Statement of Verification

BREG EN EPD No.: 000307 Issue 01

This is to verify that the

Environmental Product Declaration

provided by:

PPG Architectural Coatings UK Ltd

is in accordance with the requirements of:

EN 15804:2012+A1:2013

and

BRE Global Scheme Document SD207

This declaration is for:

Johnstone's Trade Perfect Matt

Company Address

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Signed for BRE Global Ltd	Emma Baker Operator	02 April 2020 Date of this Issue
02 April 2020 Date of First Issue		01 April 2025 Expiry Date

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Environmental Product Declaration

EPD Number: 000307

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 15804:2012+A1:2013
Commissioner of LCA study	**LCA consultant/Tool**
PPG Architectural Coatings UK Ltd. Huddersfield Road Birstall - Batley, West Yorkshire WF17 9XA United Kingdom	Matthew Percy Product Stewardship Functional Expert PPG Nederland B.V. Amsterdamseweg 14 1422 AD, Uithoorn The Netherlands
Declared/Functional Unit	**Applicability/Coverage**
Johnstone's Trade Perfect Matt to protect and decorate 1m² of substrate, suitably prepared, on the basis of one layer of the product at a spreading rate of 13m²/L	Product Specific.
EPD Type	**Background database**
Cradle to Gate with options	ecoinvent

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: Jane Anderson
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+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+A1:2013 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 Nederland B.V
Amsterdamseweg 14
1422 AD, Uithoorn
The Netherlands

Construction Product:

Product Description

Johnstone's Trade Perfect Matt is an aqueous emulsion based interior wall paint based on acrylic dispersion technology.

The EPD for this products covers the following product variants:

- Johnstone's Trade Perfect Matt White
- Johnstone's Trade Perfect Matt Base L
- Johnstone's Trade Perfect Matt Base Z

Technical Information

Property	Value, Unit
Spreading rate	13 m^2/L
Time to Touch Dry	1 hr
Time to Recoat	4 hrs

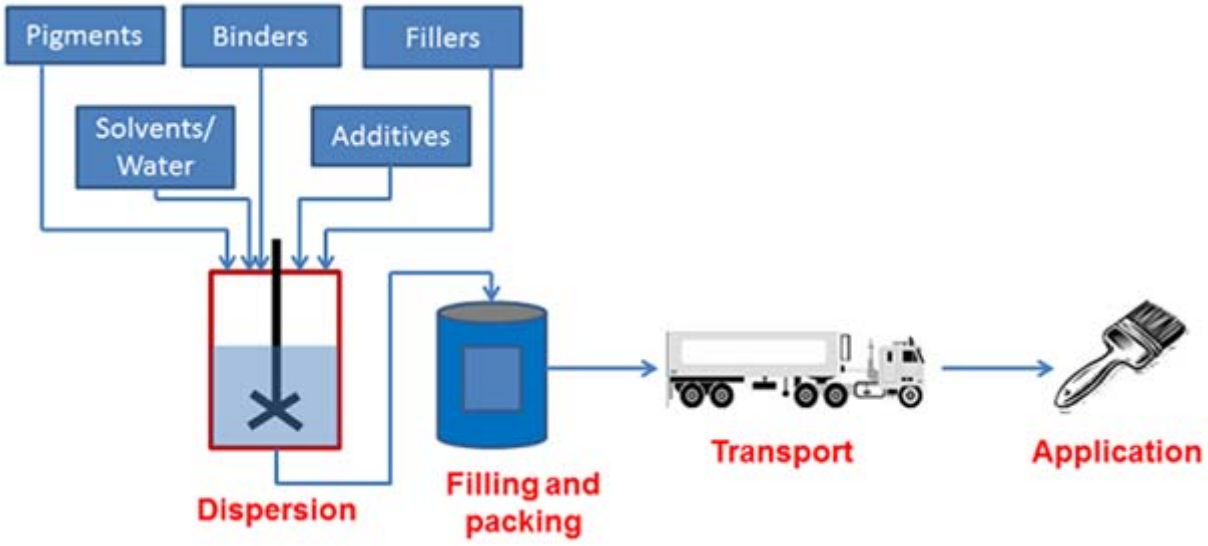
Main Product Contents

Material/Chemical Input	%
PIGMENTS	0-20
FILLERS	10-35
BINDER	14-16
BIOCIDE	<0.05
ADDITIVES	3.5
GLYCOLS	<1
WATER	45-50

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 should be sound, clean, dry and free from grease. Remove any crazed or flaking paint. Stir well before use and apply by brush, roller or paint pad. When using a roller, use a medium pile synthetic type. Apply liberally and evenly; avoid overspreading. Do not apply when air or surface temperature is less than 5°C or in damp conditions

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.

Life Cycle Assessment Calculation Rules

Declared / Functional unit description

Johnstone's Trade Perfect Matt to protect and decorate 1m² of substrate, suitably prepared, on the basis of one layer at a consumption rate of 13m²/L, for the lifetime of the coating.

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), and Disposal (C4).

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 2018 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.9.0 is used. All relevant background datasets are taken from Ecoinvent V3.5 database supplied with SimaPro and are documented in supporting Ecoinvent documentation.

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.

In cases where allocation is necessary, this has been performed on the basis of mass.

Cut-off criteria

Cut off criteria are: 1% of the renewable and non-renewable energy usage 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	ODP	AP	EP	POCP	ADPE	ADPF
			kg CO_2 equiv.	kg CFC 11 equiv.	kg SO_2 equiv.	kg $(PO_4)^{3-}$ equiv.	kg C_2H_4 equiv.	kg Sb equiv.	MJ, net calorific value.
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 (of product stage)	A1-3	2.63E-01	2.47E-08	2.13E-03	1.67E-04	2.33E-04	1.08E-06	3.86E+00
Construction process stage	Transport	A4	5.85E-03	1.08E-09	3.10E-05	4.67E-06	3.67E-06	1.68E-08	8.89E-02
	Construction	A5	4.93E-02	1.40E-09	1.30E-04	1.60E-05	2.45E-05	2.50E-08	7.31E-01
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
End of life	Deconstruction, demolition	C1	1.56E-05	2.75E-12	1.16E-07	2.50E-08	1.82E-08	8.76E-12	2.23E-04
	Transport	C2	2.15E-04	4.01E-11	8.43E-07	1.52E-07	1.21E-07	6.66E-10	3.29E-03
	Waste processing	C3	7.62E-02	6.69E-11	4.85E-06	1.61E-06	4.65E-07	9.38E-10	6.77E-03
	Disposal	C4	6.00E-02	1.08E-10	5.12E-06	1.53E-06	8.68E-07	1.01E-09	1.04E-02
Potential benefits and loads beyond the system boundaries	Reuse, recovery, recycling potential	D	MND	MND	MND	MND	MND	MND	MND

GWP = Global Warming Potential;
ODP = Ozone Depletion Potential;
AP = Acidification Potential for Soil and Water;
EP = Eutrophication Potential;
POCP = Formation potential of tropospheric Ozone;
ADPE = Abiotic Depletion Potential – Elements;
ADPF = Abiotic Depletion Potential – Fossil Fuels;

LCA Results (continued)

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 (of product stage)	A1-3	2.56E-01	7.50E-02	3.31E-01	3.55E+00	6.80E-01	4.23E+00
Construction process stage	Transport	A4	1.04E-03	0.00E+00	1.04E-03	9.05E-02	0.00E+00	9.05E-02
	Construction	A5	1.09E-01	-7.47E-02	3.39E-02	9.79E-01	-1.51E-01	8.27E-01
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
End of life	Deconstruction, demolition	C1	1.87E-06	0.00E+00	1.87E-06	2.26E-04	0.00E+00	2.26E-04
	Transport	C2	3.53E-05	0.00E+00	3.53E-05	3.35E-03	0.00E+00	3.35E-03
	Waste processing	C3	1.78E-04	0.00E+00	1.78E-04	7.03E-03	0.00E+00	7.03E-03
	Disposal	C4	2.23E-04	0.00E+00	2.23E-04	1.07E-02	0.00E+00	1.07E-02
Potential benefits and loads beyond the system boundaries	Reuse, recovery, recycling potential	D	MND	MND	MND	MND	MND	MND

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)

Parameters describing resource use, secondary materials and fuels, use of water						
			SM	RSF	NRSF	FW
			kg	MJ net calorific value	MJ net calorific value	m^3
Product stage	Raw material supply	A1	AGG	AGG	AGG	AGG
	Transport	A2	AGG	AGG	AGG	AGG
	Manufacturing	A3	AGG	AGG	AGG	AGG
	Total (of product stage)	A1-3	0.00E+00	0.00E+00	0.00E+00	5.11E-03
Construction process stage	Transport	A4	0.00E+00	0.00E+00	0.00E+00	1.65E-05
	Construction	A5	0.00E+00	0.00E+00	0.00E+00	4.64E-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
End of life	Deconstruction, demolition	C1	0.00E+00	0.00E+00	0.00E+00	3.59E-08
	Transport	C2	0.00E+00	0.00E+00	0.00E+00	6.06E-07
	Waste processing	C3	0.00E+00	0.00E+00	0.00E+00	5.66E-06
	Disposal	C4	0.00E+00	0.00E+00	0.00E+00	9.84E-06
Potential benefits and loads beyond the system boundaries	Reuse, recovery, recycling potential	D	MND	MND	MND	MND

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)

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 (of product stage)	A1-3	3.42E-02	1.24E-01	1.05E-05
Construction process stage	Transport	A4	5.75E-05	4.41E-03	6.10E-07
	Construction	A5	1.10E-03	2.45E-02	1.02E-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
End of life	Deconstruction, demolition	C1	2.13E-07	1.26E-06	1.54E-09
	Transport	C2	2.07E-06	1.74E-04	2.26E-08
	Waste processing	C3	1.71E-03	3.13E-04	2.02E-08
	Disposal	C4	1.31E-03	2.01E-02	4.79E-08
Potential benefits and loads beyond the system boundaries	Reuse, recovery, recycling potential	D	MND	MND	MND

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

LCA Results (continued)

Other environmental information describing output flows – at end of life						
			CRU	MFR	MER	EE
			kg	kg	kg	MJ per energy carrier
Product stage	Raw material supply	A1	AGG	AGG	AGG	AGG
	Transport	A2	AGG	AGG	AGG	AGG
	Manufacturing	A3	AGG	AGG	AGG	AGG
	Total (of product stage)	A1-3	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Construction process stage	Transport	A4	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Construction	A5	0.00E+00	1.25E-03	0.00E+00	1.13E-01
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
End of life	Deconstruction, demolition	C1	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
	Waste processing	C3	0.00E+00	0.00E+00	0.00E+00	1.65E-01
	Disposal	C4	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	MND	MND	MND	MND

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 by heavy duty lorry to site of		
	Transport by Lorry	Click here to enter text.	Lorry 16-32 tonne EURO5
	Distance:	km	30
	Capacity utilisation (incl. empty returns)	%	50
	Bulk density of transported products	kg/m^3	1330
A5 – Installation in the building	The coating is applied to an interior wall substrate using a roller and a roller tray. The area coated is considered 50 m^2. One disposable plastic sheet is used to protect the floor from drops and spills for the entire job. After the job the roller, roller tray and plastic sheeting will be disposed of. 1% of the paint is lost through spills and residual paint in the bucket. 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	2.14 × 10^{-3}
	Polypropylene sheeting for spill protection	kg	2.28 × 10^{-3}
	Polypropylene roller tray	kg	4.00 × 10^{-3}
	Amount of paint lost during application due drips splashes, and residue in the can/bucket	%	1
	Disposal of polypropylene (From primary packaging, roller components and spill sheeting. Assume 29% landfill, 71% incineration)	kg	.9.4 × 10^{-3}
	Disposal of wood (From pallet. Assume 31% recycling, 48% incineration and 20% landfill)	kg	3.9 × 10^{-3}
	Disposal of polyethylene (From pallet wrap and roller packaging. Assume 29% landfill, 71% incineration	kg	2.36 × 10^{-3}
	Disposal of miscellaneous plastic waste (From roller. Assume 29% landfill, 71% incineration)	kg	5.46 × 10^{-4}
	VOC emissions from installation process	kg	7.38 × 10^{-4}
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. Product may be on mineral or plasterboard. For mineral substrate, such as concrete, this is most likely landfilled. In the case of plaster board this can be recycled, but the paper layer will be removed and disposed of by landfill or incineration. For the purpose of this study the product is considered disposed of by landfill and incineration (70.4% incineration, 29.6% landfill).		
	Demotion of construction with paint coating	m^3	1.42 × 10^{-4}
	Transport distance to incineration/landfill	km	30

Scenarios and additional technical information			
Scenario	Parameter	Units	Results
	Amount disposed at end of life	kg	0.054

Summary, comments and additional information

Analysis

Johnstone's Trade Perfect Matt is available as a Brilliant White and two tinting bases (L Base and Z Base) for point of sale in-can tinting to give the possibility of approximately 16,000 different colours.

White products and tinting bases for light colours (L Base) have relatively high levels of titanium dioxide. This provides opacity and whiteness. Bases for black or dark colours (Z Base) can have little or no titanium dioxide. However, depending on the colour chosen, coloured pigments (and possibly some titanium dioxide) will be added to the base to generate the final colour. Because of this possible variation in composition, and hence environmental impact, the white variant is often chosen to represent the product line. The reason for this is explained below.

Analysis of the relative contributions of each Module shows that most of the impact comes from the raw materials stage (A1) for most of the indicators. This is shown in Figure 1 for the Brilliant White. 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.

A further breakdown of the contribution of the different raw material types to environmental indicators in Module A1 shows that the majority of each impact comes from the titanium dioxide and the binder (Figure 2). This is typical for coatings products and not unexpected given these two raw materials are often present in high proportions and have a relatively high environmental impact. This relatively high contribution to environmental impact from titanium dioxide is why the white is chosen as the worst case representative product.

Analysis of Module A3 shows the factors which contribute to this portion of the impact (Figure 3). As can be seen the majority of the impact for this module comes from the packaging for the product (including raw materials, processing and transport to PPG production site), and not the production process itself. This is expected as paint is a formulated product. The production process is mixing, dispersing, and some grinding, and does not comprise energy intensive processes such as heating or cooling that would be required for chemical reaction processes. Hence the contribution from PPG the PPG factory to the environmental impact is low

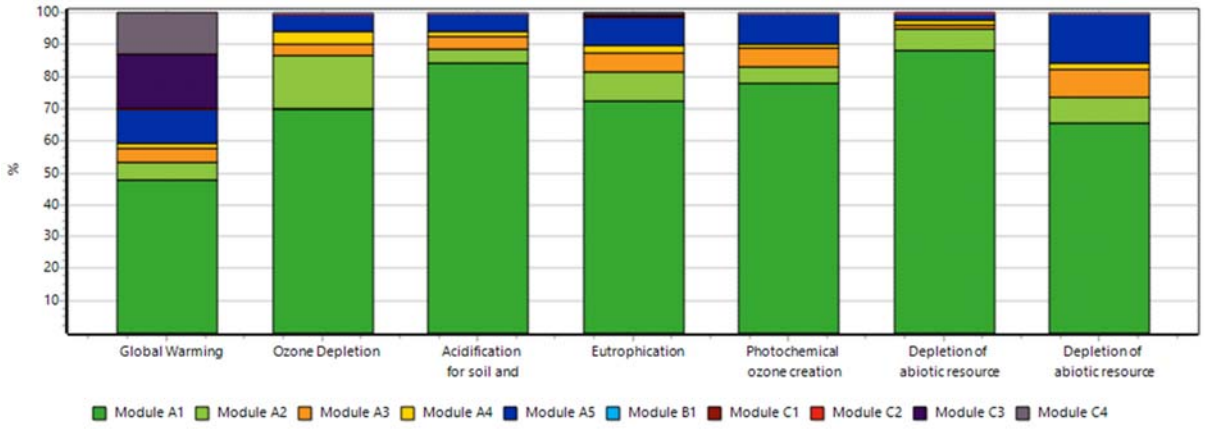


Figure 1

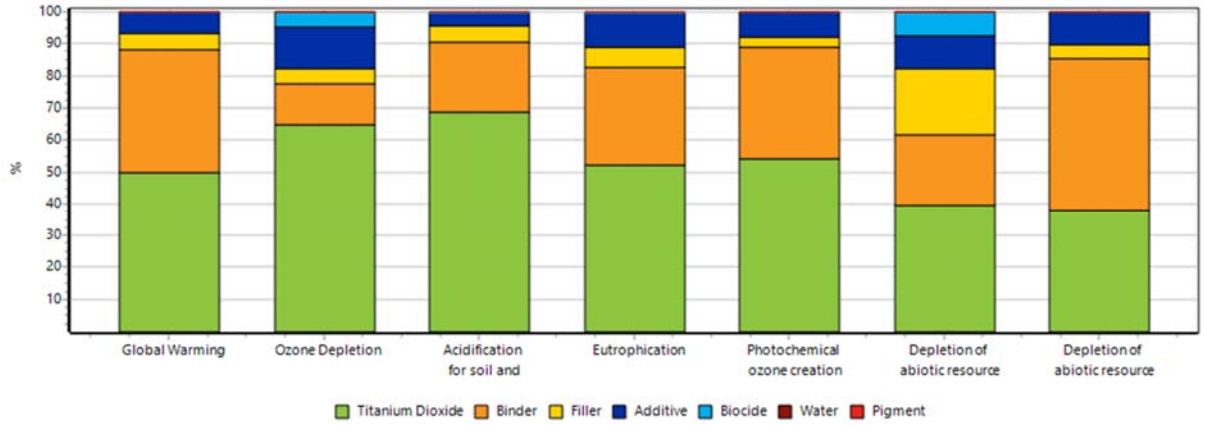


Figure 2

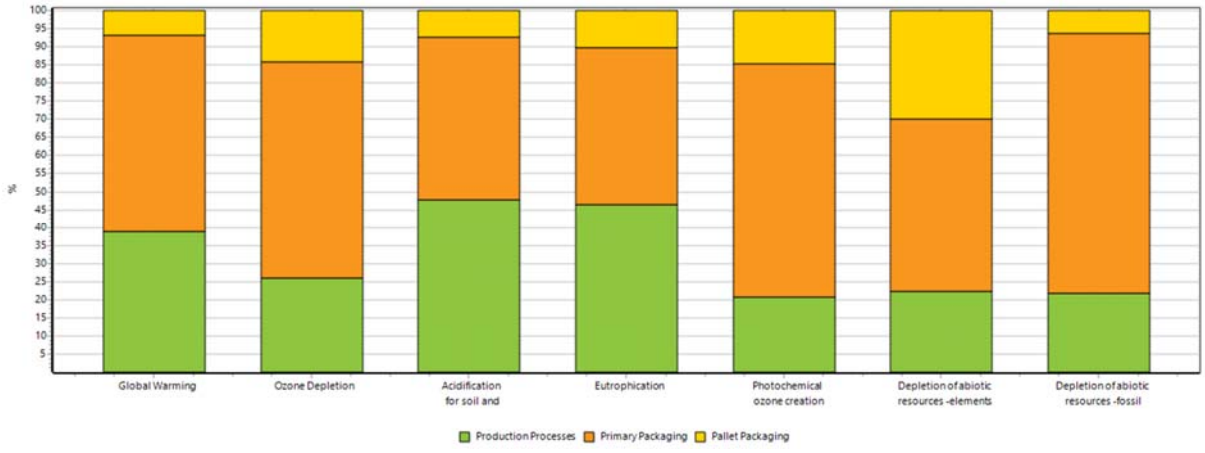


Figure 3

References

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