

A Truly Inexpensive Method for Reducing Industrial Pollution

Douglas G. Mehan, Senior Environmental Engineer, PPG Industries, Inc., Works 8, Kebert Industrial Park, PO Box 800, Meadville, PA 16335 (mehan@ppg.com) and Eric Pallant, Chair, Department of Environmental Science, Allegheny College, Meadville, PA 16335 (epallant@alleg.edu)

PPG Industries, Inc. (PPG) and Allegheny College (both in Meadville, Pennsylvania, USA) are collaborating to reduce pollution in a local glass production facility. College interns and students working on research projects are collecting data, conducting research, and making recommendations for minimizing waste at PPG's factory.

The Meadville PPG glass plant manufactures flat glass primarily for the automotive industry using two 600 ton per day glass melting furnaces and the float production process. In a typical year, the plant generates 1,000 tons of waste while recycling over 70% of this amount. A formal waste minimization program has been in place since the mid 1980s. The plant's waste minimization team tracks all wastes, establishes and implements reduction strategies, and sets annual waste reduction goals that are closely monitored by management. Although the plant and company are progressive in their efforts to reduce waste and to prevent pollution, the plant's waste minimization program has stagnated. This has been due in part to the limited resources available to tackle waste minimization problems (because of production demands) and limited team participation by hourly plant employees on the production floor. Thus PPG wanted to revitalize the program with a goal to achieving aggressive waste reduction.

Allegheny College is a small liberal arts college of 1,750 students located near the PPG glass plant. Faculty in its Department of Environmental Science encourage their students to work on "real world" environmental problems in collaboration with businesses, governments, and non-governmental institutions located in their watershed. Several Allegheny students have worked with PPG as interns or on independent research projects receiving college credit rather than salary. Working with the PPG waste minimization team, students have identified pollution prevention options for several special waste streams including old/obsolete electronics, cathode ray tubes, mercury compounds, and packaging materials. In addition, they have calculated mass balance accounts for various waste streams to establish other potential waste minimization opportunities.

The internship program and other research projects done by Allegheny students at PPG are ongoing. These student-researchers supply a pool of labor for PPG that permits investigations into projects that PPG employees normally do not have time for. PPG has already benefited from the collaboration through the reduction and elimination of several problematic waste streams. In addition, the partnership has reinvigorated the plant's waste minimization effort, assisting in achieving corporate and plant waste reduction goals. The program has resulted in the elimination of several tons of obsolete electronics, replaced solvent cleaning solutions with "green" products, and established a process flow map for all waste streams. Students have gained important academic and job skills by solving "real life" problems and by working on their problem solving techniques and communications skills with professionals. Finally, the local community has benefited from the program by the reduction of wastes generated and disposed of at local landfills. We believe that this model for collaboration between industries and schools

could be used in other parts of the world with similar benefits to businesses, students, and the local community.