

## SAFE RECYCLING & DISPOSAL OF ARCHITECTURAL PAINT: Summary of Hazards

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### Oil-based Architectural Paint Hazards

Oil-based paints are hazardous due to their toxicity and flammability. Potentially dangerous chemicals commonly found in oil-based paints include:

- **Ethylbenzene**, a probable carcinogen.<sup>1</sup>
- **Methylbenzene (toluene)**, which causes headaches, hearing loss, and kidney damage.<sup>2</sup>
- **Xylene**, which causes difficulty breathing and loss of muscle coordination.<sup>3</sup>
- Other toxic chemicals may also be present in oil-based paints depending on the formulation.<sup>4</sup>

### Disposal Requirements

- By law, Washington State businesses, such as paint contractors, must handle leftover oil-based paint as a hazardous waste and send it to proper facilities for incineration or use as fuel. Any business that generates more than 220 pounds per month of hazardous waste, including oil-based paint, is prohibited from disposing of these materials as municipal solid waste.<sup>5</sup>
- Residents and any other generator of leftover oil-based paint are prohibited from disposing of it in the solid waste stream in many municipalities in Washington.<sup>6</sup>

### Latex<sup>7</sup> Architectural Paint Hazards

**Latex (water-based) paint manufactured prior to 1990** may contain the following dangerous chemicals:

- **Mercury**, a potent neurotoxin which can permanently damage the brain, kidneys, and developing fetuses.<sup>8</sup>
- **Lead**, a potent neurotoxin that can damage the brain and kidneys in children and adults, cause miscarriage in women, and damage reproductive organs in men.<sup>9</sup>

**Modern latex paint** has been redesigned without mercury and lead, but latex paint often still contains potentially dangerous chemicals,<sup>10,11</sup> such as:

- **Ethylene glycol**, which causes damage to the nervous system, lungs, and heart.<sup>12</sup>
- **Formaldehyde**, which is a respiratory irritant and a known carcinogen.<sup>13</sup>
- **Styrene**, which causes liver damage and is a possible carcinogen.<sup>14</sup>
- **Biocides**, which provide resistance to mold and mildew but can be toxic to fish.<sup>15</sup>
- **Volatile organic compounds (VOCs)**, which emit harmful vapors while evaporating and are linked to increased incidence of asthma and allergies in children.<sup>16</sup>

### Disposal Challenges

- Liquids, including latex and oil-based paints, are prohibited from many residential garbage programs to prevent spills and splashes. When placed in the trash, liquid paint can spill at curbside, in the street, in garbage trucks, and at transfer stations, causing costly property damage, contributing to soil and stormwater pollution, and creating potential slip hazards. Containers of liquid paint dumped at transfer stations can splash employees, customers, equipment and vehicles when dumped or run over by equipment.
- Many municipalities cannot provide latex paint recycling programs and require that paint be dried out prior to disposal. Drying out latex paint releases harmful VOCs and should be done outdoors which can be difficult and time consuming during the wet, cold months. Drying paint outdoors increases the risk of spills, exposure of children, pets and wildlife, and pollution of storm and surface waters.
- Many residents, such as those living in apartments, do not have adequate outdoor locations for drying paint.

## Sources

- <sup>1</sup> Agency for Toxic Substances and Disease Registry, "Division of Toxicology and Environmental Medicine ToxFAQs: Ethylbenzene." September 2007: <http://www.atsdr.cdc.gov/tfacts110.pdf>.
- <sup>2</sup> Agency for Toxic Substances and Disease Registry, "Division of Toxicology and Environmental Medicine ToxFAQs: Toluene." September 2000: <http://www.atsdr.cdc.gov/toxprofiles/tp56.pdf>.
- <sup>3</sup> Agency for Toxic Substances and Disease Registry, "Division of Toxicology and Environmental Medicine ToxFAQs: Xylene." September 2005: <http://www.atsdr.cdc.gov/toxfaqs/tfacts71.pdf>.
- <sup>4</sup> U.S. Environmental Protection Agency, "Paintings & Coatings at a Glance: 1996-2005," *2008 Sector Performance Report*. 2008: [http://www.epa.gov/sectors/pdf/2008/paint\\_coatings.pdf](http://www.epa.gov/sectors/pdf/2008/paint_coatings.pdf).
- <sup>5</sup> Washington Administrative Code, Chapter 173-303, Dangerous Waste Regulations, section 070: <http://apps.leg.wa.gov/WAC/default.aspx?cite=173-303>.
- <sup>6</sup> Jurisdictions restricting oil-based paint from disposal in the solid waste stream include, but are not limited to, the cities of Seattle and Tacoma, and King, Kitsap, Pierce, Snohomish, and Thurston counties.
- <sup>7</sup> "Latex" is a general term that covers all water-based paints that use synthetic polymers—such as acrylic, vinyl acrylic (PVA), and styrene acrylic—as a binder, holding color pigment together in a continuous film once dry. Despite its name, this category of water-based paint is not made from natural latex rubber. Source: The Rohm and Haas Paint Quality Institute, <http://www.paintquality.com/homeowners/paint-advice/infosheets/100acrylic.pdf>, accessed on November 19, 2012.
- <sup>8</sup> Agency for Toxic Substances and Disease Registry, "Division of Toxicology and Environmental Medicine ToxFAQs: Mercury." April 1999: <http://www.atsdr.cdc.gov/tfacts46.pdf>.
- <sup>9</sup> Agency for Toxic Substances and Disease Registry, "Division of Toxicology and Environmental Medicine ToxFAQs: Lead." August 2007: <http://www.atsdr.cdc.gov/tfacts13.pdf>.
- <sup>10</sup> U.S. Environmental Protection Agency, "TSCA Work Plan Chemicals: Methods Document." Office of Pollution Prevention and Toxics, February 2012: <http://www.epa.gov/oppt/existingchemicals/pubs/wpmethods.pdf>, accessed on November 21, 2012.
- <sup>11</sup> In a review of the material safety data sheets (MSDS) of thirteen name-brand latex paints currently sold in the U.S. conducted by Cascadia Consulting Group in November 2012, five (38%) listed potentially dangerous chemicals as product components.
- <sup>12</sup> Agency for Toxic Substances and Disease Registry, "Division of Toxicology and Environmental Medicine ToxFAQs: Ethylene Glycol." September 2007: <http://www.atsdr.cdc.gov/tfacts96.pdf>.
- <sup>13</sup> U.S. Environmental Protection Agency, "Evaluation of Low-VOC Latex Paints," *Inside IAQ: EPA's Indoor Air Quality Research Update*, EPA/600/N-98/003, Fall/Winter 1998: available via <http://nepis.epa.gov>.
- <sup>14</sup> Agency for Toxic Substances and Disease Registry, "Division of Toxicology and Environmental Medicine ToxFAQs: Styrene." June 2012: <http://www.atsdr.cdc.gov/toxfaqs/tfacts53.pdf>.
- <sup>15</sup> Washington State Department of Ecology, "Painters and Mold Removers Gain from Creative Enforcement Settlement." *ShopTalk Online*, 2011: [http://www.ecy.wa.gov/programs/hwtr/shoptalkonline/current\\_issue/story\\_three.html](http://www.ecy.wa.gov/programs/hwtr/shoptalkonline/current_issue/story_three.html), accessed on November 20, 2012.
- <sup>16</sup> K. Rumchev *et al.*, "Association of Domestic Exposure to Volatile Organic Compounds with Asthma in Young Children," *Thorax* 59 (2004): 746-751: <http://thorax.bmj.com/content/59/9/746>. Abstract.