



**Environmental
Product
Declaration**

According to ISO14025+EN15804+A2

This declaration is for:
Alesta® HD Matt

Provided by:
Axalta Coating Systems



MRPI® registration:
1.1.01229.2026

Program operator:
Stichting MRPI®
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COMPANY INFORMATION

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MRPI® REGISTRATION

1.1.01229.2026

DATE OF THIS ISSUE

26-6-2026

EXPIRY DATE

26-6-2031

SCOPE OF DECLARATION

This MRPI®-EPD certificate is verified by Gert-Jan Vroege, Eco-intelligence. The LCA study has been done by Serena Cunsolo, Brienne Wiersema, Ecomatters BV. The certificate is based on an LCA-dossier according to ISO14025+EN15804+A2. It is verified according to the 'Verification protocol for MRPI LCA project report & EPD 21th of May 2025, V. 5.2'. 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
1043 GR
Amsterdam

PRODUCT

Alesta® HD Matt

DECLARED UNIT / FUNCTIONAL UNIT

1 Mass (kg)

DESCRIPTION OF PRODUCT

Alesta® HD Hyperdurable Architectural powder coating based on proven Fluoropolymer technology, especially formulated for application on aluminum extrusion and sheets.

VISUAL PRODUCT



MORE INFORMATION

https://www.axalta.com/powdercoatings_eu/en_GB/our-products.html

Ing. L. L. Oosterveen MSc. MBA Managing Director MRPI	DEMONSTRATION OF VERIFICATION
	CEN standard EN15804 serves as the core PCR [1]
	Independent verification of the declaration and data according to ISO14025+EN15804+A2 Internal: External: X
	Third party verifier: Gert-Jan Vroege, Eco-intelligence [1] PCR = Product Category Rules





DETAILED PRODUCT DESCRIPTION

Alesta® HD Hyperdurable Architectural powder is a coating based on proven Fluoropolymer technology, especially formulated for application on aluminum extrusion and sheets. It offers ultradurable weathering resistance and excellent corrosion resistance.

Highlights:

- Meet AAMA2605 requirements
- Longer life cycle
- Up to 30 years of warranty (under conditions)

Typical Use:

- Aluminium curtain walls for prestigious buildings.
- Doors, window frames, cladding and other parts in architecture and construction
- Buildings in severe environments

Packaging:

The powder coating is available in 15 kg and 20 kg. The packaging weight of the representative product is 0.084 kg per kg of powder coating.

	Alesta HD®	Unit
Type of coating	Powder coating	
Weight per declared unit	1	kg
Density	1,4	g/cm3

Biogenic carbon:

Raw materials and packaging can contain biogenic carbon. Biogenic carbon is considered not relevant if the mass of biogenic carbon containing ingredients or packaging contribute less than 5% to the total mass. If the mass exceeds 5%, the biogenic carbon content at factory gate is listed in the table below.

Biogenic carbon content	kg C
Biogenic carbon content in product	0
Biogenic carbon content in accompanying packaging	0,0317
Note: 1 kg biogenic carbon (kg C) is equivalent to 44/12 kg of CO ₂ .	

Component (> 1%)	(kg / %)
Polyester resin	Confidential
Fluoropolymer	Confidential
Barium Sulphate	Confidential
Pigment	Confidential
Other	Confidential





SCOPE AND TYPE

The type of this EPD is Cradle-to-Gate with options. All major steps from the extraction of natural resources to the final disposal of the product are included in the environmental performance of the manufacturing phase, except those that are not relevant to the environmental performance of the product. The life cycle stages included are A1-A3, C1-C4 and D. All impacts associated with mining activities, the upstream production of materials and energy, and downstream waste treatment, are included in the product system. The emissions and resource extractions derived from these processes are considered elementary exchanges between the product systems and the environment. This declaration does not imply an indicator result of zero.

This EPD is representative for products produced in Ras Al Khaimah, United Arab Emirates; Houston, United States of America; Västervik, Sweden; and Montbrison, France. The application market is for customers in America, EMEA and Asia, where it is also expected to reach its end-of-life fate.

The software LCA for Experts 10.9.3.0 Professional is used to perform the LCA. The background databases used in the model are Ecoinvent 3.11 (published 20-11-2024) and CEPE LCI 2024 database (published June 2024), with method 'cut-off by classification'. The version of characterisation factors used is EF 3.1.

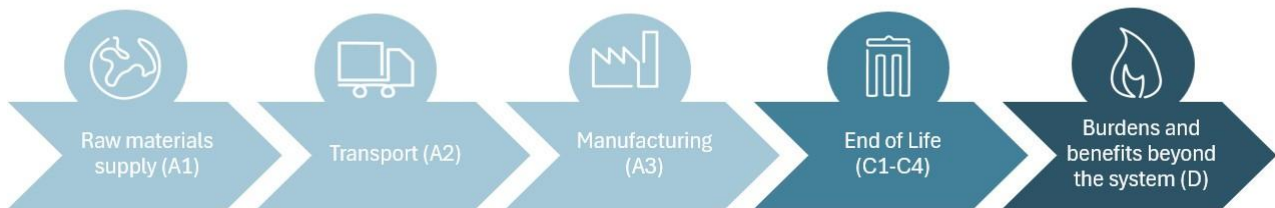
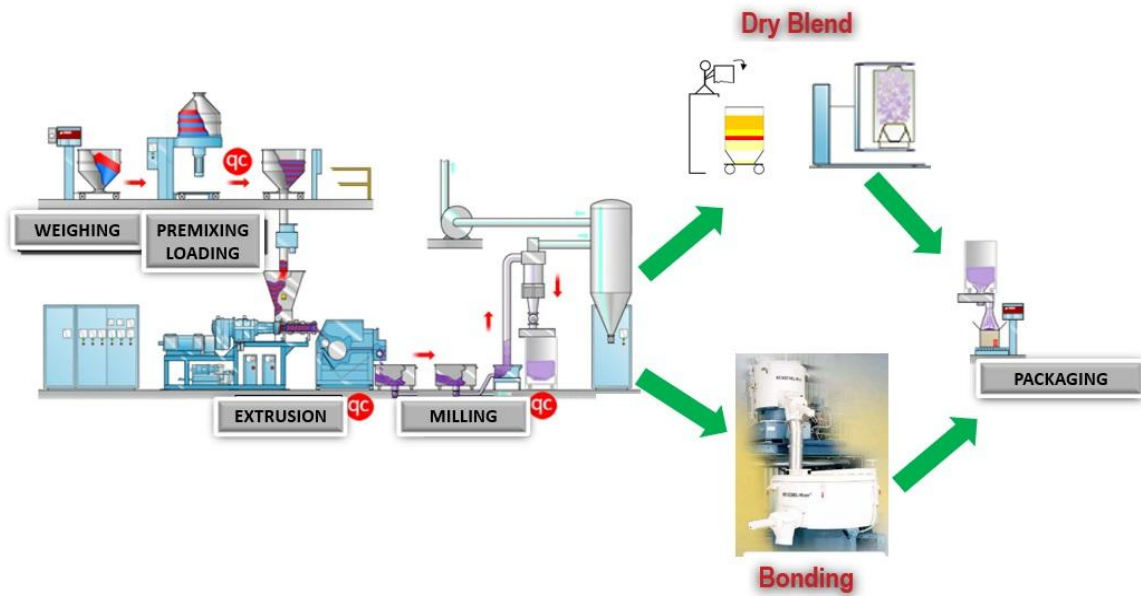
This study is a representative dataset EPD. The validity of this EPD is in correspondence with the specifications of the LCA project report.

PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE 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	Reuse - Recovery - Recycling potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	ND	ND	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X

X = Modules Assessed

ND = Not Declared





REPRESENTATIVENESS

This EPD is representative for the same Alesta® HD Matt products produced at four different locations:

Ras Al Khaimah, United Arab Emirates

Houston, United States of America

Västervik, Sweden

Montbrison, France

This EPD is based on a representative (weighted average) for Alesta® HD Matt powder coating. The representative is based on a weighted average of manufacturing inputs and outputs of the four different production sites, based on the production volumes of each production site (year 2025) and expected production volumes for 2026.

The variability between products is limited, with the maximum positive deviation in total climate change of an individual product not exceeding 3%. This approach ensures that the reported results appropriately reflect the range of products in this EPD. The relative variability of other environmental indicators can be incidentally higher, which is primarily caused by small variations in indicators with a low absolute impact.





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

Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP-total	kg CO2 eq.	7,33E+00	1,05E-01	2,68E-01	7,71E+00	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,07E-02	0,00E+00	2,50E+00	-3,86E-01
GWP-fossil	kg CO2 eq.	7,30E+00	1,05E-01	2,96E-01	7,70E+00	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,07E-02	0,00E+00	2,44E+00	-3,84E-01
GWP-biogenic	kg CO2 eq.	3,03E-02	4,59E-05	-2,88E-02	1,58E-03	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	3,80E-06	0,00E+00	6,17E-02	-1,32E-03
GWP-luluc	kg CO2 eq.	5,30E-03	4,58E-05	4,66E-04	5,81E-03	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	5,05E-06	0,00E+00	1,04E-05	-4,58E-04
ODP	kg CFC11 eq.	9,09E-04	1,79E-09	4,29E-09	9,09E-04	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,58E-10	0,00E+00	2,38E-10	-4,34E-09
AP	mol H+ eq.	3,78E-02	3,01E-04	8,21E-04	3,90E-02	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	2,84E-05	0,00E+00	2,37E-04	-1,19E-03
EP-fresh water	kg P eq.	1,81E-03	1,03E-05	1,17E-04	1,93E-03	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,19E-06	0,00E+00	8,38E-06	-1,05E-04
EP-marine	kg N eq.	3,91E-03	8,59E-05	2,98E-04	4,29E-03	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	7,18E-06	0,00E+00	1,10E-04	-2,58E-04
EP-terrestrial	mol N eq.	4,01E-02	9,23E-04	2,08E-03	4,31E-02	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	7,69E-05	0,00E+00	1,17E-03	-2,59E-03
POCP	kg NMVOC eq.	1,67E-02	4,53E-04	8,69E-04	1,81E-02	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	4,15E-05	0,00E+00	3,00E-04	-9,92E-04
ADP-minerals & metals	kg Sb eq.	1,16E-04	2,99E-07	6,59E-07	1,17E-04	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	3,07E-08	0,00E+00	6,26E-08	-2,52E-07
ADP-fossil	MJ, net calorific value	9,07E+01	1,58E+00	4,85E+00	9,71E+01	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,63E-01	0,00E+00	2,43E-01	-6,15E+00
WDP	m3 world eq. Deprived	1,08E+01	9,98E-03	3,34E-02	1,09E+01	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,05E-03	0,00E+00	2,40E-02	-5,75E-02

- GWP-total = Global Warming Potential total
- GWP-fossil = Global Warming Potential fossil fuels
- GWP-biogenic = Global Warming Potential biogenictotal
- GWP-luluc = Global Warming Potential land use and land use change
- ODP = Depletion potential of the stratospheric ozone layer
- AP = Acidification Potential, Accumulated Exceedence
- EP-freshwater = 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 [1]
- ADP-fossil = Abiotic Depletion for fossil resources potential [1]
- WDP = Water (user) deprivation potential, deprivation-weighted water consumption [1]

Disclaimer [1]:

- 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 experience with the indicator.





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

Unit		A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
PM	Disease incidence	2,56E-07	7,84E-09	9,09E-09	2,73E-07	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	7,82E-10	0,00E+00	2,07E-09	-1,01E-08
IRP	kBq U235 eq.	6,32E-01	1,46E-03	6,58E-02	6,99E-01	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,37E-04	0,00E+00	3,00E-04	-3,02E-02
ETP-fw	CTUe	4,40E+01	2,28E-01	1,57E+00	4,58E+01	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	2,56E-02	0,00E+00	9,49E-01	-5,79E-01
HTP-c	CTUh	6,07E-08	1,86E-11	1,96E-10	6,09E-08	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,90E-12	0,00E+00	3,08E-09	-4,59E-11
HTP-nc	CTUh	1,71E-07	8,41E-10	2,65E-09	1,75E-07	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	8,57E-11	0,00E+00	9,58E-09	-1,43E-09
SQP	-	1,63E+01	1,55E+00	9,26E+00	2,71E+01	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,57E-01	0,00E+00	1,03E-01	-4,46E-01

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

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.

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 experience with the indicator.





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

	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
HWD	kg	1,22E-03	2,22E-03	3,55E-02	3,89E-02	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	2,55E-04	0,00E+00	3,70E-02	-1,17E-02
NHWD	kg	2,20E-02	1,42E-02	1,70E+00	1,73E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,41E-03	0,00E+00	2,23E+00	-2,09E-02
RWD	kg	7,51E-05	0,00E+00	0,00E+00	7,51E-05	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
CRU	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
MFR	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
MER	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
EEE	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	1,15E+00	0,00E+00
ETE	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	2,37E+00	0,00E+00

HWD = Hazardous Waste Disposed
 NHWD = Non Hazardous Waste Disposed
 RWD = Radioactive Waste Disposed
 CRU = Components for reuse
 MFR = Materials for recycling
 MER = Materials for energy recovery
 EEE = Exported Electrical Energy
 ETE = Exported Thermal Energy





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

	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
PERE	MJ	5,71E+00	2,36E-02	7,95E-01	6,53E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	2,21E-03	0,00E+00	4,86E-01	-3,82E-01
PERM	MJ	0,00E+00	0,00E+00	4,79E-01	4,79E-01	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	-4,79E-01	0,00E+00
PERT	MJ	5,71E+00	2,36E-02	1,27E+00	7,00E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	2,21E-03	0,00E+00	7,29E-03	-3,85E-01
PENRE	MJ	9,14E+01	1,59E+00	4,60E+00	9,76E+01	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,63E-01	0,00E+00	2,43E-01	-6,16E+00
PENRM	MJ	0,00E+00	0,00E+00	5,52E-01	5,52E-01	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PENRT	MJ	9,07E+01	1,58E+00	4,85E+00	9,72E+01	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,63E-01	0,00E+00	2,43E-01	-6,15E+00
SM	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
RSF	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
NRSF	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
FW	m3	3,43E-01	2,36E-04	7,10E-04	3,44E-01	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	2,45E-05	0,00E+00	5,60E-04	-1,34E-03

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 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





CALCULATION RULES

Cut-off criteria:

Some cut-offs were applied to the study. During the manufacturing process, the input of consumables and disposed packaging from the raw materials is cut off from the system boundaries due to lack of data on the composition of waste. The production equipment and infrastructure is excluded from the system boundaries since they are considered capital goods. In addition, natural gas used for heating of buildings was excluded, as it was not used for the production process and considered negligible.

Allocation procedure:

Allocation procedures follow the requirements of EN15804+A2 and are applied consistently and uniformly. To allocate the emissions and inputs to the manufactured products, the decision-hierarchy in ISO 14044 is used (ISO 2006). It is not possible to sub-divide the site data into a more detailed level or find physical causalities between inputs and outputs, thus allocation is done based on mass, considering the annual production of paint products for each site.

Data quality and data collection period:

Specific data was collected from Axalta through a questionnaire, including inquiries about paint characteristics and packaging, production information. The data collection period for specific data was the year 2025. This primarily covers stages A1 and A3, where the geographical, technical and temporal representativeness was assessed to be "Good".

Data gaps (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 and the Product Environmental Footprint method (European Commission, 2021). The geographical, technical and temporal representativeness for the applicable life-cycle stages where the generic values were used was assessed as "Good".

Generic data (i.e. upstream acquisition and production of raw materials, transport, waste treatment processes) was selected from Ecoinvent 3.11 database and CEPE 2024 database. In the case of missing data, a relevant proxy was searched and adjusted to the corresponding unit process.

Data quality was assessed following the criteria of the UN Environment Global Guidance on LCA database development, as presented in Annex Table E.1 in the EN15804+A2 standard.

Power mix:

The electricity is modelled using a market-based approach. For manufacturing, the residual mix for the relevant geography is taken (Ecoinvent 3.11). Electricity consumption in the manufacturing does not account for more than 30% of the total energy use in module A1-A3.





SCENARIOS AND ADDITIONAL TECHNICAL INFORMATION

A1. Raw materials supply

This module considers the extraction and processing of all raw materials and energy which occur upstream to the manufacturing process. The emissions and resource extractions derived from these processes are considered elementary exchanges between the product systems and the environment.

A2. Transport of raw materials to manufacturer

This includes the transport distance of the raw materials to the manufacturing facility via road. Primary data for the transportation distances for raw materials was provided by Axalta, and a weighted average transport distance was modelled based on raw material's weights and their transport distance. Transport of packaging for the coatings was included in the datasets used from ecoinvent.

Transport of raw materials to manufacturing site	Distance	Unit
Raw materials - Lorry >32t	986	km

A3. Manufacturing

This module covers manufacturing and includes all processes linked to production such as mixing and packing. Use of electricity, fuels, waste and direct emissions associated to the production of the coating are accounted for.

Data regarding coating production was provided for the manufacturing site where the coatings are produced. Primary data and site-specific data was provided for the consumption of utilities and product packaging. For upstream (raw material processes) and downstream processes (application and waste processing) generic data is used when no specific data was available.

C2. Transport to End-of-life scenario

This module includes the transportation of the coating along with the substrates to the waste treatment facilities and end-of-life destination. As no primary data was available for the transportation distances, the default value from the PEFCR Guidance Document was used.

Transport of application waste and the distribution of the waste handling	Value	Unit
Application waste to EoL - Lorry >32t	100	km

C3. Waste processing and C4. Disposal

The applied coating is disposed together with the steel and aluminium that is applied on, in specific architectural projects in the US, Europe and the UAE, at the end-of-life. Therefore, the coating is assumed to be treated by incineration with energy recovery. The coating is assumed to be burned during the recycling of the steel and the aluminium structures, where a credit is accounted for the recovered energy in module D.

Coating packaging is disposed after application (life cycle stage A5). Since A5 is not included within the system boundaries, the disposal of the packaging is modelled in C4 to make sure all inputs and outputs are included within the study.

EoL scenario	Value	Unit
Application waste EoL (Incineration with energy recovery)	100	%





DECLARATION OF SVHC

None of the raw materials are both listed on the "Candidate List of Substances of Very High Concern for authorisation" and present above the threshold (substance > 0.1 w%) stated by the European Chemicals Agency.

REFERENCES

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European Commission, (2021). Annex II: Product Environmental Footprint Method. In Environmental Footprint Guidance Document. [Online] Available at: <https://environment.ec.europa.eu/document/download/680503dc-5a19-4f6a-bb92-84d9bfc8f312_en?filename=Annexes%201%20to%202.pdf>

ISO 14040:2006 Environmental management — Life cycle assessment — Principles and framework

ISO 14044:2006 Environmental management — Life cycle assessment — Requirements and guidelines

Sphera LCA for Experts Software System and Database for Life Cycle Engineering. Copyright 1992-2024 Sphera Solutions GmbH.

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. Available at: <<http://link.springer.com/10.1007/s11367-016-1087-8>>

REMARKS

None

