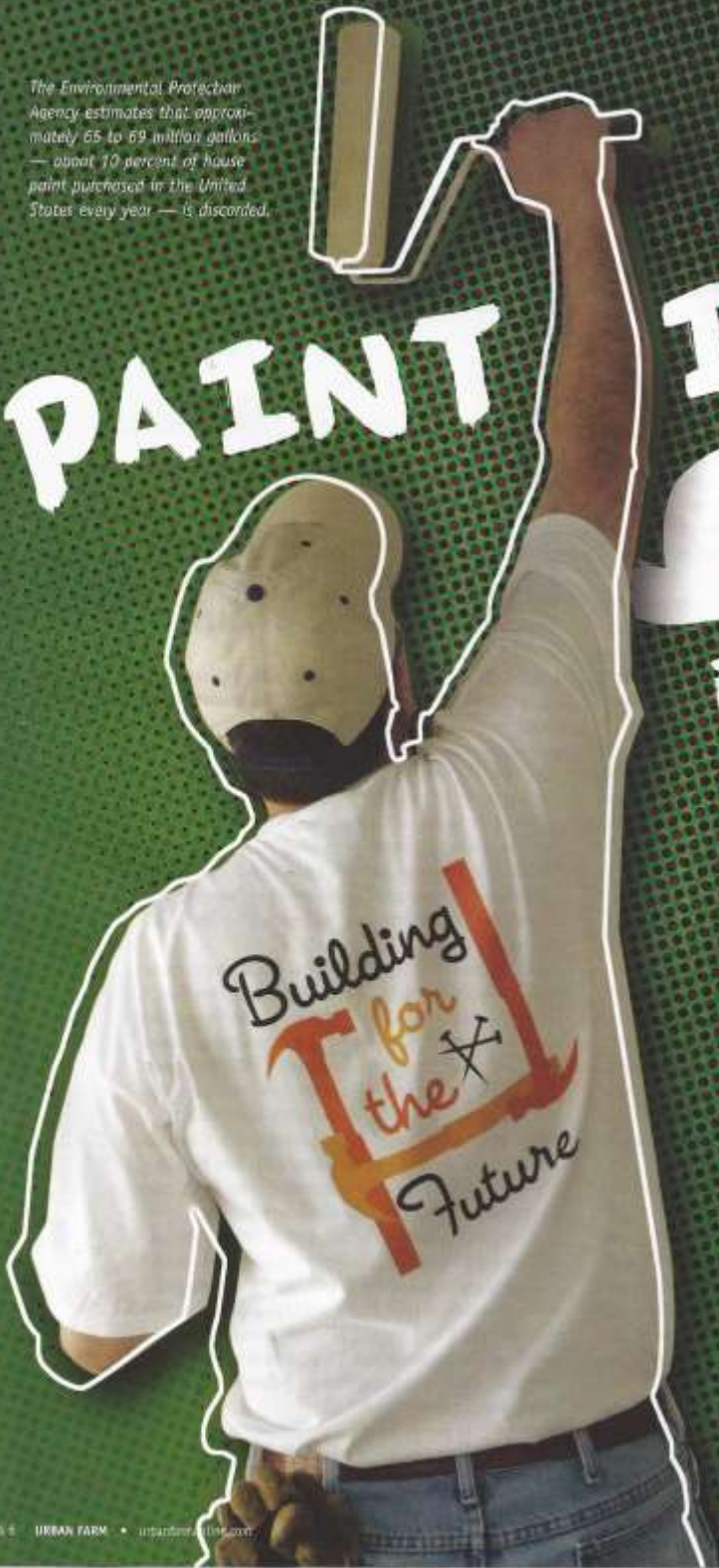


The Environmental Protection Agency estimates that approximately 65 to 69 million gallons — about 10 percent of house paint purchased in the United States every year — is discarded.

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BY CHERYL MORRISON

Changing the color of a room or sprucing your home with a fresh application of the same color no longer requires putting up with irritating, smelly fumes that possibly harm you and your family's health, your pets' health and the environment. Several major paint manufacturers make coatings today that are less toxic than conventional wall paints and are available to consumers from most paint retailers and home-supply stores. More and more painting contractors have experience in working with these safer coatings, and some even specialize in them.

Sustainable house-painting practices, however, involve more than just choosing paints with environmental safety claims on their labels. In addition to paints, a typical project requires primers, solvents and other supplies that may also contain hazardous substances, and their labels must be perused, as well. Then, there's the matter of clean-up, waste reduction and waste-disposal.

THE CULPRITS

The troublesome ingredients in traditional exterior and interior paints are called VOC; volatile organic compounds. VOC emit gases, some of which are highly toxic.

If you've ever used solvents or oil-based wall paint in a room that wasn't properly ventilated, you may have experienced common symptoms of overexposure to VOC, such as eye, nose and throat irritation; a headache; dizziness; or nausea. If you touched the products, you may also have noticed skin irritation. While those symptoms are usually short-lived, some VOC are known to cause cancer in humans, and many more have been found to cause cancer in other animals. VOC have also been linked to vision and memory problems. The Environmental Protection Agency reports on its website, www.epa.gov/iaq/voc.html, that VOC are released by thousands of common products, including cleaning supplies, building materials, office equipment, glues, adhesives and permanent markers, as well as painting supplies.

Giving a room —
or your home —
a new coat of paint
with minimal
environmental
impact takes
some research
and forethought.

Painting supplies are a major household source of benzene, a VOC that has long been known to cause cancer in humans. Another dangerous VOC, methylene chloride, is produced by some paint strippers and aerosol spray paints. The body converts methylene chloride to carbon monoxide, and it can produce the same symptoms as exposure to carbon monoxide. Methylene chloride also causes cancer in animals.

Gas emissions from VOC associated with painting are most intense when you are applying the paint or other materials. These gases are the source of the strong smells associated with painting projects. The gas release diminishes as the materials dry, but it can continue at low levels for years. Gases can even be released into your house from paints and other products that you store in a basement, attached garage or utility room.

The EPA's Office of Research and Development's *Total Exposure Assessment Methodology Study* (1985) stated that indoor levels of VOC are, in general, two to five times higher indoors than outdoors. After VOC-producing activities, such as paint-stripping, the indoor level may be a thousand times higher for several hours.

For interior painting with products containing VOC, the EPA advises using an exhaust fan, if possible, or at least opening all windows for maximum ventilation. It also recommends buying only the quantities of these products that

British chemist Keith Harrison developed a paint recycling technique in 2008 and established Newlife Paints "for the express purpose of collecting waste-emulsion paint and remanufacturing it to produce commercial-grade paint using a special process developed in our laboratory."



you are likely to use right away and storing them where pets and children cannot reach them. Many paint retailers will help customers calculate the correct amount of paint they need for a project.

SAFER PAINTS

Paint dealers now carry products from various manufacturers with labels identifying them as zero-VOC or low-VOC. Some low-VOC paints are lower than others. It pays to read the labels carefully.

According to Yelena Kublitski, co-owner of AK Painting and Powerwashing in Galloway, N.J., even so-called zero-VOC paints don't actually produce zero emissions — although they do come close. They also cost at least one-third more than conventional paints. Kublitski, who has operated the business with her

husband, Alek, since 2003, also says lighter paint shades produce fewer VOC emissions than darker shades. She suggests clay paints and milk paints as safer alternatives to conventional products. (See "Traditional Alternatives" on page 50 for more about clay and milk paints.)

Tim Hoeffel, owner of Better Painting in Colorado Springs, Colo., says that some of the new paint products are better than others. "Some are ground-up with zero-VOC strategy in mind, and they are very good. Others are just reengineered from existing products, and they are lower VOC but not zero."

When it comes to brands, Hoeffel has been partial to PPG Industries' Pittsburgh Paints. "They've done a lot with reducing their VOC content," he says, "and they have increased their quality."

Contractors and DIYers choosing paints with environmental friendliness in mind should consider durability, as well as VOC rating. Hoeffel, who has been painting houses in Colorado Springs since 2003, contends that a low-VOC paint job isn't necessarily better for the environment if the lower-VOC paint doesn't keep its good looks over time. If you're hiring a painting contractor, Hoeffel advises that you specify the use of paints that will hold up for at least 10 years.

In his business, Hoeffel uses mostly low-VOC paints rather than zero-VOC, because people just don't think it's going to make much of a difference. It may make some difference in the quality of the paint, he says, but "most likely, the paint's going to cost more, and there are other considerations: Zero-VOC paint is very fast-drying, so you have to really hustle to keep up with dry time."

According to the EPA: "Leftover paint is the largest volume material collected by most household hazardous-waste collection programs and represents a high cost for local governments."





Cleanup Crew

Rollers, brushes and other paint applicators should be cleaned in a household sink. Even though the cleanup will send some paint residue into the municipal sewage system, it will at least undergo treatment before entering the water supply. If you clean painting supplies elsewhere — on the street or in your yard, for example — the untreated paint residue is apt to end up in the water supply, contaminate the soil or both. In many locales, empty paint cans may be thrown into the regular trash, but your local landfill or sanitation department may also collect them for recycling.

Hoeffel's paint-selection advice is to stick with water-based paints, which contain much lower-VOC. "They are just as durable as an oil-based paint in most situations," he says. "There is a good bit of value in using them on exterior surfaces, as well as on surfaces indoors, even though VOC are less problematic outdoors, as long as performance isn't sacrificed."

Hoeffel says some paints, including Pittsburgh Timeless and Sherwin-Williams' Duration, will hold up for 15 years or more. Both of these products are described by their manufacturers as low-VOC paints. "They're thicker, and they stick better," Hoeffel says. "The colors do fade a little bit, but they are very durable products compared to other paints."

The performance of latex paints depends on the quality of the pigments they contain, sheen and other factors. Latex paints, which are water-based, contain resins, solvents, pigments and additives. A coating may last longer if the paint contains highly reflective, mixed-metal oxides, which reduce surface temperature. Hoeffel says that 100 percent acrylics outlast styrene and PVA acrylics, and that high-sheen coatings last longer than those with lower sheen.

Latex paints, which are water-based, contain resins, solvents, pigments and additives. Most retail

latex paints need to be reapplied every three to seven years. "One of the issues is using the least amount of paint possible, which means recoating less often," Hoeffel says. "If a person can repaint every 15 years instead, that's as environmentally friendly as using lower-VOC paint."

Durability can also lessen the financial sting of green house painting. An environmentally friendly paint job that costs more up front may not be so expensive if it lasts three times as long as a cheaper job using conventional paints.



YOLO colorhouse® paint was started in 2005 by Virginia Young (YO) and Janie Lowe (LO) with the environment in mind. Their paints do not include: carcinogens, reproductive toxins, mutagens, hazardous air pollutants, ozone-depleting compounds, formaldehyde, phthalates, VOC or, as they state, "bad colors."

CHRISTY WALKO



PHOTO BY AMERICA'S GREEN

Some highly durable paints, Hoeffel notes, have heat-blocking pigments that promote energy efficiency by keeping interiors cool. Using these paints helps the environment — and household budgets — by reducing the need for air conditioning.

You can also buy additives that you mix in with paint to give it heat-resistant properties. One such product is Hendrix ThermoGUARD, which its manufacturer says has no VOC, is nontoxic and is most effective when applied to the underside of a roof decking, which you can do after mixing it with left-over paint. The product is also intended for use on walls and ceilings, as well as other visible surfaces.

Evaluating the eco-friendliness of paint and related products is not an easy task. One way to evaluate manufacturers' claims is to look for Green Seal certification on the products. Green Seal is a nonprofit organization that certifies many kinds of products (not just paints) that it deems environmentally responsible. Its standards for paints and coatings take adhesion, washability and numerous other factors into account, in addition to the safety of the products' ingredients. You can download a copy of the standards from its website: www.greenseal.org.

Used paint that has not been frozen or mixed with other products and that isn't too old can be recycled by filtering and reblending into a variety of colors, types and finishes.

Traditional Alternatives

Yelena Kubitski of AK Painting and Powerwashing, in Galloway, N.J., suggests biodegradable milk paints and clay paints as safer alternatives to conventional low-VOC products. Milk and clay paints are made from natural ingredients and are biodegradable.

Clay paints, Kubitski says, adhere readily to most indoor surfaces and have a suede-like finish as well as odor-absorbing qualities. On the downside, clay paints can be more difficult to apply, and the color selection is limited (mainly to earth tones). Also, a surface coated with clay paint cannot be washed or even wiped unless you have applied a protective sealer over the paint.

You can make clay paints by combining clay with flour, water, chalk and pigment. You can purchase pigments from craft-supply stores, use dyes or add color from berries, beets or other common household sources. Clay paint is also available from commercial sources, including LineArth (www.uneartedpaints.com/products/clay-paint) and Earthpaint (www.earthpaint.net/product_clayPaint.php).

Paints made from milk proteins have been in use since prehistoric times. They are even friendlier to the environment than clay paints, and they promote better indoor air quality by absorbing carbon dioxide.

The Old Fashioned Milk Paint Co. (www.milkpaint.com) has been selling milk paints as an environmentally safe alternative since 1974. It sells them in 20 colors or as a base to which you can add your own pigments. The Real Milk Paint Co. (www.realmilkpaint.com) includes 28 colors. These paints are best-suited for porous surfaces, but adding a bonding agent to the first coat will help it to adhere to nonporous walls and ceilings. Milk paints are sold in powder form, and you must mix them with water.

"You have to homogenize them really well, so it's a time-consuming process to prepare the paints," Kubitski says. Another disadvantage is that walls coated with milk paint may have an uneven, mottled faux-finish look. (The Old Fashioned Milk Paint Co. describes the finish as rich and velvety.) As with clay paints, Kubitski suggests applying a sealer coat over milk paint for greater durability.

The Real Milk Paint Co. uses an all-natural paint finish made from purified milk protein, lime, natural fillers and pigment (left).



COURTESY THE REAL MILK PAINT CO.

PHOTO: KENNETH BRONKHORST/ISTOCK



RECYCLED PAINTS

Recycled paints are gentle on the environment, as well as your budget. They're often less expensive than virgin paints of similar quality, and some of them are Green Seal-certified.

There are two ways of recycling paint: reblending and reprocessing. Reblended paints are mainly available in neutral colors. Reprocessed paints, which include some new materials, are available in a broader spectrum of colors. Some recycled paints consist entirely of secondhand contents, but others have as little as 50 percent.

According to the EPA's *Quantifying the Disposal of Post-consumer Architectural Paint* (2007) study, about 10 percent of the house paint purchased in the United States each year — about 65 to 69 million gallons — is ultimately discarded. The cost to municipalities of managing this waste is about \$8 per gallon, which has led some city governments to start selling recycled paints, returned at household hazardous-waste collection sites, back to manufacturers that produce paints made from recycling leftover paints. Portland, Ore., which began selling recycled paint in 1992, sells about 21,000 gallons per year.

CalRecycle, a program of California's Department of Resources Recycling and Recovery, says the average household stockpiles between 1 and 3 gallons of paint per year. By turning your leftovers back to manufacturers for recycling, you avoid storing them in your house to continue releasing gases and quite possibly go to waste.

CLEANING UP GREEN

Leftover paint that's poured down a household drain can disrupt microbes and cause problems at your sewage treatment plant. Pouring it into a storm drain can pollute lakes, oceans and rivers;

harm wildlife; and contaminate the food chain. Plus, anything you dump on the ground can also find its way into the water supply. Tossing it into the trash may contaminate other materials that could otherwise be recycled.

A greener alternative: Give the paint (in its original container) to someone else who can use it soon. Some local governments sponsor paint-exchange programs that accept leftover paint and distribute it to people who can use it. Otherwise, you can return leftover paints to their manufacturers for recycling or deposit them at hazardous-waste disposal sites (which may pass them back to manufacturers).

Before you buy paint, find out if you can return any surplus to the store and, if so, what the conditions are for returning it.

These modern, eco-friendly paint products may be safer and more durable than conventional products, but they also cost more upfront in money and time. Regardless of whether you hire a contractor or do the work yourself, achieving optimal results with them takes more time and trouble than with conventional paints, and a careful cleanup job that produces minimal waste and pollution takes longer than stuffing everything into a plastic trash bag and leaving it at the curb. In the long run, however, you and your home will be the better for it. **W**

Cheryl Morrison divides her time between New York City and southern Vermont, endeavoring to live sustainably in both locales.

Painting Accessories

Liquids are not the only source of environmental concerns that arise from painting. Sustainable house-painting practices also take these items into account:

DROP CLOTHS: Instead of plastic sheeting, consider reusable fabric or recyclable paper to protect floors and furniture.

APPLICATORS: Disposable brushes, rollers and roller trays are among the materials that clog landfills, and they often contain the residues of paint or other hazardous materials when they're discarded. Carefully cleaning applicators and roller trays for reuse is environmentally safer.

CONTAINERS: Empty buckets or cans that contained painting supplies should be recycled, if possible. Some municipalities do not accept them for recycling, so you'll need to check the rules where you live.

Check with your local hardware store for environmentally friendly paints.