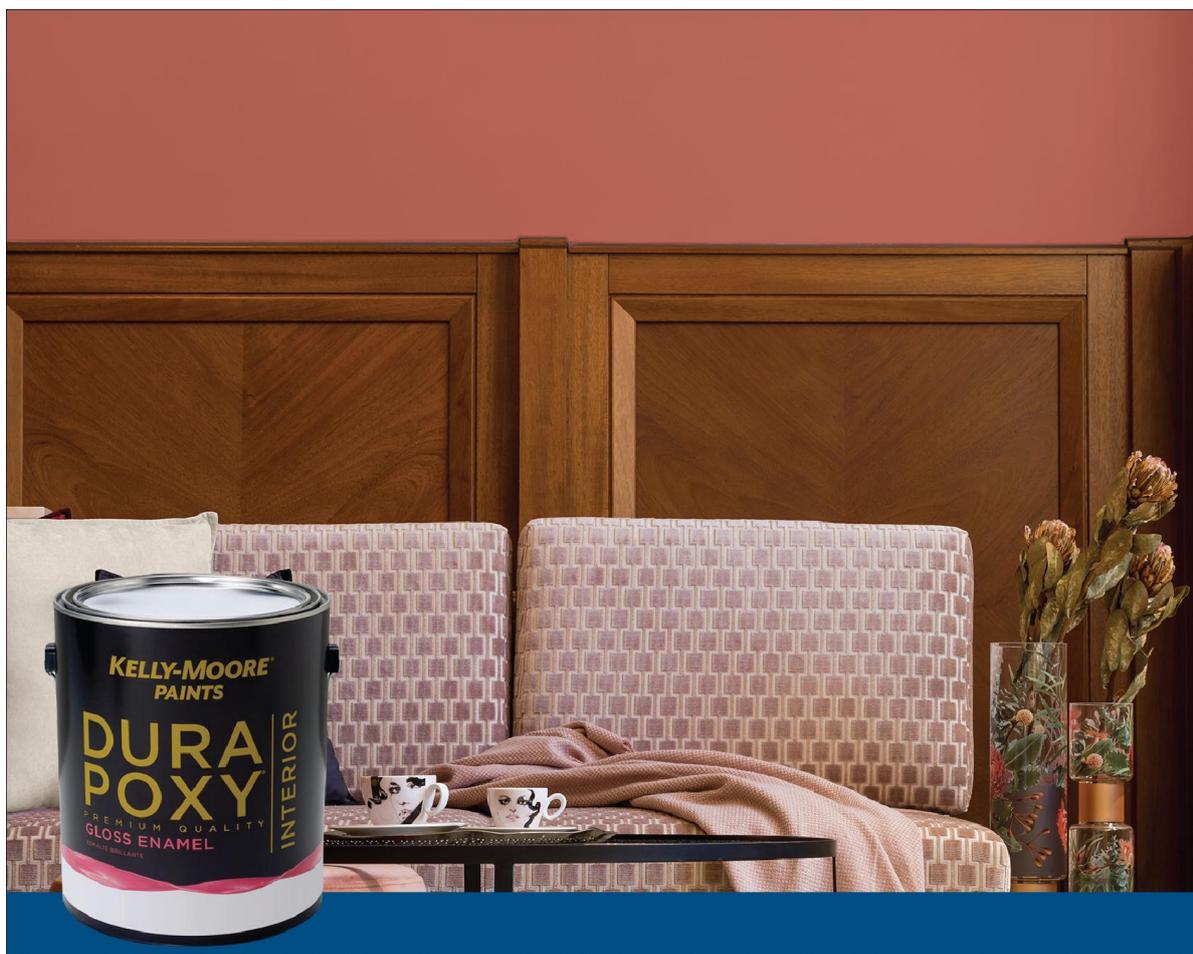


# KELLY-MOORE® PAINTS

Environmental Product Declaration

## DuraPoxy®

Premium Interior Paint & Enamels



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100 Barr Harbor Drive  
PO Box C700  
West Conshohocken, PA  
19428-2959  
United States.





## EPD IMPACT SUMMARY

Company name	Kelly-Moore Paint Co., Inc.
Product type	Interior paints
Product name	<b>Durapoxy Interior Paints</b>
Product definition	DuraPoxy is a line of super-premium interior enamels designed for use on walls, trim and accents where a durable and washable epoxy-like finish is desired. Created with a 100% acrylic, stain and mildew resistant formula that can hold up to repeated washing. DuraPoxy is ideal for high traffic areas, hallways, kitchens, and bathroom along with a wide variety of other residential and commercial applications. DuraPoxy can be used on drywall, plaster, masonry, metal, wood and hardboard. Available in matte, eggshell, satin, semi-gloss, and gloss finishes with a full range of color options.
Product Category Rule (PCR)	PCR for Architectural Coatings: NAICS 325510
Certification Period	May, 2022
Functional Unit	1m <sup>2</sup> of covered and protected substrate for a period of 60 years (the assumed average lifetime of a building).
ASTM Declaration Number	314

*In order to support comparative assertions, this EPD meets all comparability requirements stated in ISO 14025:2006. However, 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.*

EPD Information	
Program Operator	ASTM International
Declaration Holder	Kelly-Moore Paint Co., Inc. 1390 El Camino Real 3 <sup>rd</sup> Floor, San Carlos, CA 94070 +1 650-592-8337 TAlvarez@kellymoore.com www.kellymoore.com
Product	Durapoxy Interior Paints
Date of Issue	May, 2022
Period of Validity	5 years
Declaration Number	314
Declaration Type	Cradle to grave EPD
Applicable Countries	North America
This EPD was independently verified by ASTM in accordance with ISO 14025:	Signature of ASTM Representative
Internal    External X	  Name and contact information for representative Timothy S Brooke ASTM International



	100 Barr Harbor Drive West Conshohocken, PA 19428 <a href="mailto:tbrooke@astm.org">tbrooke@astm.org</a>
This life cycle assessment was critically reviewed in accordance with ISO 14044 and the reference PCR	Signature of LCA Representative  Name and contact information for representative Thomas P. Gloria, Ph. D. Industrial Ecology Consultants 35 Bracebridge Rd. Newton, MA 02459-1728 <a href="mailto:t.gloria@industrial-ecology.com">t.gloria@industrial-ecology.com</a>

<b>LCA Information</b>	
Basis LCA	Cradle to Grave of Latex Paints
LCA Preparer	Sphera Solutions 130 E Randolp St., Suite 2900 Chicago, IL 60601 USA +1 866-203-3791 <a href="http://www.sphasolutions.com">www.sphasolutions.com</a>
This life cycle assessment was critically reviewed in accordance with ISO 14044	Signature of LCA Representative  Name and contact information for representative Thomas P. Gloria, Ph. D. Industrial Ecology Consultants 35 Bracebridge Rd. Newton, MA 02459-1728 <a href="mailto:t.gloria@industrial-ecology.com">t.gloria@industrial-ecology.com</a>

<b>PCR Information</b>	
Program operator	NSF International National Center for Sustainability Standards
Reference PCR	PCR for Architectural Coatings: NAICS 325510
Date of issue	June 23, 2017
PCR review was conducted by:	Thomas P. Gloria, Ph. D. Industrial Ecology Consultants 35 Bracebridge Rd. Newton, MA 02459-1728 <a href="mailto:t.gloria@industrial-ecology.com">t.gloria@industrial-ecology.com</a>  Mr. Bill Stough Sustainable Research Group PO Box 1684 Grand. Rapids, MI 49501-1684 <a href="mailto:bstough@sustainableresearchgroup.com">bstough@sustainableresearchgroup.com</a>  Dr. Michael Overcash Environmental Clarity 2908 Chipmunk Lane. Raleigh, NC 27607-3117 <a href="mailto:mrovercash@earthlink.net">mrovercash@earthlink.net</a>



## Durapoxy Interior Paints EPD - Kelly-Moore

This document is a Type III environmental product declaration by Kelly-Moore that is certified by ASTM International (ASTM) as conforming to the requirements of ISO 14025. ASTM has assessed that the Life Cycle Assessment (LCA) information fulfills the requirements of ISO 14040 in accordance with the instructions listed in the product category rules cited above. The intent of this document is to further the development of environmentally compatible and sustainable construction methods by providing comprehensive environmental information related to potential impacts in accordance with international standards.

### PRODUCT DEFINITION

DuraPoxy is a line of super-premium interior enamels designed for use on walls, trim and accents where a durable and washable epoxy-like finish is desired. Created with a 100% acrylic, stain and mildew resistant formula that can hold up to repeated washing.

#### Declared Product Description

The Durapoxy Interior Paints follows the description "A decorative or protective paint or coating that is formulated for interior or exterior architectural substances including, but not limited to: drywall, stucco, wood, metal, concrete, and masonry." It includes the following sheens: 1600 Matte, 1686 Eggshell, 1687 Satin, 1685 Semi-Gloss, 1680 Gloss. Quart, gallon and five-gallon containers available in a full range of colors. See [www.KellyMoore.com](http://www.KellyMoore.com) for more information.

**Table 1. List of Durapoxy Interior Paints Formulas Assessed by LCA Model and Report**

	1600	1686	1687	1685	1680
<b>Sheen</b>	Matte	Eggshell	Satin	Semi-Gloss	Gloss
<b>%@60°</b>	<5	10-20	20-35	40-55	65+
<b>VOC</b>	<50 g/L	<50 g/L	<50 g/L	<50 g/L	<50 g/L
<b>Solids Weight</b>	42-56%	47-57%	44-53%	42-51%	39-44%
<b>Solids Volume</b>	33-40%	37-41%	37-38%	36-37%	33-38%

**Table 2. List of Durapoxy Interior Paints Base Types Assessed by LCA Model and Report**

#### DuraPoxy Latex Interior Product Series

Product	Sheen	Bases			
		Light & White	Medium	Deep	Neutral
1600	Matte	121	222	333	555
1686	Eggshell	121	222	333	555
1687	Satin	121	222	333	555
1685	Semi-Gloss	121	222	333	555
1680	Gloss	121	222	333	555



## PERFORMANCE ATTRIBUTES

DuraPoxy is ideal for high traffic areas, hallways, kitchens, and bathroom along with a wide variety of other residential and commercial applications. DuraPoxy can be used on drywall, plaster, masonry, metal, wood and hardboard.

### Performance Selection

- Epoxy-Like durability
- Washable & Scrubbable Finish
- Stain & Mildew Resistant
- Excellent Hide
- Self-Priming
- Lifetime Warranty

## PRODUCT COMPONENTS RELATED TO LIFE CYCLE ASSESSMENT

The material composition of the paints are in the following range:

**Table 3: Material Composition Range in % by mass for Durapoxy Interior Paints Product Line**

	Minimum [%]	Maximum [%]
Water	49	57
Acrylic resin	23	35
Titanium dioxide	0	6.64
Nepheline syenite	0	5.66
Diatomaceous earth	0	0
Talc	0	0
Preservative	0.98	1.52
Rheology modifier	1.06	5.60
Coalescent	1.44	3.70
Surfactant	2.04	3.68

The functional unit for the study was covering and protecting 1m<sup>2</sup> of substrate for a period of 60 years (the assumed lifetime of a building). The functional unit and the reference flow required for the functional unit were calculated for both the market life and the design life as prescribed by the PCR. Market life for interior paints is 5 years and design life is based on quality determined by ASTM testing for scrubability, burnish resistance, and washability and shown in the table below. If a product performs at different quality levels in the durability tests, then it should be classified using its lowest performance category. Results were calculated for all base and sheen formulations.

**Table 4a: Design Life by Coating Type and Quality Designation**

Test Type	Test	Substrate	Low Quality	Mid Quality	High Quality
Scrub Resistance	ASTM D2486-06 (2012) e1	Plastic	< 100 scrubs	100 – 400 scrubs	> 400 scrubs
Burnish – 20 cycles	ASTM D6736-08 (2013)	Plastic	Change in gloss ≥20	Change in gloss between 10 – 20	Change in gloss <10
Washability	ASTM D4828-94 (2012) e1	Plastic	Avg. score < 3	Avg. score between 3-7	Avg. score > 7

**Table 4b: Design Life by Coating Type and Quality Designation**

Coating Type	Low Quality	Mid Quality	High Quality
Interior Paint	3 years	7 years	15 years



**Table 5: Design Life- Reference flow, quantity of paint, and lifetime**

	Lifetime (years)	Quantity needed during lifetime (kg/Functional Unit)	Tint needed during lifetime (g/Functional Unit)
1680-121	15	0.673	34.9
1680-222	7		
1680-555	15	0.496	119
1600-121	15	0.769	34.8
1600-222	15	0.727	67.2
1600-333	15		
1600-555	7	1.22	261
1685-121	15	0.714	34.9
1685-222	15	0.666	66.7
1685-333	15	0.598	81.3
1685-555	15	0.529	120
1686-121	15	0.753	34.7
1686-222	15	0.705	67
1686-333	15	0.629	81.6
1686-555	15	0.571	122
1687-121	7	1.58	75.1
1687-222	15	0.686	66.9
1687-333	15	0.617	81.6
1687-555	15	0.557	122

**Table 6: Market Life- Reference flow, quantity of paint, and lifetime**

	Lifetime (years)	Quantity needed during lifetime (kg/Functional Unit)	Tint needed during lifetime (g/Functional Unit)
1680-121	5	2.02	105
1680-222	5		
1680-555	5	1.49	358
1600-121	5	2.31	104
1600-222	5	2.18	201
1600-333	5		
1600-555	5	1.71	366
1685-121	5	2.14	105
1685-222	5	2	200
1685-333	5	1.79	244
1685-555	5	1.59	361
1686-121	5	2.26	104
1686-222	5	2.11	201
1686-333	5	1.89	245
1686-555	5	1.71	365



1687-121	5	2.21	105
1687-222	5	2.06	201
1687-333	5	1.85	245
1687-555	5	1.67	367

## SCOPE AND BOUNDARIES OF THE LIFE CYCLE ASSESSMENT

### System Boundaries

The LCA was performed according to ISO 14040 standards. The system is a cradle to grave LCA and includes the following modules as defined in the PCR. The declaration covers the full range of Durapoxy Interior Paints sold in the North American market for the reference year 2021.

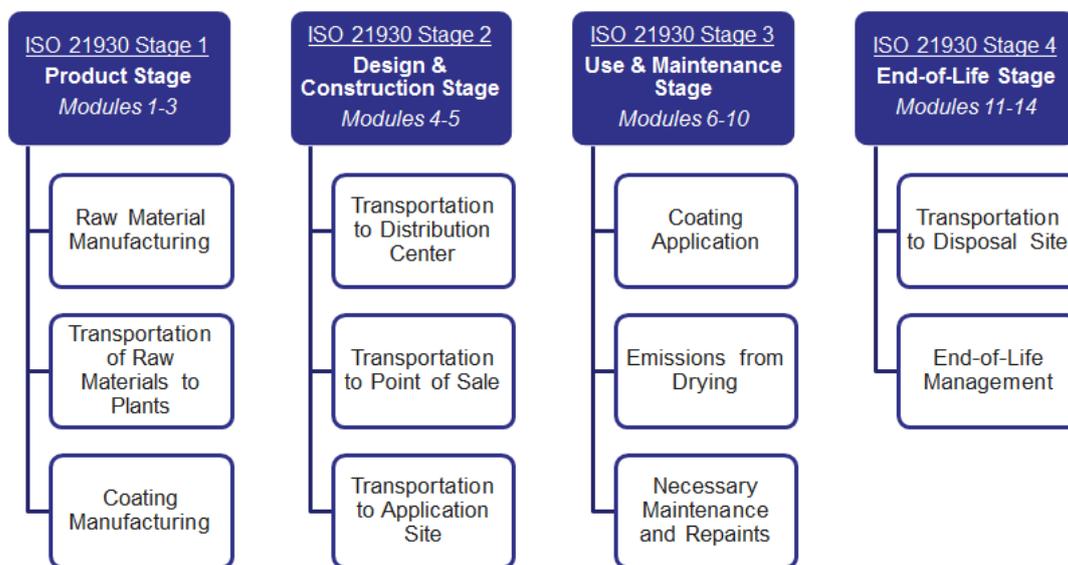


Figure 1: System Boundaries for Cradle to Grave LCA

### Assumptions

The described modeling approach makes assumptions in order to represent cradle-to-grave environmental performance of Kelly-Moore latex paint products. These assumptions include those that are prescribed by the PCR, such as in packaging disposal and recovery treatment, as well as transport distances along the life cycle.

### Cut-off Criteria

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

### Data Quality

Primary data was obtained from Kelly-Moore's facility at Hurst, TX facility for the 2021 reference year. Background data was obtained from the GaBi 2021 database and are representative of the years 2010 - 2015. Overall, both primary and background data are representative of the product system and have been deemed high quality.

### Allocation

Manufacturing inputs for the Hurst, TX were allocated to each paint product by mass.



## PRODUCT STAGE

Latex paints are produced at Kelly Moore's Hurst, TX production facilities according to the following processing steps.

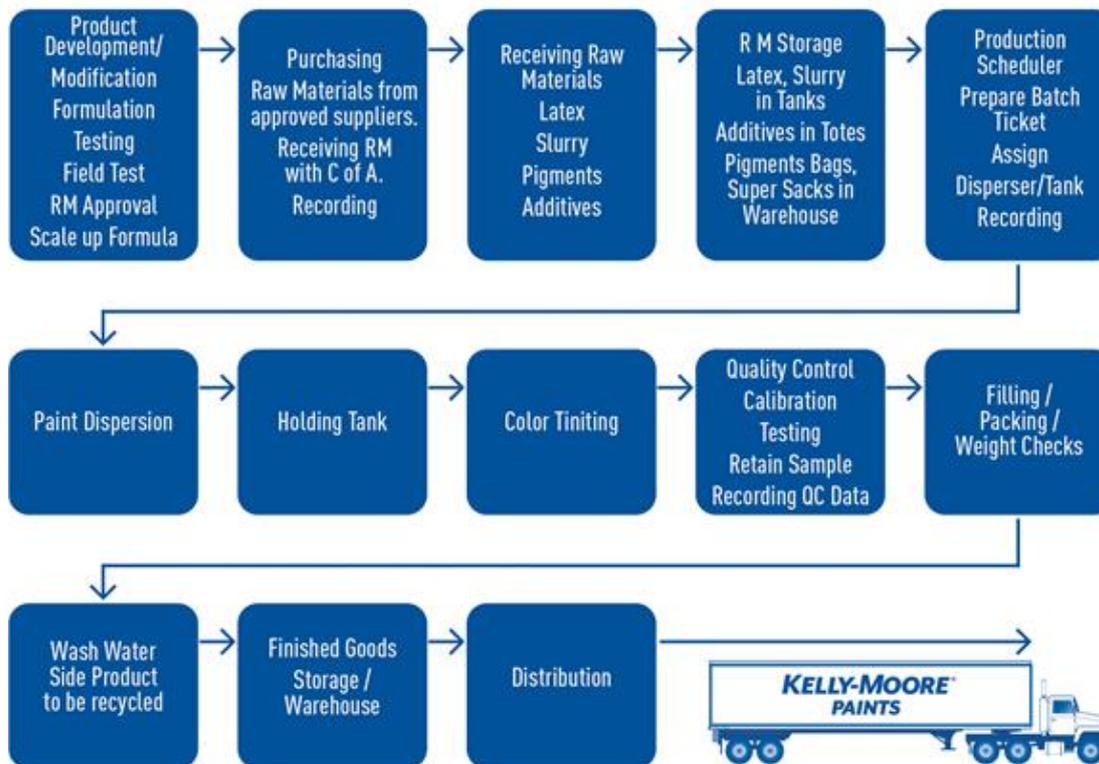


Figure 2: Kelly-Moore Process Flow Schematic

## DESIGN AND CONSTRUCTION STAGE

The design and construction stage begins with the packaged paint product leaving the production site and ends with the coating being delivered to the point of application. Within this stage, the paint product is modeled as distributed to a warehouse and from there to point of sale. At point of sale, it is purchased and transported to the point of application. This stage also includes the addition of carbon black colorant at the point of sale, per the PCR.

## USE AND MAINTENANCE STAGE

### Application 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 over the course of the paint's lifetime. Environmental burdens associated with repaints are attributed to the original stage in which they occurred (e.g. production of the coating for the repaint is attributed to Stage 1 - Product Stage).

### Health, Safety and Environmental Aspects During Installation

Customers obtain material from a store or have the store deliver it. The customer or their contractor applies the coating to substrate(s) at customer site(s). The coating remains on the substrate material until the substrate is disposed of. This may include up to a 60-year lifetime, with additional /subsequent protective coatings. If the coating is handled and applied using the recommendations in the safety data sheet and technical data sheet, minimal health and environmental impacts should occur, and maximum product and substrate life should be expected.



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**Waste**

Disposal of any leftover coating and discarded packaging is categorized under the end-of-life stage. A 10% loss rate during application was included per the PCR.

**Packaging**

Quart and gallon cans are manufactured from plastic and contain 65-70% recycled material. Kelly Moore's 5-gallon bucket requires 10% less resin by mass to produce than typical 5-gallon buckets on the market. This packaging is marked on the bottom for recycling.

**END OF LIFE STAGE****Recycling or Reuse**

Stores encourage customers to use PaintCare or local recycling programs, and 90 stores in California are PaintCare drop-off sites.

**Unused Materials**

The manufacturing facility recycle off-spec products, materials and by-products for sale and use outside of Kelly-Moore's standard markets. California stores send off-spec products to be recycled into e-Coat branded paint, which contains 50% pre-consumer and 50% post-consumer recycled paint.

**Disposal**

Product end-of-life occurs with the disposal of the substrate material. 100% of the waste is disposed of in a landfill at end of life and cannot be separated from the substrate before disposal. Packaging is recovered at a rate of 1.4% for plastics and 70% for metals. Recovery rates represent the average fraction of generated packaging waste that is recovered in the US



## LIFE CYCLE IMPACT ASSESSMENT

### Key Environmental Parameters

Table 7: LCIA Results for Design Lifetime

	GWP - excl biogenic carbon [kg CO <sub>2</sub> -Equiv.]	GWP - incl biogenic carbon [kg CO <sub>2</sub> -Equiv.]	Acidification [kg SO <sub>2</sub> - Equiv.]	Eutrophication [kg N- Equiv.]	Ozone Depletion Air [kg CFC 11-Equiv.]	Smog formation [kg O <sub>3</sub> - Equiv.]
1680-121	2.71E00	2.73E00	1.48E-02	4.74E-04	8.67E-10	1.44E-01
1680-222	2.22E-01	2.12E-01	5.10E-04	5.81E-05	2.89E-12	7.74E-02
1680-555	2.28E00	2.29E00	5.32E-03	3.64E-04	7.26E-10	1.17E-01
1600-121	2.79E00	2.82E00	1.76E-02	4.95E-04	8.68E-10	1.52E-01
1600-222	2.73E00	2.75E00	1.54E-02	4.75E-04	8.39E-10	1.48E-01
1600-333	1.07E-01	1.03E-01	2.46E-04	2.81E-05	1.39E-12	3.05E-02
1600-555	4.91E00	4.94E00	1.12E-02	7.91E-04	1.58E-09	2.65E-01
1685-121	2.79E00	2.82E00	1.73E-02	4.94E-04	8.73E-10	1.47E-01
1685-222	2.69E00	2.71E00	1.46E-02	4.64E-04	8.34E-10	1.41E-01
1685-333	2.49E00	2.51E00	8.69E-03	4.15E-04	7.95E-10	1.29E-01
1685-555	2.32E00	2.34E00	5.41E-03	3.72E-04	7.33E-10	1.20E-01
1686-121	2.84E00	2.87E00	1.78E-02	5.04E-04	8.71E-10	1.47E-01
1686-222	2.74E00	2.76E00	1.50E-02	4.74E-04	8.40E-10	1.46E-01
1686-333	2.47E00	2.49E00	8.27E-03	4.13E-04	7.96E-10	1.29E-01
1686-555	2.35E00	2.37E00	5.43E-03	3.78E-04	7.41E-10	1.21E-01
1687-121	6.07E00	6.13E00	3.75E-02	1.08E-03	1.88E-09	3.27E-01
1687-222	2.72E00	2.74E00	1.48E-02	4.71E-04	8.38E-10	1.46E-01
1687-333	2.48E00	2.50E00	8.31E-03	4.13E-04	7.96E-10	1.29E-01
1687-555	2.36E00	2.37E00	5.45E-03	3.78E-04	7.45E-10	1.22E-01

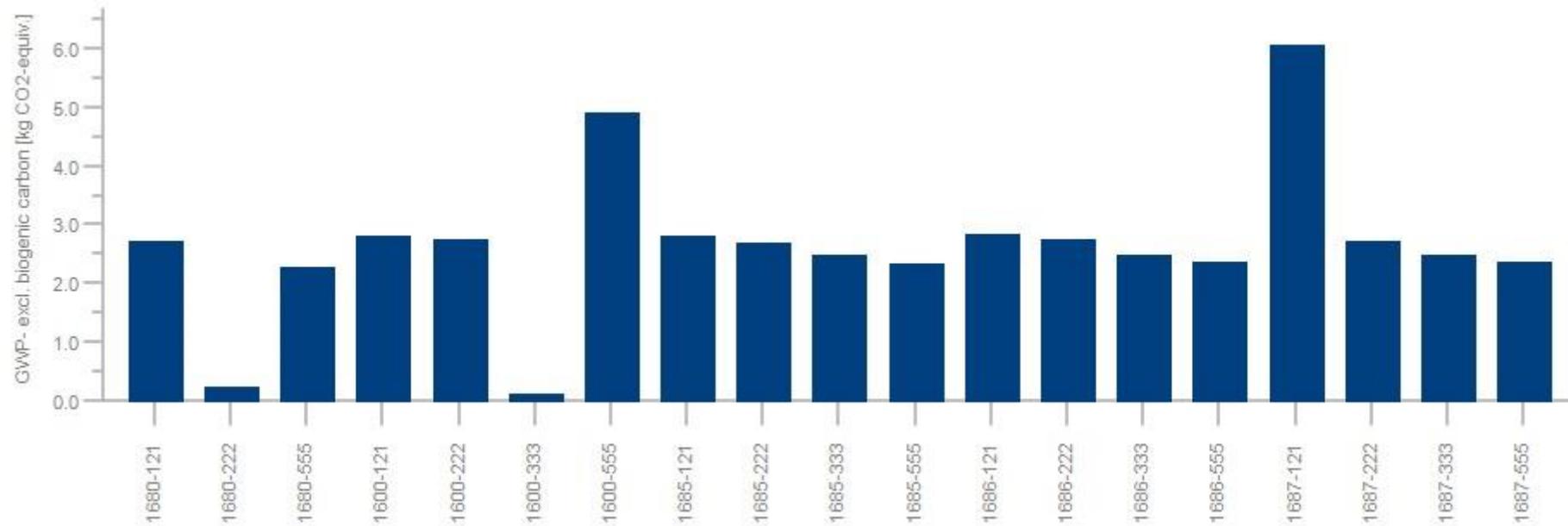
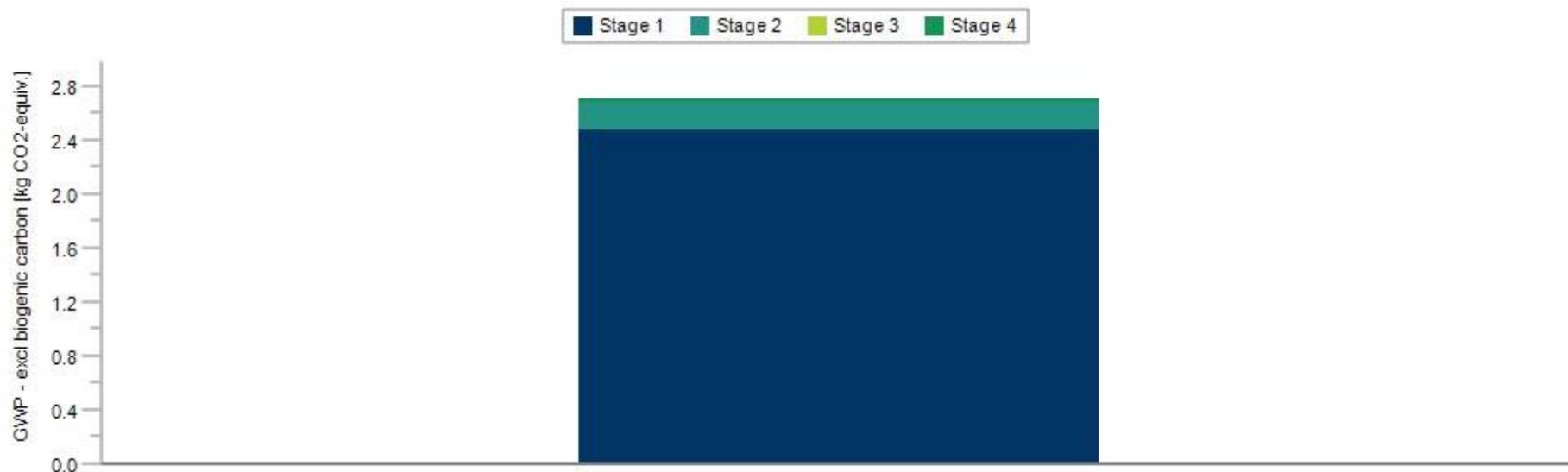


Figure 3: Global Warming Potential, Excluding Biogenic Carbon for Design Lifetime



**Table 8: LCIA for Design Lifetime by PCR stages, (Representative Product, 1680-121)**

	Stage 1	Stage 2	Stage 3	Stage 4
GWP - excl biogenic carbon [kg CO2-Equiv.]	2.49E00	2.05E-01		1.21E-02
GWP - incl biogenic carbon [kg CO2-Equiv.]	2.52E00	2.01E-01		1.17E-02
Acidification [kg SO2-Equiv.]	1.42E-02	5.37E-04		1.16E-04
Eutrophication [kg N-Equiv.]	4.22E-04	4.31E-05		8.57E-06
Ozone Depletion Air [kg CFC 11-Equiv.]	5.93E-10	7.38E-12		2.67E-10
Smog formation [kg O3-Equiv.]	1.02E-01	9.02E-03	3.12E-02	2.33E-03



**Figure 4: Global Warming Potential, Excluding Biogenic Carbon for Design Lifetime, (Representative Product, #Representative\_Product#)**



Table 9: LCIA Results for Market Lifetime

	GWP - excl biogenic carbon [kg CO <sub>2</sub> -Equiv.]	GWP - incl biogenic carbon [kg CO <sub>2</sub> -Equiv.]	Acidification [kg SO <sub>2</sub> - Equiv.]	Eutrophication [kg N- Equiv.]	Ozone Depletion Air [kg CFC 11-Equiv.]	Smog formation [kg O <sub>3</sub> - Equiv.]
1680-121	8.13E00	8.20E00	4.45E-02	1.42E-03	2.60E-09	4.33E-01
1680-222	3.11E-01	2.97E-01	7.13E-04	8.14E-05	4.04E-12	1.08E-01
1680-555	6.84E00	6.88E00	1.60E-02	1.09E-03	2.18E-09	3.50E-01
1600-121	8.38E00	8.45E00	5.28E-02	1.49E-03	2.61E-09	4.56E-01
1600-222	8.20E00	8.26E00	4.62E-02	1.42E-03	2.52E-09	4.44E-01
1600-333	3.22E-01	3.08E-01	7.39E-04	8.42E-05	4.18E-12	9.16E-02
1600-555	6.87E00	6.91E00	1.57E-02	1.11E-03	2.21E-09	3.71E-01
1685-121	8.38E00	8.46E00	5.19E-02	1.48E-03	2.62E-09	4.42E-01
1685-222	8.06E00	8.13E00	4.39E-02	1.39E-03	2.50E-09	4.23E-01
1685-333	7.47E00	7.52E00	2.61E-02	1.24E-03	2.39E-09	3.87E-01
1685-555	6.97E00	7.02E00	1.62E-02	1.12E-03	2.20E-09	3.59E-01
1686-121	8.53E00	8.60E00	5.35E-02	1.51E-03	2.61E-09	4.42E-01
1686-222	8.21E00	8.28E00	4.50E-02	1.42E-03	2.52E-09	4.37E-01
1686-333	7.41E00	7.47E00	2.48E-02	1.24E-03	2.39E-09	3.86E-01
1686-555	7.06E00	7.10E00	1.63E-02	1.13E-03	2.22E-09	3.62E-01
1687-121	8.49E00	8.58E00	5.25E-02	1.51E-03	2.64E-09	4.57E-01
1687-222	8.15E00	8.23E00	4.44E-02	1.41E-03	2.51E-09	4.38E-01
1687-333	7.44E00	7.49E00	2.49E-02	1.24E-03	2.39E-09	3.87E-01
1687-555	7.07E00	7.12E00	1.64E-02	1.13E-03	2.23E-09	3.66E-01

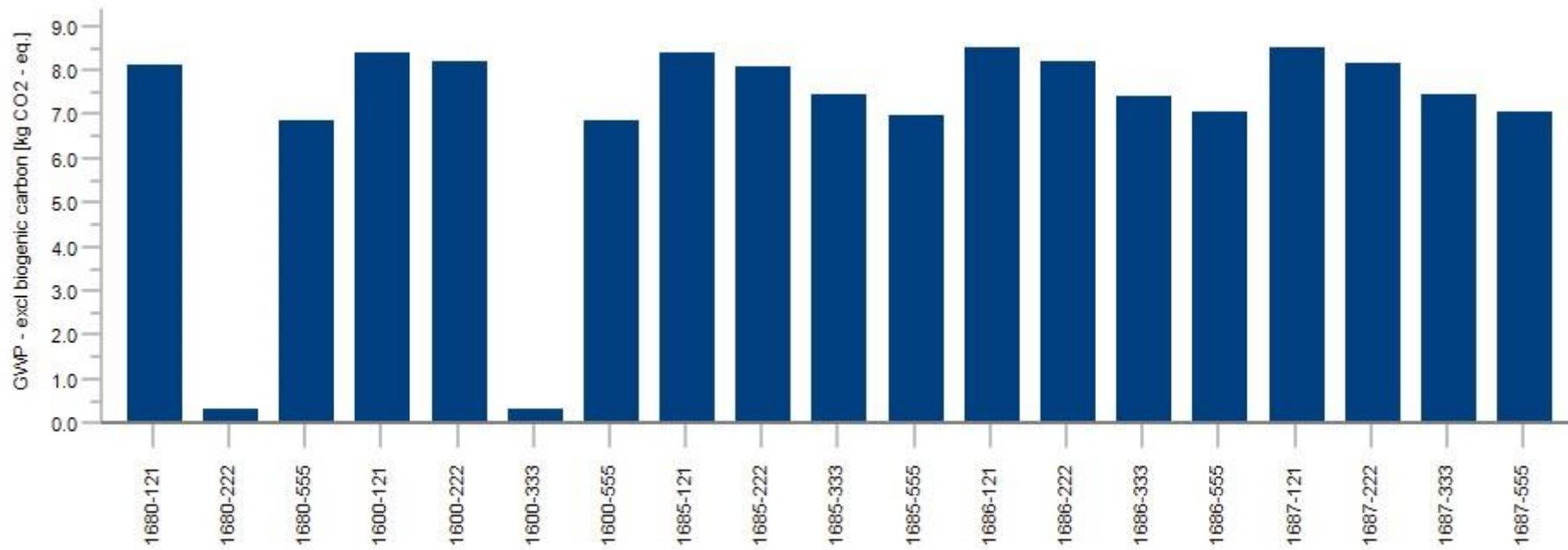


Figure 5: Global Warming Potential, Excluding Biogenic Carbon for Market Lifetime

**Table 10: Life Cycle Inventory Data for Market Lifetime, (Representative Product, 1680-121)**

	Stage 1	Stage 2	Stage 3	Stage 4
GWP - excl biogenic carbon [kg CO2-Equiv.]	7.47E00	6.15E-01		3.62E-02
GWP - incl biogenic carbon [kg CO2-Equiv.]	7.56E00	6.04E-01		3.52E-02
Acidification [kg SO2-Equiv.]	4.25E-02	1.61E-03		3.47E-04
Eutrophication [kg N-Equiv.]	1.27E-03	1.29E-04		2.57E-05
Ozone Depletion Air [kg CFC 11-Equiv.]	1.78E-09	2.22E-11		8.00E-10
Smog formation [kg O3-Equiv.]	3.06E-01	2.71E-02	9.36E-02	6.98E-03



## Material and Energy Resources, Emissions, and Wastes

The additional inventory results required by the PCR for each product are shown in the tables below.

**Table 11: Energy Resources for Design Lifetime, (Representative Product, 1680-121) [MJ, net heating value]**

Fossil Energy [MJ]	2.35E02
Hydro/Wind Energy [MJ]	2.91E00
Nuclear Energy [MJ]	6.72E00
Other Energy [MJ]	3.80E00

**Table 12: Other Environmental Information for Design Lifetime, (Representative Product, 1680-121)**

	Stage 1	Stage 2	Stage 3	Stage 4
Consumption of fresh water [m3]	2.11E01	9.91E-01		1.62E-02
Hazardous waste (deposited) [kg]	3.26E-08	6.20E-07		7.12E-10
Non-hazardous waste (deposited) [kg]	3.47E-02	3.63E-04		7.24E-01
Recycled materials [kg]				5.05E-03
Secondary raw material [kg]	2.32E-04			
Use of non-renewable material resources [MJ]	2.33E00			
Use of renewable material resources [kg]	2.89E-05			



**Table 13: Energy Resources for Market Lifetime, (Representative Product, 1680-121) [MJ, net heating value]**

Fossil Energy [MJ]	1.76E02
Hydro/Wind Energy [MJ]	2.18E00
Nuclear Energy [MJ]	5.04E00
Other Energy [MJ]	2.85E00

**Table 14: Other Environmental Information for Market Lifetime, (Representative Product, 1680-121)**

	Stage 1	Stage 2	Stage 3	Stage 4
Consumption of fresh water [m3]	6.33E01	2.97E00		4.86E-02
Hazardous waste (deposited) [kg]	9.79E-08	1.86E-06		2.14E-09
Non-hazardous waste (deposited) [kg]	1.04E-01	1.09E-03		2.17E00
Recycled materials [kg]				1.51E-02
Secondary raw material [kg]	6.95E-04			
Use of non-renewable material resources [MJ]	6.99E00			
Use of renewable material resources [kg]	8.66E-05			

### LCIA Interpretation

For the Durapoxy Interior Paints products, raw materials, and manufacturing (Stage 1) are the highest contributors to all impact categories. The impact from the design and construction stage is small but not insignificant and can be mostly attributed to transportation. There is a significant portion of smog formation potential from emissions of VOCs during the use stage. Since the amount of repaints and the quality and lifetime of the paints has such a direct impact on the results, any work towards improving the warranty of the product would significantly reduce the impacts as calculated based on design life.

### ADDITIONAL ENVIRONMENTAL INFORMATION

#### Certifications

MPI Approved Products  
 SCS Global Certification  
 CPSCIA Certificate of Compliance



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## REFERENCES

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