Environmental Product Declaration

In accordance with ISO 14025:2006 and EN 15804:2012+A2:2019/AC:2021 for:

Water dispersion paint for facades

from

RĪGAS LAKU UN KRĀSU RŪPNĪCA SIA

Programme:	The International EPD® System, www.environdec.com
Programme operator:	EPD International AB
EPD registration number:	EPD-IES-0015115
Publication date:	2024-06-18
Valid until:	2029-06-18

An EPD should provide current information and may be updated if conditions change. The stated validity is therefore subject to the continued registration and publication at www.environdec.com

EPD of multiple products, based on worst-case product.

General information

Programme information

Programme:	The International EPD® System
Address:	EPD International AB Box 210 60 SE-100 31 Stockholm Sweden
Website:	www.environdec.com
E-mail:	info@environdec.com

Accountabilities for PCR, LCA and independent, third-party verification
Product Category Rules (PCR)
CEN standard EN 15804 serves as the Core Product Category Rules (PCR)
Product Category Rules (PCR): *Construction Products, PCR 2019:14 Version 1.3.4*
PCR review was conducted by: *The Technical Committee of the International EPD System. See www.environdec.com for a list of members. Review chair: Claudia A. Peña, University of Concepción, Chile. The review panel may be contacted via the Secretariat www.environdec.com/contact*
Life Cycle Assessment (LCA)
LCA accountability: *Bureau Veritas Latvia SIA, riga@bureauveritas.com*
Third-party verification
Independent third-party verification of the declaration and data, according to ISO 14025:2006, via: ☒ EPD verification by individual verifier Third-party verifier: *Elisabet Amat Guasch, GREENIZE* Approved by: The International EPD® System
Procedure for follow-up of data during EPD validity involves third party verifier: ☐ Yes ☒ No

The EPD owner has the sole ownership, liability, and responsibility for the EPD.

EPDs within the same product category but registered in different EPD programmes, or not compliant with EN 15804, may not be comparable. For two EPDs to be comparable, they must be based on the same PCR (including the same version number) or be based on fully-aligned PCRs or versions of PCRs; cover products with identical functions, technical performances and use (e.g. identical declared/functional units); have equivalent system boundaries and descriptions of data; apply equivalent data quality requirements, methods of data collection, and allocation methods; apply identical cut-off rules and impact assessment methods (including the same version of characterisation factors); have equivalent content declarations; and be valid at the time of comparison. For further information about comparability, see EN 15804 and ISO 14025.

Company information

Owner of the EPD: Rīgas laku un krāsu rūpnīca SIA

Contact: Jevgeņijs Matvejevs, Head of Sales and Development
jevgenijs.matvejevs@rilak.lv, +371 29614012

Description of the organisation:
Riga Varnish and Paint Factory is a leader in the production of paint and varnish products in the Baltic States. The factory offers its customers more than 200 unique products under the RILAK brand and private label brands.
The product range is designed to meet the needs of customers in outdoor and indoor work, woodworking, metalworking, creation of decorative surfaces. The product lines are suitable for both households and industrial consumers. The RILAK paint and varnish tinting system allows the customer to choose any shade from a palette of more than 6,000.
Technological equipment is modernized and updated every year, which allows to ensure compliance with specific and continuously more stringent requirements for paint and varnish materials.
Great attention is paid to the quality control of both incoming raw materials and finished products. The factory's laboratory carries out research work, constantly improving the properties of products already in manufacture and creating new products. When developing new products, current market demand trends as well as technical characteristics and environmental protection aspects are taken into account.
The company's products can be purchased in partner shops and retail chains throughout the Baltics. The factory has several specialized shops in the largest cities of Latvia.

Name and location of production site(s): 63/65 Daugavgrivas, Riga, LV-1007

Product information

Product name:
Water dispersion paint

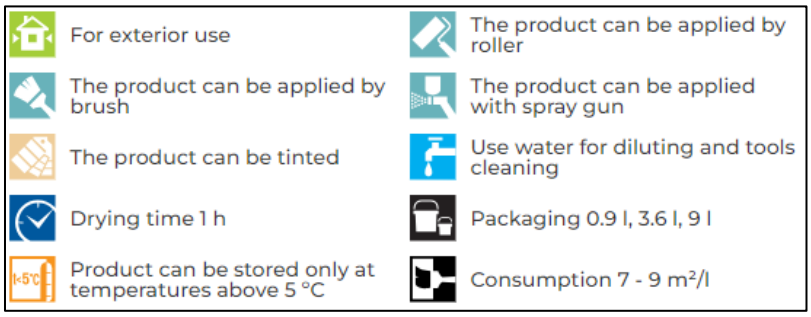
Product identification:
Acrylic water dispersion paint for wooden facades AKVATOP
Water dispersion paint for mineral facades FORAKRIL
Deep impregnation primer for mineral surfaces FORAKRIL BASE

This EPD considers multiple products. Worst-case result, that simultaneously is a result for a Representative product (AKVATOP) of the three included products has been declared as one set of results of LCIA.

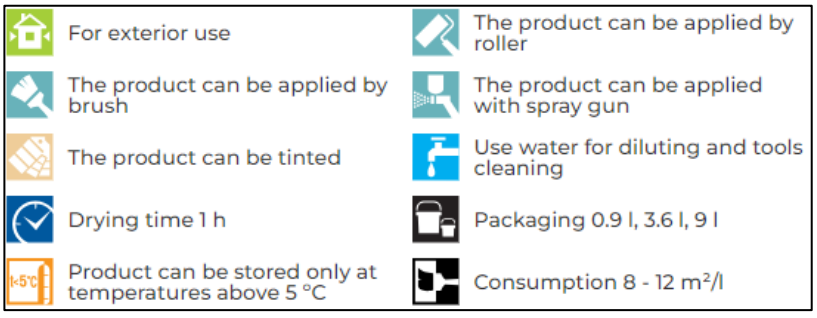
		
Akvatop	**Forakril**	**Forakril Base**

Product description:

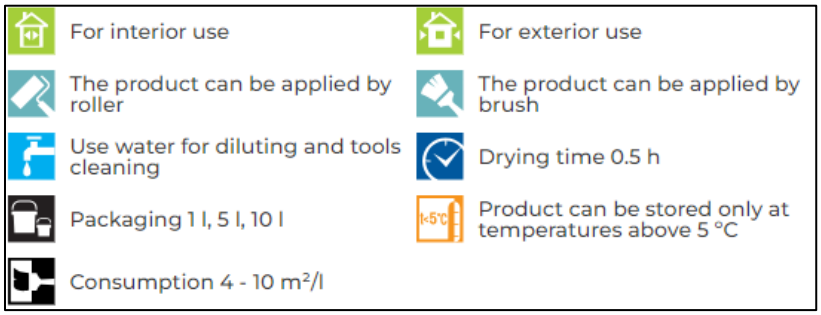
Water dispersion paint for mineral facades FORAKRIL is intended for painting external concrete, brick, plastered surfaces of buildings and various structures. The paint forms a matte coating with good vapour permeability and resistance to atmospheric effects. Base A can be used in white or tinted in light shades; Base C is used for tinting in dark shades.
Viscosity - 2800 ÷ 4500 cP
The maximum VOCs amount in the product - Cat. A/c 39 g/l
Specific gravity at (20.0 ± 0.5)°C temperature – 1.42 ± 0.05 kg/l



Acrylic water dispersion paint for wooden facades AKVATOP is intended for painting wooden facades and other outdoor wooden surfaces. Suitable for finishing both new, previously unpainted, as well as previously painted wooden surfaces with semi-transparent alkyd paints, as well as with oils intended for wooden surfaces, as well as with impregnating primer for wooden surfaces.
Viscosity - 1800 ÷ 2800 cP
The maximum VOCs amount in the product - Cat. A/d 25 g/l
Specific gravity at (20.0 ± 0.5)°C temperature – 1.30 ± 0.05 kg/l



Deep impregnation primer for mineral surfaces FORAKRIL BASE is intended for priming porous mineral surfaces (plaster, concrete, etc.) before painting them with water dispersion paints. Can be used for priming surfaces indoors and outdoors. Has good permeability. Improves the adhesion of subsequent coats of paint to the surface to be painted, reduces paint consumption.
The maximum VOCs amount in the product - Cat. A/h 0.1 g/l
Specific gravity at (20.0 ± 0.5)°C temperature – 1.42 ± 0.05 kg/l



According to Annex II of Directive 2004/42/EK considered products are classified as follows: AKVATOP-A/d, FORAKRIL-A/c, FORAKRIL BASE- A/h and, therefore, does not exceed the maximum VOC limit values in each category.

Product-related or management system-related certifications:
ISO 9001:2015 - Quality management system and ISO 50001:2018 - Energy management system

UN CPC code: 35110 - Paints and varnishes and related products
Geographical scope: This EPD has a European Scope.

LCA information

Declared unit: 1 kg of Water dispersion paint, including packaging.

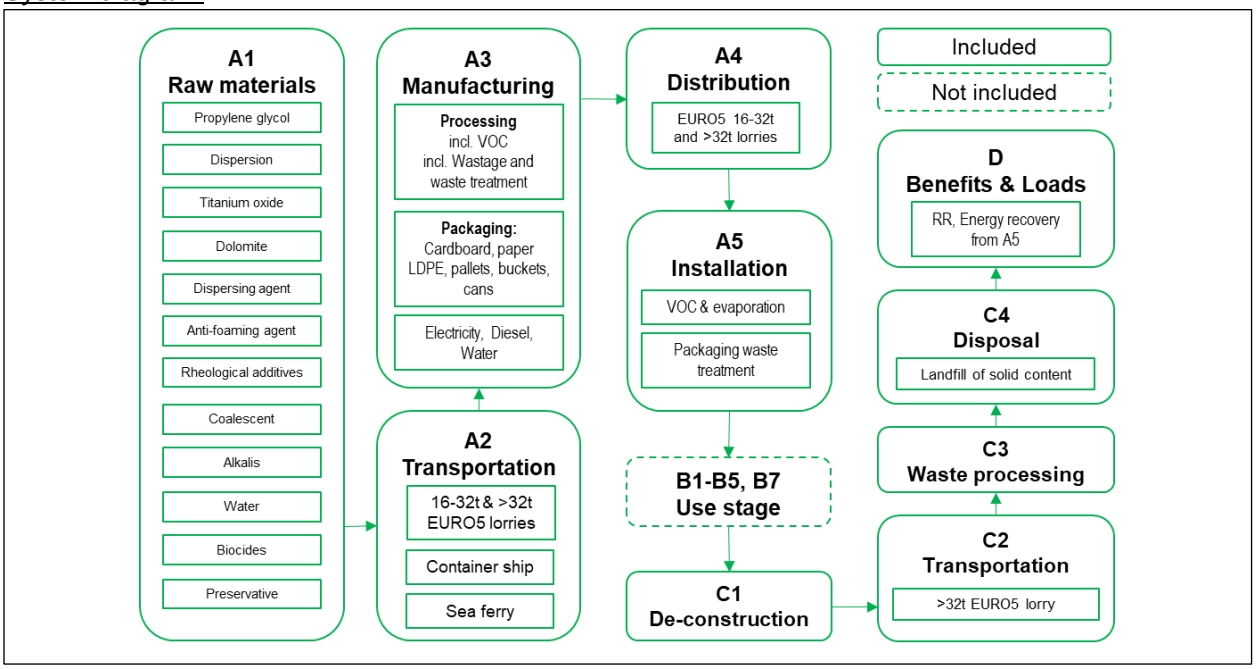
Reference service life: The reference service life of such products is usually not dependent on the properties of the products themselves, but rather by the service life of the building or building part to which they are attached. Therefore, RSL of the product included in this LCA study has not been defined.

Time representativeness: Data represents the manufacturing of the product in 2023. The database used for proxy data is Ecoinvent v3.8. This database data is compiled in November 2021, i.e., no data is older than ten years.

Database(s) and LCA software used: Ecoinvent v3.8 has been used to conduct the quantitative evaluation in this study. This database provided the background system's life cycle inventory data for raw and processed materials. The LCA software used - SimaPro 9.5.

Description of system boundaries: This LCA study has been performed as “Cradle to gate with options, modules C1–C4, module D and with optional modules”, also considering Transportation module A4 and Installation module A5. All major materials, use of energy and resources, as well as waste treatment are included for Product stage A1-A3, Construction process stage A4-A5, EoL stage C1-C4 and module D.

System diagram:



Data quality: The foreground data has been collected internally, considering the latest available average production amounts and measurements during the time period of 2023. Data regarding waste processing has been taken from waste scenarios for closest locations in Ecoinvent v3.8. The quality level in this study is qualified as Very good. Data quality rating procedure has been performed using a rating system where “1” means Excellent quality, and “5” means Poor quality.

Technological Representativeness, TeR	Geographic representativeness, GeR	Time Representativeness, TiR	Precision, P	**Average DQR**
1,3	1,8	2,0	2,3	**1,9**

Cut-off criteria:

All materials have been accounted for in the LCA according to the data provided by manufacturer. To LCA practitioner knowledge there is no missing data for processes within the system boundaries.

The processes related to infrastructure, construction, and production of equipment, as well as tools that are not directly consumed in the production process, have been excluded. Personnel-related activities, such as transportation to and from work, have also been excluded.

Allocation:

All materials have been accounted for in the LCA according to the data provided by manufacturer. Manufacturing data, e.g., energy, waste production, water consumption etc., has been allocated based on mass allocation. All the materials and processes which have been accounted for by the manufacturing company for the relevant manufacturing process are included in the LCI. The cut-off in LCA is according to PCR:" General cut-off criteria are given in standard EN 15804:2012+A2, clause 6.3.6.

Stages and Production description

Product Stage

In **module A1** extraction and processing of raw materials and generation of electricity and heat from primary energy resources, used to produce these raw materials, are included. Raw materials for the products are water and different types of organic and inorganic chemicals. The list of Raw materials necessary for manufacturing includes variety of chemical substances and minerals, dispersions for water-based paint formulations, anti-foaming agents, fillers, biocides, rheological additives, preservatives etc.

For **module A2**, the transportation of raw materials to the production plant, i.e., supply of ingredients, are conducted with the use of Freight lorries, Sea ferries and Container ships from a global scope.

The manufacturing process of the product (**module A3**) includes consumption of Fuel for internal transportation and Electricity for production, product dispensing and waste treatment of product wastage and packaging of raw materials. The type of packaging required for products varies from metal cans (1L) to HDPE buckets (5L and 11.6L). Additionally, cardboard, LDPE packaging film, wooden pallets and paper labels are used. Greenhouse gas emissions from the use of Electricity in the manufacturing phase are represented by the National Residual mix of Latvia. GWP-GHG of Electricity consumed in Manufacturing module A3 is 0,532 kgCO_2eq per 1 kWh.

Construction process Stage

Table below describes the scenarios for **module A4** transportation of the final product with its respective packaging. Distribution process involves the use of 16-32t and >32t EURO5 Freight lorries with three destinations – Estonia, Latvia and Lithuania.
Scenarios of module A4 are presented in the Tables below:

Vehicle	kg per DU	Distance, km	Fuel consumption, l/tkm	Value, l/t
Lorry 16-32t, EURO5	6,68E-02	310	0,0441	13,67
Lorry 16-32t, EURO5	6,91E-01	170	0,0441	7,49
Lorry >32t, EURO5	3,56E-01	280	0,0226	6,32

Module A5 in this type of LCA study is optional but for the purpose of declaring emissions and waste treatment of product's packaging it has been declared as well. No product wastage has been considered due to insufficient data on this process. Nevertheless, emissions to air, i.e., evaporation of water content and Volatile organic compounds, emitted during installation, have been reported, considering data declared by manufacturer in technical data sheets and safety data sheets (see Table below).

VOC, water content and solid contents per DU of each considered product

	Value
Declared unit, kg	1,0000
Water, kg	0,1420
Solid content, kg	0,5800
VOC, kg	0,2780
VOC (worst-case), %	53+5%

Use Stage:

Modules B1-B7, that define use stage of the product, are not declared for this study – these are not mandatory for LCA "Cradle-to-gate with options" form.

End of Life Stage:

Modules C1-C4 and Module D are mandatory for LCA type considered, therefore, have also been considered for the purpose of this study. Paint is usually not removed from substrates at end-of life, therefore, consumption of energy and resources as well as the impacts of demolition are assumed to be negligible. Product, i.e., Akvatop paint, along with substrate is assumed to be sent to the closest waste treatment facilities, assuming the distance between sites s 50km that is covered by >32t EURO5 Freight lorry. It has been assumed, that after Construction Installation module (A5), where evaporation of moisture content and VOC emissions occur, only solid contents of the products are still on substrate. Therefore, after RSL, without any possibility to remove coating from the substrate, product's solid content has been considered for EoL treatment – Disposal. Considering intended market, i.e., all three Baltic states, it has been assumed that 100% of the product is landfilled along with the waste substrate.

Benefits and loads beyond the system boundaries:

Module D considers only product packaging waste flows declared in Installation module A5. Therefore, recycling rate for LDPE packaging film (41%) and benefit of recovered energy from incineration of plastic, paper, cardboard and wooden pallets. Net Energy generated from Incineration has been considered as follows – residual mix of "Europe without Switzerland" for Electric energy (1.3 MJ/kg for wood and 1,55 MJ/kg for cardboard and paper) and Natural gas for thermal energy (2.74 MJ/kg for wood and 3,23 MJ/kg for cardboard and paper).

Modules declared, geographical scope, share of specific data (in GWP-GHG results) and data variation (in GWP-GHG results):

	Product stage			Construction process stage		Use stage							End of life stage				Resource recovery stage
	Raw material supply	Transport	Manufacturing	Transport	Construction installation	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
Module	**A1**	**A2**	**A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
Modules declared	X	X	X	X	X	MND	MND	MND	MND	MND	MND	MND	X	X	X	X	X
Geography	GLO	GLO	LV	EU	EU	MND	MND	MND	MND	MND	MND	MND	EU	EU	EU	EU	EU
Specific data used	18%			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation – products	-20% Forakril -72% Forakril Base			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation – sites	0%			-	-	-	-	-	-	-	-	-	-	-	-	-	-

Content information

Product components	Weight, kg	Post-consumer material, weight-%	Biogenic material, weight-% and kg C/kg
Propylene glycol	0,0105	0%	0% and 0.0
Dispersion	0,4863	0%	0% and 0.0
Titanium dioxide	0,1309	0%	0% and 0.0
Dolomite	0,1783	0%	0% and 0.0
Dispersant	0,0080	0%	0% and 0.0
Dispersing agent	0,0018	0%	0% and 0.0
Anti-foaming agent	0,0031	0%	0% and 0.0
Rheological additive #1	0,0025	0%	0% and 0.0
Rheological additive #2	0,0033	0%	0% and 0.0
Coalescent	0,0219	0%	0% and 0.0
Alkalis	0,0006	0%	0% and 0.0
Biocide #1	0,0044	0%	0% and 0.0
Preservative	0,0022	0%	0% and 0.0
Biocide #2	0,0044	0%	0% and 0.0
Water	0,1420	0%	0% and 0.0
TOTAL	**1,0000**	**0%**	**0% and 0.0**
Packaging materials	**Weight, kg**	**Weight-% (versus the product)**	**Weight biogenic carbon, kg C/kg**
1L Cans Metal	0,0208	2,083%	0,00
5L Pail PE silver	0,0142	1,425%	0,00
11.6 L Pail PE silver	0,0208	2,083%	0,00
Paper labels	0,0021	0,208%	0,50
Cardboard boxes	0,0047	0,470%	0,50
Wooden pallets	0,0509	5,089%	0,50
LDPE packaging film	0,0005	0,046%	0,00
TOTAL	**0,1140**	**11,404%**	**0,253**

Three different type of primary packaging have been used for LCA model based on weighted average of sales.

During the life cycle of the product any hazardous substance listed in the “Candidate List of Substances of Very High Concern (SVHC) for authorization” has not been used in a percentage higher than 0,1% of the weight of the product.

Environmental Information

Potential environmental impact – mandatory indicators according to EN 15804 (EF 3.0 reference package)

Results per declared unit – 1kg of Acrylic water dispersion paint AKVATOP

Indicator	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
GWP-fossil	kg CO_2 eq.	2,2E+00	2,6E-02	1,2E+00	0,0E+00	2,1E-03	0,0E+00	1,5E-03	-1,8E-02
GWP-biogenic	kg CO_2 eq.	8,5E-03	1,5E-06	1,1E-03	0,0E+00	1,2E-07	0,0E+00	2,0E-07	-3,5E-04
GWP-luluc	kg CO_2 eq.	1,5E-03	2,1E-07	8,5E-08	0,0E+00	1,7E-08	0,0E+00	5,0E-08	-5,2E-05
GWP-total	kg CO_2 eq.	2,2E+00	2,6E-02	1,2E+00	0,0E+00	2,1E-03	0,0E+00	1,5E-03	-1,9E-02
ODP	kg CFC 11 eq.	2,6E-07	6,2E-09	3,5E-10	0,0E+00	4,9E-10	0,0E+00	3,0E-10	-1,9E-09
AP	mol H^+ eq.	3,3E-02	9,0E-05	2,2E-05	0,0E+00	7,0E-06	0,0E+00	1,5E-05	-6,3E-05
EP-freshwater	kg P eq.	8,2E-05	1,3E-08	3,4E-09	0,0E+00	1,0E-09	0,0E+00	5,2E-09	-1,1E-06
EP-marine	kg N eq.	2,5E-03	2,9E-05	1,1E-05	0,0E+00	2,2E-06	0,0E+00	6,6E-06	-1,6E-05
EP-terrestrial	mol N eq.	2,5E-02	3,2E-04	1,1E-04	0,0E+00	2,4E-05	0,0E+00	7,2E-05	-1,4E-04
POCP	kg NMVOC eq.	9,4E-03	8,7E-05	6,5E-02	0,0E+00	6,7E-06	0,0E+00	2,0E-05	-3,7E-05
ADP-minerals&metals*	kg Sb eq.	2,8E-06	1,1E-09	1,2E-10	0,0E+00	8,9E-11	0,0E+00	7,1E-11	-9,9E-10
ADP-fossil*	MJ	3,7E+01	3,7E-01	2,1E-02	0,0E+00	2,9E-02	0,0E+00	1,9E-02	-3,4E-01
WDP*	m^3	2,3E+00	-6,2E-05	1,3E-04	0,0E+00	-4,9E-06	0,0E+00	7,9E-06	-3,5E-03
Acronyms		GWP-fossil = Global Warming Potential fossil fuels; GWP-biogenic = Global Warming Potential biogenic; GWP-luluc = Global Warming Potential land use and land use change; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential, Accumulated Exceedance; 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 Exceedance; POCP = Formation potential of tropospheric ozone; ADP-minerals&metals = Abiotic depletion potential for non-fossil resources; ADP-fossil = Abiotic depletion for fossil resources potential; WDP = Water (user) deprivation potential, deprivation-weighted water consumption							

** Disclaimer: The results of this environmental impact indicator shall be used with care as the uncertainties of these results are high or as there is limited experience with the indicator.*

Potential environmental impact – additional mandatory and voluntary indicators

Results per declared unit – 1kg of Acrylic water dispersion paint AKVATOP									
Indicator	**Unit**	**A1-A3**	**A4**	**A5**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-GHG[1]	kg CO_2 eq.	2,1E+00	2,6E-02	2,8E-03	0,0E+00	2,1E-03	0,0E+00	1,4E-03	-1,8E-02
EP-freshwater	kg PO_4^{3-} eq.	2,5E-04	4,1E-08	1,0E-08	0,0E+00	3,2E-09	0,0E+00	1,6E-08	-3,2E-06
Additional voluntary indicators e.g., the voluntary indicators from EN 15804 or the global indicators according to ISO 21930:2017									

Use of resources

Results per declared unit – 1kg of Acrylic water dispersion paint AKVATOP									
Indicator	**Unit**	**A1-A3**	**A4**	**A5**	**C1**	**C2**	**C3**	**C4**	**D**
PERE	MJ	1,5E+00	4,3E-04	1,3E-04	0,0E+00	3,3E-05	0,0E+00	3,3E-05	-2,6E-02
PERM	MJ	2,3E+00	1,4E-04	6,4E-05	0,0E+00	1,1E-05	0,0E+00	4,8E-05	-5,7E-02
PERT	MJ	3,8E+00	5,7E-04	1,9E-04	0,0E+00	4,5E-05	0,0E+00	8,2E-05	-8,2E-02
PENRE	MJ	3,7E+01	3,7E-01	2,1E-02	0,0E+00	2,9E-02	0,0E+00	1,9E-02	-3,4E-01
PENRM	MJ	1,6E-03	1,6E-07	1,2E-07	0,0E+00	1,2E-08	0,0E+00	1,2E-07	-4,0E-05
PENRT	MJ	3,7E+01	3,7E-01	2,1E-02	0,0E+00	2,9E-02	0,0E+00	1,9E-02	-3,4E-01
SM	kg	2,1E-02	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00
RSF	MJ	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00
NRSF	MJ	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00
FW	m^3	5,7E-02	9,5E-07	2,3E-05	0,0E+00	7,5E-08	0,0E+00	3,9E-07	-1,9E-04
Acronyms	PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy re-sources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water								

[1] This indicator accounts for all greenhouse gases except biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. As such, the indicator is identical to GWP-total except that the CF for biogenic CO_2 is set to zero.

Waste production and output flows

Waste production

Results per declared unit – 1kg of Acrylic water dispersion paint AKVATOP									
Indicator	**Unit**	**A1-A3**	**A4**	**A5**	**C1**	**C2**	**C3**	**C4**	**D**
Hazardous waste disposed	kg	2,0E-03	9,7E-07	5,4E-08	0,0E+00	7,6E-08	0,0E+00	4,9E-08	-2,6E-07
Non-hazardous waste disposed	kg	1,1E+00	1,5E-05	5,7E-02	0,0E+00	1,2E-06	0,0E+00	5,8E-01	-5,8E-04
Radioactive waste disposed	kg	1,2E-04	2,6E-06	1,4E-07	0,0E+00	2,1E-07	0,0E+00	1,3E-07	-1,4E-06

Output flows

Results per declared unit – 1kg of Acrylic water dispersion paint AKVATOP									
Indicator	**Unit**	**A1-A3**	**A4**	**A5**	**C1**	**C2**	**C3**	**C4**	**D**
Components for re-use	kg	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00
Material for recycling	kg	1,7E-02	0,0E+00	5,8E-03	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00
Materials for energy recovery	kg	5,2E-04	0,0E+00	5,2E-02	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00
Exported energy, electricity	MJ	7,8E-04	0,0E+00	6,8E-02	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00
Exported energy, thermal	MJ	1,5E-03	0,0E+00	1,4E-01	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00

Other environmental performance indicators

Additional indicators, EN 15804:2012+A2:2019/AC:2021

Results per declared unit – 1kg of Acrylic water dispersion paint AKVATOP									
Indicator	**Unit**	**A1-A3**	**A4**	**A5**	**C1**	**C2**	**C3**	**C4**	**D**
PM Particulate matter emissions	Disease inc.	1,5E-07	2,1E-09	2,7E-10	0,0E+00	2,1E-10	0,0E+00	4,0E-10	-4,8E-10
IRP Ionising radiation, human health	kBq U-235 eq.	1,1E-01	1,6E-03	8,5E-05	0,0E+00	1,3E-04	0,0E+00	8,2E-05	-1,6E-03
ETP-fw Ecotoxicity, freshwater	CTUe	4,8E+01	1,5E-01	5,5E-01	0,0E+00	1,3E-02	0,0E+00	9,9E-03	-1,1E-01
HTP-c Human toxicity, cancer effects	CTUh	5,1E-09	2,2E-12	1,5E-11	0,0E+00	1,8E-13	0,0E+00	1,2E-13	-2,5E-12
HTP-nc Human toxicity, non-cancer effects	CTUh	4,5E-08	2,6E-10	1,4E-08	0,0E+00	2,5E-11	0,0E+00	1,5E-11	-9,5E-11
SQP Potential Soil quality index	dimensionless	1,7E+01	1,0E-03	2,7E-03	0,0E+00	7,8E-05	0,0E+00	2,4E-02	-3,0E-01

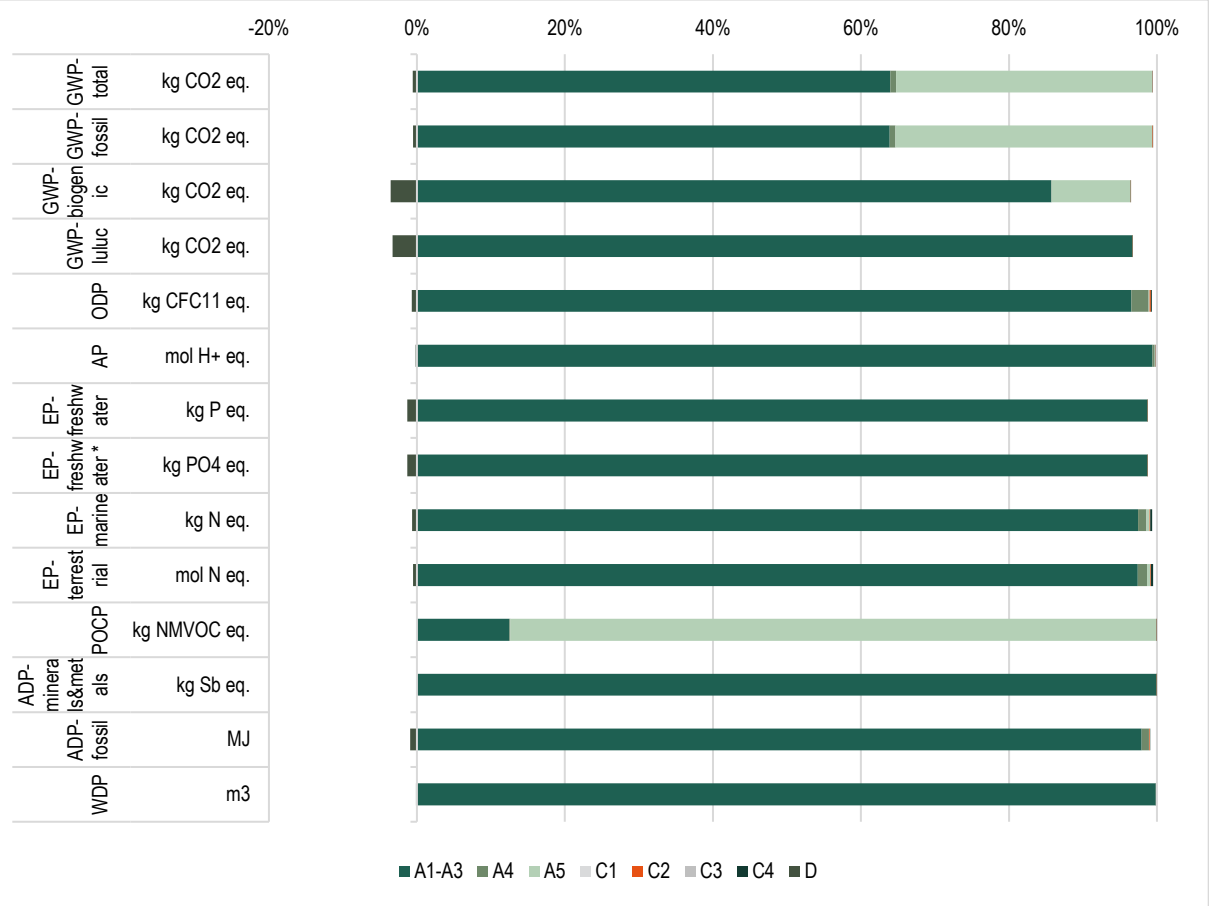
Biogenic carbon content

Results per declared unit – 1kg of Acrylic water dispersion paint AKVATOP	
Biogenic carbon content	**Quantity**
Carbon content in product, kg C	0,00E-00
Carbon content in accompanying packaging, kg C	2,88E-02

Note: 1 kg of biogenic carbon is equivalent to 44/12 kg CO_2

LCA Interpretation

The estimated impact assessment results are only relative statements that do not indicate the endpoints of the impact categories, exceeding threshold values, safety margins, or risks.
Contribution to environmental impact per each module for the declared unit of **Acrylic water dispersion paint AKVATOP** is displayed in following Figure:



Contribution to environmental impact per each module for 1 kg of Acrylic water dispersion paint AKVATOP

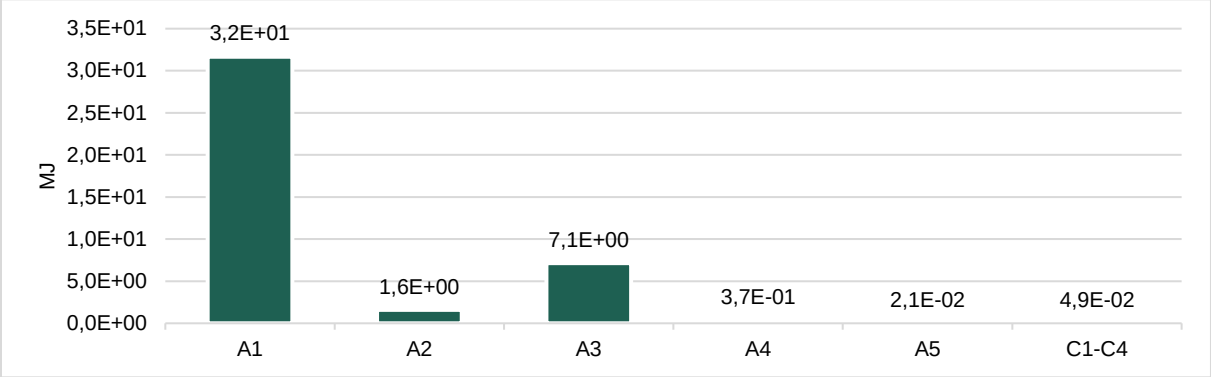
Considering Climate change, the highest impact is generated in Raw material module A1, resulting in 53% share of the total impact, while whole Product stage is generating 64%. Transport module A4 of Installation/Construction stage is generating insignificant share, resulting in 1% of the total impact, while Installation itself (module A5) is standing out with 35% share of total Global warming potential – biggest driver within this module is emissions to air from Volatile organic compounds, as per Inventory of in-depth analysis of module A5. With exclusion of GWP-total, GWP-fossil and POCP, the main environmental impact is generated solely by Raw materials in module A1.

53% of the total impact of **Akvatop** in this impact category is concentrated in Raw material module A1, mainly representing three major ingredients – Dispersion for water-based paint formulations, Titanium oxide and Dolomite, in total resulting in 79.5% of the product content mass.

Considering total demand of primary energy per declared unit, that has been calculated using Cumulative Energy Demand (LHV) V1.00 impact assessment method, demand of primary energy is

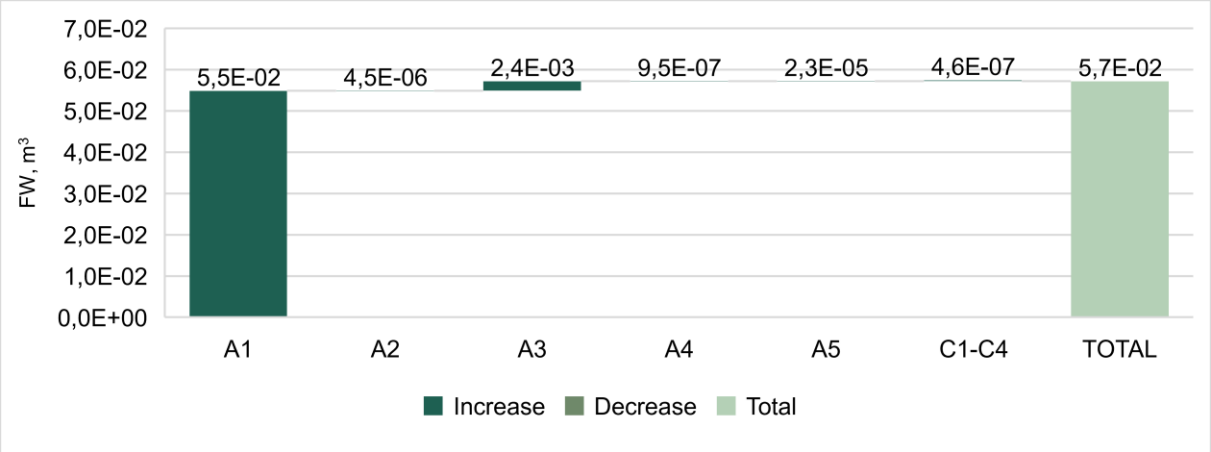
displayed in following Figure With 98.9% resulting in Product stage (A1-A3), demand of primary energy for **Akvatop** is distributed as follows:

- 77,5% for Raw material (A1);
- 3.9% for Transport (A2);
- 17.5% for Manufacturing (A3);
- 0.9% for Transport (A4);
- 0.1% for Installation module (A5);
- 0.1% for End-of-Life stage (C1-C4).



Primary energy demand per 1 kg of Acrylic water dispersion paint AKVATOP

Other key effect factor is Freshwater consumption, that is displayed in following Figure as a Waterfall chart. A waterfall chart shows a running total as values are added or subtracted. It's useful for understanding how an initial value of net Freshwater use is affected by a series of positive and negative values. In case of **Akvatop**, no decrease has been observed in any considered module. Similarly to Primary energy demand, in terms of freshwater use level Product stage (A1-A3) is also responsible for most of its demand. Distribution between considered modules is not similar to Primary energy demand, with Raw material module A1 responsible for at least 95% of the freshwater use in considered life cycle stages.



Net freshwater use for 1 kg of Acrylic water dispersion paint AKVATOP

Information related to Sector EPD

This is an individual EPD.

Differences versus previous versions

This is the first version of EPD.

References

General Programme Instructions of the International EPD® System. Version 4.0.

PCR 2019:14 Construction products v1.3.4

LCA software SimaPro 9.5.0.2, Ecoinvent v3.8

Carbon Minds database - cm.chemicals 2022.01

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

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

ISO 14025:2006: Environmental labels and declarations - Type III environmental declarations - Principles and procedures

Yahong D. et al., (2021). Developing Conversion Factors of LCIA Methods for Comparison of LCA Results in the Construction Sector.

Šiškins A., (2024) LCA background report v1.1 for Water dispersion paint FORAKRIL & AKVATOP and Deep impregnation primer FORAKRIL BASE by RĪGAS LAKU UN KRĀSU RŪPNĪCA SIA

EPD®

www.environdec.com