



# **Hampden Papers, Inc.**

## **Toxics Use Reduction Case Study**

### **Reduction Of VOC Emissions Leads To Savings**

#### **Summary**

Hampden Papers, Inc. of Holyoke, Massachusetts, reduced emissions of volatile organic compounds (VOC) by 97% by using new aqueous-based acrylics and other coating systems developed by a Massachusetts coatings manufacturer. The reduction of VOC has resulted in lower compliance costs, savings on insurance premiums, and a safer work environment. The avoidance of expenditures on VOC controls has helped Hampden to afford investments in high-quality production equipment.

#### **Background**

Hampden Papers is a 180-worker specialty manufacturer of converted film, foils and boards which has been in operation in Holyoke for 118 years. The company has 64 production machines in its 300,000 square foot facility. Its printed, coated, laminated and embossed products are sold in more than 80 markets. In the early 1970s when environmental legislation first began affecting VOC-emitting operations, former company president Frank Fowler elected to pursue reduction at the source rather than emission control at the end of the pipe.

The source reduction strategy paid off; regulation of VOC has become tighter, not just under clean air legislation but also under occupational exposure rules and new toxics use and release reporting laws. Hampden Papers is not subject to many of these regulations.

#### **Toxics Use Reduction Planning**

Bob Fowler, current company president, has continued on his father's course. The company tested and put into application new coating systems using non-VOC and low-VOC inks and coatings developed by I.C.I. Resins. Hampden Papers also uses gas oven drying where necessary. Because of its strategy of reformulation and equipment modernization, Hampden Papers has not had to purchase VOC collection and control equipment, nor has it had to install explosion-proof mixers for inks and coatings containing VOC.

Because aesthetics are a primary concern in the markets that Hampden serves, the company had to consider the risk of customer rejection of reformulated products. As it turns out, Hampden Papers has been able to expand its customer base, and production output has increased.

#### **Toxics Use Reduction Modifications**

While the amount of drying time associated with water-bourne products is often a concern, Hampden Papers has found that the acrylic copolymer resin inks and coatings have fast-drying characteristics. Hampden Papers' newest custom-made coater/laminator operates at 1000 feet per minute and has a 60-

foot gas fired oven. The aqueous products have demonstrated excellent clarity and resolubility on the press.

Several resin bases are now used for most of Hampden Papers' ink and varnish formulations. Because the inks are water soluble, it is possible to use biodegradable water-based cleaners and most machine washing is done with this type of cleaner.

## **Results**

*Reductions:* Hampden Papers has reduced annual VOC emissions at its facility by 97%, from 420 tons to 10 tons. VOC emitted per unit of product have dropped from 8.15 pounds to 0.15 pounds. In contrast to conventional printing and coating operations, there is no noticeable solvent odor.

*Economics:* Hampden Papers has increased total production during this same period. The reduction of VOC at the company has meant significant savings in fire insurance premiums. Reduction of toxic chemicals has benefitted employees, reduced the potential for liability under Superfund, air regulations, OSHA, RCRA, and other laws, and eliminated the expense of control equipment. Hampden Papers has made the switch to aqueous-based coatings without a diminution in quality, and has been able to maintain and increase its business while dramatically reducing its impact on the environment.

This case study is one in a series prepared by the Office of Technical Assistance (OTA), a branch of the Massachusetts Executive Office of Environmental Affairs. OTA's mission is to assist Massachusetts facilities with reducing their use of toxic chemicals and/or the generation of toxic manufacturing byproducts. Mention of any particular equipment or proprietary technology does not represent an endorsement of these products by the Commonwealth of Massachusetts. This information is available in alternate formats upon request. OTA's **non-regulatory** services are available at **no charge** to Massachusetts businesses and institutions that use toxics. For further information about this or other case studies, or about OTA's technical assistance services, contact:

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