Paint It Green: An Analysis of Products Available Today

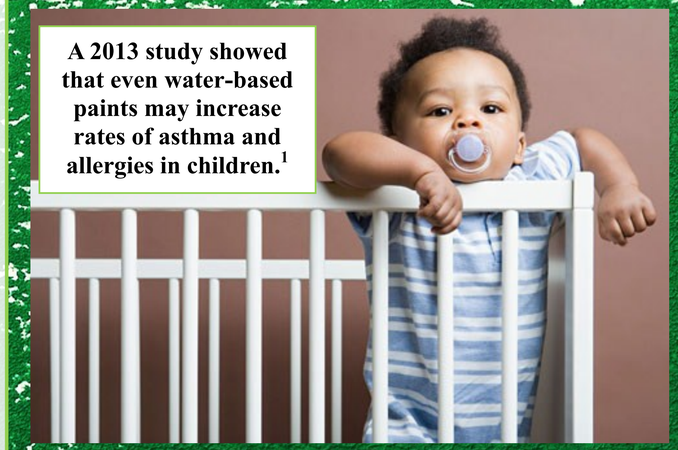
Jamie Swanson

College of Saint Benedict & Saint John's University's Environmental Studies Department

Professor Troy Knight & Professor Diane Veale-Jones

Introduction

Americans today live within a painted world. Whether you are a do-it-yourselfer or a homeowner who hires a contractor, chances are that your living space's interior and exterior have been coated with paint at least once. With the myriad of paints available today, it is difficult for paint buyers to find a product that meets their budgets, provides peak performance, and has minimal human and environmental hazards. It is in the hands of paint producers that we entrust these issues as we strive to choose the right paint for the job. This task is no easy one as we navigate the paint industry's misleading green labels while meeting our price and performance needs. This study examines traditional oil and water-based paints as well as recycled, milk, and low-VOC content paints to determine which work best, which are cost-efficient, and which ensure the most safety for human and environmental health. The resulting table grades the products on these three factors and finally determines which paints are best overall.



A 2013 study showed that even water-based paints may increase rates of asthma and allergies in children.[1]

Occupational painters have a 40% increased risk of contracting cancer.[2]

Methods

A meta-analysis of scholarly-reviewed journals was conducted to obtain a basic background on different types of paint available. Research was also completed to understand the environmental and human health hazards associated with traditional and non-traditional paints.

Ten paints were compared and contrasted based on their price, performance, and hazard levels. Paints were chosen based on popularity and availability in Minnesota. Paints were evaluated as white in color thus eliminating additional VOCs associated with other pigments.

Products were assigned a 1, 2, 3, or 4 — 1 being best and 4 being worst — based on a simple grading system that evaluated the characteristics in Figure 1.

Performance
- Dry time
- Ease of application
- Number of coats necessary
- Lifetime of paint

+

Cost
- Price per square foot

+

Hazards
- Volatile Organic Compound (VOC) content
- Ease of environmentally-friendly disposal
- Non-VOC toxins included in the product

=

Table 1. Results of Paint Product Analysis

Paint Product	Type of Paint	Hazards	Price	Performance	Final Grade
Platinum Ceramic Matte	Water-Base	2.5	1	1.5	1.7
SuperPaint Interior Acrylic Latex Paint	Water-Base	2.75	2	1.75	2.2
All Surface Enamel Oil Base	Oil-Base	4	2	2.25	2.6
BEHR Oil-Base Semi-Gloss Enamel	Oil-Base	3.75	3	2.5	3.1
EcoSelect Zero VOC Interior Latex	Water-Base, Zero-VOC	2	2	2.75	2.25
Benjamin Moore Premium Natura – Zero VOC	Water-Base, Zero-VOC	2.25	2	1.75	2
Amazon Recycled Paints	Recycled	2.5	2	2.5	2.3
Paint Care Recycled Paints	Recycled	2.5	3	2.5	2.7
Miss Mustard Seed's Milk Paint	Milk	1	4	2.75	2.6
Real Milk Paint	Milk	1	3	2.5	2.2

Conclusion

Of the ten paints chosen and compared, both Miss Mustard Seed's Milk Paint and Real Milk Paint presented the fewest human and environmental health hazards. Both products are made with five naturally occurring ingredients and are naturally biodegradable. The milk paints also contained zero-VOCs, zero added toxins, and both contained calcium lime with both reduces C02 emissions and cleans indoor air. Hirshfields' Platinum Ceramic Matte had the best price at just $0.06 per square foot as compared to the most expensive paint — Miss Mustard Seed's Paint — which cost $0.31 per square foot. With four star customer reviews, high per-gallon coverage, 30 minute dry time and high flexibility in use, Platinum Ceramic Matte also proved to have the best performance of the products analyzed. Taking human and environmental health hazards, price, and product performance all into equal account, Platinum Ceramic Matte proved to score the best grade overall. Categorically, milk paint was the most human and environmentally friendly, while oil-based paint was the least. Water-based paints were the cheapest per square foot, while milk paints where the most expensive. Water-based paints also had the best performance, while milk based paints had the worst. This is by no means a comprehensive analysis of all paint products available today. More research should be done to test a wider array of products in each category.

Works Cited

1.Cone, Marla. "Children Breathing Fumes from Water-Based Paints Have High Risk of Asthma, Allergies, New Study Says." 2013. 2014. http://www.environmentalhealthnews.org/ehs/news/glycol-ethers-and-allergies.

2. Weismann, Adam, and Katy Bryce. "Using Natural Finishes." Foxhole, United Kingdom: Green Books Ltd., 2008.

Photos:

1. Paint Can — http://www.containerstore.com/catalogimages/132233/PaintCanWithHandleSilverSm_x.jpg

2. Baby in Crib — http://twiniversity.com/wp-content/uploads/2014/03/baby_in_crib1.jpg

3. Painter — http://mycolortopia.com/blog/wp-content/uploads/2012/03/painter.jpg

4. Background Image — http://www.fudgegraphics.com/downloads/rolledpaint/fg-rolled-paint-grunge-texture-9.jpg