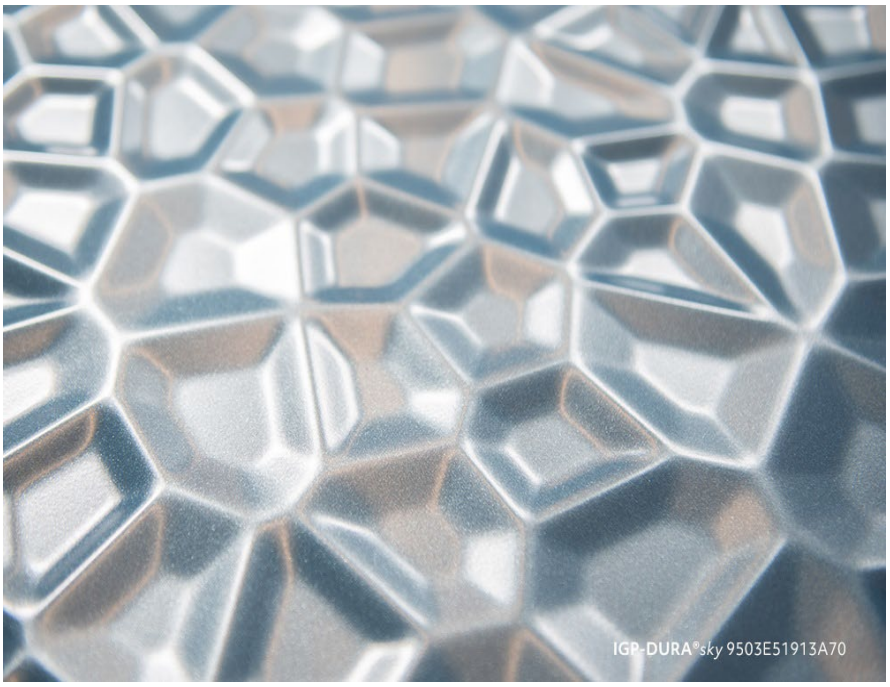
ENVIRONMENTAL PRODUCT DECLARATION

IGP-DURA® *sky* 9503

A FLUOROPOLYMER BASED COATING POWDER



IGP-DURA®sky is a fluoropolymer based coating powder which meets the demands of the standards AAMA 2605 and Qualicoat class 3.

IGP powder coatings for facades meet exacting Swiss quality standards as well as the requirements of the American AAMA 260X standards.
With our EPDs, we strive to offer transparency about the environmental impacts of our products used and thus provide you with support in achieving Green Building Label demands.

IGP powder coatings are benchmarks when it comes to energy - and material efficiency. Our reactive powders enable coating plants to increase capacities while lower energy inputs are verifiable.

The outstanding chargeability of the powders reduce material waste through increased first transfer efficiency of the recyclable powders.
Operational optimizations for chemicals and water cycles have been made and most of our powders are manufactured with renewable energy through hydropower.

Institut Bauen und Umwelt e.V.

UL CERTIFIED ENVIRONMENTAL PRODUCT DECLARATION UL.COM/EPD

ENVIRONMENTAL PRODUCT DECLARATION

<Insert Logo>

IGP Powdercoatings AG
IGP-DURA®sky 9503

According to EN 15804 and ISO 14025
Dual Recognition by UL Environment and Institut Bauen und Umwelt e.V.

This declaration is an environmental product declaration (EPD) in accordance with ISO 14025. EPDs rely on Life Cycle Assessment (LCA) to provide information on a number of environmental impacts of products over their life cycle. Exclusions: EPDs do not indicate that any environmental or social performance benchmarks are met, and there may be impacts that they do not encompass. LCAs do not typically address the site-specific environmental impacts of raw material extraction, nor are they meant to assess human health toxicity. EPDs can complement but cannot replace tools and certifications that are designed to address these impacts and/or set performance thresholds – e.g. Type 1 certifications, health assessments and declarations, environmental impact assessments, etc. Accuracy of Results: EPDs regularly rely on estimations of impacts, and the level of accuracy in estimation of effect differs for any particular product line and reported impact. Comparability: EPDs are not comparative assertions and are either not comparable or have limited comparability when they cover different life cycle stages, are based on different product category rules or are missing relevant environmental impacts. EPDs from different programs may not be comparable.

PROGRAM OPERATOR	UL Environment
DECLARATION HOLDER	IGP Powdercoatings AG
ULE DECLARATION NUMBER	4790617422.101.2 (updated July 2025)
IBU DECLARATION NUMBER	EPD-IGP-20220256-IAC1-EN
DECLARED PRODUCT	Coating powder IGP-DURA®sky 9503
REFERENCE PCR	Coatings with organic binders 01.2019

DATE OF ISSUE	9/27/2022
PERIOD OF VALIDITY	5 years

SCOPE	This EPD is Manufacturer Declaration (1a) – Declaration of a specific product from a manufacturer's plant. The owner of the declaration shall be liable for the underlying information and evidence.
CONTENTS OF THE DECLARATION	Product definition Information about basic material and the material's origin Description of the product's manufacture Indication of product processing Life cycle assessment results Testing results and verifications

The PCR review was conducted by:	Institut Bauen und Umwelt e.V. (IBU) PCR Review Panel Ibu-epd.com
The CEN Norm EN 15804 serves as the core PCR. This declaration was independently verified in accordance with ISO 14025 by Underwriters Laboratories ☐ INTERNAL ☒ EXTERNAL	Cooper McC Cooper McCollum, UL Environment
This life cycle assessment was independently verified in accordance with ISO 14044 and the reference PCR by:	Matthas Klinger

ENVIRONMENTAL-PRODUCT DECLARATION

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

Owner of the Declaration	IGP Pulvertechnik AG
Publisher	Institut Bauen und Umwelt e.V. (IBU)
Programme holder	Institut Bauen und Umwelt e.V. (IBU)
Declaration number	EPD-IGP-20220256-IAC3-EN
Issue date	27.09.2022
Valid to	26.09.2027

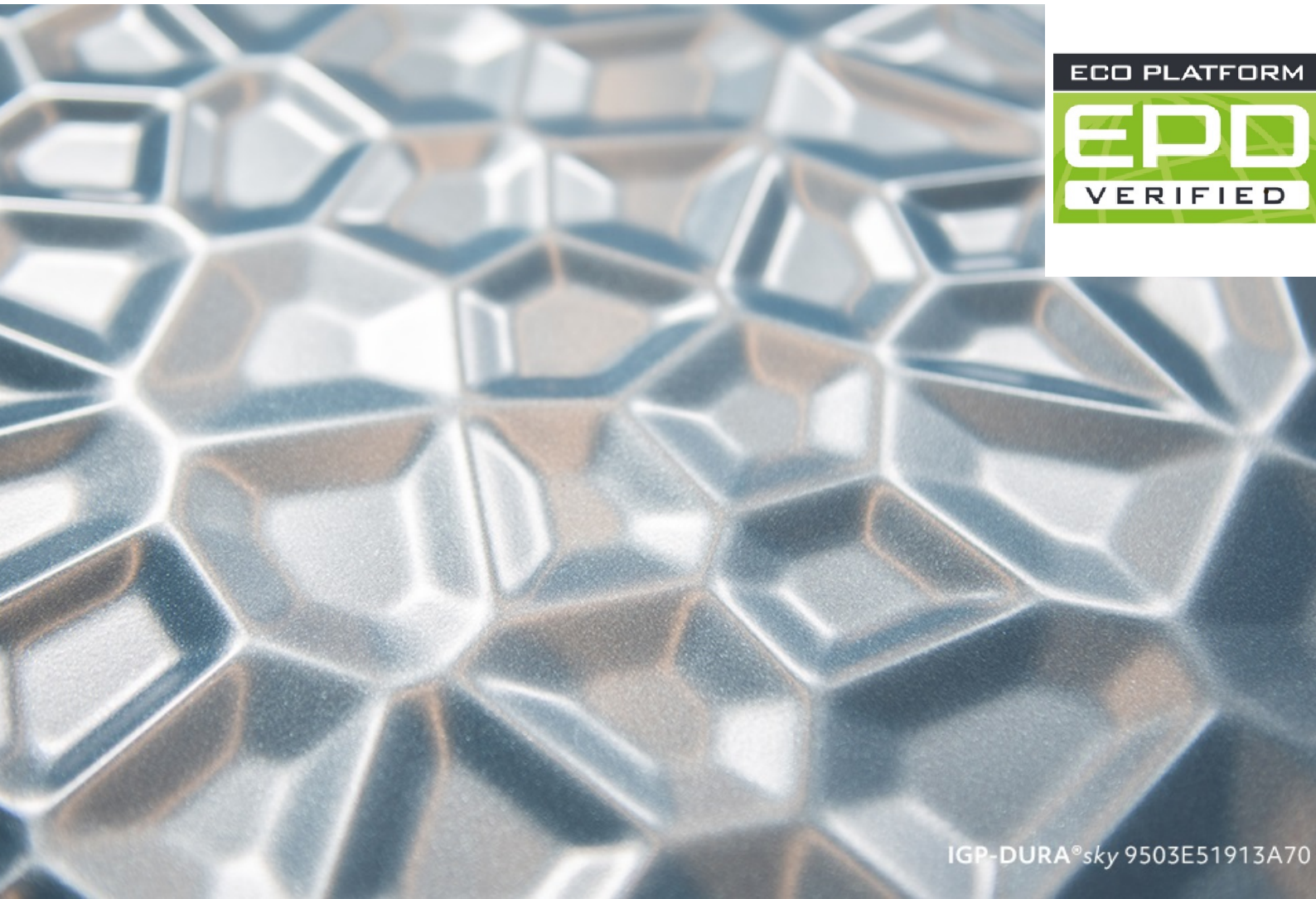
Coating powder IGP-DURA®sky 9503

IGP Pulvertechnik AG

www.ibu-epd.com | https://epd-online.com

Institut Bauen und Umwelt e.V.

ECO PLATFORM EPD VERIFIED



General Information

IGP Pulvertechnik AG

Programme holder

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

Declaration number

EPD-IGP-20220256-IAC3-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

27.09.2022

Valid to

26.09.2027

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

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

Coating powder IGP-DURA®sky 9503

Owner of the declaration

IGP Pulvertechnik AG
Ringstrasse 30
9500 Wil
Switzerland

Declared product / declared unit

Coating powder IGP-DURA®sky 9503 for the manufacturing of ultra-high weather-resistant powdercoating finishes, declared unit 1 kg

Scope:

This Environmental Product Declaration declares a representative formulation of an organic, thermosetting coating powder of the 95 series from the manufacturer IGP Pulvertechnik AG.
The declaration covers the reproducible colour range of the solid and pearl mica effect shades of the ultra-high weather-resistant product group: IGP-DURA®sky 9503.
The declared products refer to the development and production site in Wil, Switzerland.
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 bezeichnet*.

Verification

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

Matthias Klingler,
(Independent verifier)

IGP POWDER COATINGS

Product

Product description/Product definition

The product groups of the 95 series belong to the ultra-high weather resistant quality level and are based on fluoropolymers of the FEVE (**F**luoroethylene
Vinyl **E**ther) group, as well as saturated copolymer resins, corresponding Triglydicyl
Isocyanurate (TGIC)-free hardeners and UV- light resistant pigments.
The series includes the following surface finishes:
IGP-DURA®sky 9503A smooth, matt, uni;
IGP-DURA®sky 9503E smooth finish, matt with pearl effect.
The product groups are characterised by the highest chalking and colour stability. Coating Powder is a product for which no legal provisions for harmonisation of the EU
exist.

For the use and application of the product, the respective national
provisions at the place of use apply.

Application

IGP-DURA®sky 9503 is a matt ultra-high weather resistant coating for high gloss and colour stable, chalking-resistant surfaces for high-value object facades made of metal substrates, as well as for surfaces with good sliding properties and for high chemical stresses.

Good adhesion to the substrate requires the formation of a conversion layer, which also works well with approved chrome-free pretreatment chemicals.

Technical Data

The powder coating films of IGP-DURA®sky 9503 which were applied according to the technical data sheet at a recommended film thickness of approx. 60 µm have the following technical properties:

Powder and film properties

Name	Value	Unit
Weathering quality according to Qualicoat, AAMA	'QC KL. 3; AAMA 2605	-
Density EN ISO 8130-2	1,3-1,6	kg/l
Solids content EN ISO 14680-2	99	%
Theoretical yield at 50 µm, 80% application efficiency	9.9 - 12.4	sqm
Gloss product group 9503 EN ISO 2813	25-35	*R' 60°
Curing time	from 15'	min
Curing temperature	200	°C
Impact test indirect EN ISO 6272-2	≥ 2.5	Nm
Bending test EN ISO 1519	≤ 5	mm
Adhesion test EN ISO 2409	no delamin.	-
Salt spray test (AASS) EN ISO 9227, ISO 4628-2	2000 h max ≤ S2	h
Condensation test EN ISO 6270-2 CH, ISO 4628-2	2000 h max ≤ S2	h
Gloss stability acc. Qualicoat with short term weathering in Florida	3 Jahre ≥ 80%	**RG
Color stability acc. Qualicoat with short term weathering in Florida ISO 2810	3 years ≤ 50% acc. App. A12	ΔE (CIE)
Florida long-term exposure Gloss stability acc. QualicoatAAMA ISO 2810	10 years ≥ 50%	RG
Color stability acc. Qualicoat, CIELAB Color space ISO 11664-4; D65	acc. to***LV QC: App.A12	ΔE (CIE)
Color stability acc. AAMA 2605, Hunter Color space ASTM D2244; Sect. 6.3	acc. to LV AAMA 2605 5	ΔE (Lab)
Scratch resistance 32 moves, 200 gr CEN/TS 16611	≥ 50%	RG

* R' - Reflectometer values with 60° angle
** RG- Residual gloss
*** LV- Limit values ' QC- Qualicoat

Product definition:
The coating powder is not subject to EU harmonisation legislation: the use of the product is subject to the respective national regulations at the place of use.

Base materials/Ancillary materials

The
declaration refers to the following composition of the coating powder
IGP-DURA®sky 9503:

Name	Value	Unit
Binder (resin and hardener)	67- 80	%
Pigments (coloured/ effect pigments)	0- 5,3	%
Titanium dioxide	0- 24,5	%
Extender	2,7- 18,2	%
Additives	3,3- 7,2	%

All
articles of series 95 comply with the REACH Regulation (EC) No 1907/2006.
Substances of very high concern (SVHC) according to the Candidate List,
17.01.2022, as well as substances of Annex XIV of REACH Regulation (EC) No.
1907/2006 are not included above the legal threshold of 0.1%.

Articles of
series 95 further comply with Directive (EU) 2015/863 (RoHS 3).

The
product/article/at least one sub-article contains other carcinogenic, mutagenic, reprotoxic (CMR) substances of category 1A or 1B, which are not on the candidate list, above 0.1 % by mass in
at least one sub-article: no

Biocidal
products have been added to this construction product or it has been treated
with biocidal products (it is thus a treated product in the sense of the
Biocidal Products Regulation (EU) No. 528/2012): no

Environment and health during use

Reference service life
When surfaces coated with IGP-DURA®sky 95 are properly maintained, the
service life of the surfaces corresponds to the service life of the building. Changes in colour and gloss due to weathering do not impair
the protective effect.

The ageing of the material is mainly caused by the effects of UV
radiation and moisture. Both influences can lead to changes in gloss and
colour within the permissible tolerance range of the GSB (Quality association for ensuring the coating
quality of workpieces and the pre-treatment and coating materials used in the
process by drawing
up and monitoring quality guidelines)

and Qualicoat
quality associations. Delamination of the coating must not occur in this
case. High concentrations of atmospheric agents such as industrial
waste gases or chlorides - e.g. from de-icing salts - can lead to an
irreversible impairment of the protective effect of the coating. The protective effect of the coating film can be irreversibly impaired
in high concentrations, even to the point of infiltration and detachment.

LCA: Calculation rules

Declared Unit
The declared unit and the mass reference must be indicated in the appropriate table as declared. If there are several units to choose from, a suitable one must be selected. If averages are declared across various products, the average breakdown must be explained.

The declared unit is 1 kg. Other declared units are permissible if conversion to 1 kg is depicted in a transparent manner. The mean values for the gross density of the products depicted must also be indicated.
A declared unit of 1 m² is to be assumed for products in panel form, whereby the proportion of joins per m² ready-coated area must be taken into consideration.
Practical reference values concerning the use status of the various end products can be indicated, e.g. yield, density, consumption per m², component density etc.
The declared unit refers to 1 kg of 95er
Fluoropolymer coating powder product.

Name	Value	Unit
Gross density (mean value)	1450	kg/m^3
Declared unit	1	kg

This EPD declares a representative composition for all products under study. This composition is representative because it considers a powder coating formulation with the highest environmental impacts (within a 10% range).

For IBU core EPDs (where clause 3.6 is part of the EPD): for average EPDs, an estimate of the robustness of the LCA values must be made, e.g. concerning variability of the production process, geographical representativeness and the influence of background data and preliminary products compared to the environmental impacts caused by actual production.

System boundary
The type of EPD is cradle to gate with modules C1–C4, and module D (A1–A3, C, D).

The life cycle assessment includes the provision of raw materials (module A1), transport to the production site (module A2) and the manufacturing processes of the powder coating and packaging material (module A3). The coating process is outside the scope of the study.
The CO_2 emissions from biogenic carbon in the packaging material are released within A1-A3.

At the end of its life, the product is transported to the disposal company (module C2) and then disposed of (module C4).

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

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.

LCA: Scenarios and additional technical information

Characteristic product properties
Information on biogenic carbon

The biogenic carbon content quantifies the amount of biogenic carbon in a construction product leaving the factory gate, and it shall be separately declared for the product and for any accompanying packaging.
If the total mass of biogenic carbon containing materials is less than 5 % of the total mass of the product and accompanying packaging, the declaration of biogenic carbon content may be omitted. The mass of packaging containing biogenic carbon shall always be declared.

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

The calculation of the biogenic carbon
content is based on the assumption, that the (absolutely) dry wood and cardboard
mass consists of 50 % biogenic carbon. No biogenic carbon content exists in any of
the products under study, only packaging materials.

The CO_2 emissions from biogenic carbon in the packaging material are released within A1-A3.

Name	Value	Unit
Biogenic carbon content in accompanying packaging	0.0363	kg C

The following information was used to calculate the declared modules:

In case a **reference service life** according to applicable ISO standards is declared then the assumptions and in-use conditions underlying the determined RSL shall be declared. In addition, it shall be stated that the RSL applies for the reference conditions only.

The same holds for a service life declared by the manufacturer. Corresponding information related to in-use conditions needs not be provided if a service life taken from the list on service life by BNB is declared.

End of life (C1-C4)
- Module C1: Manual dismantling (no environmental loads).
- Module C2: An average transport
distance of 200 km is assumed by truck.

- Module C4: As a disposal scenario, it
is assumed that the coating powder, which is located on an aluminium surface
during disposal, is thermally disposed of during the recycling of the aluminium
(melting/burning). No credits were awarded for combustion on the basis of
energy substitution, but only the resulting emissions were taken into account.

Name	Value	Unit
For thermal utilisation without energy recovery	1	kg

IGP POWDER COATINGS

LCA: Results

In Table 1 "Description of the system boundary", all declared modules shall be indicated with an "X"; all modules that are not declared shall be indicated with "MND" (As default the modules B3, B4, B5 are marked as MNR – module not relevant). In the following tables, columns can be deleted for modules that are not declared. Indicator values should be declared with three valid digits (eventually using exponential form (e.g. 1,23E-5 = 0,0000123). A uniform format should be used for all values of one indicator.
If several modules are not declared and therefore have been deleted from the table, the abbreviations for the indicators can be replaced by the complete names, while the readability and clear arrangement should be maintained; the legends can then be deleted.
If due to relevant data gaps, an indicator cannot be declared in a robust way, then the abbreviation “IND” (indicator not declared) should be used for this indicator.

- 0 - calculated value is 0
- 0 - value falls under the cut-off
- 0 - assumption which exclude any flows (e.g. exported electricity A1-A3)
- IND – in cases where the inventory does not support the methodological approach or the calculation of the specific indicator IND shall be used.

If no reference service life is declared (see chapter 2.13 "Reference Service Life"), the LCA results of the modules B1-B2 and B6-B7 shall refer to a period of one year. This shall then be indicated as an explanatory text below the tables. In addition, the formula for the quantification of such B-modules over the total life cycle shall be provided.

DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; ND = 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 Coating Powder IGP-DURA®sky 9503

Parameter	Unit	A1-A3	C1	C2	C3	C4	D
Global Warming Potential total (GWP-total)	kg CO_2 eq	9.71E+00	0	1.75E-02	0	2.54E+00	0
Global Warming Potential fossil fuels (GWP-fossil)	kg CO_2 eq	9.62E+00	0	1.66E-02	0	2.54E+00	0
Global Warming Potential biogenic (GWP-biogenic)	kg CO_2 eq	8.06E-02	0	7.8E-04	0	2.95E-04	0
Global Warming Potential luluc (GWP-luluc)	kg CO_2 eq	7.62E-03	0	1.36E-04	0	1.55E-04	0
Depletion potential of the stratospheric ozone layer (ODP)	kg CFC11 eq	8.01E-13	0	2.12E-18	0	1.35E-15	0
Acidification potential of land and water (AP)	mol H^+ eq	2.42E-02	0	5.69E-05	0	4.39E-04	0
Eutrophication potential aquatic freshwater (EP-freshwater)	kg P eq	2.84E-05	0	4.93E-08	0	1.96E-07	0
Eutrophication potential aquatic marine (EP-marine)	kg N eq	4.56E-03	0	2.65E-05	0	9.88E-05	0
Eutrophication potential terrestrial (EP-terrestrial)	mol N eq	4.98E-02	0	2.95E-04	0	2.03E-03	0
Formation potential of tropospheric ozone photochemical oxidants (POCP)	kg NMVOC eq	1.57E-02	0	5.14E-05	0	2.75E-04	0
Abiotic depletion potential for non fossil resources (ADPE)	kg Sb eq	6.31E-04	0	1.26E-09	0	1.84E-08	0
Abiotic depletion potential for fossil resources (ADPF)	MJ	1.4E+02	0	2.21E-01	0	1.18E+00	0
Water use (WDP)	m^3 world eq deprived	8.89E-01	0	1.44E-04	0	2.6E-01	0

RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A2: 1 kg Coating Powder IGP-DURA®sky 9503

Parameter	Unit	A1-A3	C1	C2	C3	C4	D
Renewable primary energy as energy carrier (PERE)	MJ	2.16E+01	0	1.23E-02	0	3.32E-01	0
Renewable primary energy resources as material utilization (PERM)	MJ	1.31E+00	0	0	0	0	0
Total use of renewable primary energy resources (PERT)	MJ	2.29E+01	0	1.23E-02	0	3.32E-01	0
Non renewable primary energy as energy carrier (PENRE)	MJ	1.19E+02	0	2.21E-01	0	2.33E+01	0
Non renewable primary energy as material utilization (PENRM)	MJ	2.25E+01	0	0	0	-2.22E+01	0
Total use of non renewable primary energy resources (PENRT)	MJ	1.41E+02	0	2.21E-01	0	1.18E+00	0
Use of secondary material (SM)	kg	0	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	7.7E-02	0	1.41E-05	0	6.21E-03	0

RESULTS OF THE LCA – WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A2:
1 kg Coating Powder IGP-DURA®sky 9503

Parameter	Unit	A1-A3	C1	C2	C3	C4	D
Hazardous waste disposed (HWD)	kg	4.4E-08	0	1.11E-11	0	2.53E-10	0
Non hazardous waste disposed (NHWD)	kg	2.07E-01	0	3.29E-05	0	2.64E-01	0
Radioactive waste disposed (RWD)	kg	2.6E-03	0	2.68E-07	0	4.02E-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	0	0	0	0	0	0
Exported thermal energy (EET)	MJ	0	0	0	0	0	0

RESULTS OF THE LCA – additional impact categories according to EN 15804+A2-optional:
1 kg Coating Powder IGP-DURA®sky 9503

Parameter	Unit	A1-A3	C1	C2	C3	C4	D
Incidence of disease due to PM emissions (PM)	Disease incidence	2.95E-07	0	3.13E-10	0	5.62E-09	0
Human exposure efficiency relative to U235 (IR)	kBq U235 eq	3.1E-01	0	3.83E-05	0	3.72E-03	0
Comparative toxic unit for ecosystems (ETP-fw)	CTUe	7.04E+01	0	1.6E-01	0	4.29E-01	0
Comparative toxic unit for humans (carcinogenic) (HTP-c)	CTUh	2.77E-09	0	3.22E-12	0	3.87E-11	0
Comparative toxic unit for humans (noncarcinogenic) (HTP-nc)	CTUh	2.36E-07	0	1.93E-10	0	3.89E-09	0
Soil quality index (SQP)	SQP	2.89E+01	0	7.59E-02	0	3.43E-01	0

Disclaimer
1 – for the indicator “Potential Human exposure efficiency relative to U235”.

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 or radioactive waste disposal in underground

facilities.
Potential ionizing radiation from the soil, radon and from some construction
materials is also not measured by this indicator.

Disclaimer
2 – 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.

References

Standards

EN 15804

EN 15804:2012+A1 2013, Sustainability of construction works — Environmental Product Declarations — Core rules for the product category of construction products.

EN 15804

EN 15804:2012+A2:2019+AC:2021, Sustainability of construction works — Environmental Product Declarations — Core rules for the product category of construction products.

ISO 14025

EN ISO 14025:2011, Environmental labels and declarations — Type III environmental declarations — Principles and procedures.

Further References

Title of the software/database

Title of the software/database. Addition to the title, version. Place: Publisher, Date of publication [Access on access date].

IBU 2021

Institut Bauen und Umwelt e.V.: General Instructions for the EPD programme of Institut Bauen und Umwelt e.V., Version 2.0, Berlin: Institut Bauen und Umwelt e.V., 2021
www.ibu-epd.com

Standards

DIN 50018

Testing in a condensed water alternating climate with an atmosphere containing sulphur dioxide

DIN
CEN/TS 16611, Martindale test

The Martindale test is originally an abrasion test for textiles. Since 2020,
this test has been used as part of the Qualicoat tests to test the abrasion
resistance of powder coatings.

DIN EN
12206-1

German
version EN 12206-1:2004 Paints and varnishes - Coatings on aluminium and
aluminium alloys for construction purposes -

Part 1:
Coatings made from coating powders

DIN EN
13501-1:2010-01

Fire
classification of construction products and types of construction works - Part
1: Classification using results of reaction to fire tests of construction
products

DIN EN
15804

EN
15804:2012+A2:2019+AC:2021, Sustainability of constructionworks — Environmental
Product Declarations — Core rules for the product category of construction
products

ISO 1519

German
version EN ISO 1519:2011 Paints and varnishes -

Mandrel
bending test (cylindrical mandrel)

ISO 1520

EN ISO
1520:2006 Paints and varnishes -

Cupping
test

ISO 2409

German
version EN ISO 2409:2013

Coating
materials - Cross-cut test

ISO 2810

German
version EN ISO 2810:2004 Paints and varnishes - Outdoor exposure of coatings -

Weathering
and evaluation

ISO 2813

DIN EN ISO 2813 2000-04 Aerospace series - Aluminium alloy AL-P6061-T6 - Drawn
internal pressure tubes 0,6 mm <= a <= 12,5 mm

ISO 2815

EN ISO
2815:2003 Paints and varnishes -

Buchholz
indentation test

ISO 3231

German
version EN ISO 3231 Paints and varnishes -

Determination
of resistance to humid atmospheres containing sulphur dioxide (ISO 3231:1993)

ISO 4628-2

ISO 4628-2:2016; Paints and varnishes -
Evaluation of degradation of coatings - Designation of quantity and size
of defects, and of intensity of uniform changes in appearance - Part 2: Assessment of degree of blistering

ISO
6270-2 AT

German
version EN ISO 6270-2:2005 Paints and varnishes -
Determination of resistance
to moisture -Part 2: Method for exposure of specimens to condensed water
climates

ISO 6272-2

DIN EN ISO 6272-2: SO
6272-2:2011 Paints and varnishes — Rapid-deformation (impact resistance) tests
— Part 2: Falling-weight test, small-area indenter

ISO 7724-3

Paints and varnishes-Colorimetry -Calculation of colour differences

ISO 8130-2

EN ISO 8130-2:2010 Powder coatings - Part 2: Determination of density using a gas comparator pycnometer (arbitration method)

ISO 9227

DIN EN ISO 9227 AASS 2012-09 Corrosion tests in artificial atmospheres

ISO 1166-44

ISO 11664-2:2007; Colorimetry - Part 2: CIE standard illuminants; German version EN 11664-2:2011 D65 is defined as a standard illuminant with a colour temperature of 6504 Kelvin

ISO 14001

Environmental management systems - Requirements with guidance for use

ISO 14025

DIN EN ISO 14025:2011-10, Environmental labels and declarations — Type III environmental declarations — Principles and procedures.

ISO 14680-2

EN ISO 14680-2:2006 Paints and varnishes - Determination of pigment content - Part 2: Ashing method

ISO 16474 Part 1- 3

DIN EN ISO 16474 part 1 - 3:2014-03, Paints and varnishes - Artificial irradiation or weathering in equipment.

DIN EN ISO 16474-1:2014-03:

Part 1 General guidance

DIN EN ISO 16474-2:2014-03:

Part 2 Xenon arc lamps (e.g. WOM);

Irradiation, temperature cycles

DIN EN ISO 16474-3:2014-03:

Part 3 Fluorescent lamps (e.g. QUV-B):

Irradiation, temperature, cycles

Further References

AAMA 2605

AAMA 2605-20, Voluntary Standards, Performance Requirements and Test Procedures for Ultra-High Weather-Resistant organic coatings on aluminium profiles and sheets; according to the test design of the American Architectural Manufacturers Association (AAMA)

ASTM D2244; Sect. 6.3

ASTM D2244 Standard Practice for Calculation of Color Tolerances

and Color
Differences from Instrumentally Measured Color Coordinates

University
of Stuttgart

ASTM
D 2794

Leinfelden
Echterdingen

Testing of organic coatings for resistance to rapid deformation; impact loading

GSB
International

Quality Association for Assuring the Quality of the Coating of Workpieces and
the Pretreatment and Coating Materials Used in the Process; www.gsb-international.com

CIELAB or
CIE

The CIE Lab system is a colour space defined by
the International Commission on Illumination CIE in 1976. Colour differences
are determined numerically. The model tries to adapt the geometric distance
between two colours in the colour space to human perception.

Hunter Colour Space

Colour space defined by Richard Sewall Hunter in 1948 that describes colour
ranges using "Lab" coordinates.

Like CIELAB, it was designed in such a way that colour values can be
transferred from the CIEXYZ space with simple formulae, but is more uniform
than XYZ in terms of perception.

Directive
(EU) 2015/863 (RoHS 3)

Having regard to Directive 2011/65/EU of the European Parliament and of the
Council of 8 June 2011 on the restriction of the use of certain substances
classified as hazardous.

IBU 2021

GaBi ts
documentation

Institut Bauen und Umwelt e.V.: General
Programme Instructions for the Preparation of EPDs at the Institut Bauen und
Umwelt e.V. Version 2.0, Berlin: Institut Bauen und Umwelt e.V., 2021

GaBi life
cycle inventory data documentation

(https://www.gabisoftware.com/support/gabi/gabidatabase2020lcidocumentation/)

PCR Part
A

GaBi ts
software

PCR -
Part A: Calculation Rules for the Life CycleAssessment and Requirements on the
Project Report,Berlin: Institut Bauen und Umwelt e.V., www.ibu-epd.com, Version
2.2, 2022

Sphera
Solutions GmbH

GaBi
Software System and Database for Life Cycle Engineering

CUP
Version: 2021.2

PCR Part

B:

PCR -
Part B: Requirements for the EPD for coatings with organic binders, Institut
Bauen und Umwelt e.V.. (IBU), Version 1.7, 2019

Qualicoat

Quality Association for Industrial Painting and Coating; Quality Assurance and
Specifications of Processes, Products and Quality Tests; www.qualicoat.net

REACH

Regulation (EC) No 1907/2006 concerning the Registration, Evaluation,
Authorisation and Restriction of Chemicals (REACH)

Regulation (EU) 528/2012 (EU BPR)

The Biocidal Products Regulation (BPR, Regulation (EU) 528/2012) concerns the placing on the market and use of biocidal products, which
are used to protect humans, animals, materials or articles against harmful
organisms like pests or bacteria.

RoHS 2011/65/EU

Directive 2011/65/EU on the Restriction of the Use of Certain Hazardous
Substances in Electrical and Electronic Equipment

replaces Directive 2002/95/EC

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