



# Program Accomplishments

*Office of Pollution Prevention and Toxics*

*2000-2002*





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# A Message from the Administrator

I am pleased to provide the *Program Accomplishments for 2000-2002* report for the U.S. Environmental Protection Agency's (EPA) Office of Pollution Prevention and Toxics (OPPT). The report highlights the Office's progress and success in helping EPA meet our goal to make America's air cleaner, water purer, and land better protected.

More than 25 years ago, Congress passed the Toxic Substances Control Act (TSCA) with the goal of addressing toxic pollutants before they became problems. As the office with primary responsibility for implementing the law, OPPT became a pioneer in the development of a broad array of programs—from the traditional regulations and standards to innovative voluntary testing programs and stakeholder partnerships.

Today all across the country, the work of OPPT is making a difference for the quality of our environment and public health. From chemical testing programs that support environmental management decisions to a lead program that has helped lower blood lead levels in children, OPPT is helping make our communities healthier and safer.

As this report makes clear, OPPT's diverse environmental "portfolio" of programs and activities holds much that we can be proud of, and much that we can build upon for our nation's future.



Christine Todd Whitman  
Administrator



# To Our Stakeholders

During 2000-02, the Environmental Protection Agency's (EPA) Office of Pollution Prevention and Toxics (OPPT) has made significant strides in every aspect of our mission. With the new millennium, we have entered a new era of environmental stewardship. Testing has improved our understanding of chemical hazards, and we have continued to make more and more information available to the public. We know more about persistence in the environment, bioaccumulation up the food chain, and exposure pathways, and we have improved our ability to identify, evaluate, and reduce risks from toxic pollutants.

Much of this success has come through partnerships and voluntary action by industry to do more chemical testing, and through forward-looking developments in the design, manufacture, and use of chemicals and chemical products.

Our global leadership efforts have greater and greater implications as we push for harmonization of standards and approaches and seek international cooperation in confronting public health and ecological threats that show no respect for political boundaries.

Of course, September 11, 2001 changed the landscape of risk management and right-to-know, introducing a whole new array of vital national security and health protection challenges for EPA, state and local governments, and industry.

In the area of chemical testing, OPPT's flagship chemical right-to-know programs--the High Production Volume (HPV) Challenge Program and the Voluntary Children's Chemical Evaluation Program (VCCEP)--are extremely successful in their progress with our partners.

Our pollution prevention programs continue to develop and deliver the technical knowledge and tools for building what EPA Administrator Whitman calls "the infrastructure of environmental protection to achieve permanent gains." We are working to reduce the risks of toxic pollutants that accumulate up the food chain and linger in the environment for decades. We are promoting environmental justice and urban environmental quality. And, we are "greening" the government through environmentally preferable purchasing.

In October 2001, we marked the 25th anniversary of the Toxic Substances Control Act and our achievements over the past 25 years. We will build on those achievements and our recent accomplishments as we look forward to this new era of sustainability and stewardship. Our future efforts to protect human health and to safeguard the environment during these times will require all of us to work smarter and to work together--more now than ever before.

In closing, I'd like to share that these future efforts will be led by Charles Auer, formerly Director of OPPT's Chemical Control Division, who assumed the position of Director of OPPT in September 2002. I wish Charlie and OPPT well in the future in all that they do.



William H. Sanders III  
Dr. P.H., P.E.  
Director, Office of Pollution Prevention  
and Toxics

September 2002


# Introduction

Within the U.S. Environmental Protection Agency (EPA), the Office of Pollution Prevention and Toxics (OPPT) has primary responsibility for evaluating the risks associated with new and existing chemicals. OPPT develops guidance, and with EPA's regional offices and our state and tribal partners, implements programs to reduce risks from existing pollutants such as lead, polychlorinated biphenyls (PCBs) and asbestos already released into the environment. At the same time, we work to eliminate chemical pollution at the source through our new chemicals screening program and innovative pollution prevention partnerships.

OPPT's congressional mandate derives from the Toxic Substances Control Act of 1976 and the Pollution Prevention Act of 1990. These two laws are the foundation of our mission to provide reliable chemical assessments, risk management programs, and pollution prevention strategies.

With strong science at the foundation of all its activities, OPPT uses voluntary partnerships to

guide stakeholders, and leverages resources when possible. OPPT takes direct regulatory action when necessary. The information gathered and analyzed by OPPT, under our legislative mandates, also supports other EPA programs such as the Great Lakes National Program and hazardous air pollutants standards. Our programs reach a broad mix of environmental media and sectors of our society. Taken together, our guidance, outreach, regulations, technical assistance, and voluntary initiatives help ensure a safer future for generations to come.

This report highlights accomplishments achieved during 2000-02 in key areas of OPPT's programs that relate to the four major aspects of our mission: chemical information and assessment, pollution prevention approaches, steering and leveraging, and direct action. For more information on our programs, visit our homepage, [www.epa.gov/oppt](http://www.epa.gov/oppt), or any of the other websites listed on pages 37-38 of this report. 







# Chemical Information and Assessment

Many of OPPT's activities are driven by the Toxic Substances Control Act (TSCA). Passed more than 25 years ago, the law was intended to protect human health and the environment through information gathering, assessment of potential risks, and risk management where appropriate. Today, our programs in this area cover a broad range of activities from those tied directly to specific sections of TSCA to innovative voluntary programs that enable industry to generate the data EPA needs to identify risk reduction and pollution prevention opportunities that save money and resources. Our most significant accomplishments for 2000-02 are described below.

## *High Production Volume Challenge Program*

The High Production Volume (HPV) Challenge Program encourages the U.S. chemical industry to provide screening-level hazard information on chemicals they manufacture or import in quantities greater than one million pounds per year. All information is being made available to the public on EPA's website. Approximately 347 companies and 101 consortia have made commitments covering over 2100 chemicals. As of the beginning of December 2002, the chemical companies have submitted 151 test plans covering 846 chemicals (72 for categories of chemicals and 79 for individual chemicals) describing their efforts to identify and make public, basic toxicity and environmental fate information that currently exists and their plans to fill the data gaps identified through their data search and adequacy determination activities. Use of such methodologies as category analysis and structure activity relationships and the conduct of

new testing, if necessary, are described in the test plans. Test plans and study summaries for existing data are made available for 120 days on the website for public comment. EPA also reviews and comments on the submissions during this time. Program sponsors then generate the data needed to fill the gaps. Once completed, companies submit the data to EPA in study summaries, which are also made public on the website. All study summaries are expected to be submitted before the end of 2005. To further address the lack of publicly available screening-level information on HPV chemicals, EPA plans to issue rules under Section 4 of TSCA as needed to address screening-level data needs unmet in the HPV Challenge Program. The first such TSCA



Section 4 rule was proposed in December 2000 and addressed 37 HPV chemicals that had not been “sponsored” under the HPV Challenge Program. EPA plans to finalize this TSCA Section 4 rule in 2003.

## *Voluntary Children’s Chemical Evaluation Program*

OPPT’s Voluntary Children’s Chemical Evaluation Program (VCCEP) will provide data to enable the public to better understand the potential health risks to children associated with certain chemical exposures. All information will be made available to the public on EPA’s website. The VCCEP was launched in December 2000. Thirty-five companies that manufacture chemicals to which children may be exposed have agreed to voluntarily sponsor 20 chemicals in the first tier of a pilot of this program.

The VCCEP was developed after considering comments and concerns voiced by a number of stakeholders during a year-long dialogue with EPA. Following this dialogue, chemicals were selected for the program using two criteria: (1) biomonitoring data indicating that exposure to the general population, including

children, had occurred, and (2) environmental data indicating possible sources of exposure from drinking water and indoor air.

To identify chemicals for the VCCEP, EPA used existing data sources believed to be especially relevant to children’s chemical exposures, such as presence of the chemical in human tissues and fluids (blood, breath, breast milk, urine) as well as presence in food and water children eat and drink and in air children breathe. The chemical identification process did not take into account the unique aspects of children’s potential for exposure, based on their behaviors and activities. Identification does not mean that EPA has made or will make a determination that any uses of the 20 pilot chemicals pose significant risks to children’s health. The level of potential risk to children will be determined as part of the VCCEP. Additional details on how chemicals were selected for the VCCEP pilot are provided in the document *Chemical Selection Methodology*, which is available on the HPV website under “Information on VCCEP Chemicals.”

Working with stakeholders, EPA developed a tiered information collection scheme consisting of three tiers of progressively more detailed data on toxicity and exposure that would be integrated at each tier to estimate a chemical’s potential risk to children. As a sponsor submits the first tier of data, it will undergo scientific review in a Peer Consultation by a panel of 12 to 20 scientists who evaluate the submitted data and give EPA their individual opinions about its adequacy. If it is determined that more data are needed, the sponsors will be asked to provide the next tier of information. If additional information is not needed, EPA and the sponsors will cooperate to conduct appropriate risk communication and, if necessary, risk management.



Photo by Steve Delaney

## Chemical Testing

Under TSCA Section 4, OPPT develops rules or negotiates Enforceable Consent Agreements (ECAs) to require industry to conduct health and environmental effects studies of existing chemicals. The ongoing testing actions discussed below involve chemical substances that are produced and/or are imported in high volumes and have substantial human or environmental exposure:

- ◆ Agreements have been finalized for three Hazardous Air Pollutants (HAPs), discussions are under way on five other HAPs, and alternative testing proposals have been received on three additional HAPs and are being reviewed. These chemicals were among 23 HAPs for which EPA issued a proposed TSCA Section 4 Test Rule for comprehensive health effects testing to support the efforts of EPA's Office of Air and Radiation (OAR) under the Clean Air Act. Although the test rule proposed inhalation testing of the chemicals, some of the associated agreements include an alternative approach to gathering the needed data (i.e., extrapolation of oral data to inhalation via physiologically-based pharmacokinetic (PBPK) modeling). Because less testing is conducted under this alternative approach, fewer laboratory animals are used and overall testing costs to develop the needed data are minimized.
- ◆ Under the terms of a 1999 agreement with producers of dibasic esters—solvents used in some consumer paint stripping products—companies began submitting studies in 2000 on acute toxicity, sub-chronic toxicity, and genotoxicity of these solvents. By 2002, OPPT received the balance of test results for the initial phase of testing. OPPT initiated the second phase of the three-phase testing effort. Addressing U.S. Consumer Product Safety Commission needs for health effects data

concerning these chemicals, the ECA requires both toxicity and dermal penetration rate testing of the esters.

Under TSCA Section 5, OPPT's New Chemicals Program reviews a notice provided by industry of a new chemical substance before it can be manufactured or imported into the United States. This premanufacture notice (PMN) must be submitted at least 90 days prior to the manufacture or import of the chemical. OPPT received a total of 1509 valid Section 5 notices in 2000 and 1372 in 2001. For 2002, OPPT received a total of 1471 valid Section 5 notices. In addition, OPPT received human health and environmental effects data for 112 tests representing 42 unique chemicals in 2000, 126 tests representing 35 unique chemicals in 2001, and for 2002, 120 tests representing 43 unique chemicals.

The New Chemicals Program is also home to the TSCA Biotechnology Program. This program is responsible for the safe commercial introduction of new microorganisms with industrial applications, such as bioremediation or the production of specialty enzymes. Since the final rule was published in 1997, EPA has received seven notifications of commercial intent and 14 applications for experimental field trials. A multi-disciplinary team of scientists conducts a health and environmental review of each of these submissions, working at times closely with the submitter to ensure that the microorganisms do not present a risk to human health or the environment. Cases that have novel issues are further discussed with EPA's regional representatives in one of the monthly biotech teleconferences.

In order to support the chemical assessment activities of the TSCA Interagency Testing Committee (ITC), EPA can require industry to provide health, safety, and exposure data through Preliminary Assessment Information Reporting (PAIR) rules under TSCA Section 8. From January 2000 through July 2001, OPPT issued four PAIR rules covering 93 chemicals.

## *Non-Animal Testing*

EPA continues to make every effort to prevent unnecessary use of animals in its testing programs.

OPPT has incorporated a number of animal welfare principles into the HPV program and is making every effort to ensure that efforts are taken to reduce the number of animals needed for testing, reduce the pain and suffering of test animals and, whenever possible, replace animal testing with non-animal test systems. OPPT released guidance on this issue to companies participating in the HPV Challenge Program. This guidance promotes the maximum use of existing data, and encourages companies to disclose existing data not previously made publicly available. Where appropriate, EPA encourages the use of categories to group similar chemicals and approaches that allow the use of Structure Activity Relationship (SAR) methods which establish the relationship between the property of a chemical and a specific biological effect of concern. The use of categories and SAR methods present significant opportunities for a reduction in the total number of tests necessary. The guidance also states that sponsors are encouraged to defer certain animal tests and use certain in vitro tests to address endpoints for which adequate existing data are not available.

The Agency works domestically within the framework of the Interagency Coordinating Committee for the Validation of Alternative Methods (ICCVAM) and internationally with the Organization for Economic Cooperation and Development (OECD) to ensure the scientific acceptability of alternative test methods. Alternative toxicological tests are those that either reduce the number of animals in a test, refine procedures to make them less painful or stressful, or replace animals with non-animal systems.

New and revised toxicological test methods are being developed by incorporating recent advances in molecular and cellular biology as

well as new research technologies. These developments hold the promise for further reduction of animal use in the future.

## *TSCA Inventory Update Rule Amendments*

Since risk is comprised of toxicity and exposure components, basic exposure information is critical if the Agency and the public are to identify potential risk reduction opportunities and to target resources more efficiently. To address this concern, EPA recently published amendments to the TSCA Inventory Update Rule (IUR).

The IUR Amendments (IURA) tailor chemical substance reporting requirements to more closely match EPA's information needs, provide a vehicle for EPA to obtain updated information relating to the potential human and environmental exposures of chemical substances listed on the TSCA Inventory, and improve the utility of the information reported under the IUR. The amendments obtain critical information that enables EPA and other government agencies, industry, and the public to better screen and assess chemical risks.

Applications of the IURA basic use and exposure information include: informing screening-level decision making; providing initial exposure information for the development of Agency and public programs, such as the Design for the Environment voluntary program; complementing hazard information programs such as the HPV Challenge Program; and informing a variety of other programs, such as the TSCA testing program, Office of Solid Waste program, and National Institute for Occupational Safety and Health program.

The IUR required the submission every four years of data on approximately 9,000 organic chemical substances listed on the TSCA Inventory. These data include company and plant site identity, technical contact identity, chemical identity, chemical production volume, and site-limited status for chemicals produced

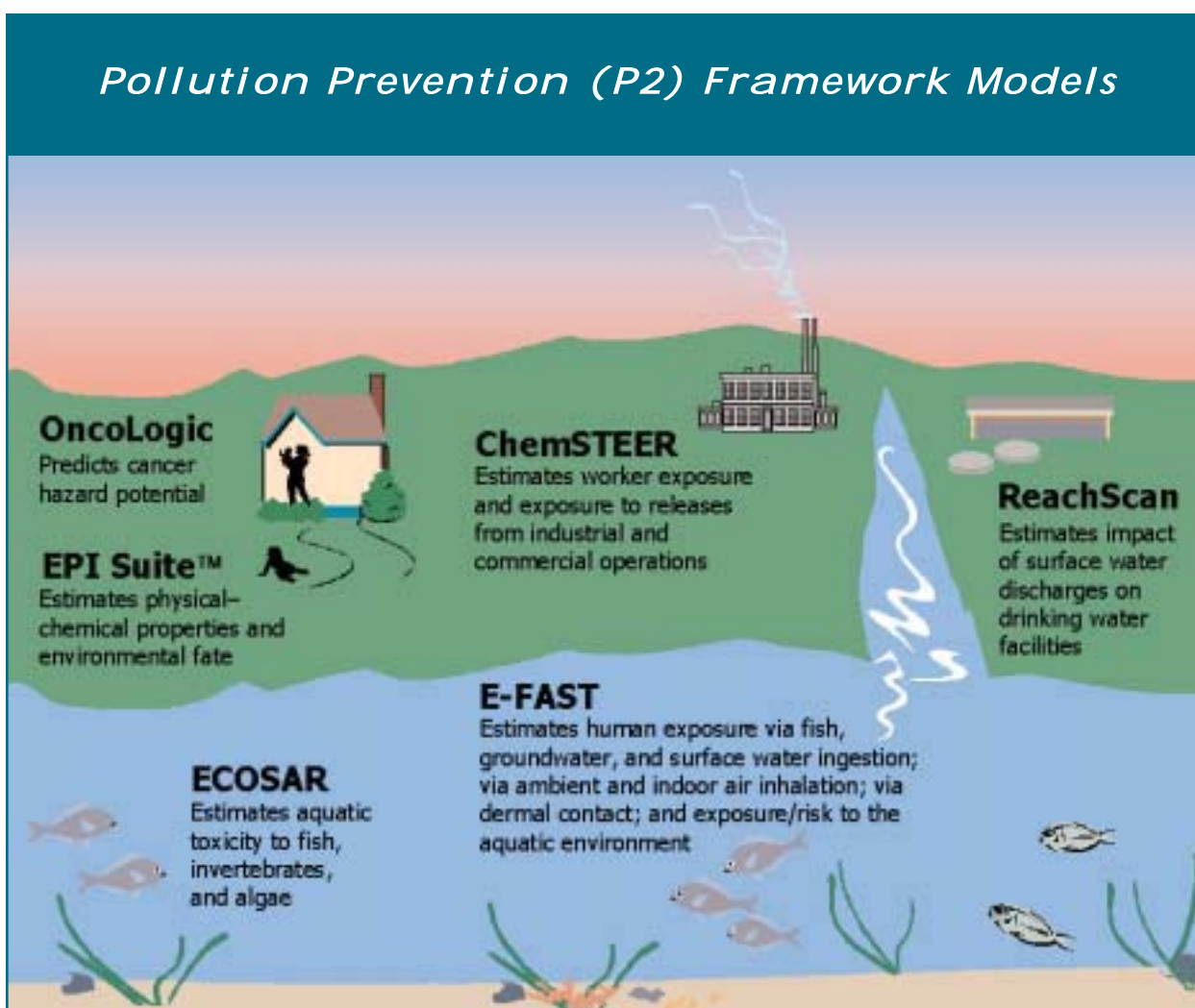
in volumes of 10,000 pounds or greater per chemical per site and listed on the TSCA Inventory.

The new amendment raises the reporting threshold to 25,000 pounds or greater. The amendment also adds reporting of inorganic chemicals information, industrial processing and use information, and consumer/commercial use information for manufacturers of 300,000 pounds or greater except for certain petroleum stream chemicals and other specifically listed chemicals. Reporting of information on certain natural gas substances has been removed. Finally, the amendment requires upfront substantiation for site identification confidential business information (CBI) claims. This information will be reported for the first time in 2006.

## *Exposure Assessment Tools and Models*

Through the years, OPPT has developed tools and models for conducting chemical exposure assessments. Today these tools and models are available on OPPT's website with downloadable models and databases that assessors can use to estimate human and environmental exposures, physical/chemical properties, and the fate of chemicals in the environment. The available tools and models range from priority setting tools to models for screening-level assessments to higher tier models for detailed exposure assessments.

In 2001, OPPT added the Estimation Program Interface (EPI) Suite, a group of tools that



allow an assessor to quickly and easily estimate physical/chemical properties such as vapor pressure as well as environmental fate and transport properties such as atmospheric degradation and bioconcentration. Since virtually all exposure assessments require estimates of at least some physical chemical properties or environmental fate parameters, assessors find this tool very useful. The Multi-Chamber Concentration Exposure Model and the Wall Paint Exposure Model were also added to the website in 2001.

In 2002, a beta test version of the Internet Geographical Exposure and Modeling Software (IGEMS) was made available. IGEMS is an innovative Internet-based higher tier model developed by OPPT that can be used to assess human and environmental exposures from releases to air, water, and soil/groundwater. By the end of 2002, OPPT was reviewing

comments from the IGEMS beta-testers to determine what improvements were needed.

In addition, an improved beta version of the Chemical Screening Tool for Exposures and Environmental Releases (ChemSTEER) and the Indoor Air Source Ranking Database (SRD) will be made available. ChemSTEER is a screening-level tool that can be used to develop screening-level workplace exposure and environmental releases of a chemical during manufacture and downstream processing and end-use activities. OPPT is also completing the final peer review of E-FAST (Exposure, Fate Assessment Screening Tool) and is conducting a test of the beta version of the updated E-FAST Version 2. Work has begun to update ReachScan, a model that estimates drinking water exposures. ReachScan will be incorporated into E-FAST Version 2.



## *Pollution Prevention Framework*

Over the past 20 years, OPPT has developed several models for screening new chemicals when there were no data available. These include the use of SARs and QSARs (Quantitative SARs which use statistical analysis to produce a predictive equation). These SARs and QSARs have been continually updated and expanded to other chemicals and classes of chemicals as test data become available. These models have been put together in a compendium called the Pollution Prevention (P2) Framework. After demonstrating the P2 Framework to industry stakeholders, OPPT partnered with companies representing numerous industry sectors to explore how the models can be used in the specific sectors.

Eastman Kodak used the models to identify, early in the product development cycle, new chemicals for its imaging operations that had less harmful environmental effects. As a result of using these tools, Kodak saved thousands of dollars typically invested in the research, development, and regulatory review of new chemicals. Subsequently, Kodak commissioned a cost-accounting study that demonstrated that the company saved 13 to 100 percent of development costs for each \$100,000 they spent in product development for each new chemical candidate.

PPG Industries completed a validation study of the method used in the P2 Framework to predict aquatic toxicity. PPG compared measured aquatic toxicity data with aquatic toxicity predictions from the P2 Framework for the same set of PPG chemicals. The results indicated 87 to 90 percent agreement between the predictions and measured data.

Based on their successful experiences applying the P2 Framework models, both Kodak and PPG have announced their plans to incorporate use of the P2 Framework models into their corporate research and development chemical screening efforts.

## *Sustainable Futures Project*

The success of the P2 Framework for P2 Partners Eastman Kodak and PPG Industries led OPPT to develop the Sustainable Futures Voluntary Pilot Project to encourage manufacturers to apply pollution prevention principles during the development of new chemicals submitted as PMNs under Section 5 of TSCA. OPPT developed an approach that includes expedited review as an incentive to participate in the pilot project. Qualifying companies who use the P2 Framework, or other scientifically valid risk screening approaches, can begin to manufacture qualifying new chemicals in 45 days instead of the normal PMN review period of 90 days. The goal of this pilot project is to encourage pollution prevention in the earliest stages of research and development and the development of inherently low hazard chemicals. The Agency also seeks to gain additional data and experience regarding the pollution prevention, risk reduction, and source reduction benefits of using hazard, exposure, and risk screening methodologies such as the P2 Framework in new product development efforts.

The Agency issued a Federal Register notice in December 2002 announcing the Sustainable Futures Voluntary Pilot Project. EPA expects to begin formal training with industry on the P2 Framework models and answer any follow-up technical questions. The 2003 target is 25 participants and self-audited new chemical product alternatives. To date, seven companies are participating in Sustainable Futures, and 15 self-audited chemical product alternatives have been completed. 📄





# Pollution Prevention Approaches

Increasingly, the nation is coming to understand the value of pollution prevention (P2) as an environmental strategy, as a sustainable business practice, and as a fundamental principle for all our society. It is also a vehicle for “reinventing” traditional EPA programs and devising innovative alternative strategies to protect public health and the environment. The year 2000 marked the ten-year anniversary of the Pollution Prevention Act. Through OPPT’s leadership, pollution prevention has become a key element of initiatives to improve federal environmental management, empower state and tribal programs, encourage corporate stewardship, and better inform the public.

## *Environmentally Preferable Purchasing*

As the single largest consumer, the U.S. government spends approximately \$230 billion annually on a wide variety and large quantity of products and services. Therefore, by specifying renewable resources in construction, recycled content in office supplies, and low toxicity in cleaning products, for example, the federal government can wield its purchasing power to increase national demand for greener products as well as to help meet environmental goals through markets rather than mandates.

OPPT’s Environmentally Preferable Purchasing (EPP) Program aims to “green” government purchasing by conducting and documenting pilot projects and providing guidance and tools that will help federal purchasers incorporate human health and environmental considerations into their purchasing decisions. Major efforts of the program are described below:

- ♦ In 2000, OPPT completed a market research study that measures the awareness and success of EPP efforts within the federal government and identifies what motivates people to consider the environment when buying products and services. The report is available online (see pages 37-38 of this report). In October 2002, EPA established an ambitious set of goals for itself to comply with Executive Order 13101, Greening the Government through Waste Prevention, Recycling, and Federal Acquisition, in order to reduce the Government’s ecological footprint. The market research study report has stimulated increased EPP activity.
- ♦ In 2001, OPPT entered into a Memorandum of Understanding (MOU) with the U.S. Postal Service, the Department of Defense, the Department of Interior, the Department of Energy, the Council on Environmental Quality, and the White House Task Force on Waste Prevention and Recycling. The MOU will aid these federal agencies in developing and implementing environmentally preferable and energy efficient practices and technologies for electronic equipment, which is the fastest growing portion of the municipal solid waste stream.
- ♦ OPPT’s EPP Program and the National Park Service (NPS) have launched a new initiative to integrate green purchasing into the national parks. Through 20 parks identified as Centers for Environmental Innovation (CEI), the NPS will educate staff and work with EPA to identify the types of products and services that will

improve the parks' resource stewardship capacity.

- ◆ The federal government spends billions of dollars on travel and meetings across the country every year. Meetings can have significant environmental impacts including the smog and greenhouse gas emissions associated with air and ground travel to the paper, plastic, and food waste associated with meals. To encourage environmentally responsible event planning, EPA, the General Services Administration, Oceans Blue Foundation, and the Society of Government Meeting Professionals have launched an interactive, web-based tool in partnership with relevant industry associations, corporate meeting planners, environmental non-governmental organizations, and federal agencies. The tool demonstrates opportunities for conference planners and suppliers (e.g., hoteliers, convention centers, and food service providers) to reduce pollution, energy use, and water use at a conference. The green meetings tool is available online (see page 38 of this report).

- ◆ In a memorandum of agreement, the EPA and the Department of the Interior (DOI) have renewed their commitment to purchase products from participants in the Javits-Wagner-O'Day (JWOD) program for the blind and disabled communities. JWOD in turn agrees to continue greening its products, with assistance from the agencies. This agreement promotes green procurement across the federal government as well as employment opportunities for individuals who are blind and physically challenged.

### *Persistent, Bioaccumulative, and Toxic Pollutant Program*

EPA's Persistent, Bioaccumulative, and Toxic (PBT) Pollutant Program uses a multimedia, cross-agency approach to reduce risks to human health and the environment caused by pollutants such as mercury, dioxins/furans, and polychlorinated biphenyls (PCBs). During 2000-02, EPA and its partners have made significant advancements in the areas of assessing and addressing the levels of priority PBTs in the environment.

**The EPA campus in Research Triangle Park, North Carolina, is the largest facility ever designed and built by the Agency. Every major construction and purchasing decision factored in cost, functionality, sustainability, and environmental impact.**



Several of the program's activities have addressed the challenges posed by mercury. For example, under the Hospitals for a Healthy Environment (H2E) project, hundreds of hospitals and healthcare facilities have signed a pledge to eliminate mercury use by 2005. The Mercury in Schools program expanded its web site content and conducted workshops across the country to train teachers about mercury risks and how to remove mercury from their schools. In the area of monitoring and measurement, EPA has established a high-altitude site on Mauna Loa, Hawaii, that will improve the current state of knowledge about the long-range transport of mercury. The PBT program has also provided management and support for the EPA Dioxin Exposure Initiative (DEI). The DEI is an interagency effort to identify dioxin sources and quantitatively link them to human exposure. The DEI will provide much of the scientific basis for establishing future dioxin risk management priorities. 2000-02 accomplishments included completing the characterization of the uncontrolled burning of household waste (backyard barrel burning). As a result of this work, burn barrels have been identified as the largest contemporary source of quantifiable dioxin releases to the air. Other DEI accomplishments include expansion of the National Dioxin Air Monitoring Network to its full design of 32 stations, and the initiation of studies looking at dioxin exposure pathways in domestic animal feeds.

In addition to the chemical-specific accomplishments listed above, EPA made important advancements in the measurement of existing PBTs, as well as efforts to keep new PBT chemicals from being introduced into the marketplace:

- ◆ New, lower reporting threshold requirements for PBTs under the Toxic Release Inventory (TRI) resulted in the reporting of emissions of PBT chemicals by 762 additional facilities, excluding lead. While the facility information for lead is not yet publicly available, nearly 6,000 facilities that had not previously reported lead did so for reporting year 2000.



The National Health and Nutrition Examination Survey found that approximately 10 percent of women of child-bearing age have blood mercury concentrations above the levels EPA considers safe.

- ◆ EPA analyzed the first year of samples from the National Fish Tissue Study for 265 PBT chemicals. EPA's Office of Water continues to collect and analyze samples for the National Fish Tissue Study, a four-year freshwater fish contamination study that began sample collection in 2000. The study is expected to produce important data about the largest group of PBT chemicals studied in fish to date. The data set includes all of the priority PBT chemicals except alkyl-lead. This is the first fish tissue study to use a random sampling design on a national level; the resulting data should allow EPA to develop national estimates of the mean levels of individual PBT chemicals in fish tissue. The study also addresses critical data gaps by defining background levels for PBT chemicals in fish and by characterizing the prevalence of these chemicals in fish on a national scale. To date, participating states and EPA regions have collected fish from 261 lakes in 44 states, and EPA has completed chemical analysis of the 288 first-year fish samples. The first-year data sets will be released on request.

- ◆ In September 2002, OPPT released to the public the “PBT Profiler,” an online screening model developed as a collaborative effort with industry and non-government organizations that is made up of a subset of the P2 Framework models. These screens enable companies to determine—early in the design phase of a new chemical or in the reformulation of an existing chemical—if the product presents “red flag” properties of being persistent, bioaccumulative, and toxic.

EPA makes the process easy by giving companies free software, beta tested by more than 100 participants from industry, academia, and government and peer reviewed following EPA’s Peer Review Guidelines, to use in evaluating their new chemicals for PBT characteristics.

In the first four months, industry partners evaluated the PBT potential of 8,000 chemicals using the Profiler.

## *Hospitals for a Healthy Environment*

The healthcare industry sector generates nearly one million pounds of waste a day and is the fourth largest source of mercury releases. OPPT’s Hospitals for a Healthy Environment (H2E) program is an EPA effort to utilize pollution prevention practices to help the industry reduce its environmental impact.



H2E provides healthcare professionals with the tools and information necessary to reduce mercury waste, reduce the overall volume of waste, and identify pollution prevention opportunities. Under an MOU with the American Hospital Association, the H2E initiative will work toward the following:

- ◆ Virtually eliminate mercury-containing waste from hospitals’ waste streams by 2005.
- ◆ Reduce the overall volume of waste (both regulated and non-regulated waste) by 33 percent by 2005 and by 50 percent by 2010.
- ◆ Identify hazardous substances for pollution prevention and waste reduction opportunities, including hazardous chemicals and persistent, bioaccumulative, and toxic pollutants.

In 2000, H2E launched a website of the most complete healthcare pollution prevention resources available on the web. In 2001, H2E launched a list server to exchange healthcare pollution prevention information among healthcare professionals and a pledge program to encourage hospitals and associated industries to commit to attain the goals of the H2E program. H2E partners are healthcare facilities that have pledged to eliminate mercury and reduce waste consistent with the overall goals of the program. H2E now has 398 partners representing 1,329 facilities: 442 hospitals, 719 clinics, 28 nursing homes, and 140 other types of facilities. In addition, H2E champions are organizations that assist healthcare facilities in achieving the national H2E goals. H2E has 39 champions, including approximately 3,893 facilities that promote the H2E program and implement waste reduction activities at their own facilities.

Through its awards program to recognize hospitals and healthcare allies, H2E has presented over 60 awards in three categories. In 2003, H2E will expand the awards to four categories.

## *P2 Grant for Reducing Mercury in New York State Schools*

New York State Department of Environmental Conservation, in partnership with the Department of Health and several local agencies, is providing P2 technical assistance and outreach for removal of elemental mercury and mercury devices from schools. Mercury spills account for 25 percent of all school evacuations and can be very costly. Elemental mercury and mercury-containing devices are found in nurses' offices, science labs, chemical storage areas, and gymnasium lighting.

The grantee is partnering with the Orange-Ulster Board of Cooperative Educational Services (BOCES) to conduct a demonstration project to inventory, collect, and recycle mercury from thirty public and private schools within a local BOCES district. The grantee will also distribute educational material statewide.

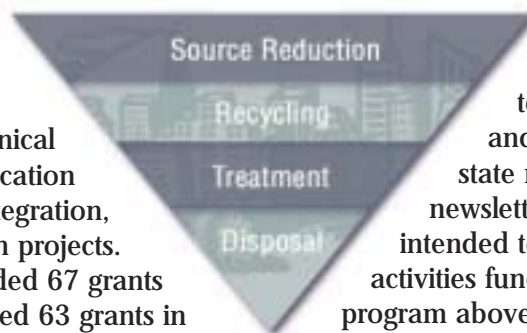
### *Pollution Prevention Grants*

Under the authority of the Pollution Prevention Act of 1990, EPA provides funds to states and tribes to address the reduction or elimination of pollution across air, land, and water, and to strengthen the efficiency and effectiveness of state technical assistance programs in providing source reduction information to businesses. Since its inception, OPPT has awarded approximately \$75 million through two programs. The Pollution Prevention (P2) grant program (previously known as the Pollution Prevention Incentives for States) funds state-based projects in the areas of technical assistance and training, education and outreach, regulatory integration, research, and demonstration projects. In 2000, the program awarded 67 grants totaling \$5 million. It awarded 63 grants in 2001 totaling \$5 million, and 65 grants in 2002 totaling \$5 million.

The goal of the P2 grant program is to fund state technical assistance programs to assist businesses and industries in identifying better environmental strategies and solutions for complying with federal and state environmental regulations. Successes include decreases in

facility emissions and discharges that lead to less stringent regulatory and permitting requirements, increases in production rates that correlate to decreasing environmental costs, elevated investments in new and better technologies, and savings that directly impact the overall profitability of a business.

The Pollution Prevention Resource Exchange (P2Rx) grants program awarded \$1 million per year in 2000, 2001, and 2002. These grants support eight regional P2 information centers that offer P2 information services, including resources for specific sectors, information collection and distribution, regional and state meetings, training, and newsletters. These activities are intended to support and complement activities funded through the P2 grant program above. In 2002, an additional \$100,000 in grants was committed to developing a marketing plan for the eight centers, improving the centers' website, and developing technology profiles.



### *Design for the Environment*

OPPT's Design for the Environment (DfE) program is one of EPA's premier partnership

programs, working with individual industry sectors to compare their existing products, processes, and practices with alternatives that may reduce costs, improve performance, and reduce human health and environmental risks. DfE partnership projects promote integrating cleaner, cheaper, and smarter solutions into everyday business practices. During 2000-02 the following partnerships made significant progress:

**Automotive Refinishing Partnership.** In cooperation with the Pennsylvania Small Business Development Center, DfE sponsored 40 shop visits by an industrial hygienist and experienced painter who provided hands-on technical assistance. During 2002, DfE produced a Best Practices outreach kit and technical assistance products that were used in training conducted with Region 3 for technical assistance providers from Pennsylvania, Delaware, Maryland, Virginia, and the District of Columbia on how to effect continuous improvement in collision repair shops.

**Computer Display Partnership.** In December 2001, the University of Tennessee Center for Clean Products and Clean Technologies completed the Life-Cycle Assessment (LCA) and streamlined Cleaner Technologies Substitutes Assessment (CTSA) for desktop computer monitors in voluntary partnership with the Electronic Industries Alliance, individual original equipment and component manufacturers, and EPA risk assessment experts. The final LCA/CTSA will help industry to identify opportunities for product improvements that will reduce potential adverse environmental impacts.

**Industrial and Institutional Laundry Partnership.** To encourage the makers of the institutional laundry detergents used at hotels, hospitals, and other healthcare facilities to improve their formulations, DfE offers information on safer ingredients and recognition for safer products. Industry partners demonstrated that environmentally reformulated detergents work well, are affordable, and lead to resource

conservation and longer linen life. One partner, Noramtech Corporation of Kansas City, Missouri, changed its formulation, and now markets its environment-friendly detergent.

**Printed Wiring Board (PWB) Partnership.** During 2000-01, the DfE Printed Wiring Board Partnership conducted a CTSA to evaluate lead-free surface finish alternatives to the standard hot air solder leveling process, which generates significant quantities of excess solder that must be recycled. EPA expects that the final CTSA, completed August 2001, will encourage PWB manufacturers to adopt cleaner, more environmentally benign and cost-effective processes.

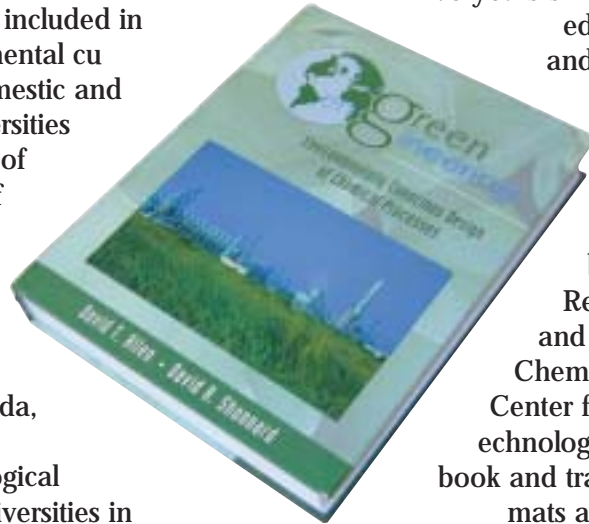
**Integrated Environmental Management Systems Partnership.** During 2000-01, DfE's Integrated Environmental Management System (IEMS) partnership published *IEMS Implementation Guide*, which describes how to develop an IEMS, and *IEMS: A Company Manual Template for Small Businesses*, which describes how companies would effectively develop their IEMS when working with the Implementation Guide. With EPA's Small Business Ombudsman, DfE held a workshop attended by over 50 trade associations, "Increasing Small Business Competitiveness Through Environmental Management Systems: a Workshop on the Role of Associations." The report, *Environmental Management Systems Case Study #1: Using an Integrated Environmental Management System (IEMS) to Manage Environmental Concerns*, describes how Gillespie Decals, Inc. used an IEMS to lower risk of health and environmental concerns, reduce exposures to solvent chemicals, and improve training of employees.

## *Green Engineering Program*

The Green Engineering (GE) Program began in 1998 to incorporate environmentally conscious thinking and approaches to the design, commercialization, and use of chemical processes and products by the academic and

industrial engineering communities. During 2000-02, the program accomplished several important projects:

- ◆ In September 2001, the GE program published the textbook, *Green Engineering: Environmentally Conscious Design of Chemical Processes*. The textbook has been included in chemical/environmental curricula at many domestic and international universities such as University of Iowa, University of Missouri, West Virginia University, University of Notre Dame, University of Nevada, University of Ohio, Michigan Technological University, and universities in Canada and Singapore. The textbook is expected to be adopted by many more schools in the near future. In the past three years, 130 engineering professors from over 70 universities attended GE Educators' Workshops.



- ◆ Worked with the American Society of Engineering Education (ASEE) to further incorporate GE concepts and approaches into engineering curricula. In July 2002, OPPT staff participated in the ASEE's Summer School for Chemical Engineering, which has been held every five years since 1931. The training ed several sessions of lectures and computer labs based on the material and software in the GE textbook.

- ◆ A cooperative agreement was entered into by OPPT, EPA's Office of Research and Development, and the American Institute of Chemical Engineers' (AIChE) Center for Waste Reduction echnologies to convert the GE textbook and training materials into indus-mats and continuing education courses for practicing engineers. In addition, the AIChE's Center for Chemical Process Safety (CCPS) has agreed to incorporate green engineering into process safety training at a workshop in September 2003 at a plant incorporating these concepts. 🖨️





# Steering and Leveraging

OPPT leads others to implement their own solutions for reducing risks to environmental problems by lending our resources and expertise. We influence individuals and organizations to act in their best interest as well as cooperate with them to share the wealth of information and expertise that comes from the lessons learned by everyone. During 2000-02, OPPT's programs for leveraging its resources and guiding stakeholders covered a broad range of activities.

## *Forum on State and Tribal Toxics Action*

Through the Forum on State and Tribal Toxics Action (FOSTTA), OPPT continued its partnership with state and tribal leaders to increase understanding and improve collaboration among the states, tribes, and EPA on toxics and pollution prevention issues. In addition to the existing projects for Tribal Affairs, Pollution Prevention (P2), and EPA's Office of Environmental Information's Toxics Release Inventory, OPPT created the new Chemical Information and Management Project to focus on chemical issues in order to increase mutual understanding of these issues and cooperation between EPA and the states. Led by an EPA senior manager, each project includes senior state and tribal members who provide diverse views and expertise for each group's discussions of new policies and programs for chemical safety and pollution prevention.

In 2002, the individual projects accomplished the following:

- ◆ **The Tribal Affairs Project** developed a Lead Issue Paper that summarizes lead-based paint issues in Indian Country to

foster a better understanding of the problems tribes encounter when they try to protect their members from lead hazards.

- ◆ **The Chemical Information and Management Project (CIMP)** is a partnership between OPPT and EPA's regional offices, and representatives from state departments of public health and the environment. It is designed to increase understanding and improve collaboration primarily on toxic chemical issues and action among the states and EPA. Specifically, the CIMP has conducted in-depth discussions on the High Production Volume (HPV) Challenge Program, the Voluntary Children's Chemical Evaluation Program (VCEEP), and EPA's Perfluorooctanoic Acid (PFOA) efforts. Discussions with the CIMP also have centered on how to facilitate better communication between the public health and environmental departments, and advance the CIMP agenda toward developing a clearinghouse for exposure information. Subsequent efforts for the CIMP include providing input to OPPT on the uses and presentation of HPV data.

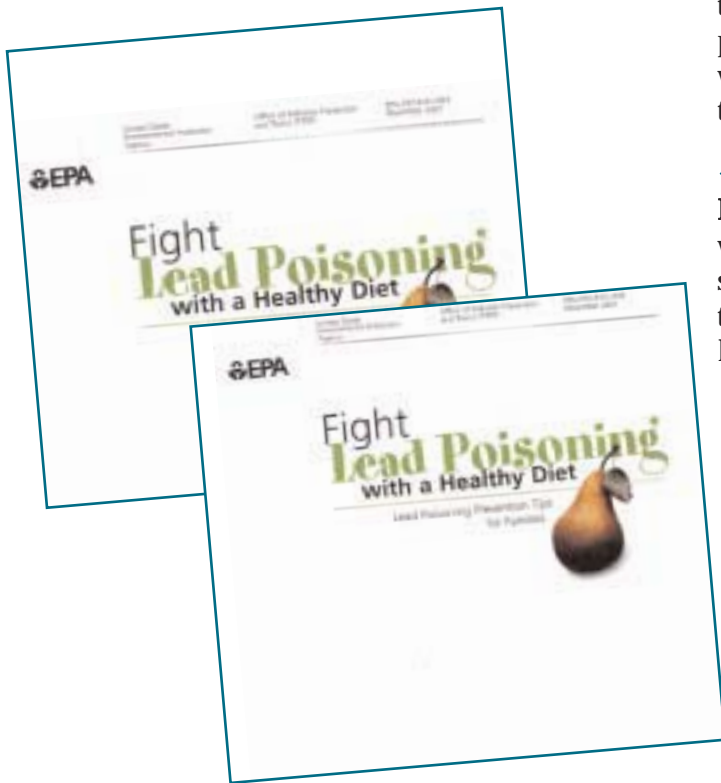
## *Lead Poisoning Prevention Grants and Outreach Activities*

Health problems from exposure to lead can include profound developmental and neurological impairment in children. Lead poisoning has been linked to mental retardation, poor academic performance and juvenile delinquency. In the mid-1990s, nearly one million children in the United States had dangerously

elevated levels of lead in their blood. Because of the potential dangers, any exposure to deteriorated lead-based paint could pose a hazard.

As part of EPA's ongoing efforts to protect children from lead poisoning, OPPT funded these major grants for lead outreach activities during 2000-02:

- ◆ **The National Council of La Raza (NCLR)** received a nearly \$300,000 grant for the development of a Spanish-language television public service



announcement (PSA) and poster promoting lead testing. Telemundo, one of the largest Spanish broadcasters in North America, has committed to airing the PSA. The posters, which reinforce the message of the PSA, are being distributed through NCLR's member agencies and the National Lead Information Center, and will be displayed in medical offices, clinics, and health centers. EPA Administrator Whitman, Office of Pollution Prevention and Toxic Substances (OPPTS) Assistant

Administrator Stephen L. Johnson and EPA Office of Enforcement and Compliance Assistant Administrator John P. Suarez attended the release event for the campaign, launched during Hispanic Heritage Month.

- ◆ **HOPE Worldwide** received a \$300,000 grant for communicating the hazards of lead to the general population through two mechanisms. Through a network of community partnerships, close to 100,000 pieces of information were distributed in targeted areas where lead hazards are a problem. A total of 61 lead education workshops were held in 12 cities across the United States.

- ◆ **The National Coalition for Lead-Safe Kids** received a \$339,000 grant to work with a nationwide network of nine grocery stores to set up 1,000 floor displays distributing close to 250,000 copies of lead hazard information documents in 29 states. The coalition secured the cooperation of five dairies through which over two million milk cartons carried the lead poisoning prevention message and worked with 250 local public agencies and community organizations to distribute over two million EPA lead-hazard information documents in both English and Spanish targeting high-risk neighborhoods in 233 cities in 44 states.

- ◆ **Native American Tribes** received two types of grants from EPA. One type of grant is for testing and analyzing lead in blood, paint, dust, and soil, and for conducting inspections and risk assessments of pre-1978 tribal homes for hazardous lead levels. The other type of grant is for developing and implementing lead awareness educational outreach activities for tribes. The grants are administered by EPA's regional offices.

Since 2000, \$2.9 million has supported 59 tribal grant awards.

While OPPT grants leverage resources and expand the distribution of important information to the public, OPPT outreach activities explore new ideas for encouraging the public to take action. During 2000-02, OPPT completed the following activities:

- ◆ Revised the *Protect Your Family from Lead in Your Home* brochure to include new lead hazard information. Produced the fact sheet, *Identifying Lead Hazards in Residential Properties*.
- ◆ Annually supported over 100 events nationwide for Lead Poisoning Prevention Week. EPA coordinated the federal/state/

local team of agencies and programs that devised the strategy for this one-week celebration.

- ◆ Launched a new outreach campaign focusing on the connection between lead and nutrition with a brochure, *Fight Lead Poisoning with a Healthy Diet*, that contains lead poisoning prevention tips for families, nutrition information, and healthy recipes. Designed to reach over seven million clients through the Women, Infants and Children (WIC) Program, this campaign was developed in cooperation with the U.S. Department of Agriculture, Centers for Disease Control, and state and local partners.

**Keep your MVP in the Game**

**Lead Poisoning Can Steal Your Child's Future**

Hundreds of thousands of children in the U.S. suffer from elevated levels of lead in their blood. Even low amounts of lead can cause learning disabilities, behavior problems, and other serious health effects. Children are at greatest risk if they live in homes built before 1978, when lead was used in paint.

**Keep your MVP in the game.**

Have your children tested for lead, even if they seem healthy. Homes should also be checked for lead hazards.

For more information call 1-800-424-LEAD or log on to [www.epa.gov](http://www.epa.gov).

A Message From President George W. Bush and the United States Environmental Protection Agency



- ◆ Produced the *Lead Poisoning Prevention Media Outreach Kit* to assist state and local health, environmental, and housing agencies with working with the media and with creating press and outreach materials. Available through the National Lead Information Center, the kit includes a CD with editable press materials. New topics will be announced periodically to all media kit users.

- ◆ In cooperation with the White House, and EPA's Office of Prevention, Pesticides and Toxic Substances and Office of Children's Health, President George W. Bush is featured in a PSA in the official 2002 magazine of Major League Baseball. The PSA discusses the importance of getting your children tested for lead poisoning and having your home checked for lead hazards.

## Presidential Green Chemistry Challenge Awards

Category	2001	2002
Academic	Professor Chao-Jun Li, Tulane University, designed a wide variety of transition metal mediated and catalyzed reactions that can be accomplished in air and water. Through his development Professor Li provides an attractive alternative to the inert atmosphere and organic solvents traditionally used in many synthetic reactions.	Professor Eric Beckman, University of Pittsburgh, designed non-fluorous polymers that can greatly increase the use of environmentally friendly supercritical fluids as solvents. Professor Beckman demonstrated the applicability of his approach on the design of poly(ether-carbonates), polymers that not only perform well but also are less toxic and biodegradable.
Small Business	EDEN Bioscience Corporation developed technology for a naturally occurring protein called harpin, that when applied to crops, increases plant biomass, photosynthesis, nutrient uptake and root development and ultimately leads to greater crop yield and quality. The result of this technology is an EPA-approved product called Messenger® that has been demonstrated on more than 40 crops to effectively stimulate plants to defend themselves against a broad spectrum of viral, fungal, and bacterial diseases, including some for which there is no effective treatment.	SC Fluids, Inc. developed SCORR, a supercritical CO <sub>2</sub> resist remover for the semiconductor and related industries. The SCORR process decreases the use of hazardous materials associated with traditional processes by 95-99% by substituting less hazardous, nontoxic, and high-performing supercritical CO <sub>2</sub> . The SCORR technology allows industry to dramatically reduce emissions, water consumption, and energy use, while enabling it to achieve its performance goals, now and into the future.
Alternative Synthetic Pathways	Bayer Corporation and Bayer AG were selected for their synthesis of a biodegradable chelating agent, sodium iminodisuccinate. Because sodium iminodisuccinate is a readily biodegradable, non-polluting, and non-toxic alternative to other chelating agents, it can be used in a variety of applications that employ chelating agents such as detergents, agricultural nutrients, and household and industrial cleaners.	Pfizer, Inc. redesigned the synthesis of sertraline, the active ingredient in Zoloft®. The new process is significantly less energy-intensive and more efficient, with double the yield of the target compound. The process also generates significantly less waste, eliminating the following hazardous materials: 140 metric tons per year of titanium tetrachloride reagent, 440 metric tons per year of titanium dioxide waste, 150 metric tons per year of 35% hydrochloric acid reagent, and 100 metric tons per year of 50% sodium hydroxide reagent. In addition, several other solvents, aqueous washes, and high-salt waste streams have been reduced or eliminated.
Alternative Reaction Conditions	Novozymes North America, Inc., designed an enzymatic process for treating cotton textiles that provides an economical and environmentally friendly alternative to alkaline scour systems currently used in the textile industry today.	Cargill Dow LLC developed an environmentally friendly process for manufacturing NatureWorks™ polylactic acid (PLA), bringing these environmentally preferable products into commercial use. NatureWorks™ PLA is the first family of polymers derived entirely from annually renewable resources that can compete head-to-head with traditional fibers and packaging materials on a cost and performance basis. Applications for these PLA polymers are widespread and include clothing, food containers, wrappers, and home furnishings.
Designing Safer Chemicals	PPG Industries discovered that the element yttrium can be used as a substitute for lead in cationic electrocoatings without any sacrifice in corrosion performance. As PPG customers use yttrium over the next several years, approximately one million pounds of lead (as lead metal) will be removed from the electrocoat applications of PPG automotive customers.	Chemical Specialties, Inc. developed ACQ Preserve®, an alkaline copper quaternary (ACQ) wood preservative to replace highly toxic conventional preservatives, including the chromated copper arsenate products. ACQ Preserve®, an EPA-registered non-restricted pesticide, eliminates the use of these hazardous substances entirely by substituting a high-performing, less hazardous formulation of copper (obtained from recycled copper scrap) and a quaternary ammonium compound. CSI is currently producing more than 1 million active pounds of ACQ Preserve® to treat more than 100 million board feet of wood, which is specifically eliminating 570,000 pounds per year of arsenic and 910,000 pounds per year of hexavalent chromium.

## Presidential Green Chemistry Challenge Awards



The Presidential Green Chemistry Challenge Program recognizes outstanding innovations in green chemistry through an annual awards program.

Through national recognition, this awards program

demonstrates the benefits that green chemistry technologies offer and encourages further development in the area.

## Consumer Labeling Initiative

“Read the Label FIRST!” is the consumer education component of the EPA’s Consumer Labeling Initiative (CLI) which was initiated in March 1996. The CLI’s initial focus was on research—going directly to consumers to find out whether they read and understood product labels. Based on the results of that research, partner companies developed more user-friendly labels that are easier to understand, and help consumers to purchase the right product for the job. The research and original CLI work received enormous cooperation, resources, and involvement from the original partners, companies that produce household insecticides, pesticides and antibacterial cleaners.

Once the research was done and the new improved labels were appearing on store shelves, CLI partners formally launched the “Read the Label FIRST!” national education campaign, featuring a logo, brochures, posters,

traveling exhibits, a program video, and promotional materials with the campaign message. Since the Spring of 2000, the CLI team has undertaken a variety of efforts to educate consumers about the importance of reading labels, including working with industry partners, health and safety organizations, retailers, print and electronic media, youth groups, educators, the gardening community, veterinarians, pet owners, and others.

## OPPT Tribal Program

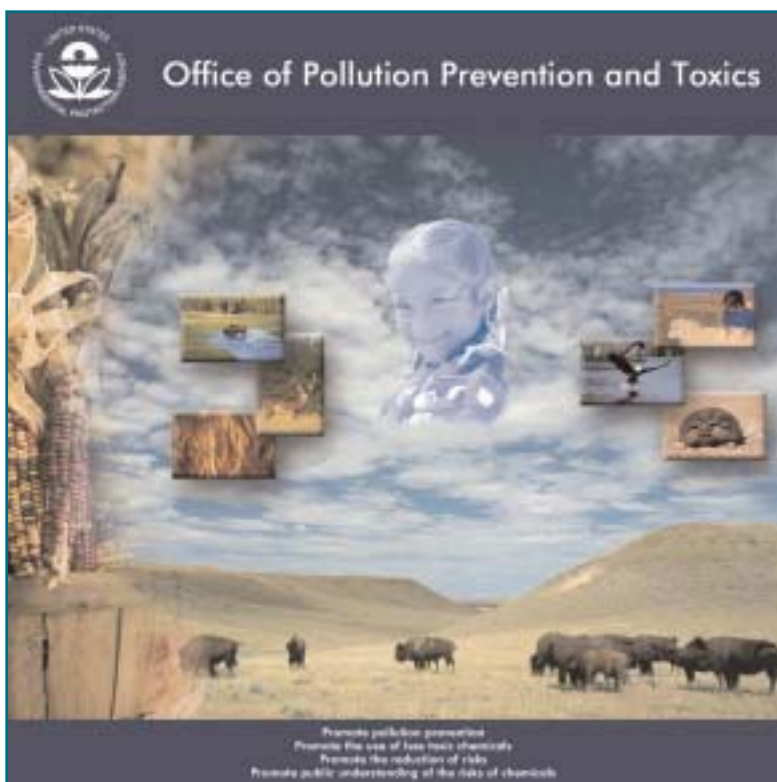
OPPT continues to make significant progress in building an effective partnership with Indian tribes to protect and safeguard the environment on native lands. OPPT contributed to the development of a tribal strategy for the Office of Prevention, Pesticides and Toxic Substances that serves as the basis for planning and budgeting of tribal programs in the future. In 2001, OPPT hosted five tribal strategy focus groups with tribal representatives across the country to gather the tribes’ perspectives on OPPT





programs and activities. OPPT expanded its newsletter, *OPPT Tribal News*, to include pesticide topics, renamed it *OPPTS Tribal News*, and significantly increased its readership.

OPPT is participating in an Agency effort to develop a strategy for assisting tribes with assessments of the risks associated with persistent, bioaccumulative toxics (PBTs) and radionuclides in foods and other materials important to tribal cultures. Ultimately, tools and guidelines will be developed that will enable tribes to better understand and manage the exposure pathways and risks arising from the unique circumstances associated with their culture, religion, and lifestyle. In April 2003, the National Tribal Environmental Council and the Alaska Native Science Commission will convene a preliminary technical meeting of elders, tribal scientists, risk assessors, and environmental directors to develop recommendations on analytical tools/databases that would be useful for Indian Country to assess more accurately the public health impacts of contaminants in their native foods and cultural materials. 🌐



# Direct Action

During the early years of implementing TSCA, regulations and policy guidance were the primary tools that OPPT used to promote risk reduction for new and existing chemicals. As our programs matured, voluntary initiatives, outreach activities, and technical assistance have become a major part of OPPT's total effort. While these programs have proven very effective through the years, there are still challenges that require direct action. During 2000-02, OPPT undertook the following activities.

## *Perfluorooctyl Sulfonates Rulemaking Follows Voluntary Phaseout*

In May 2000, 3M Corporation announced that it would voluntarily phase out the manufacture of about 90 perfluorooctyl sulfonate (PFOS) chemicals by the end of 2002. This announcement came after OPPT discussed its concerns about new data, submitted to the Agency by 3M, which indicated that the chemicals were persistent, bioaccumulative, and toxic. The chemicals could present long-term health and environmental concerns if they continued to be manufactured, released, and built up in the environment even though their current levels did not appear to be causing immediate harm. 3M was the sole U.S. producer of the chemicals, which were used in products ranging from Scotchgard™ soil and stain resistance treatments to fire fighting foams to coatings used in making computer chips. Under their voluntary phase-out plan, 3M discontinued over 80 percent of PFOS production before the end of 2000 and ceased all U.S. manufacture by the end of 2001.

To prevent any manufacturer or importer from stepping in after 3M exited the market, OPPT proposed a Significant New Use Rule

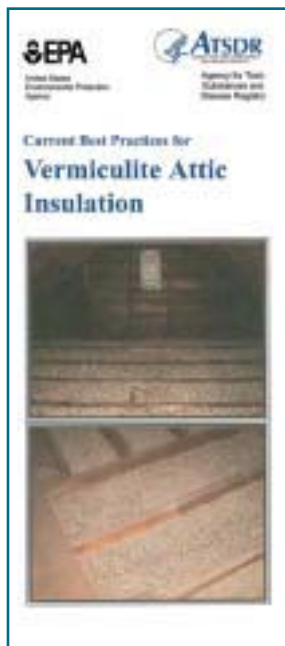
(SNUR) in October 2000. The SNUR would require anyone to submit a notice to EPA 90 days before manufacturing or importing these chemicals in order to give EPA a chance to assess the risks of any new uses and impose any necessary controls.

On March 11, 2002, OPPT published a final SNUR on 13 of the chemicals, deleted two chemicals from the original proposal, and issued a Supplemental Proposed SNUR on the remaining 75 chemicals that will allow specific low-volume uses of the chemicals in the semiconductor, aviation hydraulics, and imaging industries. OPPT published a final rule in December 2002.

## *Asbestos*

In August 2000, OPPT published the final report, *Sampling and Analysis of Consumer Garden Products that Contain Vermiculite*. The study sought to determine the risks to consumers from using garden products such as potting soil that contained vermiculite. On November 15, 2000, OPPT finalized the Asbestos Worker Protection rule, which extended protection from the health risks of





asbestos to state and local government workers who are performing construction work, custodial work, and automotive brake and clutch repair. Previously these protections applied only to private sector workers. Throughout 2000-02, OPPT has worked closely with the Office of Solid Waste and Emergency Response's (OSWER) Superfund program on the asbestos cleanup activities

at and near the vermiculite mine in Libby, Montana. In 2001, OPPT began the first phase of a preliminary study of potential exposures to vermiculite attic insulation. Six homes in Vermont were sampled and monitored and simulation experiments were conducted in a 10'x10'x10' enclosure. Results from this study and additional consumer guidance will be issued in early 2003.

In early Spring of 2003, OPPT plans to release the findings of its preliminary study, *Asbestos Exposure Assessment for Vermiculite Attic Insulation*, a guide for consumers titled, *Vermiculite in the Home*, and the findings and recommendations of an Asbestos Focus Group formed by the Office.

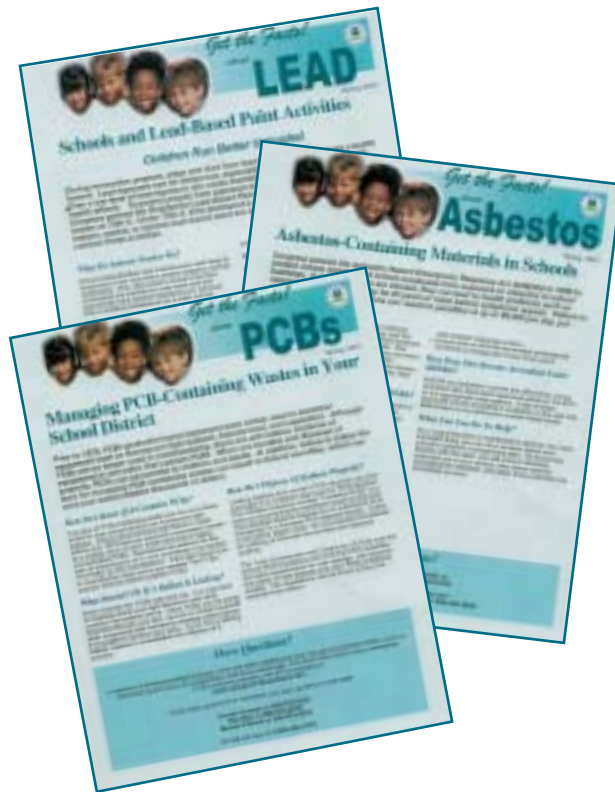
The consumer guidance advises homeowners to avoid disturbing vermiculite attic insulation to prevent the release of asbestos fibers that may be a contaminant in the vermiculite.

The Asbestos Focus Group met in October 2002 and was comprised of informed stakeholders (private, government and industry). Focus Group recommendations will assist the Agency in determining its future direction with regard to a range of asbestos issues.

## Lead Hazard Standards

As part of EPA's ongoing efforts to protect children from lead poisoning, OPPT finalized new standards in January 2001 to identify dangerous levels of lead in paint, dust, and soil. These new national standards are more protective than previous EPA guidance. Under these new standards, federal agencies, including the U.S. Department of Housing and Urban Development (HUD), as well as state, local, and tribal governments, will have new uniform benchmarks on which to base remedial actions taken to safeguard children and the public from the dangers of lead. These standards also will apply to the following efforts:

- ◆ Other federal lead provisions such as EPA's real estate disclosure requirements presently in place for people selling or renting a home or apartment.
- ◆ Other EPA programs that address lead.



EPA regional education resources—children's health programs for school.



- ◆ Landlords, parents, and childcare providers with specific levels on which to make informed decisions regarding lead found in their homes, yards, or play areas.

Identifying lead hazards through these standards will allow inspectors and risk assessors to assist property owners in deciding how to address problems that may include lead-based paint abatement, covering or removing soil, or professional cleaning of lead-based paint dust.

### *Reclassification of PCB and PCB-Contaminated Electrical Equipment*

Polychlorinated biphenyls (PCBs) are a family of synthetic organic chemicals manufactured worldwide and used in thousands of products and processes where non-flammability, stability to heat, or effectiveness as a plasticizer are required. PCBs bioaccumulate and they have been classified by EPA and other organizations as probable human carcinogens with other significant ecological and human effects.

As part of an extensive effort to revise the Agency's PCB regulations based on data and experience gained since 1982 when the regulations were last revised, OPPT finalized a rule for Reclassification of PCB and PCB-Contaminated Electrical Equipment in May 2001. The rule amends the requirements for reclassifying transformers, electromagnets, switches and voltage regulators that contain PCBs to reduce concentrations in this equipment.

A major benefit of this rule is that it helps the United States meet its various treaty obligations to phase out high concentration PCB transformers. In addition, the rule reduces the risk from PCBs to human health and the environment by encouraging the phaseout and removal of PCBs from

electrical equipment while reducing the regulatory and economic burden of reclassification.

### *PCB Property Revitalization - Mare Island*

Across the United States, many otherwise usable properties lay dormant or have not been returned to their full potential use. Some of these sites are former government facilities and many others are abandoned private properties, now the responsibility of local authorities. In 2002, OPPT joined other EPA offices and the State of California in completing an agreement allowing the transfer of a former Naval facility on Mare Island, at the northern end of San Francisco Bay. The agreement allows for the continuing assessment of portions of this prime waterfront property, cleanup of known contaminated areas and immediate reuse of revitalized areas.



To address contaminated private property, Congress formally instituted the Brownfields program in January 2002. OPPT has a direct and continuing involvement in implementing this major new program through the development of policies and procedures for addressing PCB contamination at these sites. Other contaminants such as asbestos and lead-based paint are also prevalent at Brownfields sites. Based on the proposed reuse of a site, the removal and cleanup standards for asbestos and lead-based paint may be appropriate to ensure the health of future users of the property.

### *Assessing Mercury Contamination on a Global Scale*

Based on the suggestion of EPA and the Department of State, the United Nations Environment Programme (UNEP) Governing Council decided in February 2001 to conduct a global assessment of mercury. In 2002, the assessment was completed in collaboration with governments, intergovernmental and non-governmental organizations and the private sector and addressed the following:

- ◆ Sources, emissions inventories, long-range transport, chemical transformations, and fate of mercury.
- ◆ Production and use patterns of mercury as a global commodity.
- ◆ Prevention and control technologies and practices, with associated costs and effectiveness.
- ◆ Exposures and effects on humans and ecosystems.
- ◆ Ongoing actions and plans for controlling releases and limiting use and exposures.
- ◆ Options for international action.

The UNEP mercury program will assist all countries, especially developing countries and countries with economies in transition, with capacity building activities to characterize their mercury pollution problems and to develop appropriate strategies to mitigate mercury pollution problems.

Domestically, EPA is working with the Department of Defense, states, and other stakeholders on a range of mercury issues. Under its PBT Initiative, OPPT is also developing a Mercury Action Plan which will outline the Agency's current strategy for addressing multimedia mercury pollution and exposure over the next several years.

### *Persistent Organic Pollutants*

Persistent Organic Pollutants (POPs) are a set of toxic chemicals that persist in the environment for long periods of time, accumulate in the food chain, and travel great distances. They can cause an array of adverse effects in humans and animals including cancer, damage to the central and peripheral nervous systems, reproductive disorders, and disruption of the immune system.

To address this concern internationally, the UNEP sponsored negotiation of a treaty, known as the Stockholm Convention on Persistent Organic Pollutants, among 120 countries including the United States. The Stockholm Convention targets 12 POPs including certain pesticides, industrial chemicals, and unintended by-products of combustion such as DDT, PCBs and dioxin. Provisions in the agreement allow for the consideration and addition of additional POPs, where appropriate. In May 2001, EPA Administrator Whitman led the U.S. delegation to the diplomatic conference in Stockholm, Sweden where representatives of over 90 countries signed the treaty. President Bush sent the treaty to the U.S. Senate for its advice and consent to ratification in April 2002.

In addition to the Stockholm Convention, the Administration forwarded a legislative package to Congress in April 2002 that would facilitate implementation of two other important international environmental agreements: the Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade, signed in September 1998, and the Protocol to the 1979 Convention on Long-Range Transboundary Air Pollution (LRTAP) on POPs, signed in June 1998.

The legislative package submitted to Congress in April 2002 included amendments to TSCA and the Federal Insecticide, Fungicide and Rodenticide Act targeted to facilitate implementation of the agreements. The Administration looks forward to working with Congress to ensure the development of legislation that will allow the United States to fully implement and ratify the Agreements, including provisions addressing additional POPs chemicals beyond those currently on the lists of POPs pollutants under the Stockholm and LRTAP POPs Agreements.

The Stockholm Convention is intended to eliminate or restrict the production, use, and/or release of 12 chemicals that, due to their persistence in the environment, can affect human health throughout the globe, regardless of the



The twelve chemicals covered by the Stockholm Convention on Persistent Organic Pollutants.

location of their use. The convention obligates all participating countries to take measures to eliminate or restrict the production, use and trade of intentionally produced POPs; to develop action plans that address the release of byproduct POPs such as using best available techniques to reduce emissions of POPs from new sources; and to address the safe handling and disposal of POPs stockpiles and wastes.

### *Other OPPT International Activities*

OPPT continues to be actively involved in international programs and activities to promote the sound management of chemicals at the global level. This involvement ranges from provisions of domestic legislation specifically calling for involvement in international work related to, or affecting, U.S. domestic programs to participation in basic information exchange. Taking advantage of experience, expertise, and research abroad that can contribute to our programs and sharing EPA expertise and information is aimed at a mutual goal of reducing global and cross-border environmental risk. OPPT also supports commitments made by the United States in treaties and other instruments involving chemicals management at the international level.

◆ **North American Initiative on the Sound Management of Chemicals.** One of EPA's major international environment commitments is to participation in the Sound Management of Chemicals (SMOC) initiative under the North American Agreement on Environmental Cooperation (NAAEC). The NAAEC was negotiated as a sidebar to the North American Free Trade Agreement (NAFTA) to ensure that environmental protection would be enhanced, rather than compromised, through opening up free trade in North America. OPPT's participation in SMOC contributes to the protection of human health and the environment through concerted trilateral action on lead, mercury, PCBs, lindane, DDT, and chlordane.

Between 2000 and 2002, OPPT held the Chairmanship of the SMOC Working Group. Significant achievement was accomplished on the substances of concern and on ensuring that capacity-building and emphasis on children's health are factored into each project. During this period, an overarching project on Environmental Monitoring and Assessment was initiated. This project will help identify substances of concern and document the success of management through reduction or elimination of substances of concern. An increased emphasis has been put on protection of human health and involvement of indigenous communities through their involvement in development and implementation of programs and projects.

◆ **Intergovernmental Forum on Chemical Safety.** The 1992 Rio Earth Summit produced a detailed list of concerns and priorities referred to as Agenda 21. Chapter 19 of Agenda 21 calls for the sound management of chemicals. Subsequently, a unique international organization, the Intergovernmental

Forum on Chemical Safety (IFCS), was created to provide insight and guidance on how nations, regional and international organizations, industry, and non-governmental organizations representing the environment, labor, and other stakeholders might best work towards the goals set out in Chapter 19. OPPT was the National Focal Point for IFCS, responsible for all U.S. participation, public and private in the work of IFCS.

OPPT was actively involved in the development of The Bahia Declaration, and the Priorities for Action Beyond 2000, both adopted at Forum III in Salvador da Bahia, Brazil (October 15-20, 2002), which are widely accepted at the international level as agreed-on guidance for implementation of specific programs. OPPT's commitment to capacity-building has stimulated IFCS action and the creation of an EPA-UNEP partnership in that area, the Chemical Information Exchange Network (CIEN), for training of officials in developing countries in the use of information resources available on the Internet. Through IFCS, OPPT is now working with UNEP in the development of a Strategic Approach to International Chemicals Management (SAICM). Through IFCS, EPA has a voice in the directions of future implementation strategies for a SAICM.

◆ **Organization of Economic Cooperation and Development.** OPPT has had significant participation in the Organization of Economic Cooperation and Development (OECD) Environment, Health and Safety Program since the late 1970s. The major emphasis in 2001 was on harmonization, work sharing and tools for decision making. Work on harmonization includes development of test guidelines, hazard classification systems for health and the environment, and exposure assessments. One of the major accomplishments in



2001 was the deletion of the old test guideline for acute oral toxicity and its replacement by three alternatives. These alternatives use fewer animals per test and lead to less physical pain in the animals. With regard to harmonization of classification systems, the OECD published the final document on endpoints for human health effects and ecological effects. The results of this effort were integrated into the new United Nations globally harmonized classification system (GHS).

Work sharing includes testing of HPV chemicals and assessing new chemicals. Progress continued on the testing of HPV chemicals and on the initial assessment of these chemicals. Industry began a pilot project to determine if they could carry out some of the testing and assessments. With regard to new chemicals, member countries and the chemical industry began sharing notification and assessment information on several chemicals. This was the beginning of an approach to reduce the burden of new chemical notification and assessment schemes.

Tools for decision making include methods for risk assessment and risk management. With regard to risk assessment, the OECD, along with the UNEP, held a workshop on the use of multimedia models for estimating overall environmental persistence and long-range transport in assessing PBTs/POPs. OECD also published several documents, including a guidance document on the use of socioeconomic analysis and a guidance document for governments who plan to develop their own programs to promote research and development in sustainable chemistry. A database was established which contains information on 100 models which are computerized or capable of being computerized for predicting health and environmental effects, exposure potential, or possible risk.

## *Homeland Security*

OPPTS is taking an active role in responding to the Agency's Strategic Plan on Homeland Security by leading efforts to: broaden technical expertise on chemicals; use pollution prevention to minimize vulnerabilities; share data with state, tribal, and local governments; ensure chemicals are safeguarded from threats; ensure food safety; and increase lab testing capacity for pesticides in food. OPPT is providing technical expertise on chemicals to other EPA programs to help them meet their homeland security responsibilities under EPA's Strategic Plan.

OPPT continues to develop Acute Exposure Guideline Limits (AEGs) for hazardous substances. The AEGs program is developing short-term exposure limits for about 475 hazardous substances for purposes of chemical emergency response, planning, and prevention. Thus far, AEGs have been developed for about 90 chemicals—ten are final; 53 interim, 21 proposed, and 18 draft or on hold because of insufficient data. Approximately 380 chemicals remain to be addressed.

OPPT will continue to fill information gaps through the many programs described throughout this Report, such as the High Production Volume Chemicals program, the existing and new chemicals programs, and pollution prevention efforts that promote replacing high risk chemicals and processes with safer alternatives. 🏠





# *OPPT on the Web*

*[www.epa.gov/oppt/](http://www.epa.gov/oppt/)*

## **Asbestos**

[www.epa.gov/asbestos/](http://www.epa.gov/asbestos/)

## **Brownfields**

[www.epa.gov/swerosps/bf/topics.htm](http://www.epa.gov/swerosps/bf/topics.htm)

## **Chemical Testing Program**

[www.epa.gov/oppt/chemtest/](http://www.epa.gov/oppt/chemtest/)

## **Consumer Labeling Initiative (CLI)**

[www.epa.gov/oppt/labeling/](http://www.epa.gov/oppt/labeling/)

## **Design for the Environment (DfE)**

[www.epa.gov/dfe/](http://www.epa.gov/dfe/)

## **Environmentally Preferable Purchasing (EPP)**

[www.epa.gov/oppt/epp/](http://www.epa.gov/oppt/epp/)

## **Environmentally Preferable Purchasing Report**

[www.epa.gov/oppt/epp/pubs/EPPreport-Web.pdf](http://www.epa.gov/oppt/epp/pubs/EPPreport-Web.pdf)

## **Exposure Assessment Tools and Models**

[www.epa.gov/oppt/exposure/](http://www.epa.gov/oppt/exposure/)

## **Fact Sheets - EPA Region 10**

[www.epa.gov/r10earth/](http://www.epa.gov/r10earth/)

## **Forum on State and Tribal Toxics Action (FOSTTA)**

[www.epa.gov/oppt/tribal/](http://www.epa.gov/oppt/tribal/)

## **Green Meetings**

[www.bluegreenmeetings.org/](http://www.bluegreenmeetings.org/)

## **Green Engineering (GE) Program**

[www.epa.gov/oppt/greenengineering/](http://www.epa.gov/oppt/greenengineering/)

## **High Production Volume (HPV) Challenge Program**

[www.epa.gov/oppt/chemrtk/volchall.htm](http://www.epa.gov/oppt/chemrtk/volchall.htm)

## **Homeland Security**

[www.epa.gov/epahome/downloads/epa\\_homeland\\_security\\_strategic\\_plan.pdf](http://www.epa.gov/epahome/downloads/epa_homeland_security_strategic_plan.pdf)

## **Hospitals for a Healthy Environment (H2E)**

[www.h2e-online.org/](http://www.h2e-online.org/)

## **Lead**

[www.epa.gov/lead/](http://www.epa.gov/lead/)

**Mercury**

[www.epa.gov/mercury/](http://www.epa.gov/mercury/)

**National Fish Tissue Study**

[www.epa.gov/waterscience/fishstudy/](http://www.epa.gov/waterscience/fishstudy/)

**National Lead Information Center**

[www.epa.gov/lead/nlic.htm](http://www.epa.gov/lead/nlic.htm)

**OPPT International Activities**

[www.epa.gov/oppt/international/](http://www.epa.gov/oppt/international/)

**OPPT Tribal Program**

[www.epa.gov/oppt/tribal/](http://www.epa.gov/oppt/tribal/)

**Perfluorooctyl Sulfonates (PFOS)**

[www.epa.gov/oppt/chemtest/](http://www.epa.gov/oppt/chemtest/)

**Persistent, Bioaccumulative, and Toxics (PBTs)**

[www.epa.gov/oppt/pbt/](http://www.epa.gov/oppt/pbt/)

**PBT Profiler**

[www.pbtprofiler.net/](http://www.pbtprofiler.net/)

**Persistent Organic Pollutants (POPs)**

[www.pic.int/](http://www.pic.int/)

[www.pops.int/](http://www.pops.int/)

[www.UNECE.org/env/lrtap/pops\\_h1.htm](http://www.UNECE.org/env/lrtap/pops_h1.htm)

**Pollution Prevention (P2) Programs**

[www.epa.gov/p2/](http://www.epa.gov/p2/)

**Pollution Prevention (P2) Framework**

[www.epa.gov/oppt/p2framework/](http://www.epa.gov/oppt/p2framework/)

**Pollution Prevention (P2) Grants**

[www.epa.gov/p2/grants/](http://www.epa.gov/p2/grants/)

**Pollution Prevention Resource Exchange (P2Rx)**

[www.p2rx.org/](http://www.p2rx.org/)

**Polychlorinated Biphenyls (PCBs)**

[www.epa.gov/oppt/pcb/](http://www.epa.gov/oppt/pcb/)

**Presidential Green Chemistry Awards**

[www.epa.gov/greenchemistry/](http://www.epa.gov/greenchemistry/)

**TSCA Biotechnology Program**

[www.epa.gov/oppt/biotech/](http://www.epa.gov/oppt/biotech/)

**Vermiculite**

[www.epa.gov/asbestos/](http://www.epa.gov/asbestos/)

**Voluntary Children's Chemical Evaluation Program (VCCEP)**

[www.epa.gov/oppt/chemrtk/vccep/](http://www.epa.gov/oppt/chemrtk/vccep/)





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