



PREVENTION

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Office of
Pollution Prevention

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U.S. EPA's Environmental Technology Verification Program - *Advancing P2 Technologies*

What is ETV?

U.S. EPA's Environmental Technology Verification (ETV) Program, established in 1995, verifies the performance of important environmental technologies through independent third-party evaluation. ETV accelerates the development of technologies to address important environmental risks.



ETV's five main focus areas include:

- ✓ **Air** - Air Pollution Control Technologies Pilot, Greenhouse Gas Technologies Pilot
- ✓ **Water** - Drinking Water Systems Pilot, Source Water Protection Technologies Pilot, Wet Weather Flow Technologies Pilot
- ✓ **Monitoring** - Advanced Monitoring Systems Pilot, Site Characterization & Monitoring Technologies Pilot
- ✓ **Pollution Prevention** - Indoor Air Products Pilot, P2 Innovative Coatings & Coatings Equipment Pilot, P2 Metal Finishing Technologies Pilot, P2, Recycling and Waste Treatment Pilot
- ✓ **Independent** - EvTEC (Independent Entity) Pilot

Each pilot follows a step-by-step process: (1) identify technology needs with help from stakeholders; (2) send a formal request for technologies

to interested vendors; (3) request an application package from interested vendors; (4) hold a meeting with vendors of the technology category selected for testing; (5) prepare and obtain review of Test/Quality Assurance Plan; (6) conduct the verification test; (7) complete the verification test report; and (8) review the report by U.S. EPA, whose representatives sign the completed verification statement.

ETV and P2 Pilots

Under the P2 focus area of ETV, work is being completed in four areas to advance the development of source reduction and recycling technologies. Below is a brief description of some of the technologies verified.

Laser Touch Targeting Device for Manual Spray Painting Operations

The device, made by Laser Touch and Technologies, LLC, attaches to manual spray guns using an adapter bracket. The device emits two laser beams that converge at the proper distance-to-target position. Proper gun position will ensure better transfer efficiency (TE) resulting in less coating loss. The verification testing showed that relative TE could be increased up to 15 percent. Cost savings could be expected through reduced coating usage and solid waste disposal. The retail cost for the device is \$799.

This verification report is available at www.epa.gov/etv/04/lasertouch_vr.pdf.



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Liquid Organic Coating Application in Automotive Refinishing

This verification project evaluated a high-volume, low-pressure (HVLP) liquid spray gun (DeVilbiss FLG-631-318) for automotive refinishing. The gun



was tested on flat cold-rolled steel panels using a basecoat supplied by PPG. The gun was mounted on automatic robotic finishing equipment. The verification testing showed that relative transfer efficiency (TE) could be improved more than 37 percent compared to conventional application spray equip-

ment. Savings could be expected from reduced paint usage and solid waste disposal. The HVLP gun costs \$175.

This verification report is available at www.epa.gov/etv/04/flgp4a.pdf.

Microbiological Oil Digestion for Aqueous Cleaning Applications

This project involved testing, under actual production conditions, the BioClean Biological Degreasing System. This alkaline cleaning system was tested on its ability to remove oils, coolants and other metalworking fluids prior to electroplating. The alkaline cleaner uses microbes to consume oils, coolants and fluids. The verification testing indicated that the BioClean system eliminated the need for periodic alkaline cleaner bath disposal. The capital cost of the BioClean system was \$47,569 (includes \$27,625 for the BioClean unit, plus \$19,944 installation to four work centers. The annual cost savings were \$86,192 for a projected payback of less than one year (seven months).

This verification report is available at www.epa.gov/etv/10/bioclean_vr.pdf.

Microfiltration Aqueous Cleaning Applications

The verification project evaluated the ability of microfiltration (USFilter® Membralox Silverback™ Model 900, under actual production conditions, to remove metalworking oils and recover alkaline cleaning chemistries for reuse. The testing showed the technology removed total suspended solids and oil while recovering the alkaline cleaner. The Silverback™ unit reduced disposal frequency for the alkaline cleaner bath from 15 times a year to twice a year. The capital cost of the unit was \$43,000 (includes \$36,000 for the unit, \$5,000 for storage tanks and \$2,000 for installation costs). The annual cost savings were \$32,064 for a projected payback of 1.3 years.

This verification report is available at www.epa.gov/etv/10/silverback_vr.pdf.

More Verification Testing of P2 Technologies Planned

Verification testing for several more P2 technologies are currently in progress.

These include:

- ✓ innovative liquid paints;
- ✓ chromate conversion coating solution maintenance;
- ✓ electroless nickel bath maintenance;
- ✓ mineral acid bath maintenance; and
- ✓ rinse water recycling.

Additional information on ETV and P2 Pilots

U.S. EPA's ETV Program Web site is at www.epa.gov/etv.

The Web site provides information on ETV program contacts, verified P2 Pilot projects, projects in progress, program partners, requests for technologies and other important program activities.

Recent Events and Activities

Solar Power from Washington to Worthington: *Nationally-Recognized Solar Homebuilder Don Bradley Speaks in Worthington, Ohio*



“Built with an eye toward the future...” On October 10, 2001, Green Energy Ohio (GEO) invited the public to learn about residential sustainable design and construction from one of the nation’s top

experts on solar home-building-Don Bradley, President of Solar Strategies Development Corp. and Bradley Builders and Developers of Pennsylvania. Bradley spoke at the Worthington Clarion Hotel.

Worldwide concern over environmental destruction and the depletion of non-renewable resources has focused attention on the need to change the way homes are built and energy is used. Residences, which account for 18 percent of all energy use in the U.S., present a major opportunity to reduce raw material waste, energy use and resultant pollution. With the most up-to-date, efficient technologies and renewable energy features, Design Homes, LLC. & Bradley Solar Homes can reduce energy use by up to **90 percent compared to the average home**. Bradley’s homes incorporate energy efficient lights, appliances and heating and cooling systems. Additional features are available to utilize inexpensive geothermal cooling and fresh air systems or heat-pump domestic hot water systems.

A veteran of 35 successful solar home constructions, Bradley recently displayed a model of his prototypical residence right in the shadow of the U.S. Capitol in the nation’s front yard-the Washington D.C. Mall-from April 21 to 25, 2001. U.S. representatives and senators were among the 25,000 people who toured the sun-powered residence. Bradley constructed the **3,000** square-foot, two-story, **\$100,000** home, dubbed the “Solar Patriot,” to demonstrate the latest in energy efficiency and solar technology for “Forum 2001,” a Washington conference sponsored by 14 national groups advocating the use of renewable energy.

Bradley plans another 40 solar constructions this year including several **1,400** square-foot solar townhouses that will be built in conjunction with a non-profit developer to enable low- and moderate-income families

to purchase the new, energy efficient homes for **\$60,000** to **\$65,000**. GEO sponsored Bradley’s visit to Ohio along with co-sponsors: the Ohio Dept. of Development Office of Energy Efficiency, American Institute of Architects (AIA) Columbus Committee on the Environment, the Cleveland Green Building Coalition, Foundation for Environmental Education and Safe Energy Communication Council.

For more information about Bradley Builders Solar Homes, visit their Web site at www.solarstrategies.com, and for more information regarding sustainable building opportunities in Ohio, visit OPP’s Web site at www.epa.state.oh.us/opp/Greenbuild.html or contact Ron Smith at (614) 644-2813 or at ron.smith@epa.state.oh.us.

Environmental Management Systems Workshop Conducted for Ohio EPA Staff

In June, more than 75 Ohio EPA staff members attended a workshop on environmental management systems (EMS)/ISO 14001 presented by The Amethyst Team. The workshop was supported by the Office of Pollution Prevention.

The two-day workshop, “Public Policy Environmental Management Systems: Achieving Improved Environmental Protection through New Partnerships,” provided Ohio EPA staff with an important introduction to EMS/ISO 14001. The training included an overview of EMS and the ISO 14001 model. Several hands-on exercises during training included identifying environmental aspects and impacts and setting EMS targets and objectives. The Amethyst Team’s experience with “hands-on” EMS implementation and involvement at the national and state level with EMS regulatory integration efforts added important value to the workshop.

The workshop concluded with a brainstorming discussion of ideas for Ohio EPA to promote the use of EMS/ISO 14001. A short-term idea being considered is improving EMS/ISO 14001 education and outreach to Ohio EPA staff and the regulated community. Long-term ideas may involve incorporating EMS into the regulatory setting at Ohio EPA. Ohio EPA staff response to the workshop was extremely positive.

More information on EMS/ISO 14001 is available from the Ohio EPA Office of Pollution Prevention Web site at www.epa.state.oh.us/opp/ems/emsinfo.html.

OPP is Looking for Speakers

The Office of Pollution Prevention (OPP) will coordinate industry-sector P2 workshops for Ohio EPA staff in 2001 and 2002. The workshops will provide staff with:

-  improved understanding of specific industry processes, operating practices and equipment; and
-  increased skill and ability in assisting Ohio manufacturers and businesses in identifying waste minimization and pollution prevention (P2) opportunities.

OPP is looking for interested Ohio manufacturers, businesses, trade associations, consultants, vendors, suppliers and other groups to speak at these workshops. Contact Jeff Lewis of OPP at jeff.lewis@epa.state.oh.us or (614) 644-2812 for more details.

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