Environmental Product Declaration

EPD of multiple products, based on the average results of the product group for all Toughened Laminated Glass with PVB Interlayer produced by ESG Group Ltd In accordance with ISO 14025:2006 and EN 15804:2012+A2:2019/AC:2021

Programme: The International EPD® System, www.environdec.com
Programme Operator: EPD International AB
EPD Registration Number: EPD-IES Practitioner approved pending formal verification
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Overview

This Environmental Product Declaration (EPD) describes the environmental impacts of 1 m^2 of Toughened Laminated Glass with PVB Interlayer produced by ESG Group Ltd in accordance with the requirements of EN 15804. The scope of this assessment is the cradle-to-gate (A1-A3) environmental impacts, along with optional modules A4, C1-C4, and D. This EPD is based on a life cycle assessment (LCA) study completed with data provided by ESG Group Ltd based on production data obtained for the 2024 calendar year at Witham. This EPD presents details of the LCA completed by Tunley Environmental for ESG Group Ltd. Specific global warming potentials (GWP's) for all thicknesses of glass from cradle to gate are provided. Full environmental impact data is provided for 17.5 mm thick Toughened Laminated Glass with PVB Interlayer.

The EPD owner has sole ownership, liability, and responsibility of the EPD.

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

Table 1. Full details on the EPD programme and accountabilities.

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 Registration Number	EPD-IES-XXXXXXXX:XXX
Date of Publication	20YY-MM-DD
EPD Valid Until	20YY-MM-DD
Accountabilities for PCR, LCA and independent, third-party verification	
Product Category Rules	CEN Standard EN 15804 serves as the core Product Category Rules (PCR). Product Category Rules (PCR) 2019:14, Version 2.0.1 UN CPC Code 371
PCR Review Conducted by	<name and organisations of the review chair, and information on how to contact the chair through the programme operator>
LCA Conducted by	Tunley Environmental - www.tunley-environmental.com
LCA software	SimaPro
Background data from	Ecoinvent 3
Third Party Verification	Independent third-party verification of this EPD and data, according to ISO 14025:2006
Third Party Verifier	
Approved by	The International EPD® System
Procedure for data follow-up during EPD validity	
LCA Conducted by	Tunley Environmental - www.tunley-environmental.com
LCA Software	Simapro
Background Database	Ecoinvent 3

Cradle-to-Gate (A1-A3) Global Warming Potential

Table 2 provides details on the A1-A3 global warming potential (GWP) - Total. Full environmental impact results are given in Table 5. These are scaled to the thickness of glass available for purchase. The calculation is given by scaling factors based on a density of glass at 2,386.5 kg/m^2.

Table 2. Scaling factors used to convert the quantified kilogram glass into the declared unit of square metres (m^2). Full environmental indicators reported for 17.5 mm thick 1 m^2 pane of glass as highlighted in pink and bold.

Thickness (mm)	Scaling Factor (weight in kg for that thickness of 1 m^2 of glass)	Cradle to Gate (A1-A3) GWP - Total (kg CO_2e/m^2)
11.5	27.44	52.18
13.5	32.22	61.26
15.5	36.99	70.33
17.5	41.76	79.41
21.5	51.31	97.56
25.5	60.86	115.71

Company Information

EPD Owner: ESG Group Ltd
Address: 1 Freebournes Rd, Witham CM8 3UN
Website: https://esg.glass
Contact Information: sales@esg.glass
Production Sites: 1 Freebournes Rd, Witham CM8 3UN

ESG Group Ltd, is the UK's leading independent glass processor. Since our establishment in 2003, we've been dedicated to providing superior quality, exceptional service, and innovative products from our 120,000 sq. ft. site in Essex. This prime location allows us to efficiently serve the entire United Kingdom with our extensive range of glass products.

Our foundation is built on the expertise of our original core team, boasting over 100 years of combined experience in the manufacturing industry. This wealth of knowledge has positioned ESG as the go-to specialist glass suppliers in the UK. Our entire range is fully BSI approved and includes architectural glass products such as balustrades, partition glass, roof canopies, and flooring, as well as our technical glass ranges like Secure EN356, Ballistic, and our industry-leading ESG SwitchableTM LCD glass.

At ESG, we take pride in our innovative ideas and personalised customer service, which set us apart from our competitors. This unique approach has allowed us to continually evolve, branching into new markets and expanding our technical and decorative glass ranges. Our decorative offerings, including Corifloe, ESG DecolamTM, Clarity, and Vue, are quickly becoming industry favourites.

Our market-leading product portfolio has graced many prestigious locations worldwide. You'll find our architectural glass in the UK's busiest airports and train stations and Europe's tallest and most striking buildings. We manage all aspects of our business in-house, ensuring that each order is professionally handled at every stage of the supply process. Our team is trained to provide the best service across all departments, including customer service, sales, CAD design, production, and transport.

Every order we fulfil is tailor-made for each customer, allowing us to supply solutions for almost any industry or application. We adhere to the principle of fulfilling our clients' needs, always striving to make their experience with us as straightforward and uncomplicated as possible.

Product Information

Product Name: Toughened Laminated Glass with PVB Interlayer

Product Description: The Toughened Laminate Glass with PVB Interlayer is a combined safety glazing product that benefits from both toughening and lamination. Made by laminating two or more toughened glass panes with a PVB interlayer, it provides high strength, excellent impact resistance and superior post-breakage containment. It is commonly used in balustrades, façades, security glazing, roofs and overhead installations.

Each toughened pane is heat-treated to develop high compressive surface stresses before being bonded to the PVB interlayer through heat and pressure. The PVB provides strong adhesion, acoustic improvement and flexibility, enabling the panel to remain intact even after heavy impact.

This Toughened Laminated Glass with PVB interlayer is classified as safety glass. In the event of breakage, the toughened panes fracture into small particles which remain fully adhered to the PVB layer, preventing glass fallout and reducing injury risk.

Manufacturing And Packaging (A1-A3)

The environmental impacts considered for the product stage cover the manufacturing of input glass. The combustion of fuels for transportation of said glass is also considered, as well as the fuels and electricity used by ESG during manufacturing. Additionally, handling of waste formed in the production processes at the manufacturing facilities is included in this stage.

Glass is transported from two main manufacturers (Saint Gobain and Guardian) both of which have their own environmental product declarations. This glass is then cut to shape, edged, toughened, processed, toughened, laminated, and heat soaked, if required.

This analysis covers all materials (A1), upstream transportation (A2), and manufacturing (A3) of material impact in the above process. Recycling of the manufacturing waste is considered within this module using default scenarios.

Transportation and Installation (A4-A5)

Transportation impacts occurred from finished product delivery to the customer site (A4), covering fuel direct exhaust emissions. Installation (A5) emissions are related to consumption-based processes and additional materials required for the installation of said products.

Description of Installation Process: The finished glass product is delivered to customers throughout the UK. Specific downstream processing is varied and unknown as the glass product can produce a wide range of different products.

Module A4 was considered as all transportation of finished product was known. However, A5 was not considered in this study as this sits outside of ESG Group Ltd's direct control or oversight. Therefore, quantification cannot be achieved without significant assumptions.

Product Use and Maintenance (B1-B7)

Description of Product Use and Maintenance: Glass may be used in a number of different construction applications. It is a passive product with no specific energy use. Toughened Laminated Glass with PVB Interlayer is not repaired or maintained. Modules B1-B7 are not considered within this study, it is outside of ESG's control and oversight preventing the calculation of specific use phase processes.

End-of-Life (C1-C4, D)

Description of End-of-Life Process: Energy consumption is not considered for the process of glass demolition from the building. Transportation distance to treatment is assumed based on the default scenarios provided by the product category rules (C2). All glass waste at end of life is considered landfill waste and placed into module C4, the impacts from processing of this landfill waste are quantified using default scenarios provided in the PCR. This analysis therefore covers transportation (C2) and disposal (C4) only.

Manufacturing waste glass is modelled based on recycling the glass into new materials with the default scenarios provided in the PCR these benefits and loads are included in Module D. Additionally, PVB waste generated during manufacturing is modelled based on default incineration with energy recovery for benefits and loads outside of the system boundary in module D.

LCA Information

This covers the information in which the EPD is based upon.

Databases and LCA Software Used

Material and process environmental impact factors were taken from Ecoinvent 3. Calculations were carried out in SimaPro and Excel.

Declared Unit

The declared unit refers to square metres (m^2) of glass product. This is a 17.5 mm thick pane of Toughened Laminated Glass with PVB Interlayer at this area.

Time Representativeness

The data collected to complete the analysis for the project was obtained in the 2024 calendar year.

Geographical Scope

This product is only produced in the United Kingdom as such this is the only geography covered.

Content Information

The product is composed of 100% Toughened Laminated Glass with PVB Interlayer. No packaging is used in its transportation. Consequently, no biogenic carbon is present in either the product or packaging used.

Reference Service Life

50 years.

LCA Scope

This EPD covers the production stages (A1-A3), construction stages (A4) and end-of-life management stages (C1-C4 & D). Covering all environmental impacts, resource use, waste generated, and output flows as required by EN 15804. Use stage is not included based on no material impacts identified.

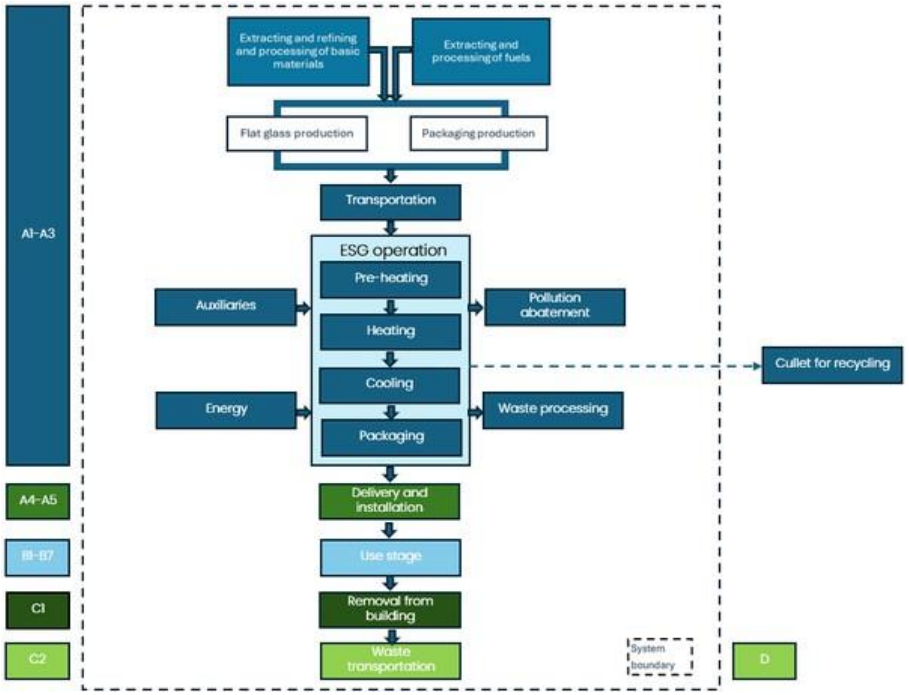
Table 3. Modules Declared as part of this Environmental Product Declaration.

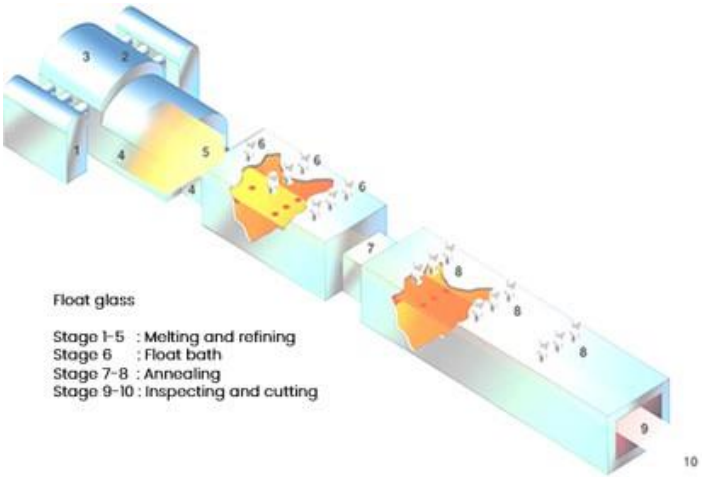
Product stage			Construction stage		Use Stage								End of life stage				Benefits and loads
Raw materials	Transport	Manufacturing	Transport to site	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational Water Use	Deconstruction/demolition	Transport	Waste Treatment	Disposal	Reuse-recover-recycling-potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Module Declared																
X: included; ND module not declared; NR: module not relevant																
X	X	X	X	ND	NR	ND	ND	ND	ND	NR	NR	X	X	X	X	X
Geography																
UK	UK	UK	UK	UK	N/A	N/A	N/A	N/A	N/A	N/A	N/A	UK	UK	UK	UK	UK

System Boundaries

Cradle-to-gate with modules A1-A5, C1-C4, & D. 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 the manufacturing facility; 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. Non-reusable packaging used to deliver products and/or components to the place of installation is included in the LCA.
The product life cycle covered by this EPD is illustrated below.

A system boundary is a means of communicating the processes to make the product and where the processes are relevant to the lifecycle stages.





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 this assessment includes a minimum of 99% of total inflows (mass and energy) per unit process and 95% of total inflows (mass and energy) per life-cycle stages A1-A3, A4-A5 and C1-C4, aggregated modules B1-B5 and B6-B7, and module D. In addition, according to the PCR, an expanded 5% cut-off rule of ISO 21930 is applied, which says that at least 95% of the environmental impact per such aggregated module shall be included. These 1% and 5% cut-offs do not include LCI data that are explicitly outside the system boundary.

Data Sources & Data Quality

The producer-specific data used in LCA calculations are 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.
The following EPD's were usedto provide specific input data on the glass utilised to produce this product within the reference year:

- Guardian Glass Flat Glass - ExtraClearTM Uncoated EU Flat Glass - Declaration Number 4791438322.102.1
- Saint-Gobain Flat Glass - PLANICLEAR® - Registration Number S-P-00882

Background (generic) data from the Ecoinvent database (v3.8) fulfil the EN 15804 requirement that generic data used in the LCA have been updated within the last 10 years.

The quality of generic data has been reviewed; where necessary, data in the core Ecoinvent 3 database have been adjusted to better reflect available information about ESG Group Ltd specific supply chain and about processes that contribute significantly to the LCA results.

Other data were judged fit for purpose. No environmental impact potential stemming from proxy data exceeds 10% for any impact category.

Allocation

In the background data, 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. No other allocation procedures have been applied in this assessment.

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.

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.

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

Electricity used in manufacturing is processes is assumed to be from the UK national grid and inclusive of transmission and distribution losses.

In Module D, benefits and loads are calculated for the net quantity of material recycled or recovered.

- All input data was scaled to kilograms of product then converted to m^2 for specific thickness of glass based on the density of the input materials for this product as stated in the EPDs. This was given at 2,386.5 kg/m^3.
- A wastage rate of 20% was assumed from manufacturing practices, this was considered for increasing the input mass of glass to product glass as well as waste generated during manufacturing which was sent for recycling.

- Electricity used in manufacturing processes is assumed to be from the UK national grid and inclusive of transmission and distribution losses.
- End of life and benefits and loads scenarios are modelled based on the guidance in section 4.8.4 of PCR 2019:14. Including transportation distance and treatment processes.
- Interlayer is not considered within the manufacturing waste cullet in terms of mass or end of life treatment.
- No specific purchased float glass could be allocated to specific output. Consequently, 4 – Processed – Low Iron is utilised as the default scenario when product assigned specific data is not available due to mirrored processes.
- Polyvinyl chloride environmental impact factor was utilised as a proxy where a conversion factor for Polyvinyl butyral was not available.

All glass data was collected on a facility wide basis for the reference year. Each input/output was then allocated to one of six product types. This allocation was utilised to assign the analysis data for all product types.
Input weight of glass used for manufacturing of products was based on the mass for all purchased glass in the reference year split between Saint Gobain, Guardian, and other (less than 1%) allocated to this product.
Upstream freighting was assumed from the UK distribution centres for Saint Gobain and Guardian to the ESG Group facility. For other glass, a transport distance assumption of 100 km was utilised.
It was assumed that all glass waste was sent to landfill both during processing and at end of life.
For other glass, generic market-based impact factors were utilised.

Manufacturing processes identified the total electricity consumption over the reference year in addition to the area of glass produced. A scaling factor was applied to allocate energy consumption appropriately to thicker glass that requires more processing. The total electricity consumption was scaled to kilograms of glass product. Electricity consumption was from the local UK grid network.

Environmental Performance Indicators

This EPD contains environmental information in the form of quantitative indicator values for a number of parameters, which encompass calculated environmental impact potentials, resource and energy use, waste generation and material and energy outputs from the product system that may be reused, recycled or recovered into other, unspecified product life cycles. These parameters are listed below along with the abbreviations used for them in the tables of indicator values that follow.

Table 4. 1 - 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 2 - The GWP-GHG indicator accounts for all greenhouse gases except biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. As such, the indicator is identical to GWP-total except that the CF for biogenic CO2 is set to zero. This indicator is closely comparable to the GWP indicator originally defined in EN 15804:2012+A1:2013.

Environmental Impact (EI) Factor (EN 15804:2012 + A2:2019) –	Acronym	Unit
Climate Change – Fossil[2]	GWP-Fossil	kg CO_2 eq
Climate Change - Biogenic	GWP-Biogenic	kg CO_2 eq
Climate Change - Land Use and Land Use Change	GWP-Luluc	kg CO_2 eq
Climate Change	GWP-Total	kg CO_2 eq
Acidification Potential	AP	mol H^+ eq
Eutrophication - Freshwater	EP-Freshwater	kg P eq
Eutrophication - Marine	EP-Marine	kg N eq
Eutrophication - Terrestrial	EP-Terrestrial	mol N eq
Photochemical Ozone Formation	POCP	kg NMVOC eq
Ozone Depletion	ODP	kg CFC11 eq
Depletion of Abiotic Resources - Minerals and Metals1	ADPMM	kg Sb eq
Depletion of Abiotic Resources - Fossil Fuels1	ADPFF	MJ
Water Deprivation Potential1	WDP	m^3 depriv
Resource Use	**Acronym**	**Unit**
Renewable Primary Energy as Energy Carrier	PERE	MJ
Renewable Primary Energy Resources as Material Utilisation	PERM	MJ
Total Renewable Primary Energy Use (sum of the two parameters above)	PERT	MJ
Non-Renewable Primary Energy As Energy Carrier	PENRE	MJ
Non-Renewable Primary Energy Resources As Material Utilisation	PENRM	MJ
Total Non-Renewable Primary Energy Use (sum of the two parameters above)	PENRT	MJ
Use of Secondary Material	SM	MJ
Use of Renewable Secondary Fuels	RSF	MJ
Use of Non-Renewable Secondary Fuels	NRSF	MJ
Net Use of Fresh Water	FW	m^3
Waste Generated	**Acronym**	**Unit**
Hazardous Waste Disposed	HWD	kg
Non-Hazardous Waste Disposed	NHWD	kg
Radioactive Waste Disposed	RWD	kg
Output Flows	**Acronym**	**Unit**
Components for Re-use	CRU	kg
Materials for Recycling	MFR	kg
Materials for Energy Recovery	MER	kg
Exported Energy - Electrical	EEE	MJ
Exported Energy - Thermal	EET	MJ

Environmental Performance Indicator Results

Environmental indicator results for the declared modules are shown in the following tables to the declared unit of metre square (m^2). These estimated impact results are only relative statements, which do not indicate the endpoints of the impact categories, exceeding threshold values, safety margins and/or risks. The A1 – A3 modules are shown on an aggregated basis as required by the PCR; the results of modules A1–A3 should not be used without considering the results of module C.

Interpretation

Indicator values obtained for resource depletion (ADPE, ADPF), stratospheric ozone depletion (ODP) and water deprivation (WDP) potential should be used with caution; all are subject to uncertainties in data or method which limit the scope for their use as the basis for comparisons.

Activities upstream in ESG Group Ltd supply networks contribute strongly to the environmental indicator values reported in this EPD. Evaluation of the data available to represent these activities identified various sources of uncertainty which influence those indicator values. The uncertainty associated with the declared values is considered to be at least +/−10% for the climate change category and is likely higher for other categories.

No untreated wastes leave the modelled system, which includes waste treatment activities as required by EN 15804. The waste indicators HWD, NHWD and TRWD presented in this EPD therefore represent waste flows within the modelled system.

Environmental indicator results are shown in the Table 6 for the square metres (m^2); modules A1 – A3 are shown on an aggregated basis.

Table 5. Full environmental impact, resource use, waste generated, and output flow metrics measured for one declared unit of Toughened Laminated Glass with PVB Interlayer. Declared unit = m^2 for 17.5 mm thick glass.

References

Ecoinvent database – www.ecoinvent.ch

DS/EN 15804:2012 + A2:2019 – Sustainability of construction works – Environmental product declarations – Core rules for the product category of construction products

General Program Instructions, Version 5.01, 2025-02-27 – The International EPD® System – EPD International AB

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.
PCR 2019:14 - Construction products, version 2.0.1, 2030-04-07 - The International EPD® System - EPD

Annex

The International EPD® System: a programme for Type III environmental declarations, maintaining a system to verify and register EPDs as well as keeping a library of EPDs 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.

EI Factor	Unit	A1-A3	A4	C1	C2	C3	C4	D
GWP-Fossil	kg CO_2 eq	7.89E+01	8.61E-01	0.00E+00	6.83E-01	0.00E+00	2.71E-02	-1.07E+01
GWP-Biogenic	kg CO_2 eq	4.96E-01	1.19E-03	0.00E+00	6.18E-04	0.00E+00	3.74E-05	-7.14E-02
GWP-Luluc	kg CO_2 eq	4.43E-02	4.69E-04	0.00E+00	3.32E-04	0.00E+00	7.37E-06	-5.72E-03
GWP-Total	**kg CO_2 eq**	**7.94E+01**	**8.63E-01**	**0.00E+00**	**6.84E-01**	**0.00E+00**	**2.72E-02**	**-1.08E+01**
AP	mol H^+ eq	2.80E-01	3.32E-03	0.00E+00	2.23E-03	0.00E+00	3.32E-04	-8.56E-02
EP-Freshwater	kg P eq	5.31E-03	8.30E-05	0.00E+00	4.78E-05	0.00E+00	1.48E-06	-1.18E-03
EP-Marine	kg N eq	6.95E-02	1.13E-03	0.00E+00	7.66E-04	0.00E+00	1.49E-04	-1.49E-02
EP-Terrestrial	mol N eq	2.69E-01	1.13E-03	0.00E+00	7.66E-04	0.00E+00	1.49E-04	-1.49E-02
POCP	kg NMVOC eq	2.05E-01	4.84E-03	0.00E+00	3.33E-03	0.00E+00	4.50E-04	-4.92E-02
ODP	kg CFC11 eq	5.18E-06	1.86E-08	0.00E+00	1.49E-08	0.00E+00	4.24E-10	-3.21E-07
ADPMM	kg Sb eq	1.33E-04	4.50E-06	0.00E+00	2.19E-06	0.00E+00	9.47E-08	-4.82E-05
ADPFF	MJ	1.25E+03	1.22E+01	0.00E+00	9.69E+00	0.00E+00	3.46E-01	-1.60E+02
WDP	m^3 depriv	2.79E+00	5.34E-02	0.00E+00	3.95E-02	0.00E+00	7.94E-04	-1.90E+00
Resource Use	**Unit**	**A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
PERE	MJ	1.15E+02	2.55E-01	0.00E+00	1.51E-01	0.00E+00	7.37E-06	-2.15E+01

PERM	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	MJ	1.15E+02	2.55E-01	0.00E+00	1.51E-01	0.00E+00	7.37E-06	-2.15E+01
PENRE	MJ	1.29E+03	1.30E+01	0.00E+00	1.03E+01	0.00E+00	2.71E-02	-1.70E+02
PENRM	MJ	1.01E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PENRT	MJ	1.29E+03	1.30E+01	0.00E+00	1.03E+01	0.00E+00	2.71E-02	-1.70E+02
SM	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
RSF	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	m^3	9.26E-02	1.96E-03	0.00E+00	1.38E-03	0.00E+00	3.22E-05	-6.24E-02

Waste Generated	**Unit**	A1-A3	A4	C1	C2	C3	C4	D
HWD	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NHWD	kg	1.11E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.54E+01	0.00E+00
RWD	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Output Flows	**Unit**	A1-A3	A4	C1	C2	C3	C4	D
CRU	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	kg	1.04E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MER	kg	6.91E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE	MJ	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