



**NETWORKING**

Regional Roundtables  
P2 Programs Directory  
Regional Listservs  
National Listservs  
Topical Listservs  
Conferences  
Websites

**MEASUREMENT**

Regional Aggregation Tools  
Desktop Tracking Software  
Success Story Database

**INFORMATION**

Topic Hubs™  
P2 News  
Sector Resources  
Document Libraries  
P2 Experts

**P2 SERVICES**

Rapid Response  
Document Search  
Training

**View all P2  
Topic Hub  
subjects on  
reverse.**

## SEMICONDUCTOR MANUFACTURING

A quick guide to essential P2 information on Semiconductor Manufacturing, with a compilation of the best available on-line resources.

### Why P2 for Semiconductor Manufacturers?

Semiconductors have allowed for many advances in communication, computers, and many technologies. But manufacturing semiconductors requires an ultra-clean process, consumes significant resources, uses hazardous chemicals, and generates considerable wastes.

With each global industry conversion to larger wafer sizes, requiring a massive and collective effort to redesign tools and processes, the industry has decreased wastes, emissions, and resource consumption per unit produced. However, there is still great potential for cost savings, reduction in hazardous materials and wastes, improved efficiencies and enhanced worker safety through pollution prevention and source reduction. In addition, new international laws limit levels of lead and other hazardous materials in electronic products sold in Europe. US manufacturers must conform in order to stay competitive in this global industry.

### How Do Semiconductor Manufacturers Prevent Pollution?

Energy efficiency, water efficiency, and reductions in solvent and chemical inputs represent some of the biggest potential pollution prevention opportunities. Pollution prevention allows manufacturers to stay competitive and in compliance with US laws as well as restrictive international laws.

### Best P2 Resources at Your Fingertips

Topic Hubs are peer-reviewed on-line primers that include background and operational information plus specific opportunities for pollution prevention. They include an extensive list of links for the "best of the best" on-line resources: manuals, checklists, fact sheets, case studies, etc. This Topic Hub includes a brief regulatory review and discussion of other drivers for efficiency in the semiconductor industry, and an extensive list of P2 opportunities involving process modification and new technology.

Topic Hubs are valuable resources for P2 programs, regulators, environmental managers, and industry. P2Rx centers have more than 55 Topic Hubs available on a wide range of issues covering many industrial sectors. Check them out at [www.p2rx.org/hubs](http://www.p2rx.org/hubs).

### Did You Know?

- Conserving energy is especially valuable with current high fuel and electricity costs. According to a 2005 study, the global semiconductor industry could save nearly \$500 million per year in energy costs by making modest improvements to its tools and facility support systems.
- Unlike most industries, the semiconductor industry implements major product conversions about every five to ten years. Because of this rapid change, there are many opportunities for the industry to implement new pollution prevention measures and provide demonstrable results.

**View the complete  
Semiconductor  
Manufacturing  
Topic Hub at  
[p2rx.org/hubs](http://p2rx.org/hubs)**



The Semiconductor Manufacturing Topic Hub was written by PPRC.

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## How to Use the Topic Hub™ Web Resource

The screenshot shows the PPRC Topic Hub interface. On the left is a yellow sidebar with navigation links: About PPRC, P2 News, People & Projects, Topic Hubs™, Solutions, Technical Help, Networking, and Measuring Results. The main content area is titled 'Ship Building & Repair: Table of Contents' and includes sections for Background and Overview, Operations, Reasons for Change, P2 Opportunities, and Where To Go for P2 Help. Callout boxes point to various features: 'Search Hub by Keyword' points to the search bar; 'Access Any Topic Hub' points to the dropdown menu; 'Read an overview of the issues' points to the 'Background and Overview' section; 'Navigate to all Subsections' points to the sidebar; and 'Search the references used for this Topic Hub' points to the 'Essential Links' section.

## Current Topic Hubs

Aerospace	Food Service	Metal Finishing
Agricultural Teaching Labs	Green Procurement	Oil and Gas
Auto Body	Hospitality	P2 and Environmental Security
Auto Repair	Household Hazardous Materials	Paint and Coating Manufacturing
Auto Salvage—Great Lakes Region	Integrated Pest Management (IPM) for Schools	Pollution Prevention (P2)
Clean Snowmobiles	Landscaping	Pollution Prevention for Arts Education
Community Growth	Lead	Pork Production
Construction Science Education	Lean Manufacturing	Printing-Flexography
Consumer P2	Marinas and Small Boat Harbors	Printing-Lithography
Dioxin	Meat Processing	Public Lands
Dry Cleaning	Mercury	Publicly Owned Treatment Works
Economic Incentives	Mercury-Automotive	Regulatory Integration
Electric Utilities	Mercury-Dental	Residential Construction
Electronic Waste	Mercury-Health Care	Semiconductor Manufacturing
EMS	Mercury-Schools	Ship Building and Repair
EMS in Government	Mercury-Thermometers	Ski Areas
Environmental Management Accounting	Mercury-Thermostats	Technology Diffusion
Environmental Measurement	Metal Fabrication and Machining	Textiles
Environmental Mentoring		Wood Furniture Manufacturing
Fiberglass Fabrication		Youth Education