ENVIRONMENTAL PRODUCT DECLARATION

as per *ISO 14025* and *EN 15804+A2*

Owner of the Declaration	TIGER Coatings GmbH & Co. KG
Publisher	Institut Bauen und Umwelt e.V. (IBU)
Programme holder	Institut Bauen und Umwelt e.V. (IBU)
Declaration number	EPD-TIG-20240169-IBK1-EN
Issue date	26/08/2024
Valid to	25/08/2029

TIGER Drylac® Polyester/Primid Series

TIGER Coatings GmbH & Co. KG

Institut Bauen und Umwelt e.V.

ECO PLATFORM EPD VERIFIED

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1. General Information

TIGER Coatings GmbH & Co. KG

Programme holder

IBU – Institut Bauen und Umwelt e.V.
Hegelplatz 1
10117 Berlin
Germany

Declaration number

EPD-TIG-20240169-IBK1-EN

This declaration is based on the product category rules:

Coatings with organic binders, 01/08/2021
(PCR checked and approved by the SVR)

Issue date

26/08/2024

Valid to

25/08/2029

Dipl.-Ing. Hans Peters
(Chairman of Institut Bauen und Umwelt e.V.)

Florian Pronold
(Managing Director Institut Bauen und Umwelt e.V.)

TIGER Drylac® Polyester/Primid Series

Owner of the declaration

TIGER Coatings GmbH & Co. KG
Negrellistrasse 36
4600 Wels
Austria

Declared product / declared unit

1 kg TIGER Drylac Polyester/Primid Series produced at TIGER Coatings GmbH & Co.KG located in Wels (Austria).

Scope:

This EPD refers to a declared unit of 1 kg TIGER Drylac® polyester/primid powder coating produced at TIGER Coatings GmbH & Co. KG located in Wels, Austria (TCA).

This model EPD represents a worst-case declaration of Series 67, fine texture, RAL 7016 powder coating with a raw density of 1.4 - 1.6 g/cm³. The product with the highest environmental impact is declared.

TIGER Drylac® Series 67 was selected as a reference product based on a comprehensive analysis of TIGER Drylac® Series 14, TIGER Drylac® Series 29, TIGER Drylac® Series 58, TIGER Drylac® Series 59 and TIGER Drylac® Series 68.

The owner of the declaration shall be liable for the underlying information and evidence; the IBU shall not be liable with respect to manufacturer information, life cycle assessment data and evidences.

The EPD was created according to the specifications of EN 15804+A2. In the following, the standard will be simplified as *EN 15804*.

Verification

The standard EN 15804 serves as the core PCR
Independent verification of the declaration and data according to ISO 14025:2011
☐ internally ☒ externally

Angela Fisher,
(Independent verifier)

2. Product

2.1 Product description/Product definition

This Environmental Product Declaration declares a thermosetting powder coating for exterior non architectural and architectural application with durable and super durable weatherability.

This EPD covers the following product series:
TIGER Drylac® Series 14
TIGER Drylac® Series 29
TIGER Drylac® Series 58
TIGER Drylac® Series 59 (non architectural)
TIGER Drylac® Series 67
TIGER Drylac® Series 68

The TIGER Drylac® Polyester/Primid Series covered herein are weather-resistant duroplastic powder coatings in different surfaces and gloss levels ranging from smooth glossy to smooth flat matte to textured matte finishes and metallic effects based on saturated Polyester resin, the corresponding hardener and light- and weather resistant pigments.

For the use and application of the product the respective national provisions at the place of use apply, in Germany for example the building codes of the federal states and the corresponding national specifications.

2.2 Application

TIGER Drylac® Polyester/Primid Series are typically used for many kinds of outdoor applications (TIGER Drylac® Series 59) on metal substrates and our *GSB International* and *QUALICOAT* approved systems for aluminum facades and steel constructions (TIGER Drylac® Series 14, 29, 58, 67, and 68).
This product family covers a wide range of colors, gloss levels, metallic and textured effects. It stands out with its UV and chalking resistance as well as its color and corrosion stability.

2.3 Technical Data

The powder coatings TIGER Drylac® Series 14/29/58/59/67/68 are applied at a film thickness of between 60 – 80 µm for smooth finishes and 70 - 90 µm for textures and are cured according to our technical data sheets and have following characteristics:

Powder- and film properties

The TIGER Drylac® PE/Primid Series (except for Series 59) covered herein comply with either of the qualitative specifications of *GSB International, QUALICOAT* and *AAMA 2604*.

Name	Value	Unit
Density ISO 8130-2	1200 - 1700	kg/m^3
Solids content	100	%
Gloss ISO 2813 (60°)	2 - 95	GU
Dry adhesion ISO 2409	no removal of film	-
Mandrel bending test ISO 1519	*no cracks, **cracks permitted	-
Cupping test ISO 1520	*no cracks, **cracks permitted	-
Ball impact test ASTM D2794	*no cracks, **cracks permitted	-
Determination of resistance to humidity ISO 6270-1	* **1000 h, ***3000 h, delamination around scribe max. 1 mm	-
Dalt spray test ISO 9227	* **1000 h, ***3000 h, delamination around scribe max. 1 mm	-
Accelerated weathering acc. to. ISO 16474-3	*300 h, ** 600 h, RG >= 50 %	min
Accelerated weathering ISO 16474-2	1000 h, *RG >= 50 %, ** RG >=90 %	°C
Natural weathering Florida ISO 2810	* 1 year, ** 3 years, RG >= 50 %; *** 5 years RG >=30 %	
Curing time	5 - 40	min
Curing temperature	160 - 200	°C
Theoretical coverage at 60µm	9.8 - 13.8	m²/kg

* TIGER Drylac® Series 14/29 acc. to GSB Florida 1 and *QUALICOAT* Class 1
**TIGER Drylac® Series 67/68 acc. to GSB Florida 3 and *QUALICOAT* Class 2
***TIGER Drylac® Series 58 acc. to *AAMA 2604*
RG = residual gloss

Performance data of the product with respect to its characteristics in accordance with the relevant technical provision (no CE-marking).

2.4 Delivery status

TIGER Drylac® Series 14/29/58/59/67/68 is supplied as milled powder. The powder coating is packed in cardboard boxes lined with PE (polyethylene) bags (content 0.8, 2.5, 18 or 20 kg) or in Big Bags (content 350 - 960 kg).

2.5 Base materials/Ancillary materials

This Environmental Product Declaration refers to the composition of the powder coatings TIGER Drylac® Series 14/29/58/59/67/68.

Name	Value	Unit
Binder (resin and hardener)	60-80	%
Additives	0.8-5.3	%
Pigments (colored and effect)	0.9-34	%
Extender	0-25	%

1) TIGER Drylac® Series 14/29/58/59/67/68 contains substances listed in the 'Candidate list of Substances of Very High Concern for Authorisation (SVHC)' (date: 16.06.2023) exceeding 0.1 percentage by mass: no.

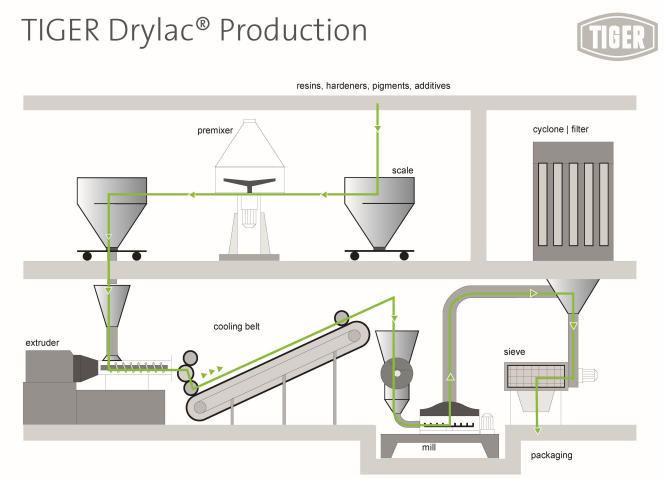
2) TIGER Drylac® Series 14/29/58/59/67/68 contains other carcinogenic, mutagenic, reprotoxic (CMR) substances in categories 1A or 1B which are not on the *candidate list*, exceeding 0.1 percentage by mass: no.

3) Biocide products were added to this construction product or it has been treated with biocide products (this then concerns a treated product as defined by the (EU) *Ordinance on Biocide Products* No. 528/2012): no.

No additives, namely fire retardants, softeners and/or biocides are intentionally added to TIGER Drylac® Series 14/29/58/59/67/68.

2.6 Manufacture

The powder coating is produced in the following order:
1. Weighing the raw materials
2. Premixing
3. Extrusion (plastification and homogenization)
4. Cooling and crushing
5. Grinding and sieving
6. Packing and labeling
7. Metallic effects require an additional bonding process



Quality management systems:
IATF 16949, ISO 9001, ISO 14001

2.7 Environment and health during manufacturing

Through the environmental management system according to *ISO 14001*, the environmentally relevant aspects are regularly evaluated. Since powder coatings do not contain solvents no volatile organic compounds (VOCs) are produced during the production process. Dust emissions are prevented by filter technology and do not enter the environment. The cleaning of the plants is carried out with minimal amount of water, solvents and chemicals. Contamination of the ground can be excluded due to the paved surfaces.

The energy consumption of the plant is recorded in a monitoring system and projects for reduction are implemented continuously. Noise-generating units (equipment, tools…) are used, if necessary, in a noise-insulating/canceling form/model or suitable sound absorbing measures are taken so that official regulated limits by i. e. Occupational Safety and Health Administration *(OSHA*) are met or the values are below the regulated limit.

The use of hazardous working materials is avoided as far as possible.

Waste generated during production is collected separately and disposed via a central waste collection point. Here the principle applies: avoidance, reduction, reuse, disposal in accordance with the law by demonstrably authorized companies. In the course of the environmental management system, key figures are continuously monitored and projects for waste avoidance and reduction are implemented on an ongoing basis.

2.8 Product processing/Installation

In its corresponding formulation, the powder coating under review can be processed on all coating systems available on the market using corona (electrostatic) and for many of the products also tribo charging.

Guidelines to be considered:
VDE provisions and the corresponding European standards: *EN 12981.*

The overspray can be recovered and re-used using corresponding plant technology.

2.9 Packaging

The powder coating under review is packed either in cardboard boxes lined with PE-bags or big bags. The used materials for packaging are recyclable or thermally utilized. The various containers are transported on wooden pallets which can be re-used.

2.10 Condition of use

TIGER Drylac® PE/Primid Series covered in this EPD are typically used as coating on aluminum and steel, e. g. for facades, window frames, garden fence,..., in a cured state. The coating represents an irreversible thermosetting cross-linking of polymer chains which are insoluble in water and therefore have a constant composition during use.

2.11 Environment and health during use

If the powder coating is processed properly according to the manufacturer's instructions and taking into account the applicable safety instructions, negative effects on humans and the environment are not to be expected according to the present state of knowledge.

2.12 Reference service life

If TIGER Drylac® Series 14/29/58/59/67/68 is processed properly and the care/maintenance of the surface - coated with the powder coating under review - is according to TIGER Coatings recommendation's, the service life of the powder coating corresponds to the service life of the coated object. Any decrease in gloss, change of colour and/or effect will appear evenly over each surface side, provided the coating has been exposed to equal levels of environmental effects and of sunlight. These changes are a result of UV radiation and humidity and are within the tolerances prescribed by *GSB International, QUALICOAT* and *AAMA* (except for Series 59).

2.13 Extraordinary effects

Fire

In line with *EN 13501-1*, powder-coated construction products are 'non-homogeneous construction products'.
The powder coating and/or coating manufactured is defined as a 'non-substantial component' of the construction product. Reaction to fire must be examined individually and classified in a fire class by the manufacturer of the manufactured product.

TIGER Drylac® PE/Primid Series was tested by TÜV SÜD the Classification of Reaction to Fire in accordance with *EN 13501-1* (coated aluminum panels, coating thickness 115 µm (approx. 144 g/m^2)). Respective test report dated 2021-01-13 shows the Reaction to fire classification: **A2-s1, d0**. In accordance with the

above mentioned, this is to be understood as a non-binding indication.

Fire protection

Name	Value
Building material class	A2
Burning droplets	d0
Smoke gas development	s1

Water
Fully cured TIGER Drylac® Series 14/29/58/59/67/68 films are insoluble in water and therefore a hazard to water in case of e. g. flooding is not expected.

Mechanical destruction
If TIGER Drylac® Series 14/29/58/59/67/68 is processed properly, the adhesion to the substrate is very good so that in case of unforeseeable mechanical destruction of a coated component a negative impact to the environment is not to be expected.

2.14 Re-use phase
The re-use of cured powder coatings is not possible. Cross-linked powder coatings can be chemically or thermally removed from the substrate and can then be passed on to approved facilities for thermal recycling.

2.15 Disposal
EWC (European Waste Code): 08 01 12. The *EWC* to be applied is to be specified by the waste producer.
Possible disposal methods for powder coating waste are:
1. Material utilization, e. g. in composite materials.
2. Thermal utilization in approved systems.

2.16 Further information
More detailed information on TIGER Drylac® Series 14/29/58/59/67/68 can be found at:

Website: https://www.tiger-coatings.com

Product data sheets:
TIGER PDS Series 14 | 1196
TIGER PDS Series 29 | 1142
TIGER PDS Series 58 | 1140
TIGER PDS Series 59 | 1143
TIGER PDS Series 67 | 1202
TIGER PDS Series 68 | 1153

Product-specific technical data sheets and safety data sheets can be obtained from the manufacturer.

3. LCA: Calculation rules

3.1 Declared Unit
This EPD refers to a declared unit of 1 kg TIGER Drylac® polyester/primid powder coating produced at TIGER Coatings GmbH & Co. KG located in Wels, Austria (TCA).

Declared unit

Name	Value	Unit
Declared unit	1	kg
Gross density	1.4 - 1.6	g/cm³

This model EPD represents a worst-case declaration of Series 67, fine texture, RAL 7016 powder coating with a raw density of 1.4 - 1.6 g/cm³.
The product with the highest environmental impact is declared.

TIGER Drylac® Series 67 was selected as a reference product based on a comprehensive analysis of TIGER Drylac® Series 14, TIGER Drylac® Series 29, TIGER Drylac® Series 58, TIGER Drylac® Series 59 and TIGER Drylac® Series 68.

3.2 System boundary
The life cycle assessment of TIGER Drylac® Polyester/Primid products refers to a cradle-to-gate analysis with modules C1–C4 and module D (A1–A3 + C + D). The following life cycle phases are part of the analysis:

Module A1–A3 | Production stage
The production stage includes the upstream burdens of raw material supply, their transport and the manufacturing at the TIGER production plant. The main inputs include the resins, pigments and other additives. This EPD refers to the TIGER Drylac® Polyester/Primid Series production at the site in Wels (Austria). The site is supplied with electricity from the regional grid as well as from a photovoltaic system at site.
The packaging of the products is included in module A1–A3 as well.

Module C1 | Deconstruction and demolition
Disassembly is done manually. Associated efforts cannot be quantified for the coating itself, as they are highly dependent on the whole building context. No environmental impacts from the deconstruction of the products are declared.

Module C2 | Transport to disposal
The transport to the disposal of the material is estimated declaring a 50 km radius for truck transport to the disposal. In reality, this scenario may vary depending on the actual location of deconstruction and referring waste treatment.

Module C3 | Waste processing
The declared scenario assumes thermal disposal of the product. Referring environmental impacts are accounted for in module C4. Therefore, no environmental impacts from waste processing of the product are expected in C3.

Module C4 | Disposal
As end of life scenario it is assumed that the powder coatings, which are on the surface of aluminium or steel constructions, are thermically disposed during recycling of the metals (melting/incineration). No benefits for energy substitution are considered, only the resulting emissions.

Module D | Benefits and loads beyond the system boundary
The declared scenario assumes thermal disposal of the product without energy recovery. Referring environmental impacts are accounted for in module C4.

3.3 Estimates and assumptions
All assumptions are verified through detailed documentation and correspond to the best possible representation of reality based on the available data. Regional applicability of the used background data refers to average data under Austrian or European conditions taken from the *GaBi* database. German data were used for the Austrian market whenever European or regionalised average data were not available.

3.4 Cut-off criteria

The LCA model covers all available input and output flows, which can be represented based on robust data. Data gaps are filled with conservative assumptions from average data (when available) or with generic data and are documented accordingly. Only data with a contribution lower than 1 % were cut off. Thus, no data were neglected, of which a substantial impact is to be expected. All relevant data were collected comprehensively.
Cut-off material and energy flows were chosen carefully based on their expected quantitative contribution as well as potential environmental impacts. Thus, it can be assumed that the sum of all neglected input flows does not account for more than 5 % of the total material, water and energy flows. Environmental impacts of machines and infrastructure were not included.

3.5 Background data

This study uses generic background data for the evaluation of upstream environmental impacts from *GaBi*-database 2022.2 and is modelled in *GaBi*-software version 10. Where necessary, additional data were specifically modelled.

3.6 Data quality

Data collection is based on product-specific questionnaires. It follows an iterative process clarifying questions via e-mail, telephone calls or in personal/web-meetings. Intensive discussions between TIGER Coatings GmbH u Co.KG and Daxner & Merl result in an accurate mapping of product-related material and energy flows. This leads to a high quality of foreground data collected. Data collection relies on a consistent process according to *ISO 14044*. The technological, geographical and time-related representativeness of the database was kept in mind when selecting background data. Whenever specific data were missing, either generic datasets or representative average data were used instead. The implemented *GaBi*-background datasets refer to the latest versions available and are carefully chosen. Except for the dataset for palmoil methyl ester they are not more than ten years old. In the absence of more recent data, this data set serves as a conservative approximation with a minor impact on the overall results.

3.7 Period under review

Foreground data was collected for the production year 2019 for the production site in Austria.

3.8 Geographic Representativeness

Land or region, in which the declared product system is manufactured, used or handled at the end of the product´s lifespan: Austria

3.9 Allocation

The representation of the upstream supply chain of precursor materials is based on the *GaBi*-database. Handling of multi-functionality situations, therefore, is covered in the referring process documentation. For the substances modelled by Daxner & Merl, no allocation was applied. Allocation of primary data is based on the controlling systems of the production site. The allocation of electricity input to the declared product is based on overall production quantities (tonnes) in line with the monitoring for the energy and environmental management system of the company.
The production process does not include any co-products.

3.10 Comparability

Basically, a comparison or an evaluation of EPD data is only possible if all the data sets to be compared were created according to *EN 15804* and the building context, respectively the product-specific characteristics of performance, are taken into account.

The *GaBi* background database was used to calculate the LCA (*GaBi* 10; 2022.2).

4. LCA: Scenarios and additional technical information

Characteristic product properties of biogenic carbon

The declared product contains 4.2 g biogenic carbon represented by octadecanamide in the PE-wax and micronized amide wax. This equals 0.015 kg carbon dioxide stored in 1 kg product. At the end-of-life of the product this biogenic carbon is released, therefore no long-term carbon storage occurs.

Information on describing the biogenic Carbon Content at factory gate

Name	Value	Unit
Biogenic carbon content in product	0.004	kg C
Biogenic carbon content in accompanying packaging	0.034	kg C

Note: 1 kg of biogenic carbon is equivalent to 44/12 kg of CO2.

Installation into the building (A5)

The End-of-Life of product packaging is not declared in module A5. The carbon content of the cardboard, paper and pellets used as packaging material is calculated as carbon neutral in module A1–A3.

Name	Value	Unit
Packaging (polyethylene)	0.005	kg
Packaging (cardboard)	0.037	kg
Packaging (paper)	0.039	kg
Packaging (pallets)	0,002	kg

End of life (C1–C4)

Name	Value	Unit
Thermal disposal	1	kg

Reuse, recovery and/or recycling potentials (D), relevant scenario information

The declared scenario assumes thermal disposal of the product without energy recovery. As a result, no substitution potentials are declared in Module D.

5. LCA: Results

The following table presents the LCA results for a declared unit of 1 kg TIGER Drylac® polyester/primid powder coating. TIGER Series 67, fine texture, RAL 7016 powder coating is declared as a worst-case representation of TIGER Drylac® Polyester/Primid series produced in Austria.

DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; MND = MODULE OR INDICATOR NOT DECLARED; MNR = MODULE NOT RELEVANT)

Product stage			Construction process stage		Use stage							End of life stage				Benefits and loads beyond the system boundaries
Raw material supply	Transport	Manufacturing	Transport from the gate to the 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	MND	MND	MND	MND	MNR	MNR	MNR	MND	MND	X	X	X	X	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A2: 1 kg TIGER Series 67 fine texture RAL 7016.

Parameter	Unit	A1-A3	C1	C2	C3	C4	D
Global Warming Potential total (GWP-total)	kg CO_2 eq	3.64E+00	0	3E-03	0	2.25E+00	0
Global Warming Potential fossil fuels (GWP-fossil)	kg CO_2 eq	3.51E+00	0	2.97E-03	0	2.24E+00	0
Global Warming Potential biogenic (GWP-biogenic)	kg CO_2 eq	9.98E-02	0	1.24E-05	0	1.49E-02	0
Global Warming Potential luluc (GWP-luluc)	kg CO_2 eq	3.11E-02	0	2.02E-05	0	3.1E-06	0
Depletion potential of the stratospheric ozone layer (ODP)	kg CFC11 eq	5.28E-09	0	2.95E-16	0	1.31E-13	0
Acidification potential of land and water (AP)	mol H^+ eq	9.34E-03	0	1E-05	0	2.17E-04	0
Eutrophication potential aquatic freshwater (EP-freshwater)	kg P eq	1.3E-05	0	1.07E-08	0	3.04E-08	0
Eutrophication potential aquatic marine (EP-marine)	kg N eq	2.59E-03	0	4.59E-06	0	6.09E-05	0
Eutrophication potential terrestrial (EP-terrestrial)	mol N eq	2.59E-02	0	5.14E-05	0	1.04E-03	0
Formation potential of tropospheric ozone photochemical oxidants (POCP)	kg NMVOC eq	7.52E-03	0	9E-06	0	1.71E-04	0
Abiotic depletion potential for non fossil resources (ADPE)	kg Sb eq	1.86E-05	0	3.03E-10	0	3.16E-09	0
Abiotic depletion potential for fossil resources (ADPF)	MJ	7.84E+01	0	3.94E-02	0	3.57E-01	0
Water use (WDP)	m^3 world eq deprived	4.77E-01	0	3.36E-05	0	2.01E-01	0

RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A2: 1 kg TIGER Series 67 fine texture RAL 7016.

Parameter	Unit	A1-A3	C1	C2	C3	C4	D
Renewable primary energy as energy carrier (PERE)	MJ	9.46E+00	0	2.73E-03	0	8.39E-02	0
Renewable primary energy resources as material utilization (PERM)	MJ	4.41E-01	0	0	0	0	0
Total use of renewable primary energy resources (PERT)	MJ	9.9E+00	0	2.73E-03	0	8.39E-02	0
Non renewable primary energy as energy carrier (PENRE)	MJ	5.58E+01	0	3.96E-02	0	3.57E-01	0
Non renewable primary energy as material utilization (PENRM)	MJ	2.27E+01	0	0	0	0	0
Total use of non renewable primary energy resources (PENRT)	MJ	7.84E+01	0	3.96E-02	0	3.57E-01	0
Use of secondary material (SM)	kg	3.29E-02	0	0	0	0	0
Use of renewable secondary fuels (RSF)	MJ	0	0	0	0	0	0
Use of non renewable secondary fuels (NRSF)	MJ	0	0	0	0	0	0
Use of net fresh water (FW)	m^3	1.64E-02	0	3.15E-06	0	4.71E-03	0

RESULTS OF THE LCA – WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A2: 1 kg TIGER Series 67 fine texture RAL 7016.

Parameter	Unit	A1-A3	C1	C2	C3	C4	D
Hazardous waste disposed (HWD)	kg	3.34E-06	0	2.09E-13	0	3.36E-11	0
Non hazardous waste disposed (NHWD)	kg	9.99E-01	0	6.45E-06	0	1.07E-02	0
Radioactive waste disposed (RWD)	kg	8.52E-04	0	7.34E-08	0	2.16E-05	0
Components for re-use (CRU)	kg	0	0	0	0	0	0
Materials for recycling (MFR)	kg	0	0	0	0	0	0
Materials for energy recovery (MER)	kg	0	0	0	0	0	0
Exported electrical energy (EEE)	MJ	5.36E-01	0	0	0	0	0
Exported thermal energy (EET)	MJ	9.61E-01	0	0	0	0	0

RESULTS OF THE LCA – additional impact categories according to EN 15804+A2-optional: 1 kg TIGER Series 67 fine texture RAL 7016.

Parameter	Unit	A1-A3	C1	C2	C3	C4	D

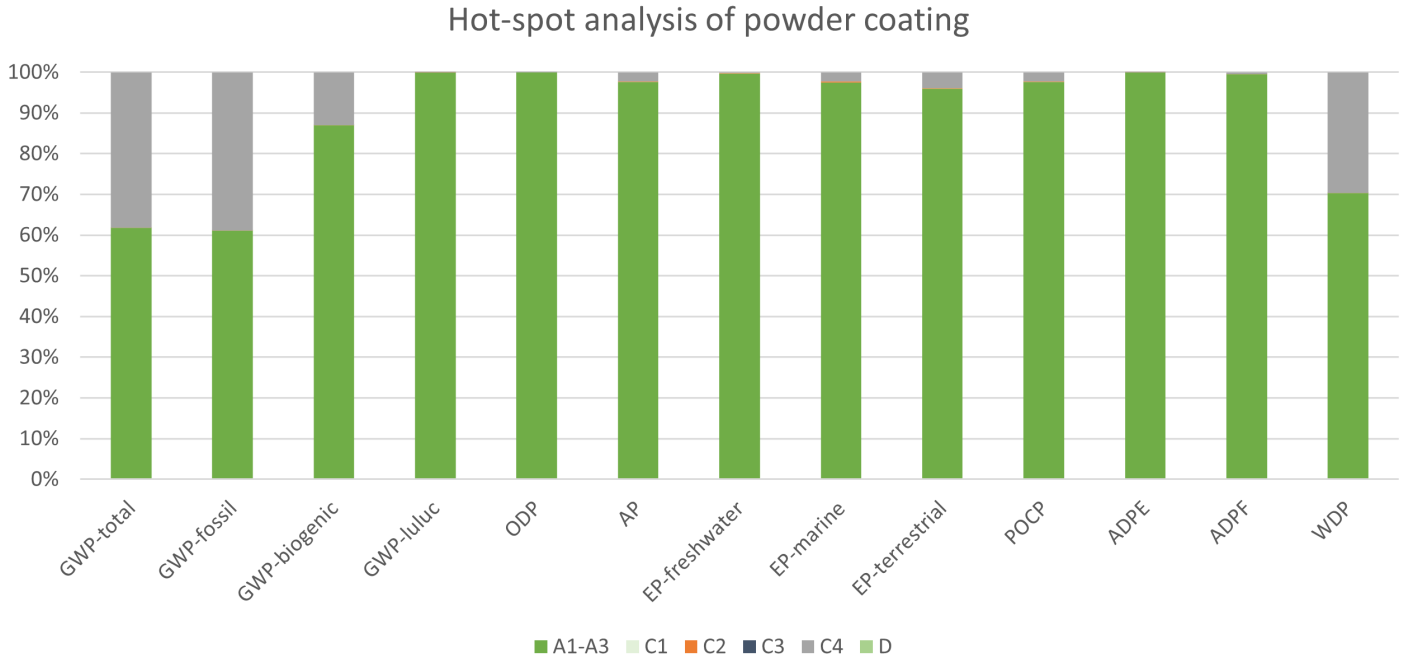
Incidence of disease due to PM emissions (PM)	Disease incidence	ND	ND	ND	ND	ND	ND
Human exposure efficiency relative to U235 (IR)	kBq U235 eq	ND	ND	ND	ND	ND	ND
Comparative toxic unit for ecosystems (ETP-fw)	CTUe	ND	ND	ND	ND	ND	ND
Comparative toxic unit for humans (carcinogenic) (HTP-c)	CTUh	ND	ND	ND	ND	ND	ND
Comparative toxic unit for humans (noncarcinogenic) (HTP-nc)	CTUh	ND	ND	ND	ND	ND	ND
Soil quality index (SQP)	SQP	ND	ND	ND	ND	ND	ND

The additional and optional impact categories according to *EN 15804*+A2 are not declared, as the uncertainty of these indicators is to be classified as high.

Disclaimer – for the indicators 'abiotic depletion potential for non-fossil resources', 'abiotic depletion potential for fossil resources', 'water (user) deprivation potential, deprivation-weighted water consumption', 'potential comparative toxic unit for ecosystems', 'potential comparative toxic unit for humans – cancerogenic', 'Potential comparative toxic unit for humans - not cancerogenic', 'potential soil quality index'.
The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high as there is limited experience with the indicator.

6. LCA: Interpretation

The subsequent interpretation summarizes the life cycle impact assessment of 1 kg of TIGER Drylac Polyester/Primid Series produced at TIGER Coatings GmbH & Co.KG located in Wels (Austria). Series 67, fine texture, RAL 7016 powder coating is declared as a worst-case (model EPD).



The comparison of the powder coatings' life cycle phases shows a clear dominance of the **production phase** (modules A1–A3). The environmental impacts in the production phase mainly result from the upstream supply chain of the raw materials.

Module C4 declares impacts from the **thermal disposal** of the powder coating.

The hot-spot analysis of the production phase shows the upstream supply chain of the resins and the pigments as important contributors in the environmental profile of the products. As the production of the TIGER resins is represented based on primary data, the accuracy of these indicators is expected to be high.

The production process of the powder coating at the site in Austria itself plays a minor role in its environmental profile.

The declared powder coating represents a worst-case of the different series produced by TIGER Coatings GmbH & Co.KG. A comparison of the different powder coating series shows a maximum deviation of -28% in relation to the total global warming potential. Some indicators highly influenced by certain materials not used in all powder coating types show significantly higher deviations (e.g. abiotic depletion potential of non fossil resources). For powder coatings that contain low or no amounts of these materials (e.g. Series 59) this indicator is overestimated.

7. Requisite evidence

The powder coating described in this EPD is also used for indoor applications. Evidence with regard to consumer protection in the building is not relevant for powder coatings, as the powder coatings are intermediate products that are only used in the building after application to a substrate.

8. References

Standards

ASTM D2794
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QUALICOAT
Global quality label organisation committed to maintaining the quality of lacquering, painting and coating on aluminium and its alloys for architectural applications, www.qualicoat.net

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