacture to the construction site.

End of life cycle (C1-C4)

| Designation | Value | Unit |
|---------------------------------------|--------|------|
| Separately collected waste type | 192.24 | kg |
| Collected as mixed construction waste | 59.03 | kg |
| For reuse | 0.00 | kg |
| For recycling (D) | 231.89 | kg |
| For energy recovery (C3) | 17.30 | kg |
| For landfilling (C4) | 4.54 | kg |
| For thermal utilisation (C4) | 0.00 | kg |

Listing of the raw materials and the auxiliary materials

(according table chapter 2.5)

| Designation | Value | Unit |
|--------------------|--------|------|
| PA66 | 0.11 | kg |
| A1-50 | 0.15 | kg |
| PA6 GF30 | 5.77 | kg |
| EN AW-6005 | 4.09 | kg |
| X5CrNi18-10 | 2.01 | kg |
| Miscellaneous | 3.24 | kg |
| 100Cr6 | 4.07 | kg |
| EN AC-46100 | 2.33 | kg |
| POM | 0.34 | kg |
| TPV | 0.24 | kg |
| PP | 0.25 | kg |
| ASA | 0.05 | kg |
| PA6 | 0.17 | kg |
| EPDM | 8.25 | kg |
| CIRCAL 75 | 61.49 | kg |
| Pulverbeschichtung | 1.82 | kg |
| Float glass | 158.99 | kg |
| ABS | 0.34 | kg |
| Total weight | 253.73 | kg |