

Franklin Paint Company

Toxics Use Reduction and an Integrated Contingency Plan

Summary

Franklin Paint Company employs 28 people in Franklin, Massachusetts, and produces about 2 million gallons of traffic and field marking paint annually, primarily for customers on the Eastern Seaboard, though they have customers worldwide. In the past two decades, Franklin Paint has dramatically reduced the use of hazardous chemicals, including heavy metals, in its paint, and improved safety in the workplace. Franklin Paint has eliminated the use of xylene and methanol and reduced the use of three other TURA reportable substances below reporting thresholds, while increasing overall paint production. Annual use of approximately 100,000 pounds of lead compounds, 100,000 pounds of chromium compounds, 150,000 pounds of methanol, 50,000 pounds of xylene, and 500,000 pounds of toluene has been eliminated. The company was recently acquired by Larry Boise, a former TURA planner for Franklin Paint, and Steve Schultz, a former business and financial consultant. Both Boise, the president of the company, and Schultz told OTA that Franklin has taken these actions because toxics use reduction (TUR) is the “right thing to do.”

Annual Toxics Use Reduction

100,000 pounds of lead compounds
100,000 pounds of chromium compounds
150,000 pounds of methanol
50,000 pounds of xylene
500,000 pounds of toluene

Toxics Use Reduction

To eliminate use of methanol, the company replaced the chemical with ethanol, which is less flammable and less poisonous, though more expensive. Boise points out that sometimes methanol-based paint

wastes create problems, especially if it is mismanaged, and the contents may be dumped temporarily on the side of the road or released due to clean outs and accidental spills. Even if collected later for proper disposal, methanol may be discharged into the environment. Ethanol is less poisonous and slightly less flammable (Flash Point: methanol 11°C, ethanol 16°C) than methanol. Boise explained that although more ethanol is required to obtain the same quality in the paint, it’s better for both the environment and for employees. Ethanol costs the company about twice as much as methanol, and although it is present in the mixture at less than 2%, this expense matters at high-production volumes and in a low-margin business. Some of the increased cost of ethanol is offset by eliminating the costs of having methanol onsite or in wastes.

Franklin Paint finds that it can also make up some of the difference in costs by competing on product quality and customer service. All paint at Franklin Paint is filtered twice before shipping, which reduces the chance that it will either deteriorate in storage or malfunction in the application equipment. This greatly reduces the expense of maintenance



Storage vat filled by gravity flow from mixing operations on upper floor.

and increase worker efficiency for their customers. The paint also performs more reliably and produces less waste for their customers. The company has received feedback that their paint lasts longer on the road than competitors and is hoping to quantify that information in the future. The company estimates that when the costs of lesser quality products and the benefits of responsive and rapid service are taken into account, the higher price for the ethanol-based “greener” paint is less of an issue.

To eliminate xylene and substantially reduce toluene, Franklin Paint has substituted acetone, which is less toxic. This required significant reformulation, as not all the constituents dissolved in acetone as they did in the xylene-toluene mixture. “Acetone is a polar solvent,” Boise explained, and so the



Five Gallon Paint-Filling Head

company asked their supplier for alternatives that would be compatible with it. Each new paint type is extensively tested at Franklin Paint for durability, reflectivity, and other characteristics before being marketed.

Beginning in the 1990s, in response to inquiries from state transportation departments and assistance from OTA, Franklin Paint began to provide non-lead traffic paint, seeing lead as “the handwriting on the wall.” The company began an effort to eliminate all heavy metals, and hazardous solvents as well.

Franklin Paint began to work with its suppliers to develop substitutions of less hazardous components. Working with pigment suppliers produced the first success: using yellow iron oxide and organic yellow pigments in place of lead. Franklin Paint’s owners say it took an additional ten years to find the right pigment combinations that could substitute for other heavy metals. The less hazardous substitutions

sometimes necessitate requesting exceptions, which require extensive data, or forsaking business in other states with certain pigment-to-binder ratios that preclude the use of less hazardous and less heavy chemicals.

Creating an Integrated Contingency Plan

In 1998, using grant money from the Environmental Protection Agency (EPA), OTA subsidized the creation of “integrated contingency plans” at two companies, one of which was Franklin Paint. The purpose of the project was to create one unified plan that would meet the requirements imposed by various laws, primarily the Resource Conservation and Recovery Act (RCRA), Clean Water Act, the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), and the Occupational Safety and Health Administration (OSHA), and pertain to emergencies involving chemicals used at the plant. The plan would be preventive in nature and examine opportunities for toxics use reduction, and not solely rely on safer ways to continue using the same chemicals. As a result of the planning effort, Franklin Paint identified product reformulation as a priority, and moved aggressively as described above to stop using its most hazardous chemicals. The company also took actions to improve its spill containment, its use of electrical connections when dispensing flammables, its ventilation, its overfill prevention, and its procedures for detecting problems and responding to them. The company has had the local fire department visit and conducted tours so

that all town fire fighters have been through the facility. The company had the Massachusetts OSHA Consultation program in for a review, addressed compliance issues, implemented a hazard analysis that removed potential sources of ignition from areas with flammables, and changed the storage of used containers to reduce the chance of contamination. As a result of adopting a preventive approach to emergency planning, Franklin Paint launched its concerted effort to eliminate the hazardous ingredients in its paints, which included “lobbying” contractors, state, and local agencies to accept water-based products in place of solvent-based, and to work on continuously evaluating and improving these new products, another aspect of the integrated contingency plan.

Improving Worker Health and Safety

To improve worker health and safety at the facility, the company added a new delivery system for calcium carbonate, now pumped into a silo and then pumped directly to the mixing vessels. This eliminates the need for workers to haul and break open bags of powder, reducing dust levels and paper waste. Where workers once had to lift 75 pound pails of paint from a conveyer belt to place them on pallets for shipping, Franklin Paint has recently installed an overhead lift, reducing strain on workers. “Our people are the most important factor we have,” said Schultz. “We want to keep them as long as we can and we want to keep them healthy.”

Conclusion

Franklin Paint has eliminated the use of two TURA reportable substances and reduced the use of three others, resulting in an annual decrease of 900,000 pounds of reportable toxic use. The company not only significantly reduced toxics use, but increased product production over the same time period. Boise and Schultz also continue to adopt practices that improve worker health and safety and look for opportunities to reduce their products impact on the environment.



Recently installed overhead lift for moving paint pails that protects workers from back injuries.

This case study was prepared by the Office of Technical Assistance and Technology (OTA), a branch of the Massachusetts Executive Office of Energy and Environmental Affairs. The OTA helps businesses and other organizations improve their environmental performance by helping them comply with relevant regulations, reduce toxics use, and conserve energy, water, and other resources.

OTA's **non-regulatory** services are available at **no charge** to Massachusetts businesses and institutions.

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Office of Technical Assistance and Technology, 100 Cambridge St, Suite 900, Boston, MA 02114