ENVIRONMENTAL PRODUCT DECLARATION

as per ISO 14025 and EN 15804 + A1

Owner of the Declaration – Munster Joinery Ltd

Declaration number: EPDIE-21-46
Issue date 6th August 2021
Valid to 6th August 2026

EPD Programme - EPD Ireland
Programme Operator - Irish Green Building Council
www.epdireland.org

Munster Joinery double and triple glazed windows

Passiv AluClad and Passiv AluP

1. General information

PROGRAMME OPERATOR	OWNER OF DECLARATION
Irish Green Building Council, 19 Mountjoy Square, Dublin D01 E8P5	Munster Joinery Ltd Ballydesmond, Co. Cork, Ireland T +353 (0) 64 775 1151 www.munsterjoinery.ie
DECLARATION NUMBER	**PRODUCTION SITE**
EPDIE-21-46	Ballydesmond, Co. Cork, Ireland
ECO PLATFORM EPD	**DECLARED UNIT**
Yes	1m² of Passiv AluClad and Passiv AluP double and triple glazed window.
APPLICABLE PRODUCT CATEGORY RULES	**DECLARED PRODUCT**
EN 15804:2012+A1:2013, EPD Ireland PCR Part A. I.S. EN 17213:2020 Windows and doors - Environmental Product Declarations - Product category rules for windows and pedestrian doorsets.	Passiv AluClad and Passiv AluP double and triple glazed window The service life of the product is taken as 50 years.
DATE OF ISSUE	**SCOPE OF EPD**
06.08.2021	Cradle to Gate, with options
DATE OF EXPIRY	**LCA CONSULTANT OR PERSON RESPONSIBLE FOR LCA**
06.08.2026	EcoReview, Kilkenny, Co. Kilkenny, Ireland, +353 87 258 9783 / +31 646 264 9327 info@ecoreview.ie / www.ecoreview.eu
TYPE OF EPD: SINGLE OR MULTI PRODUCT	**LCA SOFTWARE AND DEVELOPER IF APPLICABLE**
Multi product	Ecochain
PRODUCT CLASSIFICATION OR NACE CODE	**NAME AND VERSION OF INVENTORY USED**
NACE code: 25.12	Ecoinvent version 3.5
COMPARABILITY	
Environmental Product Declarations from different programmes may not be directly comparable if not compliant with EN 15804:2012+A1:2013. Comparability is further dependent on the specific product category rules, system boundaries and allocations, and background data sources. See clause 5.3 of EN 15804:2012+2012+A1:2013	
The CEN Norm /EN 15804 serves as the core PCR	
Independent verification of the declaration according to ISO 14025	

Internally ☐ Externally ×

SIGNATURE OF PROGRAMME OPERATOR	SIGNATURE VERIFIER
Pat Barry - CEO - Irish Green Building Council	Chris Foster - EuGeos SRL

2. Scope and Type of EPD

This is a Cradle to Gate with options EPD. The Modules that are declared are shown in the table below.

The geographical scope of this EPD is Europe.

PRODUCT STAGE			CONSTRUCTION ON PROCESS STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARIES
Raw material supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse - Recovery - Recycling potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	X	X	MND	MND	MND	MND	MND	MND	MND	X	X	X	X	MND

X - Module declared.

MND - Module not declared.

3. Detailed product description

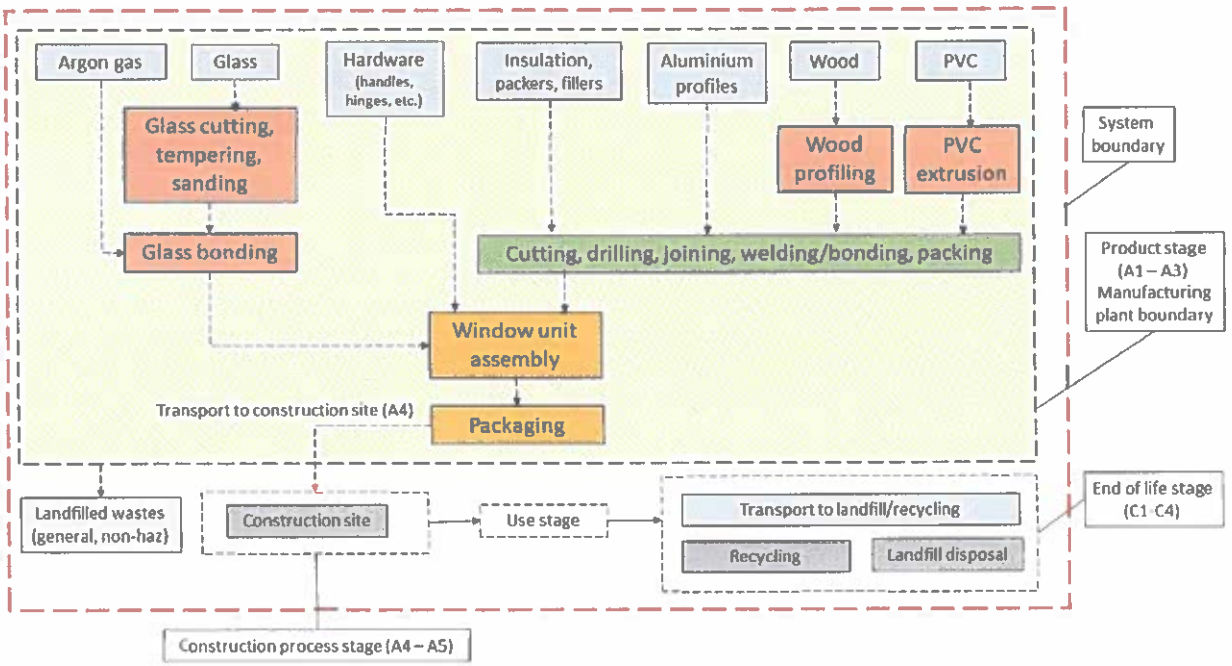
This EPD is carried out for the Munster Joinery Passiv AluClad and Passiv AluP double and triple glazed windows. The raw materials for the Passiv AluClad and Passiv AluP windows comprise: glass, argon, uPVC and aluminium and softwood profiles, warm edge spacer, foam filler and associated hardware (hinges, handles, recievers and gears). The windows are manufactured in accordance with I.S. EN 14351-1:2006 +A1:2010 Windows and doors - Product standard, performance characteristics.

Further technical information can be obtained at: https://www.munsterjoinery.ie/windows.html

3.1 Manufacturing Process Description

The three main production processes at Munster Joinery are (a) the cutting and assembly in the factory of the double and triple glazing sheets (b) cutting of aluminium profiles and extrusion, forming and cutting of uPVC profiles and (c) the assembly of these, with insulation, spacers, and fixings in the final window assembly. The glazing starts with the cutting of the glass to the required specifications. The glass sheets are bonded into double or triple glass sheets by sealing the layers to a warm edge spacer and filling the space between the layers with argon gas. For uPVC profile frames, the construction of the frame starts with the uPVC extrusion process. Relevant profiles are filled with an insulating foam. Profiles are then cut to the desired specific length. For the aluminium and wood profiles, these profile sections are cut to size/shape and jointed together. Profiles are welded or jointed together, creating the window frames. In the final window assembly the glazing is placed in the window and the hinges, locks, receivers and gears are attached.

The manufacturing process flowchart is shown below:



4.1 LCA results - 1 m² of Passiv AluClad double glazed window

Environmental impact per m²

PARAMETER	UNIT	A1	A2	A3	TOTAL A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP	[kg CO_2-Eq.]	1.50E+02	4.26E+00	3.45E+00	1.58E+02	1.79E+00	1.60E-01	MND	MND	MND	MND	MND	MND	MND	0.00E+00	7.45E-01	3.55E+00	7.16E+00	MND
ODP	[kg CFC11-Eq.]	3.33E-06	7.85E-07	1.77E-07	4.29E-06	3.21E-07	6.73E-08	MND	MND	MND	MND	MND	MND	MND	0.00E+00	1.34E-07	2.30E-07	-2.70E-08	MND
AP	[kg SO_2-Eq.]	6.99E-01	1.19E-02	1.58E-02	7.27E-01	4.28E-03	9.47E-04	MND	MND	MND	MND	MND	MND	MND	0.00E+00	1.78E-03	1.39E-02	1.02E-03	MND
EP	[kg (PO4)-Eq.]	7.05E-02	1.87E-03	6.06E-03	7.84E-02	6.79E-04	1.21E-04	MND	MND	MND	MND	MND	MND	MND	0.00E+00	2.83E-04	2.47E-03	3.16E-04	MND
POCP	[kg ethene-Eq.]	8.58E-02	2.15E-03	2.27E-03	9.02E-02	8.48E-04	1.33E-04	MND	MND	MND	MND	MND	MND	MND	0.00E+00	3.53E-04	1.49E-03	-1.78E-04	MND
ADPE	[kg Sb-Eq.]	3.52E-01	1.28E-05	3.38E-05	3.52E-01	7.15E-06	8.94E-07	MND	MND	MND	MND	MND	MND	MND	0.00E+00	2.98E-06	7.71E-04	-2.37E-03	MND
ADPF	[MJ]	2.29E+03	6.51E+01	1.72E+01	2.38E+03	2.70E+01	7.04E+00	MND	MND	MND	MND	MND	MND	MND	0.00E+00	1.12E-01	3.85E+01	6.09E+00	MND

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

Note - MND - Module not declared INA - Indicator not assessed

4.1 LCA results - 1 m² of Passiv AluClad double glazed window

Resource use per m²

PARAMETER	UNIT	A1	A2	A3	TOTAL A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
PERE	[MJ]	6.98E+02	7.16E-01	2.16E+02	9.16E+02	3.18E-01	2.53E-01	MND	MND	MND	MND	MND	MND	MND	0.00E+00	1.32E-01	2.83E+00	-3.41E+00	MND
PERM	[MJ]	2.27E+02	0.00E+00	0.00E+00	2.27E+02	0.00E+00	0.00E+00	MND	MND	MND	MND	MND	MND	MND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	MND
PERT	[MJ]	9.25E+02	7.16E-01	2.16E+02	1.14E+03	3.18E-01	2.53E-01	MND	MND	MND	MND	MND	MND	MND	0.00E+00	1.32E-01	2.83E+00	-3.41E+00	MND
PENRE	[MJ]	1.89E+03	6.97E+01	1.70E+01	1.98E+03	2.88E+01	7.38E+00	MND	MND	MND	MND	MND	MND	MND	0.00E+00	1.20E-01	3.84E+01	-4.26E+00	MND
PENRM	[MJ]	3.98E+02	0.00E+00	0.00E+00	3.98E+02	0.00E+00	0.00E+00	MND	MND	MND	MND	MND	MND	MND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	MND
PENRT	[MJ]	2.29E+03	6.97E+01	1.70E+01	2.38E+03	2.88E+01	7.38E+00	MND	MND	MND	MND	MND	MND	MND	0.00E+00	1.20E-01	3.84E+01	-4.26E+00	MND
SM	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	MND	MND	MND	MND	MND	MND	MND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	MND
RSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	MND	MND	MND	MND	MND	MND	MND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	MND
NRSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	MND	MND	MND	MND	MND	MND	MND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	MND
FW	[m³]	4.05E+00	1.08E-02	9.93E-03	4.07E+00	4.40E-03	1.02E-03	MND	MND	MND	MND	MND	MND	MND	0.00E+00	1.83E-03	5.48E-02	3.45E-02	MND

PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water. INA = Indicator not assessed. MND = Module not declared.

SM, RSF and NRSF are not calculated by the EcoChain software.

4.1 LCA results - 1 m² of Passiv AluClad double glazed window

Output flows and waste categories per m²

PARAMETER	UNIT	A1	A2	A3	TOTAL A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
HWD	[kg]	3.43E-01	4.18E-05	2.37E-04	3.43E-01	1.94E-05	2.77E-06	MND	MND	MND	MND	MND	MND	MND	0.00E+00	8.09E-06	1.68E-02	-1.50E-05	MND
NHWD	[kg]	1.37E+01	3.08E+00	4.67E+00	2.14E+01	1.05E+00	1.39E-02	MND	MND	MND	MND	MND	MND	MND	0.00E+00	4.39E-01	1.03E+00	-1.62E+01	MND
RWD	[kg]	5.68E-03	4.43E-04	7.19E-05	6.20E-03	1.81E-04	3.87E-05	MND	MND	MND	MND	MND	MND	MND	0.00E+00	7.53E-05	1.10E-04	1.75E-05	MND
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	MND	MND	MND	MND	MND	MND	MND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	MND
MFR	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	MND	MND	MND	MND	MND	MND	MND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	MND
MER	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	MND	MND	MND	MND	MND	MND	MND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	MND
EEE	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	MND	MND	MND	MND	MND	MND	MND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	MND
EET	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	MND	MND	MND	MND	MND	MND	MND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	MND

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

CRU, MFR, MER, EEE, EET are not calculated by the EcoChain software.

4.2 LCA results - 1 m² of Passiv AluClad triple glazed window

Environmental impact per m²

PARAMETER	UNIT	A1	A2	A3	TOTAL A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP	[kg CO_2-Eq.]	1.85E+02	5.58E+00	3.86E+00	1.95E+02	1.79E+00	1.60E-01	MND	MND	MND	MND	MND	MND	MND	0.00E+00	7.45E-01	3.60E+00	7.25E+00	MND
ODP	[kg CFC11-Eq.]	3.37E-06	1.03E-06	2.23E-07	4.62E-06	3.21E-07	6.73E-08	MND	MND	MND	MND	MND	MND	MND	0.00E+00	1.34E-07	2.32E-07	2.21E-10	MND
AP	[kg SO_2-Eq.]	8.44E-01	1.56E-02	2.07E-02	8.81E-01	4.28E-03	9.47E-04	MND	MND	MND	MND	MND	MND	MND	0.00E+00	1.78E-03	1.40E-02	1.67E-03	MND
EP	[kg (PO4)-Eq.]	8.52E-02	2.44E-03	7.49E-03	9.51E-02	6.79E-04	1.21E-04	MND	MND	MND	MND	MND	MND	MND	0.00E+00	2.83E-04	2.49E-03	4.39E-04	MND
POCP	[kg ethene-Eq.]	9.83E-02	2.81E-03	2.87E-03	1.04E-01	8.48E-04	1.33E-04	MND	MND	MND	MND	MND	MND	MND	0.00E+00	3.53E-04	1.51E-03	-8.71E-05	MND
ADPE	[kg Sb-Eq.]	5.38E-01	1.67E-05	4.64E-05	5.38E-01	7.15E-06	8.94E-07	MND	MND	MND	MND	MND	MND	MND	0.00E+00	2.98E-06	7.71E-04	-2.37E-03	MND
ADPF	[MJ]	2.82E+03	8.52E+01	2.18E+01	2.92E+03	2.70E+01	7.04E+00	MND	MND	MND	MND	MND	MND	MND	0.00E+00	1.12E+01	3.87E+01	8.52E+00	MND

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

Note - MND - Module not declared INA - Indicator not assessed

4.2 LCA results - 1 m² of Passiv AluClad triple glazed window

Resource use per m²

PARAMETER	UNIT	A1	A2	A3	TOTAL A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
PERE	[MJ]	6.41E+02	9.36E-01	2.98E+02	9.40E+02	3.18E-01	2.53E-01	MND	MND	MND	MND	MND	MND	MND	0.00E+00	1.32E-01	2.86E+00	-3.38E+00	MND
PERM	[MJ]	1.94E+02	0.00E+00	0.00E+00	1.94E+02	0.00E+00	0.00E+00	MND	MND	MND	MND	MND	MND	MND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	MND
PERT	[MJ]	8.36E+02	9.36E-01	2.98E+02	1.13E+03	3.18E-01	2.53E-01	MND	MND	MND	MND	MND	MND	MND	0.00E+00	1.32E-01	2.86E+00	-3.38E+00	MND
PENRE	[MJ]	2.40E+03	9.12E+01	2.13E+01	2.51E+03	2.88E+01	7.38E+00	MND	MND	MND	MND	MND	MND	MND	0.00E+00	1.20E-01	3.87E+01	-1.65E+00	MND
PENRM	[MJ]	4.17E+02	0.00E+00	0.00E+00	4.17E+02	0.00E+00	0.00E+00	MND	MND	MND	MND	MND	MND	MND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	MND
PENRT	[MJ]	2.81E+03	9.12E+01	2.13E+01	2.93E+03	2.88E+01	7.38E+00	MND	MND	MND	MND	MND	MND	MND	0.00E+00	1.20E-01	3.87E+01	-1.65E+00	MND
SM	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	MND	MND	MND	MND	MND	MND	MND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	MND
RSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	MND	MND	MND	MND	MND	MND	MND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	MND
NRSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	MND	MND	MND	MND	MND	MND	MND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	MND
FW	[m³]	4.40E+00	1.41E-02	1.30E-02	4.43E+00	4.40E-03	1.02E-03	MND	MND	MND	MND	MND	MND	MND	0.00E+00	1.83E-03	5.54E-02	3.71E-02	MND

PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water. INA = Indicator not assessed. MND = Module not declared.

SM, RSF and NRSF are not calculated by the EcoChain software.

4.2 LCA results - 1 m² of Passiv AluClad triple glazed window

Output flows and waste categories per m²

PARAMETER	UNIT	A1	A2	A3	TOTAL A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
HWD	[kg]	5.30E-01	5.47E-05	3.25E-04	5.30E-01	1.94E-05	2.77E-06	MND	MND	MND	MND	MND	MND	MND	0.00E+00	8.09E-06	1.68E-02	-1.33E-05	MND
NHWD	[kg]	1.41E+01	4.03E+00	5.10E+00	2.33E+01	1.05E+00	1.39E-02	MND	MND	MND	MND	MND	MND	MND	0.00E+00	4.39E-01	1.09E+00	-2.59E+01	MND
RWD	[kg]	7.87E-03	5.80E-04	8.68E-05	8.54E-03	1.81E-04	3.87E-05	MND	MND	MND	MND	MND	MND	MND	0.00E+00	7.53E-05	1.12E-04	3.29E-05	MND
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	MND	MND	MND	MND	MND	MND	MND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	MND
MFR	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	MND	MND	MND	MND	MND	MND	MND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	MND
MER	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	MND	MND	MND	MND	MND	MND	MND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	MND
EEE	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	MND	MND	MND	MND	MND	MND	MND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	MND
EET	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	MND	MND	MND	MND	MND	MND	MND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	MND

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

CRU, MFR, MER, EEE, EET are not calculated by the EcoChain software.