Informal Workshop on Stakeholders’ Information Needs on Chemicals in Articles/Products

Business and NGO Strategies for Addressing Chemicals in Articles/Products
Mark Rossi, PhD

Outline

1. Guiding Principles
2. Strategies of Business Leaders
3. Challenges
4. Critical Needs
Guiding Principles
(for addressing chem’s in articles/products)

- Precautionary Principle
- Green Design
- Right to Know (RTK)
- Substitution
- Green Procurement
- Supply Chain Communication
- Extended Producer Responsibility (EPR)

Strategies of Business Leaders
(for addressing chem’s in articles/products)

1. Know (and disclose) chemical constituents in products
2. Assess + categorize chemical constituents based on
3. Prioritize + eliminate chemicals of high concern
4. Re-design products: select more sustainable chemicals & materials
5. Take responsibility from cradle to cradle
### Challenges to Implementing Strategies

<table>
<thead>
<tr>
<th>Business Strategies</th>
<th>Challenges</th>
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</table>
| 1. Know & disclose product chemistry                     | • Proprietary data  
• Complex supply chains  
• Complex products                                               |
| 2. Assess + categorize chemicals                         | • Lack of comprehensive data  
• Lack of agreement on categorization protocols                  |
| 3. Prioritize & eliminate chemicals of high concern       | • Limited agreement on priorities  
• Finding greener options  
• Limited criteria for identifying safer alternatives  
• Costs of (+ lack of incentives) for change  
• Failure to address in design stage                          |
| 4. Re-design                                              | • Finding greener options  
• Limited criteria for identifying safer alternatives             |
| 5. Take responsibility for product                       | • Few requirements                                                         |

### Critical Needs for Addressing Chemicals in Products/Articles

1. Knowing & disclosing chemical constituents
2. Having complete data sets on chemical hazards
3. Categorizing chemicals by levels of concern
4. Prioritizing & substituting chem’s of high concern
5. Defining, developing & using safer alternatives
6. Creating demand for greener, safer, more sustainable products through procurement
1. Know and disclose chemical constituents in products, examples …

Collects chemical constituent data down to 100 ppm

AB 1879: “… to adopt regulations [by 2011] to establish a process by which chemicals or chemical ingredients in products may be identified”

2. Complete hazard data sets on chemicals

<table>
<thead>
<tr>
<th>Human Health Effects</th>
<th>Ecotoxicity</th>
<th>Environmental</th>
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<tbody>
<tr>
<td>– Cancer</td>
<td>– Acute</td>
<td>– Persistence</td>
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<tr>
<td>– Reproductive</td>
<td>– Chronic</td>
<td>– Bioaccumulation</td>
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<td>– Developmental</td>
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<td>– Genotoxicity (mutagenicity)</td>
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<td>– Neurological</td>
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<td>– Systemic</td>
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<td>– Skin/Respiratory Sensitizer</td>
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<td>– Endocrine disruption</td>
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<td>– Immune system</td>
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<td>– Corrosion/irritation</td>
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3. Categorize individual chemicals by level of concern …

into levels of concern – high, moderate, low, unknown -- based on hazards …

• EU REACH – vPvBs and PBTs = substances of very high concern
• Canada – priority substances list
• Washington State – assessment of alternatives to decaBDE
• State of Maine – commitment to categorizing chemicals by level of concern
• Green Screen for Safer Chemicals (Clean Production Action)

Benchmark 4
Prefer – Safer Chemical

Benchmark 2
Use but Search for Safer Substitutes
Benchmark 1

Avoid – Chemical of High Concern

Bioaccumulation + high Toxicity

b. \( vPvB \) = very Persistent + very Bioaccumulative

c. \( vPT \) or \( vBT \)

d. **high human Toxicity** for any “priority effect”:
cancer, reproductive/developmental, mutagenicity,
neurotoxicity, endocrine disruption

4. Prioritize Chemicals of High Concern for Reduction

Criteria
- Production Volume
- End use: consumer, children’s products; toys; dispersive end uses
- Certain hazard traits: PBT, vPvB, CMR, etc.
- Present in humans or wildlife
- Present in food, drinking water, indoor air or

Examples
- EU REACH, Canada, California
- Substitute It Now (SIN) List (ChemSec)
4. Substitute Chemicals of High Concern

Interface FABRIC™

Evaluates and eliminates chemicals of high concern in its fabrics through its “Dye and Chemistry Protocol”

“The protocol screens out lead, mercury, perfluorinated alkyl surfactants, polychlorinated or polybrominated biphenyls, and other persistent, bioaccumulative and toxic substances commonly found in fabrics.”

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4. Substitute Chemicals of High Concern

Chemical Restriction List

All suppliers must comply

- Azo dyes
- Flame retardants
- Formaldehyde
- Phthalates
- PVC
- Organotins
- Bisphenol A
- Triclosan
- Cd, Cr, Hg, Ni, & Pb
- Phenols
- Perfluorinated substances
- Chlorinated bleaches
5. Green Design – Defining, Developing & Using Safer Alternatives

Polylactic acid (bio-based) fabric -- Carnegie Terratex

6. Creating demand through procurement

Kaiser Permanente Environmental Supplier Disclosure Form - Electronics

- Do you have a program to track the chemical constituents/ingredients in your products?
- Do you have a program to identify and reduce the use of components that contain chemicals of high concern?
- Are brominated flame retardants, PVC, or phthalates used in any of the product’s components?
- Does your product contain any other chemical listed under CA Prop 65 or as PBT by WA State, European Union or the US?
7. Take responsibility for products from cradle to cradle

- Design for disassembly & recyclability
- Establish product takeback programs
  - WEEE Directive
  - Sony, Apple, Dell, HP, Samsung, Ericsson, Nokia

<table>
<thead>
<tr>
<th>Opel Priority List for Plastics with regard to Recycling Aspects</th>
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<tbody>
<tr>
<td>Prefer</td>
</tr>
<tr>
<td>Polypropylene, Polyethylene</td>
</tr>
<tr>
<td>Polycyramide (POM), Polyamide, Thermoplastic Urethane (TPU)</td>
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<tr>
<td>Acrylonitrile Butadiene Styrene (ABS), Polymethylmethacrylate (PMMA, i.e., acryl, Styrene Maltic Anhydride (SMA) copolymer, Acrylonitrile Styrene</td>
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8. Communicating across the supply chain

Supply Chain Management

- Present restricted substance list (170+) to suppliers and:
  - required testing procedures & recommended labs
  - requirement to share list with dye mills, print mills, tanneries & chemical manufacturers
- H&M chemists assess likely chemicals to be in a product
- H&M performs random testing of products
- Suppliers pay for the tests ($1.75 million/year)
**In Summary**

1. Know & disclose chemical constituents
2. Compile complete data sets on chemical hazards
3. Categorize chemicals by levels of concern
4. Prioritize & substitute chemicals of high concern
5. Define, develop & use safer alternatives
6. Create demand for greener, safer, more sustainable products through procurement
7. Take responsibility for products from cradle to cradle
8. Communicate across supply chain

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**Thank You!**

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