Using the Toxics Release Inventory (TRI) Pollution Prevention (P2) Data Tool

Daniel Teitelbaum
Toxics Release Inventory Program
Office of Environmental Information

June 2013
Presentation Overview

- Overview of TRI and TRI’s P2 data
- Finding P2 data for an individual TRI facility
- Using TRI to identify technical assistance targets
- Using TRI to identify effective P2 practices
- Information for TRI reporting facilities
OVERVIEW OF TRI AND P2
What is the Toxics Release Inventory (TRI)?

• TRI compiles data submitted by industry on the releases and management of toxic chemicals from certain facilities

• TRI collects information on:
  
  Releases  Waste transfers  Recycling  Pollution prevention
Who Reports to TRI?

- Facility must be in a TRI-covered industry sector or category, including:
  - Manufacturing
  - Coal/Oil electricity generation
  - Certain Mining Facilities
  - Hazardous Waste Management
  - Federal Facilities

- Facility must have the equivalent of at least 10 full-time employees
- Facility must manufacture, process or use more than a threshold amount of a TRI toxic chemical per year
• The Pollution Prevention Act (PPA):
  – Set out hierarchy of waste management techniques
  – Goal is for facilities to shift away from releases towards more preferable waste management techniques
    • Or, ideally, eliminate waste at source
  – As required by the PPA, TRI tracks each facility’s progress towards this goal and collects info on effective practices
• Waste Management Quantities
  – Prior Year, Current Year, and Future Years (projections)

• Production Ratio
  – Ratio of current year production or activity to previous year
  – Puts changes in releases into context of production

• Source Reduction Activities
  – Codes corresponding to specific types of activities (required if any P2 activities were newly implemented during the reporting year)

• Optional Pollution Prevention Information
  – Additional detail about P2, recycling, or pollution control (free-text)
Management of N-Methyl-2-Pyrrolidone at a TRI Facility

In this example, Production Index tracks # of semiconductors produced.

W58: Other Process Modifications: A process change made to certain wafer technologies in 2011 resulted in a NMP and polyimide use reduction. W51 [Instituted re-circulation within a process]: [This practice was] utilized at the tool chemical recycle on certain semiconductor manufacturing equipment.

W58: Other Process Modifications
## Examples of TRI P2 Text

<table>
<thead>
<tr>
<th>Source Reduction Activity Category and Code Reported</th>
<th>Pollution Prevention Text Submitted</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Raw Material Modifications</strong>&lt;br&gt;W42: Substituted raw materials</td>
<td>We have reduced our air emissions by substituting #6 fuel oil with B50; a product that is 50% vegetable oil.</td>
</tr>
<tr>
<td><strong>Cleaning and Degreasing</strong>&lt;br&gt;W60: Changed to mechanical stripping / cleaning devices (from solvents or other materials)</td>
<td>Grit blasting has been used in place of some of our acid stripping operations. Our customer satisfaction with this process will determine if it will be used as a permanent change. Otherwise our acid use will increase with expected increase in production requirements.</td>
</tr>
<tr>
<td><strong>Inventory Control</strong>&lt;br&gt;W21: Instituted procedures to ensure that materials do not stay in inventory beyond shelf-life</td>
<td>We found customers for paint at the end of its shelf life that did not require high performance standards of paint within its shelf life. This reduced the amount in the waste stream.</td>
</tr>
<tr>
<td><strong>Process Modifications</strong>&lt;br&gt;W51: Instituted re-circulation within a process</td>
<td>We increased the amount of trichloroethylene solvent we distilled by allowing an additional cycle of use and distillation before disposing of the solvent. Production team implemented the process.</td>
</tr>
</tbody>
</table>
New Source Reduction & P2 Text in 2011

- Forms with Source Reduction Activity Codes (§8.10): 5,787 forms
- Forms with Optional Additional P2 Details (§8.11): 4,302 forms
- Forms with Both: 2,534 forms

New Source Reduction & P2 Text in 2011
Have toxic chemical releases at a particular industrial facility gone up or down over time?

Were changes in releases driven by changes in production? Or did P2 practices play a role?

What P2 practices have other facilities in my sector implemented? How much progress have they made?

What P2 practices have been most effective overall? And which companies implemented them?
FINDING P2 DATA FOR AN INDIVIDUAL TRI FACILITY
Searching for P2 at Individual Facilities

The Toxics Release Inventory (TRI) Search retrieves data from the TRI database in Envirofacts.

TRI Search allows access to basic facility information, all forms submitted to EPA since 1987, aggregate chemical release data for all years reported, and relative risk information. The results display any facility that has reported from 1987 to present, even though the facility may or may not have submitted TRI data in the most recent reporting year. The last year of data displayed represents the last year TRI data was reported.

For each facility there is a link to summarized TRI information for years reported, Federal Registry System (FRS) facility information, and a corresponding Risk Screening Environmental Indicator (RSEI) report that provides a quantitative, relative estimate of risk posed by the facility based on the chemical released and potential exposure pathways. You may narrow your search by filtering through facility name/ID, geographic location, standard industrial classification, and chemical names/CAS numbers.

Facility Selection

Facility Identification:
Facility Name (Enter a partial or complete Facility Name)

Facility Identification Option Value:

Beginning With Exact Match Containing

Geography Search

Enter a partial value for any geography option except for the state value. For city and county, you must enter the state value. We strongly recommend that you enter a small geographical area to begin the search since Envirofacts contains a large number of facilities.

ZIP Code:
14580

Address:
Example Facility Search Results

Only TRI facility information was searched to select facilities

ZIP Code: 14580

Results are based on data extracted on NOV-01-2012

Note:
Click on the TRI_FACILITY_ID value to view a detailed report on the facility.
Click on "View Facility Information" to view EPA Facility information for the facility.
Click on the SUBMISSIONS value to view the list of DCN's for each TRI Reporting Year.
The data within the table below can be downloaded in a comma-separated value file for use in Excel by clicking here.

Go To Bottom Of The Page

<table>
<thead>
<tr>
<th>TRI FACILITY ID</th>
<th>FACILITY INFORMATION</th>
<th>FACILITY NAME</th>
<th>ADDRESS</th>
<th>COUNTY NAME</th>
<th>LATITUDE/LONGITUDE</th>
<th>SUBMISSIONS</th>
<th>RISK SCREENING</th>
<th>P2 REPORT</th>
</tr>
</thead>
<tbody>
<tr>
<td>14580RDXND7008A</td>
<td>View Facility Information</td>
<td>RADAX INDUSTRIES INC.</td>
<td>700 BASKET RD. WEBSTER, NY 145809724</td>
<td>MONROE</td>
<td>Latitude: 43.22633 Longitude: -77.38737</td>
<td>16</td>
<td>N/A</td>
<td>Report</td>
</tr>
<tr>
<td>4580RXCR800PH</td>
<td>View Facility Information</td>
<td>XEROX CORP</td>
<td>800 PHILLIPS RD WEBSTER, NY 14580</td>
<td>MONROE</td>
<td>Latitude: 43.227834 Longitude: -77.411534</td>
<td>184</td>
<td>Report</td>
<td>Report</td>
</tr>
</tbody>
</table>
Additional Source Reduction and Pollution Prevention Data:

The P2 Report summarizes chemical-specific Pollution Prevention (P2) data for multiple years, including Newly Implemented Source Reduction Activities (Section 8.10) and Optional Pollution Prevention Information (Section 8.7). A "P2 Data" data entry indicates that P2 data was reported for that specific chemical and year. A NR signifies that no Pollution Prevention data was reported for that specific chemical and year.

View all P2 Information for this facility

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1,1,1-TRICHLOROETHANE</td>
<td>P2 Data</td>
<td>P2 Data</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>P2 Report</td>
</tr>
<tr>
<td>CERTAIN GLYCOL ETHERS</td>
<td>P2 Data</td>
<td>P2 Data</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>P2 Report</td>
</tr>
<tr>
<td>DICHLOROMETHANE</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>P2 Report</td>
</tr>
<tr>
<td>FREON 113</td>
<td>NR</td>
<td>P2 Data</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>P2 Report</td>
</tr>
<tr>
<td>MANGANESE COMPOUNDS</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>P2 Report</td>
</tr>
<tr>
<td>METHYL ETHYL KETONE</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>P2 Data</td>
<td>P2 Data</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>P2 Report</td>
</tr>
<tr>
<td>METHYL ISOBUTYL KETONE</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>P2 Report</td>
</tr>
<tr>
<td>N-BUTYL ALCOHOL</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>P2 Report</td>
</tr>
<tr>
<td>NITRIC ACID</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>P2 Report</td>
</tr>
<tr>
<td>SELENIUM COMPOUNDS</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>P2 Data</td>
<td>P2 Data</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>P2 Report</td>
</tr>
<tr>
<td>TOLUENE</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>P2 Report</td>
</tr>
</tbody>
</table>
Example Detailed P2 Report

Pollution Prevention

Facility ID: 14500XRFCR800PH
Facility Name and Address:
XEROX CORP
800 PHILIPS RD
WEBSTER, NY 14580

Parent Company: XEROX CORP
Industry: Photographic and Photocopying Equipment Manufacturing (333915)
Chemical: Methyl Isobutyl Ketone

Additional Facility Detail Information
TRI Form R Submissions by this Facility
P2 data for other chemicals reported by this facility:
Select a chemical

Production Related Waste Management for Selected Chemical
For more on the Waste Management Hierarchy, see the Pollution Prevention Overview page

Management of Methyl Isobutyl Ketone at Facility XEROX CORP

Waste Management Comparison – Select Year: 2011

XEROX CORP

Total for Methyl Isobutyl Ketone: 56800 lbs

All NAICS 333 – Machinery
956 total TRI reporters, 7 reporting Methyl Isobutyl Ketone

Total for Methyl Isobutyl Ketone: 39702 lbs
8.10: Newly Implemented Source Reduction Activity

W49: Other raw material modifications

W58: Other process modifications

Section 8.11: Optional Pollution Prevention Test:

In late 2010 the Xerox Webster Fuser Manufacturing operation began redirecting liquid methyl isobutyl ketone wastes to a TSDF for solvent recovery. Prior to this, all liquid MIBK wastes were shipped offsite to be combusted for energy recovery. During RY2011, 45% of liquid MIBK wastes were recycled and repurchased by the operation to be used for certain cleaning and R&D activities. Pending success in qualifying the use of reclaimed solvent in other areas of the process, the operation plans to increase the proportion of reclaimed MIBK to between 60 and 70% of MIBK used. This recycling activity benefits the operation by reducing the amount of virgin solvent purchased. Because the cost of purchasing reclaimed MIBK is approximately $4.25 per gallon, compared with $24 per gallon for virgin MIBK, the operation anticipates a reduction of up to 49% in annual MIBK raw material costs.

W49: The operation qualified the use of reclaimed solvent in certain areas of the process.

W58: Redirection of liquid solvent wastes for reclaim and reuse, rather than for energy recovery.

T04: A cross-functional team consisting of operations personnel, Environmental Management Operations, and Global Purchasing planned and implemented the recycling project.

T11: Successful implementation of other solvent reclaim and reuse operations at Xerox provided inspiration for this project.

Chart Options:
- Display waste quantities only
- Display production index
IDENTIFYING TECHNICAL ASSISTANCE TARGETS
• Greatest environmental impact
  - Total release / waste management quantities
  - Toxicity of chemicals released
  - Fate and transport (e.g., releases to air vs. Subtitle C landfills)

• Greatest potential for source reduction
  - TRI data show more P2 progress for some sectors / chemicals / facilities than for others
  - Beginning in 2012, TRI facilities have opportunity to describe barriers to P2 or indicate that they are seeking technical assistance
Breakdown of TRI Chemical Quantities

Total Production-Related Waste Managed (lbs)

- Treated
- Energy Recovery
- Recycled
- Released

Total Waste: 22.8 billion lbs

Total Releases: 4.1 billion lbs

Source: 2011 TRI National Analysis Dataset
### Facility-Level Data for Illinois I

<table>
<thead>
<tr>
<th>Facility</th>
<th>Total Waste Managed</th>
<th>Total Release</th>
<th>Air Release</th>
<th>Water Release</th>
</tr>
</thead>
<tbody>
<tr>
<td>INCOBRASA INDUSTRIES LTD</td>
<td>660,838,739</td>
<td>520,805</td>
<td>520,805</td>
<td>-</td>
</tr>
<tr>
<td>BASF CORP</td>
<td>169,595,392</td>
<td>33,100</td>
<td>32,971</td>
<td>-</td>
</tr>
<tr>
<td>ADM</td>
<td>71,166,886</td>
<td>3,543,737</td>
<td>2,221,022</td>
<td>6,921</td>
</tr>
<tr>
<td>EMERALD PERFORMANCE…</td>
<td>60,139,802</td>
<td>140,451</td>
<td>131,911</td>
<td>7,288</td>
</tr>
<tr>
<td>US STEEL GRANITE CITY WORKS</td>
<td>31,062,950</td>
<td>4,010,694</td>
<td>188,987</td>
<td>581,101</td>
</tr>
<tr>
<td>KOPPERS INC</td>
<td>21,167,190</td>
<td>222,584</td>
<td>131,555</td>
<td>-</td>
</tr>
<tr>
<td>STEPAN CO MILLSDALE ROAD</td>
<td>19,208,894</td>
<td>311,852</td>
<td>288,210</td>
<td>20,072</td>
</tr>
<tr>
<td>EQUISTAR CHEMICALS LP</td>
<td>16,519,728</td>
<td>845,443</td>
<td>845,389</td>
<td>53</td>
</tr>
<tr>
<td>AHLSTROM FILTRATION LLC</td>
<td>16,367,166</td>
<td>335,855</td>
<td>335,855</td>
<td>-</td>
</tr>
<tr>
<td>3M CO - CORDOVA</td>
<td>13,508,996</td>
<td>78,319</td>
<td>51,861</td>
<td>25,883</td>
</tr>
</tbody>
</table>

Values among top 10 in each column are bolded. All data in lbs.
<table>
<thead>
<tr>
<th>Facility</th>
<th>Total Waste Managed</th>
<th>Total Release</th>
<th>Air Release</th>
<th>Water Release</th>
</tr>
</thead>
<tbody>
<tr>
<td>PEORIA DISPOSAL CO #1</td>
<td>12,843,616</td>
<td>12,769,316</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>STERLING STEEL CO LLC</td>
<td>5,954,762</td>
<td>5,943,952</td>
<td>6,455</td>
<td>51</td>
</tr>
<tr>
<td>KEYSTONE STEEL &amp; WIRE CO</td>
<td>4,778,238</td>
<td>4,737,510</td>
<td>24,666</td>
<td>606</td>
</tr>
<tr>
<td>US STEEL GRANITE CITY WORKS</td>
<td>31,062,950</td>
<td>4,010,694</td>
<td>188,987</td>
<td>581,101</td>
</tr>
<tr>
<td>VISCOFAN USA INC</td>
<td>3,760,646</td>
<td>3,705,550</td>
<td>3,705,550</td>
<td>-</td>
</tr>
<tr>
<td>ARCELORMITTAL RIVERDALE INC</td>
<td>3,688,117</td>
<td>3,688,071</td>
<td>32,908</td>
<td>1,236</td>
</tr>
<tr>
<td>LARAWAY RECYCLING &amp; DISPOSAL FACILITY</td>
<td>3,648,881</td>
<td>3,648,881</td>
<td>-</td>
<td>22</td>
</tr>
<tr>
<td>ADM</td>
<td>71,166,886</td>
<td>3,543,737</td>
<td>2,221,022</td>
<td>6,921</td>
</tr>
<tr>
<td>TYSON FRESH MEATS INC - JOSLIN IL</td>
<td>4,206,546</td>
<td>3,199,826</td>
<td>28,350</td>
<td>3,132,100</td>
</tr>
<tr>
<td>AMEREN ENERGY GENERATING...</td>
<td>3,286,089</td>
<td>2,759,431</td>
<td>295,679</td>
<td>44</td>
</tr>
</tbody>
</table>

Values among top 10 in each column are bolded. All data in lbs.
### Facility-Level Data for Illinois III

<table>
<thead>
<tr>
<th>Facility</th>
<th>Total Waste Managed</th>
<th>Total Release</th>
<th>Air Release</th>
<th>Water Release</th>
</tr>
</thead>
<tbody>
<tr>
<td>VISCOFAN USA INC</td>
<td>3,760,646</td>
<td>3,705,550</td>
<td>3,705,550</td>
<td>-</td>
</tr>
<tr>
<td>ADM</td>
<td>71,166,886</td>
<td>3,543,737</td>
<td>2,221,022</td>
<td>6,921</td>
</tr>
<tr>
<td>EQUISTAR CHEMICALS LP</td>
<td>16,519,728</td>
<td>845,443</td>
<td>845,389</td>
<td>53</td>
</tr>
<tr>
<td>HA INTERNATIONAL LLC</td>
<td>1,691,147</td>
<td>746,079</td>
<td>670,460</td>
<td>16</td>
</tr>
<tr>
<td>ADM QUINCY</td>
<td>659,381</td>
<td>629,629</td>
<td>627,451</td>
<td>-</td>
</tr>
<tr>
<td>WOOD RIVER REFINERY</td>
<td>10,605,634</td>
<td>736,406</td>
<td>624,080</td>
<td>70,187</td>
</tr>
<tr>
<td>RENTECH NITROGEN LLC</td>
<td>684,521</td>
<td>630,807</td>
<td>608,862</td>
<td>21,191</td>
</tr>
<tr>
<td>AVENTINE RENEWABLE ENERGY</td>
<td>728,399</td>
<td>686,657</td>
<td>564,145</td>
<td>121,532</td>
</tr>
<tr>
<td>RR DONNELLEY &amp; SONS CO</td>
<td>654,684</td>
<td>565,974</td>
<td>560,091</td>
<td>-</td>
</tr>
<tr>
<td>EXXONMOBIL OIL CORP JOL IET…</td>
<td>7,164,047</td>
<td>678,525</td>
<td>549,219</td>
<td>122,755</td>
</tr>
</tbody>
</table>

Values among top 10 in each column are bolded. All data in lbs.
## Facility-Level Data for Illinois IV

<table>
<thead>
<tr>
<th>Facility</th>
<th>Total Waste Managed</th>
<th>Total Release</th>
<th>Air Release</th>
<th>Water Release</th>
</tr>
</thead>
<tbody>
<tr>
<td>TYSON FRESH MEATS INC - JOSLIN IL</td>
<td>4,206,546</td>
<td>3,199,826</td>
<td>28,350</td>
<td>3,132,100</td>
</tr>
<tr>
<td>CARGILL MEAT SOLUTIONS CORP</td>
<td>7,698,233</td>
<td>2,230,213</td>
<td>35,996</td>
<td>2,113,183</td>
</tr>
<tr>
<td>US STEEL GRANITE CITY WORKS</td>
<td>31,062,950</td>
<td>4,010,694</td>
<td>188,987</td>
<td>581,101</td>
</tr>
<tr>
<td>MARATHON PETROLEUM CO LP...</td>
<td>8,408,210</td>
<td>912,427</td>
<td>296,923</td>
<td>451,059</td>
</tr>
<tr>
<td>BALDWIN ENERGY COMPLEX</td>
<td>4,019,278</td>
<td>2,740,299</td>
<td>547,073</td>
<td>145,392</td>
</tr>
<tr>
<td>EXXONMOBIL OIL CORP JOL IET...</td>
<td>7,164,047</td>
<td>678,525</td>
<td>549,219</td>
<td>122,755</td>
</tr>
<tr>
<td>AVENTINE RENEWABLE ENERGY</td>
<td>728,399</td>
<td>686,657</td>
<td>564,145</td>
<td>121,532</td>
</tr>
<tr>
<td>WOOD RIVER REFINERY</td>
<td>10,605,634</td>
<td>736,406</td>
<td>624,080</td>
<td>70,187</td>
</tr>
<tr>
<td>FLINT HILLS RESOURCES...</td>
<td>5,024,810</td>
<td>209,813</td>
<td>101,687</td>
<td>59,185</td>
</tr>
<tr>
<td>HAVANA POWER STATION</td>
<td>1,076,362</td>
<td>809,899</td>
<td>186,529</td>
<td>48,820</td>
</tr>
</tbody>
</table>

Values among top 10 in each column are bolded. All data in lbs.
### Considerations Beyond Volume

<table>
<thead>
<tr>
<th>Facility</th>
<th>Total Release</th>
<th>Total PBT Release</th>
</tr>
</thead>
<tbody>
<tr>
<td>PEORIA DISPOSAL CO #1</td>
<td>12,769,316</td>
<td>696,293</td>
</tr>
<tr>
<td>KEYSTONE STEEL &amp; WIRE CO</td>
<td>4,737,510</td>
<td>240,214</td>
</tr>
<tr>
<td>US STEEL GRANITE CITY WORKS</td>
<td>4,010,694</td>
<td>196,289</td>
</tr>
<tr>
<td>LARAWAY RECYCLING &amp; DISPOSAL FACILITY</td>
<td>3,648,881</td>
<td>164,819</td>
</tr>
<tr>
<td>ALTON STEEL INC</td>
<td>1,968,597</td>
<td>148,726</td>
</tr>
<tr>
<td>STERLING STEEL CO LLC</td>
<td>5,943,952</td>
<td>122,635</td>
</tr>
<tr>
<td>H KRAMER &amp; CO</td>
<td>2,431,722</td>
<td>114,194</td>
</tr>
<tr>
<td>ARCELORMITTAL RIVERDALE INC</td>
<td>3,688,071</td>
<td>58,701</td>
</tr>
<tr>
<td>OLIN CORP WINCHESTER...</td>
<td>174,839</td>
<td>54,366</td>
</tr>
<tr>
<td>US DOE ARGONNE NATIONAL LAB</td>
<td>53,918</td>
<td>53,918</td>
</tr>
</tbody>
</table>

Values among top 10 in each column are bolded. All data in lbs.

- TRI tools provide various chemical classifications, e.g.:
  - PBTs (Persistent, Bioaccumulative Toxics)
  - HAPs
  - OSHA carcinogens

- Other resources may assist with toxicity weighting, risk-screening, or exposure assessments
• TRI provides data on disparities in P2 progress
  – Source reduction implementation rates vary greatly by chemical and sector
  – Progress in reducing releases and other waste management quantities also varies considerably

• Beginning with 2012, TRI encourages and facilitates reporting of information about barriers to P2, e.g.:
  – Insufficient capital to install source reduction equipment or implement new initiatives
  – Require technical information on pollution prevention techniques
  – Concern that product quality may decline
  – Source reduction activities were implemented but unsuccessful
  – Pollution prevention was previously implemented, and additional reduction is not feasible
New Source Reduction Rates by Sector

Share of Form Rs with New P2 Activities*, 2011

*Refers to Form Rs with newly-implemented source reduction activities in 2011, limited to sectors with at least 100 Form Rs
Potential New TRI Data Presentations

Toluene Managed by Textile Facilities (2010)

Waste Hierarchy
- Recycled
- Energy Recovery
- Treated
- Air Releases

[Sample P2 text]: During RY2010, we increased the use of our solvent distillation to recycle more solvent from our waste stream.

TRI data convey differences in waste management methods and trends.
IDENTIFYING EFFECTIVE P2 PRACTICES & SUCCESSES
TRI Pollution Prevention Search

Under the Pollution Prevention Act of 1990 (PPA), the Toxics Release Inventory (TRI) collects information to track industry progress in reducing waste generation and moving towards safer waste management alternatives. When providing this information, many facilities choose to describe the measures they have taken to prevent pollution and reduce the amount of toxic chemicals entering the environment. As a result, TRI serves as a tool for identifying effective environmental practices and highlighting pollution prevention successes.

For additional information, visit the Pollution Prevention Overview page. To view P2 data for an individual facility or locality, use the TRI Search.

Select from one or more of the dropdowns below to view pollution prevention activities and associated reductions in toxic chemical release quantities.

Select one or more Industry(s):  
All Industries

Select one or more Chemical(s) or Chemical Group(s):  
All Chemicals

Select one or more Year(s):  
2005-2011

Select one or more State(s):  
All States

Search  Clear
Example Industry-Chemical Search

Industry Selection
Select an Industry:
NAICS 334 - Computers/Electronics Products

Chemical Selection
Select a Chemical:
Lead And Lead Compounds

Year Selection
Select a Year:
2005-2011

State Selection
Select a State:
All States
Under the Pollution Prevention Act of 1990 (PPA), TRI collects information to track industry progress in reducing waste generation and moving towards safer waste management alternatives. Measures that facilities have taken to prevent pollution and reduce the amount of toxic chemicals entering the environment are shown in the table below. Although factors other than these reported practices contribute to year-to-year changes in releases, results are sorted by largest reduction in order to facilitate identification of pollution prevention successes.

### List of Facilities in TRI submitting Pollution Prevention Information for Selected Criteria:

**Industry:** NAICS 334 - Computers/Electronics Products  
**Year:** Between 2005 and 2011

<table>
<thead>
<tr>
<th>FACILITY NAME</th>
<th>ADDRESS</th>
<th>CHEMICAL</th>
<th>YEAR</th>
<th>PRIOR YEAR RELEASE</th>
<th>CURRENT RELEASE</th>
<th>PERCENT CHANGE</th>
<th>POLLUTION PREVENTION INFORMATION (ACTIVITY CODES/TEXT)</th>
</tr>
</thead>
</table>
| CTS ELECTRONICS MANUFACTURING SOLUTIONS INC | 200 SCIENCE DR, MOORPARK, CA 930212003 | Lead Compounds | 2005 | 2,109.00 | 0 | -100% | W36. Implemented inspection or monitoring program of potential spill or leak sources  
CTS purchased a ‘lead-free’ wave solder machine in 2005. |
| SMART MODULAR TECHNOLOGIES | 4211 STARBURG DR, FREMONT, CA 94538427 | Lead | 2005 | 2,008.00 | 0 | -100% | W42. Substitutes raw materials  
W52. Modified equipment, layout, or piping |
| MUELLER SYSTEMS | 10210 STATESVILLE BLVD, CLEVELAND. | Lead | 2009 | 1,894.00 | 0 | -100% | W49. Other raw material modifications |
Filtering Results Using Search Box

List of Facilities in TRI submitting Pollution Prevention Information for Selected Criteria:

Industry: NAICS 334 - Computers/Electronics Products
Year: Between 2005 and 2011

Showing 1 to 10 of 292 entries (filtered from 1,805 total entries)

Search: lead free solder

- **Facility Name:** CTS Electronics Manufacturing Solutions Inc
  - **Address:** 200 Science Dr, Moorpark, CA 93021-2003
  - **Chemical:** Lead Compounds
  - **Year:** 2005
  - **Prior Year Release:** 2,100.00
  - **Current Year Release:** 0
  - **Percent Change:** -100%
  - **Pollution Prevention Information (Activity Codes/Text):**
    - W35: Implemented inspection or monitoring program of potential spill or leak sources
    - CTS purchased a "lead-free" wave solder machine in 2005.

- **Facility Name:** Fawn Electronics
  - **Address:** 100 Industry Ct, Nashville, NC 27856
  - **Chemical:** Lead Compounds
  - **Year:** 2008
  - **Prior Year Release:** 146.00
  - **Current Year Release:** 0
  - **Percent Change:** -100%
  - **Pollution Prevention Information (Activity Codes/Text):**
    - W13: Improved maintenance scheduling, recordkeeping, or procedures
    - W14: Changed production schedule to minimize equipment and feedstock changeovers
    - W21: Instituted procedures to ensure that materials do not stay in inventory beyond
    - W42: Substituted raw materials
    - Introduction of Lead Free Processes to comply with European Directive for Reduction of Hazardous Substances (EU 2002/55/EC). Lead Free processes mandate the lead content of solders must be no greater than 100PPM (100 Parts Per Million) or 0.1% by weight. Our facility has begun to reduce the use and storage of lead containing materials. Eighty Five percent of our production is now using Lead Free materials and processes and should progress to ninety percent by year's end. Lead Free Materials will also be recycled in accordance with environmental standards.

- **Facility Name:** MOOC Components
  - **Address:** 1965 Hwy 141, Murphy, NC 28906
  - **Chemical:** Lead Compounds
  - **Year:** 2011
  - **Prior Year Release:** 39.00
  - **Current Year Release:** 0
  - **Percent Change:** -100%
  - **Pollution Prevention Information (Activity Codes/Text):**
    - W42: Substituted raw materials
    - W82: Modified design or composition of product
    - Over the past years, we have been substituting lead-free solders in many of our products where feasible.

- **Facility Name:** Axiom Electronics LLC
  - **Address:** 14924 NW Greenbrier Pkwy, Beaverton, OR 97005-5733
  - **Chemical:** Lead Compounds
  - **Year:** 2007
  - **Prior Year Release:** 11.10
  - **Current Year Release:** 0
  - **Percent Change:** -100%
  - **Pollution Prevention Information (Activity Codes/Text):**
    - As previously reported with the industry transition to Pb-Free as a part of rohs program for this industry and we see more products demanding and using Pb-Free solder we reasonably expect that there will be less and less Pb processed through our facility. This is of course dependant on our customer's needs.
Example State-Year Search

**Search Criteria**

**Select one or more Industry(s):**  
All Industries

**Select one or more Chemical(s) or Chemical Group(s):**  
Hazardous Air Pollutants

**Select one or more Year(s):**  
2011

**Select one or more State(s):**  
IL

[Search] [Clear]
List of Facilities in TRI submitting Pollution Prevention Information for Selected Criteria:

- **Chemical:** Hazardous Air Pollutants
- **State:** IL
- **Year:** 2011

<table>
<thead>
<tr>
<th>FACILITY NAME</th>
<th>ADDRESS</th>
<th>CHEMICAL</th>
<th>INDUSTRY</th>
<th>PRIOR YEAR AIR RELEASE</th>
<th>CURRENT YEAR AIR RELEASE</th>
<th>PERCENT CHANGE</th>
<th>POLLUTION PREVENTION INFORMATION (ACTIVITY CODES/TEXT)</th>
</tr>
</thead>
<tbody>
<tr>
<td>STERLING STEEL CO LLC</td>
<td>101 AVE K, STERLING, IL 610812329</td>
<td>Lead Compounds</td>
<td>Iron and Steel Mills</td>
<td>2,910.00</td>
<td>171.00</td>
<td>-94.12%</td>
<td>A waste stream consisting of steel scale (milscale) that had been sent to a local landfill is now being sent to a local cement company for recycling. This material has a high iron content and some grades of cement require those iron units.</td>
</tr>
<tr>
<td>MECO INC</td>
<td>2121 S MAIN ST, PARIS, IL 61944</td>
<td>Chromium Compounds (Except Chromium Ore Mined In The Transvaal Region)</td>
<td>Turbine and Generator Set Units Manufacturing</td>
<td>288.00</td>
<td>32.00</td>
<td>-86.89%</td>
<td>Our product is made from nickel and chromium based metal. We get money for the metals recycled, so we already take every effort to recycle the metal not used in final product.</td>
</tr>
<tr>
<td>IMTT ILLINOIS JOIUT FACILITY</td>
<td>24420 W DURKEE RD, CHANNAHON, IL 60440</td>
<td>Ethyl/benzene</td>
<td>Petroleum Bulk Stations and Terminals</td>
<td>99.40</td>
<td>11.60</td>
<td>-88.33%</td>
<td>W13: Improved maintenance scheduling, recordkeeping, or procedures W06: Implemented inspection or monitoring program of potential spill or leak sources. Significant decrease due to substituting previous paint for a less toxic paint. IMTT purchased a new PID meter to monitor, detect and control pipelines, valves, etc., for fugitive leaks. Also implemented a formal Risk Assessment Management Program to identify any risk findings. T04: Implemented a RAMP (Risk Assessment Management Program). T06: Safety Incentive Program.</td>
</tr>
<tr>
<td>NTN-BOWER CORP</td>
<td>711 N BOWER RD.</td>
<td>Manganese</td>
<td>Ball and Roller Bearing</td>
<td>300.00</td>
<td>500.00</td>
<td>-83.33%</td>
<td>A recycler was found for the industrial grindings for 2012.</td>
</tr>
</tbody>
</table>
Example P2 Details Report

Production Related Waste Management for Selected Chemical

For more on the Waste Management Hierarchy, see the Pollution Prevention Overview page.

Management of Chromium Compounds at Facility HANNA STEEL CORP

Waste Management Comparison – Select Year: 2011

HANNA STEEL CORP

Total for Chromium Compounds: 9401 lbs

All Facilities in NAICS 332812
283 total TRI reporters, 33 reporting Chromium Compounds

Total for Chromium Compounds: 343006.14 lbs

Chart Options:
- Display waste quantities only
- Display production index
- Normalize waste quantities relative to production
- Display waste quantities as a percentage of total waste

Find additional P2 activities for this industry and chemical.
## Summary: Accessing TRI P2 Data

<table>
<thead>
<tr>
<th>Data Resource</th>
<th>What You Can Use it For</th>
</tr>
</thead>
</table>
| 2011 Toxics Release Inventory National Analysis | • Read about overall trends in P2 and waste management  
  • Download P2 stats and lists of P2 activities for 2011 |
| P2 Search Tool                         | • Find P2 activities for particular industries, chemicals, or states  
  • Gauge which practices may have been most effective |
| TRI Search                             | • Identify TRI facilities in your area of interest  
  • View P2 and waste management trends for particular facilities |
| TRI.NET                                | • Design sophisticated queries involving P2 and other TRI data  
  • Find downward trends in releases and see which companies and P2 activities contributed |
| myRight-to-Know                        | • Find P2 information for TRI facilities in your neighborhood using your mobile device |
INFORMATION FOR TRI REPORTING FACILITIES
### New Green Chemistry Codes

- Six new source reduction codes have been added for RY2012 that could describe green chemistry and green engineering practices.

<table>
<thead>
<tr>
<th>Code</th>
<th>Code Description</th>
<th>Select this code if:</th>
</tr>
</thead>
<tbody>
<tr>
<td>W15</td>
<td>Introduced in-line product quality monitoring or other process analysis system</td>
<td>The introduction of such a system led to a reduction in the amount of the TRI chemical generated as waste.</td>
</tr>
<tr>
<td>W43</td>
<td>Substituted a feedstock or reagent chemical with a different chemical</td>
<td>The TRI chemical was a feedstock or reagent chemical and was replaced (in whole or in part) with a different chemical.</td>
</tr>
<tr>
<td>W50</td>
<td>Optimized reaction conditions or otherwise increased efficiency of synthesis</td>
<td>The amount of the TRI chemical generated as waste was reduced by increasing the yield of the synthesis.</td>
</tr>
<tr>
<td>W56</td>
<td>Reduced or eliminated use of an organic solvent</td>
<td>The TRI chemical was used as a solvent in the process and the process was modified such that the TRI chemical was replaced or required in lower quantities.</td>
</tr>
<tr>
<td>W57</td>
<td>Used biotechnology in manufacturing process</td>
<td>The use of biotechnology in the process reduced or eliminated the use of the TRI chemical.</td>
</tr>
<tr>
<td>W84</td>
<td>Developed a new chemical product to replace previous chemical product</td>
<td>The TRI chemical had been produced at the facility but was replaced (in whole or in part) with the production of a different chemical or chemicals.</td>
</tr>
</tbody>
</table>
Tips for Reporting Optional P2 Info

• Be Specific
  – Which technologies and materials were used?
  – Which processes and products were affected?
  – Did specific release or waste quantities change?
  – Were there other benefits (e.g., costs, product quality)?
  – Who provided the idea or assisted with implementation?
  – Why did you implement this activity?

• Enter Useful URLs
  – Equipment manufacturers
  – Other information sources
  – Corporate sustainability pages or case studies
For More Information

• Daniel Teitelbaum, TRI P2 Staff Lead
  – Teitelbaum.daniel@epa.gov

• EPA Website
  – www.epa.gov/tri/p2 (TRI P2 webpage)
  – www.epa.gov/p2 (EPA’s P2 Program)
  – www.epa.gov/tri (TRI homepage)