



### **Emerald LEED v4.1 Chemical Action Plan:**

This shall serve as the action plan for the LEED Material Ingredient Optimization credit for the Emerald® Interior Latex product line, manufactured by The Sherwin-Williams Company. Sherwin-Williams is committed to improving the performance of our products while optimizing their overall environmental footprint. The Emerald® Interior Latex product line has previously satisfied Option 1 for the Material Ingredient Reporting LEED requirements by completing an externally validated Product Lens Assessment available [HERE](#). Product Lens is a transparency and hazard assessment program powered by UL Environment which considers ingredient hazards across the entire life cycle considering possible exposure pathways and chemical reactions.

We are implementing this action plan for the Emerald® Interior Latex product line with the goal of improving its environmental footprint using one of the “12 Principles of Green Chemistry,” - “Designing Safer Products.”<sup>1</sup> This principle is consistent with Sherwin-Williams’ philosophy of continuous improvement across all its practices and allows for the most flexibility regarding what portions of the coating can be optimized as opposed to focusing on one specific chemical role/function. Given that our products must perform at a high level, having this flexibility is crucial as each product line may require a different strategy to improve its environmental profile.

For more information about Sherwin-Williams, please visit: [www.sherwin-williams.com](http://www.sherwin-williams.com).

### **Description of the Emerald® Interior Latex product line:**

The Emerald® Interior Latex product line consists of the following product bases. Bases are selected by customer to produce the desired level of gloss on the painted surface. Each base is normally tinted at the Sherwin-Williams store with one or more colorants to produce the final color of coating.

Product Name	SW REX Series
<b>Flat</b>	K35
<b>Matte</b>	K36
<b>Satin</b>	K37
<b>Semi-Gloss</b>	K38

In this assessment, we will review the chemical content of all product bases as well as the standard colorants used to tint these products. Our objective is to maintain or improve the performance and environmental footprint of the product line by substituting new raw materials with improved hazard profiles.

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<sup>1</sup> Anastas, P. T.; Warner, J. C. Green Chemistry: Theory and Practice, Oxford University Press: New York, 1998, p.30. By permission of Oxford University Press.



## **Outline of the Action Plan for the Emerald® Interior Latex Product Line:**

**Step 1: Chemical Hazard Assessment-** Sherwin-Williams will assess the hazard profiles of the chemicals used in the Emerald® Interior Latex product line and identify ingredients for possible substitution. Hazard profiles will be obtained from the scientific literature. When appropriate, Sherwin-Williams will work with suppliers to determine appropriate alternates or to obtain information about specific chemicals.

1. The hazard profile of each chemical will be assessed by Sherwin-Williams Global Product Stewardship with an emphasis<sup>2</sup> on chemicals that are classified as:
  - a. GHS Category 1 for carcinogenicity, mutagenicity or reproductive toxicity (CMRs),
  - b. GHS Category 1 or 2 for Acute Toxicity
  - c. GHS Category 1 for Specific Target Organ Toxicity (STOT).
  - d. Respiratory sensitizers.
  - e. Persistent, Bioaccumulative and Toxic
2. Chemicals will also be considered if they appear on the following regulatory lists:
  - a. REACh Annex XIV Authorization List
  - b. REACh Annex XVII Restriction List
  - c. REACh Substances of Very High Concern List
3. Our focus will be on intentionally added raw materials that are present in the formula at greater than or equal to 0.1%.

Chemicals with data gaps and/or unknown CAS numbers will be penalized as part of the assessment process and preference will be given for chemicals with complete profiles. The hazard profiles of chemical analogues may also be used if applicable.

**Step 2: Prioritization-** SW safety, regulatory and R&D personnel will review the proposed candidate chemicals and evaluate whether each has a potential functional replacement. One or more candidate chemicals with a potential replacement will be selected for possible substitution in the Emerald® Interior Latex product line.

**Step 3: Health, Safety and Regulatory Evaluation of Replacement Chemicals-** To avoid regrettable substitutions, each replacement chemical will be assessed for health, environmental and regulatory concerns. The assessment process for the replacement chemicals will mimic the approach outlined in Step 1.

**Step 4: Reformulation and Performance Testing-** Replacement chemicals that pass Step 3 will be formulated into Emerald® Interior Latex product line prototypes and assessed for functional performance. Our primary objective is to maintain or improve the performance and environmental footprint of the product line by substituting new raw materials with improved hazard profiles.

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<sup>2</sup> Other endpoints such as skin/eye irritation, dermal sensitization, aspiration hazard, endocrine activity/disruption, flammability or reactivity will also be considered although they will not be the primary focus for substitution.



**Step 5: Commercialization-** Once Sherwin-Williams is satisfied that the replacement chemical meets our performance and life cycle criteria the commercialization process is initiated to initiate production of the new formula at our manufacturing sites.

**Timeline:**

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.



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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