Environmental Product Declaration

Global GreenTag EPD Program:

Compliant to EN15804+A2 2019

Polyflor Ltd

Homogeneous Flooring

Palettone PUR

Leicester Rd, Whitefield,

Manchester M 45 7NG, United Kingdom

POLYFLOR™

COVERING THE WORLD

Mandatory Disclosures

EPD type	Cradle to grave A1 to C4 + D		
EPD Numbers	PLF:HP5:2022		
Issue Date	07 October 2022	**Valid Until**	07October 2027

Demonstration of Verification	
PCR	Standard EN 15804+A2 2019 serves as core Product Category Rules (PCR) [1]. Sub PCR FC:2022v1 Interior Floorcovering also applies [2].
☑ Internal	LCA Developed by Delwyn Jones, The Evah Institute LCA Reviewed by Direshni Naiker Ecquate Pty Ltd EPD Reviewed by David Baggs, Global GreenTag Pty Ltd
☑ External	Third Party Verifier[a] Mathilde Vlieg, Malaika LCT a. Independent external verification of the declaration and data, mandatory for business-to-consumer communication according to ISO 14025:2010 [2].
Communication	This EPD discloses potential environmental outcomes compliant with EN 15804 for business-to-business communication.
Comparability	Construction product EPDs may not be comparable if not EN15804 compliant. Different program EPDs may not be comparable. Comparability is further dependent on the product category rules and data source used.
Reliability	LCIA results are relative expressions that do not predict impacts on category endpoints, exceeding of thresholds, safety margins or risks.
Owner	This EPD is the property of the declared manufacturer.
Explanations	Further explanatory information is available at info@globalgreentag.com or by contacting certification1@globalgreentag.com [3].

EPD Program Operator	**LCA and EPD Producer**	**Declaration Owner**
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Program Description

EPD type	Cradle to grave A1 to C4 + D as defined by EN 15804 [1]
System boundary	The system boundary with nature includes material and energy acquisition, processing, manufacture, transport, installation, use plus waste arising to end of life.
Information Modules	Figure 1 depicts all modules being declared including some with zero results. Any module not declared (MND) does not indicate a zero result.

Model Information	Actual			Scenarios												Potential		
	Building Life Cycle Assessment															Supplementary		
Stages						Use										Benefit & load beyond system		
	Product			Construct		Fabric					Operation		End-of-Life					
Modules	A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D1	D2	D3
Unit Operations Mandatory (M) & Optional (O) Cradle to	Resources	Transport	Manufacture	Transport	Construct	Use	Maintain	Repair	Replace	Refurbish	Energy use	Water use	Demolish	Transport	Process Waste	Disposal	Reuse	Recovery	Recycling
Gate+ Options	Mandatory			O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
				M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	O

Figure 1 EPD Life Cycle Modules Cradle to Grave

Scope Depiction	A1-3 A4-5, B1-5, C1-4 & D1. Stages B6-7 and D2-3 have zero flows
Stages included	
Stages excluded	No stage was excluded but B6-7 and D2-3 have zero flows with zero results

Data Sources

Primary Data	Data was collected from primary sources 2019 to 2022 including the manufacturer and suppliers' standards, locations, logistics, technology, market share, management system in accordance with EN ISO 14044:2006, 4.3.2, [4]. All are biochemical-physical allocated none are economically allocated.
A1-A3 Stage inclusions	Operations include all known raw material acquisition, refining and processing plus scrap or material reuse from prior systems; electricity generated from all sources with extraction, refining & transport plus secondary fuel energy and recovery processes. Also, transport to factory gate; manufacture of inputs, ancillary material, product, packaging, maintenance, replacement plus flows leaving at end-of-waste boundary and fates of all flows at end of
Variability	Significant differences of average LCIA results are declared.
Chemicals of Concern	Contains no substances in the European Chemicals Agency "Authorised or Candidate Lists of Substances of Very High Concern (SVHCs)".

Data Quality

Data cut-off & quality criteria complies with EN 15804 [1] The LCA used background data aged <10 years and quality parameters tabled below.

Background	**Data Quality**	**Parameters and Uncertainty (U)**			
Correlation	**Metric σg**	U ±0.01	U ±0.05	U ±0.10	U ±0.20
Reliability	**Reporting**	Site Audit	Expert verify	Region	Sector
	Sample	>66% trend	>25% trend	>10% batch	>5% batch
Completion	**Including**	>50%	>25%	>10%	>5%
	Cut-off	0.01%w/w	0.05%w/w	0.1%w/w	0.5%w/w
Temporal	**Data Age**	<3 years	≤5 years	<7.5 years	<10 years
	Duration	>3 years	<3 years	<2 years	1 year
Technology	**Typology**	Actual	Comparable	In Class	Convention
Geography	**Focus**	Process	Line	Plant	Corporate
	Range	Continent	Nation	Plant	Line
	Jurisdiction	Representation is Global. Africa, North America, Europe, Pacific Rim			

System Analysis Scope and Boundaries

Stages A1 to 3 model actual operations. Stage A4 to C4 are model scenarios.

Typical scenarios are assumed to forecast unit operations as described in the next section.

Figure 2. shows included processes in a cradle to grave system boundary to end of life fates to unshown beyond the boundary reuse, recycling or landfill grave.

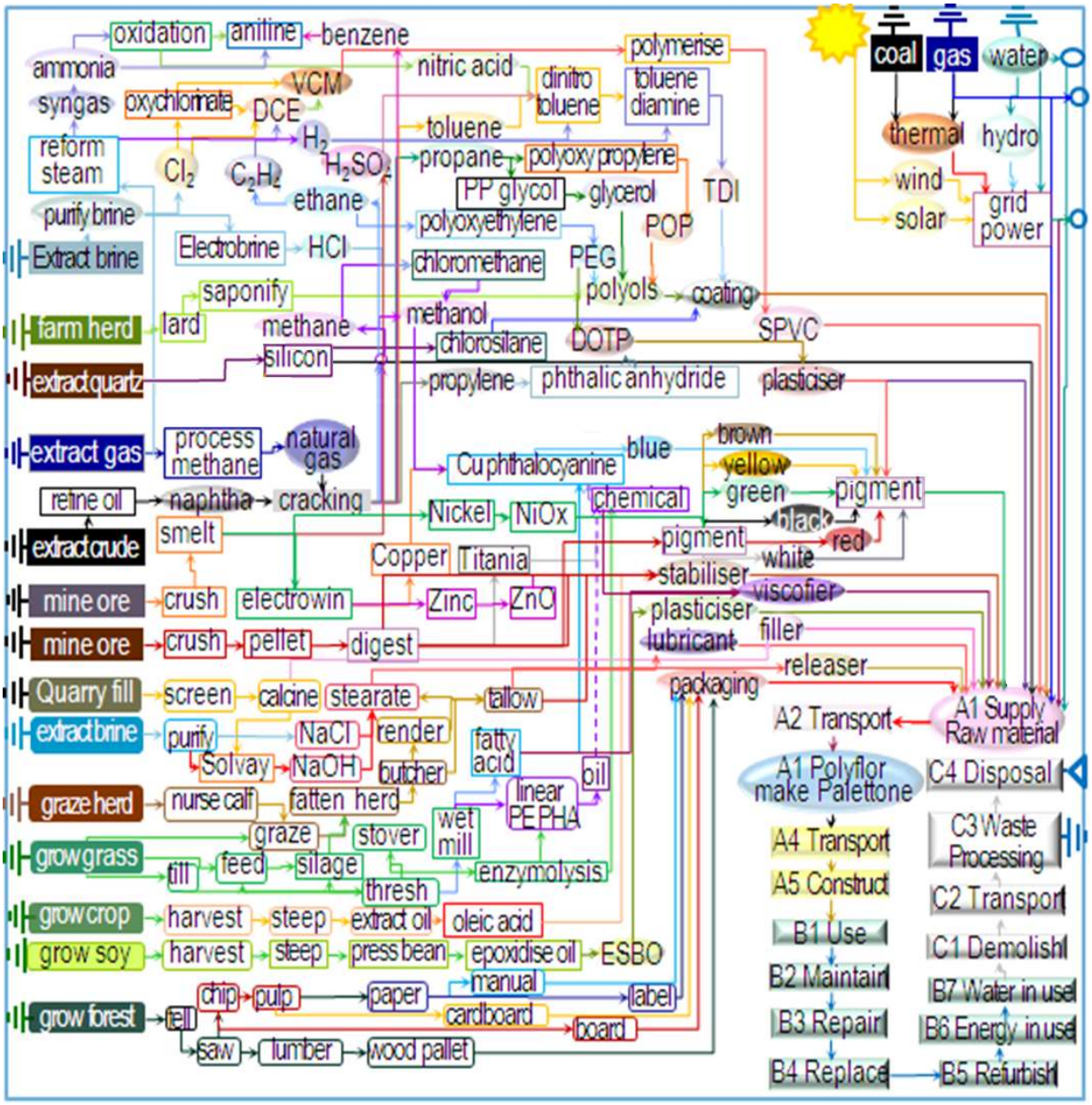

Figure 2. Product Process Flow Chart Completeness

Environmental Impact Terminology

Environmental impacts contributing to risks of social and ecological issues and collapse are tabled below with common names and remedies given for each indicator.

Global warming forcing Climate Change	Greenhouse gases absorb infra-red radiation. This heat reduces thermal energy differentials, from equator to poles, forcing ocean current and wind circulation to blend and regulate climate. Weakly blended "lumpier" weather has more frequent, extreme heat wave, fire-storm, cyclone, rain-storm, flood and blizzard events. Accumulation of carbon dioxide, natural gas methane, nitrous oxides and volatile organic compounds from burning fossil fuels causes global warming. Forest and wilderness growth absorbing air-borne carbon in biomass can drawdown such accumulation. Urgent renewable energy reliance is vital in time to avoid imminent tipping points and the worsening "***climate emergency***".
Ozone layer depletion	Stratospheric ozone loss weakens the planet's solar shield so more shorter wavelength ultraviolet (UVB) light reaching earth damages plants and increases malignant melanoma and skin cancer in humans and animals. Chlorofluorocarbons, hydrochlorofluorocarbons (HCFC), chlorobromomethane, hydrobromofluorocarbons, carbon tetrachloride, methyl chloroform, methyl bromide and halon gas cause ozone layer loss. To repair the *"**ozone hole**"* reliance on ozone-safe refrigerants, aerosols and solvents is essential to avoid further its depletion and enable accumulation of naturally-formed ozone.
Acidification	Acidification reduces soil and waterway pH, impedes nitrogen fixation vital for plant growth and inhibits natural decomposition. It increases rates and incidence of fish kills, forest loss and deterioration of buildings and materials. Chief synthetic causes of "***acid rain***" are emissions of sulphur and nitrogen oxides, hydrochloric and hydrofluoric acids and ammonia from burning fossil fuels polluting precipitation of rain and snow world-wide.
Eutrophication of terrestrial, freshwater and marine life	Eutrophication from excessively high macronutrient levels added to natural waters promotes excessive plant growth that severely reduces oxygen, water and habitat security for aquatic and terrestrial organisms across related ecosystems. Chief synthetic cause of "***algal blooms***" is nitrogen (N, NOx, NH_4) and phosphorus (P, PO_4^{3-}) in rain run-off over-fertilised land catchments.
Photochemical ozone creation	Tropospheric photochemical ozone, called "***summer smog***" near ground level, is created from natural and synthetic compounds in UV sunlight. Low concentration smog damages vegetation and crops. High concentration smog is hazardous to human health. Chief synthetic causes are nitrogen oxides, carbon monoxide and volatile organic compounds (VOC) pollutants. Avoiding reliance on dirtiest coal fuel and volatile chemicals has reduced smog incidence in many areas globally.
Depletion of minerals, metals & water	Abiotic depletion of finite mineral resources increases time, effort and money required to obtain more resources to the point of extinction of naturally viable reserves. This can limit access to available, valuable and scarce elements vital for human-life. The youth movement "***extinction rebellion***" calls on adults to secure climate, reserves and biodiversity for current and future generations.
Depletion of fossil fuel reserves	Abiotic depletion of resources by consuming finite oil, natural gas, coal and yellowcake fossil fuel reserves leaves current and future generations suffering limited available, accessible, plentiful, essential valuable as well as scarce raw material, medicinal, chemical, feedstock and fuel stock. Approaching "***peak oil***" acknowledged fossil fuel reserves are finite and the need for decision-makers to act to avoid market instability, insecurity and or oil and gas wars.

Glossary of Terms, Methods and Units

Acronyms, methods and units of impact potentials plus inventory inputs and outputs, are defined below

Impact Potentials	Acronym	Description of Methods	Units
Climate Change fossil	GWP_{ff}	GWP fossil fuels [7]	kg CO_{2eq}
Climate Change biogenic	GWP_{bio}	GWP biogenic [7]	kg CO_{2eq}
Climate Change land use	GWP_{luluc}	GWP land use & change [7]	kg CO_{2eq}
Climate Change total	GWP_{t}	Global Warming Potential [7]	kg CO_{2eq}
Stratospheric Ozone Depletion	ODP	Stratospheric Ozone Loss [8]	kg CFC_{11eq}
Photochemical Ozone Creation	POCP	Summer Smog [9]	kg NMOC $_{eq}$
Acidification Potential	AP	Accumulated Exceedance [10]	mol H^{+} $_{eq}$
Eutrophication Freshwater	EP_{fresh}	Excess nutrients freshwater [11]	kg P $_{eq}$
Eutrophication Marine	EP_{marine}	Excess marine nutrients [11]	kg N $_{eq}$
Eutrophication Terrestrial	EP_{land}	Excess Terrestrial nutrients [11]	mol N $_{eq}$
Mineral & Metal Depletion	ADP_{min}	Abiotic Depletion minerals [12]	kg Sb $_{eq}$
Fossil Fuel Depletion	ADP_{ff}	Abiotic Depletion fossil fuel [13]	MJ $_{ncv}$
Water Depletion	WDP	Water Deprivation Scarcity [14, 15]	m^3 $_{WDP\ eq}$
Fresh Water Net	FW	Lake, river, well & town water	m^3
Secondary Material	SM	Post-consumer recycled (PCR)	kg
Secondary Renewable Fuel	RSF	PCR biomass burnt	MJ $_{ncv}$
Primary Energy Renewable Material	PERM	Biomass retained material	MJ $_{ncv}$
Primary Energy Renewable Not Feedstock	PERE	biomass fuels burnt	MJ $_{ncv}$
Primary Energy Renewable Total	PERT	Biomass burnt + retained	MJ $_{ncv}$
Secondary Non-renewable Fuel	NRSF	PCR fossil-fuels burnt	MJ $_{ncv}$
Primary Energy Non-renewable Material	PENRM	Fossil feedstock retained	MJ $_{ncv}$
Primary Energy Non-renewable Not Feedstock	PENRE	fossil-fuel used or burnt	MJ $_{ncv}$
Primary Energy Non-renewable Total	PENRT	Fossil feedstock & fuel use	MJ $_{ncv}$
Hazardous Waste Disposed	HWD	Reprocessed to contain risks	kg
Non-hazardous Waste Disposed	NHWD	Municipal landfill facility waste	kg
Radioactive Waste Disposed	RWD	Mostly ex nuclear power stations	kg
Components For Reuse	CRU	Product scrap for reuse as is	kg
Material For Recycling	MFR	Factory scrap to remanufacture	kg
Material For Energy Recovery	MER	Factory scrap use as fuel	kg
Exported Energy Electrical	EEE	Uncommon for building products	MJ $_{ncv}$
Exported Energy Thermal	EET	Uncommon for building products	MJ $_{ncv}$

Product Information

The design application is for predominately dry areas of Hospital, Aged Care, Health Care & Education, Hospitality, Mercantile and Light Industrial buildings.

Brand Name & Code	Palettone PUR
EPD Number	PLF:HP5:2022
Range Names	Polyflor Homogeneous Flooring
Factory warranty	15 years
Practices Reference	https://www.polyflor.com
Installation Procedure	https://www.polyflor.com
Manufacturer	Polyflor Ltd
Manufacturer address	Leicester Rd, Whitefield, Manchester M 45 7NG, United Kingdom
Site representation	United Kingdom, Europe, Pacific Rim and Australasia
Application	Commercial
Function in Building	Flooring
Practicality	All Polyflor commercial sheet vinyl ranges provide a continuous, impervious and hygienic flooring solution which can be confidently cleaned in accordance with recommended maintenance procedures and approved maintenance products.
Durability	Polyflor Palettone PUR features a high quality, cross-linked polyurethane reinforcement, UV cured to provide a low-cost, polish free maintenance regime for the lifetime of the flooring.
Declared unit	1 kg = 0.326 m^2 of polyvinyl chloride coated floor covering
Functional unit	20 years use of declared 2.80kg/m^2 floor covering per kilogram

Product Image

Product Functional & Technical Performance Information

This section provides manufacturer specifications, additional information and datapoints required to calculate assessment results factoring different mass and periods.

Service	Standard	Parameters	Conformance to standard
Specifications	**Homogenous Flooring PUR**	**https://www.polyflor.com**	yes
Type	**ISO 10581**	**Resilient floor covering**	Homogeneous sheet vinyl
Performance		**Homogeneous floor covering**	√
Binder		**Content Type**	Type 1
Emissions	**ASTM D5116**	**Volatile Organic Compound (VOC)**	< 0.5mg/m2/hour
Use area classification	**ISO 10874**	**Commercial**	34
		Light industrial	43
Lifetime [5,6]	**ISO 15686**	**Reference Service Life (RSL)**	20 years RSL
Durability	**EN 660-2**	**Wear resistance group**	T
Dimensions	**ISO 24341**	**Roll size W*L**	2*20m
	ISO 24346	**Overall Thickness**	2 mm
Reaction to fire	**AS ISO 9239-1**	**Critical radiant flux**	≥8kW/m^2

Product Components

This section summarises factory components, functions, source nation and % mass share.

In the product content listed below the % mass has a ±5% range and a confidence interval that is 90% certain to contain true population means at any time.

Listing such 90±5% certainty considers normal resource acquisition, supply chain, sedimentation, seasonal, manufacturing and product colour variation over this EPD's 5-year validity period.

This also allows for intellectual property protection whilst ensuring fullest possible transparency.

Function	Component	Cradle	Palettone
Binder	Polyvinyl Chloride	Netherlands	>30<40
Binder	Recycled PVC: Post Industrial	United Kingdom	>25<30
Filler	Limestone	United Kingdom	>20<25
Plasticiser	Dioctyl teraphthalate	United Kingdom	>10<15
Whiting	Titania	Czech Republic	>1.0<2.0
Plasticiser	EthylHexylEster	United Kingdom	>1.0<2.0
Stabiliser	Barium Zinc	United Kingdom	>0.1<0.5
Lubricant	Calcium Stearate	Germany	>0.1<0.5
Coating	Polyurethane	United Kingdom	>0.1<0.5
Colour	Pigments	Global	<0.1
Packing			
Carton	Cardboard	United Kingdom	0.02
Pallets	Wood	United Kingdom	0.02
Tape	Polymer	United Kingdom	0.1
Wrap	Plastic	United Kingdom	0.01
Nails	Steel	United Kingdom	0.01

Scenarios for Modules (Units/Functional Unit)

This section defines modelling scenarios. Stages A1 to A3 model actual operations. Stage A4 to D3 model scenarios described as listed below.

A Construction

A4 Transport to Site	Type specified	Amount	Type specified	Amount
Intercity road trucking	2t to 5t vans	220 km	85% Capacity	Full back load
Long distance road trucking	25t semi-trailer	600 km	85% Capacity	Full back load
Continental freight rail	Diesel train	600 km	85% Capacity	Full back load
Global container shipping	Factory to CBD	1,200km	85% Capacity	Full back load
Volume capacity (<1 to ≥1)	Utilisation factor	1	Uncompressed	Un-nested
A5 Installation: Ancillaries	Adhesive	0.025 kg	Edge trim	0.0001 kg
Packing	Cardboard	0.005 kg	Polymer	0.00001 kg
Water & Energy	Town water	0.00 m3	Energy type	0.0 MJ
Waste on site	Trims	0.05 kg	All packaging	As declared kg
Scrap, collection & routes	No recycling	0.0 kg	Energy recovery	0.0 kg
Emissions	Nil to air & water	0.0 kg	All from landfill	In LCA report

B Building

Stage B1 Use of building fabric has zero flows. Stage B2 and B3 scenarios are listed below. Stages B4 Replacement, B5 Refurbishment, B6 Building Operating Energy and B7 Building Operating Water each have zero flows

B2 Maintenance	Type specified	Amount	Type specified	Amount
Maker's specified process	URL declared	Specified	Clean cycle	Weekly
Ancillary material (kg)	Scrubber pads	Negligible	Detergent	0.007kgpa
Washing net water use	Town water	1.95kgpa	To drain 1.90	kgpa
Vacuum cleaning energy	Once weekly	1.62MJpa	Power mix	Local AU mean
B3 Repair	Damaged parts	0.05kg	Worn parts	Same 5%
Maker's specified process	As per website	Specified	Freight to site	As A5
Energy input & source	No excess	0.0MJpa	Packaging	As A5

Stage C1, C2 and C4 scenarios are listed below. Stage C3 Waste Treatment has zero flows.

C End of Life

C1 Demolition	Type specified	Amount	Type specified	Amount
Operation	Take up worn area	0.40kg	Collection	Separate
Collection process	In site waste	0.40kg	Separate to reuse	0.0kg
C2 Transport	25t truck road	50km	85% capacity	No back load
C4 Disposal	Product specific	0.40kg	Collect separately	0.40kg
Typical Scenario	high wear to landfill	40%	All emissions	mass share
Recovery system	No recycling	0.0 kg	Not for energy	0.0 kg

Stage D1 scenario is listed below. Stage D2 Recovery and D3 Recycling each have zero flows.

D Beyond System Boundary

D1 Reuse	Type specified	Amount	Type specified	Amount
Typical Scenario	Retain low wear	60%	Reuse in place	0.60kg

Module A1 to D4 Results Cradle to Gate and Construct

Table 1 shows results for Cradle to site A1 to A5. Note 0.0E+00 denote a zero impact or result

Table 1 A1 to B7 Impact & Inventory Results/Functional Unit

Impact Potentials	A1-3	A4	A5
Climate Change fossil	3.4	0.17	0.29
Climate Change biogenic	0.0E+00	0.0E+00	0.0E+00
Climate Change land use	5.6E-04	2.8E-09	3.3E-07
Climate Change total	2.73	0.17	0.29
Stratospheric Ozone Depletion	5.6E-08	2.9E-13	9.9E-09
Photochemical Ozone Creation	1.8E-02	1.0E-05	1.9E-03
Acidification Potential	7.2E-03	9.0E-05	8.0E-04
Eutrophication Freshwater	3.1E-06	2.1E-09	2.3E-05
Eutrophication Marine	1.5E-03	1.7E-05	1.5E-04
Eutrophication Terrestrial	7.3E-03	5.5E-05	1.2E-03
Mineral & Metal Depletion	8.0E-04	1.1E-05	1.8E-05
Fossil Fuel Depletion	3.36	0.20	0.2
Water Depletion	3.3E-02	1.6E-05	2.8E-03
Fresh Water Net	202	0.10	17
Secondary Material	0.37	4.7E-06	2.0E-02
Secondary Renewable Fuel	0.0E+00	0.0E+00	0.0E+00
Primary Energy Renewable Material	0.33	3.7E-03	3.6E-02
Primary Energy Renewable Not Feedstock	11.55	5.1E-04	0.10
Primary Energy Renewable Total	11.87	4.2E-03	0.14
Secondary Non-renewable Fuel	0.32	1.1E-03	6.1E-04
Primary Energy Non-renewable Material	24.02	0.97	1.58
Primary Energy Non-renewable Not Feedstock	46.58	1.64	3.69
Primary Energy Non-renewable Total	70.61	2.60	5.26
Hazardous Waste Disposed	1.2E-02	3.3E-04	9.0E-04
Non-hazardous Waste Disposed	3.6E-01	2.9E-03	4.3E-02
Radioactive Waste Disposed	8.0E-16	1.7E-31	1.4E-17
Components For Reuse	0.0E+00	0.0E+00	0.0E+00
Material For Recycling	0.42	9.3E-04	3.2E-02
Material For Energy Recovery	2.7E-02	3.4E-07	2.1E-04
Exported Energy Electrical	0.0E+00	0.0E+00	0.0E+00
Exported Energy Thermal	0.0E+00	0.0E+00	0.0E+00

Module Results Building Use and End-of-Life

Table 2 shows results for Building Use B1 to B7

Table 2 C1 to C4 Impact & Inventory Results/Functional Unit

Result	B1	B2	B3	B4	B5	B6	B7
GWP ff	0.0E+00	0.62	0.21	0.0E+00	0.0E+00	0.0E+00	0.0E+00
GWP bio	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
GWP luluc	0.0E+00	7.3E-06	2.8E-05	0.0E+00	0.0E+00	0.0E+00	0.0E+00
GWP total	0.0E+00	0.52	0.18	0.0E+00	0.0E+00	0.0E+00	0.0E+00
ODP	0.0E+00	2.9E-09	7.4E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00
POCP	0.0E+00	3.3E-03	1.2E-03	0.0E+00	0.0E+00	0.0E+00	0.0E+00
AP	0.0E+00	1.4E-03	5.1E-04	0.0E+00	0.0E+00	0.0E+00	0.0E+00
EP freshwater	0.0E+00	5.9E-07	2.2E-05	0.0E+00	0.0E+00	0.0E+00	0.0E+00
EP marine	0.0E+00	2.4E-04	1.4E-04	0.0E+00	0.0E+00	0.0E+00	0.0E+00
EP land	0.0E+00	1.8E-03	5.7E-04	0.0E+00	0.0E+00	0.0E+00	0.0E+00
ADP min	0.0E+00	2.9E-04	4.4E-05	0.0E+00	0.0E+00	0.0E+00	0.0E+00
ADP ff	0.0E+00	0.53	0.21	0.0E+00	0.0E+00	0.0E+00	0.0E+00
WDP	0.0E+00	9.8E-03	2.8E-03	0.0E+00	0.0E+00	0.0E+00	0.0E+00
FW	0.0E+00	60	17	0.0E+00	0.0E+00	0.0E+00	0.0E+00
SM	0.0E+00	0.0E+00	2.5E-02	0.0E+00	0.0E+00	0.0E+00	0.0E+00
RSF	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
PERM	0.0E+00	1.00	0.02	0.0E+00	0.0E+00	0.0E+00	0.0E+00
PERE	0.0E+00	0.6	0.60	0.0E+00	0.0E+00	0.0E+00	0.0E+00
PERT	0.0E+00	1.6	0.62	0.0E+00	0.0E+00	0.0E+00	0.0E+00
NRSF	0.0E+00	0.04	0.01	0.0E+00	0.0E+00	0.0E+00	0.0E+00
PENRM	0.0E+00	1.6	1.5	0.0E+00	0.0E+00	0.0E+00	0.0E+00
PENRE	0.0E+00	7.7	2.9	0.0E+00	0.0E+00	0.0E+00	0.0E+00
PENRT	0.0E+00	9.3	4.4	0.0E+00	0.0E+00	0.0E+00	0.0E+00
HWD	0.0E+00	9.1E-04	8.4E-04	0.0E+00	0.0E+00	0.0E+00	0.0E+00
NHWD	0.0E+00	9.9E-02	4.7E-02	0.0E+00	0.0E+00	0.0E+00	0.0E+00
RWD	0.0E+00	2.5E-17	4.4E-17	0.0E+00	0.0E+00	0.0E+00	0.0E+00
CRU	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
MFR	0.0E+00	7.1E-02	2.2E-02	0.0E+00	0.0E+00	0.0E+00	0.0E+00
MER	0.0E+00	3.2E-05	1.4E-03	0.0E+00	0.0E+00	0.0E+00	0.0E+00
EEE	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
EET	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

Module Results Building Use and End-of-Life

Table 3 shows results for Building End of Life C1 to C4.

Table 3 C1 to C4 Impact & Inventory Results/Functional Unit

Result	C1	C2	C3	C4
GWP ff	1.8E-03	6.2E-03	0.0E+00	7.1E-03
GWP bio	0.0E+00	0.0E+00	0.0E+00	0.0E+00
GWP luluc	2.1E-08	1.4E-09	0.0E+00	3.5E-03
GWP total	1.6E-03	6.2E-03	0.0E+00	1.1E-02
ODP	6.8E-12	1.1E-13	0.0E+00	7.1E-08
POCP	9.6E-06	6.0E-05	0.0E+00	6.1E-04
AP	4.1E-06	5.1E-06	0.0E+00	1.1E-03
EP freshwater	1.4E-09	3.1E-10	0.0E+00	3.1E-04
EP marine	7.3E-07	9.5E-07	0.0E+00	2.6E-05
EP land	5.4E-06	3.4E-06	0.0E+00	4.2E-05
ADP min	1.5E-03	7.5E-03	0.0E+00	0.0E+00
ADP ff	6.6E-07	4.0E-06	0.0E+00	0.0E+00
WDP	2.3E-05	1.4E-06	0.0E+00	0.0E+00
FW	0.14	8.7E-03	0.0E+00	0.0E+00
SM	0.0E+00	2.2E-06	0.0E+00	0.0E+00
RSF	0.0E+00	0.0E+00	0.0E+00	0.0E+00
PERM	0.0E+00	0.0E+00	0.0E+00	0.0E+00
PERE	2.3E-03	1.6E-03	0.0E+00	0.0E+00
PERT	1.6E-03	2.1E-04	0.0E+00	0.0E+00
NRSF	4.0E-03	1.8E-03	0.0E+00	0.0E+00
PENRM	8.9E-05	4.8E-04	0.0E+00	0.0E+00
PENRE	3.7E-03	3.7E-02	0.0E+00	0.0E+00
PENRT	2.2E-02	6.4E-02	0.0E+00	0.0E+00
HWD	2.1E-06	1.2E-05	0.0E+00	0.0E+00
NHWD	2.3E-04	9.7E-05	0.0E+00	0.0E+00
RWD	5.7E-20	8.5E-32	0.0E+00	0.0E+00
CRU	0.0E+00	0.0E+00	0.0E+00	0.0E+00
MFR	1.7E-04	4.6E-06	0.0E+00	0.0E+00
MER	7.5E-08	1.5E-07	0.0E+00	0.0E+00
EEE	0.0E+00	0.0E+00	0.0E+00	0.0E+00
EET	0.0E+00	0.0E+00	0.0E+00	0.0E+00

Module A1 to D4 Results Beyond System Boundaries

Table 4 shows results for Beyond System Boundaries phases D1 to D4.

Table 4 C1 to D4 Impact & Inventory Results/Functional Unit

Result	D1	D2	D3	D4
GWP ff	0.0E+00	0.0E+00	0.0E+00	0.0E+00
GWP bio	0.36	0.0E+00	0.0E+00	0.0E+00
GWP luluc	0.0E+00	0.0E+00	0.0E+00	0.0E+00
GWP total	0.0E+00	0.0E+00	0.0E+00	0.0E+00
ODP	0.0E+00	0.0E+00	0.0E+00	0.0E+00
POCP	0.0E+00	0.0E+00	0.0E+00	0.0E+00
AP	0.0E+00	0.0E+00	0.0E+00	0.0E+00
EP freshwater	0.0E+00	0.0E+00	0.0E+00	0.0E+00
EP marine	0.0E+00	0.0E+00	0.0E+00	0.0E+00
EP land	0.0E+00	0.0E+00	0.0E+00	0.0E+00
ADP min	0.0E+00	0.0E+00	0.0E+00	0.0E+00
ADP ff	0.0E+00	0.0E+00	0.0E+00	0.0E+00
WDP	0.0E+00	0.0E+00	0.0E+00	0.0E+00
FW	0.0E+00	0.0E+00	0.0E+00	0.0E+00
SM	0.0E+00	0.0E+00	0.0E+00	0.0E+00
RSF	0.0E+00	0.0E+00	0.0E+00	0.0E+00
PERM	0.22	0.0E+00	0.0E+00	0.0E+00
PERE	6.8	0.0E+00	0.0E+00	0.0E+00
PERT	6.6	0.0E+00	0.0E+00	0.0E+00
NRSF	0.19	0.0E+00	0.0E+00	0.0E+00
PENRM	14	0.0E+00	0.0E+00	0.0E+00
PENRE	28	0.0E+00	0.0E+00	0.0E+00
PENRT	42	0.0E+00	0.0E+00	0.0E+00
HWD	0.0E+00	0.0E+00	0.0E+00	0.0E+00
NHWD	0.0E+00	0.0E+00	0.0E+00	0.0E+00
RWD	0.0E+00	0.0E+00	0.0E+00	0.0E+00
CRU	0.0E+00	0.0E+00	0.0E+00	0.0E+00
MFR	0.0E+00	0.0E+00	0.0E+00	0.0E+00
MER	0.0E+00	0.0E+00	0.0E+00	0.0E+00
EEE	0.0E+00	0.0E+00	0.0E+00	0.0E+00
EET	0.0E+00	0.0E+00	0.0E+00	0.0E+00

Interpretation of Results

This interpretation discusses product results cradle to grave.

Components embodied 98% EE and 99% GWP mostly from supply chain fossil fuel.

Per kg dispatched product packaging gross embodied energy (EE):

- input share was 2% and
- Global Warming (GWP) emissions share was 1%.

Except for lowest impact minerals, component mass share correlated with gross EE and GWP/kg product.

On average, the Whitefield factory manufacturing used:

- only 17% gross energy with
- 13% being electrical and
- 4% gas fuel with
- GWP emissions 12% and 5% shares respectively.

While factory power supply is predominantly renewable all fuel was transported and most wood scrap fuel was shipped from North America.

Overall, of the gross product input 85% EE was fossil fuelled with 15% from renewable sources.

On average 74% was fossil fuelled and 26% was feedstock that is recoverable at end of product life via material re-use or transformation to energy.

Of the gross energy, on average:

- 59% EE was burnt as fossil fuels,
- 26% retained in fossil feedstock,
- 14% used as renewable energy and
- 1% retained in renewable feedstock.

Of the gross primary non-renewable energy:

- 69% was used as fuel and
- 31% was retained in feedstock.

Of the gross renewable energy

- 95% was used and
- 5% retained in feedstock material.

Module D Beyond System Boundary results show typical D1 Reuse of 60% of least-worn product in low traffic areas for 40 more years.

This reduces all impacts >40%/kg for a 60-year building life with the same new product to 40% of area in high traffic areas.

Results for phases A4 to C4 are significant and these remain unchanged for replacement over the building life.

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