Alternatives Assessment in Action

- Current Policy Context

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Overview

- How has alternatives assessment been integrated into chemicals policies?
  - Examples from government, industry, NGOs

- What other policy tools can be used to promote the development of and transition to safer alternatives?
Examples from Government
Maine
Toxic Chemicals in Children’s Products

Public Law
123rd Legislature
Second Regular Session

Chapter 643
H.P. 1432 - L.D. 2048

An Act To Protect Children’s Health and the Environment from Toxic Chemicals in Toys and Children’s Products

[Image of the Department of Environmental Protection, State of Maine]
California Regulations for Safer Products
Massachusetts
From TURA to Safer Alternatives

The Commonwealth of Massachusetts

PRESENTED BY:

Steven A. Tolman

To the Honorable Senate and House of Representatives of the Commonwealth of Massachusetts in General Court assembled:

The undersigned legislators and/or citizens respectfully petition for the passage of the accompanying bill:

An Act for a competitive economy through safer alternatives to toxic chemicals.
Safe Chemicals Act of 2010

Goals

◦ “To promote the use of safer alternatives and other actions that reduce use of and exposure to hazardous chemicals substances and reward innovation toward safer chemicals, processes, and products”
◦ “Encouraging the replacement of harmful chemicals and processes with safer alternatives”

Safer Alternatives Program

◦ Expedited review of new chemical substances where alternatives analysis submitted
◦ Recognition program for safer alternatives
◦ Development of other market incentives to encourage safer alternatives
EPA’s Design for the Environment (DfE) Program

- Alternatives Assessment Program
  - Flame Retardants in Printed Circuit Boards
  - Furniture Flame Retardancy Partnership
  - Lead–Free Solder
  - Lithium–ion Batteries
  - Safer Detergents Stewardship Initiative (SDSI)

- Chemical Action Plans
  - Alternatives assessments for uses of decaBDE, phthalates, and bisphenol A in EPA’s jurisdiction
Stockholm Convention on Persistent Organic Pollutants

- Evaluation of alternatives to substances proposed for listing
- POPRC 5th Meeting (2009)—General guidance on considerations related to alternatives and substitutes for POPs
Dakar Recommendations on Substitution and Alternatives

Recommends:

- Support for international regulatory frameworks to promote substitution
- Development of an international portal on substitution, including tools and processes for alternatives assessment and an alternatives database
- Implementation of a transparent alternatives assessment process
- Support for research and development of safe and effective alternatives to chemicals or processes of concern
- Provision of technical assistance on substitution methodologies and implementation of safer alternatives
Authorization process based on substitution principle—progressive replacement of SVHCs

Application process for authorization mandates alternatives analysis and preparation of substitution plans

"My goal has been achieved: all dangerous substances will be dealt with in a way that can or will lead to substitution," – Mr Guido Sacconi, Rapporteur for the European Parliament
Examples from Industry
WalMart—GreenWERCS

- Analyzes the composition of individual products from ingredient data entered by manufacturers
- Assists in the identification and reduction of chemically hazardous products
- Helps make informed decisions based on:
  - Chemicals harmful to human health
  - Chemicals harmful to the environment
  - Sustainability goals
True Textiles—TerraCHECK

- Protocol to evaluate dyes and chemicals to ensure that only products that meet the highest standards of human and environmental health are used
- Ingredients and product characteristics screened against various human health and environmental endpoints
Commitment to replace restricted substances only with materials that are better for the environment and human health

Use Green Screen to assess alternative replacement materials

Completed assessments on more than 50 replacement materials for brominated and chlorinated flame retardants, phthalates, PVC and other substances of concern
S.C. Johnson Greenlist ™

Let Us Show You What We’re Made Of

We understand you use our products around the people, pets and things you love. So naturally, you want to know what’s in them. We have extensive processes that help us formulate our products to be safe and effective when used as directed on the labels. This site offers a detailed look at the ingredients in our products so you can make the right decisions for your home.
McDonough Braungart Design Chemistry—
Materials Assessment Protocol

1. Identify CAS number for chemical
2. Begin research on priority criteria
   - Are priority criteria met?
   - Yes: Continue to collect human and eco health data
   - No: Evaluate missing data
     - Are missing data relevant?
     - Yes: Collect analogous data
     - No: Are valid analogies available?
     - Yes: Evaluate missing data
     - No: Collect analogous data
3. Are human and eco health data complete?
   - Yes: Evaluate all data
   - No: Are all green criteria met?
     - Yes: Green
     - No: Are there problematic combined effects?
       - Yes: Red
       - No: Are all yellow criteria met?
         - Yes: Yellow
         - No: Orange
Examples from NGOs
Clean Production Action—Model Program for Alternatives Assessment

1. Create list of chemicals of high concern

2. Designate priority chemicals for action:
   - PBT
   - Body burden in humans or wildlife
   - Weight of evidence indicates substantial risk

3. Manufacturers register end uses for priority chemicals.

4. State prioritizes and uses in consumer products

5. Public opportunity to provide examples of alternatives to priority chemicals in end uses

6. Manufacturers submit all analyses
   How do we hold this data more accountable?
   - 3rd party audited, e.g., TURA planners
   - Performed by certified 3rd party
   - Make publicly available for comment
   - Require companies to pay for all assessment if incomplete

7. State posts on a publicly accessible database for comment

8. State reviews information

9a. If complete, where safer, available, cost effective alternatives exist, ban priority chemical in specific end use.

9b. If incomplete, state charges a fee to hire contractor of its choice

10. Manufacturers may apply for a time-limited exemption.

11. Government reviews exemptions four years after granted
CleanGredients

http://www.cleangredients.org/home
ISTAS RiscTox

http://www.istas.net/risctox/
GoodGuide

http://www.goodguide.com/
Policy Options to Achieve Substitution

“Success in substitution will require a package of policy initiatives that provide chemical use, hazard, and prioritization information; create incentives for safer alternatives and disincentives for using/producing chemicals of high concern; and require action.”

## Policy Options to Achieve Substitution

### TABLE 1 Policy Options to Achieve Substitution

<table>
<thead>
<tr>
<th>Policy Options</th>
<th>Steps in Alternatives Assessment</th>
<th>Policy Examples</th>
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</thead>
<tbody>
<tr>
<td>1. Chemical Use Information</td>
<td></td>
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<tr>
<td>Chemical disclosure</td>
<td>X</td>
<td>Material Safety Data Sheets (MSDS)</td>
</tr>
<tr>
<td>Chemical use database</td>
<td>X</td>
<td>Maine Mercury-Added Products Act</td>
</tr>
<tr>
<td>Warning labels</td>
<td>X X X</td>
<td>California Proposition 65</td>
</tr>
<tr>
<td>2. Chemical Hazard Data and Classification</td>
<td></td>
<td></td>
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<tr>
<td>Evaluate chemical hazards</td>
<td>X</td>
<td>US EPA DRE Program and P2 Framework tools</td>
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<tr>
<td>Comprehensive hazard data</td>
<td>X X</td>
<td>US EPA HPV data and EU REACH</td>
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<tr>
<td>Classify chemicals</td>
<td>X</td>
<td>EU REACH</td>
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<tr>
<td>3. Supply-side Options</td>
<td></td>
<td></td>
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<tr>
<td>R&amp;D support</td>
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<td>EU SusChem</td>
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<tr>
<td>Green chemistry centers</td>
<td>X</td>
<td>New England Green Chemistry Consortium</td>
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<tr>
<td>Tax credits</td>
<td>X</td>
<td>New York Green Building Tax Credit</td>
</tr>
<tr>
<td>Taxes and fees</td>
<td>X</td>
<td>Danish Greenhouse Gas tax and TURLA</td>
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<tr>
<td>4. Selection Policies</td>
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<td>Eco-labels</td>
<td></td>
<td>EU Flower, Nordic Swan, Energy Star</td>
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<td>Government procurement</td>
<td></td>
<td>EPP programs in many states &amp; cities</td>
</tr>
<tr>
<td>5. Multi-Attribute Options</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alternative assessments</td>
<td>X X X X X</td>
<td>TURIs Alternatives Assessment and US EPA DRE Program</td>
</tr>
<tr>
<td>Technical assistance</td>
<td>X X X X X</td>
<td>MA TURA and many other state TAPs</td>
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<tr>
<td>Substitution plans</td>
<td>X X X X X</td>
<td>MA TURA and EU REACH</td>
</tr>
<tr>
<td>Chemical restriction/Substitution</td>
<td>X X X X X</td>
<td>Clean Air Act Amendments of 1090—Title VI; US FQPA; EU REACH</td>
</tr>
</tbody>
</table>

Abbreviations: DRE—Design for Environment; EPP—Environmentally Preferable Product; EU—European Union; FQPA—Food Quality Protection Act; HPV—High Production Volume; MA—Massachusetts; P2—Pollution Prevention; REACH—Registration, Evaluation, and Authorisation of Chemicals; SusChem—Technology Platform for Sustainable Chemistry; TAPs—Technical Assistance Programs; TURIs—Toxics Use Reduction Institute; US FQPA—Toxics Use Reduction Act; U.S. EPA—U.S. Environmental Protection Agency.
Green Chemistry: A Complement to Alternatives Assessment

10% of chemicals in production are low hazard

25% of hazardous production chemicals could be substituted with currently available, low hazard substitutes

65% of hazardous production chemicals have no currently available low hazard substitutes

Reference: John Warner, Warner-Babcock Institute
Green Chemistry: A Complement to Alternatives Assessment

**Designing Safer Chemicals (DSfC)**

**Definition**
Chemical products should be designed to preserve efficacy of the function while reducing toxicity.

For this metric, if aquatic and human toxicities for the product are known, then the concern levels (high, moderate or low) may be set using the guidance in the Supplemental Information section below (consult with your Product Stewardship partner if necessary). If experimental data is not available, then a preliminary assessment may be requested from Beyond Benign, which will be based again on the guidance in the Supplemental Section. Once the human and aquatic toxicity concern levels are obtained, the Designing Safer Chemicals scoring for Metric 4 is determined using the following table:

<table>
<thead>
<tr>
<th>Human Toxicity</th>
<th>Aquatic Toxicity</th>
<th>Concern Level</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low</td>
<td>Low</td>
<td>Low</td>
<td>100</td>
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<tr>
<td>Low</td>
<td>Moderate</td>
<td>Moderate</td>
<td>75</td>
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<tr>
<td>Low</td>
<td>High</td>
<td>Low</td>
<td>50</td>
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<tr>
<td>Moderate</td>
<td>Moderate</td>
<td>Moderate</td>
<td>30</td>
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<tr>
<td>Moderate</td>
<td>High</td>
<td>Moderate</td>
<td>22</td>
</tr>
<tr>
<td>High</td>
<td>High</td>
<td>High</td>
<td>6</td>
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</tbody>
</table>

**Supplemental Information**

<table>
<thead>
<tr>
<th>Bill of Materials Out</th>
<th>Type of Material</th>
<th>Aqu. Toxic.</th>
<th>Human Toxic.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enter Product Name</td>
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</tr>
</tbody>
</table>

**DSfC (Design of Safer Chemicals) =**

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**EXECUTIVE DIRECTIVE No. 2006-6**

PROMOTION OF GREEN CHEMISTRY FOR SUSTAINABLE ECONOMIC DEVELOPMENT AND PROTECTION OF PUBLIC HEALTH
Questions?