Environmental Product Declaration according to ISO 14025 and EN 15804



This declaration is for:

VITEX CARE

Provided by:

VITEX S.A.





program operator
Stichting MRPI®
publisher
Stichting MRPI®
www.mrpi.nl

MRPI® registration
1.1.00190.2021
date of first issue
22-02-2021
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22-02-2021
expiry date
22-02-2026









COMPANY INFORMATION



Imeros Topos 19300 Aspropyrgos Attiki, Greece 0030 210 5589 580 customercare@vitex.gr www.vitex.gr



PRODUCT

VITEX CARE



to protect and decorate 1 m² of substrate for 50 years at a specified quality level (minimum 98% opacity)



DESCRIPTION OF PRODUCT

Best-in-Class overall performance mat emulsion paint for use on walls.

VISUAL PRODUCT



MRPI® REGISTRATION

1.1.00190.2021

DATE OF ISSUE

22-02-2021

EXPIRY DATE

22-02-2026





MORE INFORMATION

http://www.vitex.gr/product/vitex-care/



This MRPI®-EPD certificate is verified by $\mbox{ing. Kamiel Jansen, Primum.}$

The LCA study has been done by Natalia Chebaeva, Ecomatters.

The certificate is based on an LCA-dossier according to ISO14025 and EN15804+A2. It is verified according to the 'MRPI®-EPD verification protocol November 2020.v4.0'. EPDs of construction products may not be comparable if they do not comply with EN15804+A2. Declaration of SVHC that are listed on the 'Candidate List of Substances of Very High Concern for authorisation' when content exceeds the limits for registration with ECHA.



PROGRAM OPERATOR

Stichting MRPI® Kingsfordweg 151 1043GR Amsterdam



ir. J-P den Hollander, Managing director MRPI®

DEMONSTRATION OF VERIFICATION

CEN standard EN15804 serves as the core PCR[a]

Independent verification of the declaration and data,

according to EN ISO 14025:2010:

internal:

external: X

Third party verifier:

Kamiel Jansen, Primum

[a] PCR = Product Category Rules







DETAILED PRODUCT DESCRIPTION

Best -In- Class-overall performance mat emulsion paint for use on walls. Due to its innovative formula the paint film has enhanced resistance to the absorption of common household stains making easier to remove stains after a long period of time. It provides great hiding power, unrivalled performance, exceptional whiteness and excellent durability to frequent washing (Class 1, EN 13300/ISO 11998). Virtually odorless. Near zero VOC content. It contributes to the best indoor air quality and heathier environment as well, due to the very low emissions of Volatile Organic Compounds. It is certified with Indoor Air Comfort GOLD, the world's most rigorous indoor emission rating system. With antimicrobial activity (Certificates IMSL No 2020/09/053.1B and SGS No AX20-06322.001) according to ISO 22196 and EN 15457 test methods. Has been awarded the British Allergy Foundation top discrimination Seal of Approval for the reduced levels of allergens and irritants, as a suitable paint for those living with asthma and allergies.

Production processes

Production process includes measurement of ingredients, preparation and pigment dispersion, let-down, quality control, and canning.

Technical Characteristics

Density: 1,46 \pm 0,02 kg / L (ISO 2811) for white; 1,43 kg/L for the EPD representative paint

Gloss: <5 units @85° (ISO 2813)

Quality: Q1 (according to the durability scheme of PEF CR for Decorative paints v.1: estimated

durability 15 years, 3.33 reapplication for the 50 years reference service life)

Typical use:

Interior new surfaces made of concrete, plaster, brick, gypsum boards or old painted surfaces.

Application method:

Delute 8-10% with water and stir before use. Apply the coat by brush, roller or airless spray gun. Recoating possible after 3-4 hours.

Pack Size

The paint is avalable in the following pack sizes:

White: 750mL, 3L, 10L Bases: 1L, 3L, 10L

COMPONENT (> 1%)	[kg / %]
Binder, by polymerization in water	Confidential
Solvent: water	Confidential
Light fast pigments	Confidential
Filler	Confidential
Rheology modifier	Confidential

(*) > 1% of total mass









SCOPE AND TYPE

The type of this EPD is Cradle-to-Grave. All steps from the extraction of natural resources to re-application and the final disposal of the product are included in the environmental performance. This EPD is an average EPD representative for VITEX CARE products produced in Greece and sold in Europe. The paint is produced in Aspropyrgos Attiki, Greece and the application market is for customers within the European region. Likewise, for the end-of-life, the fate of the paint product is described within a European context.

The software GaBi 10.0.0.71 is used to perform the LCA. Background processes sourced from Ecoinvent v3.6 (2019) and the Raw materials LCI database for the European coatings and printing ink industries (2016).

P	ROD	UCT ST	AGE	CONST	RUCTION			US	SE S1	AGE			Е	ND O	F LIFE		BENEFITS AND
				PRO	CESS									STA	GE		LOADS BEYOND THE
				ST	AGE												SYSTEM BOUNDARIES
Raw material supply		Transport	Manufacturing	Transport gate to site	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Recovery- Recycling- potential
	A1	A2	А3	A4	A5	B1	B2	В3	B4	B5	B6	B7	C1	C2	C3	C4	D
	х	х	х	х	х	X	х	х	х	х	х	x	х	х	х	х	х

X = Modules Assessed

ND = Not Declared

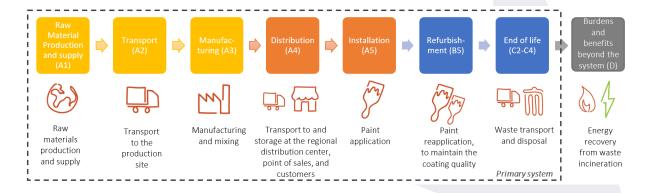


Figure: LCA process diagram according to EN 15804(7.2.1)











REPRESENTATIVENESS

The EPD is representative for the four product paints belonging to the VITEX CARE.

- 1. VITEX CARE white;
- 2. VITEX CARE base white;
- 3. VITEX CARE base medium;
- 4. VITEX CARE base transparent.

This EPD is representative for the products manufactured in Greece and sold in Europe. The paint is produced at one production site: Imeros Topos, 19300 Aspropyrgos Attiki, Greece.







ENVIRONMENTAL IMPACT per functional unit or declared unit (core indicators A2)

	UNIT	A1-A3	A4	A5	B1	B2	ВЗ	B4	B5	В6	В7	C1	C2	СЗ	C4	D
GWP-total	[kg CO2 eq.]	2.66	2.78	5.20	0.00	0.00	0.00	0.00	1.41	0.00	0.00	0.00	1.27	0.00	8.86	-1.51
GVVF-total	[kg CO2 eq.]	E-1	E-1	E-2	0.00	0.00	0.00	0.00	E+0	0.00	0.00	0.00	E-3	0.00	E-3	E-2
GWP-fossil	[kg CO2 eq.]	2.86	2.70	3.87	0.00	0.00	0.00	0.00	1.41	0.00	0.00	0.00	1.27	0.00	8.85	-1.48
OWI 103311	[kg 002 cq.]	E-1	E-1	E-2	0.00	0.00	0.00	0.00	E+0	0.00	0.00	0.00	E-3	0.00	E-3	E-2
GWP-biogenic	[kg CO2 eq.]	-2.04	7.15	1.31	0.00	0.00	0.00	0.00	-1.99	0.00	0.00	0.00	6.32	0.00	6.44	-2.41
SVV Biogerile	[1.9 002 04.]	E-2	E-3	E-2	0.00	0.00	0.00	0.00	E-4	0.00	0.00	0.00	E-7	0.00	E-6	E-4
GWP-luluc	[kg CO2 eq.]	6.51	1.20	8.51	0.00	0.00	0.00	0.00	6.33	0.00	0.00	0.00	5.62	0.00	3.86	-1.79
	[9 0 0 2 0 4.]	E-5	E-4	E-5	0.00	0.00	0.00	0.00	E-4	0.00	0.00	0.00	E-7	0.00	E-7	E-5
ODP	[kg CFC11 eq.]	1.92	4.91	1.64	0.00	0.00	0.00	0.00	1.64	0.00	0.00	0.00	2.82	0.00	2.43	-1.72
02.	[9 0. 0 04.]	E-8	E-8	E-9	0.00	0.00	0.00	0.00	E-7	0.00	0.00	0.00	E-10	0.00	E-10	E-9
AP	[mol H+ eq.}	1.85	1.10	1.05	0.00	0.00	0.00	0.00	7.17	0.00	0.00	0.00	6.21	0.00	6.70	-4.85
	[o.	E-3	E-3	E-4					E-3			0.00	E-6		E-6	E-5
EP-freshwater	[kg PO4 eq.]	3.36	4.16	5.24	0.00	0.00	0.00	0.00	1.88	0.00	0.00	0.00	1.09	0.00	1.26	-7.53
	13 - 11	E-5	E-5	E-6					E-4				E-7		E-7	E-6
EP-marine	[kg N eq.]	6.11	2.70	5.63	0.00	0.00	0.00	0.00	2.20	0.00	0.00	0.00	2.06	0.00	2.29	-9.11
	. 0	E-4	E-4	E-5					E-3				E-6		E-6	E-6
EP-terrestrial	[mol N eq.]	2.93	2.84	2.04	0.00	0.00	0.00	0.00	1.40	0.00	0.00	0.00	2.25	0.00	2.49	-8.86
	,	E-3	E-3	E-4					E-2				E-5		E-5	E-5
POCP	[kg NMVOC eq.]	1.33	9.61	1.13	0.00	0.00	0.00	0.00	5.64	0.00	0.00	0.00	6.46	0.00	9.09	-2.41
		E-3	E-4	E-4					E-3				E-6		E-6	E-5
ADP-minerals	[kg Sb eq.]	9.52	1.81	1.50	0.00	0.00	0.00	0.00	4.50	0.00	0.00	0.00	4.58	0.00	8.38	-1.91
&metals		E-7	E-5	E-7					E-5				E-8		E-9	E-8
ADP-fossil	[MJ, net calorific	6.55	3.81	3.89	0.00	0.00	0.00	0.00	2.52	0.00	0.00	0.00	1.92	0.00	1.89	-2.99
	value]	E+0	E+0	E-1					E+1				E-2		E-2	E-1
WDP	[m3 world eq.	7.23	3.14	2.51	0.00	0.00	0.00	0.00	1.70	0.00	0.00	0.00	9.71	0.00	8.32	-5.81
	Deprived]	E+0	E-2	E-2					E+1				E-5		E-4	E-3

GWP-total = Global Warming Potential total

GWP-fossil = Global Warming Potential fossil fuels

GWP-biogenic = Global Warming Potential biogenic

GWP-luluc = Global Warming Potential land use and land use change

 $\label{eq:ode} \mathsf{ODP} = \mathsf{Depletion} \ \mathsf{potential} \ \mathsf{of} \ \mathsf{the} \ \mathsf{stratospheric} \ \mathsf{ozone} \ \mathsf{layer}$

AP = Acidification Potential, Accumulated Exceedence

 ${\bf EP-freshwater} = {\bf Eutrophication\ Potential},\ fraction\ of\ nutrients\ reaching\ freshwater\ end\ compartment$

EP-marine = Eutrophication Potential, fraction of nutrients reaching marine end compartment

EP-terrestrial = Eutrophication Potential, Accumulated Exceedence

POCP = Formation potential of tropospheric ozone photochemical oxidants

ADP-minerals&metals = Abiotic Depletion Potential for non fossil resources [2]

ADP-fossil = Abiotic Depletion for fossil resources potential [2]

WDP = Water (user) deprivation potential, deprivation-weighted water consumption [2]

ND = Not Declared

Disclaimer [2]

- The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.







ENVIRONMENTAL IMPACT per functional unit or declared unit (additional indicators A2)

	UNIT	A1-A3	A4	A5	B1	B2	В3	B4	B5	В6	В7	C1	C2	C3	C4	D
PM	Disease	2.05	1.36	1.29	0.00	0.00	0.00	0.00	8.31	0.00	0.00	0.00	8.03	0.00	1.28	-1.35
FIVI	incidence	E-8	E-8	E-9	0.00	0.00	0.00	0.00	E-8	0.00	0.00	0.00	E-11	0.00	E-10	E-10
IRP	kBq U235 eq.	1.64	1.86	1.91	0.00	0.00	0.00	0.00	8.66	0.00	0.00	0.00	1.01	0.00	8.93	-4.27
IINF	кви 0233 ец.	E-2	E-2	E-3	0.00	0.00	0.00	0.00	E-2	0.00	0.00	0.00	E-4	0.00	E-5	E-3
ETP-fw	CTUe	1.74	5.43	8.08	0.00	0.00	0.00	0.00	6.54	0.00	0.00	0.00	1.68	0.00	4.40	-9.84
E I F-IW	Croe	E+1	E+0	E-1	0.00	0.00	0.00	0.00	E+1	0.00	0.00	0.00	E-2	0.00	E+0	E-2
HTTP-c	CTUh	4.80	2.17	3.92	0.00	0.00	0.00	0.00	1.72	0.00	0.00	0.00	5.00	0.00	9.73	-2.58
TITTE-C	Cron	E-10	E-10	E-11	0.00	0.00	0.00	0.00	E-9	0.00	0.00	0.00	E-13	0.00	E-13	E-12
HTTP-nc	CTUh	3.12	4.25	4.52	0.00	0.00	0.00	0.00	8.38	0.00	0.00	0.00	1.56	0.00	1.30	-8.59
TITTE-IIC	Cron	E-8	E-9	E-10	0.00	0.00	0.00	0.00	E-8	0.00	0.00	0.00	E-11	0.00	E-11	E-11
SQP	/	1.87	1.55	2.46	0.00	0.00	0.00	0.00	8.69	0.00	0.00	0.00	1.13	0.00	4.40	-3.74
JQF	-24-	E+0	E+0	E-1	0.00	0.00	0.00	0.00	E+0	0.00	0.00	0.00	E-2	0.00	E-2	E-2

PM = Potential incidence of disease due to PM emissions

IRP = Potential Human exposure efficiency relative to U235 [1]

ETP-fw = Potential Comparative Toxic Unit for ecosystems [2]

HTP-c = Potential Comparative Toxic Unit for humans [2]

HTP-nc = Potential Comparative Toxic Unit for humans, non-cancer [2]

SQP = Potential soil quality index [2]

ND = Not Declared

Disclaimer [1]

- This impact category deals mainly with the eventual impact of low dose ionizing radiation on human health of the nuclear fuel cycle. It does not consider effects due to possible nuclear accidents, occupational exposure nor due to radioactive waste disposal in underground facilities. Potential ionizing radiation from the soil, from radon and from some construction materials is also not measured by this indicator.

Disclaimer [2]

- The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.



Verification protocol: v4.0 - According to EN15804+A2



RESOURCE USE per functional unit or declared unit (A1 / A2)

	UNIT	A1-A3	A4	A5	B1	B2	В3	B4	B5	В6	В7	C1	C2	C3	C4	D
PERE	[MJ]	3.65 E-1	8.30 E-2	4.12 E-2	0.00	0.00	0.00	0.00	1.14 E+0	0.00	0.00	0.00	2.95 E-4	0.00	3.00 E-4	-2.53 E-2
PERM	[MJ]	9.52 E-3	6.04 E-3	9.01 E-4	0.00	0.00	0.00	0.00	3.85 E-2	0.00	0.00	0.00	2.83 E-5	0.00	2.05 E-5	-1.78 E-3
PERT	[MJ]	3.75 E-1	8.91 E-2	4.21 E-2	0.00	0.00	0.00	0.00	1.18 E+0	0.00	0.00	0.00	3.24 E-4	0.00	3.21 E-4	-2.71 E-2
PENRE	[MJ]	6.55 E+0	3.81 E+0	3.90 E-1	0.00	0.00	0.00	0.00	2.52 E+1	0.00	0.00	0.00	1.92 E-2	0.00	1.89 E-2	-2.99 E-1
PENRM	[MJ]	9.96 E-7	0.00	0.00	0.00	0.00	0.00	0.00	2.32 E-6	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PENRT	[MJ]	6.55 E+0	3.81 E+0	3.90 E-1	0.00	0.00	0.00	0.00	2.52 E+1	0.00	0.00	0.00	1.92 E-2	0.00	1.89 E-2	-2.99 E-1
SM	[kg]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RSF	[MJ]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
NRSF	[MJ}	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FW	[m3]	1.68 E-1	7.30 E-4	5.84 E-4	0.00	0.00	0.00	0.00	3.96 E-1	0.00	0.00	0.00	2.26 E-6	0.00	1.94 E-5	-1.35 E-4

PERE = Use of renewable energy excluding renewable primary energy resources

PERM = Use of renewable energy resources used as raw materials

PERT = Total use of renewable primary energy resources

PENRE = Use of non-renewable primary energy resources excluding non-renewable 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 materials

RSF = Use of renewable secondary fuels

NRSF = Use of non renewable secondary fuels

FW = Use of net fresh water

ND = Not Declared

OUTPUT FLOWS AND WASTE CATEGORIES per functional unit or declared unit (A1 / A2)

	UNIT	A1-A3	A4	A5	B1	B2	В3	B4	В5	В6	В7	C1	C2	C3	C4	D
HWD	[kg]	7.72 E-5	0.00	0.00	0.00	0.00	0.00	0.00	1.80 E-4	0.00	0.00	0.00	0.00	0.00	0.00	0.00
NHWD	[kg]	1.65 E-4	1.14 E-2	3.19 E-2	0.00	0.00	0.00	0.00	2.75 E-1	0.00	0.00	0.00	0.00	0.00	7.42 E-2	0.00
RWD	[kg]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CRU	[kg]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MFR	[kg]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MER	[kg]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EEE	[MJ]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EET	[MJ]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

HWD = Hazardous Waste Disposed

RWD = Radioactive Waste Disposed

 $\mathsf{MFR} = \mathsf{Materials} \; \mathsf{for} \; \mathsf{recycling}$

EEE = Exported Electrical Energy

ND = Not Declared

NHWD = Non Hazardous Waste Disposed

CRU = Components for reuse

MER = Materials for energy recovery

ETE = Exported Thermal Energy









BIOGENIC CARBON CONTENT per functional unit or declared unit (A2)

	UNIT	A1-A3	A4	A5	B1	B2	В3	B4	В5	В6	В7	C1	C2	C3	C4	D
BCCpr	[kg C]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ВССра	[kg C]	4.47 E-3	0.00	-4.47 E-3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

BCCpr = Biogenic carbon content in product BCCpa = Biogenic carbon content in packaging

ND = Not Declared



CALCULATION RULES

Data quality and data collection period

Data quality requirements follow EN15804+A2:2019, data is checked for plausibility with mass balances in the foreground processes. Used datasets are complete according to the system boundary, and are as current as possible. Dala collection period is of reference year 2020, based on 1 year averaged data, and in regards to the planned production volumes are related to 2021 (1 year averaged data). Data gaps such as i.e. transport data, end of life scenarios, were covered with data generic values for transport as described in the Product Environmental Footprint Category Rules - Decorative Paints document version 1.0 published by CEPE and reviewed in April 2018. Processes used in the background modelling are referring to the widely used databases of recent release (Ecoinvent 3.6, 2019; CEPE, 2016) and are consistent with the foreground modelling in system limits and allocation procedures. The technological and geographical coverage reflects the physical reality as far as possible taking into account the technology mix, location, and representativeness of technologies, input materials, and input energies for the region. Data quality is assessed as fair and adequate to the goal and scope of the study.

Cut-off criteria and allocation procedures

No cut-offs were intentionally applied to inputs and outputs within the system boundaries in the models. Coproduct and system allocation in the foreground system is according to the EN15804+A2. Cut-off and allocation procedures in the background processes are according to the respective methodologies and estimated to be methodologically consistent with the foreground system.

Parameter	Unit	Value	
Coverage test data, CR 98%	m2/L	12.1	
Paint density	kg/L	1.43	
VOC content (ISO 11890-2: 2020)	g/L	0.5	
Durability	years	15	
Quality level	-	Q1	









SCENARIOS AND ADDITIONAL TECHNICAL INFORMATION

Product stage is reported in one module A1-A3. This life cycle stage includes the extraction and processing of raw materials for the product and the packaging, their transportation to the production site by road, and the manufacturing process. The latter includes all processes linked to the production, such as storing, mixing, packing, and internal transportation, covering material and energy consumption, waste treatment and emissions. Data regarding paint production was provided for each paint variation (formulation) and for the production site for the shared processes. Data on packaging, transportation distances and transportation modes are derived from the default scenarios of the product environmental footprint category rules (PEF CR) for decorative paints v.1 (2018). Electricity consumption was modelled based on the primary data on the amount and source of the electricity, with the use of Ecoinvent 3.6 database for modelling of the background processes.

Product's distribution to the building site (A4) includes transportation as well as storage and wastage of the products along the distribution leg (formally A4-A5, classified within the study to A4). The distribution leg includes two intermediate points between the production site and the final user: regional distribution centre (RDC) and point of sales (PoS). Transport and storage data are based on the scenarios developed within the PEF CR for Decorative Paints (v1).

Transport parameters	Raw materials	Packaging transport	Transport to RDC	Transport to PoS	Transport customer	Transport waste disposal
Vehicle type used for transport	Lorry	Lorry	Lorry	Lorry	Car	Lorry
Distance, km	460	250	250	250	60	80
Capacity, t	7.5-16	7.5-16	7.5-16	7.5-16	N/A	7.5-16
Average load factor, t	3.29	3.29	3.29	3.29	N/A	3.29
Bulk density transported products,kg/m3	1427	1427	1427	1427	N/A	1427

Waste treatment and end of life parameters	unit	Hazardous waste	Non-hazardou s waste	Wet paint waste	Dried paint film
Share incineration with energy recovery	w/w	0.45	0.45	0.45	0
Share landfilling	w/w	0.55	0.55	0.55	1
VOC emissions to air	% of VOC	NA	NA	100%	NA
VOC emissions to all	content	INA	INA	emissions air	INA
Biocides leaching	% of biocidal	NA	NA	100% emiss.	100% emiss.
Blocides leaching	content	INA	INA	fresh water	fresh water
Energy recovery from incineration,	MJ/kg of incin.	17.1	1.01	1.01	NA
electricity	waste	17.1	1.01	1.01	INA
Energy recovery from incineration,	MJ/kg of incin.	1.27	2.16	2.16	NA
heat	waste	1.21	2.10	2.10	

Stage A5 refers to the paint application and follows the scenario of application developed in the PEF CR for decorative paints v1, including auxiliary materials composition. The stage includes use of auxiliary materials, use of water and water heating, waste water treatment processes, and other waste treatment.





Verification protocol: v4.0 - According to EN15804+A2



Application parameter	Unit	Value
Auxiliary materials	kg/m2 of painted surface	1.12E-2
Tap water	kg/m2 of painted surface	0.37
Energy for water heating	MJ/m2 of painted surface	0.03
Waste water treatment	kg/m2 of painted surface	0.37
Unused paint disposed	kg/m2 of painted surface	1.46E-2
Other non-hazardous waste generated	kg/m2 of painted surface	1.73E-2
Direct emissions to air, VOC	kg/m2 of painted surface	8.89E-5

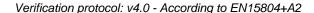
During 50 years of the reference service life a concerted replacement programme is assumed, in which paint is reapplied to maintain the performance. These reapplications, including all up- and down-stream impacts, in amounts required in accordance to the paint quality and durability are included in stage B5: from extraction and processing of the raw materials, to paint distribution, application, and end of life. Number of reapplications during the reference service life is defined by the paint quality individually based on the durability tests. The durabilit tests of an indoor wall paint based on the wet scrub resistance property, following the EN 13300:2001 and ISO 11998 classification. For VITEX CARE paints the quality Q1 is achieved, with estimated durability of 15 years, resulting in the average 2,33 reapplications in B5 during the reference service life.

The end-of-life stage of paints is reached when the paint products are discarded at the end of the reference service life (50 years). The indoor wall paints are disposed together with the substrate they are applied on and normally are not separated from that surface. All paint is assumed to be landfilled in the end of life. Stage C2 includes the transport of paint waste from demolition site to a landfill. The mass of the dried paint is considered for transportation. Stage C4 includes the impacts of the dried paint snitary landfilling, includig leaching of the biocides. No impacts are allocated to stages C1 and C3.

Module D information provides the information on potential of energy recovery in incineration of non-hazardous waste and non-hazardous wet paint waste in stages A4 and A5.

Parameter	Unit	Value
Reference service life	years	50
Refurbishment process		Paint is reapplied following the
Returbistiment process	-	initial life cycle
Refurbishment cycle	Number per RSL	2.33
Factor input during refurbishment	kWh	all inputs as follows from the initial
Energy input during refurbishment	RVVII	application
Material input for refushioloment	lia.	all inputs as follows from the initial
Material input for refurbishment	kg	application
Waste material	ka	all outputs as follows from the
vvaste material	kg	initial application









Recycled content packaging

An additional packaging scenario was considered, where the packaging made of polypropylene with 50% recycled content is considered (0,04 kg/kg of VITEX CARE paint). This represent the current planned scenario for the products and is one of the most likely alternatives. In the considered scenario, some reductions in the environmental impacts can be observed. The most significant reductions are found in impact categories eutrophication (marine), land use, and cancer human health effects. At the same time, a significant relative growth of impacts in climate change (biogenic) is observed. Both effects can be mainly traced to the omission of reusable wooden pellets and tin-plated steel in the packaging mix. Generally speaking, use of the partially recycled polypropylene packaging in CARE EGGSHELL products has the potential of reducing the products' impacts.

Electricity generation on site

VITEX supports development of renewable energy in Greece. The manufacturing facilities are equipped with the 10000 m² roof solar park that supplies electricity to the grid. In the period under evaluation, 865,6 kWh is supplied to the electricity grid, which potentially could have covered 67,5% of the total yearly electricity demand of the company.

VOC emissions

The VOC impact of the considered VITEX products is near zero, which is confirmed by the available test reports by EUROFINS regarding VOC content and VOC emissions (for the paints of the worst performing case scenario). Eurofins Indoor Air Comfort Gold Certificates and Allergy UK certificates are achieved.

LEED attestation

LEED v4 and LEED v4.1 attestations were performed by EUROFINS, regarding the compliance of the products with the US Green Building requirements (EQ Credit).









DECLARATION OF SVHC

None of the substances contained in the product are listed in the "Candidate List of Substances of Very High Concern for authorisation" or they do not exceed the threshold with the European Chemicals Agency



REFERENCES

- Dahlgren, L. at al, (2016) Raw materials LCI database for the European coatings and printing ink industries. Documentation of methodology v. 3.0. Commissioned by CEPE. IVL Swedish Environmental Research Institute Ltd.
- EN13300 Paints and varnishes. Water-borne coating materials and coating systems for interior walls and ceilings. Classification
- EN 15804:2012+A2:2019 Sustainability of construction works Environmental product declarations Core rules for the product category of construction products
- ISO 11998 Paints and varnishes. Determination of wet-scrub resistance and cleanability of coatings.
- ISO 14040:2006 Environmental management Life cycle assessment Principles and framework
- ISO 14044:2006 Environmental management Life cycle assessment Requirements and guidelines
- ISO 6504-3:2019 Paints and varnishes Determination of hiding power Part 3: Determination of hiding power of paints for masonry, concrete and interior use
- Product Environmental Footprint Category Rules Decorative Paints. Version 1.0, 2018.
- Wernet, G., Bauer, C., Steubing, B., Reinhard, J., Moreno-Ruiz, E., and Weidema, B. (2016). The ecoinvent database version 3 (part I): overview and methodology. The International Journal of Life Cycle Assessment, [online] 21(9), pp.1218–1230.



REMARKS

None

