Environmental Product Declaration

BEHR® Metal Primer

INTERIOR/EXTERIOR PRIMER

Shown above: BEHR® Metal Primer is an interior/exterior rust-inhibitive primer suitable for direct application to clean, sound rusty metal.

BEHR Paint Company

Behr Paint Company, producer of BEHR® and KILZ® products, is one of the largest manufacturers and suppliers of paint, primers, stains and surface finish products to do-it-yourselfers and professionals. Sustainability is a core concept of our business strategy and culture ensuring top economic, social and environmental performance. Behr Paint Company's commitment to sustainability, quality, value, and performance has driven our desire for innovation and transparency. The creation of a Life Cycle Assessment (LCA) report and Environmental Product Declaration (EPD) allows us to continually improve our operations and illustrate a complete story behind our products.

To learn more, visit behr.com and kilz.com

UL CERTIFIED ENVIRONMENTAL PRODUCT DECLARATION UL.COM/EPD

In order to support comparative assertions, this EPD meets all comparability requirements stated in ISO 14025:2006. However, such differences in certain assumptions, data quality, and variability between LCA data sets may still exist. As such, caution should be exercised when evaluating EPDs from different manufacturers, as the EPD results may not be entirely comparable. Any EPD comparison must be carried out at the building level per ISO 21930 guidelines. The results of this EPD reflect an average performance by the product and its actual impacts may vary on a case-to-case basis.

ENVIRONMENTAL PRODUCT DECLARATION

BEHR® Interior/Exterior Metal Primer

According to ISO 14025, and ISO21930

EPD PROGRAM AND PROGRAM OPERATOR NAME, ADDRESS, LOGO, AND WEBSITE	UL Solutions www.ul.com 333 Pfingsten Rd, Northbrook IL, 60062 www.spot.ul.com
GENERAL PROGRAM INSTRUCTIONS AND VERSION NUMBER	Program Operator Rules v 2.7 2022
MANUFACTURER NAME AND ADDRESS	Behr Process LLC 1801 E St Andrew Pl, Santa Ana, CA 92705
DECLARATION NUMBER	4791080617.106.1
DECLARED PRODUCT & FUNCTIONAL UNIT OR DECLARED UNIT	1m^2 of covered and protected substrate for a period of 60 years with 97% opacity after drying
REFERENCE PCR AND VERSION NUMBER	PCR for architectural coating: NAICS 325510, NSF (2022)
DESCRIPTION OF PRODUCT APPLICATION/USE	Interior/Exterior Primer
PRODUCT RSL DESCRIPTION (IF APPL.)	10 years market life used over a 60 year estimated building life
MARKETS OF APPLICABILITY	North America
DATE OF ISSUE	August 12, 2024
PERIOD OF VALIDITY	5 Years
EPD TYPE	Product-specific
RANGE OF DATASET VARIABILITY	N/A
OVERALL DATA QUALITY ASSESSMENT SCORE	Very good
EPD SCOPE	Cradle to grave
YEAR(S) OF REPORTED PRIMARY DATA	2021
LCA SOFTWARE & VERSION NUMBER	Sphera's LCA for Experts (fka GaBi) v10.7.0.183
LCI DATABASE(S) & VERSION NUMBER	Sphera's Managed LCA Content (fka GaBi) 2023.1
LCIA METHODOLOGY & VERSION NUMBER	IPCC AR5, TRACI 2.1, CML 2001 (2013)

The PCR review was conducted by:	NSF International PCR Review Panel ncss@nsf.org
This declaration was independently verified in accordance with ISO 14025: 2006. ☐ INTERNAL ☒ EXTERNAL	Cooper McCollum Cooper McCollum, UL Solutions
This life cycle assessment was conducted in accordance with ISO 14040/44 and the reference PCR by:	Sphera
This life cycle assessment was independently verified in accordance with ISO 14044 and the reference PCR by:	MWildnauer Maggie Wildnauer, WAP Sustainability

BEHR® Interior/Exterior Metal Primer

According to ISO 14025, ISO 21930

LIMITATIONS

Exclusions: EPDs do not indicate that any environmental or social performance benchmarks are met, and there may be impacts that they do not encompass. LCAs do not typically address the site-specific environmental impacts of raw material extraction, nor are they meant to assess human health toxicity. EPDs can complement but cannot replace tools and certifications that are designed to address these impacts and/or set performance thresholds – e.g. Type 1 certifications, health assessments and declarations, environmental impact assessments, etc.

Accuracy of Results: EPDs regularly rely on estimations of impacts; the level of accuracy in estimation of effect differs for any particular product line and reported impact.

Comparability: EPDs from different programs may not be comparable. Full conformance with a PCR allows EPD comparability only when all stages of a life cycle have been considered. However, variations and deviations are possible". Example of variations: Different LCA software and background LCI datasets may lead to differences results for upstream or downstream of the life cycle stages declared.

1. Product Definition and Information

1.1. Description of Company/Organization

Founded in 1947, Behr Paint Company's unwavering commitment to quality, innovation, and value has helped foster their growth into one of the largest manufacturers of paints, primers, decorative finishes, stains, surface preparation and application products for DIYers and professionals in North America. With operations in the United States, Canada, and Mexico, this Santa Ana, California based company has worked diligently to deliver the quality brands, BEHR®, KILZ®, and WHIZZ® to meet the coating, color, and application needs of consumers, designers and professional paint contractors resulting in BEHR® becoming one of the most trusted brands in America. BEHR® paint delivers superior value at every price point so everyone can transform their space into the look they want, with the colors they love.

1.2. Product Description

Product Identification

BEHR® Metal Primer is an interior/exterior rust-inhibitive primer that can be applied over clean and sound rusty metal surfaces while preventing corrosion with minimal surface preparation. This innovative water-based primer features fast dry time, low odor and easy clean up. For use on properly prepared coated/uncoated ferrous and non-ferrous metal surfaces in residential and commercial settings. BEHR® Metal Primer is available in quart and gallon sized containers.

Product Specification

Table 1. Specifications for BEHR® Metal Primer

SKU	Fill / Max Tint Load	Resin Type	% Solids by Volume	% Solids by Weight	Film Thickness @ 350 sq ft/gl	Film Thickness @ 450 sq ft/gl	Viscosity (KU)
435	126 fl oz 0 fl oz	Epoxy	41% ± 2%	53% ± 2%	Wet: 4.5 mils Dry: 1.9 mils	Wet: 3.6 mils Dry: 1.5 mils	100 – 110

1.3. Application

Recommended application information for BEHR® Metal Primer is as follows:

Brush: High quality nylon/polyester

Roller: 1/4” – 3/8” nap roller cover, depending on surface texture

Airless Spray:
Tip: .011" - .017"
Filter: 60 mesh
Fluid Pressure: 2,000 – 2,800 psi

Thinning: This primer is designed to be applied at package consistency under normal environmental and application conditions. If necessary to maintain good workability, add up to ½ pint (8 fl oz) of clean water per gallon. NOTE: Over thinning may result in insufficient film thickness and subsequent pinpoint rusting.

Behr Paint Company does not have emissions data for BEHR® Metal Primer so calculations were made utilizing the VOC content which is 83.54 g/l. Federally accepted test methods outlined by the EPA were used to determine the VOC content. VOC content in g/L for each SKU is shown in Table 2.

Table 2. VOC content (g/L)

	435 - METAL PRIMER
VOC (g/L of paint)	83.54

1.4. Material Composition

The material composition of the product is shown in Table 3.

Table 3. Material composition range in weight % for BEHR® Metal Primer

MATERIAL	435
Resin/Binder	50 - 55%
Additive	15 - 20%
Colorant	0.1 - 1%
Extender Pigment	5 - 10%
Pigment (TiO2)	5 - 10%
Solvent	1 – 5%
Water	5 – 10%

1.5. Manufacturing

As shown in Figure 1, manufacturing begins with metering of raw materials, followed by the pre-mix, dispersion, and let-down steps. The finished paint is dispensed into jars, cans, and/or pails, which are then labeled, boxed, and loaded onto pallets for distribution.

Flow Diagram

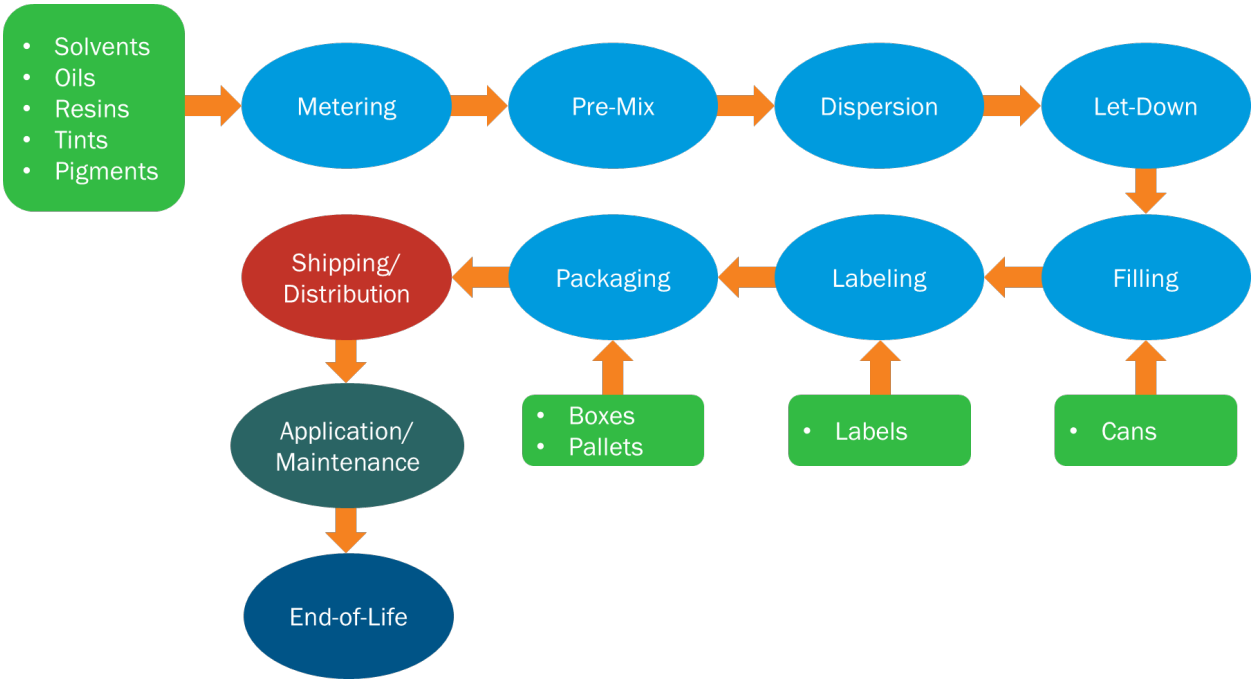

Figure 1. Flow diagram for cradle-to-grave LCA of BEHR® Metal Primer

1.6. Packaging

Table 4 provides descriptions, volumes, and materials for the primary paint packaging used for BEHR® Metal Primer. These packages are then placed in cardboard boxes and loaded onto heat-treated wooden pallets for distribution.

Table 4. Description of primary paint packaging

CONTAINER	VOLUME	MATERIAL
Can	Quart or Gallon	Polypropylene

1.7. Transportation

Raw materials and packaging are transported to each of the production facilities via truck or rail. After production and packaging, the paint is sent to one of twelve distribution centers by truck before being trucked to individual The Home Depot stores. Weighted average distances are calculated for transportation from distribution centers to stores in seven different regions.

1.8. Product Installation and Use

The use stage begins when the user applies the product to a substrate. This stage does not require any energy or additional cleaning inputs, but includes the VOCs emitted during application and drying.

1.9. Reference Service Life and Estimated Building Service Life

Per the PCR, all results declared are calculated for a market life of 10 years. The estimated building life is 60 years per the PCR.

1.10. Reuse, Recycling, and Energy Recovery

The Home Depot stores encourage customers to use PaintCare or local paint recycling programs.

1.11. Disposal

Product end-of-life occurs with the disposal of the substrate material. 100% of the waste is disposed of in a landfill at the end-of-life stage and cannot be separated from the substrate before disposal. Packaging is recovered at a rate of 6.2% for plastics, 33.9% for metals, and 80.9% for paper and corrugated material. Recovery rates represent the average fractions of waste recovered in the US.

2. Life Cycle Assessment Background Information

2.1. Functional or Declared Unit

The functional unit for the study is:

Covering and protecting 1 m^2 of substrate for a period of 60 years (the assumed lifetime of a building), exhibiting 97% opacity after drying

The functional unit and reference flow required for the functional unit were calculated for the market life as prescribed by the PCR. Only a market-based lifetime is utilized because primers do not merit the types of performance testing outlined in the PCR. The lifetime and reference flow are shown in Table 5.

For further technical information on BEHR® Metal Primer, visit www.behr.com.

Table 5. Sheen, base, market life, and reference flows for each product

SKU	SHEEN	BASE	MARKET LIFETIME (YEARS)	PAINT PER UNIT AREA (KG/M^2)	COLORANT PER UNIT AREA (KG/M^2)
435	Flat	White	10	0.114	0.0000

2.2. System Boundary

The LCA was performed according to ISO 14040 standards. The system boundary is cradle-to-grave, and includes the following modules as defined in the PCR. The declaration covers BEHR® Metal Primer sold in the North American market for the reference year 2021.

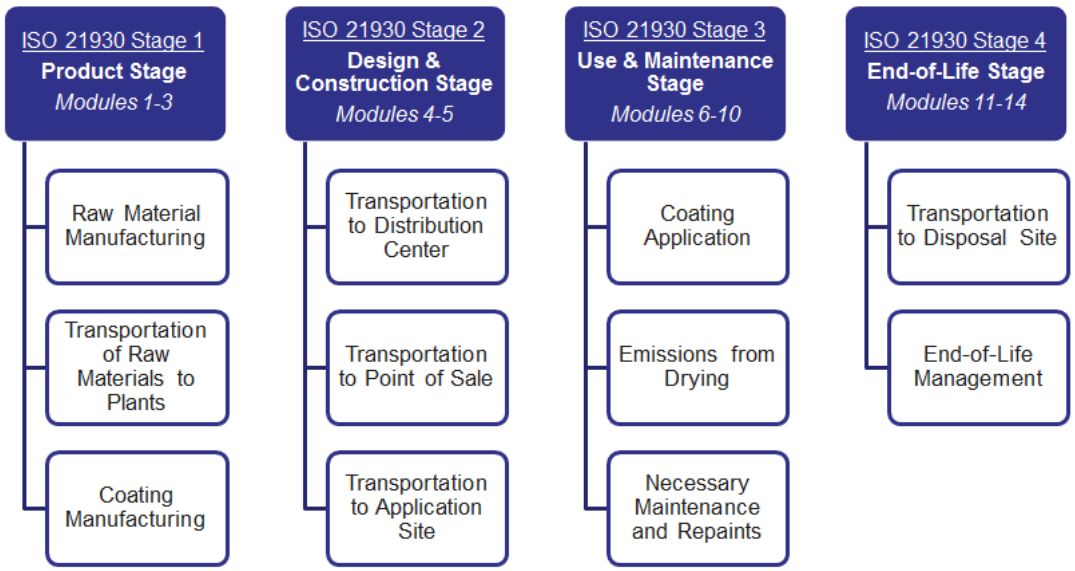

Figure 2. System boundaries for cradle to grave LCA

2.3. Estimates and Assumptions

The modeling approach makes assumptions that are prescribed by the PCR, such as in packaging disposal and recovery treatment, as well as transportation distances and use phase assumptions.

2.4. Cut-off Criteria

No cut-off criteria was defined by this study. For processes within the system boundary, all available energy and material flow data have been included in the model.

2.5. Data Sources and Quality

Primary data, for the 2021 reference year, was obtained from the one of Behr's production facilities that produced BEHR® Metal Primer, which is located in Roanoke, TX. Background data was obtained from the GaBi 2023.1 database and is representative of the years 2012-2021. Overall, both primary and background data are representative of the product system and have been deemed very good quality.

2.6. Period under Review

The period under review is 2021.

2.7. Allocation

Manufacturing inputs for the facility were allocated to each paint product by volume.

3. Life Cycle Assessment Results

In accordance with the PCR, TRACI 2.1 impact characterization methodology is used to calculate the declared environmental impacts, except for global warming potential and abiotic resource depletion, which follow the methodology in the IPCC 5th assessment report, and CML, respectively (Table 6). Additional inventory metrics are also calculated per the guiding PCR. The declared impacts and inventory metrics are summarized in this section. The total LCIA results for market life for each impact category are provided in Table 7.

Furthermore, the results of each impact category for each stage are presented in Table 8 to Table 13. Additionally, in this section, the LCI results for each stage are presented along with the total LCI results for each impact category.

3.1. Life Cycle Impact Assessment Results

Table 6. Environmental impact categories for North America

PARAMETER	DESCRIPTION	LCIA METHOD	UNIT
GWP	Global warming potential, fossil	IPCCC AR5 (2013)	kg CO_2 eq.
ODP	Stratospheric ozone layer depletion potential	TRACI 2.1	kg CFC 11 eq.
AP	Land and water acidification potential	TRACI 2.1	kg SO_2 eq.
EP	Eutrophication potential	TRACI 2.1	kg N eq.
SFP	Tropospheric ozone photochemical oxidant (smog) formation potential	TRACI 2.1	kg O_3 eq.
ADPf	Abiotic resource potential for fossil resources	CML 2001	MJ

Table 7. Total LCIA results for BEHR® Metal Primer, per 1 m² for 60 years by market life

SKU	GWP kg CO_2 eq.	AP kg SO_2 eq.	EP kg N eq.	ODP kg CFC 11 eq.	SFP kg O_3 eq.	ADP_F MJ
435	3.55E+00	6.78E-03	8.05E-04	3.27E-13	2.38E-01	6.72E+01

Table 8. GWP LCIA results for BEHR® Metal Primer, per 1 m² for 60 years by market life (kg CO_2 eq.)

SKU	Stage 1	Stage 2	Stage 3	Stage 4	Total
435	3.31E+00	2.22E-01	0.00E+00	1.79E-02	3.55E+00

Table 9. AP LCIA results for BEHR® Metal Primer, per 1 m² for 60 years by market life (kg SO_2 eq.)

SKU	Stage 1	Stage 2	Stage 3	Stage 4	Total
435	6.27E-03	4.23E-04	0.00E+00	8.27E-05	6.78E-03

Table 10. EP LCIA results for BEHR® Metal Primer, per 1 m² for 60 years by market life (kg N eq.)

SKU	Stage 1	Stage 2	Stage 3	Stage 4	Total
435	6.06E-04	6.12E-05	0.00E+00	1.37E-04	8.05E-04

Table 11. ODP LCIA results for BEHR® Metal Primer, per 1 m² for 60 years by market life (kg CFC-11 eq.)

SKU	Stage 1	Stage 2	Stage 3	Stage 4	Total
435	3.25E-13	1.55E-15	0.00E+00	5.50E-16	3.27E-13

Table 12. SFP LCIA results for BEHR® Metal Primer, per 1 m² for 60 years by market life (kg O_3 eq.)

SKU	Stage 1	Stage 2	Stage 3	Stage 4	Total
435	1.04E-01	7.44E-03	1.26E-01	1.48E-03	2.38E-01

Table 13. ADPf LCIA results for BEHR® Metal Primer, per 1 m^2 for 60 years by market life (MJ)

SKU	STAGE 1	STAGE 2	STAGE 3	STAGE 4	TOTAL
435	6.34E+01	3.83E+00	0.00E+00	3.00E-02	6.72E+01

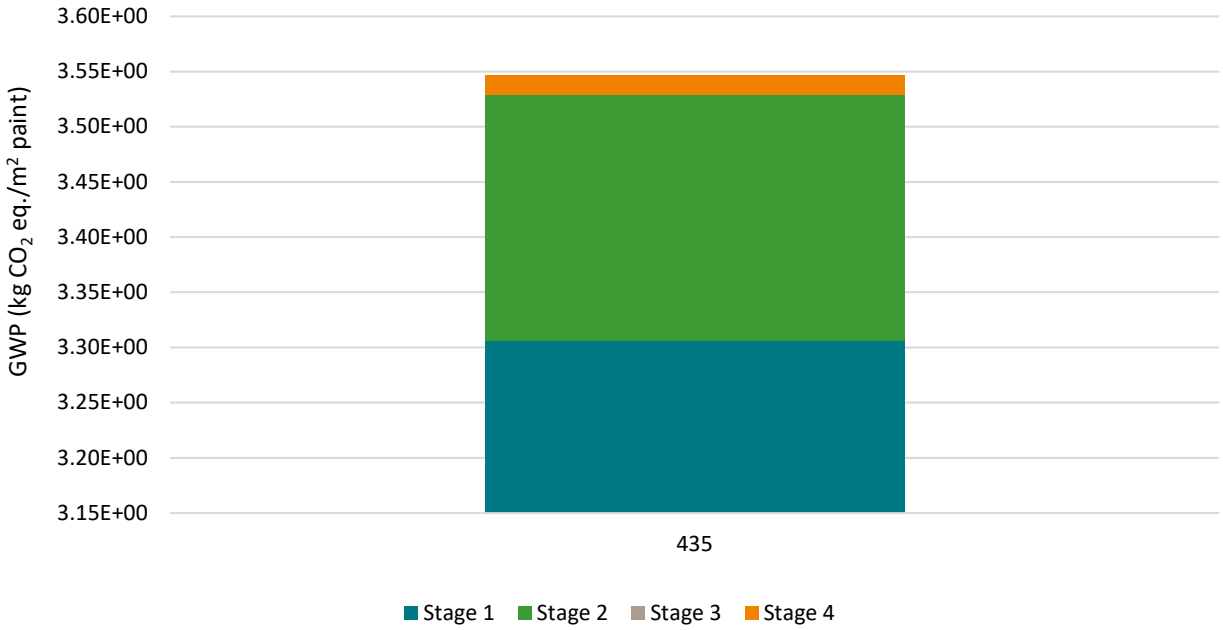

Figure 3: GWP results by stage by market life

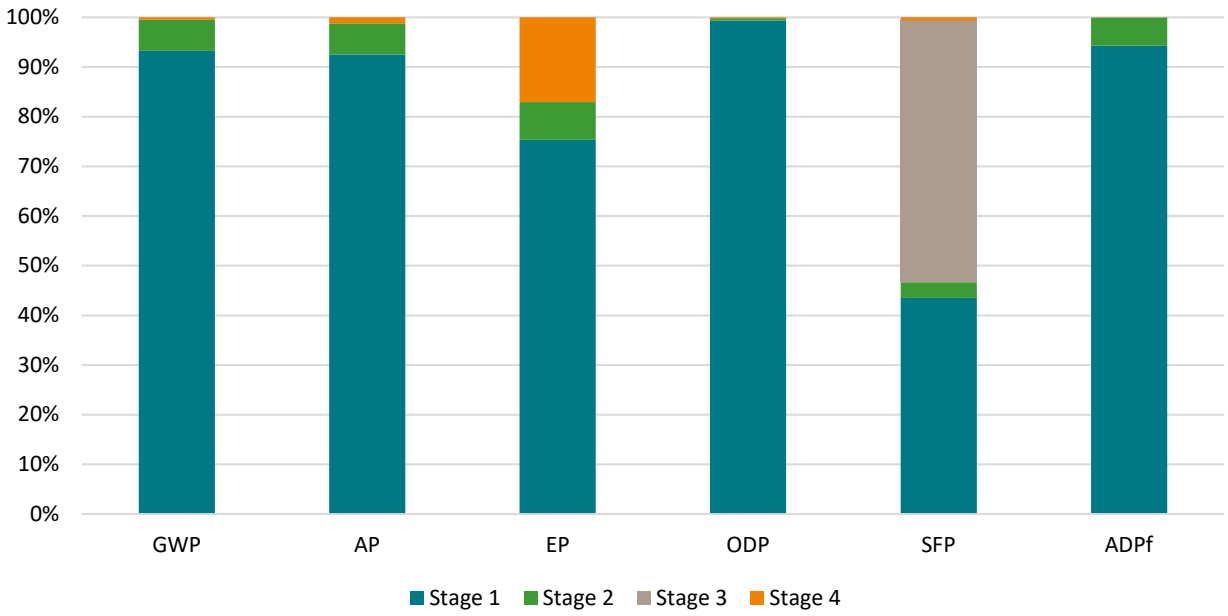

Figure 4. LCIA contribution results for 435

3.2. Life Cycle Inventory Results

Table 14. Total Resource use results for BEHR® Metal Primer, per 1 m^2 for 60 years by market life

SKU	RPR_E MJ	RPR_M MJ	$NRPR_E$ MJ	$NRPR_M$ MJ	SM KG	RSF MJ	NRSF MJ	RE MJ	FW M^3
435	1.09E+01	9.25E-02	5.43E+01	1.64E+01	3.65E-04	0	0	0	1.65E-02

Table 15. RPRe results for BEHR® Metal Primer, per 1 m^2 for 60 years by market life (MJ)

SKU	Stage 1	Stage 2	Stage 3	Stage 4	Total
435	1.07E+01	1.78E-01	0.00E+00	2.57E-02	1.09E+01

Table 16. RPRm results for BEHR® Metal Primer, per 1 m^2 for 60 years by market life (MJ)

SKU	Stage 1	Stage 2	Stage 3	Stage 4	Total
435	9.25E-02	0.00E+00	0.00E+00	0.00E+00	9.25E-02

Table 17. NRPRe results for BEHR® Metal Primer, per 1 m² for 60 years by market life (MJ)

SKU	Stage 1	Stage 2	Stage 3	Stage 4	Total
435	5.04E+01	3.90E+00	0.00E+00	2.94E-02	5.43E+01

Table 18. NRPRm results for BEHR® Metal Primer, per 1 m² for 60 years by market life (MJ)

SKU	Stage 1	Stage 2	Stage 3	Stage 4	Total
435	1.64E+01	0.00E+00	0.00E+00	0.00E+00	1.64E+01

Table 19. SM results for BEHR® Metal Primer, per 1 m² for 60 years by market life (kg)

SKU	Stage 1	Stage 2	Stage 3	Stage 4	Total
435	3.65E-04	0.00E+00	0.00E+00	0.00E+00	3.65E-04

Table 20. FW results for BEHR® Metal Primer, per 1 m² for 60 years by market life (m³)

SKU	Stage 1	Stage 2	Stage 3	Stage 4	Total
435	1.54E-02	1.10E-03	0.00E+00	-3.83E-06	1.65E-02

Table 21. Total output and waste results for BEHR® Metal Primer, per 1 m² for 60 years by market life

SKU	HWD %	NHWD %
435	0.08%	99.92%

Table 22. Waste results for BEHR® Metal Primer, per 1 m² for 60 years by market life

SKU	Waste	Stage 1	Stage 2	Stage 3	Stage 4	Total
435	HWD	20.19%	0.00%	0.00%	0.00%	0.08%
	NHWD	79.81%	0.00%	0.00%	100.00%	99.92%

Table 23. Energy resource use results for BEHR® Metal Primer, per 1 m² for 60 years by market life

SKU	BIO ENERGY	FOSSIL ENERGY	HYDRO/WIND ENERGY	NUCLEAR ENERGY	OTHER RENEWABLE ENERGY	NON-RENEWABLE ENERGY RESOURCES	RENEWABLE ENERGY RESOURCES
	MJ	MJ	MJ	MJ	MJ	KG	KG
435	7.54E-09	6.72E+01	3.63E+00	3.50E+00	7.40E+00	1.85E+00	-9.43E-08

Table 24. Bio-energy results for BEHR® Metal Primer, per 1 m² for 60 years by market life (MJ)

SKU	Stage 1	Stage 2	Stage 3	Stage 4	Total
435	6.91E-09	-4.70E-12	0.00E+00	6.33E-10	7.54E-09

Table 25. Fossil energy results for BEHR® Metal Primer, per 1 m² for 60 years by market life (MJ)

SKU	Stage 1	Stage 2	Stage 3	Stage 4	Total
435	6.34E+01	3.83E+00	0.00E+00	3.00E-02	6.72E+01

Table 26. Hydro/ Wind energy results for BEHR® Metal Primer, per 1 m² for 60 years by market life (MJ)

SKU	Stage 1	Stage 2	Stage 3	Stage 4	Total
435	3.59E+00	3.43E-02	0.00E+00	5.04E-03	3.63E+00

Table 27. Nuclear energy results for BEHR® Metal Primer, per 1 m² for 60 years by market life (MJ)

SKU	Stage 1	Stage 2	Stage 3	Stage 4	Total
435	3.43E+00	6.87E-02	0.00E+00	-5.31E-04	3.50E+00

Table 28. Other energy results for BEHR® Metal Primer, per 1 m² for 60 years by market life (MJ)

SKU	Stage 1	Stage 2	Stage 3	Stage 4	Total
435	7.24E+00	1.43E-01	0.00E+00	2.07E-02	7.40E+00

Table 29. Non-renewable resource results for BEHR® Metal Primer, per 1 m² for 60 years by market life (kg)

SKU	Stage 1	Stage 2	Stage 3	Stage 4	Total
435	1.73E+00	1.23E-01	0.00E+00	9.39E-04	1.85E+00

Table 30. Renewable resource results for BEHR® Metal Primer, per 1 m² for 60 years by market life (kg)

SKU	Stage 1	Stage 2	Stage 3	Stage 4	Total
435	1.67E-08	1.29E-11	0.00E+00	-1.11E-07	-9.43E-08

4. Additional Environmental Information

4.1. Further Information

For further information visit behr.com and kilz.com.

5. References

LCA EF 2023 Sphera Solutions Inc; Life Cycle Assessment for Experts: Software-System and Database for Life Cycle Engineering. Chicago, IL, USA, 1992-2023. https://sphera.com/life-cycle-assessment-lca-database/

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ISO 14025 ISO 14025:2011-10 Environmental labels and declarations - Type III environmental declarations - Principles and procedures

ISO 14040 ISO 14040:2009-11 Environmental management - Life cycle assessment - Principles and framework

ISO 14044 ISO 14044:2006-10 Environmental management - Life cycle assessment - Requirements and guidelines

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6. Contact Information

6.1. Study Commissioner

Behr Paint Company

Phone number: (714) 545-7101

Email: kbird@behr.com

1801 E. St. Andrew Place, Santa Ana, CA 92705

www.behr.com

6.2. LCA Practitioner

Sphera Solutions Inc.

servicequality@sphera.com

130 E Randolph St #2900. Chicago, IL 6060

www.sphera.com