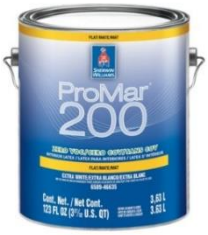
SHERWIN-WILLIAMS.

VERIFIED BY NSF
LEEDv4.1
Material Ingredient Reporting

Environmental Product Declaration Action Plan - ProMar® 200 Zero VOC

Professional painters have it all with ProMar® 200 Zero VOC Interior Latex Paint. A complete professional line that not only has zero VOCs but is also available in six sheens and every color. All while delivering maximum productivity with exceptional durability and touch up. And now, the flat sheen has improved hide and durability, and meets MPI certification.

For additional information, please visit www.sherwinwilliams.com.



Manufacturer	The Sherwin-Williams Company sustainability@sherwin.com
Declared Product	ProMar® 200 Zero VOC
Product Description	Architectural Coatings – Interior Coatings

Environmental Product Declaration (EPD) Information		
Baseline Life Cycle Assessment/Environmental Product Declaration	ProMar® 200 Zero VOC	
EPD Declaration Number and link to publicly available document	EPD10477	
Link to available EPDs	https://www.nsf.org/certified-products-systems	
Program Operator	NSF Certification LLC ncss@nsf.org	
EPD Date of Issue	November 10, 2020	
EPD Type	Product-specific Type III EPD	
EPD Reference PCR	PCR for Architectural Coatings	
EPD Scope	Cradle-to-Grave	
LCA Software Used	GaBi (8.6.20)	
Functional Unit	1m^2 of covered and protected substrate for a period of 60 years (the assumed average lifetime of a building)	
The PCR review was conducted by	Thomas P. Gloria, Ph. D. Industrial Ecology Consultants t.gloria@industrial-ecology.com	
The EPD was independently verified by NSF Certification LLC in accordance with ISO 21930 and ISO 14025. **☐ Internal ☒ External**	Jack Geibig – EcoForm igeibig@ecoform.com	Jack Geibig
This life cycle assessment was independently verified in accordance with ISO 14044 and the reference PCR by	Jack Geibig – EcoForm igeibig@ecoform.com	Jack Geibig

Environmental Product Declaration Action Plan (EPD AP) Information	
Action Plan Declaration Number	EPDAP101
Action Plan Issue Date	August 8, 2023
Action Plan Expiration Date	August 8, 2026
LCA Software Used	GaBi (Most Recent Version)
LCA Data sets	See Table 2
Manufacturing Location(s)	Various Plants Throughout the United States
Scope of Steps Identified in Action Plan	Cradle-to-Grave
Is this Action Plan applicable to all products listed in the corresponding LCA or EPD, or only a subset?	All products listed in baseline EPD. Table 1 in this document.
Summary of Largest Life Cycle Impacts identified in the Analysis	Stage 1 represented the highest impact across all impact categories observed. Raw Material selection was the primary driver of the Stage 1 impacts. *See section "Dominance Analysis and Impact Areas Targeted for Reduction"*
Description of the Impact Areas Targeted for Reduction	The areas of focus will be raw material substitution and/or enhancement of product performance. Carbon footprint (GWP) will be the principal improvement target for the products disclosed herein.
Milestones for improvements	See section *"Strategy, Timeline, and Specific Steps"*
Goal GWP Reduction	>5%
Prepared By	The Sherwin-Williams Global Sustainability Group sustainability@sherwin.com

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Purpose

This shall serve as the action plan eligible for credit under LEED v4.1 (BPDO credit - Option 2) for the optimization of the environmental footprint of the **ProMar® 200 Zero VOC** product line, manufactured by The Sherwin-Williams Company. This document is an updated version of the previously published Environmental Product Declaration Action Plan for the **ProMar® 200 Zero VOC** product line. Due to COVID-19 and the subsequent supply chain disruption the timeline presented was no longer achievable. That timeline has been reevaluated and updated plan presented in this document.

Sherwin-Williams has a comprehensive Life Cycle Assessment (LCA) program that it utilizes to benchmark and optimize the environmental footprint of its products. To see a listing of Sherwin-Williams Environmental Product Declarations (EPD), which may be used as baseline document for EPD/LCA Action Plans, please visit: https://info.nsf.org/Certified/Sustain/listings.asp?ProdCat=EPD.

Overview of LCA/EPD

To ensure that this optimization process is as accurate as possible, the following information about the LCA/EPD will be considered and is disclosed below. This ensures that any enhancement of the product is because of an actual improvement in the LCIA results to the best of Sherwin-Williams' knowledge. Additionally, both the original and updated formulations shall be assessed using the same version of the LCA software and LCI databases to ensure consistency. Per LEED requirements, any claimed improvement must clearly be linked to a specific formulation and/or supply chain improvement as opposed to an LCI update. However, limitations in LCA still exist and these are further discussed in the limitations section.

Note: Values reported in this document relate to the design/technical life of the product[1]. The design/technical life include the performance quality of a coating which is an area where improvements can be made which can influence the Global Warming Potential of the product and/or other impact categories.

Table 1. Baseline EPD Cradle to Grave LCIA Impacts per Formula.

Formula	Technical Lifetime	Product Performance (per PCR)	GWP Inc Bio Carb (kg CO2e)	GWP Exc Bio Carb (kg CO2e)	Acidification (kg SO2e)	Eutrophication (kg N e)	Ozone Depletion (kg CFC -11e)	Smog Formation (kg O3e)
B28W02600*	NA	NA	2.38	2.38	0.57	8.34E-03	2.10E-07	0.22
B30W12650	7 years	Mid Quality	2.23	2.23	0.49	1.19E-03	5.87E-08	0.15
B30W12651	7 years	Mid Quality	2.18	2.18	0.35	9.11E-04	4.77E-08	0.11
B30W02653	3 years	Low Quality	5.91	5.91	0.11	9.83E-03	2.64E-07	0.39
B30T02654, B30R12658, B30Y02657, B30W0206	7 years	Mid Quality	2.54	2.54	0.40	1.42E-03	6.26E-08	0.12
B24W02651	7 years	Mid Quality	2.38	2.38	0.56	7.67E-03	2.20E-07	0.21
B24W02650	7 years	Mid Quality	2.62	2.62	0.55	1.38E-03	3.79E-08	0.17
B24W02653	7 years	Mid Quality	2.35	2.35	0.43	1.26E-03	3.76E-08	0.14
B24T02654, B24R02658 B24Y02657	7 years	Mid Quality	2.27	2.27	0.39	1.22E-03	4.30E-08	0.13
B41W02651	7 years	Mid Quality	2.49	2.46	0.42	1.29E-03	5.93E-08	0.12
B41W02650	7 years	Mid Quality	2.56	2.56	0.54	1.43E-03	5.39E-08	0.17
B41W02653	7 years	Mid Quality	2.36	2.36	0.44	1.35E-03	5.83E-08	0.13
B41T02654	7 years	Mid Quality	2.26	2.26	0.39	1.27E-03	5.26E-08	0.12
B20W12650	7 years	Mid Quality	2.65	2.65	0.56	1.51E-03	5.63E-08	0.17
B20W12651	7 years	Mid Quality	2.54	2.54	0.60	7.91E-03	2.11E-07	0.22

[1] See Architectural Coatings PCR for definitions.

B20W02653	7 years	Mid Quality	2.68	2.68	0.36	4.42E-03	1.29E-07	0.16
B20T02654, B20R12658, B20Y02657, B20W02606	7 years	Mid Quality	2.05	2.05	0.35	1.14E-03	4.35E-08	0.11
B31W02651	7 years	Mid Quality	3.15	3.15	0.71	9.15E-03	2.44E-07	0.25
B31W02650	7 years	Mid Quality	2.69	2.69	0.56	1.52E-03	5.76E-08	1.67
B31W02653	7 years	Mid Quality	2.38	2.38	0.45	1.64E-03	5.89E-08	0.13
B31T02654, B31R12658, B31Y02657, B31W02606	7 years	Mid Quality	2.31	2.31	0.41	1.61E-03	5.93E-08	0.12
B21W12651	7 years	Mid Quality	2.26	2.26	0.33	1.32E-03	5.78E-08	0.09

*B28W02600 is a primer. Market life (5 years) was assumed as a technical life is not applicable to primers.

Other key assumptions include

- Average total transportation distance: 1197 miles.
- These products are manufactured at locations across the United States.
- Energy required for manufacturing: 0.16 MJ/kg of product.

Table 2. Overview of Databases used in LCA Models for Optimized LCA/EPD.

Database	Comments
Sherwin-Williams	Primary source data taken as an average monthly value over a 12-month average of relevant year at the time of LCA calculations during action plan implementation.
Sphera/GaBi	DB Version 10.0.0 (or most recent available at the time of LCA calculations during action plan implementation)
ecoinvent	Version 3.3 – (or most recent version available in GaBi at the time of LCA calculations during action plan implementation)
CEPE LCI	Most recent version of industry LCI. Last updated in 2020. (Or most recent version available in GaBi at the time of LCA calculations during action plan implementation)

Dominance Analysis and Impact Areas Targeted for Reduction

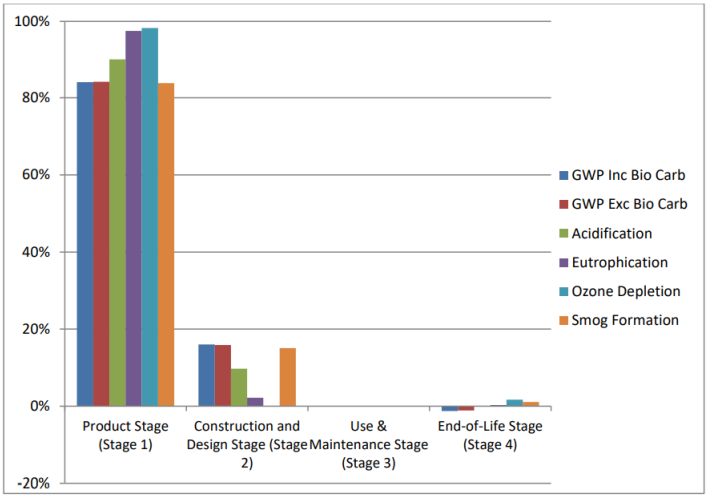


Table 3. GWP Breakdown per Stage. Stage 1 GWP further broken down by process.

	GWP (kg CO2e)
Stage 1	80%-90%
Stage 2	9%-16%
Stage 3	0%
Stage 4	-2%-0%

Stage 1	GWP (kg CO2e)
Raw Materials	70%-90%
Manufacturing	5%-15%
Packaging	5%-20%

Figure 1. Impact Category Results Breakdown for Average ProMar 200 Formulation

Results indicate that Stage 1 represented the highest impact across all impact categories observed. As can be seen in Figure 1 and Table 3 above, Stage 1 accounted for 80%-90% of the products' overall GWP impact. Stage 1 included activities such as raw material extraction and processing, raw material transport, packaging raw material extraction and processing, packaging raw material transport, coating manufacturing, and filling packaging with coating. Raw Material selection was the primary driver of the Stage 1 GWP impact across all **ProMar® 200 Zero VOC** bases reviewed in this analysis as noted in Table 3. Specifically looking at raw material impact, titanium

dioxide and the primary resin were responsible for the largest contribution to the impact results across all impacts categories.

Given the relevance of the raw materials in the overall footprint of the product**, the areas of focus will be raw material substitution and/or enhancement of product performance.** Since **carbon footprint (GWP) is the primary focus for LEED EPD optimization, it shall be the principal improvement target for Sherwin-Williams,** although burden shifting will still be avoided whenever possible. This product will be assessed to see if material substitutions may be possible without compromising performance or if performance can be improved (i.e. longer lifetime or achieving better coverage) without significantly increasing environmental footprint. Additionally, supply chain enhancements (transportation distance, electricity consumption) will be considered as well.

It is important to note that any subsequent improvements of a formula shall only be compared against the same base type. For example, an improvement of a flat formulation shall only be compared against the baseline flat EPD results and not against any other base type to ensure consistency.

Limitations

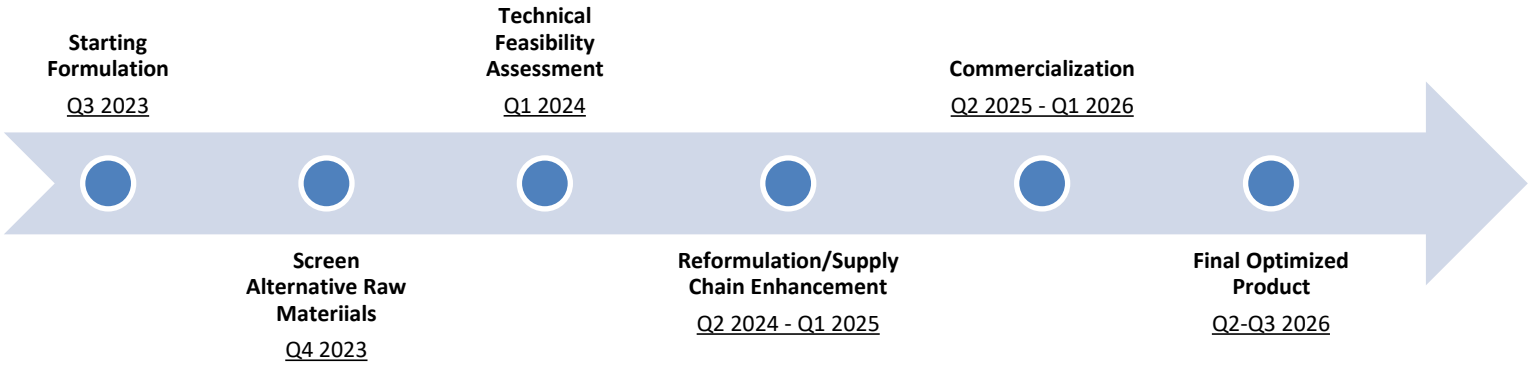
It is important to consider the limitations of LCA when reviewing an EPD, this action plan, or any optimized EPD as a result of an action plan. EPDs currently are limited to midpoint LCA indicators, meaning that they only consider potential impacts as opposed to specifically determining environmental damage at a specific site or region. Additionally, LCA does not have a measure of true uncertainty and its results are changing constantly.

Sherwin-Williams will use the best available data and resources when conducting its assessments and will ensure that any Optimized EPD meets the relevant ISO comparability requirements. However, any LCAs or EPDs shall not be used as a comparative assertion or overall superiority claim per ISO requirements.

Strategy, Timeline, and Specific Steps

Sherwin-Williams has internal processes for assessing product performance using specific ASTM test methods and the environmental footprint using LCA. Tools have been developed to allow formulations to be assessed early in the development process to ensure burden shifting does not occur. The implementation of Sustainability by Design across the enterprise serves as our proactive, foundational process to aid the growth of our “sustainably advantaged products” portfolio.

The estimated timeline for this optimization is shown in the figure below. If at any point it becomes clear that an optimization is not possible because of technical limitations, this action plan shall be taken down by Sherwin-Williams or the Program Operator. Additionally, if any significant delays occur, the timeline shall be updated to reflect this. The Program Operator shall check to see if the timeline is on target at least once per year.



Starting formulation - Q3 2023

- Further review and identify high impact raw materials.

Screen Alternative Raw Materials - Q4 2023

- Assess raw material options using internal tools.

Technical Feasability Assessment - Q1 2024

- Lab reviews formula to deterine if reformulation effort is achieveable.

Reformulation/Supply Chain Enhancement - Q2 2024 - Q1 2025

- Lab development of the formula and assurance that it can be manufacturered on a larger scale.

Commercialization - Q2 2025 - Q1 2026

- Mass production of the formula to support product launch.

Final Optimized Product - Q2 - Q3 2026

- Anticipated target GWP reduction: >5%

The information contained in this action plan is accurate to the best of Sherwin-Williams' knowledge at the time of writing and will be appropriately revised if it becomes outdated or is no longer applicable.

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