What’s Your Chemical Footprint?

October 22, 2014

Mark Rossi, Clean Production Action
Howard Williams, Construction Specialties
Roger McFadden, Staples
Learning Objectives

• Define chemical footprint.
• Optimize supply chain management for safer chemicals.
• Assess an organization’s chemical management system.
• Identify gaps and strength’s in an organization’s chemical management system.
Course Agenda

• 15 minutes – Mark Rossi: Chemical Footprinting: what is it and how to do it

• 30 minutes – Howard Williams & Roger McFadden: how to do chemical footprints and their value to chemical management

• 15 minutes – Q&A
Chemicals of High Concern (CoHCs)

• carcinogen, mutagen, or reproductive toxicant (CMR)
• persistent, bioaccumulative and toxic substance (PBT)
• any other chemical for which there is scientific evidence of probable serious effects to human health or the environment that give rise to an equivalent level of concern
• a chemical whose breakdown products result in a CoHC that meets any of the above criteria
Widespread Exposure to Chemicals with Reproductive & Developmental Toxicity

Percentage of U.S. Pregnant Women with Detectable Level of Analyte

Based on analysis of representative sample of U.S. population by NHANES 2003-2004. Note, not all women were tested for all chemicals

Measurements

- **Weight volume** (mass) of Walmart Priority Chemicals in aggregate
- **Number** of UPCs with Walmart Priority Chemical(s)
- **Sales volume** of UPCs with Walmart Priority Chemical(s)
- **Number of suppliers** with Walmart Priority Chemical(s)
- **Percentage of supplier’s products** with online ingredient disclosure
Chemical Footprint is the mass of chemicals of high concern a company uses in its products and supply chains.
Chemical Footprint Evaluation Measures

- Management
- Chemical Inventory
- Chemical Footprint
- Disclosure
Chemical Inventory

Q#1 What are your reporting requirements of suppliers re chemicals of high concern in products?

Q#2 What do you know about chemicals in your products, residuals, and EOL concerns?

Q#3 What reporting do you require of suppliers w/respect to all chemicals added to products?

Q#4 How do you assure supplier conformance with reporting requirements (audits, 3rd party, etc.)?
Chemical Footprint Project Dashboard

Average Performance by Evaluation Measure

<table>
<thead>
<tr>
<th>Evaluation Measure</th>
<th>Performance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Management Strategy</td>
<td>64%</td>
</tr>
<tr>
<td>Chemical Inventory</td>
<td>73%</td>
</tr>
<tr>
<td>Progress Measurement</td>
<td>40%</td>
</tr>
<tr>
<td>Public Disclosure</td>
<td>33%</td>
</tr>
</tbody>
</table>

Overall Average Performance

- Overall Average Performance: 53%
- High Score: 66% (10 Respondents)
- Average Score: 53%
- Low Score: 31%

Overall Performance by Company

- Company A: 66%
- Company B: 65%
- Company C: 63%
- Company D: 62%
- Company E: 61%
- Company F: 60%
- Company G: 51%
- Company H: 41%
- Company I: 32%
- Company J: 31%
Chemical Footprint Project – Steering Committee
The Chemical Footprint Project

Clear Metrics: uniform and consistent
Differentiation: between companies within a sector
Third Party: independent, no vested interest
Open Source: transparent measures

Who Benefits?
- Brands
- Retailers
- Institutional purchasers
- Investors
- NGOs
- Workers
- Media
- Public
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Howard Williams, Construction Specialties
Why?
PRODUCT INTIMACY

The severity of consumer concerns is directly related to product intimacy.
CONSUMER SAFETY CONCERNS: TOXIC EMISSIONS AND STRUCTURAL SAFETY

Toxic emissions are the primary safety issue for consumers related to building materials. This is followed by structural safety, flammability and ability to withstand the elements.

BIGGEST CONSUMER SAFETY CONCERNS ABOUT BUILDING MATERIALS

- Mold 11%
- Ability to withstand the elements 13%
- Flammability 15%
- Toxic emissions 38%
- Structural safety 23%

BIGGEST CONSUMER SAFETY CONCERNS ABOUT BUILDING MATERIALS: GEOGRAPHIC DETAILS

Consumers in Germany, China and the U.S. are most concerned with toxic emissions, while those in India are more focused on structural safety.
“The ends are always social – generated by people rather than the hardware of buildings.”

Sir Norman Foster
IT’S SHOW AND TELL TIME FOR BUILDING PRODUCT MANUFACTURERS

This provocative statement was made by a physician, Dr. Claudia Miller, an assistant dean at the University of Texas School of Medicine, during our Healthy Building Materials panel discussion at HK’s second annual Green Week.

More than 800 of us heard nationally recognized leaders discuss everything from the impacts of LEED v4 to the latest in energy modeling software. In addition to Dr. Miller, the panel included Jason McLennan, founder and creator of the Living Building Challenge and CEO of the International Living Future Institute; Bill Walsh, executive director of the Healthy Building Network; and Howard Williams, vice president at Construction Specialties, a global building materials supplier.

Though the panelists—a designer, physician, manufacturer, sustainability activist, and a building certification creator—offer different skill sets and perspectives, their combined knowledge and collective purpose was clear: they made a unanimous call for cooperation and transparency from building product manufacturers. This is exactly the type of collaborative action our industry needs to shift the building materials paradigm from toxic to healthy.

Architects and specifiers can leverage their specification power to transform the building product marketplace, suggested Dr. Miller. Like medical professionals, the design community has a duty to protect the public, which has the right to know what’s in the products that surround them. And the specifiers of those products are obliged to select building materials that minimize impact on the environment and the people who occupy the spaces they create. Doctors can treat only one patient at a time, Dr. Miller noted, while architects who specify environmentally responsible products help safeguard the health of a far greater number of people.

McLennan, an architect himself and author of the Living Building Challenge’s chemicals Red List, emphasized with designers who want to do the right thing but face huge challenges when they try. The design community is daunting by the obstacle of sorting through volumes of lists, varying standards, certifications, materials evaluations, and possible greenwashing. “The reality of all of this is so overwhelming to an architect on a deadline—you shouldn’t have to be a toxicologist to specify healthy building products,” said McLennan. “The paradigm is backward. We shouldn’t have to go out of our way to specify healthy building materials. The opposite should be true.”

Williams pointed out that architects and specifiers have numerous resources at their disposal to determine which ingredients should be avoided without having to fully grasp the science. These resources include the Healthy Building Network’s Pharos Project, with its comprehensive chemicals library of more than 22,000 materials profiled. HK’s Design Green practice has adopted the Pharos tool and uses it rigorously in its products specification research.

Walsh reminded us that the volunteers of the Health Product Declaration Collaborative are working to address the transparency challenge with their HPD Open Standard, a
Materials Matter

As architects, we specify materials every day. Our decisions affect the environment, our communities and our health.

Understanding the evolving body of knowledge about the impact of materials is integral to improving the craft, science, and art of architecture. To help us better see that good is where we're headed, this month we're featuring information about materials.

Take the Materials Matter Survey! We need to understand what matters to you and how you make your materials choices so that we can reach our goals. Learn more →

Materials Matter Survey

Green Product: A Brief History

Green Products and Innovations - Past, Present, and Future.

Understanding when our choices are made of, with, or from materials can help us appreciate the importance of each one. Always keep in mind the origin of each material.

More →

On the Hunt for Green Products

If you know of a green product, please share it with us! We're always happy to add to our list of greener options.

More →

Choosing the Right Materials

Choosing the Best Materials for the Project. Working with materials is fundamental to the job of an architect. Principles make up the tools.

Let's talk! More →

State of Green Business 2014

By Joel Makower and the editors of GreenBiz.com

In partnership with

GreenBiz

TruCost
LEED v4 Materials & Resources

• To reward project teams for selecting products for which the chemical ingredients in the product are inventoried using an accepted methodology and for selecting products verified to minimize the use and generation of harmful substances
How?
Optimize Supply Chain

“If you can’t measure it, you can’t change it.”
Optimize Chemical Footprint

- Chemicals Policy
- Chemical Footprint Survey
- Processes & Products
- Red List/Black List?
- Names & CAS Numbers?
- End Points
- Alternatives Assessment
Implementation: A process driven by the will to innovate
Early adopters are essential to market transformation

Those who ask

&

Those who provide
Chemical Footprint Evaluation: Value to Retailers, Brands, & Consumers

October 22, 2014

Roger McFadden, Staples
Value of Strong Brands

• Strong brand organizations have a higher market share.

• Build a positive corporate image.

• Create differentiation.

• We choose brands because we **trust** them
Brand Risk

- Anything that threatens brand equity or brand differentiators and influences consumers to choose one product or service over another.

- Anything that threatens the sustainability of current and future demand for a company’s product or service.
Reputational Risk

It takes 20 years to build a reputation and five minutes to ruin it. If you think about that, you'll do things differently.

(Warren Buffett)
Chemicals are a key element of a retailer’s supply chain

• The introduction of new chemicals over the past few decades has provided significant value to product designers and retailers.

• New chemicals have helped improve the quality, efficiency and convenience in our workplaces, homes and communities.
BUT…. all chemicals are not created equal

- Hazard traits
- Human health & eco-toxicity endpoints
- Exposure routes
- Degradation & combustion by-products
- Pollution potential

*One chemical can cause cancer; another chemical can help treat or prevent cancer*
Origins of Consumer Perception*

- First-hand experience plus consumer’s social networks.
- Consumers perceive messages the brand publishes as less credible than those from other consumers.
- Relatively small number of online consumers can provide the prevailing information to the population at large in connection with a brand.
- Too often, consumers understand social media better than the businesses trying to engage them.

Age of Information and Transparency

- Businesses aren’t expected to be perfect, but they are expected to be honest.
- Consumers are seeking greater accountability.
- Social media has become a powerful tool for business, brand and consumer.
- Consumer will dig, discover and divulge any and all information across the web.
- Consumer will find out if your business is truthful or not, then blog it, tweet it, and share it on Facebook.
Wide Range of Business Approaches to Managing Chemicals

Basic Compliance ➔ Value Creation

**Traditional**
- Don’t get in legal trouble

**Social Responsibility**
- Be a good corporate citizen

**Leadership**
- Identify and offer new sources of value

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### Basic Compliance

**Good**
- Regulatory compliance
- Oversight by legal and EHS team.
- Reduce fines and penalties
- Focus on lagging indicators.
- Strengths: Regulatory compliance
- Weaknesses: Reactive

**Better**
- Regulatory compliance plus CSR
- Oversight by legal, EHS and CSR teams.
- Strengths: Regulatory compliance and social responsibility reporting
- Weaknesses: Minimal brand value creation

**Best**
- Regulatory compliance, CSR and clear chemicals in products policy
- Integrated into business strategy
- Written chemicals policy
- Strengths: Proactive Approach. Assures compliance, sustainability reporting and focuses on leading key performance indicators creates consumer brand value
- Weaknesses: Can always do better.
Wide Range of Business Responses to Consumer Concerns About Chemicals in Products

- **BASIC COMPLIANCE RESPONSE** – “Our business is in compliance with all current laws and regulations.”

- **DEFENSIVE or OBSTRUCTIVE RESPONSE** -- “Our business only makes safe products and therefore does not see the need nor the value of sharing chemicals in products information”

- **ACCOMMODATING RESPONSE** – “Our business respects our customers and will take steps to accommodate their demands for chemicals in products information when it is requested.”

- **PROACTIVE RESPONSE** – “When there is credible evidence that a chemical in a product may result in harm to human and/or environmental health, we will take action, strive to eliminate the chemical and replace it with a quality, affordable, safer and more sustainable alternative.”
• Knowing is better than not knowing.
• Action is better than inaction.
• Eliminating chemical hazard at design is better than managing exposure.
• Transparency and disclosure is better than vagueness or obscurity.
• Orderly proactive transition is better than abrupt reactive change.
Why Chemical Footprint Project is Important to Staples

• Tells us where we are now and measures progress towards safer chemicals
• Identifies suppliers that are leaders
• Recognizes and rewards suppliers for doing what matters most to us and our customers
• Creates greater accountability across supply chains
• Encourages chemical information sharing
• Provides a metric to compare and measure continuous improvement of suppliers
Safer Chemicals in Consumer Products Helps to Safeguard Our Brands

• Eliminates hazards where possible and reduces risk to brand.

• Creates shared value for consumer, community and company.

• Rewards suppliers for innovative solutions.

• Helps protect human health and wellness

• Helps protect natural and built environment both now and in the future.
Conclusions & Questions?

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