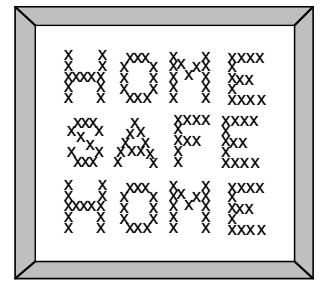


Alternatives

A Washington Toxics Coalition Fact Sheet



Paints and Wood Preservatives: Protecting Your Wood and Your Health

by Philip Dickey



Nothing brightens up a room like a fresh coat of paint. Painting is easy and fun—well, that's debatable, I guess—and it's the cheapest way to redecorate. But paint is more than pretty colors. It's a way to protect wood as well. Wood used outdoors needs to be shielded from water and sun if it is to last for many years. Depending on the type of project, paint, stain, water repellent, or wood preservative may be most appropriate.

While very useful, these products also can be harmful to your health or to the environment. Fortunately, in recent years some new, less-hazardous products have come on the market. Disposal of unwanted paint is easier now and better for the environment, too, since most latex paint can be recycled. This chapter will help you identify the least-hazardous products. It's always a good idea to check with your retailer to be sure the product you've chosen is right for the job.

Paints and Stains

Paints are of special concern because they are used, stored, and disposed of in such large quantities. The two main kinds of house paints are oil based and water based, depending on the kind of solvent used to keep the ingredients in liquid form. Oil-based paints are the most hazardous because the solvents are toxic and flammable. Latex and acrylic paints use water as the primary solvent and so are much less hazardous. Other ingredients in paint are the pigments that give paint its color and resins that form the hard surface when the paint is dry. Primers are paints that are applied as a base coat to ensure good adhesion to unpainted surfaces such as bare wood or metal. Primers for wood come in both water-based and oil-based formulations. Metal primers are likely to be oil-based.

Oil-based paints emit toxic vapors as they dry. Inhaling too much of these vapors during painting or afterwards is dangerous and can cause health problems. Avoid using oil-based paints if possible, especially indoors. If oil-based paints must be used indoors, wear a respirator while painting and ventilate the room with fans during and after painting until the odor goes away. Aerosol spray paints also contain solvents, often more toxic than those in brush-on paints.

Oil-based paints require paint thinner for cleaning out brushes or rollers. Paint thinners are extremely flammable, and toxic as well. Storage of oil-based paint and paint thinners can be a fire hazard. Rags soaked with linseed oil-based paint, stain, or paint thinner are extremely flammable and should be discarded immediately and not allowed to accumulate in the home. Used paint thinner is a hazardous waste. Odorless mineral spirits are somewhat less toxic than turpentine but are still hazardous. Never use gasoline to clean paint brushes.

More than thirty years ago, most paints contained lead, a toxic metal that poisoned children who ate chips of paint peeling from walls. We now know that exterior, lead-based paints have also left deposits of lead in the soil around the outside of older homes and can be tracked indoors on shoes. Although federal legislation in 1971 ended the use of lead in household paint, remodeling or removing paint from an older home generates dangerous levels of lead both outdoors and indoors. Special precautions must be taken to protect occupants. For more information on hazards from lead in older homes, see our fact sheet on lead. Although lead is not used in house paint today, you should be

Using Paints and Solvents

- ❖ Use only in well-ventilated areas. If you can't do the job outdoors, open windows and use a fan to circulate fresh air.
- ❖ Avoid spray painting.
- ❖ Wear appropriate protective gear such as gloves, masks, goggles, or respirators (with the correct type of filter for the particular solvent). Contact lenses do not provide adequate eye protection against solvents. Goggles or eyeglasses are needed.
- ❖ Do not use solvents or strippers during pregnancy.

cautious about using or disposing of old paint that probably contains lead.

Stains are similar to paints but are designed to tint rather than obscure the surface. Stains come in both oil-based and water-based formulations. Some stains do contain wood-preserved chemicals and are considered pesticides (see discussion under wood preservatives).

Alternatives

Whenever possible, choose water-based paint rather than oil-based. Today's water-based paints are durable enough for exterior use and are available in a range of lustres, from flat to high-gloss enamel. They are non-flammable and far less toxic than oil-based paints. Although most water-based paints do contain a small amount of solvents (also called volatile organic compounds, or VOCs), the main carrier in these paints is water. In recent years, low-VOC and zero-VOC paints have become available. These are worth looking for, especially if you are very sensitive to chemicals. The zero-VOC paints have virtually no odor.

One of the biggest advantages of latex paint is that you can use water for thinning and cleanup, eliminating the need for paint thinner. Even though small amounts of latex paint from cleanup can go down the drain without harm, it's a good idea to paint on sheets of newspaper until brushes are dry before cleaning them over a sink.

Paints based on citrus oil or other plant oils are widely advertised as environmentally preferable. While their solvents are renewable resources, these paints are flammable and inhaling the solvents can be harmful. The paints have a strong odor and do contain large amounts of VOCs. Paint thinner is required for cleanup. If you are considering these paints, be sure you are fully informed before buying, especially regarding drying times, amount of paint needed, and costs.

Disposal of Unwanted Paint

Many of us have scores of old paint cans in the basement or garage, perhaps so old that we can't remember what they were used for. It's a good idea to clean these out from time to time, especially oil-based paints and thinners. Opportunities for disposing of oil paint vary depending on where you live, but many communities now have household hazardous waste (HHW) programs that collect both latex and oil-based paints. Usable latex paint can be recycled and made into high-quality paint once again, but recycling is not available in many communities. If you have the opportunity to buy recycled paint, expect excellent performance but limited color choice. VOC content will be the same as regular latex paint.

To reduce the amount of paint you have left over, learn how to estimate your needs more accurately. Your paint dealer can help with this, since coverage rates vary somewhat among different paints and may depend on colors. A good rule of thumb is that one gallon of paint covers about 300-400 square feet. Some stores now offer small sample-size (2-3 ounce) cans of custom-tinted colors so that you can test different colors without having to buy full quarts. Excess paint usually cannot be returned for a refund if it has been tinted, but you can go back for more paint later if you run out, provided you have the formula, of course. A great tip I learned recently is to write the paint formula you used in each room on the back side of the light switch covers. Even if you lose the paint can, you will still have the formula and can repaint or retouch years later.

Excess paint can be used up or given to a friend, neighbor, or community organization. Don't give away paint that may contain lead, however. If paint cans are empty or the paint is completely dried and hard, they can typically be placed in the trash. Take the lids off so that collection workers can see that the can is empty. Do not attempt to dry out cans of oil-based paint because doing so causes air pollution.

Liquid, oil-based paints are a hazardous waste and can only be disposed of at a household hazardous waste collection facility. The same is true of paint thinners. Latex paints, while usually not technically hazardous materials, are also generally accepted at HHW collection facilities. Small amounts of latex paint (less than about 1 inch) can be dried out and then put in the trash. You can also use cat litter to solidify excess paint.



Good ventilation is important if you use paints or solvents indoors. One window is not enough; open two windows and use a fan.

Paint Removers

Paint removers or paint strippers can be extremely hazardous to your health. Most contain toxic and highly volatile solvents such as methylene chloride, toluene, acetone, or methanol. If used indoors in a poorly ventilated space, they can cause serious injury or illness. If you strip lead-based paint, the resulting sludge will contain extremely high levels of lead.

Alternatives

In recent years, a number of water-based paint strippers have come on the market. These products can still cause skin or eye irritation and gloves should be worn, but they are much less likely to be inhaled during use. They are reasonably effective at removing both latex and oil-based paint, but are slower than the conventional products.

Paint can also be removed mechanically, by sanding or scraping. This avoids the use of chemicals but can produce a lot of dust. This dust is very hazardous if the paint contained lead. Removal of lead-containing paint is dangerous and must be done with special procedures, such as wet sanding, followed by careful cleanup. Before undertaking removal of lead-based paint, learn more by contacting the National Lead Information Center (800-424-LEAD) or the U.S. EPA's lead page on the Internet (<http://www.epa.gov/lead/index.html>). Never use a heat gun on lead-based paint.

Disposal

Unwanted paint strippers are a hazardous waste and should be disposed of at a HHW collection site. Never pour them down the drain or put them in the trash.

Wood Preservatives

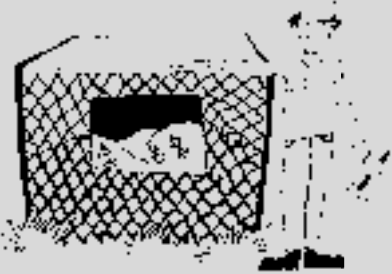
Wood preservatives are actually pesticides that protect wood against attack by fungi, bacteria, or insects. The active ingredients found in wood preservatives may include pentachlorophenol (penta or PCP), creosote, copper, zinc, chromium, arsenic, and other compounds. Preservatives may be injected into the wood before purchase (pressure-treated wood) or applied by the user. If wood-preservative chemicals are incorporated into a paint or stain, that product is considered a pesticide.

Wood preservatives perform a useful function and may be required by building codes in some applications. In other cases, there is a choice of whether to treat or which chemicals to use. Wood preservatives are hazardous materials, and the health and environmental hazards should be considered in making these decisions.

Creosote and penta are so toxic that in 1986 the EPA banned all indoor residential uses and restricted outdoor uses. Consumers can no longer buy these materials for home treatment, and old products that might be found in the basement should not be used. Old, treated railroad ties are widely available for landscape uses. We suggest not using these materials, especially in the garden where food crops are grown or where people may sit on them or touch them. A more difficult question is what to do with railroad ties that are already in place in your landscape. Removing them can be a big job, especially if they are being used in retaining walls. If removal is impractical, move the food garden to another location or place a layer of thick plastic sheeting between timbers and garden soil to divert runoff water away from the garden beds.

Until 2004, pre-treated wood sold for home use was typically pressure-treated with a mixture of copper, chromium, and arsenic called chromated copper arsenate, or CCA. In theory, the chemicals bind strongly to the wood and stay inside. In practice, however, many studies show that the chemicals do leach out and can accumulate on the ground underneath or be picked up on the hands from direct contact. Safer alternatives are available now (see next page), but most CCA wood is still in use. If you have CCA wood where human contact is likely, such as a deck, furniture, or play structure, remove it or apply a paint or sealer to keep it covered. Research shows that a polyurethane deck enamel or acrylic deck stain can reduce surface residues of arsenic by 90 to 95%, provided the surface coating remains in good condition. Consult your paint dealer for

Alternatives to Using Wood Preservatives for Outdoor Projects



Compost Bins: Minimize wood by using wire mesh or concrete block construction. Paint or use untreated wood and replace as needed.

Decks and Fences: Use naturally weather resistant woods such as cedar or redwood for surfaces and railings. Protect with a water repellent, paint or linseed oil. Use pressure-treated wood for load-bearing members.

Picnic Tables: Use cedar or redwood or protect with a water repellent, paint, or linseed oil.

Raised Garden Beds: Use untreated wood for vegetable gardens, either a naturally resistant wood or scrap wood which you can replace. Raised-bed kits made of recycled plastic are also available and are becoming competitive in price with wood products.

advice on durability of treatments and frequency for recoating.

You can get an inexpensive soil test to see how much arsenic has leached onto the ground from a deck or playground structure. Sawdust from pressure treated wood is hazardous to inhale and should not be allowed to contaminate water underneath or near the site. Keep children and pets out of under-deck areas. Burning of arsenic-treated wood releases large amounts of arsenic. Never burn any treated wood deliberately, and if you have a structure fire, consider the smoke and ash from burned treated wood to be hazardous.

When a wood treatment must be applied to the surface, you have a number of choices. Most consumer wood preservatives are oil-based mixtures, so the health and fire hazards described earlier in relation to paints would apply here as well. Read and compare labels carefully to understand the hazards involved. If you are not comfortable with the hazards described, don't buy the product.

Alternatives

In many cases, you may not actually need a wood preservative at all. Wood rot can be avoided by keeping wood well ventilated and away from soil. If there is no soil contact and if the wood will only get wet occasionally, as with window sills, outdoor furniture, and decks, a water repellent, sealer, or just paint may be adequate.

Another alternative is to use naturally weather-resistant woods, such as cedar, redwood, or cyprus. These woods contain substances that inhibit decay. Unfortunately, the most-resistant wood is from scarce and irreplaceable old growth timber. Second-growth timber is available but won't last as long.

If you must use a wood preservative, compare labels and look for the least-toxic products that will do the job. Some preservative ingredients that are less toxic include copper compounds, zinc compounds, and borates, but individual product hazards vary widely. Borate products are not recommended for exposure to soil or water because the chemicals leach out readily.

Pressure-treated wood without arsenic is now widely available. ACQ (Ammoniacal Copper Quaternary), copper azole, or copper citrate do not contain arsenic or chromium, but they do leach more copper than CCA does. Copper is extremely toxic to fish, so these products may not be appropriate for use in or near water.

For many projects, the most appropriate choice may be to avoid using wood entirely (see examples in the box on the previous page). In our home, we avoided wooden decking by choosing ceramic tile instead. Concrete, tile, or brick patios will last longer than wood and require less maintenance. Concrete blocks are excellent for compost bins. An ever-increasing variety of products made from recycled plastic are available, from outdoor furniture to timbers for raised-bed gardens. These materials are becoming stronger and more attractive; some don't look like plastic at all. ■

Illustrations on middle pages by Liz Hoenig.

The Washington Toxics Coalition is a non-profit organization dedicated to protecting public health and the environment by identifying and promoting alternatives to toxic chemicals. Please write or phone for information: WTC, 4649 Sunnyside Ave N, Suite 540, Seattle, WA 98103. Phone: 206-632-1545. Visit our Internet Web site at www.watoxics.org.

The Washington Toxics Coalition assumes no responsibility for any injury or damage resulting from the use or effect of any product or information specified in this publication. Mention of particular products by name does not constitute an official endorsement.

Disposal Information

Unwanted wood preservatives are considered hazardous waste. Products containing penta or creosote should not be used. Take them to a household hazardous waste collection site. Products that are still legal may be used up or disposed of as hazardous waste. Call your local solid waste agency for advice on disposal of treated wood. Never burn treated wood.

Empty paint cans can go in the trash if any residue is dry. If less than one inch of **water-based** paint remains, dry it out before placing in the trash. Oil-based paints must be collected as hazardous waste.

All counties in Washington state offer collection services for household hazardous waste, including paints, solvents, and wood preservatives. Phone your local waste utility or health department for information, or call the Department of Ecology at 800-RECYCLE.

Seattle/King County

Two permanent household hazardous waste collection sites are located in Seattle, and the Wastemobile serves suburban cities on a revolving basis. Call the Hazards Line at 206-296-4692 or 888-TOXIC-ED (or visit www.metrokc.gov/hazwaste/house/disposal.html) for locations and operation times.

Resource

One of the best sources of environmentally preferable building materials, including paints and arsenic-free treated wood is the Environmental Home Center in Seattle. Visit their Seattle store or shop via the Internet.

The Environmental Home Center
206-682-7332
800-281-9785

www.environmentalhomecenter.com