

ENVIRONMENTAL PRODUCT DECLARATION

in accordance with ISO 14025:2006 and EN 15804:2012+A2:2019

PLANET. IsoPro Db Aluminium Framed Glazed Door



RP PRODUCTS LTD

Declaration number: S-P-05543

Issued on 2022-05-09

Valid until 2027-05-08

An EPD should provide current information and may be updated if conditions change. The stated validity is therefore subject to the continued registration and publication at www.environdec.com



Programme: The International EPD® System

Programme operator: EPD International AB

www.environdec.com



The environmental impacts of this product were assessed from cradle to gate with options, Modules C1-C4 & D and optional Module A4. This EPD has been verified by an independent third party. The EPD owner has the sole ownership, liability, and responsibility for the EPD.



INTRODUCTION

This EPD provides environmental performance indicators for an IsoPro Db glazed door from RP Products Ltd. This is a cradle-to-gate with options EPD in accordance with the requirements of EN 15804.

The EPD is based on a life cycle assessment (LCA) study which used production data for 2019 from RP Products manufacturing facility in Burgess Hill, UK and from a key supplier in Aylesbury, UK.

The EPD presents details of the LCA, a description of the product life cycle it covers, values for the environmental indicators specified by EN 15804 and a brief explanation of those results.

The declared unit is one square metre of door.

PROGRAMME INFORMATION

| | |
|---|--|
| EPD programme: | The International EPD® System |
| EPD programme operator: | EPD International AB - Box 21060 - SE-10031 Stockholm - Sweden www.environdec.com - info@environdec.com |
| EPD owner: | RP Products Ltd Unit B, 9-11 Consort Way, Burgess Hill, West Sussex RH15 9TJ, UK www.radiiplanetgroup.com tel: +44 (0)1444 237 300 |
| Product name: | IsoPro Db aluminium-framed glazed door |
| UN CPC code: | CPC 4212 (UN CPC classification system V2.1) |
| Declared unit: | 1 square metre |
| System boundaries: | Cradle-to-gate with options (A1 - A3 with Modules A4, A5, C1-C4 & D) |
| Declaration No: | S-P-05543 |
| Date of publication: | 2022-05-10 |
| EPD valid until: | 2027-05-08 |
| Procedure for data follow-up during EPD validity: | involves third party verifier: <input type="checkbox"/> yes <input checked="" type="checkbox"/> no |
| EPD geographical scope: | United Kingdom |
| EPD based on Product Category Rules: | The CEN standard EN 15804:2012 + A2:2019 serves as the core PCR The International EPD® System's PCR 2019:14 Construction products, Version 1.11, 2021-02-05 EN 17213 Windows and doors - Environmental Product Declarations - Product category rules for windows and pedestrian doorsets |
| PCR review conducted by: | The Technical Committee of the International EPD® System Chair: Claudia Peña; contact via info@environdec.com |
| Third party verification: | Independent third-party verification of this EPD and data, according to ISO 14025:2006: <input type="checkbox"/> EPD process certification <input checked="" type="checkbox"/> EPD verification |
| Third party verifier: | Ugo Pretato - Recognised Individual Verifier - Studio Fieschi & Soci, Italy |
| Approved by: | The International EPD® System |
| LCA conducted by: | EuGeos Limited - www.eugeos.co.uk |
| LCA software: | openLCA |
| Background data from: | ecoinvent v3.6 |

EPDs within the same product category but from different programmes may not be comparable.

EPDs of construction products may not be comparable if they do not comply with EN 15804. For further information about comparability, see EN 15804 and ISO 14025.



COMPANY PROFILE

RP Products Limited is based in Burgess Hill, West Sussex, UK and manufactures a range of aluminium frame glazed partition and door systems for both Radii Partitioning Limited and Planet Contracting Limited. These three entities form the Radii Planet Group (RPG), whom have been designing, manufacturing and installing these acoustically-tested and high-performing products since the 1970's throughout the UK.

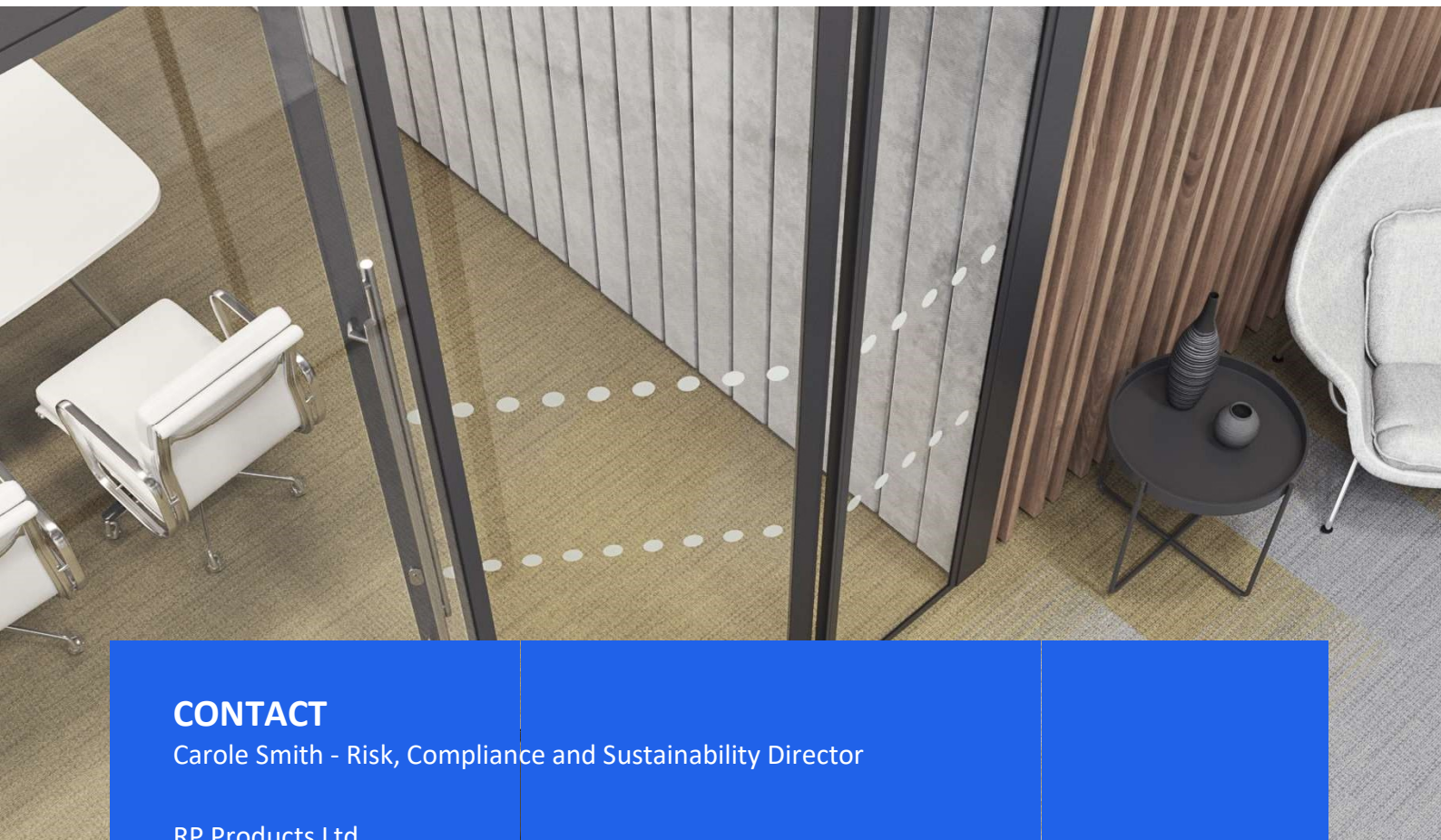
Planet has designed and installed glazed partitioning systems and doors for hundreds of clients across a variety of different sectors.

Drawing on expertise from its talented in-house design team, Planet have carefully crafted a substantial set of solutions that meet a wide range of technical and aesthetic requirements.

The extensive product range is available throughout the UK. With seven regional contracting offices providing knowledgeable and local customer service, no aspect of Planet's service is outsourced to third parties.

Planet's products are renowned for their robust build quality, technical performance and for combining advanced functionality with impressive finishes.

Planet are certified to ISO 9001, ISO 14001 and ISO 45001.



CONTACT

Carole Smith - Risk, Compliance and Sustainability Director

RP Products Ltd

Radii Planet House, Edward Way, Burgess Hill, West Sussex, RH15 9TZ, UK

www.radiiplanetgroup.com +44 (0)1444 237 300



PRODUCT INFORMATION

The ISOPRO framed glazed door has a 54mm thick frame and is available in single offset, double offset and single central glazed configurations.

IsoPro rebated glazed doors sit flush with all of Planet's partitioning systems when viewed from the corridor side. Internal alignment can also be achieved if combined with PURE54 glazed partitioning.

With acoustic performance up to an impressive 42dB Rw it offers uncompromising design without sacrifice.

This EPD applies to a powder-coated double leaf door using 10mm toughened and 12.8mm laminated glass and including a typical set of door hardware.

The IsoPro Db door is classified CPC 4212 under the UN CPC classification system V2.1.

MANUFACTURING

Door assembly takes place at RP Products' facility in Burgess Hill. Aluminium profiles extruded and coated by suppliers to Planet's own specifications are finished and machined to the required dimensions, glazed, and prepared for hardware to be fitted.

PACKAGING

IsoPro doors are delivered to site on reusable frames or stillages.

PRODUCT USE & MAINTENANCE

IsoPro doors should be cleaned and inspected regularly. Door hardware (springs, door closers, locks, hinges, etc.) should be maintained in line with the individual manufacturer's instructions.

END-OF-LIFE

When the doors are permanently removed from a building, the main constituent materials should be separated for recycling.

The following European Waste Catalogue (EWC) codes apply to the product or its constituents when removed from a building:

Glass: EWC 17 02 02

Aluminium: EWC 17 04 02

Plastic: EWC 17 02 03

Copper, bronze, brass: EWC 17 04 01

Iron and steel: EWC 17 04 05

Disposal of materials and components must be carried out safely with due consideration for the prevailing environmental, health & safety regulations and disposal procedures.



CONTENT DECLARATION

The material composition of one square metre of a IsoPro DB door, based on a complete door of dimensions 1.23m x 2.18m, including door hardware, is shown below. No single-trip packaging is used therefore no packaging materials are declared.

| IsoPro DB Door | | | |
|---------------------------------------|-------------|---|----------------------------------|
| Product component (material input) | Weight (kg) | Post-consumer material weight (%) | Renewable material weight (%) |
| Glass | 59 | 0 | 0 |
| Aluminium | 6.3 | 13 | 0 |
| Polymers | 0.2 | 0 | 0 |
| Steel | 1.1 | 25 | 0 |
| Other metals* | 0.9 | n/a | 0 |

** Other metals are non-ferrous metals contained in door hardware, typically brass, zinc and zinc alloys.*

No substances included in the Candidate List of Substances of Very High Concern for authorisation, derived under the REACH Regulations, are present in IsoPro Db doors, either above the threshold for registration with the European Chemicals Agency or in excess of >1% weight of the product.

RESIDUAL RISKS & EMERGENCIES

There are no residual risks associated with the normal day to day usage of the IsoPro doors, provided they are correctly installed, regularly inspected and maintained.

FURTHER PRODUCT INFORMATION

Detailed product information and datasheets can be found on our website www.radiiplanetgroup.com or by contacting info@radiiplanetgroup.com



LCA INFORMATION

This section of the EPD records key features of the LCA on which it is based.

LCA SCOPE

This EPD covers the production stage, transport to site, installation and end-of-life stages (modules A1-A3, A4, A5, C1-C4 and D; see below). The use stage is omitted in this cradle-to-gate with options EPD. As permitted by EN 15804, modules A1-A3 are declared in aggregated form.

| PRODUCT STAGE | | | CONSTRUCTION PROCESS STAGE | | USE STAGE | | | | | | | END OF LIFE STAGE | | | | Benefits & loads beyond the system boundaries |
|--|-----------|---------------|----------------------------|----------|-----------|-------------|--------|-------------|---------------|------------------------|-----------------------|----------------------------|-----------|-----------------|----------|---|
| Raw material supply | Transport | Manufacturing | Transport to the site | Assembly | Use | Maintenance | Repair | Replacement | Refurbishment | Operational energy use | Operational water use | De-construction demolition | Transport | Waste treatment | Disposal | Reuse- recovery- recycling- potential |
| A 1 | A 2 | A 3 | A 4 | A 5 | B1 | B2 | B3 | B4 | B5 | B 6 | B 7 | C 1 | C 2 | C 3 | C 4 | D |
| DECLARED MODULES | | | | | | | | | | | | | | | | |
| X: included in LCA; ND: module not declared; NR: module not relevant | | | | | | | | | | | | | | | | |
| X | X | X | X | X | ND | ND | ND | ND | ND | N D | N D | X | X | X | X | X |
| GEOGRAPHY | | | | | | | | | | | | | | | | |
| GLO | GB | GB | GB | - | - | - | - | - | - | - | - | GB | G B | G B | G B | GB |
| SPECIFIC DATA USED | | | | | | | | | | | | | | | | |
| >90% | - | >90% | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| VARIATION - PRODUCTS | | | | | | | | | | | | | | | | |
| NR | NR | NR | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

DECLARED UNIT

The declared unit is one square metre. The total mass of the declared unit is 68kg. The LCA is calculated on the basis of a 1.23m x 2.18m door that includes a typical set of door hardware: a lock, handles, hinges, and a door closer/spring.



REFERENCE SERVICE LIFE

No reference service life is specified in this EPD.

TIME REPRESENTATIVENESS

Primary data used in this LCA cover a 12-month period from January 01 – December 31, 2019. Electricity supplied to operations providing primary data is modelled as the residual mix for 2018 as declared by the Association of Issuing Bodies (the most recent data available when the LCA was conducted).

DATABASE(S) & LCA SOFTWARE USED

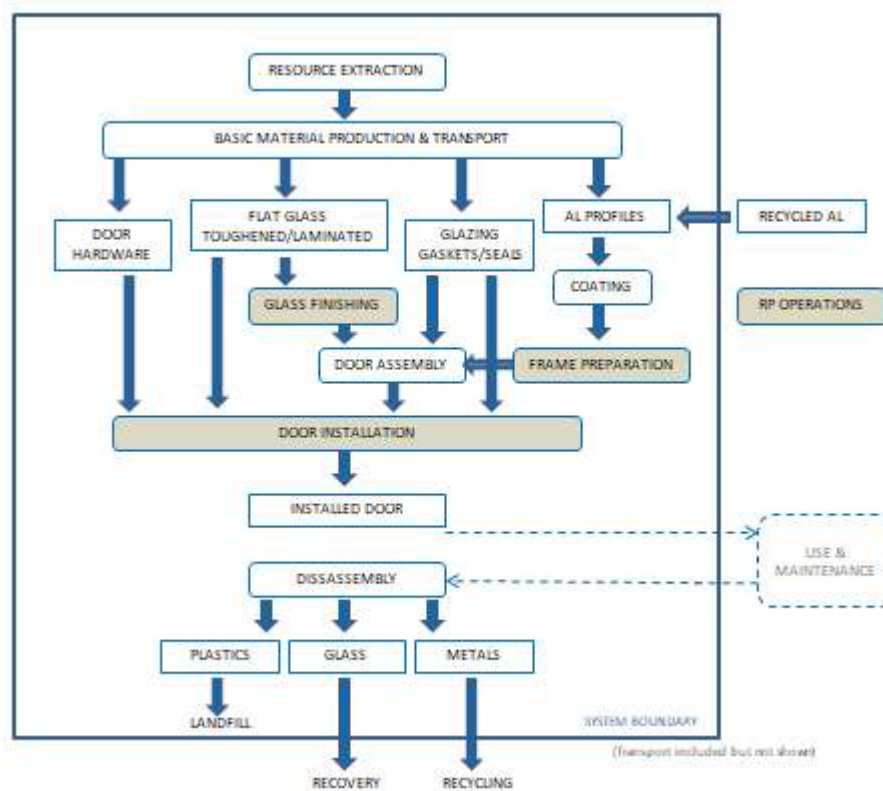
Background data were drawn from ecoinvent 3.6; calculations were carried out in openLCA software.

SYSTEM BOUNDARIES

The system boundary of the EPD is defined using the modular approach set out in EN 15804. As well as the core processes, the system therefore includes production of all raw materials and components from basic resources; transport of those materials at all stages up to RP Products' manufacturing facility and transport to site; installation in the building; the production of fuels and energy carriers and their delivery to manufacturing sites; the treatment of all wastes.

Capital equipment in the foreground system is excluded.

The product life cycle covered by this EPD is illustrated below.





CUT-OFF CRITERIA

The collected data covered all raw materials, consumables and packaging materials; associated transport to manufacturing sites; process energy and water use; direct production wastes; emissions to air and water. According to EN 15804 and the PCR, flows can be omitted (cut-off) from a core process in the LCA up to a maximum of 1% of the total mass of material inputs or 1% of the total energy content of fuels and energy carriers.

DATA SOURCES & DATA QUALITY

Data collected for the core processes (production) cover a period of 1 year (Jan 01 to Dec 31, 2019). The producer-specific data used in LCA calculations are therefore based on 1 year averaged data and have been updated within the last 5 years. These data were checked to ensure that sufficient materials and water are included within the inputs to account for all products, wastes and emissions.

BACKGROUND DATA

Background (generic) data from the ecoinvent database (v3.6) fulfil the EN 15804 requirement that generic data used in the LCA have been updated within the last 10 years. Data quality has been reviewed for processes that contribute significantly to the overall LCA.

Other data were judged fit for purpose.

ALLOCATION

In the background data, the ecoinvent default allocation is applied to all processes except those in which secondary materials are used, where the "cut-off" allocation is applied. This ensures that secondary materials are free of upstream burdens that arise prior to their reaching the "end of waste" state, in accordance with Section 6.3.4.2 of EN 15804. Allocation in primary data is based on physical relationships.

ASSUMPTIONS & ESTIMATES

Inputs to and outputs from the system are accounted for over a 100-year time period, except for biogenic carbon. Long-term emissions are therefore omitted from the impact assessment part of the LCA, except for biogenic carbon releases from waste disposal to which no time cut-off is applied. Any biogenic carbon (for instance in generic polymers) constitutes <1% of the product and is below the threshold for reporting.

Electricity supplied to core processes is modelled as the UK residual mix for 2018 as declared by the Association of Issuing Bodies. The GWP total associated with this is 0.43kgCO₂e/kWh.

The "*primary energy used as material*" indicators (PERM; PENRM) are calculated using - as characterisation factors - published values for constituent materials which can yield energy on combustion, where available, and from published calorific values where PEM values are not available.

In this EPD, primary energy in materials is calculated using values of 27MJ/kg non-renewable for polymers.

"*Primary energy as fuel*" indicators (PENRE, PERE) are calculated as the total primary energy demand minus primary energy used as material.

Installation in the building, Module A5, constitutes fitting of the door and hardware into the frame. Electricity use 0.075kWh per declared unit is assumed for power tools used on site. Fixings and sealants used in installation are omitted, in line with EN 17213.

It is assumed that the products are disassembled in situ rather than transported prior to disassembly as indicated in the default module C scenario for metal windows and doorsets presented in EN 17213:2020. Energy use for disassembly is assumed to be the same as energy use for installation.



All aluminium and steel are assumed to be recycled and all glass recovered, following EN 17213. For consistency with the system boundary applied for input of recycled material, sorting and pressing of scrap metal, and crushing of waste glass are included to represent waste treatment as Module C3. Module C4 then represents disposal of mixed plastic residues which constitute 1% or less of the declared unit by weight; these are assumed to be landfilled.

Parameters applied for the transport of materials in modules A4 & C2 are shown in the table below.

| Transport scenario parameters | Quantity and unit (per declared unit) | |
|--|---|---|
| | A4 | C2 |
| Fuel type and consumption of heavy goods vehicle used for road freight | 0.2l/km, diesel | 0.1l/km, diesel |
| Distance | 100 km | 50 km |
| Capacity utilisation (including empty returns) | 10t / 33% | 10t / 33% |
| Bulk density of transported products | 2500 – 2700 kg m ⁻³ , glass and aluminium | 2500 – 2700 kg m ⁻³ , glass and aluminium |
| Volume capacity utilisation factor | 1 | 1 |

In Module D, benefits and loads are calculated for the net quantity of material recycled. In this case that is the recycling rate minus recycled content. For steel, the recycled content is that in the generic data (25%). For aluminium, it is 72% for Planet systems. Module D calculations include wastes recycled and recovered from Modules A3 and A5. Glass recycled from Module A3 is assumed to be recycled into container glass manufacture.



ENVIRONMENTAL INFORMATION

PARAMETERS

This EPD contains environmental information about the IsoPro Db door in the form of quantitative indicator values for a number of parameters, which encompass calculated environmental impact potentials, resource and energy use, and waste generation. These parameters are listed below along with the abbreviations used for them in the tables of indicator values that follow.

| Potential Environmental Impacts (mandatory indicators as per EN 15804:2012+A2:2019) | Abbreviation | Unit |
|--|----------------|---|
| Global warming potential - fossil fuels | GWP-fossil | kg CO ₂ -eq |
| Global warming potential - biogenic | GWP-biogenic | kg CO ₂ -eq |
| Global warming potential - land use and land use change | GWP-luluc | kg CO ₂ -eq |
| Global warming potential - total | GWP-total | kg CO ₂ -eq |
| Global warming potential - biogenic excluded ¹ | GWP-GHG | kg CO ₂ -eq |
| Acidification potential of land and water | AP | mol H ⁺ eq |
| Eutrophication potential - freshwater | EP-freshwater | kg P eq kg PO ₄ ³⁻ -eq |
| Eutrophication potential - marine | EP-marine | kg N eq |
| Eutrophication potential - terrestrial | EP-terrestrial | mol N eq |
| Formation potential of tropospheric ozone | POFP | kg NMVOC |
| Depletion potential of the stratospheric ozone layer | ODP | kg CFC11-eq |
| Abiotic depletion potential for non-fossil resources ² | ADPMM | kg Sb-eq |
| Abiotic depletion potential for fossil resources ² | ADPFF | MJ |
| Water (user) deprivation potential, deprivation-weighted water consumption | WDP | m ³ |
| Resource Use | | Unit |
| Renewable primary energy as energy carrier | PERE | MJ |
| Renewable primary energy resources as material utilization | PERM | MJ |
| Total use of renewable primary energy resources | PERT | MJ |
| Non-renewable primary energy as energy carrier | PENRE | MJ |
| Non-renewable primary energy as material utilization | PENRM | MJ |
| Total use of non-renewable primary energy resources | PENRT | MJ |
| Use of secondary material | SM | kg |
| Use of renewable secondary fuels | RSF | MJ |
| Use of non-renewable secondary fuels | NRSF | MJ |
| Use of net fresh water | FW | m ³ |
| Waste Production | | Unit |
| Hazardous waste disposed | HWD | kg |
| Non-hazardous waste disposed | NHWD | kg |
| Radioactive waste disposed | TRWD | kg |
| Output Flows | | Unit |
| Components for re-use | CFR | kg |
| Materials for recycling | MFR | kg |
| Materials for energy recovery | MER | kg |
| Exported energy, electricity | EEE | MJ |
| Exported energy, thermal | EET | MJ |

1 - GWP-GHG includes all greenhouse gases included in GWP-total but excludes biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. This indicator is closely comparable to the GWP indicator originally defined in EN15804:2012+A1:2013

2 - Disclaimer: The results of this environmental impact indicator shall be used with care as the uncertainties of these results are high or as there is limited experience with the indicator



ENVIRONMENTAL INDICATOR RESULTS

Environmental indicator results for the declared modules are shown in the following tables for the declared unit of one square metre of IsoPro Db door; modules A1 - A3 are shown on an aggregated basis.

| IsoPro Db Door | | | | | | | | | |
|--|--------------------------------------|----------|-----------|-----------|-----------|-----------|-----------|----------|-----------|
| ENVIRONMENTAL IMPACTS (EN 15804:2012 + A2:2019) | | A1 - A3 | A4 | A5 | C1 | C2 | C3 | C4 | D |
| GWP-fossil | kg CO ₂ -eq | 1.25E+02 | 3.07E+00 | 3.41E-02 | 3.25E-02 | 1.73E+00 | 1.45E+00 | 1.94E-02 | -2.09E+01 |
| GWP-biogenic | kg CO ₂ -eq | 3.60E-01 | -6.90E-04 | -3.25E-05 | -3.35E-05 | -1.09E-03 | -1.04E-01 | 2.20E-05 | 4.42E-01 |
| GWP-luluc | kg CO ₂ -eq | 3.82E-01 | 1.12E-03 | 2.13E-06 | 2.06E-06 | 9.70E-04 | 1.77E-03 | 1.26E-06 | -4.58E-02 |
| GWP-total | kg CO ₂ -eq | 1.26E+02 | 3.07E+00 | 3.41E-02 | 3.24E-02 | 1.73E+00 | 1.35E+00 | 1.94E-02 | -2.05E+01 |
| GWP-GHG | kg CO ₂ -eq | 1.27E+02 | 3.07E+00 | 3.41E-02 | 3.24E-02 | 1.73E+00 | 1.46E+00 | 1.94E-02 | -2.10E+01 |
| AP | mol H ⁺ eq | 5.74E-01 | 7.12E-03 | 7.93E-05 | 7.87E-05 | 4.31E-03 | 1.25E-02 | 1.12E-05 | -1.35E-01 |
| EP-freshwater | kg P eq | 4.40E-03 | 2.63E-05 | 1.05E-06 | 1.04E-06 | 2.04E-05 | 1.10E-04 | 4.45E-08 | -6.40E-04 |
| EP-freshwater | kg PO ₄ ³⁻ -eq | 1.35E-02 | 8.07E-05 | 3.20E-06 | 3.20E-06 | 6.25E-05 | 3.37E-04 | 1.36E-07 | -1.96E-03 |
| EP-marine | kg N eq | 6.41E-02 | 9.40E-04 | 1.69E-05 | 1.65E-05 | 5.70E-04 | 9.90E-04 | 6.87E-06 | -2.09E-02 |
| EP-terrestrial | mol N eq | 8.43E-01 | 1.04E-02 | 1.80E-04 | 1.80E-04 | 6.27E-03 | 1.27E-02 | 2.29E-05 | -2.37E-01 |
| POFP | kg NMVOC | 2.29E-01 | 5.15E-03 | 4.90E-05 | 4.82E-05 | 2.92E-03 | 4.70E-03 | 1.30E-05 | -6.70E-02 |
| ODP | kg CFC11-eq | 1.41E-05 | 6.98E-07 | 3.32E-09 | 3.28E-09 | 3.70E-07 | 1.95E-07 | 7.52E-10 | -1.76E-06 |
| ADPMM | kg Sb-eq | 1.76E-02 | 8.63E-05 | 2.65E-08 | 2.52E-08 | 8.52E-05 | 8.75E-05 | 2.61E-08 | -6.77E-03 |
| ADPFF | MJ | 1.68E+03 | 4.58E+01 | 5.71E-01 | 5.69E-01 | 2.54E+01 | 1.94E+01 | 5.80E-02 | -2.77E+02 |
| WDP | m ³ | 1.27E+04 | 4.55E+01 | 4.58E-01 | 4.57E-01 | 3.98E+01 | 1.18E+02 | 3.00E-02 | -1.33E+03 |



IsoPro Db Door

| RESOURCE USE | | A1 - A3 | A4 | A5 | C1 | C2 | C3 | C4 | D |
|------------------|----------------|----------|----------|----------|----------|----------|----------|----------|-----------|
| PERE | MJ | 1.53E+02 | 6.72E-01 | 3.59E-03 | 3.55E-03 | 5.50E-01 | 3.56E+00 | 9.90E-04 | -2.71E+01 |
| PERM | MJ | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| PERT | MJ | 1.53E+02 | 6.72E-01 | 3.59E-03 | 3.55E-03 | 5.50E-01 | 3.56E+00 | 9.90E-04 | -2.71E+01 |
| PENRE | MJ | 1.82E+03 | 4.68E+01 | 9.02E-01 | 8.99E-01 | 2.61E+01 | 2.25E+01 | 5.94E-02 | -2.91E+02 |
| PENRM | MJ | 6.20E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| PENRT | MJ | 1.83E+03 | 4.68E+01 | 9.02E-01 | 8.99E-01 | 2.61E+01 | 2.25E+01 | 5.94E-02 | -2.91E+02 |
| SM | kg | 6.82E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| RSF | MJ | 1.93E+00 | 2.40E-02 | 4.32E-05 | 4.21E-05 | 2.00E-02 | 9.14E-02 | 2.22E-05 | -1.97E-01 |
| NRSF | MJ | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| FW | m ³ | 1.24E+00 | 3.43E-03 | 1.30E-04 | 1.30E-04 | 2.72E-03 | 9.37E-03 | 5.61E-05 | -1.56E-01 |
| WASTE PRODUCTION | | A1 - A3 | A4 | A5 | C1 | C2 | C3 | C4 | D |
| HWD | kg | 9.62E+00 | 4.82E-02 | 1.58E-03 | 1.57E-03 | 3.67E-02 | 1.15E-01 | 1.00E-04 | -2.78E+00 |
| NHWD | kg | 2.24E+02 | 3.27E+00 | 5.61E-02 | 4.49E-02 | 1.60E+00 | 6.91E+00 | 2.32E-01 | -2.93E+01 |
| TRWD | kg | 5.99E-03 | 3.20E-04 | 6.89E-06 | 6.88E-06 | 1.70E-04 | 1.20E-04 | 3.45E-07 | -7.70E-04 |
| OUTPUT FLOWS | | A1 - A3 | A4 | A5 | C1 | C2 | C3 | C4 | D |
| CFR | kg | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| MFR | kg | 2.20E+00 | 1.59E-02 | 2.72E-05 | 2.61E-05 | 1.29E-02 | 6.72E+01 | 2.21E-05 | -4.71E+00 |
| MER | kg | 2.23E-02 | 2.70E-04 | 6.13E-07 | 6.01E-07 | 2.20E-04 | 1.00E-03 | 2.39E-07 | -2.46E-03 |
| EEE | MJ | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| EET | MJ | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |



ENVIRONMENTAL IMPACTS (EN 15804:2012+A1:2013)

For information, indicator values calculated using the methods prescribed in the earlier version of EN 15804 (EN 15804+A1:2013) are provided in the table below for the declared unit of one square metre of IsoPro Db door; modules A1 - A3 are shown on an aggregated basis.

| IsoPro Db Door | | | | | | | | | |
|--|--------------------------------------|----------|----------|----------|----------|----------|----------|----------|-----------|
| ENVIRONMENTAL IMPACTS (EN 15804:2012+A1:2013) | | A1 - A3 | A4 | A5 | C1 | C2 | C3 | C4 | D |
| GWP | kg CO ₂ -eq | 1.24E+02 | 3.05E+00 | 3.32E-02 | 3.20E-02 | 1.71E+00 | 1.43E+00 | 1.40E-02 | -2.03E+01 |
| ODP | kg CFC11-eq | 1.18E-05 | 5.55E-07 | 3.75E-09 | 3.72E-09 | 2.96E-07 | 1.68E-07 | 5.99E-10 | -1.51E-06 |
| AP | kg SO ₂ -eq | 5.07E-01 | 6.16E-03 | 6.72E-05 | 6.67E-05 | 3.74E-03 | 1.13E-02 | 4.45E-05 | -1.18E-01 |
| EP | kg PO ₄ ³⁻ -eq | 4.25E-02 | 6.10E-04 | 9.20E-06 | 8.98E-06 | 3.70E-04 | 7.80E-04 | 3.55E-06 | -9.73E-03 |
| POCP | kg ethene-eq | 3.07E-02 | 3.70E-04 | 3.28E-06 | 3.03E-06 | 2.50E-04 | 5.50E-04 | 2.98E-06 | -6.71E-03 |
| ADPE | kg Sb-eq | 1.76E-02 | 8.63E-05 | 2.65E-08 | 2.52E-08 | 8.52E-05 | 8.75E-05 | 2.61E-08 | -6.77E-03 |
| ADPF | MJ | 1.68E+03 | 4.58E+01 | 5.71E-01 | 5.69E-01 | 2.54E+01 | 1.94E+01 | 5.80E-02 | -2.77E+02 |

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 - biotic depletion potential for non-fossil resources

ADPF - Abiotic depletion potential for fossil resources



INTERPRETATION

Door hardware (locks, handles, hinges, floor springs or closers) is an integral part of the finished door and is included in the declared unit and the calculated indicators. The door hardware makes a significant contribution to almost all environmental indicators, although it represents a relatively small proportion of the overall mass of a door. The contribution is largest (>90% of the total indicator) for the ADPMM category, but <10% of the GWP_{total} (carbon footprint). The GWP_{total} obtained for a door without hardware is 116kgCO₂e/sq.metre.

Glass thickness has a significant influence on the indicator values. For a given total glass thickness (e.g. 12mm as a single sheet or as 2x6mm sheets laminated together with a 0.76mm layer of lamination film), this LCA finds that indicator values obtained for the declared unit differ by <10% whether toughened or laminated glass is considered.

The Water Deprivation Potential and GWPluluc indicators are strongly influenced by data relating to aluminium production. However, there are weaknesses in the relevant background data, therefore the indicator values obtained are considered unreliable. GWPluluc makes only a small contribution to GWP_{total} for these products.

For ODP, releases of Halon 1301, Halon 1211 and CFC-114 in generic inventory data for upstream processes account for almost 95% of the indicator values obtained. Some sources of these data predate Montreal Protocol deadlines for replacement of these substances in all but essential uses. ODP indicator values should therefore be treated with caution.

PENRE and ADPFF, although reported in the same units, are calculated by different methods. PENRE includes nuclear energy and energy in wood extracted from primary forests, whereas ADPFF does not. The fossil fuel-derived component of PENRE is identical to the ADPFF indicator value.

The reporting of Module D shows benefits as negative indicator values.

ADDITIONAL ENVIRONMENTAL INFORMATION

BIOGENIC CARBON

Carbon dioxide (CO₂) is absorbed from the atmosphere by trees, so any wood-based product contains some carbon from this source. There is no biogenic carbon contained in the declared unit for the product covered by this EPD.

ENVIRONMENTAL MANAGEMENT & PRACTICES

RPG recognise and are acting upon its legal and moral responsibility to manage its business operations and reduce any detrimental impact on the environment.

RPG are committed to ensuring environmental best practice in line with its Environmental and Sustainability Policies and in compliance with ISO 14001:2015. This commitment covers multiple parts of the business operations, including:

- **Design:** Systems are designed and drawn in order to minimise wastage. Projects are extensively surveyed, CAD detailed and then 3D-modelled. This allows great accuracy in material take off and efficient calibration.



- **Responsible Sourcing:** Aluminium and glass materials are all sourced within the UK and delivered direct to the RP Products manufacturing facility, while timber materials come from FSC/PEFC certified suppliers and transported directly to projects.
- **Production:** Barcode tracking and aluminium pre-fabrication prior to site arrival keep waste to a minimum, while core materials carry EPDs to aid understanding of carbon impact and environmental performance.
- **Packaging:** RPG has invested in site operations allowing them to store, collect and reuse packaging across multiple projects. When materials cannot be re-used, where possible, they will be recycled using approved waste specialists who monitor and report back on what is sent to them.
- **Transport:** A minimum of FORS bronze is required on HGVs delivering to sites. Deliveries are consolidated and RP Product's in-house fleet of vehicles are used to reduce transportation mileage and CO2 emissions.
- **Re-use:** 3D modelling capability can allow for redeployment of products into new locations of previously installed relocatable systems and materials and minimise new material requirements.
- **Recycling:** Aluminium is sourced from suppliers that use >70% recycled content, while glass products can be returned to source with approximately 30% put back into the manufacturing process.





REFERENCES

ecoinvent database (v3.6) - www.ecoinvent.ch

EN 15804:2012 + A1:2013 and EN 15804:2012 + A2:2019 - Sustainability of construction works - Environmental Product Declarations - Core rules for the product category of construction products.

EN 17213:2020 Windows and doors - Environmental Product Declarations - Product category rules for windows and pedestrian doorsets

General Program Instructions, V3.01, 2019-09-18 - The International EPD® System - EPD International AB.

ISO 9001:2015 - Quality management system. Requirements.

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

ISO 14025:2009-11: Environmental labels and declarations - Type III environmental declarations - Principles and procedures.

LCA of Partition Systems & Glazed Doors - Report for Radian Planet Group (2022) - EuGeos Limited.

PCR 2019:14 Construction products, Version 1.11, 2021-02-05- EPD International AB.

GLOSSARY

FORS (Fleet Operator Recognition Scheme): a scheme for companies to demonstrate their commitment to driver and vehicle safety and to improving operating practices through fuel and tyre usage monitoring.

FSC (Forest Stewardship Council®): a certification scheme for timber procurement (<https://fsc.org/en>)

The International EPD® System: a programme for Type III environmental declarations, maintaining a system to verify and register EPD®s as well as keeping a library of EPD®s and PCRs in accordance with ISO 14025. (www.environdec.com)

Life cycle assessment (LCA): LCA studies the environmental aspects and quantifies the potential impacts (positive or negative) of a product (or service) throughout its entire life. ISO standards ISO 14040 and ISO 14044 set out conventions for conducting LCA.

PEFC (the Programme for the Endorsement of Forest Certification): an alliance of national forest certification systems (<https://pefc.org/>)

REACH Regulation: REACH is the European Regulation on Registration, Evaluation, Authorisation and Restriction of Chemicals. It entered into force in 2007, replacing the former legislative framework for chemicals in the EU.

UKAS (United Kingdom Accreditation Service): the National Accreditation Body for the United Kingdom (<https://www.ukas.com>)