



Toxics Use Reduction Institute

The Massachusetts Toxics Use Reduction Program: What it is and How it Works

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Overview

- The Massachusetts Toxics Use Reduction Act and Program
- Results of the TUR Program
- Current Focus of TURI and TUR Program
- Lessons Learned
- Resources

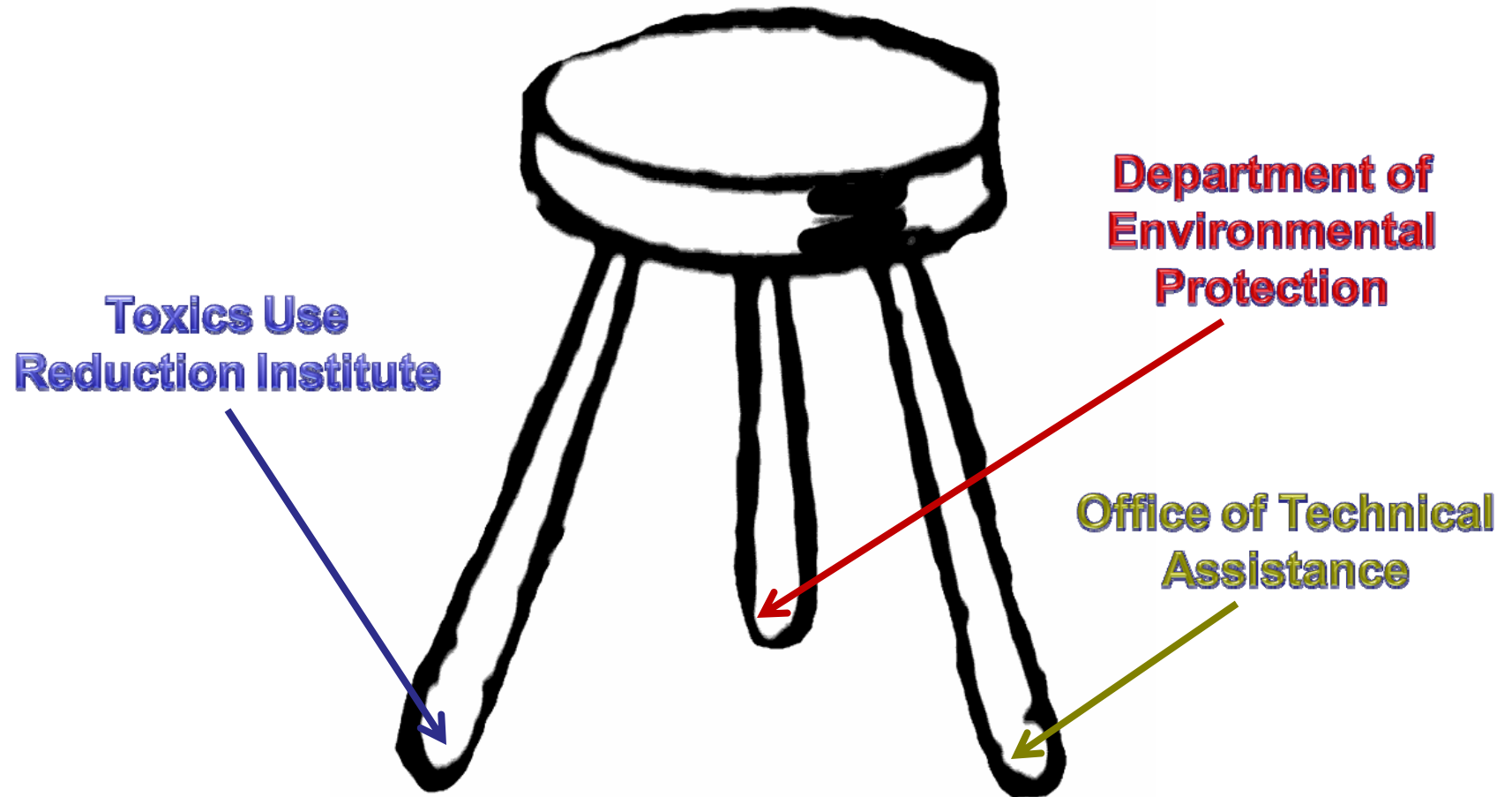


Massachusetts Toxics Use Reduction Act

- 1989—Massachusetts was the first state to enact a Toxics Use Reduction Law
- Goals of the Massachusetts Law
 - Achieve 50% reduction in byproduct (waste) by 1998
 - Establish toxics use reduction as the preferred means of compliance
 - Promote the competitive advantage of Massachusetts Industry
 - Reduce the production and use of toxic chemicals



TUR Program Structure





How is Toxics Use Reduction (TUR) Defined

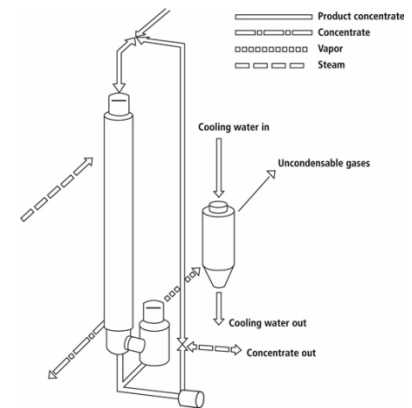
- *Direct*

- Chemical Input Substitution
- Product Redesign



- *Indirect*

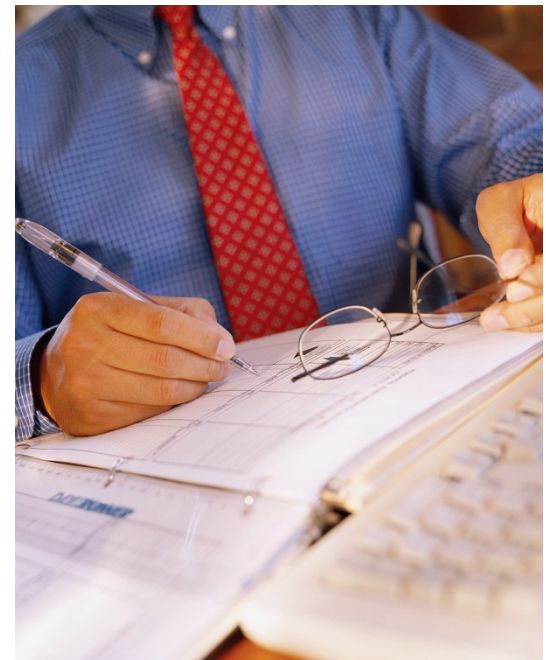
- Process Modification
- Operations and Maintenance Improvements
- In-Process Recycling





What Companies Must Do

- Report annually on amount of toxics **used**
- Pay an annual fee
- Conduct toxics use reduction *planning* every two years





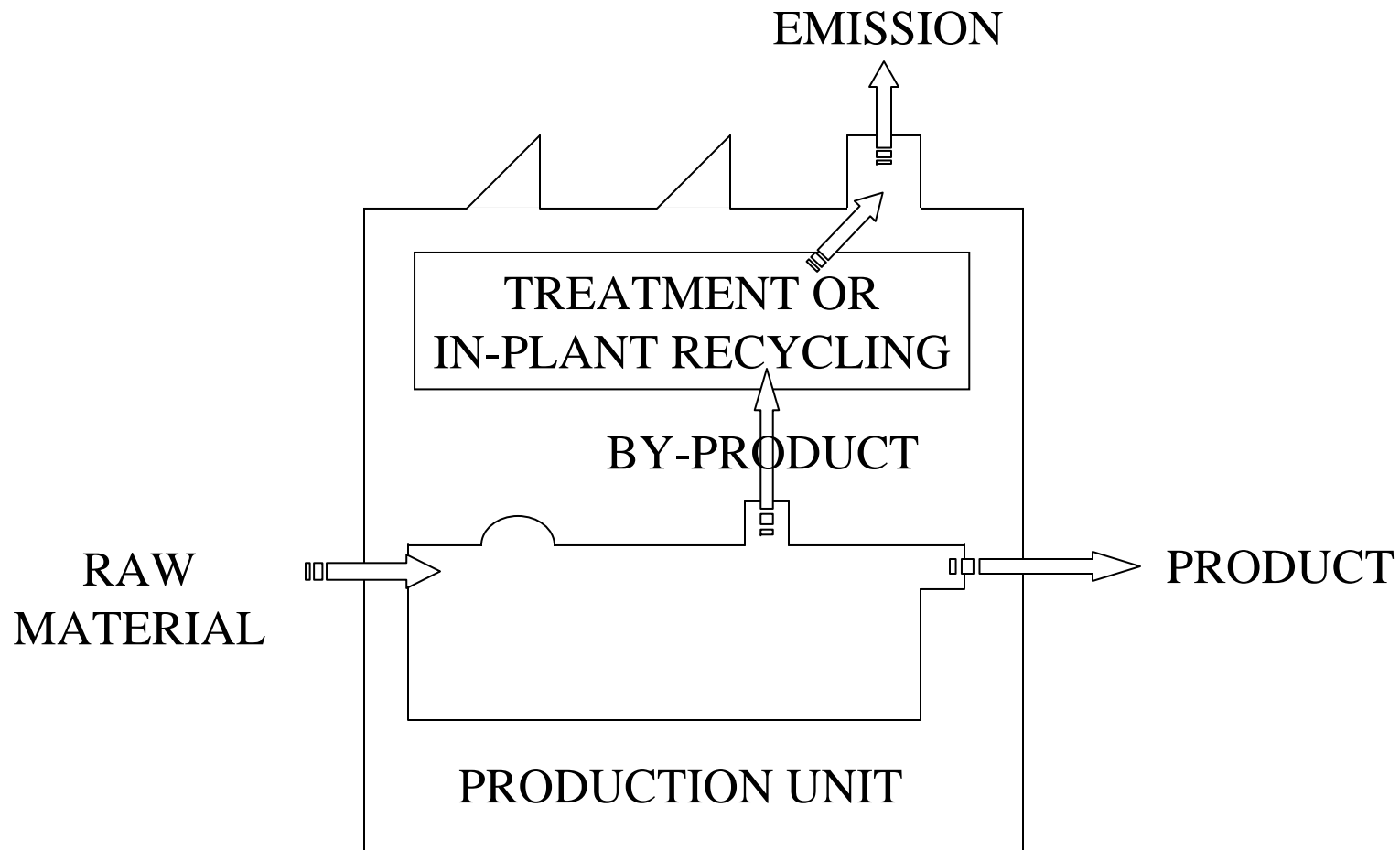
Annual TURA Reporting

- Annual reports submitted by about 600 facilities
- Each facility reports on:
 - Total toxic chemical use
 - Total toxic byproduct generated
 - Total toxic chemicals generated in or as products
 - Economic activity index





Data Collection Points





Reporting Thresholds

(facilities with ≥ 10 employees)

- Manufactured or processed: 25,000 lbs
- Otherwise used: 10,000 lbs
- PBTs:
 - Lead, lead compounds: 100 lbs
 - Mercury, mercury compounds: 10 lbs
 - Dioxin & dioxin-like compounds: 0.1 gram
- Higher Hazard Chemicals: 1,000 lbs



Fees

- Base fee – depends on the number of employees at a facility
 - Per chemical fee - \$1,100 per chemical
 - Maximum – to minimize the impact on individual companies
-



TURA Data on the Internet

- Data available on the web at <http://turadata.turi.org>
- Data is displayed by year, categorized by:
 - Chemical
 - Facility
 - Community

The screenshot shows the TURA Data website interface. At the top, there is a navigation bar with tabs for "TURA", "Understand", "Reports", "Success", "Collaborate", and "Glossary". Below the navigation bar, there is a search bar with the text "In this section..." and a "Go" button. The main content area is titled "TURA Reports" and contains a search form on the right and a list of report options on the left. The search form includes fields for "community name", "company name", and "chemical name", each with a "Find" button. The list of report options includes "Report for Massachusetts as a Whole", "Dioxin Report", and "Reports by Chemical Group".

TURA Data
A community guide to toxics information from Massachusetts' Toxics Use Reduction Act

TURA Reports

Use the form on the right to produce a report for a specific community, company or chemical. Simply enter a community name, company name, chemical name, CAS number, or company ID into one of the fields and press the appropriate "Find" button. Don't worry if you don't know the full name of a community, company or chemical. Just enter a partial name and the report facility will give you a list of matches to choose from.

If you are looking for more general information, you can also use one of the following report options:

- **Report for Massachusetts as a Whole**
Summary quantity reports for Massachusetts as a whole.
- **Dioxin Report**
Summary quantity reports for dioxin.
- **Reports by Chemical Group**
Chemicals are classified into 16 chemical groups. Some of these groups represent regulatory classifications, such as the TRI chemicals and the three groups of

Search for TURA reports by community, company, or chemical.

Enter all or part of a community name (**Note:** Some companies use **unofficial community names**):

Enter all or part of a company name:

Enter all or part of a chemical name:

Enter a CAS number:

Enter a company ID:

TURA Data

A community guide to toxics information
from Massachusetts' Toxics Use Reduction Act

Chemical Search Results

[TURA](#)[Understand](#)[Reports](#)[Success](#)[Collaborate](#)[Glossary](#)

Chemical: **FORMALDEHYDE**

CAS: **50-00-0**

Year(s): **All reported years between 1990 and 2004**

To return to the chemical report, [click here](#).

Summary Quantities for All Years Reported

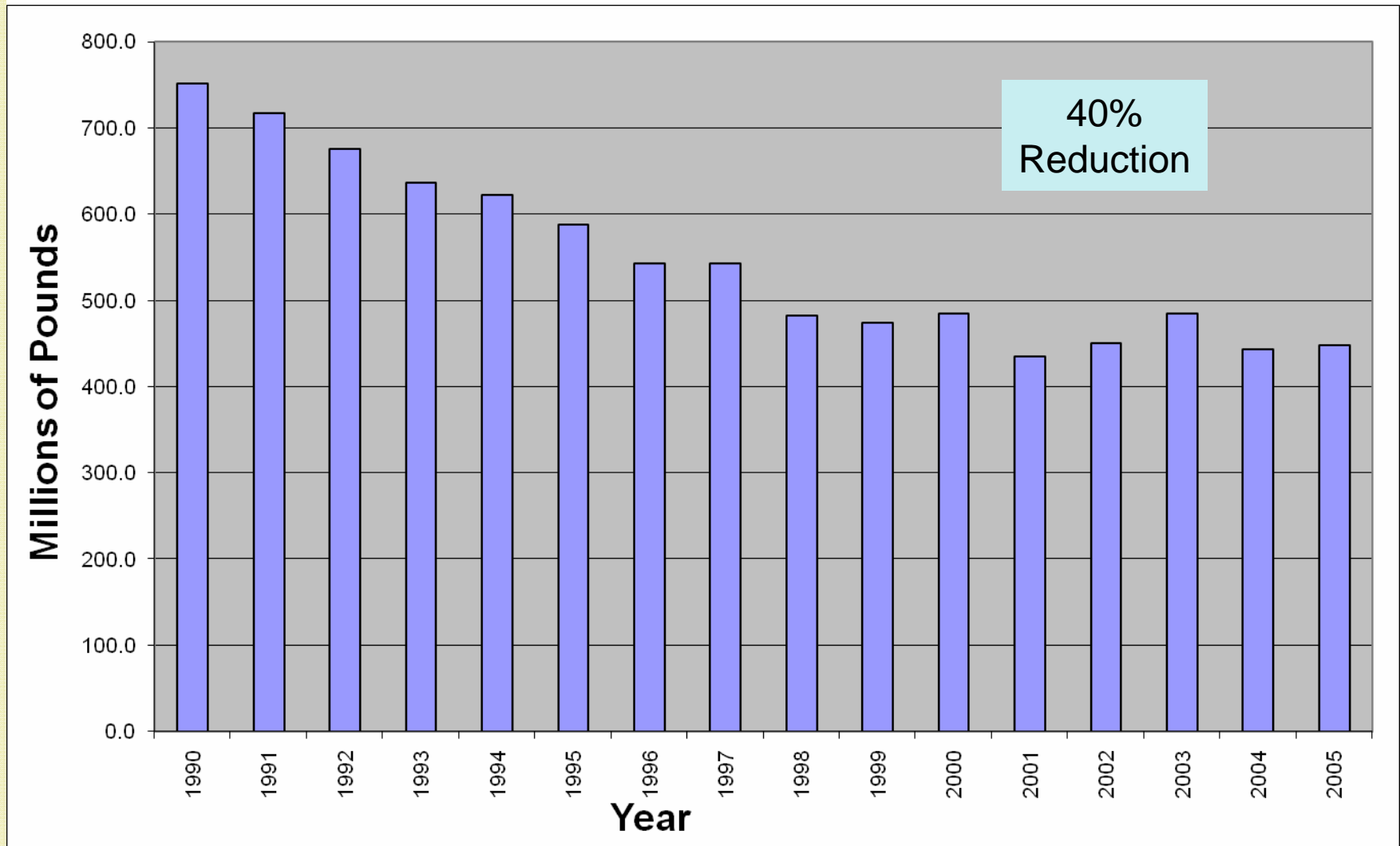
(All quantities are in pounds)

What happened to FORMALDEHYDE in all communities

Year	Total Used	Byproduct	Shipped	Releases
1990	9,184,923	280,221	8,162,243	180,126
1991	9,970,179	255,156	8,852,999	212,248
1992	12,772,527	257,842	9,417,587	198,499
1993	8,053,688	191,581	7,269,966	137,118
1994	6,388,675	191,565	5,140,500	147,097
1995	7,936,650	302,337	7,528,884	267,566
1996	6,341,277	234,122	6,060,121	202,548
1997	5,441,702	199,684	5,204,987	176,410
1998	5,730,472	191,897	5,486,096	175,561
1999	5,768,721	184,995	5,523,877	118,722
2000	5,667,016	200,839	5,424,753	95,968

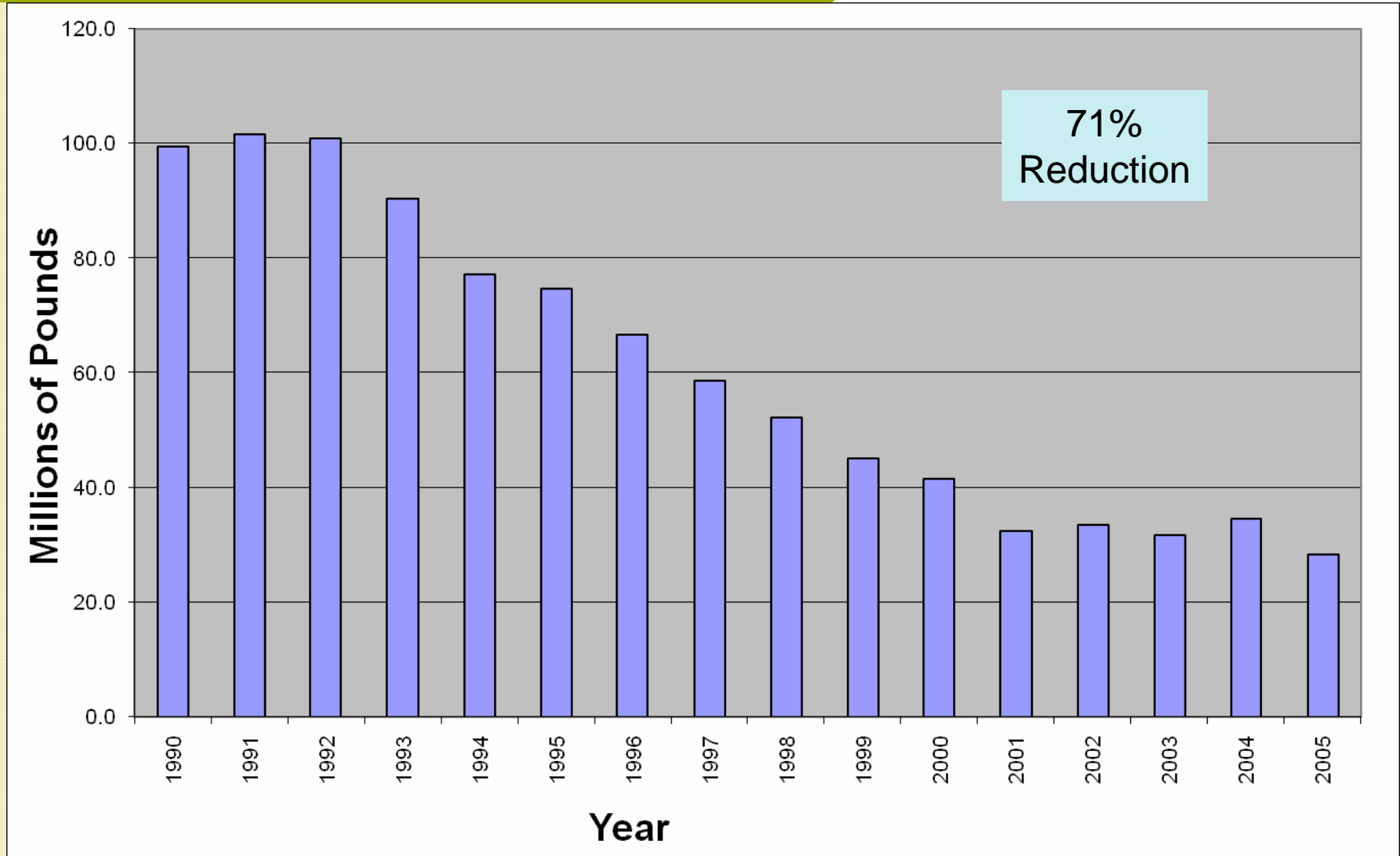


Trends in Toxic Chemical Use



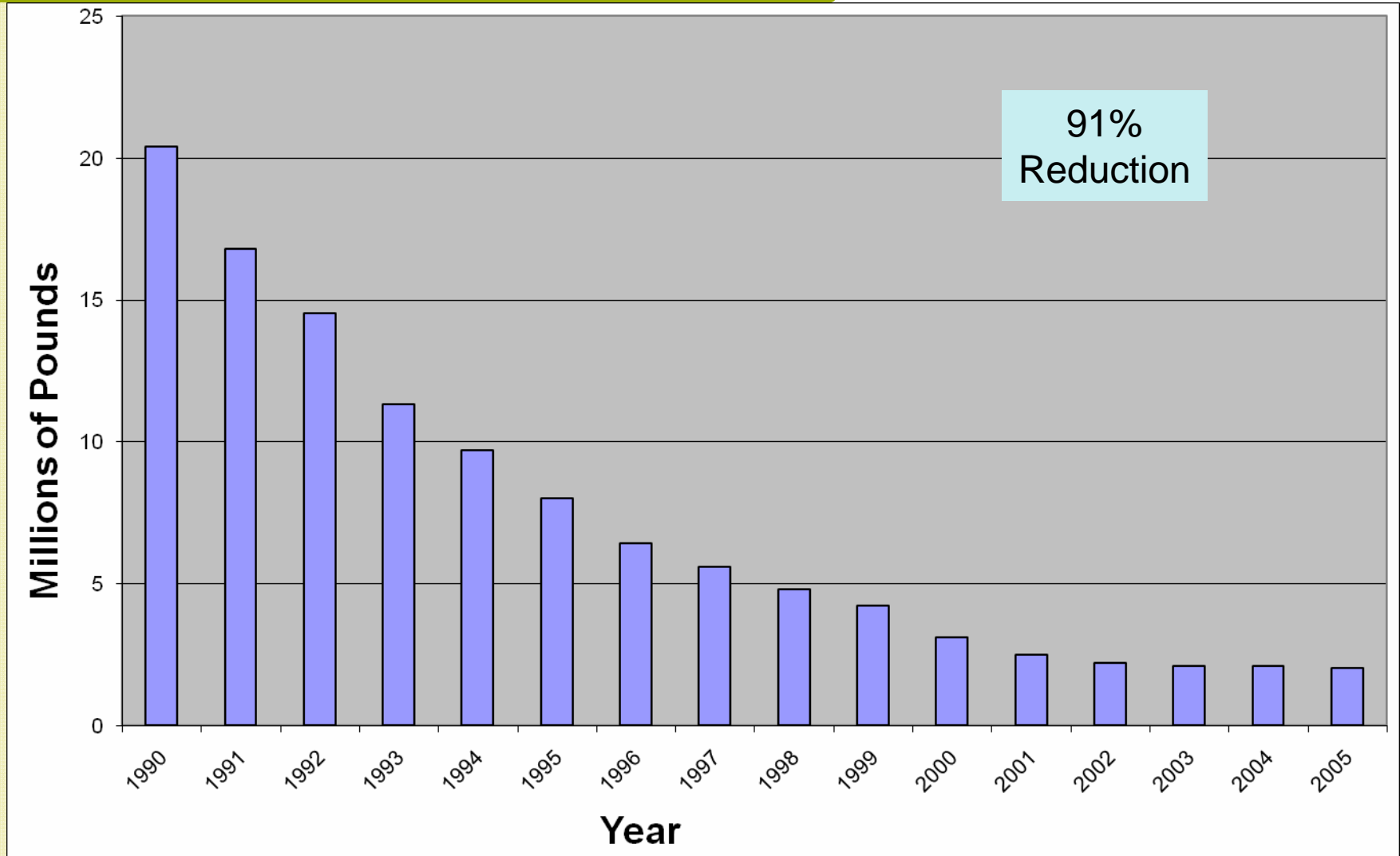


Trends in Toxic Byproduct





Trends in On-Site Releases of Toxic Chemicals





TURA Program Evaluation – The 10 Yr Perspective

- Full Program Evaluation Completed
- Involved a Telephone Survey of 434 out of 645 TUR Filers
- Included in-depth follow-up with 25 TUR Filers
- Included a Benefit-Cost Analysis





10 Year - General Trends

- **Planning**
 - 70% of firms identified TUR options in their plans
 - **Implementation**
 - 81 % of the firms that identified TUR options in their plans reported implementing at least some of them
 - 67% of firms reported cost savings
 - 66% of firms reported health and safety benefits
 - **Materials accounting was rated the most valuable component of TUR planning**
-



10 Year - Costs and Benefits of the TURA Program

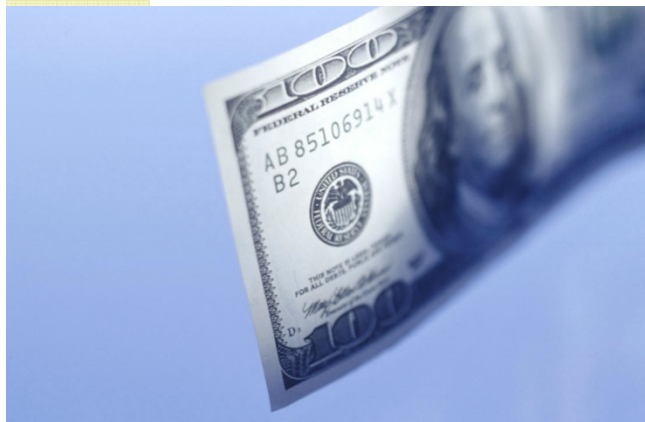
- Economic benefits exceeded costs

From 1990 - 1997:

- Reported Costs = \$77 million
- Monetized Benefits = \$91 million

***Benefits do not include:

- » Human health and ecological benefits
- » Benefits to non-TURA firms
- » Other non-monetized benefits





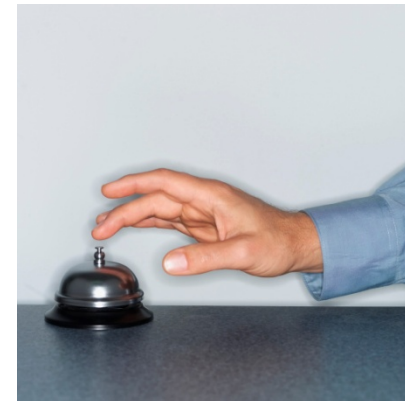
TURA Program Evaluation - The 20 Year View

- Preliminary Indications:
 - Companies identified new TUR opportunities even after years within program
 - TUR techniques are being disseminated outside of Massachusetts
 - Qualitative benefits being realized
 - Increased upper management attention to EH&S
 - Improved worker health and safety



TURI Services

- Education and training of TUR Planners
- Research of TUR techniques in industry
- Community grassroots-level TUR
- Renewed focus on small businesses
- Policy analyses and coordination with other program partners
- TURI Laboratory
- TURI Library



CleanerSolutions Database

Toxics Use Reduction Institute · Surface Solutions Laboratory



Replace a Solvent Search Results | [Search Again](#)

Current Search Information

Search Criteria

Solvent (Safety Score): **Trichloroethylene** (37)

Results

Found 1065 records
Showing records 1 - 50

Help

[Search Results](#) [Field Definitions](#)
[Contact the lab](#)

<< < Showing records 1 - 50 of 1065 | [Field Definitions](#) >> >>

Company Name Product Name	Safety Score	Classification	Contaminant	Substrate	Equipment	Client #			Effective
						Project #			
						Trial #			
Bio Chem Systems Bio T Max [compare]	37	Terpene-Semi-Aqueous	Buffing/Polishing Compounds	Stainless Steel	Ultrasonics	276	1	6	Y
Bio Chem Systems Solsafe 245 [compare]	37	Petroleum Distillate	Buffing/Polishing Compounds	Stainless Steel	Ultrasonics	276	1	6	Y
Dynamold Solvents Inc DS 104 [compare]	37	Petroleum Distillate	Buffing/Polishing Compounds	Stainless Steel	Ultrasonics	276	1	6	Y
Solvent Kleene Inc D Greeze 500 LO [compare]	38	Organic	Buffing/Polishing Compounds	Stainless Steel	Ultrasonics	276	1	6	Y
Bio Chem Systems Bio T Max [compare]	37	Terpene-Semi-Aqueous	Buffing/Polishing Compounds	Stainless Steel	Ultrasonics	276	1	5	Y
Bio Chem Systems Solsafe 245 [compare]	37	Petroleum Distillate	Buffing/Polishing Compounds	Stainless Steel	Ultrasonics	276	1	5	Y
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Solvent Kleene Inc D Greeze 500 LO [compare]	38	Organic	Buffing/Polishing Compounds	Stainless Steel	Ultrasonics	276	1	5	Y
Gemtek Products SC Supersolve [compare]	47	Biobased	Buffing/Polishing Compounds	Stainless Steel	Ultrasonics	276	1	4	N
Bio Chem Systems Bio T Max [compare]	37	Terpene-Semi-Aqueous	Buffing/Polishing Compounds	Stainless Steel	Ultrasonics	276	1	4	Y
Bio Chem Systems Solsafe 245 [compare]	37	Petroleum Distillate	Buffing/Polishing Compounds	Stainless Steel	Ultrasonics	276	1	4	Y
Dynamold Solvents Inc DS 104 [compare]	37	Petroleum Distillate	Buffing/Polishing Compounds	Stainless Steel	Ultrasonics	276	1	4	Y
AG Environmental Products Soy Gold 2000 [compare]	47	Biobased	Buffing/Polishing Compounds	Stainless Steel	Ultrasonics	276	1	4	N
Solvent Kleene Inc D Greeze 500 LO [compare]	38	Organic	Buffing/Polishing Compounds	Stainless Steel	Ultrasonics	276	1	4	Y
Gemtek Products SC Supersolve [compare]	47	Biobased	Buffing/Polishing Compounds	Stainless Steel	Immersion/Soak	276	1	3	Y
Bio Chem Systems Bio T Max [compare]	37	Terpene-Semi-Aqueous	Buffing/Polishing Compounds	Stainless Steel	Immersion/Soak	276	1	3	Y
Bio Chem Systems Solsafe 245 [compare]	37	Petroleum Distillate	Buffing/Polishing Compounds	Stainless Steel	Immersion/Soak	276	1	3	Y
Dynamold Solvents Inc DS 104 [compare]	37	Petroleum Distillate	Buffing/Polishing Compounds	Stainless Steel	Immersion/Soak	276	1	3	Y

CleanerSolutions Home

- [About CleanerSolutions](#)
- [Database Demos](#)
- [TURI Laboratory Home](#)
- [Contact the Lab](#)

Laboratory Clients and Test

- [Find a Cleaner](#)
- [Replace a Solvent](#)
- [Safety Screening Search](#)
- [Browse Clients and Trials](#)

Vendor Supplied Information

- [Vendor Search](#)
- [Browse Vendors and Products](#)

Forms

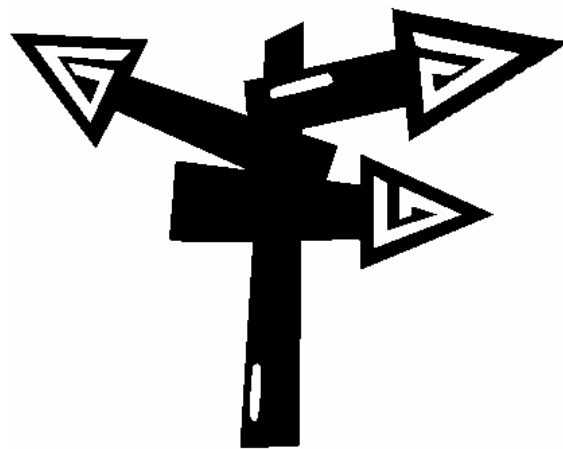
- [Vendor Forms](#)
- [Client Forms](#)





New Activities

- Focus on alternatives assessment
- Implementation of TURA amendments
- Designation of lower and higher hazard substances





Promoting Safer Alternatives

- Continue to invest research funding in green chemistry and occupational health studies of nanotechnologies
- Developed alternatives assessment framework
- Conducted an alternatives assessment on five high priority toxic chemicals (2006)





TURI Five Chemicals Study

- Legislative mandate to study alternatives to five high priority chemicals
 - Lead
 - Perchloroethylene
 - Formaldehyde
 - Di (2-ethylhexyl) phthalate
 - Hexavalent chromium



**FIVE CHEMICALS
ALTERNATIVES
ASSESSMENT STUDY**

June 2006



Hexavalent chromium



Formaldehyde



Di(2-ethylhexyl)phthalate (DEHP)



Prepared by the Toxics Use Reduction Institute at the
University of Massachusetts Lowell





Alternatives Assessment Process

- Step 1: Identify uses
 - Step 2: Identify alternatives
 - Step 3: Prioritize alternatives
 - Step 4: Evaluate alternatives
-
- Important element was transparency and communication – we brought all parties to the same table throughout the process





State Alternatives Assessment Forum

- Two-day meeting Sept 23-24, 2008
 - For states conducting alternatives assessments as part of overall pollution prevention strategy
- Pre-meeting conference calls
 - Aug 28 – Screening for Safer Chemicals
 - Sept 5 – The Massachusetts Process
 - Sept 16 – Challenges and Successes: the WA and ME experiences
- Join email list serve to stay apprized of activities (email pam@turi.org to be included)



2006 Amendments to TURA

- Raises fees and lowers thresholds for higher hazard chemicals (1000 lbs/yr)
- Lowers fees for low hazard chemicals
- Encourages resource conservation planning and EMSs for TUR leaders
- Requires establishment of priority user segments (including smallest firms) for targeted services and performance standards



Designation of Higher and Lower Hazard Substances

- First chemicals designated in higher hazard status:
 - Trichloroethylene
 - Cadmium and cadmium compounds
- Chemicals to be considered soon for higher hazard status:
 - Perchloroethylene
 - Arsenic/arsenic compounds, Nickel/nickel compounds, Formaldehyde, Cyanide compounds, Chlorine, Benzene and others



High Hazard Substances

- Evaluated by Science Advisory Board
- Criteria include carcinogenicity, PBT, other health effects
- Subject to lower reporting threshold
- Anticipate influx of smaller companies needing assistance and training
- First reports due July 2009 for 2008 data



Current Fee Structure

No. of employees	Base fee	Maximum
≥ 10 and < 50	\$ 1,850	\$ 5,550
≥ 50 and < 100	\$ 2,775	\$ 7,400
≥ 100 and < 500	\$ 4,625	\$ 14,800
≥ 500	\$ 9,250	\$ 31,450



New Directions for Massachusetts

- Proposed “Safer Alternatives Bill”
 - TURI prepares Safer Alternative Assessment Reports (SAAR) on each priority toxic substance
 - Based on the SAAR, State prepares a Chemical Action Plan (CAP) – possibility for mandatory phase outs
 - Firms must prepare and implement Substitution Plans (SP) to meet CAP requirements
 - Establish a tiered categorization list for all chemicals — 4 tiers
 - State provides business and employee assistance



Lessons Learned

- Economic and environmental quality can be improved by reducing toxic chemical use
 - Focus needs to be on facility planning and chemicals management
 - Emphasis on use reduction provides powerful leverage
 - Goals need to be clear and ambitious
 - Good metrics are needed to measure progress and enhance accountability
-



Lessons Learned

- Innovation is spurred by programs that carefully balance mandatory and voluntary instruments
- Smaller firms need reasonably funded technical assistance programs
- Working with industry alongside advocates is powerful and productive
- Science Advisory Board provides scientific grounding for decisions



Lessons Learned

- Areas for growth and improvement:
 - Sectors not included in TURA (health care, education)
 - 10-employee threshold
 - Substances not covered by TURA
 - Toxics in products
 - Fees



Contact Us!

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Rachel Massey, rachel@turi.org
978-934-3124

TURA data on the web:

<http://turadata.turi.org/>

Annual report on TURA data:

<http://www.mass.gov/dep/toxics/>