

Berger Paints (Water-Based)

Environmental Product Declaration

ISO 14020:2000, ISO 14025:2006, ISO 14040:2006,
ISO 14044:2006, EN 15804:2012



EPD registration number:

S-P-01419

Publication date:

2020-07-24

Validity date:

2025-07-23

Geographical scope:

India



THE INTERNATIONAL EPD® SYSTEM



1. Introduction

Berger Paints India Ltd Group (Berger) is an Indian owned Multinational with presence in 8 countries, leader in some and exports to over 25 countries. Berger ranks amongst the top 4 Surface Coatings companies in Asia and Top 10 globally in Architectural Coatings. Backed by extremely strong R&D, Berger produces High-Tech products tailor made for high standards of smart cities. Berger is the oldest Paint company in the world (1760), in India since 100 years and its products have been used in the most prestigious projects in India and internationally including Moscow Olympics 1980 & FIFA World Cup 2018.

Berger produces the entire range of surface coatings systems and is leader in many segments including Heavy Duty Protective Coatings, Architectural Coatings and Special Coatings. The company with its 100% subsidiary company Bolix S.A. Poland is the among top companies globally in the field of ETICS (Exterior Thermal Insulation Composite Systems) since over 27 years, No.1 in Poland and have been executing projects both new and retrofitting, in U.K, as well as export to over 20 countries including Germany, France, Switzerland and Belgium.

This Environmental Product Declaration covers 49 water-based paint products of Berger Paints India Limited. The 49 water-based paint products are classified into Interior Wall Coatings, Exterior Wall Coatings, Undercoats and Construction Chemicals. All the 49 paints products are decorative paint products.

Among the tools available to evaluate environmental performance, Life Cycle Assessment (LCA) provides a holistic approach by considering the potential impacts from all stages of manufacture, product use and end-of-life stages.

thinkstep Sustainability- a Sphera Company, has been entrusted to conduct Life Cycle Assessment for Berger Paint's water-based paint products as per the ISO 14040/44. The LCA model was created using the GaBi ts Software system for life cycle engineering, developed by thinkstep AG.



2. General Information

2.1 EPD, PCR, LCA Information

Table 1. EPD Information

Programme	The International EPD® System, www.environdec.com
Program operator	EPD International AB Box 210 60, SE-100 31 Stockholm, Sweden.
Declaration holder	Berger Paints India Limited Berger House, 129, Park Street, Kolkata - 700017, India
Product	Water- Based Paint Products
CPC Code	UN CPC 3511
EPD registration number	S-P-01419
Publication date	2020-07-24
Validity date	2025-07-23
Geographical scope	India
Reference standards	ISO 14020:2001, ISO 14025:2006, ISO 14040/44, EN 15804:2012,

Table 2. PCR Information

Reference PCR	'Construction Products and Construction Services' Version 2.31, 2012:01
Date of Issue	2019-12-20 (Version 2.31)

Table 3. Verification Information

Demonstration of verification	External, independent verification
Third party verifier	Dr Hüdaï Kara, Metsims Sustainability Consulting, 4 Clear Water Place, Oxford OX2 7NL, UK Email: hudai.kara@metsims.com

Table 4. LCA Information

Title	Environmental Product Declaration of Berger ETICS
Preparer	Dr. Rajesh Kumar Singh Thinkstep Sustainability Solutions- a Sphera Company 707, Meadows, Sahar Plaza, Andheri Kurla Road, Andheri East, Mumbai - 400059, India Email: rsingh@sphera.com



2.2 Reference Period of EPD Data

The reference period for the data used within this EPD is the 2018-19 (October 2018 to September 2019)

2.3 Geographical Scope of EPD Application

The geographical scope of this EPD is India.

2.4 Additional Information about EPD

This EPD provides information for 49 water-based paint products manufactured at 8 plants of Berger Paints India Limited in India. The EPD is in accordance with ISO 14025 and EN 15804. EPD of construction products may not be comparable if they do not comply with EN 15804. The Life Cycle Assessment (LCA) study carried out for developing this EPD for water-based paint product is done as per ISO 14040 and ISO 14044 requirements for Berger Paints India Limited.

Product Category Rules (PCR) for the assessment of the environmental performance of Paint products is 'Construction Products and Construction Services' 2012:01 Version 2.31. All EPDs based on this PCR shall be compliant with EN 15804:2012+A1:2013



The target audience includes Berger Paints management, operational and marketing departments. Furthermore, it will be made available for many different external applications of the data, for technical and non-technical people, including customers of the industry, policy makers, LCA practitioners and academia as per company's decision to share information as they seem appropriate.



3. Product Description and System Boundaries

3.1 Product Identification and Usage

Water-based paint various constituents like pigments, filler, extenders, binder and other additives, all dissolved in water. It emits low level of volatile organic compound (VOC) as compared to other paint types. This makes them environmentally friendly paint with minimal to zero harmful effects on your health. Paints are most commonly used to protect, colour, or provide texture to objects.

Table 5. Properties of water-based interior wall coating paints

Product Name	Product Type	Surface Type	Surface Coverage (m ² /litre)	Number of coats	Service Life (Years)
Bison Acrylic Emulsion	Water Based	Interior	9	2	3
Bison Acrylic Distemper	Distemper	Interior	5	2	2
Easy Clean	Water Based	Interior	11	2	5
Rangoli Total Care	Water Based	Interior	11	2	4
Silk	Water Based	Interior	14	2	6
Silk Illusion	Water Based	Interior	9	2	6
BSE Glow	Water Based	Interior	9	2	4
Silk Glamour	Water Based	Interior	16	2	6
Easy Clean Fresh	Water Based	Interior	12	2	5
Easy Clean Matt	Water Based	Interior	11	2	5
Silk BreatheEasy	Water Based	Interior	14	2	6
Berger Never Miss	Water Based	Interior/Exterior	12	2	4

Table 6. Properties of water-based exterior wall coating paints

Product Name	Product Type	Surface Type	Surface Coverage (m ² /litre)	Number of coats	Service Life (Years)
Walmasta	Water Based	Exterior	5	2	3
Weathercoat All-Guard	Water Based	Exterior	10	2	7
Weathercoat Long Life	Water Based	Exterior	10	2	10
Weathercoat Smooth	Water Based	Exterior	7	2	5
Weathercoat Floor Protektor	Water Based	Exterior	5	2	3
Walmasta Glow	Water Based	Exterior	7	2	3
Weathercoat AntiDust	Water Based	Exterior	10	2	5
Weathercoat Tartaruga	Water Based	Exterior	3.38	1	5
Weathercoat Texture	Water Based	Exterior	5	2	5
Weathercoat Hi-build	Water Based	Exterior	5	2	5



Ruff N Tuff - Scratch	Water Based	Exterior	1.95	0.41	1	Intermediate Coat Needs Topcoat of Ext. Emulsion -2 Coats
Ruff N Tuff - Pearl	Water Based	Exterior	1.75	1.06	1	
Ruff N Tuff - Dholpur	Water Based	Exterior	1.80	0.38	1	
Ruff N Tuff - Rollercoat	Water Based	Exterior	1.80	0.84	1	
Ruff N Tuff - Rollercast	Water Based	Exterior	1.78	1.16	1	
Solitaire Stone/ Granite	Water Based	Exterior	1.75	0.37	2	Intermediate Coat Needs Topcoat of Clr Coat -2 Coats
Florentine Glitteratti	Water Based	Exterior	1.81	0.47	2	
Florentina Sandstone	Water Based	Exterior	1.81	0.46	2	
Florentina Imprint	Water Based	Exterior	1.77	-	-	
Florentina Vintage	Water Based	Exterior	1.77	0.66	2	
Walmasta Lite	Water Based	Exterior	1.36	-	-	
Champ	Water Based	Exterior	1.26	-	-	

Table 7. Properties of water-based undercoats

Product Name	Product Type	Surface Type	Surface Coverage (m ² /litre)	Number of coats	Service Life (Years)
BP White Primer W/T	Water Based	Interior	10	2	Not applicable if no topcoat applied over it
BP Cement Primer W/T	Water Based	Interior	15	2	
Weathercoat Exterior Primer	Water Based	Exterior	13	2	
Seal-O-Prime W/T	Water Based	Exterior	15	2	
BP Exterior Cement Primer	Water Based	Exterior	13	2	

Table 8. Properties of water-based construction chemicals

Product Name	Product Type	Surface Type	Surface Coverage (m ² /litre)	Number of coats	Service Life (Years)
PU RoofKoat	Water Based	Exterior	1	Prime + 2	10
WC Roof Guard	Water Based	Exterior	1.17	Prime + 2	5
WC Kool & Seal	Water Based	Exterior	1.85	Prime + 2	5
Latex Shield 2K	Liquid- Water based Powder- Cement based	Exterior/Interior	1	2	3
Dampstop	Cement Based	Exterior/Interior	1.2	Prime + 2	5
Advanced Latex Plus	Water based	Integral	N/A	N/A	N/A
Tank Shield PW	Liquid- Water based Powder- Cement based	Exterior/Interior	1	2	3
Wall Shield 2K	Liquid- Water based Powder- Cement based	Exterior/Interior	1.85	Prime + 2	5

3.2 Content declaration

The paint consists of various ingredients like pigment to impart colour and opacity, binders for good adhesion of the coating to the substrate, fillers and extenders to increase the volume, increase the paint film thickness and to impart toughness or abrasion resistance to the coating, additives in small amounts of substances for modifying the paint properties and Solvent (water or organic solvent) which is a medium where the binder, pigment and additives are dispersed in molecular form.



4. LCA

4.1 Information Sources and Data Quality

To ensure that Berger Paints Ltd. can provide the most accurate and representative data for water-based paint product, the quality of the data used in the models must be very high. The quality of the LCI data for modelling the life cycle stages have been assessed according to ISO 14044 (2006). Data quality is judged by its precision (measured, calculated or estimated), completeness (e.g. are there unreported emissions?), consistency (degree of uniformity of the methodology applied on an LCA serving as a data source) and representativeness (geographical, time period, technology). To achieve this, industry data collected directly from the producers were used wherever possible. For all other data, primary data were used where possible and finally upstream LCA data from the GaBi 9 professional database. For this latter case, GaBi data were adapted for the data collection part.

4.2 Methodological Details

4.2.1 Declared unit

The declared unit for the paint products is 1 litre paint, including packaging, manufactured at Berger Paints India Limited (India)

4.2.2 Selection of application of LCIA categories

A list of relevant impact categories and category indicators is defined and associated with the inventory data. CML 2001 method developed by Institute of Environmental Sciences, Leiden University, Netherlands have been selected for evaluation of environmental impacts. These indicators are scientifically and technically valid.

The environmental impact per declared unit for the following environmental impact categories were reported in the EPD according with EN15804 (Table 9) and divided into core, upstream (and downstream, if included) module.

Table 9. Environmental impacts indicators

Impact Indicator	LCIA Method	Unit
Acidification Potential	CML	kg SO ₂ equivalent
Eutrophication Potential	CML	kg PO ₄ ³⁻ equivalent
Global Warming Potential	CML	kg CO ₂ equivalent
Ozone Depletion Potential	CML	kg CFC-11 equivalent
Photochemical Ozone Creation Potential	CML	kg Ethene equivalent
Abiotic Depletion Potential - Elements	CML	kg Sb- equivalent
Abiotic Depletion Potential - Fossil resources		MJ, net calorific value

Table 10. Resources use parameters

Parameter	Unit
Renewable primary energy as energy carrier	MJ, net calorific value
Renewable primary energy resources as material utilization	MJ, net calorific value
Total use of renewable primary energy resources	MJ, net calorific value
Non-renewable primary energy as energy carrier	MJ, net calorific value
Non-renewable primary energy as material utilization	MJ, net calorific value
Total use of non-renewable primary energy resources	MJ, net calorific value



The consumption of resources per declared or function unit is reported in the EPD. Input parameters, according with EN15804, describing resource use are shown in Table 10.

Table 11. Other Environmental Indicators

Parameter	Unit
Components for re-use	kg
Materials for recycling	kg
Materials for energy recovery	kg
Exported energy	MJ
Hazardous waste disposed	kg
Non-hazardous waste disposed	kg
Radioactive waste disposed/stored	kg

Table 12. Toxicity indicators

Parameter	Unit
Human toxicity, cancer and non-cancer (USEtox)	CTUh
Ecotoxicity (USEtox)	CTUe

4.3 Cut-off Criteria

Life Cycle Inventory data for a minimum of 99 % of total inflows to the core module shall be included. Inflows not included in the LCA shall be documented in the EPD. Input and output data have been collected through detailed questionnaires which have been developed and refined. In practice, this means that, at least, all material flows going into the production processes (inputs) higher than 1% of the total mass flow (t) or higher than 1% of the total primary energy input (MJ) are part of the system and modelled in order to calculate elementary flows. Inputs with less than 1% of mass flow and less than 1% of the total primary energy input are also considered as all these were environmentally relevant.

4.4 Allocation

No allocation has been done. As no co-products are produced, the flow of materials and energy and the associated release of substances and energy into the environment is related exclusively to the paint produced. Any allocation performed in the background processes is according to the PCR.

4.5 System Boundaries

The system boundary for Berger Paint product represents a Cradle-to-Gate, which covers production Phase. The production phase includes the raw material extraction, production of the raw materials, auxiliary material production, upstream transportation, manufacturing process of the final product and its packaging.

4.5.1 Geographic System Boundaries

The geographical coverage of this declaration covers the production of paint in India. Wherever possible, the country specific (India) boundaries have been adapted and other datasets were chosen from EU if no India datasets were available

4.5.2 Temporal System Boundaries

The data collection is related to one year of operation and the year of the data is indicated in the questionnaire for each data point. The majority of data was derived for the year 2018-19 (October 2018 to September 2019) and is believed to be representative of production of paint product in India during this time frame.



Table 13. Details of system boundary included in the study

Life Cycle Phases	Life Cycle stages	Modules	Life Cycle sub-stages	Definitions
Production Phase	Raw Materials	A1	Primary raw materials production	Extraction and production of raw materials
				Electricity from all sources (import from grid, captive power generation, DG set), water used in Extraction, production of raw materials raw materials and manufacturing.
	Upstream transport	A2	Rail, road and waterways transport	Transport of raw materials to the production plant site.
	Manufacturing	A3	Manufacturing	Manufacturing of construction products and co-products
			Waste treatment during manufacturing	Waste treatment processes (hazardous and non-hazardous waste into landfilling and incineration plant) generated during manufacturing process, Effluent treatment process.
			Product Packaging	Packaging material of final product

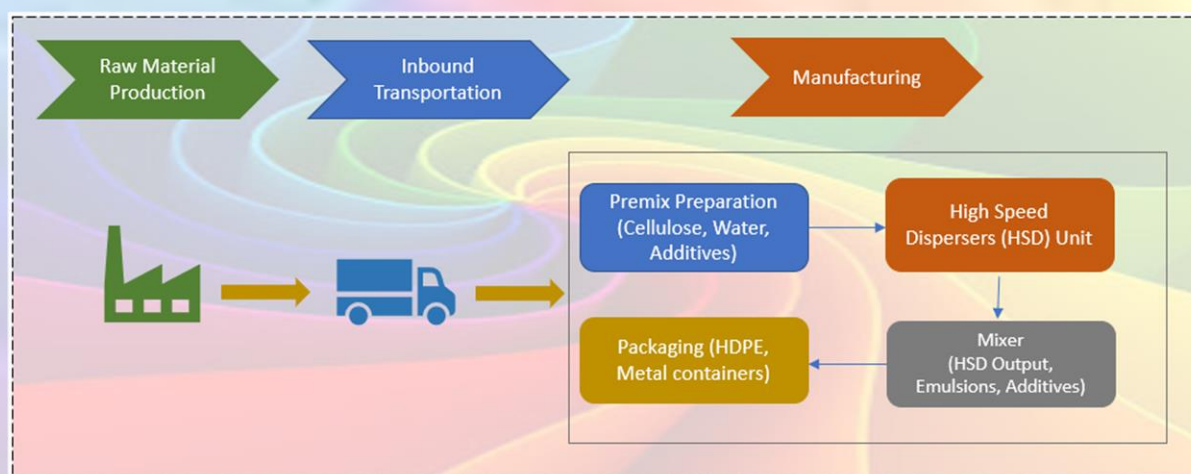


Figure 1. System Boundary along with flow diagram of paint manufacturing

4.5.3 Technology coverage

The exact technological configuration was used for the various process's operation of its plant for efficient performance in production and minimizing environmental impacts. It was assumed that secondary data from databases that were used for this assessment, were temporally and technologically comparable to that of primary data and within the temporal coverage already addressed.

4.6 Software and database

The LCA model was created using the GaBi 9 Software system for life cycle engineering, developed by thinkstep AG. The GaBi database provides the life cycle inventory data for several of the raw and process materials obtained from the upstream system. Detailed database documentation for GaBi datasets can be accessed at <http://www.gabi-software.com/international/support/gabi/gabi-database-2020-lci-documentation>.



4.7 Comparability

According to the standards, EPDs do not compare the environmental performance of products in the sector. Any comparison of the declared environmental performance of products lies outside the scope of these standards and is suggested to be feasible only if all compared declarations follow equal standard provisions.

4.8 Results

Modules of the production life cycle included as per PCR is given in Table 14.

Table 14. Modules of the production life cycle included

Production			Installation		Use stage								End-of-Life				Next product system
Raw material supply (extraction, processing, recycled material)	Transport to manufacturer	Manufacturing	Transport to building site	Installation into building	Use / application	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	Deconstruction / demolition	Transport to EoL	Waste processing for reuse, recovery or recycling	Disposal	Reuse, recovery or recycling energy recovery potentials	
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D	
X	X	X	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND

(X = declared module; MND = Module Not Declared)



❖ Interior Wall Coatings

1. Berger Bison Acrylic Emulsion

Bison emulsion is formulated with special types of co-polymers and micro fined pigments available in India with special additives like anti-fungal, anti-algae, anti-fading, to get optimum dispersion level. Its usage area is plastered surfaces.



Table 15. Cradle to Gate LCIA results for Berger Bison Acrylic Emulsion

Environmental Impacts	Unit	A1	A2	A3	Total
Abiotic Depletion Potential (ADP elements)	kg Sb-Equiv.	4.85E-06	9.05E-10	2.45E-08	4.88E-06
Abiotic Depletion Potential (ADP-fossil fuels)	MJ	1.15E+01	1.02E+00	3.55E+00	1.61E+01
Acidification Potential (AP)	kg SO ₂ -Equiv.	4.38E-03	3.44E-04	6.52E-04	5.37E-03
Eutrophication Potential (EP)	kg PO ₄ ³⁻ -Equiv.	2.00E-04	6.81E-05	5.19E-05	3.21E-04
Global Warming Potential (GWP 100 years)	kg CO ₂ -Equiv.	5.30E-01	7.55E-02	1.01E-01	7.06E-01
Ozone Layer Depletion Potential (ODP)	kg CFC11-Equiv.	1.91E-11	3.51E-16	2.99E-13	1.94E-11
Photochemical Ozone Creation Potential (POCP)	kg Ethene-Equiv.	2.50E-04	-1.02E-04	5.40E-05	2.03E-04
Resource Use	Unit	A1	A2	A3	Total
Renewable primary energy as energy carrier	MJ	7.01E-01	3.28E-03	5.36E-01	1.24E+00
Renewable primary energy resources as material utilization	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total use of renewable primary energy resources	MJ	7.01E-01	3.28E-03	5.36E-01	1.24E+00
Non-Renewable primary energy as energy carrier	MJ	1.20E+01	1.02E+00	3.57E+00	1.66E+01
Non-Renewable primary energy resources as material utilization	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total use of Non-Renewable primary energy resources	MJ	1.20E+01	1.02E+00	3.57E+00	1.66E+01
Use of secondary material	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of renewable secondary fuels	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of non-renewable secondary fuels	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of net fresh water	m ³	4.69E-03	1.51E-05	5.84E-04	5.29E-03
Waste categories	Unit	A1	A2	A3	Total
Hazardous waste disposed	kg	1.80E-05	6.65E-11	1.11E-08	1.80E-05
Non-hazardous waste disposed	kg	4.18E-02	6.06E-06	3.70E-03	4.55E-02
Radioactive waste disposed/stored	kg	2.04E-04	2.34E-07	6.41E-06	2.11E-04
Components for re-use	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for recycling	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for energy recovery	Kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Exported energy	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Toxicity	Unit	A1	A2	A3	Total
Human toxicity, cancer and non-cancer (USEtox)	CTUh	2.57E-11	2.16E-13	8.73E-12	3.46E-11
Ecotoxicity (USEtox)	CTUe	1.78E-03	1.17E-04	5.46E-04	2.44E-03





2. Berger Bison Acrylic Distemper

Bison Acrylic Distemper is 100% water based acrylic co-polymer emulsion-based distemper for interior walls only. It is best known for low cost, elegant, smooth, attractive, durable with matt finish. Its usage area is plastered surfaces.



Table 16. Cradle to Gate LCIA results for Berger Bison Acrylic Distemper

Environmental Impacts	Unit	A1	A2	A3	Total
Abiotic Depletion Potential (ADP elements)	kg Sb-Equiv.	3.63E-06	1.24E-09	2.45E-08	3.65E-06
Abiotic Depletion Potential (ADP-fossil fuels)	MJ	9.25E+00	1.40E+00	3.55E+00	1.42E+01
Acidification Potential (AP)	kg SO ₂ -Equiv.	2.66E-03	4.71E-04	6.52E-04	3.78E-03
Eutrophication Potential (EP)	kg PO ₄ ³⁻ -Equiv.	2.01E-04	9.35E-05	5.19E-05	3.46E-04
Global Warming Potential (GWP 100 years)	kg CO ₂ -Equiv.	4.92E-01	1.04E-01	1.01E-01	6.96E-01
Ozone Layer Depletion Potential (ODP)	kg CFC11-Equiv.	1.34E-11	4.81E-16	2.99E-13	1.37E-11
Photochemical Ozone Creation Potential (POCP)	kg Ethene-Equiv.	1.66E-04	-1.40E-04	5.40E-05	8.07E-05
Resource Use	Unit	A1	A2	A3	Total
Renewable primary energy as energy carrier	MJ	4.82E-01	4.50E-03	5.36E-01	1.02E+00
Renewable primary energy resources as material utilization	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total use of renewable primary energy resources	MJ	4.82E-01	4.50E-03	5.36E-01	1.02E+00
Non-Renewable primary energy as energy carrier	MJ	9.54E+00	1.40E+00	3.57E+00	1.45E+01
Non-Renewable primary energy resources as material utilization	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total use of Non-Renewable primary energy resources	MJ	9.54E+00	1.40E+00	3.57E+00	1.45E+01
Use of secondary material	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of renewable secondary fuels	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of non-renewable secondary fuels	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of net fresh water	m ³	5.89E-03	2.08E-05	5.84E-04	6.49E-03
Waste categories	Unit	A1	A2	A3	Total
Hazardous waste disposed	kg	1.27E-05	9.12E-11	1.11E-08	1.27E-05
Non-hazardous waste disposed	kg	1.20E-02	8.32E-06	3.70E-03	1.57E-02
Radioactive waste disposed/stored	kg	1.14E-04	3.21E-07	6.41E-06	1.21E-04
Components for re-use	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for recycling	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for energy recovery	Kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Exported energy	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Toxicity	Unit	A1	A2	A3	Total
Human toxicity, cancer and non-cancer (USEtox)	CTUh	2.56E-11	2.96E-13	8.73E-12	3.46E-11
Ecotoxicity (USEtox)	CTUe	1.97E-03	1.60E-04	5.46E-04	2.67E-03





3. Berger Easy Clean

Easy Clean luxury emulsion has been formulated with special types of cross-linking polymers and fine pigments. It is formulated in a balanced manner with properties like dispersion, sheen level, anti-fungal, anti-fading and minimum porosity. Its usage area is plastered surfaces.



Table 17. Cradle to Gate LCIA results for Berger Easy Clean

Environmental Impacts	Unit	A1	A2	A3	Total
Abiotic Depletion Potential (ADP elements)	kg Sb-Equiv.	6.96E-06	9.30E-10	2.45E-08	6.98E-06
Abiotic Depletion Potential (ADP-fossil fuels)	MJ	3.28E+01	1.05E+00	3.55E+00	3.74E+01
Acidification Potential (AP)	kg SO ₂ -Equiv.	1.27E-02	3.53E-04	6.52E-04	1.37E-02
Eutrophication Potential (EP)	kg PO ₄ ³⁻ -Equiv.	4.73E-04	7.00E-05	5.19E-05	5.95E-04
Global Warming Potential (GWP 100 years)	kg CO ₂ -Equiv.	1.46E+00	7.75E-02	1.01E-01	1.64E+00
Ozone Layer Depletion Potential (ODP)	kg CFC11-Equiv.	4.24E-11	3.60E-16	2.99E-13	4.27E-11
Photochemical Ozone Creation Potential (POCP)	kg Ethene-Equiv.	6.97E-04	-1.05E-04	5.40E-05	6.47E-04
Resource Use	Unit	A1	A2	A3	Total
Renewable primary energy as energy carrier	MJ	1.70E+00	3.37E-03	5.36E-01	2.24E+00
Renewable primary energy resources as material utilization	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total use of renewable primary energy resources	MJ	1.70E+00	3.37E-03	5.36E-01	2.24E+00
Non-Renewable primary energy as energy carrier	MJ	3.43E+01	1.05E+00	3.57E+00	3.89E+01
Non-Renewable primary energy resources as material utilization	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total use of Non-Renewable primary energy resources	MJ	3.43E+01	1.05E+00	3.57E+00	3.89E+01
Use of secondary material	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of renewable secondary fuels	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of non-renewable secondary fuels	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of net fresh water	m ³	7.10E-03	1.56E-05	5.84E-04	7.70E-03
Waste categories	Unit	A1	A2	A3	Total
Hazardous waste disposed	kg	3.98E-05	6.83E-11	1.11E-08	3.98E-05
Non-hazardous waste disposed	kg	1.69E-01	6.23E-06	3.70E-03	1.73E-01
Radioactive waste disposed/stored	kg	5.77E-04	2.41E-07	6.41E-06	5.84E-04
Components for re-use	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for recycling	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for energy recovery	Kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Exported energy	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Toxicity	Unit	A1	A2	A3	Total
Human toxicity, cancer and non-cancer (USEtox)	CTUh	7.67E-11	2.22E-13	8.73E-12	8.56E-11
Ecotoxicity (USEtox)	CTUe	5.03E-03	1.20E-04	5.46E-04	5.69E-03





4. Berger Rangoli Total Care

Rangoli Total Care is formulated with special types of co-polymers and fine pigments available in India with special additives to get optimum dispersion level. It gives a rich matt look when applied on a zero undulated surface. Its usage area is plastered surfaces.



Table 18. Cradle to Gate LCIA results for Berger Rangoli Total Care

Environmental Impacts	Unit	A1	A2	A3	Total
Abiotic Depletion Potential (ADP elements)	kg Sb-Equiv.	5.24E-06	8.95E-10	2.45E-08	5.26E-06
Abiotic Depletion Potential (ADP-fossil fuels)	MJ	1.76E+01	1.01E+00	3.55E+00	2.21E+01
Acidification Potential (AP)	kg SO ₂ -Equiv.	9.62E-03	3.40E-04	6.52E-04	1.06E-02
Eutrophication Potential (EP)	kg PO ₄ ³⁻ -Equiv.	3.87E-04	6.74E-05	5.19E-05	5.06E-04
Global Warming Potential (GWP 100 years)	kg CO ₂ -Equiv.	8.67E-01	7.47E-02	1.01E-01	1.04E+00
Ozone Layer Depletion Potential (ODP)	kg CFC11-Equiv.	8.21E-09	3.47E-16	2.99E-13	8.21E-09
Photochemical Ozone Creation Potential (POCP)	kg Ethene-Equiv.	5.06E-04	-1.01E-04	5.40E-05	4.60E-04

Resource Use	Unit	A1	A2	A3	Total
Renewable primary energy as energy carrier	MJ	1.76E+00	3.24E-03	5.36E-01	2.30E+00
Renewable primary energy resources as material utilization	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total use of renewable primary energy resources	MJ	1.76E+00	3.24E-03	5.36E-01	2.30E+00
Non-Renewable primary energy as energy carrier	MJ	1.85E+01	1.01E+00	3.57E+00	2.31E+01
Non-Renewable primary energy resources as material utilization	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total use of Non-Renewable primary energy resources	MJ	1.85E+01	1.01E+00	3.57E+00	2.31E+01
Use of secondary material	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of renewable secondary fuels	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of non-renewable secondary fuels	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of net fresh water	m ³	5.40E-03	1.50E-05	5.84E-04	5.99E-03

Waste categories	Unit	A1	A2	A3	Total
Hazardous waste disposed	kg	1.25E-05	6.58E-11	1.11E-08	1.25E-05
Non-hazardous waste disposed	kg	1.22E-01	6.00E-06	3.70E-03	1.26E-01
Radioactive waste disposed/stored	kg	3.73E-04	2.32E-07	6.41E-06	3.80E-04
Components for re-use	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for recycling	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for energy recovery	Kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Exported energy	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Toxicity	Unit	A1	A2	A3	Total
Human toxicity, cancer and non-cancer (USEtox)	CTUh	1.36E-10	2.14E-13	8.73E-12	1.45E-10
Ecotoxicity (USEtox)	CTUe	2.24E-03	1.16E-04	5.46E-04	2.90E-03



5. Berger Silk

Berger Silk is the first luxury emulsion introduced in India, known for its high sheen, high scrub-resistance, scratch resistant, longer life, silky feel on touch. Its usage area is plastered surfaces.



Table 19. Cradle to Gate LCIA results for Berger Silk

Environmental Impacts	Unit	A1	A2	A3	Total
Abiotic Depletion Potential (ADP elements)	kg Sb-Equiv.	1.31E-05	9.64E-10	2.45E-08	1.31E-05
Abiotic Depletion Potential (ADP-fossil fuels)	MJ	4.01E+01	1.09E+00	3.55E+00	4.48E+01
Acidification Potential (AP)	kg SO ₂ -Equiv.	1.69E-02	3.66E-04	6.52E-04	1.79E-02
Eutrophication Potential (EP)	kg PO ₄ ³⁻ -Equiv.	6.02E-04	7.26E-05	5.19E-05	7.27E-04
Global Warming Potential (GWP 100 years)	kg CO ₂ -Equiv.	1.85E+00	8.04E-02	1.01E-01	2.03E+00
Ozone Layer Depletion Potential (ODP)	kg CFC11-Equiv.	6.52E-11	3.74E-16	2.99E-13	6.55E-11
Photochemical Ozone Creation Potential (POCP)	kg Ethene-Equiv.	9.05E-04	-1.08E-04	5.40E-05	8.50E-04
Resource Use	Unit	A1	A2	A3	Total
Renewable primary energy as energy carrier	MJ	2.26E+00	3.49E-03	5.36E-01	2.80E+00
Renewable primary energy resources as material utilization	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total use of renewable primary energy resources	MJ	2.26E+00	3.49E-03	5.36E-01	2.80E+00
Non-Renewable primary energy as energy carrier	MJ	4.21E+01	1.09E+00	3.57E+00	4.68E+01
Non-Renewable primary energy resources as material utilization	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total use of Non-Renewable primary energy resources	MJ	4.21E+01	1.09E+00	3.57E+00	4.68E+01
Use of secondary material	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of renewable secondary fuels	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of non-renewable secondary fuels	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of net fresh water	m ³	8.77E-03	1.61E-05	5.84E-04	9.37E-03
Waste categories	Unit	A1	A2	A3	Total
Hazardous waste disposed	kg	6.14E-05	7.08E-11	1.11E-08	6.14E-05
Non-hazardous waste disposed	kg	2.41E-01	6.46E-06	3.70E-03	2.44E-01
Radioactive waste disposed/stored	kg	8.04E-04	2.50E-07	6.41E-06	8.11E-04
Components for re-use	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for recycling	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for energy recovery	Kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Exported energy	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Toxicity	Unit	A1	A2	A3	Total
Human toxicity, cancer and non-cancer (USEtox)	CTUh	9.57E-11	2.30E-13	8.73E-12	1.05E-10
Ecotoxicity (USEtox)	CTUe	6.11E-03	1.24E-04	5.46E-04	6.78E-03





6. Berger Silk Illusion

Silk illusions Design Metallica is a 100% acrylic emulsion paint for interior application. It is a glossy, metallic finished, special effect paint that creates a variety of effects on interior walls. Its usage area is interior puttied/POP/wooden surfaces.



Table 20. Cradle to Gate LCIA results for Berger Silk Illusion

Environmental Impacts	Unit	A1	A2	A3	Total
Abiotic Depletion Potential (ADP elements)	kg Sb-Equiv.	5.60E-06	8.08E-10	2.45E-08	5.62E-06
Abiotic Depletion Potential (ADP-fossil fuels)	MJ	2.51E+01	9.10E-01	3.55E+00	2.96E+01
Acidification Potential (AP)	kg SO ₂ -Equiv.	8.23E-03	3.07E-04	6.52E-04	9.19E-03
Eutrophication Potential (EP)	kg PO ₄ ³⁻ -Equiv.	3.93E-04	6.09E-05	5.19E-05	5.05E-04
Global Warming Potential (GWP 100 years)	kg CO ₂ -Equiv.	1.01E+00	6.74E-02	1.01E-01	1.18E+00
Ozone Layer Depletion Potential (ODP)	kg CFC11-Equiv.	4.74E-09	3.13E-16	2.99E-13	4.74E-09
Photochemical Ozone Creation Potential (POCP)	kg Ethene-Equiv.	4.91E-04	-9.09E-05	5.40E-05	4.54E-04
Resource Use	Unit	A1	A2	A3	Total
Renewable primary energy as energy carrier	MJ	1.63E+00	2.93E-03	5.36E-01	2.17E+00
Renewable primary energy resources as material utilization	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total use of renewable primary energy resources	MJ	1.63E+00	2.93E-03	5.36E-01	2.17E+00
Non-Renewable primary energy as energy carrier	MJ	2.62E+01	9.11E-01	3.57E+00	3.07E+01
Non-Renewable primary energy resources as material utilization	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total use of Non-Renewable primary energy resources	MJ	2.62E+01	9.11E-01	3.57E+00	3.07E+01
Use of secondary material	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of renewable secondary fuels	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of non-renewable secondary fuels	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of net fresh water	m ³	7.05E-03	1.35E-05	5.84E-04	7.65E-03
Waste categories	Unit	A1	A2	A3	Total
Hazardous waste disposed	kg	3.85E-05	5.94E-11	1.11E-08	3.86E-05
Non-hazardous waste disposed	kg	6.22E-02	5.42E-06	3.70E-03	6.59E-02
Radioactive waste disposed/stored	kg	4.30E-04	2.09E-07	6.41E-06	4.37E-04
Components for re-use	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for recycling	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for energy recovery	Kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Exported energy	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Toxicity	Unit	A1	A2	A3	Total
Human toxicity, cancer and non-cancer (USEtox)	CTUh	1.07E-10	1.93E-13	8.73E-12	1.16E-10
Ecotoxicity (USEtox)	CTUe	4.05E-03	1.04E-04	5.46E-04	4.70E-03





7. Berger BSE Glow

Bison Glow acrylic emulsion is an economy emulsion paint which gives soft sheen finish at an affordable price. It is an interior paint with soft sheen finish. Recommended use plastered surfaces, concrete walls, asbestos, fiberboard, gypsum board and false ceilings.



Table 21. Cradle to Gate LCIA results for Berger BSE Glow

Environmental Impacts	Unit	A1	A2	A3	Total
Abiotic Depletion Potential (ADP elements)	kg Sb-Equiv.	5.25E-06	9.78E-10	2.45E-08	5.27E-06
Abiotic Depletion Potential (ADP-fossil fuels)	MJ	1.87E+01	1.10E+00	3.55E+00	2.34E+01
Acidification Potential (AP)	kg SO ₂ -Equiv.	5.91E-03	3.71E-04	6.52E-04	6.94E-03
Eutrophication Potential (EP)	kg PO ₄ ³⁻ -Equiv.	2.95E-04	7.36E-05	5.19E-05	4.20E-04
Global Warming Potential (GWP 100 years)	kg CO ₂ -Equiv.	8.39E-01	8.15E-02	1.01E-01	1.02E+00
Ozone Layer Depletion Potential (ODP)	kg CFC11-Equiv.	3.47E-13	3.79E-16	2.99E-13	6.47E-13
Photochemical Ozone Creation Potential (POCP)	kg Ethene-Equiv.	3.57E-04	-1.10E-04	5.40E-05	3.02E-04

Resource Use	Unit	A1	A2	A3	Total
Renewable primary energy as energy carrier	MJ	8.43E-01	3.54E-03	5.36E-01	1.38E+00
Renewable primary energy resources as material utilization	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total use of renewable primary energy resources	MJ	8.43E-01	3.54E-03	5.36E-01	1.38E+00
Non-Renewable primary energy as energy carrier	MJ	1.94E+01	1.10E+00	3.57E+00	2.40E+01
Non-Renewable primary energy resources as material utilization	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total use of Non-Renewable primary energy resources	MJ	1.94E+01	1.10E+00	3.57E+00	2.40E+01
Use of secondary material	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of renewable secondary fuels	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of non-renewable secondary fuels	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of net fresh water	m ³	4.59E-03	1.64E-05	5.84E-04	5.19E-03

Waste categories	Unit	A1	A2	A3	Total
Hazardous waste disposed	kg	8.89E-09	7.18E-11	1.11E-08	2.01E-08
Non-hazardous waste disposed	kg	5.21E-02	6.55E-06	3.70E-03	5.58E-02
Radioactive waste disposed/stored	kg	2.48E-04	2.53E-07	6.41E-06	2.54E-04
Components for re-use	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for recycling	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for energy recovery	Kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Exported energy	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Toxicity	Unit	A1	A2	A3	Total
Human toxicity, cancer and non-cancer (USEtox)	CTUh	4.31E-11	2.33E-13	8.73E-12	5.21E-11
Ecotoxicity (USEtox)	CTUe	2.59E-03	1.26E-04	5.46E-04	3.27E-03



8. Berger Silk Glamour

Silk Glamour Luxury Emulsion is a premium interior wall paint, formulated with tailor-made 100% acrylic emulsions and that retains the fresh glossy new look longer. Areas of application are plastered surfaces, concrete walls, fibre board, asbestos, gypsum board and false ceiling



Table 22. Cradle to Gate LCIA results for Berger Silk Glamour

Environmental Impacts	Unit	A1	A2	A3	Total
Abiotic Depletion Potential (ADP elements)	kg Sb-Equiv.	1.09E-05	9.51E-10	2.45E-08	1.09E-05
Abiotic Depletion Potential (ADP-fossil fuels)	MJ	4.78E+01	1.07E+00	3.55E+00	5.25E+01
Acidification Potential (AP)	kg SO ₂ -Equiv.	1.75E-02	3.61E-04	6.52E-04	1.85E-02
Eutrophication Potential (EP)	kg PO ₄ ³⁻ -Equiv.	7.37E-04	7.16E-05	5.19E-05	8.60E-04
Global Warming Potential (GWP 100 years)	kg CO ₂ -Equiv.	2.21E+00	7.93E-02	1.01E-01	2.39E+00
Ozone Layer Depletion Potential (ODP)	kg CFC11-Equiv.	5.94E-11	3.69E-16	2.99E-13	5.97E-11
Photochemical Ozone Creation Potential (POCP)	kg Ethene-Equiv.	9.76E-04	-1.07E-04	5.40E-05	9.24E-04
Resource Use	Unit	A1	A2	A3	Total
Renewable primary energy as energy carrier	MJ	2.66E+00	3.44E-03	5.36E-01	3.20E+00
Renewable primary energy resources as material utilization	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total use of renewable primary energy resources	MJ	2.66E+00	3.44E-03	5.36E-01	3.20E+00
Non-Renewable primary energy as energy carrier	MJ	5.01E+01	1.07E+00	3.57E+00	5.48E+01
Non-Renewable primary energy resources as material utilization	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total use of Non-Renewable primary energy resources	MJ	5.01E+01	1.07E+00	3.57E+00	5.48E+01
Use of secondary material	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of renewable secondary fuels	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of non-renewable secondary fuels	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of net fresh water	m ³	1.52E-02	1.59E-05	5.84E-04	1.58E-02
Waste categories	Unit	A1	A2	A3	Total
Hazardous waste disposed	kg	5.56E-05	6.98E-11	1.11E-08	5.57E-05
Non-hazardous waste disposed	kg	2.65E-01	6.37E-06	3.70E-03	2.69E-01
Radioactive waste disposed/stored	kg	9.03E-04	2.46E-07	6.41E-06	9.10E-04
Components for re-use	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for recycling	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for energy recovery	Kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Exported energy	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Toxicity	Unit	A1	A2	A3	Total
Human toxicity, cancer and non-cancer (USEtox)	CTUh	1.08E-10	2.27E-13	8.73E-12	1.17E-10
Ecotoxicity (USEtox)	CTUe	7.06E-03	1.23E-04	5.46E-04	7.73E-03





9. Berger Easy Clean Fresh

Easy Clean Fresh is an interior wall paint, formulated with odour absorbing chemicals and proprietary acrylic emulsions that purifies indoor air and gives superior stain resistance to walls. Its usage area is plastered surfaces, concrete walls, fibre boards, asbestos, gypsum boards and false ceilings.



Table 23. Cradle to Gate LCIA results for Berger Easy Clean Fresh

Environmental Impacts	Unit	A1	A2	A3	Total
Abiotic Depletion Potential (ADP elements)	kg Sb-Equiv.	7.57E-06	9.25E-10	2.45E-08	7.59E-06
Abiotic Depletion Potential (ADP-fossil fuels)	MJ	3.22E+01	1.04E+00	3.55E+00	3.68E+01
Acidification Potential (AP)	kg SO ₂ -Equiv.	1.47E-02	3.51E-04	6.52E-04	1.57E-02
Eutrophication Potential (EP)	kg PO ₄ ³⁻ -Equiv.	5.17E-04	6.97E-05	5.19E-05	6.38E-04
Global Warming Potential (GWP 100 years)	kg CO ₂ -Equiv.	1.51E+00	7.71E-02	1.01E-01	1.69E+00
Ozone Layer Depletion Potential (ODP)	kg CFC11-Equiv.	2.53E-09	3.59E-16	2.99E-13	2.53E-09
Photochemical Ozone Creation Potential (POCP)	kg Ethene-Equiv.	7.81E-04	-1.04E-04	5.40E-05	7.31E-04
Resource Use	Unit	A1	A2	A3	Total
Renewable primary energy as energy carrier	MJ	2.16E+00	3.35E-03	5.36E-01	2.69E+00
Renewable primary energy resources as material utilization	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total use of renewable primary energy resources	MJ	2.16E+00	3.35E-03	5.36E-01	2.69E+00
Non-Renewable primary energy as energy carrier	MJ	3.40E+01	1.04E+00	3.57E+00	3.86E+01
Non-Renewable primary energy resources as material utilization	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total use of Non-Renewable primary energy resources	MJ	3.40E+01	1.04E+00	3.57E+00	3.86E+01
Use of secondary material	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of renewable secondary fuels	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of non-renewable secondary fuels	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of net fresh water	m ³	7.86E-03	1.55E-05	5.84E-04	8.46E-03
Waste categories	Unit	A1	A2	A3	Total
Hazardous waste disposed	kg	4.22E-05	6.79E-11	1.11E-08	4.22E-05
Non-hazardous waste disposed	kg	2.12E-01	6.20E-06	3.70E-03	2.16E-01
Radioactive waste disposed/stored	kg	6.94E-04	2.39E-07	6.41E-06	7.01E-04
Components for re-use	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for recycling	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for energy recovery	Kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Exported energy	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Toxicity	Unit	A1	A2	A3	Total
Human toxicity, cancer and non-cancer (USEtox)	CTUh	1.06E-10	2.21E-13	8.73E-12	1.15E-10
Ecotoxicity (USEtox)	CTUe	4.81E-03	1.19E-04	5.46E-04	5.47E-03



10. Berger Easy Clean Matt

Table 24. Cradle to Gate LCIA results for Berger Easy Clean Matt

Environmental Impacts	Unit	A1	A2	A3	Total
Abiotic Depletion Potential (ADP elements)	kg Sb-Equiv.	7.24E-06	9.22E-10	2.45E-08	7.27E-06
Abiotic Depletion Potential (ADP-fossil fuels)	MJ	3.73E+01	1.04E+00	3.55E+00	4.19E+01
Acidification Potential (AP)	kg SO ₂ -Equiv.	2.52E-02	3.50E-04	6.52E-04	2.62E-02
Eutrophication Potential (EP)	kg PO ₄ ³⁻ -Equiv.	6.65E-04	6.95E-05	5.19E-05	7.86E-04
Global Warming Potential (GWP 100 years)	kg CO ₂ -Equiv.	1.92E+00	7.69E-02	1.01E-01	2.10E+00
Ozone Layer Depletion Potential (ODP)	kg CFC11-Equiv.	4.20E-11	3.58E-16	2.99E-13	4.23E-11
Photochemical Ozone Creation Potential (POCP)	kg Ethene-Equiv.	1.21E-03	-1.04E-04	5.40E-05	1.16E-03
Resource Use	Unit	A1	A2	A3	Total
Renewable primary energy as energy carrier	MJ	8.05E-06	1.06E-09	2.45E-08	8.07E-06
Renewable primary energy resources as material utilization	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total use of renewable primary energy resources	MJ	3.15E+00	3.34E-03	5.36E-01	3.69E+00
Non-Renewable primary energy as energy carrier	MJ	4.00E+01	1.04E+00	3.57E+00	4.46E+01
Non-Renewable primary energy resources as material utilization	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total use of Non-Renewable primary energy resources	MJ	4.00E+01	1.04E+00	3.57E+00	4.46E+01
Use of secondary material	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of renewable secondary fuels	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of non-renewable secondary fuels	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of net fresh water	m ³	9.97E-03	1.54E-05	5.84E-04	1.06E-02
Waste categories	Unit	A1	A2	A3	Total
Hazardous waste disposed	kg	8.05E-06	1.06E-09	2.45E-08	8.07E-06
Non-hazardous waste disposed	kg	4.25E-01	6.18E-06	3.70E-03	4.29E-01
Radioactive waste disposed/stored	kg	1.07E-03	2.39E-07	6.41E-06	1.07E-03
Components for re-use	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for recycling	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for energy recovery	Kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Exported energy	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Toxicity	Unit	A1	A2	A3	Total
Human toxicity, cancer and non-cancer (USEtox)	CTUh	8.05E-06	1.06E-09	2.45E-08	8.07E-06
Ecotoxicity (USEtox)	CTUe	5.20E-03	1.19E-04	5.46E-04	5.87E-03



11. Berger Silk Breath Easy

Silk Breathe Easy Emulsion is mutated with 100% acrylic emulsions and vibrant pigments together with bio-resistant additives. The paint has low VOC and low smell ensuring users can occupy the room soon after application. Its usage area is plastered surfaces, concrete walls, fibre board, asbestos, gypsum board and false ceiling.



Table 25. Cradle to Gate LCIA results for Berger Silk Breath Easy

Environmental Impacts	Unit	A1	A2	A3	Total
Abiotic Depletion Potential (ADP elements)	kg Sb-Equiv.	1.11E-05	9.73E-10	2.45E-08	1.11E-05
Abiotic Depletion Potential (ADP-fossil fuels)	MJ	4.94E+01	1.10E+00	3.55E+00	5.41E+01
Acidification Potential (AP)	kg SO ₂ -Equiv.	1.77E-02	3.69E-04	6.52E-04	1.87E-02
Eutrophication Potential (EP)	kg PO ₄ ³⁻ -Equiv.	7.60E-04	7.33E-05	5.19E-05	8.85E-04
Global Warming Potential (GWP 100 years)	kg CO ₂ -Equiv.	2.28E+00	8.11E-02	1.01E-01	2.46E+00
Ozone Layer Depletion Potential (ODP)	kg CFC11-Equiv.	6.14E-11	3.77E-16	2.99E-13	6.17E-11
Photochemical Ozone Creation Potential (POCP)	kg Ethene-Equiv.	9.94E-04	-1.09E-04	5.40E-05	9.38E-04
Resource Use	Unit	A1	A2	A3	Total
Renewable primary energy as energy carrier	MJ	8.05E-06	1.06E-09	2.45E-08	8.07E-06
Renewable primary energy resources as material utilization	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total use of renewable primary energy resources	MJ	2.73E+00	3.52E-03	5.36E-01	3.27E+00
Non-Renewable primary energy as energy carrier	MJ	5.18E+01	1.10E+00	3.57E+00	5.64E+01
Non-Renewable primary energy resources as material utilization	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total use of Non-Renewable primary energy resources	MJ	5.18E+01	1.10E+00	3.57E+00	5.64E+01
Use of secondary material	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of renewable secondary fuels	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of non-renewable secondary fuels	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of net fresh water	m ³	1.55E-02	1.63E-05	5.84E-04	1.61E-02
Waste categories	Unit	A1	A2	A3	Total
Hazardous waste disposed	kg	8.05E-06	1.06E-09	2.45E-08	8.07E-06
Non-hazardous waste disposed	kg	2.66E-01	6.52E-06	3.70E-03	2.69E-01
Radioactive waste disposed/stored	kg	9.35E-04	2.52E-07	6.41E-06	9.41E-04
Components for re-use	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for recycling	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for energy recovery	Kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Exported energy	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Toxicity	Unit	A1	A2	A3	Total
Human toxicity, cancer and non-cancer (USEtox)	CTUh	8.05E-06	1.06E-09	2.45E-08	8.07E-06
Ecotoxicity (USEtox)	CTUe	7.28E-03	1.26E-04	5.46E-04	7.95E-03



12. Berger Never Miss

Berger Never Miss Ceiling White takes the guesswork out of painting. While applying, the paint appears pink in colour so it can be seen where the paint has been applied; thereafter it dries to a beautiful flat white finish. The paint is not suitable for exterior application.



Table 26. Cradle to Gate LCIA results for Berger Never Miss

Environmental Impacts	Unit	A1	A2	A3	Total
Abiotic Depletion Potential (ADP elements)	kg Sb-Equiv.	8.05E-06	1.06E-09	2.45E-08	8.07E-06
Abiotic Depletion Potential (ADP-fossil fuels)	MJ	3.15E+01	1.19E+00	3.55E+00	3.63E+01
Acidification Potential (AP)	kg SO ₂ -Equiv.	2.26E-02	4.03E-04	6.52E-04	2.36E-02
Eutrophication Potential (EP)	kg PO ₄ ³⁻ -Equiv.	6.40E-04	7.99E-05	5.19E-05	7.72E-04
Global Warming Potential (GWP 100 years)	kg CO ₂ -Equiv.	1.73E+00	8.85E-02	1.01E-01	1.92E+00
Ozone Layer Depletion Potential (ODP)	kg CFC11-Equiv.	1.00E-10	4.11E-16	2.99E-13	1.01E-10
Photochemical Ozone Creation Potential (POCP)	kg Ethene-Equiv.	1.07E-03	-1.19E-04	5.40E-05	1.01E-03
Resource Use	Unit	A1	A2	A3	Total
Renewable primary energy as energy carrier	MJ	8.05E-06	1.06E-09	2.45E-08	8.07E-06
Renewable primary energy resources as material utilization	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total use of renewable primary energy resources	MJ	2.86E+00	3.84E-03	5.36E-01	3.40E+00
Non-Renewable primary energy as energy carrier	MJ	3.39E+01	1.20E+00	3.57E+00	3.86E+01
Non-Renewable primary energy resources as material utilization	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total use of Non-Renewable primary energy resources	MJ	3.39E+01	1.20E+00	3.57E+00	3.86E+01
Use of secondary material	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of renewable secondary fuels	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of non-renewable secondary fuels	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of net fresh water	m ³	9.25E-03	1.77E-05	5.84E-04	9.85E-03
Waste categories	Unit	A1	A2	A3	Total
Hazardous waste disposed	kg	8.05E-06	1.06E-09	2.45E-08	8.07E-06
Non-hazardous waste disposed	kg	3.98E-01	7.11E-06	3.70E-03	4.01E-01
Radioactive waste disposed/stored	kg	9.21E-04	2.74E-07	6.41E-06	9.28E-04
Components for re-use	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for recycling	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for energy recovery	Kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Exported energy	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Toxicity	Unit	A1	A2	A3	Total
Human toxicity, cancer and non-cancer (USEtox)	CTUh	8.05E-06	1.06E-09	2.45E-08	8.07E-06
Ecotoxicity (USEtox)	CTUe	4.01E-03	1.37E-04	5.46E-04	4.69E-03



13. Berger BSE Lite

Table 27. Cradle to Gate LCIA results for Berger BSE Lite

Environmental Impacts	Unit	A1	A2	A3	Total
Abiotic Depletion Potential (ADP elements)	kg Sb-Equiv.	4.41E-06	1.00E-09	2.45E-08	4.43E-06
Abiotic Depletion Potential (ADP-fossil fuels)	MJ	9.55E+00	1.13E+00	3.55E+00	1.42E+01
Acidification Potential (AP)	kg SO ₂ -Equiv.	3.55E-03	3.81E-04	6.52E-04	4.59E-03
Eutrophication Potential (EP)	kg PO ₄ ³⁻ -Equiv.	1.49E-04	7.56E-05	5.19E-05	2.77E-04
Global Warming Potential (GWP 100 years)	kg CO ₂ -Equiv.	4.22E-01	8.37E-02	1.01E-01	6.06E-01
Ozone Layer Depletion Potential (ODP)	kg CFC11-Equiv.	7.39E-12	3.89E-16	2.99E-13	7.69E-12
Photochemical Ozone Creation Potential (POCP)	kg Ethene-Equiv.	2.04E-04	-1.13E-04	5.40E-05	1.46E-04

Resource Use	Unit	A1	A2	A3	Total
Renewable primary energy as energy carrier	MJ	5.15E-01	3.63E-03	5.36E-01	1.06E+00
Renewable primary energy resources as material utilization	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total use of renewable primary energy resources	MJ	5.15E-01	3.63E-03	5.36E-01	1.06E+00
Non-Renewable primary energy as energy carrier	MJ	9.88E+00	1.13E+00	3.57E+00	1.46E+01
Non-Renewable primary energy resources as material utilization	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total use of Non-Renewable primary energy resources	MJ	9.88E+00	1.13E+00	3.57E+00	1.46E+01
Use of secondary material	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of renewable secondary fuels	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of non-renewable secondary fuels	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of net fresh water	m ³	3.10E-03	1.68E-05	5.84E-04	3.70E-03

Waste categories	Unit	A1	A2	A3	Total
Hazardous waste disposed	kg	6.91E-06	7.37E-11	1.11E-08	6.92E-06
Non-hazardous waste disposed	kg	3.68E-02	6.73E-06	3.70E-03	4.05E-02
Radioactive waste disposed/stored	kg	1.30E-04	2.60E-07	6.41E-06	1.37E-04
Components for re-use	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for recycling	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for energy recovery	Kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Exported energy	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Toxicity	Unit	A1	A2	A3	Total
Human toxicity, cancer and non-cancer (USEtox)	CTUh	2.20E-11	2.39E-13	8.73E-12	3.10E-11
Ecotoxicity (USEtox)	CTUe	1.41E-03	1.30E-04	5.46E-04	2.08E-03



❖ Exterior Wall Coating

1. Berger Walmasta

Berger Walmasta exterior emulsion paint is formulated with special grade emulsion suitable for dry and less humid climatic conditions. It is not an ideal product for excessive rainfall areas and coastal belts due to salinity in weather. Its usage area is exterior plastered surfaces.



Table 28. Cradle to Gate LCIA results for Berger Walmasta

Environmental Impacts	Unit	A1	A2	A3	Total
Abiotic Depletion Potential (ADP elements)	kg Sb-Equiv.	1.22E-05	1.02E-09	2.45E-08	1.22E-05
Abiotic Depletion Potential (ADP-fossil fuels)	MJ	2.90E+01	1.15E+00	3.55E+00	3.37E+01
Acidification Potential (AP)	kg SO ₂ -Equiv.	7.77E-03	3.88E-04	6.52E-04	8.81E-03
Eutrophication Potential (EP)	kg PO ₄ ³⁻ -Equiv.	5.08E-04	7.71E-05	5.19E-05	6.37E-04
Global Warming Potential (GWP 100 years)	kg CO ₂ -Equiv.	1.50E+00	8.53E-02	1.01E-01	1.69E+00
Ozone Layer Depletion Potential (ODP)	kg CFC11-Equiv.	7.98E-13	3.97E-16	2.99E-13	1.10E-12
Photochemical Ozone Creation Potential (POCP)	kg Ethene-Equiv.	5.36E-04	-1.15E-04	5.40E-05	4.75E-04

Resource Use	Unit	A1	A2	A3	Total
Renewable primary energy as energy carrier	MJ	3.17E+00	3.71E-03	5.36E-01	3.71E+00
Renewable primary energy resources as material utilization	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total use of renewable primary energy resources	MJ	3.17E+00	3.71E-03	5.36E-01	3.71E+00
Non-Renewable primary energy as energy carrier	MJ	3.05E+01	1.15E+00	3.57E+00	3.52E+01
Non-Renewable primary energy resources as material utilization	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total use of Non-Renewable primary energy resources	MJ	3.05E+01	1.15E+00	3.57E+00	3.52E+01
Use of secondary material	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of renewable secondary fuels	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of non-renewable secondary fuels	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of net fresh water	m ³	8.75E-03	1.71E-05	5.84E-04	9.35E-03

Waste categories	Unit	A1	A2	A3	Total
Hazardous waste disposed	kg	4.24E-08	7.52E-11	1.11E-08	5.36E-08
Non-hazardous waste disposed	kg	1.71E-01	6.86E-06	3.70E-03	1.75E-01
Radioactive waste disposed/stored	kg	5.73E-04	2.65E-07	6.41E-06	5.80E-04
Components for re-use	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for recycling	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for energy recovery	Kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Exported energy	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Toxicity	Unit	A1	A2	A3	Total
Human toxicity, cancer and non-cancer (USEtox)	CTUh	8.06E-11	2.44E-13	8.73E-12	8.96E-11
Ecotoxicity (USEtox)	CTUe	3.60E-03	1.32E-04	5.46E-04	4.28E-03





2. Berger Weathercoat All Guard

Berger WeatherCoat All Guard is a high performance premium exterior emulsion paint formulated with a special grade of acrylic emulsion with light, fast pigments, unique additives like anti-fungal properties and unique organo-silicone chemistry which imparts visible water repellency. Its usage area is exterior plastered surfaces.



Table 29. Cradle to Gate LCIA results for Berger Weathercoat All Guard

Environmental Impacts	Unit	A1	A2	A3	Total
Abiotic Depletion Potential (ADP elements)	kg Sb-Equiv.	1.28E-05	9.16E-10	2.45E-08	1.28E-05
Abiotic Depletion Potential (ADP-fossil fuels)	MJ	2.87E+01	1.03E+00	3.55E+00	3.33E+01
Acidification Potential (AP)	kg SO ₂ -Equiv.	9.77E-03	3.48E-04	6.52E-04	1.08E-02
Eutrophication Potential (EP)	kg PO ₄ ³⁻ -Equiv.	4.20E-04	6.90E-05	5.19E-05	5.41E-04
Global Warming Potential (GWP 100 years)	kg CO ₂ -Equiv.	1.32E+00	7.64E-02	1.01E-01	1.49E+00
Ozone Layer Depletion Potential (ODP)	kg CFC11-Equiv.	4.57E-11	3.55E-16	2.99E-13	4.60E-11
Photochemical Ozone Creation Potential (POCP)	kg Ethene-Equiv.	5.61E-04	-1.03E-04	5.40E-05	5.13E-04
Resource Use	Unit	A1	A2	A3	Total
Renewable primary energy as energy carrier	MJ	1.84E+00	3.32E-03	5.36E-01	2.38E+00
Renewable primary energy resources as material utilization	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total use of renewable primary energy resources	MJ	1.84E+00	3.32E-03	5.36E-01	2.38E+00
Non-Renewable primary energy as energy carrier	MJ	3.01E+01	1.03E+00	3.57E+00	3.47E+01
Non-Renewable primary energy resources as material utilization	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total use of Non-Renewable primary energy resources	MJ	3.01E+01	1.03E+00	3.57E+00	3.47E+01
Use of secondary material	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of renewable secondary fuels	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of non-renewable secondary fuels	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of net fresh water	m ³	6.51E-03	1.53E-05	5.84E-04	7.11E-03
Waste categories	Unit	A1	A2	A3	Total
Hazardous waste disposed	kg	4.30E-05	6.73E-11	1.11E-08	4.30E-05
Non-hazardous waste disposed	kg	1.34E-01	6.14E-06	3.70E-03	1.38E-01
Radioactive waste disposed/stored	kg	5.63E-04	2.37E-07	6.41E-06	5.70E-04
Components for re-use	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for recycling	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for energy recovery	Kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Exported energy	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Toxicity	Unit	A1	A2	A3	Total
Human toxicity, cancer and non-cancer (USEtox)	CTUh	7.03E-11	2.19E-13	8.73E-12	7.93E-11
Ecotoxicity (USEtox)	CTUe	4.41E-03	1.18E-04	5.46E-04	5.08E-03





3. Berger WeatherCoat Long Life

WeatherCoat Long Life is a premium exterior emulsion paint with PU and Silicon technology. The paint is designed for heavy rainfall areas and provides excellent protection against extreme rain and growth of fungus & algae. Its usage area is exterior plastered surfaces, concrete blocks and asbestos.



Table 30. Cradle to Gate LCIA results for Berger WeatherCoat Long Life

Environmental Impacts	Unit	A1	A2	A3	Total
Abiotic Depletion Potential (ADP elements)	kg Sb-Equiv.	1.28E-05	9.24E-10	2.45E-08	1.29E-05
Abiotic Depletion Potential (ADP-fossil fuels)	MJ	2.93E+01	1.04E+00	3.55E+00	3.39E+01
Acidification Potential (AP)	kg SO ₂ -Equiv.	1.07E-02	3.51E-04	6.52E-04	1.17E-02
Eutrophication Potential (EP)	kg PO ₄ ³⁻ -Equiv.	4.37E-04	6.96E-05	5.19E-05	5.59E-04
Global Warming Potential (GWP 100 years)	kg CO ₂ -Equiv.	1.36E+00	7.71E-02	1.01E-01	1.54E+00
Ozone Layer Depletion Potential (ODP)	kg CFC11-Equiv.	4.57E-11	3.58E-16	2.99E-13	4.60E-11
Photochemical Ozone Creation Potential (POCP)	kg Ethene-Equiv.	6.01E-04	-1.04E-04	5.40E-05	5.51E-04
Resource Use	Unit	A1	A2	A3	Total
Renewable primary energy as energy carrier	MJ	1.95E+00	3.35E-03	5.36E-01	2.49E+00
Renewable primary energy resources as material utilization	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total use of renewable primary energy resources	MJ	1.95E+00	3.35E-03	5.36E-01	2.49E+00
Non-Renewable primary energy as energy carrier	MJ	3.09E+01	1.04E+00	3.57E+00	3.55E+01
Non-Renewable primary energy resources as material utilization	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total use of Non-Renewable primary energy resources	MJ	3.09E+01	1.04E+00	3.57E+00	3.55E+01
Use of secondary material	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of renewable secondary fuels	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of non-renewable secondary fuels	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of net fresh water	m ³	6.76E-03	1.55E-05	5.84E-04	7.36E-03
Waste categories	Unit	A1	A2	A3	Total
Hazardous waste disposed	kg	4.30E-05	6.79E-11	1.11E-08	4.30E-05
Non-hazardous waste disposed	kg	1.52E-01	6.19E-06	3.70E-03	1.55E-01
Radioactive waste disposed/stored	kg	5.99E-04	2.39E-07	6.41E-06	6.05E-04
Components for re-use	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for recycling	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for energy recovery	Kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Exported energy	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Toxicity	Unit	A1	A2	A3	Total
Human toxicity, cancer and non-cancer (USEtox)	CTUh	7.21E-11	2.21E-13	8.73E-12	8.10E-11
Ecotoxicity (USEtox)	CTUe	4.48E-03	1.19E-04	5.46E-04	5.15E-03



4. Berger WeatherCoat Smooth

Berger WeatherCoat Smooth paint is formulated with special grade emulsions, light fast pigments, unique additives like anti-fungal, anti-foaming, anti-flaking, anti-fading, etc. In addition, it has the unique "one way barrier" which enables the paint film to breathe out moisture. Its usage area is exterior plastered surfaces.



Table 31. Cradle to Gate LCIA results for Berger WeatherCoat Smooth

Environmental Impacts	Unit	A1	A2	A3	Total
Abiotic Depletion Potential (ADP elements)	kg Sb-Equiv.	1.19E-05	9.04E-10	2.45E-08	1.20E-05
Abiotic Depletion Potential (ADP-fossil fuels)	MJ	2.76E+01	1.02E+00	3.55E+00	3.22E+01
Acidification Potential (AP)	kg SO ₂ -Equiv.	9.61E-03	3.43E-04	6.52E-04	1.06E-02
Eutrophication Potential (EP)	kg PO ₄ ³ -Equiv.	4.11E-04	6.81E-05	5.19E-05	5.31E-04
Global Warming Potential (GWP 100 years)	kg CO ₂ -Equiv.	1.27E+00	7.54E-02	1.01E-01	1.45E+00
Ozone Layer Depletion Potential (ODP)	kg CFC11-Equiv.	4.56E-11	3.50E-16	2.99E-13	4.59E-11
Photochemical Ozone Creation Potential (POCP)	kg Ethene-Equiv.	5.49E-04	-1.02E-04	5.40E-05	5.02E-04
Resource Use	Unit	A1	A2	A3	Total
Renewable primary energy as energy carrier	MJ	1.81E+00	3.27E-03	5.36E-01	2.35E+00
Renewable primary energy resources as material utilization	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total use of renewable primary energy resources	MJ	1.81E+00	3.27E-03	5.36E-01	2.35E+00
Non-Renewable primary energy as energy carrier	MJ	2.90E+01	1.02E+00	3.57E+00	3.36E+01
Non-Renewable primary energy resources as material utilization	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total use of Non-Renewable primary energy resources	MJ	2.90E+01	1.02E+00	3.57E+00	3.36E+01
Use of secondary material	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of renewable secondary fuels	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of non-renewable secondary fuels	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of net fresh water	m ³	6.35E-03	1.51E-05	5.84E-04	6.95E-03
Waste categories	Unit	A1	A2	A3	Total
Hazardous waste disposed	kg	4.30E-05	6.64E-11	1.11E-08	4.30E-05
Non-hazardous waste disposed	kg	1.33E-01	6.06E-06	3.70E-03	1.36E-01
Radioactive waste disposed/stored	kg	5.54E-04	2.34E-07	6.41E-06	5.61E-04
Components for re-use	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for recycling	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for energy recovery	Kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Exported energy	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Toxicity	Unit	A1	A2	A3	Total
Human toxicity, cancer and non-cancer (USEtox)	CTUh	6.82E-11	2.16E-13	8.73E-12	7.72E-11
Ecotoxicity (USEtox)	CTUe	4.20E-03	1.17E-04	5.46E-04	4.87E-03



5. Berger WeatherCoat Floor Protector

WeatherCoat Floor Protector is a pure acrylic water- based paint with rich and durable finish for exterior concrete floors, designed to maintain excellent adhesion to the substrate with very high abrasion resistance. Its usage is Exterior concrete- based floors, interlocking tiles on driveways, walkways, pavements and patios.



Table 32. Cradle to Gate LCIA results for Berger WeatherCoat Floor Protector

Environmental Impacts	Unit	A1	A2	A3	Total
Abiotic Depletion Potential (ADP elements)	kg Sb-Equiv.	5.73E-06	7.86E-10	2.45E-08	5.76E-06
Abiotic Depletion Potential (ADP-fossil fuels)	MJ	5.46E+01	8.86E-01	3.55E+00	5.90E+01
Acidification Potential (AP)	kg SO ₂ -Equiv.	7.96E-03	2.99E-04	6.52E-04	8.91E-03
Eutrophication Potential (EP)	kg PO ₄ ³⁻ -Equiv.	7.60E-04	5.92E-05	5.19E-05	8.71E-04
Global Warming Potential (GWP 100 years)	kg CO ₂ -Equiv.	2.37E+00	6.56E-02	1.01E-01	2.54E+00
Ozone Layer Depletion Potential (ODP)	kg CFC11-Equiv.	1.03E-12	3.05E-16	2.99E-13	1.33E-12
Photochemical Ozone Creation Potential (POCP)	kg Ethene-Equiv.	6.29E-04	-8.84E-05	5.40E-05	5.95E-04
Resource Use	Unit	A1	A2	A3	Total
Renewable primary energy as energy carrier	MJ	2.11E+00	2.85E-03	5.36E-01	2.65E+00
Renewable primary energy resources as material utilization	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total use of renewable primary energy resources	MJ	2.11E+00	2.85E-03	5.36E-01	2.65E+00
Non-Renewable primary energy as energy carrier	MJ	5.65E+01	8.86E-01	3.57E+00	6.09E+01
Non-Renewable primary energy resources as material utilization	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total use of Non-Renewable primary energy resources	MJ	5.65E+01	8.86E-01	3.57E+00	6.09E+01
Use of secondary material	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of renewable secondary fuels	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of non-renewable secondary fuels	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of net fresh water	m ³	8.25E-03	1.32E-05	5.84E-04	8.85E-03
Waste categories	Unit	A1	A2	A3	Total
Hazardous waste disposed	kg	2.43E-08	5.78E-11	1.11E-08	3.55E-08
Non-hazardous waste disposed	kg	4.18E-02	5.27E-06	3.70E-03	4.55E-02
Radioactive waste disposed/stored	kg	7.39E-04	2.03E-07	6.41E-06	7.46E-04
Components for re-use	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for recycling	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for energy recovery	Kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Exported energy	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Toxicity	Unit	A1	A2	A3	Total
Human toxicity, cancer and non-cancer (USEtox)	CTUh	1.56E-10	1.88E-13	8.73E-12	1.65E-10
Ecotoxicity (USEtox)	CTUe	7.69E-03	1.02E-04	5.46E-04	8.33E-03



6. Berger Walmasta Glow

Walmasta Glow is a modified acrylic emulsion based exterior paint suitable for moderate to dry climatic regions, the paint has higher sheen compared to economy paints, therefore imparts rich look on the exterior walls. Its usage area is sand/cement plaster, asbestos, brickwork and concrete blocks.



Table 33. Cradle to Gate LCIA results for Berger Walmasta Glow

Environmental Impacts	Unit	A1	A2	A3	Total
Abiotic Depletion Potential (ADP elements)	kg Sb-Equiv.	9.78E-06	1.02E-09	2.45E-08	9.80E-06
Abiotic Depletion Potential (ADP-fossil fuels)	MJ	3.23E+01	1.15E+00	3.55E+00	3.70E+01
Acidification Potential (AP)	kg SO ₂ -Equiv.	8.29E-03	3.87E-04	6.52E-04	9.33E-03
Eutrophication Potential (EP)	kg PO ₄ ³⁻ -Equiv.	5.94E-04	7.68E-05	5.19E-05	7.22E-04
Global Warming Potential (GWP 100 years)	kg CO ₂ -Equiv.	1.64E+00	8.51E-02	1.01E-01	1.82E+00
Ozone Layer Depletion Potential (ODP)	kg CFC11-Equiv.	7.06E-09	3.95E-16	2.99E-13	7.06E-09
Photochemical Ozone Creation Potential (POCP)	kg Ethene-Equiv.	5.76E-04	-1.15E-04	5.40E-05	5.16E-04
Resource Use	Unit	A1	A2	A3	Total
Renewable primary energy as energy carrier	MJ	3.15E+00	3.69E-03	5.36E-01	3.69E+00
Renewable primary energy resources as material utilization	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total use of renewable primary energy resources	MJ	3.15E+00	3.69E-03	5.36E-01	3.69E+00
Non-Renewable primary energy as energy carrier	MJ	3.37E+01	1.15E+00	3.57E+00	3.85E+01
Non-Renewable primary energy resources as material utilization	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total use of Non-Renewable primary energy resources	MJ	3.37E+01	1.15E+00	3.57E+00	3.85E+01
Use of secondary material	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of renewable secondary fuels	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of non-renewable secondary fuels	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of net fresh water	m ³	9.22E-03	1.71E-05	5.84E-04	9.82E-03
Waste categories	Unit	A1	A2	A3	Total
Hazardous waste disposed	kg	1.08E-05	7.49E-11	1.11E-08	1.08E-05
Non-hazardous waste disposed	kg	1.82E-01	6.84E-06	3.70E-03	1.85E-01
Radioactive waste disposed/stored	kg	5.61E-04	2.64E-07	6.41E-06	5.68E-04
Components for re-use	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for recycling	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for energy recovery	Kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Exported energy	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Toxicity	Unit	A1	A2	A3	Total
Human toxicity, cancer and non-cancer (USEtox)	CTUh	1.70E-10	2.43E-13	8.73E-12	1.79E-10
Ecotoxicity (USEtox)	CTUe	4.15E-03	1.32E-04	5.46E-04	4.83E-03



7. Berger Weathercoat Anti-dust

WeatherCoat Anti-dust is a high-performance paint with rich, soft sheen. It is formulated with special grade of acrylic emulsion and additives. The paint has unique dust repelling properties owing to the presence of Dust Guard Technology. Its usage area is exterior plastered surfaces and concrete blocks.



Table 34. Cradle to Gate LCIA results for Berger Weathercoat Anti-dust

Environmental Impacts	Unit	A1	A2	A3	Total
Abiotic Depletion Potential (ADP elements)	kg Sb-Equiv.	1.20E-05	9.14E-10	2.45E-08	1.20E-05
Abiotic Depletion Potential (ADP-fossil fuels)	MJ	2.75E+01	1.03E+00	3.55E+00	3.21E+01
Acidification Potential (AP)	kg SO ₂ -Equiv.	9.70E-03	3.47E-04	6.52E-04	1.07E-02
Eutrophication Potential (EP)	kg PO ₄ ³⁻ -Equiv.	4.15E-04	6.88E-05	5.19E-05	5.36E-04
Global Warming Potential (GWP 100 years)	kg CO ₂ -Equiv.	1.27E+00	7.62E-02	1.01E-01	1.45E+00
Ozone Layer Depletion Potential (ODP)	kg CFC11-Equiv.	4.57E-11	3.54E-16	2.99E-13	4.60E-11
Photochemical Ozone Creation Potential (POCP)	kg Ethene-Equiv.	5.54E-04	-1.03E-04	5.40E-05	5.05E-04
Resource Use	Unit	A1	A2	A3	Total
Renewable primary energy as energy carrier	MJ	1.83E+00	3.31E-03	5.36E-01	2.37E+00
Renewable primary energy resources as material utilization	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total use of renewable primary energy resources	MJ	1.83E+00	3.31E-03	5.36E-01	2.37E+00
Non-Renewable primary energy as energy carrier	MJ	2.89E+01	1.03E+00	3.57E+00	3.35E+01
Non-Renewable primary energy resources as material utilization	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total use of Non-Renewable primary energy resources	MJ	2.89E+01	1.03E+00	3.57E+00	3.35E+01
Use of secondary material	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of renewable secondary fuels	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of non-renewable secondary fuels	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of net fresh water	m ³	6.40E-03	1.53E-05	5.84E-04	7.00E-03
Waste categories	Unit	A1	A2	A3	Total
Hazardous waste disposed	kg	4.30E-05	6.71E-11	1.11E-08	4.30E-05
Non-hazardous waste disposed	kg	1.35E-01	6.12E-06	3.70E-03	1.39E-01
Radioactive waste disposed/stored	kg	5.61E-04	2.36E-07	6.41E-06	5.68E-04
Components for re-use	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for recycling	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for energy recovery	Kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Exported energy	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Toxicity	Unit	A1	A2	A3	Total
Human toxicity, cancer and non-cancer (USEtox)	CTUh	6.92E-11	2.18E-13	8.73E-12	7.81E-11
Ecotoxicity (USEtox)	CTUe	4.08E-03	1.18E-04	5.46E-04	4.74E-03



8. Berger Weathercoat Tartaruga

With a high-built acrylic formulation (200-300 microns), it is water-resistant, includes aggregates like quartz, mica, silicon and cobalt, as well as UV resistant inorganic pigments and other additives to enhance its durability. It can to be used on a wide variety of interior and exterior surfaces.



Table 35. Cradle to Gate LCIA results for Berger Weathercoat Tartaruga

Environmental Impacts	Unit	A1	A2	A3	Total
Abiotic Depletion Potential (ADP elements)	kg Sb-Equiv.	3.05E-06	1.26E-09	2.45E-08	3.07E-06
Abiotic Depletion Potential (ADP-fossil fuels)	MJ	2.55E+01	1.42E+00	3.55E+00	3.05E+01
Acidification Potential (AP)	kg SO ₂ -Equiv.	1.96E-02	4.77E-04	6.52E-04	2.07E-02
Eutrophication Potential (EP)	kg PO ₄ ³⁻ Equiv.	5.00E-04	9.46E-05	5.19E-05	6.47E-04
Global Warming Potential (GWP 100 years)	kg CO ₂ -Equiv.	1.39E+00	1.05E-01	1.01E-01	1.59E+00
Ozone Layer Depletion Potential (ODP)	kg CFC11-Equiv.	1.54E-12	4.87E-16	2.99E-13	1.83E-12
Photochemical Ozone Creation Potential (POCP)	kg Ethene-Equiv.	1.01E-03	-1.41E-04	5.40E-05	9.18E-04
Resource Use	Unit	A1	A2	A3	Total
Renewable primary energy as energy carrier	MJ	3.80E+00	4.55E-03	5.36E-01	4.34E+00
Renewable primary energy resources as material utilization	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total use of renewable primary energy resources	MJ	3.80E+00	4.55E-03	5.36E-01	4.34E+00
Non-Renewable primary energy as energy carrier	MJ	2.82E+01	1.42E+00	3.57E+00	3.32E+01
Non-Renewable primary energy resources as material utilization	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total use of Non-Renewable primary energy resources	MJ	2.82E+01	1.42E+00	3.57E+00	3.32E+01
Use of secondary material	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of renewable secondary fuels	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of non-renewable secondary fuels	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of net fresh water	m ³	9.64E-03	2.10E-05	5.84E-04	1.02E-02
Waste categories	Unit	A1	A2	A3	Total
Hazardous waste disposed	kg	3.67E-08	9.23E-11	1.11E-08	4.79E-08
Non-hazardous waste disposed	kg	3.63E-01	8.42E-06	3.70E-03	3.67E-01
Radioactive waste disposed/stored	kg	1.07E-03	3.25E-07	6.41E-06	1.07E-03
Components for re-use	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for recycling	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for energy recovery	Kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Exported energy	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Toxicity	Unit	A1	A2	A3	Total
Human toxicity, cancer and non-cancer (USEtox)	CTUh	6.65E-11	3.00E-13	8.73E-12	7.55E-11
Ecotoxicity (USEtox)	CTUe	3.32E-03	1.62E-04	5.46E-04	4.03E-03





9. Berger Weathercoat Texture

Walmasta Exterior Texture is based on co-polymer emulsion paint, formulated with special grade emulsion with high build fine texture coating. Formulated with tough flexible resin with special types of additives to ensure long term defense against all odd weather conditions



Table 36. Cradle to Gate LCIA results for Berger Weathercoat Texture

Environmental Impacts	Unit	A1	A2	A3	Total
Abiotic Depletion Potential (ADP elements)	kg Sb-Equiv.	3.67E-06	1.03E-09	2.45E-08	3.69E-06
Abiotic Depletion Potential (ADP-fossil fuels)	MJ	3.98E+01	1.16E+00	3.55E+00	4.46E+01
Acidification Potential (AP)	kg SO ₂ -Equiv.	1.39E-02	3.92E-04	6.52E-04	1.50E-02
Eutrophication Potential (EP)	kg PO ₄ ³⁻ -Equiv.	6.41E-04	7.78E-05	5.19E-05	7.71E-04
Global Warming Potential (GWP 100 years)	kg CO ₂ -Equiv.	1.74E+00	8.62E-02	1.01E-01	1.93E+00
Ozone Layer Depletion Potential (ODP)	kg CFC11-Equiv.	8.41E-09	4.01E-16	2.99E-13	8.42E-09
Photochemical Ozone Creation Potential (POCP)	kg Ethene-Equiv.	8.01E-04	-1.16E-04	5.40E-05	7.39E-04
Resource Use	Unit	A1	A2	A3	Total
Renewable primary energy as energy carrier	MJ	2.74E+00	3.74E-03	5.36E-01	3.28E+00
Renewable primary energy resources as material utilization	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total use of renewable primary energy resources	MJ	2.74E+00	3.74E-03	5.36E-01	3.28E+00
Non-Renewable primary energy as energy carrier	MJ	4.18E+01	1.17E+00	3.57E+00	4.66E+01
Non-Renewable primary energy resources as material utilization	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total use of Non-Renewable primary energy resources	MJ	4.18E+01	1.17E+00	3.57E+00	4.66E+01
Use of secondary material	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of renewable secondary fuels	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of non-renewable secondary fuels	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of net fresh water	m ³	9.30E-03	1.73E-05	5.84E-04	9.90E-03
Waste categories	Unit	A1	A2	A3	Total
Hazardous waste disposed	kg	1.28E-05	7.59E-11	1.11E-08	1.28E-05
Non-hazardous waste disposed	kg	1.97E-01	6.93E-06	3.70E-03	2.01E-01
Radioactive waste disposed/stored	kg	7.91E-04	2.68E-07	6.41E-06	7.98E-04
Components for re-use	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for recycling	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for energy recovery	Kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Exported energy	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Toxicity	Unit	A1	A2	A3	Total
Human toxicity, cancer and non-cancer (USEtox)	CTUh	2.00E-10	2.47E-13	8.73E-12	2.09E-10
Ecotoxicity (USEtox)	CTUe	5.69E-03	1.33E-04	5.46E-04	6.37E-03



10. Berger Weathercoat Hi-Build

WeatherCoat Hi-Build is a European concept. Uniqueness in its textures has made it achieve exceptional results. The texture coating provides a decorative and protective plaster coat for the interiors and exteriors of the building.



Table 37. Cradle to Gate LCIA results for Berger Weathercoat Hi-Build

Environmental Impacts	Unit	A1	A2	A3	Total
Abiotic Depletion Potential (ADP elements)	kg Sb-Equiv.	2.51E-07	7.43E-10	2.45E-08	2.77E-07
Abiotic Depletion Potential (ADP-fossil fuels)	MJ	8.08E+00	8.37E-01	3.55E+00	1.25E+01
Acidification Potential (AP)	kg SO ₂ -Equiv.	1.74E-03	2.82E-04	6.52E-04	2.67E-03
Eutrophication Potential (EP)	kg PO ₄ ³⁻ -Equiv.	1.41E-04	5.60E-05	5.19E-05	2.49E-04
Global Warming Potential (GWP 100 years)	kg CO ₂ -Equiv.	3.89E-01	6.20E-02	1.01E-01	5.51E-01
Ozone Layer Depletion Potential (ODP)	kg CFC11-Equiv.	1.14E-13	2.88E-16	2.99E-13	4.13E-13
Photochemical Ozone Creation Potential (POCP)	kg Ethene-Equiv.	1.25E-04	-8.36E-05	5.40E-05	9.55E-05
Resource Use	Unit	A1	A2	A3	Total
Renewable primary energy as energy carrier	MJ	3.24E-01	2.69E-03	5.36E-01	8.63E-01
Renewable primary energy resources as material utilization	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total use of renewable primary energy resources	MJ	3.24E-01	2.69E-03	5.36E-01	8.63E-01
Non-Renewable primary energy as energy carrier	MJ	8.29E+00	8.38E-01	3.57E+00	1.27E+01
Non-Renewable primary energy resources as material utilization	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total use of Non-Renewable primary energy resources	MJ	8.29E+00	8.38E-01	3.57E+00	1.27E+01
Use of secondary material	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of renewable secondary fuels	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of non-renewable secondary fuels	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of net fresh water	m ³	2.16E-03	1.24E-05	5.84E-04	2.76E-03
Waste categories	Unit	A1	A2	A3	Total
Hazardous waste disposed	kg	3.38E-09	5.46E-11	1.11E-08	1.46E-08
Non-hazardous waste disposed	kg	2.78E-03	4.98E-06	3.70E-03	6.49E-03
Radioactive waste disposed/stored	kg	8.22E-05	1.92E-07	6.41E-06	8.88E-05
Components for re-use	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for recycling	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for energy recovery	Kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Exported energy	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Toxicity	Unit	A1	A2	A3	Total
Human toxicity, cancer and non-cancer (USEtox)	CTUh	2.85E-11	1.77E-13	8.73E-12	3.74E-11
Ecotoxicity (USEtox)	CTUe	1.21E-03	9.60E-05	5.46E-04	1.85E-03



11. Berger Ruff N Tuff - Scratch

Ruff N' Tuff-Scratch is formulated with modified acrylic emulsion and reinforced with quartz aggregates to withstand humidity, rain and variable climates. Used for decoration and long-term protection. Its usage area is cement plaster, concrete, bricks, masonry, wood, gypsum board and lime- cement plaster.



Table 38. Cradle to Gate LCIA results for Berger Ruff N Tuff - Scratch

Environmental Impacts	Unit	A1	A2	A3	Total
Abiotic Depletion Potential (ADP elements)	kg Sb-Equiv.	1.24E-07	1.45E-09	2.45E-08	1.50E-07
Abiotic Depletion Potential (ADP-fossil fuels)	MJ	8.40E+00	1.63E+00	3.55E+00	1.36E+01
Acidification Potential (AP)	kg SO ₂ -Equiv.	1.75E-03	5.50E-04	6.52E-04	2.95E-03
Eutrophication Potential (EP)	kg PO ₄ ³⁻ -Equiv.	1.66E-04	1.09E-04	5.19E-05	3.27E-04
Global Warming Potential (GWP 100 years)	kg CO ₂ -Equiv.	3.66E-01	1.21E-01	1.01E-01	5.88E-01
Ozone Layer Depletion Potential (ODP)	kg CFC11-Equiv.	2.08E-13	5.62E-16	2.99E-13	5.07E-13
Photochemical Ozone Creation Potential (POCP)	kg Ethene-Equiv.	1.30E-04	-1.63E-04	5.40E-05	2.15E-05
Resource Use	Unit	A1	A2	A3	Total
Renewable primary energy as energy carrier	MJ	6.99E-01	5.25E-03	5.36E-01	1.24E+00
Renewable primary energy resources as material utilization	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total use of renewable primary energy resources	MJ	6.99E-01	5.25E-03	5.36E-01	1.24E+00
Non-Renewable primary energy as energy carrier	MJ	8.58E+00	1.63E+00	3.57E+00	1.38E+01
Non-Renewable primary energy resources as material utilization	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total use of Non-Renewable primary energy resources	MJ	8.58E+00	1.63E+00	3.57E+00	1.38E+01
Use of secondary material	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of renewable secondary fuels	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of non-renewable secondary fuels	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of net fresh water	m ³	6.16E-03	2.42E-05	5.84E-04	6.77E-03
Waste categories	Unit	A1	A2	A3	Total
Hazardous waste disposed	kg	7.12E-09	1.06E-10	1.11E-08	1.84E-08
Non-hazardous waste disposed	kg	2.08E-03	9.72E-06	3.70E-03	5.79E-03
Radioactive waste disposed/stored	kg	6.85E-05	3.75E-07	6.41E-06	7.53E-05
Components for re-use	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for recycling	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for energy recovery	Kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Exported energy	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Toxicity	Unit	A1	A2	A3	Total
Human toxicity, cancer and non-cancer (USEtox)	CTUh	2.61E-11	3.46E-13	8.73E-12	3.52E-11
Ecotoxicity (USEtox)	CTUe	2.07E-03	1.87E-04	5.46E-04	2.80E-03



12. Berger Ruff N Tuff - Pearl

Ruff N Tuff - Pearl is a copolymer emulsion-based spray applied texture for smooth exterior and interior surfaces. Its usage area is cement plaster, concrete, bricks, masonry, wood, gypsum board and lime-cement plaster. For Exterior & Interior use.



Table 39. Cradle to Gate LCIA results for Berger Ruff N Tuff - Pearl

Environmental Impacts	Unit	A1	A2	A3	Total
Abiotic Depletion Potential (ADP elements)	kg Sb-Equiv.	1.45E-07	1.30E-09	2.45E-08	1.71E-07
Abiotic Depletion Potential (ADP-fossil fuels)	MJ	1.03E+01	1.47E+00	3.55E+00	1.53E+01
Acidification Potential (AP)	kg SO ₂ -Equiv.	1.77E-03	4.94E-04	6.52E-04	2.92E-03
Eutrophication Potential (EP)	kg PO ₄ ³⁻ -Equiv.	2.81E-04	9.80E-05	5.19E-05	4.31E-04
Global Warming Potential (GWP 100 years)	kg CO ₂ -Equiv.	4.13E-01	1.08E-01	1.01E-01	6.22E-01
Ozone Layer Depletion Potential (ODP)	kg CFC11-Equiv.	9.40E-14	5.04E-16	2.99E-13	3.94E-13
Photochemical Ozone Creation Potential (POCP)	kg Ethene-Equiv.	1.34E-04	-1.46E-04	5.40E-05	4.22E-05
Resource Use	Unit	A1	A2	A3	Total
Renewable primary energy as energy carrier	MJ	7.31E-01	4.71E-03	5.36E-01	1.27E+00
Renewable primary energy resources as material utilization	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total use of renewable primary energy resources	MJ	7.31E-01	4.71E-03	5.36E-01	1.27E+00
Non-Renewable primary energy as energy carrier	MJ	1.05E+01	1.47E+00	3.57E+00	1.55E+01
Non-Renewable primary energy resources as material utilization	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total use of Non-Renewable primary energy resources	MJ	1.05E+01	1.47E+00	3.57E+00	1.55E+01
Use of secondary material	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of renewable secondary fuels	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of non-renewable secondary fuels	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of net fresh water	m ³	2.27E-02	2.18E-05	5.84E-04	2.33E-02
Waste categories	Unit	A1	A2	A3	Total
Hazardous waste disposed	kg	4.06E-09	9.56E-11	1.11E-08	1.53E-08
Non-hazardous waste disposed	kg	2.27E-03	8.72E-06	3.70E-03	5.98E-03
Radioactive waste disposed/stored	kg	7.30E-05	3.37E-07	6.41E-06	7.97E-05
Components for re-use	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for recycling	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for energy recovery	Kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Exported energy	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Toxicity	Unit	A1	A2	A3	Total
Human toxicity, cancer and non-cancer (USEtox)	CTUh	2.75E-11	3.10E-13	8.73E-12	3.65E-11
Ecotoxicity (USEtox)	CTUe	2.56E-03	1.68E-04	5.46E-04	3.27E-03



13. Berger Ruff N Tuff - Dholpur

Ruff N Tuff - Decora Dholpur Stone is based on special synthetic copolymer emulsion reinforced with silica aggregates having excellent bonding properties and it produces exceptional stone like pattern and offer long lasting protection to the overall structure of the building. Its usage area is cement plaster, concrete, bricks, masonry, wood, gypsum board and lime- cement plaster.



Table 40. Cradle to Gate LCIA results for Berger Ruff N Tuff - Dholpur

Environmental Impacts	Unit	A1	A2	A3	Total
Abiotic Depletion Potential (ADP elements)	kg Sb-Equiv.	1.24E-07	1.34E-09	2.45E-08	1.50E-07
Abiotic Depletion Potential (ADP-fossil fuels)	MJ	1.08E+01	1.51E+00	3.55E+00	1.59E+01
Acidification Potential (AP)	kg SO ₂ -Equiv.	1.77E-03	5.08E-04	6.52E-04	2.93E-03
Eutrophication Potential (EP)	kg PO ₄ ³⁻ -Equiv.	1.70E-04	1.01E-04	5.19E-05	3.23E-04
Global Warming Potential (GWP 100 years)	kg CO ₂ -Equiv.	4.16E-01	1.12E-01	1.01E-01	6.28E-01
Ozone Layer Depletion Potential (ODP)	kg CFC11-Equiv.	2.86E-13	5.19E-16	2.99E-13	5.85E-13
Photochemical Ozone Creation Potential (POCP)	kg Ethene-Equiv.	1.44E-04	-1.50E-04	5.40E-05	4.78E-05
Resource Use	Unit	A1	A2	A3	Total
Renewable primary energy as energy carrier	MJ	8.84E-01	4.85E-03	5.36E-01	1.43E+00
Renewable primary energy resources as material utilization	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total use of renewable primary energy resources	MJ	8.84E-01	4.85E-03	5.36E-01	1.43E+00
Non-Renewable primary energy as energy carrier	MJ	1.10E+01	1.51E+00	3.57E+00	1.61E+01
Non-Renewable primary energy resources as material utilization	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total use of Non-Renewable primary energy resources	MJ	1.10E+01	1.51E+00	3.57E+00	1.61E+01
Use of secondary material	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of renewable secondary fuels	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of non-renewable secondary fuels	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of net fresh water	m ³	5.86E-03	2.24E-05	5.84E-04	6.46E-03
Waste categories	Unit	A1	A2	A3	Total
Hazardous waste disposed	kg	8.90E-09	9.83E-11	1.11E-08	2.01E-08
Non-hazardous waste disposed	kg	2.08E-03	8.97E-06	3.70E-03	5.79E-03
Radioactive waste disposed/stored	kg	7.14E-05	3.46E-07	6.41E-06	7.82E-05
Components for re-use	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for recycling	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for energy recovery	Kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Exported energy	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Toxicity	Unit	A1	A2	A3	Total
Human toxicity, cancer and non-cancer (USEtox)	CTUh	3.04E-11	3.19E-13	8.73E-12	3.94E-11
Ecotoxicity (USEtox)	CTUe	2.32E-03	1.73E-04	5.46E-04	3.04E-03



14. Berger Ruff N Tuff - Rollercoat

Ruff N Tuff - Decora Rollercoat is a copolymer emulsion based textured coating reinforced with quartz and marble powder offering a very unique and attractive spike like textured finish. Its usage area is cement plaster, concrete, bricks, masonry, wood, gypsum board and lime- cement plaster.



Table 41. Cradle to Gate LCIA results for Berger Ruff N Tuff - Rollercoat

Environmental Impacts	Unit	A1	A2	A3	Total
Abiotic Depletion Potential (ADP elements)	kg Sb-Equiv.	2.34E-06	1.34E-09	2.45E-08	2.36E-06
Abiotic Depletion Potential (ADP-fossil fuels)	MJ	7.77E+01	1.51E+00	3.55E+00	8.28E+01
Acidification Potential (AP)	kg SO ₂ -Equiv.	2.36E-02	5.08E-04	6.52E-04	2.48E-02
Eutrophication Potential (EP)	kg PO ₄ ³⁻ -Equiv.	7.85E-04	1.01E-04	5.19E-05	9.37E-04
Global Warming Potential (GWP 100 years)	kg CO ₂ -Equiv.	2.95E+00	1.12E-01	1.01E-01	3.16E+00
Ozone Layer Depletion Potential (ODP)	kg CFC11-Equiv.	1.45E-12	5.19E-16	2.99E-13	1.74E-12
Photochemical Ozone Creation Potential (POCP)	kg Ethene-Equiv.	1.73E-03	-1.50E-04	5.40E-05	1.64E-03

Resource Use	Unit	A1	A2	A3	Total
Renewable primary energy as energy carrier	MJ	3.40E+00	4.85E-03	5.36E-01	3.94E+00
Renewable primary energy resources as material utilization	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total use of renewable primary energy resources	MJ	3.40E+00	4.85E-03	5.36E-01	3.94E+00
Non-Renewable primary energy as energy carrier	MJ	8.03E+01	1.51E+00	3.57E+00	8.53E+01
Non-Renewable primary energy resources as material utilization	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total use of Non-Renewable primary energy resources	MJ	8.03E+01	1.51E+00	3.57E+00	8.53E+01
Use of secondary material	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of renewable secondary fuels	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of non-renewable secondary fuels	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of net fresh water	m ³	1.51E-02	2.24E-05	5.84E-04	1.57E-02

Waste categories	Unit	A1	A2	A3	Total
Hazardous waste disposed	kg	3.10E-08	9.83E-11	1.11E-08	4.23E-08
Non-hazardous waste disposed	kg	3.85E-01	8.97E-06	3.70E-03	3.89E-01
Radioactive waste disposed/stored	kg	1.00E-03	3.46E-07	6.41E-06	1.01E-03
Components for re-use	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for recycling	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for energy recovery	Kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Exported energy	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Toxicity	Unit	A1	A2	A3	Total
Human toxicity, cancer and non-cancer (USEtox)	CTUh	1.52E-10	3.19E-13	8.73E-12	1.61E-10
Ecotoxicity (USEtox)	CTUe	1.28E-02	1.73E-04	5.46E-04	1.36E-02



15. Berger Ruff N Tuff - Rollercoat

Ruff N Tuff - Decora Rollercoat is a copolymer Acrylic emulsion based textured coating reinforced with quartz and marble powder offering very unique and attractive orange peel like textured finish. Its sage area is cement plaster, concrete, bricks, masonry, wood, gypsum board and lime- cement plaster.



Table 42. Cradle to Gate LCIA results for Berger Ruff N Tuff - Rollercoat

Environmental Impacts	Unit	A1	A2	A3	Total
Abiotic Depletion Potential (ADP elements)	kg Sb-Equiv.	2.54E-07	1.30E-09	2.45E-08	2.80E-07
Abiotic Depletion Potential (ADP-fossil fuels)	MJ	1.83E+01	1.47E+00	3.55E+00	2.34E+01
Acidification Potential (AP)	kg SO ₂ -Equiv.	2.23E-03	4.94E-04	6.52E-04	3.38E-03
Eutrophication Potential (EP)	kg PO ₄ ³⁻ -Equiv.	3.00E-04	9.80E-05	5.19E-05	4.50E-04
Global Warming Potential (GWP 100 years)	kg CO ₂ -Equiv.	9.33E-01	1.08E-01	1.01E-01	1.14E+00
Ozone Layer Depletion Potential (ODP)	kg CFC11-Equiv.	8.31E-13	5.04E-16	2.99E-13	1.13E-12
Photochemical Ozone Creation Potential (POCP)	kg Ethene-Equiv.	2.03E-04	-1.46E-04	5.40E-05	1.11E-04
Resource Use	Unit	A1	A2	A3	Total
Renewable primary energy as energy carrier	MJ	1.58E+00	4.71E-03	5.36E-01	2.12E+00
Renewable primary energy resources as material utilization	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total use of renewable primary energy resources	MJ	1.58E+00	4.71E-03	5.36E-01	2.12E+00
Non-Renewable primary energy as energy carrier	MJ	1.96E+01	1.47E+00	3.57E+00	2.46E+01
Non-Renewable primary energy resources as material utilization	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total use of Non-Renewable primary energy resources	MJ	1.96E+01	1.47E+00	3.57E+00	2.46E+01
Use of secondary material	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of renewable secondary fuels	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of non-renewable secondary fuels	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of net fresh water	m ³	6.36E-03	2.18E-05	5.84E-04	6.97E-03
Waste categories	Unit	A1	A2	A3	Total
Hazardous waste disposed	kg	3.69E-08	9.56E-11	1.11E-08	4.81E-08
Non-hazardous waste disposed	kg	2.42E-02	8.72E-06	3.70E-03	2.79E-02
Radioactive waste disposed/stored	kg	4.82E-04	3.37E-07	6.41E-06	4.89E-04
Components for re-use	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for recycling	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for energy recovery	Kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Exported energy	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Toxicity	Unit	A1	A2	A3	Total
Human toxicity, cancer and non-cancer (USEtox)	CTUh	5.24E-11	3.10E-13	8.73E-12	6.14E-11
Ecotoxicity (USEtox)	CTUe	2.72E-03	1.68E-04	5.46E-04	3.43E-03



16. Berger Solitaire Stone

Solitaire- Stone is a synthetic natural stone like spray applied finish based on pure acrylic emulsion reinforced with natural, coloured aggregates and quartz. It could be an ideal coating to be applied over Mivan like concrete surfaces. Its usage area is cement plaster, concrete, bricks, masonry, wood, gypsum board and lime - cement plaster, both exterior & interior.



Table 43. Cradle to Gate LCIA results for Berger Solitaire Stone

Environmental Impacts	Unit	A1	A2	A3	Total
Abiotic Depletion Potential (ADP elements)	kg Sb-Equiv.	7.56E-06	1.35E-09	2.45E-08	7.58E-06
Abiotic Depletion Potential (ADP-fossil fuels)	MJ	1.47E+01	1.52E+00	3.55E+00	1.98E+01
Acidification Potential (AP)	kg SO ₂ -Equiv.	2.90E-03	5.11E-04	6.52E-04	4.06E-03
Eutrophication Potential (EP)	kg PO ₄ ³⁻ -Equiv.	2.79E-04	1.01E-04	5.19E-05	4.33E-04
Global Warming Potential (GWP 100 years)	kg CO ₂ -Equiv.	6.78E-01	1.12E-01	1.01E-01	8.91E-01
Ozone Layer Depletion Potential (ODP)	kg CFC11-Equiv.	5.46E-13	5.22E-16	2.99E-13	8.45E-13
Photochemical Ozone Creation Potential (POCP)	kg Ethene-Equiv.	2.11E-04	-1.51E-04	5.40E-05	1.14E-04
Resource Use	Unit	A1	A2	A3	Total
Renewable primary energy as energy carrier	MJ	1.42E+00	4.87E-03	5.36E-01	1.96E+00
Renewable primary energy resources as material utilization	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total use of renewable primary energy resources	MJ	1.42E+00	4.87E-03	5.36E-01	1.96E+00
Non-Renewable primary energy as energy carrier	MJ	1.52E+01	1.52E+00	3.57E+00	2.03E+01
Non-Renewable primary energy resources as material utilization	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total use of Non-Renewable primary energy resources	MJ	1.52E+01	1.52E+00	3.57E+00	2.03E+01
Use of secondary material	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of renewable secondary fuels	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of non-renewable secondary fuels	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of net fresh water	m ³	6.34E-03	2.25E-05	5.84E-04	6.94E-03
Waste categories	Unit	A1	A2	A3	Total
Hazardous waste disposed	kg	1.35E-08	9.88E-11	1.11E-08	2.47E-08
Non-hazardous waste disposed	kg	1.21E-02	9.02E-06	3.70E-03	1.59E-02
Radioactive waste disposed/stored	kg	2.02E-04	3.48E-07	6.41E-06	2.09E-04
Components for re-use	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for recycling	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for energy recovery	Kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Exported energy	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Toxicity	Unit	A1	A2	A3	Total
Human toxicity, cancer and non-cancer (USEtox)	CTUh	5.25E-11	3.21E-13	8.73E-12	6.15E-11
Ecotoxicity (USEtox)	CTUe	2.66E-03	1.74E-04	5.46E-04	3.38E-03



17. Berger Solitaire Granite

Solitaire- Granite is a synthetic natural stone like spray applied finish based on pure acrylic emulsion reinforced with natural, coloured aggregates and quartz. It could be an ideal coating to be applied over Mivan like concrete surfaces. Its usage area is cement plaster, concrete, bricks, masonry, wood, gypsum board and lime - cement plaster, both exterior & interior.



Table 44. Cradle to Gate LCIA results for Berger Solitaire Granite

Environmental Impacts	Unit	A1	A2	A3	Total
Abiotic Depletion Potential (ADP elements)	kg Sb-Equiv.	7.56E-06	1.35E-09	2.45E-08	7.58E-06
Abiotic Depletion Potential (ADP-fossil fuels)	MJ	1.47E+01	1.52E+00	3.55E+00	1.98E+01
Acidification Potential (AP)	kg SO ₂ -Equiv.	2.90E-03	5.11E-04	6.52E-04	4.06E-03
Eutrophication Potential (EP)	kg PO ₄ ³⁻ -Equiv.	2.79E-04	1.01E-04	5.19E-05	4.33E-04
Global Warming Potential (GWP 100 years)	kg CO ₂ -Equiv.	6.78E-01	1.12E-01	1.01E-01	8.91E-01
Ozone Layer Depletion Potential (ODP)	kg CFC11-Equiv.	5.46E-13	5.22E-16	2.99E-13	8.45E-13
Photochemical Ozone Creation Potential (POCP)	kg Ethene-Equiv.	2.11E-04	-1.51E-04	5.40E-05	1.14E-04
Resource Use	Unit	A1	A2	A3	Total
Renewable primary energy as energy carrier	MJ	1.42E+00	4.87E-03	5.36E-01	1.96E+00
Renewable primary energy resources as material utilization	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total use of renewable primary energy resources	MJ	1.42E+00	4.87E-03	5.36E-01	1.96E+00
Non-Renewable primary energy as energy carrier	MJ	1.52E+01	1.52E+00	3.57E+00	2.03E+01
Non-Renewable primary energy resources as material utilization	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total use of Non-Renewable primary energy resources	MJ	1.52E+01	1.52E+00	3.57E+00	2.03E+01
Use of secondary material	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of renewable secondary fuels	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of non-renewable secondary fuels	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of net fresh water	m ³	6.34E-03	2.25E-05	5.84E-04	6.94E-03
Waste categories	Unit	A1	A2	A3	Total
Hazardous waste disposed	kg	1.35E-08	9.88E-11	1.11E-08	2.47E-08
Non-hazardous waste disposed	kg	1.21E-02	9.02E-06	3.70E-03	1.59E-02
Radioactive waste disposed/stored	kg	2.02E-04	3.48E-07	6.41E-06	2.09E-04
Components for re-use	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for recycling	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for energy recovery	Kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Exported energy	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Toxicity	Unit	A1	A2	A3	Total
Human toxicity, cancer and non-cancer (USEtox)	CTUh	5.25E-11	3.21E-13	8.73E-12	6.15E-11
Ecotoxicity (USEtox)	CTUe	2.66E-03	1.74E-04	5.46E-04	3.38E-03



18. Berger Florentina Glitteratti

Florentina Glitteratti is a water-based high build pure acrylic resin texture body coat providing attractive decorative effects in line with the Florentina Luxury Collection, also imparting an excellent single or multi-coloured Glitter like effect. Its usage area is Interior and exterior surfaces of cement plaster, concrete, bricks, masonry, wood, gypsum board and lime-cement plaster.



Table 45. Cradle to Gate LCIA results for Berger Florentina Glitteratti

Environmental Impacts	Unit	A1	A2	A3	Total
Abiotic Depletion Potential (ADP elements)	kg Sb-Equiv.	1.86E-07	1.32E-09	2.45E-08	2.12E-07
Abiotic Depletion Potential (ADP-fossil fuels)	MJ	1.52E+01	1.48E+00	3.55E+00	2.02E+01
Acidification Potential (AP)	kg SO ₂ -Equiv.	2.41E-03	4.99E-04	6.52E-04	3.56E-03
Eutrophication Potential (EP)	kg PO ₄ ³⁻ -Equiv.	2.60E-04	9.91E-05	5.19E-05	4.11E-04
Global Warming Potential (GWP 100 years)	kg CO ₂ -Equiv.	6.98E-01	1.10E-01	1.01E-01	9.08E-01
Ozone Layer Depletion Potential (ODP)	kg CFC11-Equiv.	2.18E-13	5.10E-16	2.99E-13	5.18E-13
Photochemical Ozone Creation Potential (POCP)	kg Ethene-Equiv.	1.95E-04	-1.48E-04	5.40E-05	1.01E-04
Resource Use	Unit	A1	A2	A3	Total
Renewable primary energy as energy carrier	MJ	5.89E-01	4.76E-03	5.36E-01	1.13E+00
Renewable primary energy resources as material utilization	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total use of renewable primary energy resources	MJ	5.89E-01	4.76E-03	5.36E-01	1.13E+00
Non-Renewable primary energy as energy carrier	MJ	1.56E+01	1.48E+00	3.57E+00	2.06E+01
Non-Renewable primary energy resources as material utilization	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total use of Non-Renewable primary energy resources	MJ	1.56E+01	1.48E+00	3.57E+00	2.06E+01
Use of secondary material	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of renewable secondary fuels	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of non-renewable secondary fuels	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of net fresh water	m ³	6.29E-03	2.20E-05	5.84E-04	6.90E-03
Waste categories	Unit	A1	A2	A3	Total
Hazardous waste disposed	kg	5.24E-09	9.66E-11	1.11E-08	1.65E-08
Non-hazardous waste disposed	kg	2.98E-03	8.82E-06	3.70E-03	6.69E-03
Radioactive waste disposed/stored	kg	1.60E-04	3.41E-07	6.41E-06	1.67E-04
Components for re-use	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for recycling	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for energy recovery	Kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Exported energy	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Toxicity	Unit	A1	A2	A3	Total
Human toxicity, cancer and non-cancer (USEtox)	CTUh	5.20E-11	3.14E-13	8.73E-12	6.11E-11
Ecotoxicity (USEtox)	CTUe	2.86E-03	1.70E-04	5.46E-04	3.57E-03



19. Berger Florentina Sandstone

Florentina Sandstone is a water-based high build pure acrylic resin texture body coat incorporating natural granite chip with pearl effect. The silicon additives enhanced for water repellence and high-performance exterior wall finish. Its usage area is Interior and exterior surfaces of cement plaster, concrete, bricks, masonry, wood, gypsum board and lime-cement plaster.



Table 46. Cradle to Gate LCIA results for Berger Florentina Sandstone

Environmental Impacts	Unit	A1	A2	A3	Total
Abiotic Depletion Potential (ADP elements)	kg Sb-Equiv.	3.30E-07	1.32E-09	2.45E-08	3.55E-07
Abiotic Depletion Potential (ADP-fossil fuels)	MJ	1.35E+01	1.48E+00	3.55E+00	1.85E+01
Acidification Potential (AP)	kg SO ₂ -Equiv.	2.27E-03	4.99E-04	6.52E-04	3.42E-03
Eutrophication Potential (EP)	kg PO ₄ ³⁻ -Equiv.	2.20E-04	9.91E-05	5.19E-05	3.71E-04
Global Warming Potential (GWP 100 years)	kg CO ₂ -Equiv.	6.21E-01	1.10E-01	1.01E-01	8.31E-01
Ozone Layer Depletion Potential (ODP)	kg CFC11-Equiv.	1.90E-13	5.10E-16	2.99E-13	4.90E-13
Photochemical Ozone Creation Potential (POCP)	kg Ethene-Equiv.	1.82E-04	-1.48E-04	5.40E-05	8.79E-05
Resource Use	Unit	A1	A2	A3	Total
Renewable primary energy as energy carrier	MJ	5.01E-01	4.76E-03	5.36E-01	1.04E+00
Renewable primary energy resources as material utilization	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total use of renewable primary energy resources	MJ	5.01E-01	4.76E-03	5.36E-01	1.04E+00
Non-Renewable primary energy as energy carrier	MJ	1.39E+01	1.48E+00	3.57E+00	1.89E+01
Non-Renewable primary energy resources as material utilization	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total use of Non-Renewable primary energy resources	MJ	1.39E+01	1.48E+00	3.57E+00	1.89E+01
Use of secondary material	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of renewable secondary fuels	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of non-renewable secondary fuels	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of net fresh water	m ³	3.83E-03	2.20E-05	5.84E-04	4.43E-03
Waste categories	Unit	A1	A2	A3	Total
Hazardous waste disposed	kg	5.27E-09	9.66E-11	1.11E-08	1.65E-08
Non-hazardous waste disposed	kg	3.87E-03	8.82E-06	3.70E-03	7.59E-03
Radioactive waste disposed/stored	kg	1.38E-04	3.41E-07	6.41E-06	1.45E-04
Components for re-use	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for recycling	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for energy recovery	Kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Exported energy	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Toxicity	Unit	A1	A2	A3	Total
Human toxicity, cancer and non-cancer (USEtox)	CTUh	4.65E-11	3.14E-13	8.73E-12	5.56E-11
Ecotoxicity (USEtox)	CTUe	2.17E-03	1.70E-04	5.46E-04	2.88E-03



20. Berger Florentina Vintage

Florentina Vintage is a high build product containing specially designed pure acrylic emulsion along with silicon for enhanced performance, creating elegant finishes natural looking designs on concrete structures. Its usage area is interior and exterior surfaces of concrete, plaster, masonry; hardboards, plasterboards and insulating systems.



Table 47. Cradle to Gate LCIA results for Berger Florentina Vintage

Environmental Impacts	Unit	A1	A2	A3	Total
Abiotic Depletion Potential (ADP elements)	kg Sb-Equiv.	7.06E-07	1.32E-09	2.45E-08	7.32E-07
Abiotic Depletion Potential (ADP-fossil fuels)	MJ	2.14E+01	1.48E+00	3.55E+00	2.64E+01
Acidification Potential (AP)	kg SO ₂ -Equiv.	5.17E-03	4.99E-04	6.52E-04	6.32E-03
Eutrophication Potential (EP)	kg PO ₄ ³⁻ -Equiv.	3.45E-04	9.91E-05	5.19E-05	4.96E-04
Global Warming Potential (GWP 100 years)	kg CO ₂ -Equiv.	9.79E-01	1.10E-01	1.01E-01	1.19E+00
Ozone Layer Depletion Potential (ODP)	kg CFC11-Equiv.	4.32E-13	5.10E-16	2.99E-13	7.32E-13
Photochemical Ozone Creation Potential (POCP)	kg Ethene-Equiv.	3.48E-04	-1.48E-04	5.40E-05	2.55E-04
Resource Use	Unit	A1	A2	A3	Total
Renewable primary energy as energy carrier	MJ	1.05E+00	4.76E-03	5.36E-01	1.59E+00
Renewable primary energy resources as material utilization	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total use of renewable primary energy resources	MJ	1.05E+00	4.76E-03	5.36E-01	1.59E+00
Non-Renewable primary energy as energy carrier	MJ	2.21E+01	1.48E+00	3.57E+00	2.72E+01
Non-Renewable primary energy resources as material utilization	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total use of Non-Renewable primary energy resources	MJ	2.21E+01	1.48E+00	3.57E+00	2.72E+01
Use of secondary material	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of renewable secondary fuels	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of non-renewable secondary fuels	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of net fresh water	m ³	7.36E-03	2.20E-05	5.84E-04	7.97E-03
Waste categories	Unit	A1	A2	A3	Total
Hazardous waste disposed	kg	9.11E-09	9.66E-11	1.11E-08	2.03E-08
Non-hazardous waste disposed	kg	5.30E-02	8.82E-06	3.70E-03	5.67E-02
Radioactive waste disposed/stored	kg	3.09E-04	3.41E-07	6.41E-06	3.16E-04
Components for re-use	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for recycling	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for energy recovery	Kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Exported energy	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Toxicity	Unit	A1	A2	A3	Total
Human toxicity, cancer and non-cancer (USEtox)	CTUh	6.53E-11	3.14E-13	8.73E-12	7.43E-11
Ecotoxicity (USEtox)	CTUe	3.72E-03	1.70E-04	5.46E-04	4.44E-03



21. Berger Florentina Imprints

Table 48. Cradle to Gate LCIA results for Berger Florentina Imprints

Environmental Impacts	Unit	A1	A2	A3	Total
Abiotic Depletion Potential (ADP elements)	kg Sb-Equiv.	6.31E-08	1.32E-09	2.45E-08	8.90E-08
Abiotic Depletion Potential (ADP-fossil fuels)	MJ	2.96E+00	1.48E+00	3.55E+00	7.99E+00
Acidification Potential (AP)	kg SO ₂ -Equiv.	1.39E-03	5.00E-04	6.52E-04	2.54E-03
Eutrophication Potential (EP)	kg PO ₄ ³⁻ -Equiv.	8.24E-05	9.91E-05	5.19E-05	2.33E-04
Global Warming Potential (GWP 100 years)	kg CO ₂ -Equiv.	1.97E-01	1.10E-01	1.01E-01	4.07E-01
Ozone Layer Depletion Potential (ODP)	kg CFC11-Equiv.	7.50E-14	5.10E-16	2.99E-13	3.75E-13
Photochemical Ozone Creation Potential (POCP)	kg Ethene-Equiv.	8.91E-05	-1.48E-04	5.40E-05	-4.76E-06
Resource Use	Unit	A1	A2	A3	Total
Renewable primary energy as energy carrier	MJ	2.52E-01	4.76E-03	5.36E-01	7.93E-01
Renewable primary energy resources as material utilization	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total use of renewable primary energy resources	MJ	2.52E-01	4.76E-03	5.36E-01	7.93E-01
Non-Renewable primary energy as energy carrier	MJ	3.02E+00	1.48E+00	3.57E+00	8.07E+00
Non-Renewable primary energy resources as material utilization	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total use of Non-Renewable primary energy resources	MJ	3.02E+00	1.48E+00	3.57E+00	8.07E+00
Use of secondary material	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of renewable secondary fuels	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of non-renewable secondary fuels	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of net fresh water	m ³	1.07E-03	2.20E-05	5.84E-04	1.67E-03
Waste categories	Unit	A1	A2	A3	Total
Hazardous waste disposed	kg	2.32E-09	9.66E-11	1.11E-08	1.35E-08
Non-hazardous waste disposed	kg	7.99E-04	8.82E-06	3.70E-03	4.51E-03
Radioactive waste disposed/stored	kg	2.27E-05	3.41E-07	6.41E-06	2.95E-05
Components for re-use	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for recycling	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for energy recovery	Kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Exported energy	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Toxicity	Unit	A1	A2	A3	Total
Human toxicity, cancer and non-cancer (USEtox)	CTUh	1.51E-11	3.14E-13	8.73E-12	2.41E-11
Ecotoxicity (USEtox)	CTUe	2.70E-04	1.70E-04	5.46E-04	9.85E-04



22. Berger Walmasta Lite

Berger Walmasta exterior emulsion paint is formulated with special grade emulsion suitable for dry and less humid climatic conditions. It is not an ideal product for excessive rainfall areas and coastal belts due to salinity in weather. Its usage area is exterior plastered surfaces



Table 49. Cradle to Gate LCIA results for Berger Walmasta Lite

Environmental Impacts	Unit	A1	A2	A3	Total
Abiotic Depletion Potential (ADP elements)	kg Sb-Equiv.	1.27E-05	1.01E-09	2.45E-08	1.27E-05
Abiotic Depletion Potential (ADP-fossil fuels)	MJ	1.61E+01	1.14E+00	3.55E+00	2.08E+01
Acidification Potential (AP)	kg SO ₂ -Equiv.	7.13E-03	3.84E-04	6.52E-04	8.17E-03
Eutrophication Potential (EP)	kg PO ₄ ³⁻ -Equiv.	2.53E-04	7.62E-05	5.19E-05	3.81E-04
Global Warming Potential (GWP 100 years)	kg CO ₂ -Equiv.	7.46E-01	8.44E-02	1.01E-01	9.31E-01
Ozone Layer Depletion Potential (ODP)	kg CFC11-Equiv.	1.32E-11	3.92E-16	2.99E-13	1.35E-11
Photochemical Ozone Creation Potential (POCP)	kg Ethene-Equiv.	3.82E-04	-1.14E-04	5.40E-05	3.22E-04
Resource Use	Unit	A1	A2	A3	Total
Renewable primary energy as energy carrier	MJ	1.08E+00	3.66E-03	5.36E-01	1.62E+00
Renewable primary energy resources as material utilization	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total use of renewable primary energy resources	MJ	1.08E+00	3.66E-03	5.36E-01	1.62E+00
Non-Renewable primary energy as energy carrier	MJ	1.69E+01	1.14E+00	3.57E+00	2.16E+01
Non-Renewable primary energy resources as material utilization	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total use of Non-Renewable primary energy resources	MJ	1.69E+01	1.14E+00	3.57E+00	2.16E+01
Use of secondary material	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of renewable secondary fuels	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of non-renewable secondary fuels	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of net fresh water	m ³	4.91E-03	1.69E-05	5.84E-04	5.51E-03
Waste categories	Unit	A1	A2	A3	Total
Hazardous waste disposed	kg	1.23E-05	7.43E-11	1.11E-08	1.23E-05
Non-hazardous waste disposed	kg	1.01E-01	6.78E-06	3.70E-03	1.05E-01
Radioactive waste disposed/stored	kg	2.99E-04	2.62E-07	6.41E-06	3.06E-04
Components for re-use	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for recycling	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for energy recovery	Kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Exported energy	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Toxicity	Unit	A1	A2	A3	Total
Human toxicity, cancer and non-cancer (USEtox)	CTUh	3.64E-11	2.41E-13	8.73E-12	4.54E-11
Ecotoxicity (USEtox)	CTUe	2.31E-03	1.31E-04	5.46E-04	2.99E-03



23. Berger Champ

WeatherCoat Champ is a 100% acrylic water-based paint suitable for exterior and interior walls. It is reinforced with Recron® microfibers which give superior strength to the paint film. The paint provides soft sheen finish to the walls. Its usage area is interior and exterior walls, plasters, false ceilings, asbestos sheets, bison boards etc.



Table 50. Cradle to Gate LCIA results for Berger Champ

Environmental Impacts	Unit	A1	A2	A3	Total
Abiotic Depletion Potential (ADP elements)	kg Sb-Equiv.	1.45E-05	9.34E-10	2.45E-08	1.45E-05
Abiotic Depletion Potential (ADP-fossil fuels)	MJ	2.68E+01	1.05E+00	3.55E+00	3.14E+01
Acidification Potential (AP)	kg SO ₂ -Equiv.	8.53E-03	3.55E-04	6.52E-04	9.54E-03
Eutrophication Potential (EP)	kg PO ₄ ³⁻ -Equiv.	3.92E-04	7.04E-05	5.19E-05	5.14E-04
Global Warming Potential (GWP 100 years)	kg CO ₂ -Equiv.	1.23E+00	7.79E-02	1.01E-01	1.40E+00
Ozone Layer Depletion Potential (ODP)	kg CFC11-Equiv.	3.92E-11	3.62E-16	2.99E-13	3.95E-11
Photochemical Ozone Creation Potential (POCP)	kg Ethene-Equiv.	5.04E-04	-1.05E-04	5.40E-05	4.53E-04
Resource Use	Unit	A1	A2	A3	Total
Renewable primary energy as energy carrier	MJ	1.60E+00	3.38E-03	5.36E-01	2.14E+00
Renewable primary energy resources as material utilization	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total use of renewable primary energy resources	MJ	1.60E+00	3.38E-03	5.36E-01	2.14E+00
Non-Renewable primary energy as energy carrier	MJ	2.81E+01	1.05E+00	3.57E+00	3.27E+01
Non-Renewable primary energy resources as material utilization	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total use of Non-Renewable primary energy resources	MJ	2.81E+01	1.05E+00	3.57E+00	3.27E+01
Use of secondary material	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of renewable secondary fuels	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of non-renewable secondary fuels	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of net fresh water	m ³	6.22E-03	1.56E-05	5.84E-04	6.82E-03
Waste categories	Unit	A1	A2	A3	Total
Hazardous waste disposed	kg	3.68E-05	6.86E-11	1.11E-08	3.69E-05
Non-hazardous waste disposed	kg	1.10E-01	6.26E-06	3.70E-03	1.13E-01
Radioactive waste disposed/stored	kg	5.01E-04	2.42E-07	6.41E-06	5.07E-04
Components for re-use	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for recycling	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for energy recovery	Kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Exported energy	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Toxicity	Unit	A1	A2	A3	Total
Human toxicity, cancer and non-cancer (USEtox)	CTUh	6.52E-11	2.23E-13	8.73E-12	7.42E-11
Ecotoxicity (USEtox)	CTUe	4.06E-03	1.21E-04	5.46E-04	4.72E-03



❖ Undercoats

1. Berger BP White Primer W/T

BP White Primer (WT) is manufactured with a special type of acrylic binder and micro fine pigments along with extenders and different additives. It is an air-drying primer for masonry providing a hard-tough film. It is good for usage masonry and asbestos surfaces.



Table 51. Cradle to Gate LCIA results for Berger BP White Primer W/T

Environmental Impacts	Unit	A1	A2	A3	Total
Abiotic Depletion Potential (ADP elements)	kg Sb-Equiv.	7.14E-07	9.66E-10	2.45E-08	7.39E-07
Abiotic Depletion Potential (ADP-fossil fuels)	MJ	6.78E+00	1.09E+00	3.55E+00	1.14E+01
Acidification Potential (AP)	kg SO ₂ -Equiv.	2.53E-03	3.67E-04	6.52E-04	3.55E-03
Eutrophication Potential (EP)	kg PO ₄ ³⁻ Equiv.	1.40E-04	7.28E-05	5.19E-05	2.65E-04
Global Warming Potential (GWP 100 years)	kg CO ₂ -Equiv.	3.16E-01	8.06E-02	1.01E-01	4.97E-01
Ozone Layer Depletion Potential (ODP)	kg CFC11-Equiv.	2.63E-09	3.75E-16	2.99E-13	2.63E-09
Photochemical Ozone Creation Potential (POCP)	kg Ethene-Equiv.	1.56E-04	-1.09E-04	5.40E-05	1.01E-04
Resource Use	Unit	A1	A2	A3	Total
Renewable primary energy as energy carrier	MJ	4.87E-01	3.50E-03	5.36E-01	1.03E+00
Renewable primary energy resources as material utilization	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total use of renewable primary energy resources	MJ	4.87E-01	3.50E-03	5.36E-01	1.03E+00
Non-Renewable primary energy as energy carrier	MJ	6.97E+00	1.09E+00	3.57E+00	1.16E+01
Non-Renewable primary energy resources as material utilization	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total use of Non-Renewable primary energy resources	MJ	6.97E+00	1.09E+00	3.57E+00	1.16E+01
Use of secondary material	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of renewable secondary fuels	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of non-renewable secondary fuels	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of net fresh water	m ³	2.49E-03	1.62E-05	5.84E-04	3.09E-03
Waste categories	Unit	A1	A2	A3	Total
Hazardous waste disposed	kg	1.40E-05	7.10E-11	1.11E-08	1.40E-05
Non-hazardous waste disposed	kg	1.41E-02	6.48E-06	3.70E-03	1.78E-02
Radioactive waste disposed/stored	kg	7.54E-05	2.50E-07	6.41E-06	8.21E-05
Components for re-use	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for recycling	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for energy recovery	Kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Exported energy	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Toxicity	Unit	A1	A2	A3	Total
Human toxicity, cancer and non-cancer (USEtox)	CTUh	4.60E-11	2.31E-13	8.73E-12	5.49E-11
Ecotoxicity (USEtox)	CTUe	1.00E-03	1.25E-04	5.46E-04	1.67E-03



2. BP Cement Primer W/T

BP Cement Primer (WT) is prepared with 100% Acrylic binder and micro fine pigments along with extenders and different additives. It is an air-drying low smell primer for masonry providing hard tough film. It is good for usage on masonry and asbestos surfaces.



Table 52. Cradle to Gate LCIA results for Berger BP Cement Primer W/T

Environmental Impacts	Unit	A1	A2	A3	Total
Abiotic Depletion Potential (ADP elements)	kg Sb-Equiv.	1.04E-06	9.56E-10	2.45E-08	1.06E-06
Abiotic Depletion Potential (ADP-fossil fuels)	MJ	9.62E+00	1.08E+00	3.55E+00	1.43E+01
Acidification Potential (AP)	kg SO ₂ -Equiv.	4.88E-03	3.63E-04	6.52E-04	5.90E-03
Eutrophication Potential (EP)	kg PO ₄ ³⁻ -Equiv.	1.80E-04	7.20E-05	5.19E-05	3.04E-04
Global Warming Potential (GWP 100 years)	kg CO ₂ -Equiv.	5.04E-01	7.97E-02	1.01E-01	6.84E-01
Ozone Layer Depletion Potential (ODP)	kg CFC11-Equiv.	1.03E-11	3.71E-16	2.99E-13	1.06E-11
Photochemical Ozone Creation Potential (POCP)	kg Ethene-Equiv.	2.53E-04	-1.07E-04	5.40E-05	2.00E-04
Resource Use	Unit	A1	A2	A3	Total
Renewable primary energy as energy carrier	MJ	7.52E-01	3.46E-03	5.36E-01	1.29E+00
Renewable primary energy resources as material utilization	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total use of renewable primary energy resources	MJ	7.52E-01	3.46E-03	5.36E-01	1.29E+00
Non-Renewable primary energy as energy carrier	MJ	1.01E+01	1.08E+00	3.57E+00	1.48E+01
Non-Renewable primary energy resources as material utilization	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total use of Non-Renewable primary energy resources	MJ	1.01E+01	1.08E+00	3.57E+00	1.48E+01
Use of secondary material	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of renewable secondary fuels	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of non-renewable secondary fuels	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of net fresh water	m ³	3.00E-03	1.60E-05	5.84E-04	3.60E-03
Waste categories	Unit	A1	A2	A3	Total
Hazardous waste disposed	kg	9.60E-06	7.02E-11	1.11E-08	9.61E-06
Non-hazardous waste disposed	kg	6.57E-02	6.41E-06	3.70E-03	6.94E-02
Radioactive waste disposed/stored	kg	1.91E-04	2.47E-07	6.41E-06	1.97E-04
Components for re-use	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for recycling	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for energy recovery	Kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Exported energy	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Toxicity	Unit	A1	A2	A3	Total
Human toxicity, cancer and non-cancer (USEtox)	CTUh	2.62E-11	2.28E-13	8.73E-12	3.51E-11
Ecotoxicity (USEtox)	CTUe	1.19E-03	1.23E-04	5.46E-04	1.86E-03



3. Berger Weathercoat Exterior Primer

Berger WeatherCoat Exterior Primer is a specially formulated premium quality acrylic primer with superior alkali and efflorescence resistance for application on exterior masonry surfaces. It may be applied on plasters, concrete and other masonry surfaces.



Table 53. Cradle to Gate LCIA results for Berger Weathercoat Exterior Primer

Environmental Impacts	Unit	A1	A2	A3	Total
Abiotic Depletion Potential (ADP elements)	kg Sb-Equiv.	1.44E-06	1.12E-09	2.45E-08	1.46E-06
Abiotic Depletion Potential (ADP-fossil fuels)	MJ	1.37E+01	1.26E+00	3.55E+00	1.85E+01
Acidification Potential (AP)	kg SO ₂ -Equiv.	7.07E-03	4.25E-04	6.52E-04	8.15E-03
Eutrophication Potential (EP)	kg PO ₄ ³⁻ Equiv.	2.82E-04	8.43E-05	5.19E-05	4.18E-04
Global Warming Potential (GWP 100 years)	kg CO ₂ -Equiv.	6.96E-01	9.34E-02	1.01E-01	8.90E-01
Ozone Layer Depletion Potential (ODP)	kg CFC11-Equiv.	5.59E-09	4.34E-16	2.99E-13	5.59E-09
Photochemical Ozone Creation Potential (POCP)	kg Ethene-Equiv.	3.79E-04	-1.26E-04	5.40E-05	3.07E-04
Resource Use	Unit	A1	A2	A3	Total
Renewable primary energy as energy carrier	MJ	1.41E+00	4.06E-03	5.36E-01	1.95E+00
Renewable primary energy resources as material utilization	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total use of renewable primary energy resources	MJ	1.41E+00	4.06E-03	5.36E-01	1.95E+00
Non-Renewable primary energy as energy carrier	MJ	1.45E+01	1.26E+00	3.57E+00	1.93E+01
Non-Renewable primary energy resources as material utilization	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total use of Non-Renewable primary energy resources	MJ	1.45E+01	1.26E+00	3.57E+00	1.93E+01
Use of secondary material	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of renewable secondary fuels	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of non-renewable secondary fuels	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of net fresh water	m ³	4.55E-03	1.87E-05	5.84E-04	5.15E-03
Waste categories	Unit	A1	A2	A3	Total
Hazardous waste disposed	kg	8.50E-06	8.23E-11	1.11E-08	8.51E-06
Non-hazardous waste disposed	kg	1.01E-01	7.51E-06	3.70E-03	1.05E-01
Radioactive waste disposed/stored	kg	3.03E-04	2.90E-07	6.41E-06	3.10E-04
Components for re-use	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for recycling	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for energy recovery	Kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Exported energy	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Toxicity	Unit	A1	A2	A3	Total
Human toxicity, cancer and non-cancer (USEtox)	CTUh	1.03E-10	2.67E-13	8.73E-12	1.12E-10
Ecotoxicity (USEtox)	CTUe	1.69E-03	1.45E-04	5.46E-04	2.38E-03



4. Berger Seal-O-Primer W/T

Seal-O-Prime is a specially formulated premium quality acrylic primer with superior alkali, damp and efflorescence resistance for application on exterior and interior surfaces. It may be applied on cement plaster, concrete, other masonry and putted surfaces.



Table 54. Cradle to Gate LCIA results for Berger Seal-O-Primer W/T

Environmental Impacts	Unit	A1	A2	A3	Total
Abiotic Depletion Potential (ADP elements)	kg Sb-Equiv.	1.56E-06	1.12E-09	2.45E-08	1.58E-06
Abiotic Depletion Potential (ADP-fossil fuels)	MJ	1.56E+01	1.27E+00	3.55E+00	2.04E+01
Acidification Potential (AP)	kg SO ₂ -Equiv.	6.88E-03	4.27E-04	6.52E-04	7.96E-03
Eutrophication Potential (EP)	kg PO ₄ ³⁻ -Equiv.	2.60E-04	8.47E-05	5.19E-05	3.96E-04
Global Warming Potential (GWP 100 years)	kg CO ₂ -Equiv.	6.74E-01	9.38E-02	1.01E-01	8.69E-01
Ozone Layer Depletion Potential (ODP)	kg CFC11-Equiv.	5.46E-09	4.36E-16	2.99E-13	5.46E-09
Photochemical Ozone Creation Potential (POCP)	kg Ethene-Equiv.	3.85E-04	-1.26E-04	5.40E-05	3.13E-04
Resource Use	Unit	A1	A2	A3	Total
Renewable primary energy as energy carrier	MJ	1.25E+00	4.07E-03	5.36E-01	1.79E+00
Renewable primary energy resources as material utilization	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total use of renewable primary energy resources	MJ	1.25E+00	4.07E-03	5.36E-01	1.79E+00
Non-Renewable primary energy as energy carrier	MJ	1.63E+01	1.27E+00	3.57E+00	2.12E+01
Non-Renewable primary energy resources as material utilization	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total use of Non-Renewable primary energy resources	MJ	1.63E+01	1.27E+00	3.57E+00	2.12E+01
Use of secondary material	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of renewable secondary fuels	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of non-renewable secondary fuels	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of net fresh water	m ³	4.84E-03	1.88E-05	5.84E-04	5.44E-03
Waste categories	Unit	A1	A2	A3	Total
Hazardous waste disposed	kg	2.55E-05	8.26E-11	1.11E-08	2.55E-05
Non-hazardous waste disposed	kg	9.39E-02	7.53E-06	3.70E-03	9.76E-02
Radioactive waste disposed/stored	kg	2.83E-04	2.91E-07	6.41E-06	2.90E-04
Components for re-use	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for recycling	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for energy recovery	Kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Exported energy	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Toxicity	Unit	A1	A2	A3	Total
Human toxicity, cancer and non-cancer (USEtox)	CTUh	9.59E-11	2.68E-13	8.73E-12	1.05E-10
Ecotoxicity (USEtox)	CTUe	2.38E-03	1.45E-04	5.46E-04	3.07E-03



5. Berger Exterior Cement Primer

BP Exterior Primer is a specially formulated value for money acrylic primer ideal for places experiencing dry climate and low rain fall. It may be applied on plasters, concrete and other masonry surfaces.



Table 55. Cradle to Gate LCIA results for Berger Exterior Cement Primer

Environmental Impacts	Unit	A1	A2	A3	Total
Abiotic Depletion Potential (ADP elements)	kg Sb-Equiv.	1.86E-06	1.07E-09	2.45E-08	1.89E-06
Abiotic Depletion Potential (ADP-fossil fuels)	MJ	1.09E+01	1.20E+00	3.55E+00	1.56E+01
Acidification Potential (AP)	kg SO ₂ -Equiv.	6.16E-03	4.05E-04	6.52E-04	7.22E-03
Eutrophication Potential (EP)	kg PO ₄ ³⁻ -Equiv.	2.38E-04	8.04E-05	5.19E-05	3.70E-04
Global Warming Potential (GWP 100 years)	kg CO ₂ -Equiv.	5.27E-01	8.90E-02	1.01E-01	7.16E-01
Ozone Layer Depletion Potential (ODP)	kg CFC11-Equiv.	5.82E-09	4.14E-16	2.99E-13	5.82E-09
Photochemical Ozone Creation Potential (POCP)	kg Ethene-Equiv.	3.28E-04	-1.20E-04	5.40E-05	2.62E-04
Resource Use	Unit	A1	A2	A3	Total
Renewable primary energy as energy carrier	MJ	1.23E+00	3.87E-03	5.36E-01	1.77E+00
Renewable primary energy resources as material utilization	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total use of renewable primary energy resources	MJ	1.23E+00	3.87E-03	5.36E-01	1.77E+00
Non-Renewable primary energy as energy carrier	MJ	1.15E+01	1.20E+00	3.57E+00	1.62E+01
Non-Renewable primary energy resources as material utilization	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total use of Non-Renewable primary energy resources	MJ	1.15E+01	1.20E+00	3.57E+00	1.62E+01
Use of secondary material	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of renewable secondary fuels	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of non-renewable secondary fuels	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of net fresh water	m ³	4.01E-03	1.79E-05	5.84E-04	4.61E-03
Waste categories	Unit	A1	A2	A3	Total
Hazardous waste disposed	kg	2.13E-05	7.84E-11	1.11E-08	2.13E-05
Non-hazardous waste disposed	kg	8.12E-02	7.16E-06	3.70E-03	8.49E-02
Radioactive waste disposed/stored	kg	2.31E-04	2.76E-07	6.41E-06	2.37E-04
Components for re-use	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for recycling	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for energy recovery	Kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Exported energy	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Toxicity	Unit	A1	A2	A3	Total
Human toxicity, cancer and non-cancer (USEtox)	CTUh	9.22E-11	2.55E-13	8.73E-12	1.01E-10
Ecotoxicity (USEtox)	CTUe	1.55E-03	1.38E-04	5.46E-04	2.24E-03



❖ Construction Chemicals

1. Berger PU RoofKoat

Home Shield RoofKoat is a one component liquid, solvent-free, cold applied water-proofing membrane that is highly elastic and UV resistant. It is used for roof waterproofing solutions in both new construction and refurbishment and for reflective coating to enhance energy efficiency



Table 56. Cradle to Gate LCIA results for Berger PU Roof Koat

Environmental Impacts	Unit	A1	A2	A3	Total
Abiotic Depletion Potential (ADP elements)	kg Sb-Equiv.	1.32E-05	9.64E-10	2.45E-08	1.32E-05
Abiotic Depletion Potential (ADP-fossil fuels)	MJ	2.31E+01	1.09E+00	3.55E+00	2.77E+01
Acidification Potential (AP)	kg SO ₂ -Equiv.	7.31E-03	3.66E-04	6.52E-04	8.33E-03
Eutrophication Potential (EP)	kg PO ₄ ³ -Equiv.	3.68E-04	7.26E-05	5.19E-05	4.93E-04
Global Warming Potential (GWP 100 years)	kg CO ₂ -Equiv.	1.09E+00	8.04E-02	1.01E-01	1.28E+00
Ozone Layer Depletion Potential (ODP)	kg CFC11-Equiv.	1.16E-09	3.74E-16	2.99E-13	1.16E-09
Photochemical Ozone Creation Potential (POCP)	kg Ethene-Equiv.	4.42E-04	-1.08E-04	5.40E-05	3.88E-04
Resource Use	Unit	A1	A2	A3	Total
Renewable primary energy as energy carrier	MJ	1.49E+00	3.49E-03	5.36E-01	2.03E+00
Renewable primary energy resources as material utilization	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total use of renewable primary energy resources	MJ	1.49E+00	3.49E-03	5.36E-01	2.03E+00
Non-Renewable primary energy as energy carrier	MJ	2.43E+01	1.09E+00	3.57E+00	2.89E+01
Non-Renewable primary energy resources as material utilization	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total use of Non-Renewable primary energy resources	MJ	2.43E+01	1.09E+00	3.57E+00	2.89E+01
Use of secondary material	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of renewable secondary fuels	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of non-renewable secondary fuels	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of net fresh water	m ³	6.43E-03	1.61E-05	5.84E-04	7.03E-03
Waste categories	Unit	A1	A2	A3	Total
Hazardous waste disposed	kg	3.04E-05	7.08E-11	1.11E-08	3.04E-05
Non-hazardous waste disposed	kg	9.60E-02	6.46E-06	3.70E-03	9.97E-02
Radioactive waste disposed/stored	kg	4.72E-04	2.50E-07	6.41E-06	4.78E-04
Components for re-use	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for recycling	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for energy recovery	Kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Exported energy	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Toxicity	Unit	A1	A2	A3	Total
Human toxicity, cancer and non-cancer (USEtox)	CTUh	6.89E-11	2.30E-13	8.73E-12	7.78E-11
Ecotoxicity (USEtox)	CTUe	3.26E-03	1.24E-04	5.46E-04	3.93E-03



2. Berger WC Roof Guard

WeaterCoat Roof Guard is a single component liquid applied elastomeric waterproofing membrane, impregnated with synthetic fibre. It is used for waterproofing of old or new concrete/masonry areas, on both horizontal and vertical surfaces.



Table 57. Cradle to Gate LCIA results for Berger WC Roof Guard

Environmental Impacts	Unit	A1	A2	A3	Total
Abiotic Depletion Potential (ADP elements)	kg Sb-Equiv.	1.54E-05	9.51E-10	2.45E-08	1.54E-05
Abiotic Depletion Potential (ADP-fossil fuels)	MJ	3.07E+01	1.07E+00	3.55E+00	3.54E+01
Acidification Potential (AP)	kg SO ₂ -Equiv.	8.10E-03	3.61E-04	6.52E-04	9.12E-03
Eutrophication Potential (EP)	kg PO ₄ ³⁻ Equiv.	4.14E-04	7.17E-05	5.19E-05	5.38E-04
Global Warming Potential (GWP 100 years)	kg CO ₂ -Equiv.	1.34E+00	7.94E-02	1.01E-01	1.52E+00
Ozone Layer Depletion Potential (ODP)	kg CFC11-Equiv.	5.57E-11	3.69E-16	2.99E-13	5.60E-11
Photochemical Ozone Creation Potential (POCP)	kg Ethene-Equiv.	5.07E-04	-1.07E-04	5.40E-05	4.54E-04
Resource Use	Unit	A1	A2	A3	Total
Renewable primary energy as energy carrier	MJ	1.67E+00	3.45E-03	5.36E-01	2.21E+00
Renewable primary energy resources as material utilization	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total use of renewable primary energy resources	MJ	1.67E+00	3.45E-03	5.36E-01	2.21E+00
Non-Renewable primary energy as energy carrier	MJ	3.21E+01	1.07E+00	3.57E+00	3.67E+01
Non-Renewable primary energy resources as material utilization	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total use of Non-Renewable primary energy resources	MJ	3.21E+01	1.07E+00	3.57E+00	3.67E+01
Use of secondary material	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of renewable secondary fuels	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of non-renewable secondary fuels	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of net fresh water	m ³	6.64E-03	1.59E-05	5.84E-04	7.24E-03
Waste categories	Unit	A1	A2	A3	Total
Hazardous waste disposed	kg	5.27E-05	6.99E-11	1.11E-08	5.27E-05
Non-hazardous waste disposed	kg	1.06E-01	6.38E-06	3.70E-03	1.10E-01
Radioactive waste disposed/stored	kg	5.31E-04	2.46E-07	6.41E-06	5.38E-04
Components for re-use	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for recycling	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for energy recovery	Kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Exported energy	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Toxicity	Unit	A1	A2	A3	Total
Human toxicity, cancer and non-cancer (USEtox)	CTUh	7.63E-11	2.27E-13	8.73E-12	8.53E-11
Ecotoxicity (USEtox)	CTUe	4.80E-03	1.23E-04	5.46E-04	5.46E-03



3. Berger Weathercoat Kool and Seal

WeatherCoat Kool & Seal is formulated with 100% Acrylic Elastomeric Polymers that expand and contract with the substrate and prevent development of hairline cracks over a long period of time. The product can be applied on roof slabs, sloping roofs or terraces, chajjas and parapets.



Table 58. Cradle to Gate LCIA results for Berger Weathercoat Kool and Seal

Environmental Impacts	Unit	A1	A2	A3	Total
Abiotic Depletion Potential (ADP elements)	kg Sb-Equiv.	2.56E-05	9.43E-10	2.45E-08	2.56E-05
Abiotic Depletion Potential (ADP-fossil fuels)	MJ	4.04E+01	1.06E+00	3.55E+00	4.50E+01
Acidification Potential (AP)	kg SO ₂ -Equiv.	1.92E-02	3.58E-04	6.52E-04	2.03E-02
Eutrophication Potential (EP)	kg PO ₄ ³⁻ -Equiv.	5.96E-04	7.10E-05	5.19E-05	7.19E-04
Global Warming Potential (GWP 100 years)	kg CO ₂ -Equiv.	1.88E+00	7.86E-02	1.01E-01	2.06E+00
Ozone Layer Depletion Potential (ODP)	kg CFC11-Equiv.	1.05E-10	3.65E-16	2.99E-13	1.05E-10
Photochemical Ozone Creation Potential (POCP)	kg Ethene-Equiv.	1.02E-03	-1.06E-04	5.40E-05	9.67E-04
Resource Use	Unit	A1	A2	A3	Total
Renewable primary energy as energy carrier	MJ	2.99E+00	3.41E-03	5.36E-01	3.53E+00
Renewable primary energy resources as material utilization	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total use of renewable primary energy resources	MJ	2.99E+00	3.41E-03	5.36E-01	3.53E+00
Non-Renewable primary energy as energy carrier	MJ	4.28E+01	1.06E+00	3.57E+00	4.74E+01
Non-Renewable primary energy resources as material utilization	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total use of Non-Renewable primary energy resources	MJ	4.28E+01	1.06E+00	3.57E+00	4.74E+01
Use of secondary material	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of renewable secondary fuels	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of non-renewable secondary fuels	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of net fresh water	m ³	1.03E-02	1.58E-05	5.84E-04	1.09E-02
Waste categories	Unit	A1	A2	A3	Total
Hazardous waste disposed	kg	9.95E-05	6.92E-11	1.11E-08	9.95E-05
Non-hazardous waste disposed	kg	3.12E-01	6.32E-06	3.70E-03	3.16E-01
Radioactive waste disposed/stored	kg	9.36E-04	2.44E-07	6.41E-06	9.42E-04
Components for re-use	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for recycling	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for energy recovery	Kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Exported energy	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Toxicity	Unit	A1	A2	A3	Total
Human toxicity, cancer and non-cancer (USEtox)	CTUh	8.63E-11	2.25E-13	8.73E-12	9.52E-11
Ecotoxicity (USEtox)	CTUe	6.37E-03	1.22E-04	5.46E-04	7.04E-03



4. Berger Latex Shield 2K

Latex Shield 2K is a two-component polymer modified cementitious waterproof slurry mortar consisting of a liquid polymer and a cement-based mix incorporating graded aggregates and additives. It is applied to concrete and mortar.



Table 59. Cradle to Gate LCIA results for Berger Latex Shield 2K

Environmental Impacts	Unit	A1	A2	A3	Total
Abiotic Depletion Potential (ADP elements)	kg Sb-Equiv.	2.10E-06	1.09E-09	2.45E-08	2.13E-06
Abiotic Depletion Potential (ADP-fossil fuels)	MJ	1.67E+01	1.23E+00	3.55E+00	2.14E+01
Acidification Potential (AP)	kg SO ₂ -Equiv.	3.81E-03	4.15E-04	6.52E-04	4.88E-03
Eutrophication Potential (EP)	kg PO ₄ ³⁻ -Equiv.	3.61E-04	8.23E-05	5.19E-05	4.96E-04
Global Warming Potential (GWP 100 years)	kg CO ₂ -Equiv.	1.10E+00	9.11E-02	1.01E-01	1.30E+00
Ozone Layer Depletion Potential (ODP)	kg CFC11-Equiv.	3.07E-11	4.24E-16	2.99E-13	3.10E-11
Photochemical Ozone Creation Potential (POCP)	kg Ethene-Equiv.	2.81E-04	-1.23E-04	5.40E-05	2.12E-04
Resource Use	Unit	A1	A2	A3	Total
Renewable primary energy as energy carrier	MJ	3.06E-01	3.96E-03	5.36E-01	8.47E-01
Renewable primary energy resources as material utilization	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total use of renewable primary energy resources	MJ	3.06E-01	3.96E-03	5.36E-01	8.47E-01
Non-Renewable primary energy as energy carrier	MJ	1.69E+01	1.23E+00	3.57E+00	2.17E+01
Non-Renewable primary energy resources as material utilization	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total use of Non-Renewable primary energy resources	MJ	1.69E+01	1.23E+00	3.57E+00	2.17E+01
Use of secondary material	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of renewable secondary fuels	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of non-renewable secondary fuels	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of net fresh water	m ³	3.01E-03	1.83E-05	5.84E-04	3.61E-03
Waste categories	Unit	A1	A2	A3	Total
Hazardous waste disposed	kg	2.93E-05	8.03E-11	1.11E-08	2.93E-05
Non-hazardous waste disposed	kg	4.00E-03	7.32E-06	3.70E-03	7.71E-03
Radioactive waste disposed/stored	kg	8.92E-05	2.83E-07	6.41E-06	9.58E-05
Components for re-use	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for recycling	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for energy recovery	Kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Exported energy	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Toxicity	Unit	A1	A2	A3	Total
Human toxicity, cancer and non-cancer (USEtox)	CTUh	2.60E-11	2.61E-13	8.73E-12	3.50E-11
Ecotoxicity (USEtox)	CTUe	2.17E-03	1.41E-04	5.46E-04	2.86E-03



5. Berger Dampstop

Dampstop is a single pack high-performance polymer modified cement-based product, which on curing, forms a strong, flexible, waterproof coating over the substrate. It is used in waterproofing of old or new concrete/masonry wall or plaster, especially, adjacent to wash-rooms, kitchens etc.



Table 60. Cradle to Gate LCIA results for Berger Dampstop

Environmental Impacts	Unit	A1	A2	A3	Total
Abiotic Depletion Potential (ADP elements)	kg Sb-Equiv.	1.38E-06	1.12E-09	2.45E-08	1.41E-06
Abiotic Depletion Potential (ADP-fossil fuels)	MJ	2.61E+01	1.26E+00	3.55E+00	3.09E+01
Acidification Potential (AP)	kg SO ₂ -Equiv.	2.88E-03	4.23E-04	6.52E-04	3.96E-03
Eutrophication Potential (EP)	kg PO ₄ ³⁻ -Equiv.	2.73E-04	8.40E-05	5.19E-05	4.09E-04
Global Warming Potential (GWP 100 years)	kg CO ₂ -Equiv.	1.22E+00	9.30E-02	1.01E-01	1.41E+00
Ozone Layer Depletion Potential (ODP)	kg CFC11-Equiv.	4.26E-13	4.32E-16	2.99E-13	7.25E-13
Photochemical Ozone Creation Potential (POCP)	kg Ethene-Equiv.	5.83E-04	-1.25E-04	5.40E-05	5.12E-04
Resource Use	Unit	A1	A2	A3	Total
Renewable primary energy as energy carrier	MJ	9.17E-01	4.04E-03	5.36E-01	1.46E+00
Renewable primary energy resources as material utilization	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total use of renewable primary energy resources	MJ	9.17E-01	4.04E-03	5.36E-01	1.46E+00
Non-Renewable primary energy as energy carrier	MJ	2.68E+01	1.26E+00	3.57E+00	3.16E+01
Non-Renewable primary energy resources as material utilization	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total use of Non-Renewable primary energy resources	MJ	2.68E+01	1.26E+00	3.57E+00	3.16E+01
Use of secondary material	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of renewable secondary fuels	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of non-renewable secondary fuels	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of net fresh water	m ³	1.17E-02	1.87E-05	5.84E-04	1.23E-02
Waste categories	Unit	A1	A2	A3	Total
Hazardous waste disposed	kg	1.52E-08	8.19E-11	1.11E-08	2.64E-08
Non-hazardous waste disposed	kg	1.02E-02	7.47E-06	3.70E-03	1.39E-02
Radioactive waste disposed/stored	kg	2.68E-04	2.89E-07	6.41E-06	2.74E-04
Components for re-use	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for recycling	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for energy recovery	Kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Exported energy	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Toxicity	Unit	A1	A2	A3	Total
Human toxicity, cancer and non-cancer (USEtox)	CTUh	4.57E-11	2.66E-13	8.73E-12	5.47E-11
Ecotoxicity (USEtox)	CTUe	2.69E-03	1.44E-04	5.46E-04	3.38E-03



6. Berger Advanced Latex Plus

Advanced Latex Plus is a Styrene-Butadiene Latex based liquid for high performance waterproofing and multi-purpose repair work. It is used as waterproof repair plaster, as bond coating- concrete to concrete, plaster to plaster and over brickwork, as crack repair, as coating for corrosion prevention of re-bars.



Table 61. Cradle to Gate LCIA results for Berger Advanced Latex Plus

Environmental Impacts	Unit	A1	A2	A3	Total
Abiotic Depletion Potential (ADP elements)	kg Sb-Equiv.	4.17E-07	7.59E-10	2.45E-08	4.42E-07
Abiotic Depletion Potential (ADP-fossil fuels)	MJ	2.95E+01	8.54E-01	3.55E+00	3.39E+01
Acidification Potential (AP)	kg SO ₂ -Equiv.	2.49E-03	2.88E-04	6.52E-04	3.43E-03
Eutrophication Potential (EP)	kg PO ₄ ³⁻ -Equiv.	2.05E-04	5.71E-05	5.19E-05	3.14E-04
Global Warming Potential (GWP 100 years)	kg CO ₂ -Equiv.	8.75E-01	6.33E-02	1.01E-01	1.04E+00
Ozone Layer Depletion Potential (ODP)	kg CFC11-Equiv.	2.82E-11	2.94E-16	2.99E-13	2.85E-11
Photochemical Ozone Creation Potential (POCP)	kg Ethene-Equiv.	2.81E-04	-8.53E-05	5.40E-05	2.49E-04
Resource Use	Unit	A1	A2	A3	Total
Renewable primary energy as energy carrier	MJ	3.60E-01	2.75E-03	5.36E-01	8.99E-01
Renewable primary energy resources as material utilization	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total use of renewable primary energy resources	MJ	3.60E-01	2.75E-03	5.36E-01	8.99E-01
Non-Renewable primary energy as energy carrier	MJ	2.98E+01	8.55E-01	3.57E+00	3.43E+01
Non-Renewable primary energy resources as material utilization	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total use of Non-Renewable primary energy resources	MJ	2.98E+01	8.55E-01	3.57E+00	3.43E+01
Use of secondary material	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of renewable secondary fuels	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of non-renewable secondary fuels	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of net fresh water	m ³	5.01E-03	1.27E-05	5.84E-04	5.61E-03
Waste categories	Unit	A1	A2	A3	Total
Hazardous waste disposed	kg	2.69E-05	5.57E-11	1.11E-08	2.69E-05
Non-hazardous waste disposed	kg	3.39E-03	5.08E-06	3.70E-03	7.09E-03
Radioactive waste disposed/stored	kg	1.39E-04	1.96E-07	6.41E-06	1.46E-04
Components for re-use	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for recycling	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for energy recovery	Kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Exported energy	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Toxicity	Unit	A1	A2	A3	Total
Human toxicity, cancer and non-cancer (USEtox)	CTUh	4.68E-11	1.81E-13	8.73E-12	5.57E-11
Ecotoxicity (USEtox)	CTUe	5.24E-03	9.79E-05	5.46E-04	5.89E-03



7. Berger Tank Shield PW Liquid

It is a premium quality, two component polymer modified cementitious waterproof non-toxic slurry mortar for potable water application. It is applied to concrete & mortar. It is used for interior & exterior waterproofing & damp-proofing of old or new concrete.



Table 62. Cradle to Gate LCIA results for Berger Tank Shield PW Liquid

Environmental Impacts	Unit	A1	A2	A3	Total
Abiotic Depletion Potential (ADP elements)	kg Sb-Equiv.	7.82E-07	7.66E-10	2.45E-08	8.08E-07
Abiotic Depletion Potential (ADP-fossil fuels)	MJ	5.41E+00	8.62E-01	3.55E+00	9.83E+00
Acidification Potential (AP)	kg SO ₂ -Equiv.	2.13E-03	2.91E-04	6.52E-04	3.08E-03
Eutrophication Potential (EP)	kg PO ₄ ³⁻ -Equiv.	1.70E-04	5.77E-05	5.19E-05	2.80E-04
Global Warming Potential (GWP 100 years)	kg CO ₂ -Equiv.	4.53E-01	6.39E-02	1.01E-01	6.17E-01
Ozone Layer Depletion Potential (ODP)	kg CFC11-Equiv.	4.05E-12	2.97E-16	2.99E-13	4.35E-12
Photochemical Ozone Creation Potential (POCP)	kg Ethene-Equiv.	1.32E-04	-8.61E-05	5.40E-05	9.97E-05
Resource Use	Unit	A1	A2	A3	Total
Renewable primary energy as energy carrier	MJ	1.71E-01	2.77E-03	5.36E-01	7.10E-01
Renewable primary energy resources as material utilization	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total use of renewable primary energy resources	MJ	1.71E-01	2.77E-03	5.36E-01	7.10E-01
Non-Renewable primary energy as energy carrier	MJ	5.50E+00	8.63E-01	3.57E+00	9.93E+00
Non-Renewable primary energy resources as material utilization	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total use of Non-Renewable primary energy resources	MJ	5.50E+00	8.63E-01	3.57E+00	9.93E+00
Use of secondary material	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of renewable secondary fuels	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of non-renewable secondary fuels	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of net fresh water	m ³	1.33E-03	1.28E-05	5.84E-04	1.93E-03
Waste categories	Unit	A1	A2	A3	Total
Hazardous waste disposed	kg	3.84E-06	5.62E-11	1.11E-08	3.85E-06
Non-hazardous waste disposed	kg	1.82E-02	5.13E-06	3.70E-03	2.19E-02
Radioactive waste disposed/stored	kg	3.37E-05	1.98E-07	6.41E-06	4.03E-05
Components for re-use	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for recycling	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for energy recovery	Kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Exported energy	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Toxicity	Unit	A1	A2	A3	Total
Human toxicity, cancer and non-cancer (USEtox)	CTUh	1.16E-11	1.83E-13	8.73E-12	2.05E-11
Ecotoxicity (USEtox)	CTUe	5.00E-04	9.88E-05	5.46E-04	1.14E-03



8. Berger Wall Shield 2K

Wall Shield 2K is a two-component acrylic polymer modified white cement based waterproof slurry coating. The product is for vertical application on concrete & plaster surfaces. It can be used for both positive and negative side waterproofing due to its resistance to hydrostatic pressure and also its outstanding bonding.



Table 63. Cradle to Gate LCIA results for Berger Wall Shield 2K

Environmental Impacts	Unit	A1	A2	A3	Total
Abiotic Depletion Potential (ADP elements)	kg Sb-Equiv.	2.15E-06	1.12E-09	2.45E-08	2.17E-06
Abiotic Depletion Potential (ADP-fossil fuels)	MJ	1.70E+01	1.26E+00	3.55E+00	2.18E+01
Acidification Potential (AP)	kg SO ₂ -Equiv.	3.87E-03	4.23E-04	6.52E-04	4.95E-03
Eutrophication Potential (EP)	kg PO ₄ ³⁻ -Equiv.	3.68E-04	8.40E-05	5.19E-05	5.04E-04
Global Warming Potential (GWP 100 years)	kg CO ₂ -Equiv.	1.12E+00	9.30E-02	1.01E-01	1.32E+00
Ozone Layer Depletion Potential (ODP)	kg CFC11-Equiv.	3.14E-11	4.32E-16	2.99E-13	3.17E-11
Photochemical Ozone Creation Potential (POCP)	kg Ethene-Equiv.	2.86E-04	-1.25E-04	5.40E-05	2.15E-04
Resource Use	Unit	A1	A2	A3	Total
Renewable primary energy as energy carrier	MJ	3.11E-01	4.04E-03	5.36E-01	8.51E-01
Renewable primary energy resources as material utilization	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total use of renewable primary energy resources	MJ	3.11E-01	4.04E-03	5.36E-01	8.51E-01
Non-Renewable primary energy as energy carrier	MJ	1.72E+01	1.26E+00	3.57E+00	2.20E+01
Non-Renewable primary energy resources as material utilization	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total use of Non-Renewable primary energy resources	MJ	1.72E+01	1.26E+00	3.57E+00	2.20E+01
Use of secondary material	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of renewable secondary fuels	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of non-renewable secondary fuels	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of net fresh water	m ³	3.07E-03	1.87E-05	5.84E-04	3.67E-03
Waste categories	Unit	A1	A2	A3	Total
Hazardous waste disposed	kg	2.99E-05	8.19E-11	1.11E-08	2.99E-05
Non-hazardous waste disposed	kg	4.08E-03	7.47E-06	3.70E-03	7.79E-03
Radioactive waste disposed/stored	kg	9.08E-05	2.89E-07	6.41E-06	9.75E-05
Components for re-use	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for recycling	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for energy recovery	Kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Exported energy	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Toxicity	Unit	A1	A2	A3	Total
Human toxicity, cancer and non-cancer (USEtox)	CTUh	2.65E-11	2.66E-13	8.73E-12	3.55E-11
Ecotoxicity (USEtox)	CTUe	2.21E-03	1.44E-04	5.46E-04	2.90E-03



4.9 Interpretation

The interpretation of the average results for 1 litre of Berger Paint product is given in Table 64.

Table 64. Interpretation of most significant contributors to life cycle parameters

Parameter	Most significant contributor
Abiotic Depletion Potential (ADP) -Elements	For most of the paint products, more than 95% of Abiotic depletion of elements is caused by raw materials. Among raw materials, additives especially herbicide contributes around 80% of ADP elements. Utilities and packaging contributed around 1-2 % of total ADP elements.
Abiotic depletion potential (ADP) - Fossil	The abiotic depletion of fossils has been contributed the highest by raw materials by around 65% to 70% in most of the paint products, around 20% -25% is contributed by packaging and remaining is contributed by utilities (mainly from electricity consumed) and transportation. Emulsions are the highest contributing among the raw materials.
Acidification Potential (AP)	Around 63% to 65% of acidification is contributed by raw materials. 18% to 20% is contributed by the utilities especially by grid electricity consumed and remaining by the packaging materials, mostly contributed by HDPE. Among the raw materials, rutile contributes the highest by 35% to 38%.
Eutrophication Potential (EP)	For most of the paint products, eutrophication is contributed by raw materials by around 50%, around 16% to 18% is contributed by packaging materials and remaining is contributed by the utilities of the plants and inbound transportation. Among the raw materials, emulsions and rutile are the highest contributors.
Global Warming Potential (GWP)	63% to 65% of the Global warming potential is contributed by the raw materials, around 14% is contributed by packaging materials and remaining is contributed by utilities of the plants and inbound transportation. Around 13% is contributed each by the emulsion and rutile.
Ozone Layer Depletion Potential (ODP)	Around 98% of the ozone depletion potential is contributed by raw materials, of which 97% is given by the emulsion butyl acrylate. The remaining 2% is contribute by the packaging, utilities of the plants and inbound transportation.
Photochemical Ozone Creation Potential (POCP)	The Photochemical Ozone Creation Potential or the summer smog is contributed highest by raw materials by around 99%, of which rutile contributes the highest by 43%. Emulsion and china clay also are among the high contributors. Transport leads to a credit in terms of POCP i.e. around -54%. This is due to the fact that nitrogen monoxide emissions occurring during transport have a negative characterisation factor in the impact estimate as per CML 2001.
Primary Energy Demand	Around 67% of primary energy demand is contributed by raw materials production, 20% is contributed by the packaging materials production and remaining 10% to 13% is contributed by the utilities of the manufacturing plant and inbound transportation.



Net freshwater use	The net freshwater used is highly contributed by the production of raw materials consumed in paint. The contribution is around 80% for most of the products. Around 11% is contributed by the production of packaging materials and remaining by the utilities of manufacturing plant.
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Concluding, the study provides fair understanding of environmental impacts during the various life cycle stages of the product. It also identifies the hotspots in the value chain where improvement activities can be prioritised and accordingly investment can be planned. The scope covers the ecological information to be divided into raw material production, transportation and manufacturing along with its packaging.

5. LCA Terminology

Cradle to Gate	Scope of study extends from mining of natural resources to the completed product ready for shipping from the manufacturing dispatch "gate", known as Modules A1-A3.
Cradle to Grave	Scope of study extends from mining of natural resources to manufacture, use and disposal of products at End of Life.
End of life (including module D)	Post-use phase life cycle stages involving collection and processing of materials (e.g. scrap) and recycling or disposal, known as Modules C and D.

6. Glossary of Terms

Impact Category	Units	Description	Characteri sation Method
Global Warming (Climate Change) Potential	kg CO ₂ equiv	Contribution to the greenhouse effect, referred to as carbon dioxide equivalent)	CML
Stratospheric Ozone Depletion Potential	kg CFC-11 equiv	Impact on the ozone layer	CML
Acidification Potential of Land and Water	kg SO ₂ equiv	Emissions which increase the acidity of the environment	CML
Eutrophication Potential	kg PO ₄ ³⁻ equiv	Addition of nutrients to a water system resulting in reduction of the oxygen available to support aquatic life	CML
Photochemical Ozone Creation Potential	kg C ₂ H ₂ equiv	Contribution to air pollution in the form of smog	CML
Depletion of Abiotic Resources (Elements/Minerals)	kg Sb equiv	Impact of consuming non- renewable metal resources	CML
Depletion of Abiotic Resources (Fossil)	MJ	Impact of consuming non- renewable fossil fuel resources	CML



7. Other Environmental Information

The constituent materials used within our products are responsibly sourced and we apply the principles of Sustainable Development and of Environmental Stewardship as a standard business practice in our operations. Protecting the environment by preserving non-renewable natural resources, increasing energy efficiency, reducing the environmental emissions, limiting the impact of materials transportation to and from our operations is part of our way in doing business.

Products do not contain any substances that can be included in “Candidate List of Substances of Very High Concern for Authorization” and raw materials used are not part of the EU REACH regulation.

8. References

- EN 15804: 2012, Sustainability of construction works - Environmental product declarations - Core rules for the product category of construction products
- GaBi 9_2020: Dokumentation der GaBi-Datensätze der Datenbank zur Ganzheitlichen Bilanzierung. LBP, Universität Stuttgart und PE International, 2012
- GaBi 9_2020: Software und Datenbank zur Ganzheitlichen Bilanzierung. LBP, Universität Stuttgart und PE International, 2012
- ISO 14020:2000 Environmental labels and declarations - General principles
- ISO 14025:2006 Environmental labels and declarations - Type III environmental declarations - Principles and procedures
- ISO 14040:2006 Environmental management- Life cycle assessment - Principles and framework
- ISO 14044:2006 Environmental management - Life cycle assessment - Requirements and guidelines.
- PCR 2012:01, Product Category Rules (PCR) for Construction Products, Version 2.31, dated 2019-12-20

