Strategies and Tools for Purchasing Products with Safer Chemistries

September 30th, 2015

The session will begin shortly.
Everyone is muted by default.

www.sustainablepurchasing.org/saferreport
Opportunity

Institutional purchasers send a powerful economic signal that focuses the forces of market innovation.

Challenge

Purchasers lack shared resources to build a robust strategy and avoid duplication of effort.

Suppliers face multiple, “different but similar” market signals as they seek to differentiate their offerings.

Solution

A shared program provides a framework for leadership action and aligns market innovation for a positive future.
Presentations

Amy Perlmutter
Lead Report Author
Perlmutter Associates

Colin Price
Director of Market Innovation
Oregon Environmental Council

Mary Dickinson
Regional Sustainable Design Leader
Perkins+Will

Alicia Culver
Director
Responsible Purchasing Network

Sarah O’Brien
Director of Global Stakeholder Engagement
Green Electronics Council

Moderator
Sam Hummel
Director of Outreach & Operations
SPLC
Learning Outcomes

• Key lessons from the report, including how pioneering purchasers are driving the market towards safer chemistry.

• Simple, actionable steps that purchasers can take today to get started

• Tools and resources that can help purchasers move from basic actions to more comprehensive safer product purchasing over time
Audience Participation

1. Submit a question at any time.

How does one figure out what chemicals are in the products your buying?

2. Respond to poll questions.

Has your organization defined a restricted substances list?

Select one of the following:

- Yes
- No
- In Process
- I don’t know
- N/A
This session is being recorded.

The recording and slides will be sent to all registrants and posted online within 24 hours.
Poll Question #1

Has your organization developed a toxics use reduction policy for purchasing?

1. Yes
2. No
3. In Process
4. I Don’t know
5. N/A
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Mission

Develop, study, and promote systems of production and consumption that are safe, healthy, environmentally sound, economically viable, and socially accountable.
Purpose of Project:

To help purchasers move the market towards products with safer chemistries.
Project Co-Sponsors

• Green Electronics Council
• Responsible Purchasing Network
• Sustainable Purchasing Leadership Council
Report Content

• The Case for Purchasing Safer Products
• The Key Role of Purchasing in Driving the Availability of Products With Safer Chemistries
• The Advantages and Disadvantages of Product Certifications
• How Six Leading Organizations Are Purchasing Products With Safer Chemistries
• Resources and Tools
Six Cases

1. Kaiser Permanente
2. Seattle City Light
3. Coop
4. The National Institutes of Health
5. Oregon Environmental Council
6. Perkins+Will
Cases Include:

- Program Overview
- Drivers
- Chemicals Targeted
- Partnerships
- Keeping Up With Changing Science
- Tracking Progress
- Lessons Learned
Supplier Sustainability Scorecard

Chemical disclosure on infant skin care products and mattresses

Multi-disciplinary Safer Chemicals Working Group

Targets products based on known chemicals of concern (e.g., fragrances in infant care products) and/or the potential for exposure (e.g., DEHP in IV bags)
Seattle City Light

- Policy to reduce the use of hazardous substances, phase out the use of products that pose human health or environmental risks, and increase the use of less harmful alternatives
- Avoids carcinogens, ozone depleting, reproductive hazards, global warming gasses, etc
- 9-step process for choosing products with safer chemistries
Coop

- Works with suppliers to eliminate endocrine disruptors and other chemicals of concern in products sold in its stores

- Covers all 3,000 products in company’s three private labels as well as brand named products

- Goals include securing the highest level of safety for the consumer and environment, and maintaining Coop role as first mover in the market
The National Institutes of Health

- Developing automated process to screen for 350 SOCs and make purchasing safer products easier
- Covers products purchased directly or that are contained or released by a service or product anywhere throughout its life cycle
- Part of larger effort in federal Sustainable Acquisition
Perkins+Will and Oregon Environmental Council

- You’ll hear about today
Common Themes:

- Understanding potentially harmful substances in the products purchased, and setting priorities;
- Creating strong policy based on these priorities, from which specifications flow;
- Setting goals and tracking progress;
- Encompassing a broad range of chemicals and products;
- Focusing on reducing exposures;
Common Themes, continued:

- Understanding the marketplace and engaging suppliers;
- Engaging employees/users;
- Committing resources;
- Taking a broad view of costs and risks;
- Recognizing that this is an ongoing process;
- Building a broad network.
Thanks to:

Advisory Committee:

Alicia Culver, Responsible Purchasing Network
Mary Dickinson, Perkins+Will
Beth Eckl, Practice Green Health
Chris Geiger, San Francisco Department of the Environment
Jill Kaufman-Johnson, Solazyme
Theresa Leland, National Institutes of Health
Sarah O’ Brien, Green Electronics Council
Jason Pearson, Sustainable Purchasing Leadership Council
Joel Tickner, UMass Lowell
Julia Wolfe, Massachusetts Operational Services Division

Case Study Interviewees

Lowell Center for Sustainable Production
For More Information:

Full Report available at:

Lowell Center for Sustainable Production:
www.sustainableproduction.or

Perlmutter Associates:
amy@aperlmutter.com
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Case Study: Healthy Purchasing Coalition

Overview

1. Background & Context
2. Coalition Purpose
3. Coalition Approach
4. Lessons Learned
Why human health and procurement?

What is the Healthy Purchasing Coalition?
Some chemicals are toxic.

Toxic chemicals are present in products.

We are exposed to toxic chemicals through products.
Procurement professionals play a key role in protecting people by helping identify and purchase safer goods and services.

Public procurement helps drive innovation.
Oregon Executive Order 12-05 (2012)

City of Portland & Multnomah County Joint Resolution (2013)

| Background | Purpose | Approach | Lessons |
The Healthy Purchasing Coalition is a group of about a dozen cities, counties, ports, and higher education institutions.
Protect people and ecosystems, minimize risk, and drive demand that leads to innovation.
Coalition Approach

Collaboration | Harmonization | Transparency

Background | Purpose | Approach | Lessons
Collaboration: Shared framework, scope of work

Harmonization: Internal & External

Transparency: Informed decisions
Lessons Learned

Make it accessible. Make it easy.
Colin Price
Director of Market Innovation
Oregon Environmental Council
colinp@oeconline.org
Poll Question #2

Has your organization defined a restricted substances list?

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PERKINS+WILL’S TRANSPARENCY SITE

AND APPLYING THE PRECAUTIONARY PRINCIPAL
Imagine Cancer treatment centers built without materials linked to cancer

Pediatric clinics free of chemicals that trigger asthma

Hospitals with healthy food, fresh air, sunlight
ENCOURAGING MATERIAL HEALTH IN THE BUILT ENVIRONMENT

GOAL: It is our belief that products that are harmful to humans, animals, and the environment should not be used on our projects, and to that end, we seek to inform our clients of available alternatives so as to permit them to make an informed decision.

1. GOAL
   It is our belief that products that are harmful to humans, animals, and the environment should not be used on our projects, and to that end, we seek to inform our clients of available alternatives so as to permit them to make an informed decision.

2. EVALUATION
   The substances listed all have been classified by multiple regulatory entities as being deleterious to human health or the environment. Our aim is to provide a comprehensive list of substances and their effects, as well as available alternatives, to help clients make informed decisions.

3. ALTERNATIVES
   Rather than use products which contain these substances, we will seek out alternatives, in keeping with the precautionary principle, in an effort to be responsive to reported health effects, and thereby to protect our health and the health of future generations too. These lists are compilations of available data, and are not an endorsement of any of the referenced studies, articles, or data. Users are expected to practice due caution and to conduct their own research so that they can make informed decisions.

We believe that it is appropriate to apply the precautionary principle when selecting and specifying products and materials in light of the lasting impact such materials may have on the users or facilities we design. We need to make our selections based upon governmental, regulatory, and scientific advice and knowledge which, in keeping with the precautionary principle, indicates a relevant adverse finding as it relates to human health or materially negative environmental impact, and the understanding that we live in a world without scientific certainty. We will seek to, where possible and appropriate, present alternatives to our clients for their consideration, providing, within the standard of professional care, information we have which is summarized here, as well as cost and lifecycle information where it is reasonably available. We seek to empower our clients to make informed decisions. These lists do not pretend to be exhaustive, or to reference all relevant published information. Again, in keeping with the precautionary principle, they represent information which we believe dictates appropriate caution and wisdom in design decisions made by design professionals. It is expected that users will exercise appropriate caution in use of this resource, and to conduct their own research so that they can make their own decisions and come to their own conclusions.
The “Precautionary Principal”.

You get an alternative *and* the science is *correct*
…then you are **safe**

You get an alternative *and* the science is *wrong*
…then you are **safe**

You don’t get an alternative *and* the science is *correct*
…then you are **not safe**
“When an activity raises threats of harm to human health or the environment, precautionary measures should be taken even if some cause and effect relationships are not fully established scientifically.”


What can I find here?

**PRECAUTIONARY LIST**

The Precautionary List includes substances commonly found in the built environment that have been classified by regulatory entities as being harmful to the health of humans and/or the environment. As such, this compilation is an ever-evolving and is updated as new data comes to light. This tool encourages users to employ the precautionary principle in the specification of building products.

**ASTHMA TRIGGERS + ASTHMAGENS**

This list identifies Asthmagens—substances that induce the chronic condition of asthma—commonly found in the built environment. This list is a compilation of substances that have identified human health impacts in the manufacturing, installation, and removal processes, as well as in the existing built environment. Compiled from third-party, government and academic sources, this list brings awareness on the causes of the disease and helps users make informed decisions on design and construction with respect to building products under the precautionary principle.

**FLAME RETARDANTS**

This list catalogs flame retardants found in the built environment. A comprehensive list providing in-depth knowledge of flame retardants, this tool is primarily informational and educational, and helps users understand not only where flame retardants are found in the built environment, but also if identified toxicity levels have a potential impact on human health. The original research was done by the Green Science Policy Institute.

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Precautionary List

How do you want to search?

<table>
<thead>
<tr>
<th>ALPHABETICAL</th>
<th>CATEGORY</th>
<th>HEALTH EFFECTS</th>
<th>DIVISIONS AND SECTIONS</th>
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<td>Chemical Compounds</td>
<td>Carcinogenic</td>
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<tr>
<td>Bisphenol A (BPA)</td>
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<td>Cardiovascular or Blood Toxicant</td>
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<td>Bromochlorodifluoromethane</td>
<td>Flame Retardants</td>
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<td>Chlorinated Polyethylene (CPE)</td>
<td>Indoor Air Quality</td>
<td>Gastrointestinal or Liver Toxicant</td>
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<tr>
<td>Chlorinated Polyvinyl Chloride (CPVC)</td>
<td>Metals and Metal Compounds</td>
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<tr>
<td>Chlorofluorocarbons (CFC)</td>
<td>Ozone Depleting Gasses</td>
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<td>Chloroprene (2-chlor-1,3-butadiene)</td>
<td>Wood Additives and Treatments</td>
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<tr>
<td>Chlorosulfonated Polyethylene (CSPE)</td>
<td>Copper (for Exterior Material)</td>
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<tr>
<td>Copper</td>
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<td>Halogenated &amp; Brominated Flame Retardants</td>
<td>Skin or Sensitive Ogan Toxicant</td>
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<td>Hexavalent Chromium (VI)</td>
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<td>Lead</td>
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<td>Organostannic Compounds</td>
<td>Perfluorohexaphenyl</td>
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<td>Phthalates</td>
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<td>Div 32 Exterior Improvements</td>
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<tr>
<td>Phthalates</td>
<td>Polystyrene</td>
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<td>Div 33 Utilities</td>
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<tr>
<td>Polyurethane Foam</td>
<td>Polyvinyl Chloride (PVC)</td>
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</tr>
<tr>
<td>Polyvinyl Chloride (PVC)</td>
<td>Urea-Formaldehyde</td>
<td></td>
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<tr>
<td>Volatile Organic Compounds (VOCs)</td>
<td></td>
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To name a few…
- Bisphenol A
- Halogenated Flame Retardants
- Hexavalent Chromium
- Phthalates
### Precautionary list

<table>
<thead>
<tr>
<th>Div 09 Finishes</th>
<th>Category</th>
<th>Health Effects</th>
<th>Divisions and Sections</th>
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<tr>
<td>Bisphenol A (BPA)</td>
<td>Cadmium</td>
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<td>Chlorosulfonated Polyethylene (CSPE)</td>
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<td>Halogenated &amp; Brominated Flame Retardants</td>
<td>Perfluorocarbons (PFC)</td>
<td><strong>Phthalates</strong></td>
<td>Polycarbonate</td>
</tr>
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<tr>
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<th>Health Effects</th>
<th>Category</th>
<th>ALPHABETICAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Div 09 Finishes</td>
<td>Biphosphor A (BPA)</td>
<td>Cadmium</td>
<td>Lepidopterans</td>
</tr>
<tr>
<td></td>
<td>Halogenated &amp; Brominated Flame Retardants</td>
<td>Perfluorocarbons (PFC)</td>
<td>Microorganisms</td>
</tr>
<tr>
<td></td>
<td>Polyurethane Foam</td>
<td>Polyvinyl Chloride (PVC)</td>
<td>Non-human Animal Toxicants</td>
</tr>
</tbody>
</table>

**Phthalates**

Where is it Commonly Found?

Pipes, conduits, waterproofing, roofing, siding, door and windows, resilient flooring, carpet backing, wall covering, signage, window treatments, furniture, and wire cable sheathing

**HEALTH EFFECT SUMMARY**

In 2010 the European Union announced that under the terms of its new chemicals policy known as REACH, that three phthalates Butyl Benzyl Phthalate (BBP), Di(2-Ethylhexyl)Phthalate (DEHP), and Dibutyl Phthalate (DBP) will be banned from use within the next three to five years unless an authorization has been granted to individual companies for their use.

What are its known health effects?

Carcinogen (P55)
Developmental Toxicant (P65)
Reproductive Toxicant (P55)

What are its suspected health effects?

Endocrine Toxicant (US-EPA (USEPA)) (USDHHS) (US-EPA) (US-EPA)
Gastrointestinal or Liver Toxicant (USEPA) (US-EPA) (USEPA)
Respiratory Toxicant (USEPA) (USEPA) (USEPA)
Skin or Sense Organ Toxicant (USEPA) (USEPA)

How is it Categorized?

Chemical Compounds

What is its Origin?

A plasticizer used mostly in the production of flexible PVC products.

A class of phthalates that includes but not limited to Butyl Benzyl Phthalate (BBP), Di(2-Ethylhexyl) Phthalate (DEHP), Di-N-Octyl Phthalate (DNOP), Di-N-Pentyl Phthalate (DNP), Di-n-Butyl Phthalate (DBP), Diisobutyl Phthalate (DIBP), Diisodecyl Phthalate (DIDP), Distearoxyhexylbenzyl Phthalate (DINP), Di-n-Hexyl Phthalate (DNHP)

Divisions and Sections

Div 03 Water Stops
Div 04 PVC Flashing (Elastomeric Thermoplastic Flashing)
Div 04 Unit Masonry
Div 07 Damproofing and Waterproofing
Div 07 Membrane Roofing
Our Information Sources

INTERNATIONAL AGENCY FOR RESEARCH ON CANCER (IARC)
www.iarc.fr

NATIONAL TOXICOLOGY PROGRAM (NTP)
ntp.niehs.nih.gov

AGENCY FOR TOXIC SUBSTANCES & DISEASE REGISTRY (ATSDR)
www.atsdr.cdc.gov

ENVIRONMENT CANADA - TOXIC SUBSTANCES LIST (SCHEDULE 1)
http://www.ec.gc.ca/

PROPOSITION 65 CALIFORNIA (PROP 65)
http://oehha.ca.gov/prop65.html

UNEP STOCKHOLM CONVENTION (UNEP-POPS)
http://nchp.pops.int
Alternative Materials

PET plastic for wiring jacketing, natural and polyolefin materials for wallcoverings, Rubber, Linoleum, PVC-free resilient flooring options; Nylon, Polyester for shower curtains; Polyurethane, Nylon, Nylon Microfiber and Polyethylene; Fiberglass base with cotton flocked backing, polyester with acrylic foamed backing, polyester, polyester and cotton. Olefin-coated olefin yarn, and Thermoplastic Olefin. There are many PVC-free options for piping, conduits, flooring, carpet, wall protection systems, windows & doors, backings, and window treatments.

Does it Correspond With Any Green Building Credits?

Living Building Challenge (1.2) - Prerequisite 5;
Living Building Challenge 3.0 - Red List;
Green Guide for Health Care - MR Credit 4.1;
Green Guide for Health Care - EP Credit 4.2 - Toxic Reduction DEHP;
LEED Pilot C

Divisions and Sections

Div 03 Water Stops
Div 04 Unit Masonry
Div 04 PVC Flashing (Elastomeric Thermoplastic Flashing)
Div 07 Self-Adhering Sheet Waterproofing
Div 07 Siding
Div 07 Dampproofing and Waterproofing
Div 07 Membrane Roofs
Div 07 Polyvinyl Chloride (PVC) Roofing
Div 08 Gaskets
Div 08 Vinyl Windows
Div 09 State-Control Resilient Flooring
Div 09 Stretched Fabric Wall Systems
Div 09 Tile Coverings
Div 09 Resilient Athletic Flooring
Div 09 Resilient Base and Accessories
Div 09 Resilient Sheet Flooring
Div 09 Resilient Tile Flooring
Div 09 Fabric-Wrapper Panels
Div 09 Wall Coverings
Div 10 Banners
Div 10 Accordion Folding Partitions
Div 10 Awnings
Div 10 Cubicles
Div 10 Operable Partitions
SUBSTANCE OF CONCERN LISTS

- C2C “X” Assessed: Targeted for elimination via levels of optimization
  1. Arsenic
  2. Cadmium
  3. Lead*
  4. Mercury
  5. Chromium VI
  6. Copper (environment exposure)
  7. PVC
  8. CPVC
  9. PVDC
  10. PTFE*

- Not included on C2C banned list or automatically x-assessed. Context specific assessment needed.
  11. Chloroprene
  12. Chlorinated Polyethylene
  13. Hydrochlorofluorocarbons
  14. CFCs*
  15. HFRs**
  16. Pentachlorophenol
  17. Chlorobenzenes
  18. PCBs
  19. Short-chain chlorinated paraffins
  20. Polycyclic aromatic hydrocarbons*
  21. Creosote (added to wood)
  22. Phthalates
  23. Alkylphenols
  24. Organostannic compounds, organotins
  25. PFC
  26. added Urea-formaldehyde
  27. BCF
  28. BPA
  29. VOCs
  30. Chlorosulfonated Polyethylene
  31. Asbestos (CMR)
  32. Petrochemical fertilizers and pesticides
  33. Polystyrene
  34. Polyurethane foam
“When an activity raises threats of harm to human health or the environment, precautionary measures should be taken even if some cause and effect relationships are not fully established scientifically.”


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ASTHMA TRIGGERS + ASHMAGENS

This list identifies Asthmagens—substances that induce the chronic condition of asthma—commonly found in the built environment. This list is a compilation of substances that have identified human health impacts in the manufacturing, installation, and removal processes, as well as in the existing built environment. Compiled from third-party, government and academic sources, this list brings awareness on the causes of the disease and helps users make informed decisions on design and construction with respect to building products under the precautionary principle.

FLAME RETARDANTS

This list catalogs flame retardants found in the built environment. A comprehensive list providing in-depth knowledge of flame retardants, this tool is primarily informational and educational, and helps users understand not only where flame retardants are found in the built environment, but also if identified toxicity levels have a potential impact on human health. The original research was done by the Green Science Policy Institute.

NEWS, MEDIA + ADDITIONAL RESEARCH

In our ever-growing library of resources you will find a variety of materials, including a white paper on the potential human and environmental impacts of fly ash, the first on-product transparency label, a video interview on material health in healthcare design, and much more.
Healthy Environments: A Compilation of Substances Linked to Asthma

- 374 substances have been linked to Asthma
  - 75 of those are found paints and adhesives
Asthma Triggers + Asthmagens

### Asthma Triggers and Asthmagens

<table>
<thead>
<tr>
<th>Compound</th>
<th>Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chlorine</td>
<td>Chromium Compounds</td>
</tr>
<tr>
<td>Di-n-hexylphthalate (DNHP)</td>
<td>Di-n-octyl phthalate (DNOP)</td>
</tr>
<tr>
<td>Diisodecyl phthalate (DIDP)</td>
<td>Di-n-pentyl phthalate (DNPP)</td>
</tr>
<tr>
<td>Epoxies</td>
<td>Disodecyl phthalate (DDP)</td>
</tr>
<tr>
<td>Glutaraldehyde</td>
<td>Disoctyl phthalate (DNP)</td>
</tr>
<tr>
<td>Isophorone diisocyanate (FDI)</td>
<td>Ethylene diamine</td>
</tr>
<tr>
<td>Methyl methacrylate</td>
<td>Ethylene oxide isocyanate (EOIC)</td>
</tr>
<tr>
<td>Polyvinyl chloride [PVC]</td>
<td>Ethylene diacylate (EDAC)</td>
</tr>
<tr>
<td>Triethylene diamine</td>
<td>Hexamethylene diisocyanate (HDI)</td>
</tr>
</tbody>
</table>

**To name a few…**
- Chlorine
- Epoxy
- Formaldehyde
- Multiple Phthalates

### Polyvinyl chloride [PVC]

**Where is it Commonly Found?**
- Found during a heating process, thermal decomposition, or in the dust of the following:
  - Cable insulation

**CAS# 9002-86-2**

**How is it Categorized?**
- Plastic & Rubber Dusts
“When an activity raises threats of harm to human health or the environment, precautionary measures should be taken even if some cause and effect relationships are not fully established scientifically.”


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# Flame Retardants

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<tr>
<th>ALPHABETICAL</th>
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<td>Healthy Environments: Strategies for Avoiding Flame Retardants in the Built Environment</td>
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PAQ

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REFERENCES
"When an activity raises threats of harm to human health or the environment, precautionary measures should be taken even if some cause and effect relationships are not fully established scientifically."

*The Wingspread Conference on the Precautionary Principle was convened by the Science and Environmental Health Network, 1998.*

What can I find here?

**Precautionary List**

The Precautionary List includes substances commonly found in the built environment that have been classified by regulatory entities as being harmful to the health of humans and/or the environment. As such, this compilation is an ever-evolving and is updated as new data comes to light. This tool encourages users to employ the precautionary principle in the specification of building products.

**Asthma Triggers + Asthmagens**

This list identifies Asthmagens—substances that induce the chronic condition of asthma—commonly found in the built environment. This list is a compilation of substances that have identified human health impacts in the manufacturing, installation, and removal processes, as well as in the existing built environment. Compiled from third-party, government, and academic sources, this list brings awareness on the causes of the disease and helps users make informed decisions on design and construction with respect to building products under the precautionary principle.

**Flame Retardants**

This list catalogs flame retardants found in the built environment. A comprehensive list providing in-depth knowledge of flame retardants, this tool is primarily informational and educational, and helps users understand not only where flame retardants are found in the built environment, but also if identified toxicity levels have a potential impact on human health. The original research was done by the Green Science Policy Institute.

**News, Media + Additional Research**

In our ever-growing library of resources you will find a variety of materials, including a white paper on the potential human and environmental impacts of fly ash, the first on-product transparency label, a video interview on material health in healthcare design, and much more.

transparency.perkinswill.com
News, Media + Additional Research

Browse our library...

**IN THE NEWS**
New Research By Perkins+Will Identifies Alternatives to Flame Retardant Building Materials

*October 17, 2014.* Perkins+Will’s Healthy Materials Group and Science Fellow Mishel Dedo released a white paper identifying both new and existing opportunities to design healthier buildings without compromising fire safety or code compliance. The research can help designers identify which products should be subjected to extra scrutiny during the design and construction process and provides options for less hazardous alternatives. The white paper is titled "Flame Retardant Alternatives for Buildings." It explores various methods and materials that can be used to achieve flame retardancy without compromising the health of building occupants.

**IN THE NEWS**
California law change sparks nationwide demand for flame-retardant free furniture

*September 30, 2014.* A change to a building code that California enacted back in the 1970s is reverberating through the furniture industry. The rule, known as TB-117, requires that materials inside furniture — such as foam — meet certain fire safety requirements, essentially creating a nationwide market for chemical flame retardants. This article provides a useful context for the rising conversation about flame retardants in the design industry.

**IN THE NEWS**
Who’s Afraid of Bromine

*September 26, 2014.* Bromine-based chemicals such as polybrominated diphenyl ether or hexabromocyclododecane are all around us, in our homes and even in our foods. Even though some have been banned or withdrawn, the bromine industry feels that it has become the victim of 'chemophobia.' What are the facts? What should you know? This article by Laurence Knight of BBC News provides needed background about the issue.
Healthy Environments: Strategies for Avoiding Flame Retardants in the Built Environment

Sparking a conversation about opportunities to design healthier building environments

OCTOBER 15, 2014

Michel Dedeo, PhD, Science Fellow and Lead Investigator
Suzanne Drake, LEED AP ID+C, EDAC, Senior Interior Designer, Associate
GUIDELINES TO SELECTING MATERIALS WITHOUT HARMFUL FLAME RETARDANTS

<table>
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<tr>
<th>Item</th>
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<tr>
<td>6b</td>
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* Alternatives to plastic foam insulation that do not include potentially harmful flame retardants are described in the following text.
FIGURE 2: Furniture Flammability Requirements by Location

WHERE IS THE BUILDING LOCATED?

- **BOSTON**
  - Is the furniture for:
    - A Assembly
    - E Educational
    - I - Institutional
    - R - Residential (excluding R 3, R 4)
    - **YES** Furniture must be built to TB133
    - **NO** No code requirements

- **CALIFORNIA**
  - Is the building fully sprinklered?
    - **YES** Furniture must be built to TB117-2013* (similar to NFPA 260)
    - **NO**
      - Is the furniture for:
        - Conventional facilities
        - Hospitals and healthcare facilities
        - Board and care homes
        - Convalescent homes
        - Licensed childcare facilities
        - Stadiums
        - Auditoriums
        - Public assembly areas in hotels (rooms with less than 10 pieces of furniture)
        - **YES** Furniture must be built to TB133
        - **NO**
          - Is the building fully sprinklered?
            - **YES** Furniture must be built to TB117-2013* or NFPA 260/261
            - **NO** No code requirements

- **ANYWHERE ELSE (NBC)**
  - Is the furniture for:
    - i-1 Board and care
    - i-2 Nursing homes and hospitals
    - i-3 Correctional facilities
    - i-2 Dormitories
    - **YES** Furniture must be built to TB133 or ASTM E1537
    - **NO** No code requirements

* Requirement for TB117-2013 can also be met by TB133
** Furniture in correctional facilities must always meet TB133, regardless of sprinklers
MARKET OUTCOMES

Industry Changes

- Single Attribute: Formaldehyde; VOCs
- Classes: Red Lists; Precautionary Lists
- Disclosure
- Assessments
- Optimization

Healthy Building Network © 2014
MARKET OUTCOMES
Building Industry Partnerships – 25+ A&E Firm Letters

PERKINS+WILL

January 24, 2013

Recipient Name
Recipient Company
Address line 1
Address line 2
City, State Zip

Re: Transparency and Health Product Declarations

Dear [Name],

Perkins+Will believes that products that are harmful to humans, animals, and the environment should not be used in our projects, and to that end, we seek to inform our clients of available alternatives so as to permit them to make informed decisions. The substance label on our Transparency website (https://transparency.perkinswill.com/) all have been classified by multiple regulatory entities as being detrimental to the health of humans and the environment.

Rather than use products which contain these substances, we will seek out alternatives, in keeping with the precautionary principle, in an effort to be responsive to reported health effects, and hereby to protect our clients and the health of future generations. We believe that it is appropriate to apply the precautionary principle when selecting and specifying products and materials in light of the lasting impact such materials have on the users of facilities we design. We will assist our clients, partners, and stakeholders in their work to include healthy building materials, within the scope of professional care, in the consideration, providing, and planning of future buildings.

As a part of the transparency initiative, we will share information about our own product purchases and the associated environmental and health hazards. At the need for transparency in the products we select and specify on behalf of our clients continues to grow, we will give preference to manufacturers that provide this information and begin to phase out products that do not.

The Health Product Declaration Open Standard (HPD) is an easy-to-reference standard format that standardizes reporting language to enable the consistent disclosure of building product content and associated health information. It is freely available for use from the HPD Collaborative. You can find the HPD and resources to assist you at www.building Declare.org. We urge you to evaluate, and make publicly available, an HPD for each of your products.

A complete HPD includes product content and related health hazard information in a consistent way that allows Perkins+Will designers and clients to make better choices. It assesses the individual constituents of a product against authoritative chemical hazard lists, provides details of third-party product labeling and compliance for environmental, and reflects accessory manufacturer materials. The HPD is already referenced in the marketplace, it can be used to demonstrate compliance with The Living Building Challenge Red List. The reporting requirements of the anticipated LEED v4 Material Disclosure and Credit reference edict from the International Living Future Institute’s Living Label, and respond to building owners’ interest to protect their occupants from hazardous materials.
MARKET OUTCOMES
Building Client Partnerships & Project Process

- Client Education
- Review of Client Standards or Goal Driven Product Selection
- Request for Transparency and Work with Manufacturers on Alternatives
- Share Findings and Alternate Product Options with Client
- Complete Project Documentation with Performance Specification or Design Spec with 3 Alternates
Spot the Health Impacts

- Wall covering
- Paint
- Insulation
- Furniture
- Solid Surface
- Flooring
Spot the Health Impacts

- Phthalates
- VOCs
- Flame Retardants
- Anti-Microbials
- Phthalates
- Flame Retardants
Spot the Health Impacts

- Asthmagen, Endocrine toxicant, and Respiratory Toxicant
- Asthmagen, Developmental Toxicant
- Diabetes, obesity and hyperactivity
- Carcinogen, Developmental and Reproductive Toxicant
- Carcinogen, persistent, bioaccumulative substance
MARKET OUTCOMES
Building Client Partnerships & Project Process

- Client Education
- Review of Client Standards or Goal Driven Product Selection
- Request for Transparency and Work with Manufacturers On Alternatives
- Share Findings and Alternate Product Options with Client
- Complete Project Documentation with Performance Specification or Design Spec with 3 Alternates
MARKET OUTCOMES
Challenges - Disclosure Tools

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Not disclosed by supplier. Fully cured proprietary mixture.
MARKET OUTCOMES
Challenges - Regrettable Substitutions???
MARKET OUTCOMES

Challenges – Need to Expanding Teams

ARCHITECT

ARCHITECTURAL RENDERING
info325742.wix.com
High Quality Low Pricing

TECHNOLOGY

Material Health

Perkins+Will Hired a Chemist. Should Your Firm?

Chemist Michel Dedeo is educating the firm’s architects and designers on material health.

By Hallie Busta

Understanding a product’s environmental impact is a challenge that extends beyond the availability of Health Product Declarations and life cycle assessments. Even with those disclosure documents in hand, specifiers and clients must interpret often-complex information. For help, Perkins+Will—a longtime leader in sustainable design and a promoter of transparency in material disclosure—opened a part-time fellowship position with the task of educating the firm on material-health issues. We pitched a few questions via email to the fellow, Michel Dedeo, who holds a PhD in chemistry from the University of California, Berkeley, and consults on the Healthy Building Network’s Pharos Project, to learn about his job and how his work is affecting the firm’s specifications. Dedeo will hold the post part-time for four months but the firm said in an email that it hopes to hire more material-health fellows in the future.

Perkins+Will

Michel Dedeo is working part-time for four months as a material-health fellow at Perkins+Will in San Francisco.
MARKET OUTCOMES
Substitutes During Construction

The Information Merry-Go-Round
The Procurement Cycle

Research Department
“Looks good except for chemical ABC”
“Chemical ABC is a trade secret”

Specification Writer
Product Y in spec (local, no red list)
Adds info request to spec

General Contractor
“FYI. See below. Occupancy in 6 weeks”

Sub-Contractor
“Can I use Product Z?
2 week delivery”
“Don’t know”
“FYI. See below.”

Local Sales Representative
“Don’t know”
“FYI. See below.”

Manufacturer’s
Technical Staff
“Can’t tell you. Trade secret”
“That info is not required for LEED”

Manufacturer’s
Sales Rep
“Don’t know”
“FYI. See below.”

Supplier
“Don’t know”
“FYI. See below.”

Owner
“What is in Product X?”

Architect
“FYI. See below. Occupancy in 6 weeks”
“Don’t know”
“What’s in it?”
P+W TRANSPARENCY + MATERIAL HEALTH GROUP
Mission – Advocacy, Education, and Practice
P+W TRANSPARENCY + MATERIAL HEALTH GROUP
Mission – Advocacy, Education, and Practice

Robin Guenther
Why hospitals are making us sick
P+W TRANSPARENCY + MATERIAL HEALTH GROUP

Practice - Working with clients on a holistic approach
Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity.

World Health Organization of Health 1946
Poll Question #3

Have you used any of the following ecolabels to guide your purchasing of safer products?

1. Green Seal
2. UL EcoLogo
3. Design for Environment/Safer Choice
4. EPEAT
5. USDA Organic
Presentations

Amy Perlmutter  
Lead Report Author  
Perlmutter Associates

Colin Price  
Director of Market Innovation  
Oregon Environmental Council

Mary Dickinson  
Regional Sustainable Design Leader  
Perkins+Will

Alicia Culver  
Director  
Responsible Purchasing Network

Sarah O'Brien  
Director of Global Stakeholder Engagement  
Green Electronics Council

Moderator

Sam Hummel  
Director of Outreach & Operations  
SPLC
How to Use Certifications to Purchase Safer Products

Alicia Culver
Responsible Purchasing Network

Safer Purchasing Webinar
September 30, 2015

www.ResponsiblePurchasing.org
Why Certification of Toxicity Claims is Important

- Prevents greenwashing (unsubstantiated or false claims)
  - Sets standards for all products in a category to meet
  - Verify claims, including onsite audit of manufacturing process
  - Avoids health and environmental tradeoffs
- Makes bid solicitation and evaluation easy by listing certified products
- Often addresses product performance
How to Evaluate Certifications

Important criteria to look for:

• Independently developed (no conflict of interest)
• Transparent standard and process (you know what you’re getting)
• Multi-attribute (standard addresses all important health and environmental impacts)
• Enough products are certified by this (or equivalent) certification to get competition
5 Northeastern States Used Third-Party Certifications to Procure Janitorial Supplies

- General Purpose Cleaners
- Specialty Cleaners and Deodorizers
- Floor Polish & Strippers
- Laundry and Dish Detergents
- Hand Soaps and Hand Sanitizers
- Deicing Chemicals
- Janitorial Paper Products
Multi-Attribute Certifications Address Many Health Concerns

Example: Green Seal’s Certification of Institutional Cleaners (GS-37)

- Known and Suspected Carcinogens
- Reproductive Toxins
- Asthmagens
- Endocrine disruptors
- Skin sensitizing agents
- Corrosivity to skin and eyes
- Aquatic toxicity
- Performance testing
- Packaging
Lists of Certified Cleaners Make Bid Solicitation/Evaluation Easy

www.greenseal.org

www.ResponsiblePurchasing.org
Multi-Attribute Certifications for Janitorial Paper
Latex Paint Certifications

Third-party certifications for low-toxicity latex paint and primer

- Green Seal
- UL EcoLogo
- Master Painters Institute Extreme Green (X-Green)

Multi-attribute criteria for low-toxicity paint

- Limits on VOCs
- Prohibitions on carcinogens, mutagens, reproductive toxins, hazardous air pollutants, ozone-depleting substances
- Prohibitions on phthalates, etc.
- Performance criteria
Toxicity Restrictions in Master Painter Institute’s Standards

- All Green Performance Standards set a VOC standard of 50 g/l.
- X-Green products are also certified low-emitting.

| MPI Green Performance® Standard requires that the manufacturer shall demonstrate that the following chemical compounds are not used as ingredients in the manufacture of the product: [Trace elements (max. 5 ppm) as a by-product are excluded.] |
|---|---|---|
| Acrolein | Diethyl phthalate | Formaldehyde | Methylene Chloride |
| Acrylonitrile | Dimethyl phthalate | Hexavalent Chromium | Naphthalene |
| Antimony | Di-n-butyl phthalate | Isophorone | Toluene (Methylbenzene) |
| Asbestos | Di-n-octyl phthalate | Lead | 1,1,1 –trichloroethane |
| Benzene | 1,2 –dichlorobenzene | Mercury | Vinyl Chloride |
| Butyl benzyl phthalate | Di (2-ethylhexyl) phthalate | Methyl ethyl ketone | Methyl isobutyl ketone |
| Cadmium | Ethylbenzene | |

IARC – Group 1 Carcinogenic to humans [excluding crystalline silica, not in the form of quartz or cristobalite dust].
Lists of Certified Paints Make Bid Solicitation/Evaluation Easy
Toxicity Restrictions Are Included in Many Certifications
“Products/services purchased under this contract must be ________ certified or provide demonstrable proof of meeting the __________ standard and certification requirements. The _____________ standard and certification requirements are available at <____________________>.”
Encourage Supplier Labeling of Certified Products

GOJO® FMX-12™ Green Seal Certified Foam Hand Cleaner Refill, 42 Oz.
Item # 603095

*Mild foam soap formula
- Designed for use with GOJO TFX™ 2730 Touch-Free Foam Soap Dispensers.
- Green Seal®-certified to ensure lower impact on the environment.

MORE ABOUT THIS PRODUCT

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www.ResponsiblePurchasing.org
Low-Toxicity Certifications for Services

e-Stewards
THE GLOBALLY RESPONSIBLE WAY TO RECYCLE YOUR ELECTRONICS

E-waste in Guiyu, China is often simply burned, resulting in severe pollution of ground, water, and air.

www.ResponsiblePurchasing.org
RPN Safer Purchasing Resources

- Green Purchasing Best Practices: Architectural Paints and Coatings
- Green Purchasing Best Practices: Traffic Paint
- Green Purchasing Best Practices: Office and Dorm Furniture
- Green Purchasing Best Practices: Deicers
- Green Purchasing Best Practices: Compostable Food Service Ware

www.ResponsiblePurchasing.org
Green Cleaning Supplies
Low-Toxicity Paints
EPEAT-Registered Electronics
ACMI AP Art Supplies
PVC-free/Recycled Office Supplies
Low-Emitting Furniture
Questions? Comments?

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Presentations

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Lead Report Author
Perlmutter Associates

Colin Price
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Oregon Environmental Council

Mary Dickinson
Regional Sustainable Design Leader
Perkins+Will

Alicia Culver
Director
Responsible Purchasing Network

Sarah O'Brien
Director of Global Stakeholder Engagement
Green Electronics Council

Moderator
Sam Hummel
Director of Outreach & Operations
SPLC
What does EPEAT cover?

60 manufacturers, 43 countries, over 2500 unique products

Currently: PC/Display
Imaging equipment
Television

Up next: Servers
Mobile devices
Photovoltaic panels
What is the benefit to users?

**For Purchasers**

A single, credible, easy-to-use, comparative environmental performance rating to address lifecycle environmental issues across product categories

**For Industry**

Consistent environmental performance criteria for design of products and services. Provides market rewards for design and service strategies that reduce products’ environmental impact.
A Lifecycle Approach

- Energy conservation
- Product longevity/life extension
- End-of-life management
- Design for end of life
- Material selection
- Packaging
- Corporate performance
- Reduction/elimination of environmentally sensitive materials
- Consumables
- Indoor air quality

http://www.epeat.net/resources/criteria-discussion/
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<tr>
<td>Optional</td>
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<td>Total # Criteria</td>
<td>23</td>
<td>28</td>
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<tr>
<td>Required</td>
<td>28</td>
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<tr>
<td>Optional</td>
<td>51</td>
<td>59</td>
<td>29</td>
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<tr>
<td>51 Total</td>
<td>59 Total</td>
<td>53 Total</td>
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</tbody>
</table>
How are products rated in EPEAT?

• Products must meet all **required** criteria to qualify for EPEAT.
• Required criteria identify high environmental performance
• Products are rated Bronze, Silver or Gold based on how many **optional** criteria they meet,

Green (< 50%)  Greener (50-75%)  Greenest (> 75%)

Ratings are granted automatically by system software based on declaration
Central Registry at www.epeat.net

• Provides
  – “One stop shop” for purchasers to view all registered products
  – One visible performance standard for OEMs - competition
  – Comparison by product, by specific criteria, by company ‘fleet’
  – Global coverage with country-specific detail - a single data source for multinational purchasers
# EPEAT Product Comparison

## Back to Search Results

<table>
<thead>
<tr>
<th>Criterion</th>
<th>Toshiba Model: eStudio507G</th>
<th>Konica Minolta Model: bizhub C308</th>
<th>RICOH Model: MP 4054SPG</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.1.2.1 Further reduction of the use of European Union RoHS Directive</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>hazardous substances (cadmium)</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>4.1.3.2 Use of non-mercury containing light sources</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>4.1.4.1 Reduction of substances on the European Union REACH Candidate</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
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<tr>
<td>List of SVHCs</td>
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<td></td>
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</tr>
<tr>
<td>4.1.5.2 Eliminating or reducing BFR/CFR content of printed circuit board</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>laminates</td>
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<td></td>
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<tr>
<td>4.1.5.3 Eliminating or reducing BFR/CFR/PVC content of product</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>4.1.7.1 Reduce fluorinated gas emissions resulting from flat panel display</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>manufacturing</td>
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<tr>
<td>4.1.8.1 Inventory of intentionally added chemicals residing in the product</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
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</table>
Search by optional criteria

Optional Criteria

- 4.1.2.1 - Further reduction of the use of European Union RoHS Directive hazardous substances (cadmium)
- 4.1.3.2 - Use of non-mercury containing light sources
- 4.1.4.1 - Reduction of substances on the European Union REACH Candidate List of SVHCs
- 4.1.6.2 - Eliminating or reducing BFR/CFR content of printed circuit board laminates
- 4.1.6.3 - Eliminating or reducing BFR/CFR/PVC content of product
- 4.1.7.1 - Reduce fluorinated gas emissions resulting from flat panel display manufacturing
- 4.1.8.1 - Inventory of intentionally added chemicals residing in the product
- 4.2.1.3 - Minimum 5% to 10% content of postconsumer recycled plastic
- 4.2.1.4 - Minimum 25% content of postconsumer recycled plastic
- 4.2.2.2 - Minimum content of biobased plastic material
- 4.3.1.2 - Ease of disassembly of consumer products
- 4.3.4.3 - Minimum 90% reusable/recyclable
- 4.4.2.1 - Product upgradeability
- 4.5.2.1 - Product specific greenhouse gas emissions — life cycle assessment
- 4.5.2.2 - Product specific greenhouse gas emissions — third party verification or making LCA assessment publicly available
- 4.5.3.2 - Auto standby capability
Best practice standards attributes

- Lifecycle, multi-attribute approach
- Tiering: serious baseline requirements plus higher level criteria to provide direction, reward effort
- Central information source, ability for detailed comparison
- Stakeholder involvement in development so it meets needs, accommodates (but pushes) capabilities
Representative Purchaser Users

- **National Governments** US, Canada, Australia, France, Poland, New Zealand, Singapore, Brazil, Costa Rica (Scotland)
- **States/Provinces** CA, CO, MA, ME, MI, MN, NY, OH, OR, PA, VT, WA, WI; Provinces of BC, NS, ON, QU; Warwickshire County (UK), Minas Gerais (Brazil), WSCA and US Communities collaboratives
- **Cities** San Francisco, Phoenix, San Jose, Vancouver, Seattle, Portland OR, LA County, Culver City CA, Keene NH, Leeds, UK
- **Enterprise** Charles Schwab, Deutsche Bank, Dignity Health System, Fairmount Hotels, Ford Motor Company, HDR, HSBC, Kaiser Permanente, KPMG, Marriott, McKesson, Microsoft, NBC-Universal, Nike, Saint Gobain, Societe Generale, Tesco, Wipro
- **Colleges/Universities** Of 300+ universities and colleges surveyed, 190 used EPEAT in their electronics purchasing decisions; of those, 70 purchased exclusively EPEAT-registered products.

Listing is for informational purposes only and does not imply endorsement
THANK YOU

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Director of Stakeholder Engagement
Green Electronics Council

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www.epeat.net
twitter: @EPEAT @GEC
Poll Question #4

What one additional resource would most help you advance your organization's safer products purchasing program?

1. Model policy language
2. Sample specifications
3. Sources of credible product toxicity info and alternatives
4. Hands-on technical support
5. Webinars on specific product categories
Question & Answer Time

**Amy Perlmutter**
Lead Report Author
Perlmutter Associates

**Colin Price**
Director of Market Innovation
Oregon Environmental Council

**Mary Dickinson**
Regional Sustainable Design Leader
Perkins+Will

**Alicia Culver**
Director
Responsible Purchasing Network

**Sarah O'Brien**
Director of Global Stakeholder Engagement
Green Electronics Council

**Moderator**

**Sam Hummel**
Director of Outreach & Operations
SPLC
# Upcoming Events

<table>
<thead>
<tr>
<th>Date</th>
<th>Organization</th>
<th>Host</th>
<th>Audience</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oct 21, 1-2:30 pm EDT</td>
<td><strong>IT Purchasing: Addressing Worker Health &amp; Safety, Energy Use, Toxics, and Disposal</strong></td>
<td>SPLC</td>
<td>SPLC Members Only</td>
</tr>
</tbody>
</table>
|                     | Presenters:  
• Carlos Busquets, Director of Public Policy, EICC  
• Stacey Foreman, City of Portland, Oregon  
• Luke Soules, iFixit  
• Ted Smith, International Campaign for Responsible Technology |      |                           |
| Oct 28, 12-1 pm EDT | **Briefing: How Executive Order 13693 is Being Implemented within Federal Purchasing** | SPLC | SPLC Members Only         |
|                     | Presenters:  
• Dee Siegel, White House Council on Environmental Quality  
• Kevin Funk, US General Services Administration |      |                           |
| Nov 4, 1-2:30 pm EDT | **Purchasing for Zero-Waste**  
Presenters:  
• David Allaway, Oregon Dept. of Environmental Quality  
• Michele Grossman, Waste Management  
• Garrison Marr, Snohomish County  
• Mark Rossolo, UL Environment | SPLC | SPLC Members Only         |