



## Could your family be affected?

One manufacturer successfully replaced lead pigments used for corrosion resistance with yttrium, which is 100 times safer as a dust than lead at typical levels of use. Use of yttrium in the coating also eliminates the need for a chrome pretreatment in the finishing process. Use of the yttrium coating should eliminate up to 1 million pounds of lead in this coating application over the next several years.

— PPG Industries

### Why should my paint and coating manufacturing operation reduce air pollution?

People who are exposed to toxic air pollutants at sufficient concentrations, for sufficient durations, may increase their chances of getting cancer or experiencing other serious health effects, such as reproductive problems, birth defects, and aggravated asthma.

Pollution prevention safeguards the health of your employees, customers, and families by using materials, processes, or practices that can reduce or eliminate air pollution at the source.

Pollution prevention practices also save money on waste disposal, materials usage, and the cost of air pollution controls.

You may already be regulated by federal, state, local, and Tribal agencies and may already voluntarily implement pollution prevention practices. However, increasing pollution prevention efforts can further minimize impacts on human health and the environment.

### Why should I be concerned about air pollution from paint and coating manufacturing operations?

- Paint and coating manufacturing operations can produce hazardous air pollutants, including heavy metals.
- Mixing and cleaning operations can release some toxic air pollutants and volatile organic compounds (VOC). Chemicals in these substances can react in the air to form ground-level ozone (smog), which has been linked to a number of respiratory effects.
- Pigment grinding and milling emit

particle pollution (dust), which can contain heavy metals and other toxic air pollutants. While federal, state, local, and Tribal regulations limit the amount of emissions from paint and coating manufacturing operations, dangerous releases of toxic air pollutants can occur if a paint and coating manufacturing operation is not in compliance with regulations.

### How can I reduce air pollution from my paint and coating manufacturing operation?

#### Change Products

- Eliminate the use of heavy metals such as chromium, lead and mercury in coating mixtures. Non-hazardous biocides are available to replace mercury-containing coatings designed to kill bacteria.
- Reformulate coatings to higher solid coatings, waterborne coatings, powder coatings, or ultraviolet (UV) light-cured coatings.

#### Lower Emissions at the Source

- Cover tanks during blending, mixing, and while waiting to transfer the paint or coating into packaging.
- Cover tanks to reduce leakage of vapors.
- Cover all materials securely to reduce the chance of spills when transferring materials.

#### Change Cleaning Procedures

- Mandate a “clean as you go” policy to reduce the amount of solvent needed for removing heavy build-up.

*One manufacturer recycles and reuses 95% of the solvent used in the cleanup process, which reduces emissions and the amount of solvent purchased.*

— Pollution Solutions



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## Paint and Coating Manufacturing

- Where tanks can be cleaned manually, use a wiper or squeegee rather than solvents.
- Use a high pressure spray hose to clean tanks. This reduces the amount of solvent needed.
- Reuse cleaning solution or solvent. For example, use dirty solvent for initial cleaning. Then follow with clean solvent.
- Use cleaners with low toxic air pollutant and VOC content, such as water-based cleaners.
- Dedicate equipment to a single product, or family of products that are similarly colored, to reduce the need for equipment cleaning between batches.

### Recycle and Reformulate Materials

- Reuse dust captured by a baghouse during pigment grinding.
- Set up, or participate in, a paint exchange program where customers return unused paint that can be reworked into future products.
- Rework or blend off-specification materials into new products.

### Reduce or Eliminate Toxic Emissions

- Reduce emissions of particle pollution by using a baghouse to collect dust.
- Use pigments in a slurry or paste instead of in dry form, to minimize dust.
- Grind or mix raw ingredients with sandmills instead of ballmills. Sandmills are more efficient and require less solvent for cleanup.

### Upgrading equipment and reformulating paint may be better, but how expensive is it?

Though reformulating coatings or using new or different processes may be more expensive, raw material costs may decrease. Also, these coatings reduce the amount of toxic air pollutants emitted at your operation as well as operations using the coatings.

If you decide to upgrade the equipment in your operation, check with your state, local, or Tribal pollution prevention office for funding possibilities.

### How can I inform my customers about reformulated paints?

Users of reformulated paints and coatings may not have used these types of paints before and may require training to inform them that these paints and coatings will have the same functionality as conventional

formulations.

Provide workshops and/or information about the advantages and disadvantages of reformulated paints and coatings. Emphasize reductions in toxic air pollutant emissions, safety hazards, and the use of potentially toxic solvents.

At your operation, institute management procedures and goals that require an evaluation of pollution prevention techniques before any products are formulated or re-formulated. Communicate to suppliers your commitment to your pollution prevention procedures and goals.

Also, sponsor or participate in a paint exchange program where customers can return paints to be reworked into other paints.

### What else can I do to reduce air pollution?

Your community may already have groups working for cleaner air. Your expertise and knowledge can be very helpful to these groups.

Many pollution prevention offices offer free on-site assessments for interested businesses. A list of these small business assistance programs can be found at [www.epa.gov/smallbusiness](http://www.epa.gov/smallbusiness). This site provides information about assistance and technical help, environmental experts, environmental regulations and laws, funding, and cost-saving opportunities.

Refer your customers to Web sites for the Solvent Alternatives Guide ([www.sage.rti.org](http://www.sage.rti.org)) and The Coatings Guide™ ([www.cage.rti.org](http://www.cage.rti.org)) where they can increase their understanding of reformulated paints and coatings. Stay involved with trade associations and keep up to date with industry developments through industry-related Web sites.

Also, sponsor employee awards for good ideas, great efforts, and dedication to pollution prevention. For example, you could provide a cash award for workers who implement a work practice that reduces both costs and pollution.



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## Paint and Coating Manufacturing



### Could your family be affected?

One paint manufacturer recycles and reuses 95% of the solvent used in the cleanup process. The company estimated that it generates \$9,600 annually in savings from reductions in waste generation and solvent consumption.

—The Carbohydrate Economy Clearinghouse

## Resources

- National Paint and Coatings Association: [www.paint.org](http://www.paint.org), (202) 462-6272
- EPA Air Toxics Web Site: [www.epa.gov/ttn/atw/](http://www.epa.gov/ttn/atw/)
- EPA's Sector Strategies Partnership Program for the Paint and Coatings Sector: [www.epa.gov/sectors/paintcoatings/index.html](http://www.epa.gov/sectors/paintcoatings/index.html), (202) 566-2958
- Community-Based Projects: [www.epa.gov/air/toxicair/community.html](http://www.epa.gov/air/toxicair/community.html)
- Resource Center: [www.paintcenter.org](http://www.paintcenter.org)
- Topic hub: [www.pprc.org/hubs/toc.cfm?hub=28&subsec=7&nav=7](http://www.pprc.org/hubs/toc.cfm?hub=28&subsec=7&nav=7)
- Assessment and guidance: [www.ecy.wa.gov/pubs/98410.pdf](http://www.ecy.wa.gov/pubs/98410.pdf)
- Good operating practices: [dep.state.ct.us/wst/p2/industry/optindex.htm](http://dep.state.ct.us/wst/p2/industry/optindex.htm)
- Special Chem: [www.paintandcoatings.com](http://www.paintandcoatings.com)

### National Emission Standards for Hazardous Air Pollutants

- Miscellaneous Coating Manufacturing: [www.epa.gov/ttn/atw/mcm/mcmppg.html](http://www.epa.gov/ttn/atw/mcm/mcmppg.html)
- Miscellaneous Organic Chemical Manufacturing and Miscellaneous Coating Manufacturing: [www.epa.gov/ttn/atw/mon/monpg.html](http://www.epa.gov/ttn/atw/mon/monpg.html)

### Alternatives

- Solvent Alternative Guide: [www.sage.rti.org](http://www.sage.rti.org)
- The Coatings Guide: [www.cage.rti.org](http://www.cage.rti.org)
- The Carbohydrate Economy: [www.carbohydrateeconomy.org/library/admin/uploadedfiles/Biochemical\\_Substitutions\\_in\\_the\\_Paint\\_Industr.html](http://www.carbohydrateeconomy.org/library/admin/uploadedfiles/Biochemical_Substitutions_in_the_Paint_Industr.html)

### Toxicity of Materials

- Materials suppliers
- Integrated Risk Information System (IRIS): [www.epa.gov/iris](http://www.epa.gov/iris)
- Air Toxics Health Effects Notebooks: [www.epa.gov/ttn/atw/hapindex.html](http://www.epa.gov/ttn/atw/hapindex.html)

*EPA's Sector Strategies Program works within the paint and coating manufacturing sector to assess opportunities for improving environmental performance while reducing regulatory burden.*

— U.S. EPA

