Recycling and P² help Cobalt save money

Cobalt Boats' goal is to manufacture high-quality, highly functional boats for outdoor enjoyment. It's only natural, therefore, that they have a concern about the environment and are taking measures to prevent pollution.

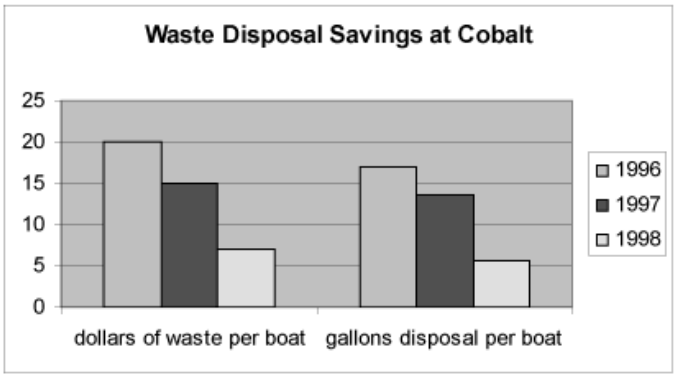
Greg Ternes is the environmental manager at Cobalt Boats in Neodesha, Kan. He had attended the Kansas Pollution Prevention conferences and other environmental conferences and seminars and had some ideas he thought would help improve efficiency of operations and reduce waste impact on the environment at Cobalt. Although change is hard for any company and Cobalt continues to work on several items, it has made some significant improvements.

One improvement that has been incredibly successful is implementation of an acetone recycling program. In 1997 Cobalt Boats purchased over 42,000 gallons of virgin acetone. In 1998, Cobalt recycled 25,000 gallons of acetone, corresponding to a savings of $50,000 in raw material cost, and a reduction of 27 tons of hazardous waste disposal, while production increased 7 percent. The acetone raw material cost per boat has gone from $24.05 in 1996 to $16.68 in 1998.

Hazardous waste disposal costs per boat went from $19.93 to $7.02 in the same time period. The cost spent on reporting and paperwork went from $1.03 per unit to $0.31, simply by introducing the acetone recycling program. The total costs associated with acetone have gone from $45.01 per boat in 1996 to $24.01 per boat in 1998.

Cobalt had tried recycling acetone in the past by hiring a contractor to do the job. This was not successful, however. The contractor was not able to control the distillation process as tightly as needed and styrene, dissolved in the acetone from resin used to make the boats, was distilled along with the acetone.

This meant that workers using the acetone had skin reactions



Acetone recycling unit controls temperature accurately for efficient distillation.

Case study: Cobalt Boats

Flow coaters apply larger volumes of resin at lower pressure, resulting in less overspray and bounceback.

from the styrene. When Cobalt wanted to reinstate the acetone-recycling program, it had to overcome this negative perception. Ternes thoroughly researched recycling equipment on the market and found a very good unit that controls distillation temperature so accurately that only acetone and not styrene is recycled. Now the workers cannot tell the difference between virgin and recycled acetone.

In addition to recycling acetone, Cobalt gets a final use from its used acetone before it goes into the still. Some clamps get caked with resin and are very difficult to clean. These are placed in a basket in a drum. All of the used acetone gets its final use by being poured over these clamps. By gravity separation, the solids go to the bottom of the drum, and the liquids are taken off and put into the acetone distillation unit.

Cobalt was able to pay for its $35,000 distillation unit in less than eight months. This payback was calculated on the basis of reduced acetone purchased and savings on acetone waste disposal. The distillation unit can recover 10 gallons per hour. Cobalt currently uses about 2,000 gallons of acetone per month. Recovery rate for the still is about 80 percent.

Cobalt is also converting its guns used for applying the resin. The spray chopper guns used in the past are similar to conventional paint spray guns. They use high pressure air to atomize the resin. Fiberglass roving is chopped and applied at the same time with these guns. New guns being used at Cobalt are called flow coaters. These are similar in technology to the high-volume, low-pressure (HVLP) paint spray guns. Resin is sprayed at higher volume and lower pressure. The advantage of using these kinds of guns is reduced overspray and monomer (styrene) loss, saving expensive raw materials.

Use of flow-coating equipment has reduced the volume of liner board used per week by 50 percent. Instead of changing the paper (liner board) on the floor daily, they change it every other day. The quantity of waste has been reduced from 6,000 pounds per week to 3,000 pounds, despite production increases. This equates to annual savings of over 70 tons of solid waste and $40,000.

The resin has a pot life (time before it gels) of about 30 minutes. In order to avoid gelation of the resin in the spray gun, it must be immersed in acetone if it will be longer than 30 minutes before the operator sprays it. After such a period of inactivity, the operator must spray out some material before he or she starts fabricating the boat again. This waste material will be consolidated by spraying it onto a small pad of paper on either end of the boat. This avoids overspray on the floor. The smaller areas of paper can be changed every day, but the large areas of paper covering the floor under the work surfaces will have to be changed only every two days.

Roll of liner board used for protecting the production floor.

Cobalt is an example of how a successful project can open the door to more waste-saving and money-saving projects. For further information on this or other pollution prevention ideas, contact the Pollution Prevention Institute at Kansas State University, providing technical assistance to Kansas businesses as part of the Kansas Small Business Environmental Assistance Program. Call 800-578-8898 or e-mail ppi@ksu.edu.

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The Small Business Environmental Assistance Program's (SBEAP) mission is to help Kansas small businesses comply with environmental regulations. SBEAP operates through a consortium of the University of Kansas, Kansas State University and Wichita State University. SBEAP is funded through a contract with the Kansas Department of Health and Environment. SBEAP services are free and confidential. This fact sheet was published by Kansas State University's Pollution Prevention Institute. For more information, call 800-578-8898 or send e-mail to SBEAP@ksu.edu. Our Web address is *http://sbeap.niar.twsu.edu*. The University of Kansas, Kansas State University and Wichita State University are EEO/AA providers.