Statement of Verification

BREG EN EPD No.: 000483 Issue 01

This is to verify that the

Environmental Product Declaration

provided by:

PPG Architectural Coatings UK Ltd.

BRE Global Verified EPD

is in accordance with the requirements of:

EN 15804:2012+A2:2019

and

BRE Global Scheme Document SD207

This declaration is for:

Johnstone's Trade Aqua Water Based Satin to protect and decorate 1m² of substrate

Company Address

PPG Industries UK Ltd.
Needham Rd
Stowmarket IP14 2AD,
United Kingdom

JOHNSTONE'S TRADE

Signed for BRE Global Ltd	Emma Baker Operator	23 May 2023 Date of this Issue
23 May 2023 Date of First Issue		22 May 2028 Expiry Date

BRE Global Verified EPD

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ECO PLATFORM EPD VERIFIED

Environmental Product Declaration

EPD Number: 000483

General Information

EPD Programme Operator	Applicable Product Category Rules
BRE Global Watford, Herts WD25 9XX United Kingdom	BRE Environmental Profiles 2013 Product Category Rules for Type III environmental product declaration of construction products to EN 15804+A2 PN 514 Rev 3.0
Commissioner of LCA study	**LCA consultant/Tool**
PPG Architectural Coatings UK Ltd. Huddersfield Road Birstall - Batley, West Yorkshire WF17 9XA United Kingdom	William Collinge LCA Analyst PPG Monroeville Business and Technology Center 440 College Park Drive Monroeville , PA 15146 USA
Declared/Functional Unit	**Applicability/Coverage**
Protecting and decorating 1m² of substrate, suitably prepared, on the basis of two layers of the product.	Product Average.
EPD Type	**Background database**
Cradle to Gate with options	ecoinvent, Industry Data 2.0

Demonstration of Verification
CEN standard EN 15804 serves as the core PCR [a]
Independent verification of the declaration and data according to EN ISO 14025:2010 ☐Internal ☒ External
(Where appropriate [b])Third party verifier: Pat Hermon
a: Product category rules b: Optional for business-to-business communication; mandatory for business-to-consumer communication (see EN ISO 14025:2010, 9.4)

Comparability
Environmental product declarations from different programmes may not be comparable if not compliant with EN 15804:2012+A2:2019. 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+A2:2019 for further guidance

Information modules covered

Product			Construction		Use stage							End-of-life					Benefits and loads beyond the system boundary
					Related to the building fabric					Related to the building							
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4		D
Raw materials supply	Transport	Manufacturing	Transport to site	Construction – Installation	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	Deconstruction demolition	Transport	Waste processing	Disposal		Reuse, Recovery and/or Recycling potential
☑	☑	☑	☑	☑	☐	☐	☐	☐	☐	☐	☐	☑	☑	☑	☑		☑

Note: Ticks indicate the Information Modules declared.

Manufacturing site(s)

PPG Industries UK Ltd.
Needham Rd
Stowmarket IP14 2AD,
United Kingdom

Click here to enter address.

Construction Product:

Product Description

Johnstone's Trade Aqua Water Based Satin is an innovative finish that's suitable for use on interior and exterior wood and metal, with a look and feel more like a traditional satin finish. It is quicker drying and has low odour, with a tough and durable finish that's at its best when used over Johnstone's Trade Aqua Water Based Undercoat. It is typically applied with standard brush or roller application, using two layers of the product.

One EPD is produced per product group. In order to group different color bases belonging to the same product type within each EPD, the color base with the worst case (highest) GWP was selected.

EPD	Product/Color Base Name
Johnstone's Trade Aqua Water Based Satin	Johnstone's Trade Aqua Water Based Satin White
	Johnstone's Trade Aqua Water Based Satin L Base
	Johnstone's Trade Aqua Water Based Satin Z Base

Technical Information

	Property	Value, Unit
Johnstone's Trade Aqua Water Based Satin White	Spreading rate	11 m^2/L
	Time to Touch Dry	2 hrs
	Time to Recoat	4 hrs
	Initial coats	2
	Density	1.40 Kg/L
	Amount per declared unit	0.255 Kg/m^2
Johnstone's Trade Aqua Water Based Satin L Base	Spreading rate	11 m^2/L
	Time to Touch Dry	2 hrs
	Time to Recoat	4 hrs
	Initial coats	2
	Density	1.35 Kg/L
	Amount per declared unit	0.245 Kg/m^2
Johnstone's Trade Aqua Water Based Satin Z Base	Spreading rate	11 m^2/L
	Time to Touch Dry	2 hrs
	Time to Recoat	4 hrs
	Initial coats	2
	Density	1.16 Kg/L
	Amount per declared unit	0.211 Kg/m^2

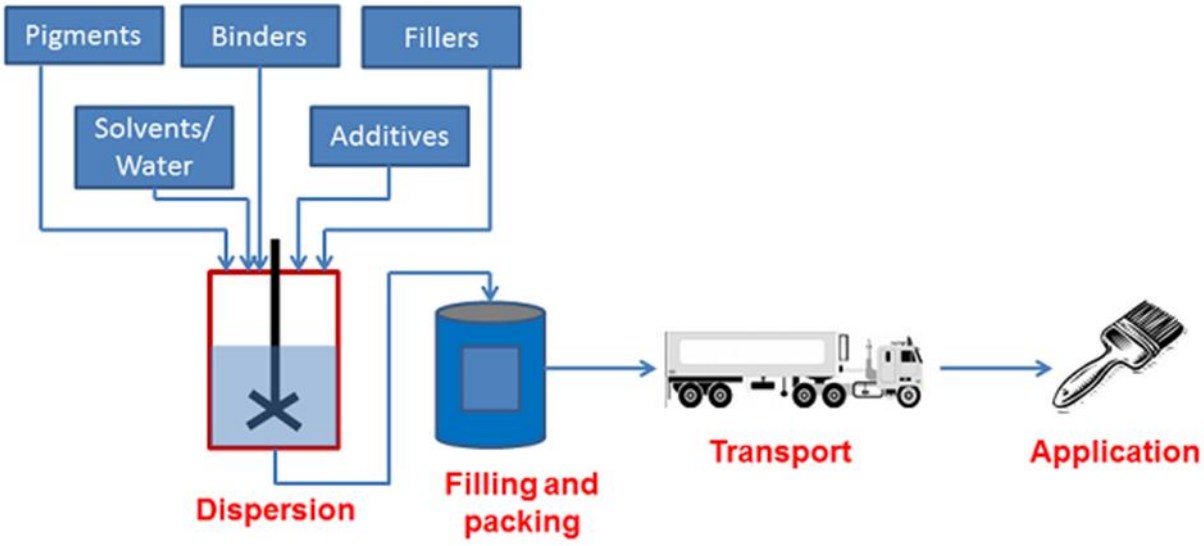
Main Product Contents

Material/Chemical Input	%
Additives	<5%
Biocides	<0.1%
Binders	20-30%
Fillers	10-20%
Glycols, esters and ethers	<5%
Pigments	<0.1%
Solvents	<1%
TiO2	10-30%
Water	30-40%

Manufacturing Process

The manufacturing process involves the mixing and dispersing of raw materials into a homogeneous mixture. The product is then packaged for distribution to the customer.

Process flow diagram



Construction Installation

All surfaces to be painted should be clean, dry and free from loose and flaking material. Prime bare surfaces with the appropriate Johnstone's Primer. Rub down previously gloss painted surfaces with fine waterproof abrasive paper and rinse thoroughly. Stir well before use. Easy to apply by brush or roller. Do not apply in temperatures below 10˚C.

Use Information

No activities are required during the use phase.

End of Life

Coatings are often not removed from their substrate, so the end of life the product is that of the end of life of the underlying substrate. For interior wood paints this is assumed to be incineration.

Benefits and loads beyond the product system boundary are reported as additional information in module D. The module declares net benefits and loads from net flows leaving the product system that have passed the end-of-waste state, except those which have been allocated as co-products. Net impacts in module D are calculated according to Annex D of EN15804+A2. It is assumed that zero kg of product is recycled, recovered for recycling or re-use, and recovered for energy.

Life Cycle Assessment Calculation Rules

Declared / Functional unit description

Johnstone's Trade Aqua Water Based Satin to protect and decorate 1m² of substrate, suitably prepared, on the basis of two layers of paint at a spreading rate of 11 m^2/L and a weight of 0.211 to 0.255 kg/m2. These characteristics apply for the paint application on interior and exterior wood surfaces.

System boundary

The system boundaries of the product LCA follow the modular design defined by /EN15804/. This cradle-to-gate with options study includes the Product stage (A1-A3), Transport Stage (A4), Installation Stage (A5), Deconstruction/Demolition (C1), End-of-life transport (C2), Waste Processing (C3), Disposal (C4), and Reuse, recovery and/or recycling potential (D).

Data sources, quality and allocation

Formulation is based on the current recipe extracted from PPG recipe systems. Data related to in-house PPG manufacturing processes has been collected from PPG reporting systems for the 2021 calendar year. This is based on recorded utility use and waste disposal and is of high quality.

For life cycle modelling of the process, SimaPro V.9.4 is used. All relevant background datasets, including energy and emissions factors, are taken from Ecoinvent V3.8 database, compiled November 2021, and the Industry 2.0 database supplied with SimaPro. Industry 2.0 processes are only used for raw materials.

Many Ecoinvent processes, such as waste disposal, are multi-input and not just for the material specified. For these processes the allocation used for the material in question is the one specified in the Ecoinvent process. Allocation of waste to reuse and waste disposal streams is made on the basis of recent data from reliable sources.

Cut-off criteria

Cut off criteria are: 1% of the renewable and non-renewable energy usage or 1% of the mass of the process under consideration. The total neglected flows shall be no more than: 5% of the energy usage 5% of the total mass. Exceptions are if flows have significant effects of or energy use in their extraction, use or disposal, or are classed as hazardous waste, then these are specifically included.

LCA Results

(MND = module not declared; MNR = module not relevant; INA = indicator not assessed; AGG = aggregated)

Parameters describing environmental impacts									
			GWP-total	GWP-fossil	GWP-biogenic	GWP-luluc	ODP	AP	EP-freshwater
			kg CO2 eq	kg CO2 eq	kg CO2 eq	kg CO2 eq	kg CFC11 eq	mol H+ eq	kg (PO4)3- eq
Product stage	Raw material supply	A1	AGG	AGG	AGG	AGG	AGG	AGG	AGG
	Transport	A2	AGG	AGG	AGG	AGG	AGG	AGG	AGG
	Manufacturing	A3	AGG	AGG	AGG	AGG	AGG	AGG	AGG
	Total (Consumption grid)	A1-3	7.10E-01	5.75E-01	1.52E-03	1.68E-01	7.90E-08	5.34E-03	3.95E-05
	Total (Residual+GO)	A1-3	NA	NA	NA	NA	NA	NA	NA
Construction process stage	Transport	A4	2.27E-02	2.27E-02	9.08E-06	8.92E-06	5.26E-09	9.22E-05	1.59E-07
	Construction	A5	8.78E-02	8.60E-02	4.18E-04	1.75E-03	6.34E-09	2.89E-04	2.54E-06
Use stage	Use	B1	MND	MND	MND	MND	MND	MND	MND
	Maintenance	B2	MND	MND	MND	MND	MND	MND	MND
	Repair	B3	MND	MND	MND	MND	MND	MND	MND
	Replacement	B4	MND	MND	MND	MND	MND	MND	MND
	Refurbishment	B5	MND	MND	MND	MND	MND	MND	MND
	Operational energy use	B6	MND	MND	MND	MND	MND	MND	MND
	Operational water use	B7	MND	MND	MND	MND	MND	MND	MND
100% Incineration Scenario									
End of life	Deconstruction, demolition	C1	4.35E-05	4.35E-05	1.03E-08	5.43E-09	9.26E-12	4.41E-07	2.20E-10
	Transport	C2	7.58E-04	7.57E-04	3.03E-07	2.97E-07	1.75E-10	3.07E-06	5.31E-09
	Waste processing	C3	MND	MND	MND	MND	MND	MND	MND
	Disposal	C4	3.63E-01	3.63E-01	2.04E-06	9.80E-07	3.31E-10	3.17E-05	3.70E-08
Potential benefits and loads beyond the system boundaries	Reuse, recovery, recycling potential	D	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

GWP-total = Global warming potential, total;
GWP-fossil = Global warming potential, fossil;
GWP-biogenic = Global warming potential, biogenic;
GWP-luluc = Global warming potential, land use and land use change;

ODP = Depletion potential of the stratospheric ozone layer;
AP = Acidification potential, accumulated exceedance; and
EP-freshwater = Eutrophication potential, fraction of nutrients reaching freshwater end compartment

LCA Results (continued)

(MND = module not declared; MNR = module not relevant; INA = indicator not assessed; AGG = aggregated)

Parameters describing environmental impacts									
			EP-marine	EP-terrestrial	POCP	ADP-mineral&metals	ADP-fossil	WDP	PM
			kg N eq	mol N eq	kg NMVOC eq	kg Sb eq	MJ, net calorific value	m3 world eq deprived	disease incidence
Product stage	Raw material supply	A1	AGG	AGG	AGG	AGG	AGG	AGG	AGG
	Transport	A2	AGG	AGG	AGG	AGG	AGG	AGG	AGG
	Manufacturing	A3	AGG	AGG	AGG	AGG	AGG	AGG	AGG
	Total (Consumption grid)	A1-3	9.84E-04	6.01E-03	2.33E-03	5.07E-06	9.55E+00	4.16E-01	3.55E-08
	Total (Residual+GO)	A1-3	NA	NA	NA	NA	NA	NA	NA
Construction process stage	Transport	A4	2.75E-05	3.04E-04	9.30E-05	7.94E-08	3.44E-01	1.03E-03	1.96E-09
	Construction	A5	5.93E-05	5.17E-04	1.13E-02	3.12E-07	1.53E+00	4.13E-02	2.54E-09
Use stage	Use	B1	MND	MND	MND	MND	MND	MND	MND
	Maintenance	B2	MND	MND	MND	MND	MND	MND	MND
	Repair	B3	MND	MND	MND	MND	MND	MND	MND
	Replacement	B4	MND	MND	MND	MND	MND	MND	MND
	Refurbishment	B5	MND	MND	MND	MND	MND	MND	MND
	Operational energy use	B6	MND	MND	MND	MND	MND	MND	MND
	Operational water use	B7	MND	MND	MND	MND	MND	MND	MND
100% Incineration Scenario									
End of life	Deconstruction, demolition	C1	1.93E-07	2.12E-06	5.84E-07	3.21E-11	5.94E-04	1.26E-06	1.17E-11
	Transport	C2	9.16E-07	1.01E-05	3.10E-06	2.65E-09	1.15E-02	3.43E-05	6.52E-11
	Waste processing	C3	MND	MND	MND	MND	MND	MND	MND
	Disposal	C4	1.42E-05	1.58E-04	3.88E-05	1.17E-08	3.22E-02	-1.55E-03	2.54E-10
Potential benefits and loads beyond the system boundaries	Reuse, recovery, recycling potential	D	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

EP-marine = Eutrophication potential, fraction of nutrients reaching marine end compartment;
EP-terrestrial = Eutrophication potential, accumulated exceedance;
POCP = Formation potential of tropospheric ozone;
ADP-mineral&metals = Abiotic depletion potential for non-fossil resources;
ADP-fossil = Depletion potential of the stratospheric ozone layer;
WDP = Water (user) deprivation potential, deprivation-weighted water consumption; and
PM = Particulate matter.

LCA Results (continued)

(MND = module not declared; MNR = module not relevant; INA = indicator not assessed; AGG = aggregated)

Parameters describing environmental impacts							
			IRP	ETP-fw	HTP-c	HTP-nc	SQP
			kBq U235 eq	CTUe	CTUh	CTUh	dimensionless
Product stage	Raw material supply	A1	AGG	AGG	AGG	AGG	AGG
	Transport	A2	AGG	AGG	AGG	AGG	AGG
	Manufacturing	A3	AGG	AGG	AGG	AGG	AGG
	Total (Consumption grid)	A1-3	3.08E-02	1.88E+01	1.07E-09	2.43E-08	1.43E+01
	Total (Residual+GO)	A1-3	NA	NA	NA	NA	NA
Construction process stage	Transport	A4	1.49E-03	2.68E-01	8.69E-12	2.81E-10	2.36E-01
	Construction	A5	2.93E-03	1.14E+00	6.24E-11	1.46E-09	3.47E-01
Use stage	Use	B1	MND	MND	MND	MND	MND
	Maintenance	B2	MND	MND	MND	MND	MND
	Repair	B3	MND	MND	MND	MND	MND
	Replacement	B4	MND	MND	MND	MND	MND
	Refurbishment	B5	MND	MND	MND	MND	MND
	Operational energy use	B6	MND	MND	MND	MND	MND
	Operational water use	B7	MND	MND	MND	MND	MND
100% Incineration Scenario							
End of life	Deconstruction, demolition	C1	2.48E-06	3.83E-04	2.21E-14	2.82E-13	7.96E-05
	Transport	C2	4.97E-05	8.93E-03	2.89E-13	9.37E-12	7.86E-03
	Waste processing	C3	MND	MND	MND	MND	MND
	Disposal	C4	6.05E-05	9.59E-02	4.66E-10	1.41E-09	1.25E-02
Potential benefits and loads beyond the system boundaries	Reuse, recovery, recycling potential	D	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

IRP = Potential human exposure efficiency relative to U235;
ETP-fw = Potential comparative toxic unit for ecosystems;
HTP-c = Potential comparative toxic unit for humans;
HTP-nc = Potential comparative toxic unit for humans; and
SQP = Potential soil quality index.

LCA Results (continued)

(MND = module not declared; MNR = module not relevant; INA = indicator not assessed; AGG = aggregated)

Parameters describing resource use, primary energy								
			PERE	PERM	PERT	PENRE	PENRM	PENRT
			MJ	MJ	MJ	MJ	MJ	MJ
Product stage	Raw material supply	A1	AGG	AGG	AGG	AGG	AGG	AGG
	Transport	A2	AGG	AGG	AGG	AGG	AGG	AGG
	Manufacturing	A3	AGG	AGG	AGG	AGG	AGG	AGG
	Total (Consumption grid)	A1-3	2.32E+00	2.50E-01	2.57E+00	8.00E+00	1.70E+00	9.70E+00
	Total (Residual+GO)	A1-3	NA	NA	NA	NA	NA	NA
Construction process stage	Transport	A4	4.84E-03	0.00E+00	4.84E-03	3.44E-01	0.00E+00	3.44E-01
	Construction	A5	3.41E-01	-2.50E-01	9.09E-02	1.84E+00	-3.16E-01	1.53E+00
Use stage	Use	B1	MND	MND	MND	MND	MND	MND
	Maintenance	B2	MND	MND	MND	MND	MND	MND
	Repair	B3	MND	MND	MND	MND	MND	MND
	Replacement	B4	MND	MND	MND	MND	MND	MND
	Refurbishment	B5	MND	MND	MND	MND	MND	MND
	Operational energy use	B6	MND	MND	MND	MND	MND	MND
	Operational water use	B7	MND	MND	MND	MND	MND	MND
100% Incineration Scenario								
End of life	Deconstruction, demolition	C1	4.95E-06	0.00E+00	4.95E-06	5.94E-04	0.00E+00	5.94E-04
	Transport	C2	1.61E-04	0.00E+00	1.61E-04	1.14E-02	0.00E+00	1.14E-02
	Waste processing	C3	MND	MND	MND	MND	MND	MND
	Disposal	C4	8.83E-04	0.00E+00	8.83E-04	3.22E-02	0.00E+00	3.22E-02
Potential benefits and loads beyond the system boundaries	Reuse, recovery, recycling potential	D	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

PERE = Use of renewable primary energy excluding renewable primary energy 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 resource

LCA Results (continued)

(MND = module not declared; MNR = module not relevant; INA = indicator not assessed; AGG = aggregated)

Parameters describing resource use, secondary materials and fuels, use of water						
			SM	RSF	NRSF	FW
			kg	MJ net calorific value	MJ net calorific value	m3
Product stage	Raw material supply	A1	AGG	AGG	AGG	AGG
	Transport	A2	AGG	AGG	AGG	AGG
	Manufacturing	A3	AGG	AGG	AGG	AGG
	Total (Consumption grid)	A1-3	0.00E+00	0.00E+00	2.72E-04	1.09E-02
	Total (Residual+GO)	A1-3	NA	NA	NA	NA
Construction process stage	Transport	A4	0.00E+00	0.00E+00	0.00E+00	3.76E-05
	Construction	A5	0.00E+00	0.00E+00	2.75E-06	9.42E-04
Use stage	Use	B1	MND	MND	MND	MND
	Maintenance	B2	MND	MND	MND	MND
	Repair	B3	MND	MND	MND	MND
	Replacement	B4	MND	MND	MND	MND
	Refurbishment	B5	MND	MND	MND	MND
	Operational energy use	B6	MND	MND	MND	MND
	Operational water use	B7	MND	MND	MND	MND
100% Incineration Scenario						
End of life	Deconstruction, demolition	C1	0.00E+00	0.00E+00	0.00E+00	4.22E-08
	Transport	C2	0.00E+00	0.00E+00	0.00E+00	1.25E-06
	Waste processing	C3	MND	MND	MND	MND
	Disposal	C4	0.00E+00	0.00E+00	0.00E+00	2.84E-05
Potential benefits and loads beyond the system boundaries	Reuse, recovery, recycling potential	D	0.00E+00	0.00E+00	0.00E+00	0.00E+00

SM = Use of secondary material;
RSF = Use of renewable secondary fuels;
NRSF = Use of non-renewable secondary fuels;
FW = Net use of fresh water

LCA Results (continued)

(MND = module not declared; MNR = module not relevant; INA = indicator not assessed; AGG = aggregated)

Other environmental information describing waste categories					
			HWD	NHWD	RWD
			kg	kg	kg
Product stage	Raw material supply	A1	AGG	AGG	AGG
	Transport	A2	AGG	AGG	AGG
	Manufacturing	A3	AGG	AGG	AGG
	Total (Consumption grid)	A1-3	1.05E-01	3.06E+00	4.44E-05
	Total (Residual+GO)	A1-3	NA	NA	NA
Construction process stage	Transport	A4	2.48E-04	1.96E-02	2.32E-06
	Construction	A5	1.70E-02	4.69E-02	3.17E-06
Use stage	Use	B1	MND	MND	MND
	Maintenance	B2	MND	MND	MND
	Repair	B3	MND	MND	MND
	Replacement	B4	MND	MND	MND
	Refurbishment	B5	MND	MND	MND
	Operational energy use	B6	MND	MND	MND
	Operational water use	B7	MND	MND	MND
100% Incineration Scenario					
End of life	Deconstruction, demolition	C1	7.89E-07	3.68E-06	3.97E-09
	Transport	C2	8.28E-06	6.54E-04	7.74E-08
	Waste processing	C3	MND	MND	MND
	Disposal	C4	8.25E-03	1.72E-03	7.87E-08
Potential benefits and loads beyond the system boundaries	Reuse, recovery, recycling potential	D	0.00E+00	0.00E+00	0.00E+00

HWD = Hazardous waste disposed;
NHWD = Non-hazardous waste disposed;
RWD = Radioactive waste disposed

LCA Results (continued)

(MND = module not declared; MNR = module not relevant; INA = indicator not assessed; AGG = aggregated)

Other environmental information describing output flows – at end of life								
			CRU	MFR	MER	EE	Biogenic carbon (product)	Biogenic carbon (packaging)
			kg	kg	kg	MJ per energy carrier	kg C	kg C
Product stage	Raw material supply	A1	AGG	AGG	AGG	AGG	AGG	AGG
	Transport	A2	AGG	AGG	AGG	AGG	AGG	AGG
	Manufacturing	A3	AGG	AGG	AGG	AGG	AGG	AGG
	Total (Consumption grid)	A1-3	0.00E+00	4.11E-08	0.00E+00	0.00E+00	0.00E+00	2.37E-03
	Total (Residual+GO)	A1-3	NA	NA	NA	NA	NA	NA
Construction process stage	Transport	A4	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Construction	A5	0.00E+00	4.36E-03	0.00E+00	1.27E-01	0.00E+00	-2.37E-03
Use stage	Use	B1	MND	MND	MND	MND	MND	MND
	Maintenance	B2	MND	MND	MND	MND	MND	MND
	Repair	B3	MND	MND	MND	MND	MND	MND
	Replacement	B4	MND	MND	MND	MND	MND	MND
	Refurbishment	B5	MND	MND	MND	MND	MND	MND
	Operational energy use	B6	MND	MND	MND	MND	MND	MND
	Operational water use	B7	MND	MND	MND	MND	MND	MND
100% Incineration Scenario								
End of life	Deconstruction, demolition	C1	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Transport	C2	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Waste processing	C3	MND	MND	MND	MND	MND	MND
	Disposal	C4	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Potential benefits and loads beyond the system boundaries	Reuse, recovery, recycling potential	D	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

CRU = Components for reuse;
MFR = Materials for recycling

MER = Materials for energy recovery;
EE = Exported Energy

Scenarios and additional technical information

Scenarios and additional technical information			
Scenario	Parameter	Units	Results
A4 – Transport to the building site	Transport to the construction site is assumed to occur by heavy duty lorry.		
	Transport by lorry	tkm	Lorry 16-32 tonne EURO5
	Distance:	km	300
	Capacity utilisation (incl. empty returns)	%	50
	Bulk density of transported products	kg/m3	1250
A5 – Installation in the building	The coating is applied to the interior wall surface using a roller. The area coated is considered 50 m2. One disposable plastic sheet is used to protect the floor from drops and spills for the entire job. After application the roller and plastic sheeting will be disposed of. Based on the practice of professional painters where as much paint removed from the cans as possible studies show 1% of the paint is lost through spills and residual paint in the can. For projects where there is a higher proportion of paint waste through higher levels of spills or residual paint left after the job, this will increase the environmental impact accordingly. The scenario above allows for the calculation of impact for the tools and ancillaries for the job related to the declared unit, however for the product related aspects it is assumed the paint is completely used before disposal of the packaging. All values are related to the declared unit.		
	Roller for application	kg	1.23E-02
	Polyethylene sheeting for spill protection	kg	9.20E-04
	Amount of paint lost during application due drips splashes, and residue in the can/bucket	%	1
	Disposal of steel (From primary packaging. Assume 29% landfill, 71% incineration)	kg	0
	Disposal of polyethylene (From pallet packaging, spill sheeting and roller packaging. Assume 29% landfill, 71% incineration)	kg	1.49E-03
	Disposal of polypropylene (From primary packaging, roller components and roller tray. Assume 29% landfill, 71% incineration)	kg	1.81E-02
	Disposal of wood (From pallet. Assume 31% recycling, 48% incineration and 20% landfill)	kg	1.25E-02
	Disposal of paper (From pallet interleaves and roller packaging. Assume 79% recycling, 14.8% incineration and 6.2% landfill)	kg	5.32E-04
	Disposal of miscellaneous plastic waste (From roller. Assume 29% landfill, 71% incineration)	kg	1.09E-03
	VOC Emitted	kg	1.08E-02
Reference service life	The service life is highly dependent on the environment in which the product is installed. Hence the EPD gives values for the first application of the coating for the lifetime applicable to the coating in the environment in which it is used.		
C1 to C4 End of life,	Product is demolished with the building on which it is applied and then transported to disposal. The disposal occurs by incineration (100%). No credit is claimed for energy recovery.		
	Transport distance to incineration/landfill	km	30
	Amount disposed at end of life	kg	0.138
Module D	No benefits or loads beyond the system boundary were found. recycling…		

Summary, comments and additional information

Variability

Since this EPD used the worst case GWP results among the several color bases, the maximum variability of life cycle GWP between the worst case color base (shown in the LCIA results) and the base with the lowest GWP value was calculated to be 73%. That is, the base with the lowest GWP value had a GWP of 73% of the GWP reported in this EPD.

Interpretation

The results of the LCIA indicate which life cycle stage contributes the most to a specific environmental impact.

Analysis of the results shows that most of the impact comes from the raw materials stage (A1) for most of the impact categories. This high contribution of raw materials to the impact indicators is not unexpected. As paints are at the end of the chemical value chain much of the expenditure of energy, raw materials, processing, waste processing, etc. in bringing the product to existence has occurred prior to the entry of the raw materials onto the PPG production site. For climate change, total the contribution is divided between application (A5) and raw materials (A1).

In impact category Photochemical ozone formation, human health the highest impact occurs in stage application (A5). This can be caused by the direct VOC emissions.

References

BSI. Sustainability of construction works – Environmental product declarations – Core rules for the product category of construction products. BS EN 15804:2012+A1:2013. London, BSI, 2013.

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