Retailer Portal:
Tools to Evaluate Chemical Ingredients in Products

GC³ Green Chemistry & Commerce Council

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Acknowledgements

The Green Chemistry and Commerce Council (GC3) was formed in 2005 and provides a forum for participants to discuss and share information and experiences related to advancing green chemistry and design for the environment as it pertains to sustainable supply chain management. The GC3 is a project of the Lowell Center for Sustainable Production at the University of Massachusetts Lowell.

The Lowell Center for Sustainable Production uses rigorous science, collaborative research, and innovative strategies to promote communities, workplaces, and products that are healthy, humane, and respectful of natural systems. The Center is composed of faculty, staff, and graduate students at the University of Massachusetts Lowell who work with citizen groups, workers, businesses, institutions, and government agencies to build healthy work environments, thriving communities, and viable businesses that support a more sustainable world.

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Introduction

Increasing regulatory requirements and consumer and media pressure to sell safer or "green" products are driving retailers to understand more about the chemical ingredients in the products they sell and to find safer alternatives to chemicals of concern. Some retailers are developing their own tools or systems to evaluate the chemical content of the products they buy and sell, some are working with developers of 3rd party evaluation systems to develop customized tools, and others are working collaboratively to develop tools useful to a whole industry sector.

The Green Chemistry and Commerce Council (GC3) recognizes that retailers are in a unique and important position to make significant changes in supply chains. Based on engagement with retailers and product manufacturers, the GC3 published its report: *Best Practices in Product Chemicals Management in the Retail Industry*[i]. The report identifies eleven best practices in developing a product chemicals management system for retailers:

1. Securing a commitment from leaders in the organization to pursue a product chemicals management system;
2. Establishing a baseline of existing products, ingredients, and available toxicity information;
3. Determining which product chemicals management approach may be the best fit for the retail operation;
4. Selecting a system that is simple for retailers and suppliers to use;
5. Engaging suppliers, advocates and other stakeholders in the development of a product chemicals management system;
6. Communicating clearly with suppliers about the new chemical reporting protocols and requirements that come with a new system and collaborating with them as they work to conform to these;
7. Protecting the confidentiality of suppliers' proprietary information;
8. Understanding that any product chemical management system will require continuous improvement;
9. Participating in sector-wide and industry-wide discussions with others struggling to successfully navigate product chemicals management issues;
10. Making the purchase of safer products easy for customers; and
11. Providing customers with the safety and chemical information they request about the products they are purchasing.

This document and its companion Retailer Portal focus on the third best practice identified in the report: **a retailer should determine which product chemicals management approach is the best fit for its retail operation**. Many retailers lack the resources or expertise to educate themselves about the tools and systems available to evaluate and manage chemical ingredients in products. This document and the Retailer Portal are designed to help retailers begin the education process. The intent is to help retailers establish systems to track the chemical ingredients of the products they sell, identify chemicals of concern in products, and advance safer chemistry in their supply chains.

Methodology

Researchers at the Lowell Center for Sustainable Production, University of Massachusetts Lowell, and a consultant to the project identified tools and systems for chemical identification and assessment that might be available to retailers. The research included web searches as well as discussions with GC3 participants and other experts. As recommended by the GC3 retail project group, the tools were divided into four categories and categorized into nineteen retail product sectors. A retailer or consumer product manufacturer in each product sector was contacted to review the tools selected. Researchers then created a standardized format for characterizing each tool and collecting data. Finally, when possible, a summary description of each tool was sent to the tool developer for review.

While the goal of the Retailer Portal is to accurately characterize tools that may be useful to retailers, we recognize that there are likely to be unintentional oversights or lack of clarity. While we have made every effort to identify the most widely used tools by retailers, we understand that others may be available or applicable. We welcome additions, modifications, and comments that will help keep the Retailer Portal dynamic and up to date.

How the Retailer Portal can Help Retailers

The tools included in the Retailer Portal enable retailers to evaluate chemicals or chemical-containing products for their potential human health and environmental impacts and identify chemicals or materials that are regulated or are of concern and not yet regulated. They provide chemicals management research, support and information that most retailers do not possess in-house.

Most of the tools and systems evaluated go beyond ensuring compliance with existing environmental regulations and provide additional information to retailers and manufacturers whose goal is to "green" their product lines by selling chemicals and chemical-containing products that are safer throughout the supply chain. However, a weakness of all tools and systems assessed is a general lack of available data on product chemical content and toxicity through supply chains.

The tools included in the Retailer Portal are either free or commercially available to retailers. Not included are proprietary tools that were developed for a company's internal use and that may not be publicly accessible. While tools for internal use make up the bulk of those used by retailers, companies are increasingly transparent about their assessments of product impacts. For example, the Footprint Chronicles,[ii] recently released by Patagonia, tracks the impact of certain Patagonia products from design through delivery, documenting the environmental and social impacts at every link in the supply chain.

Also not included in the Retailer Portal are general principles, guides, and codes of conduct. Although these can be very useful guides to retailers, manufacturers, and industry sectors as they embark on their paths to sustainability, they are not tools used to evaluate products.

Organization of the Retailer Portal

Below, the Retailer Portal is described in more detail including the specific product sectors, tool categories and the format used to characterize each tool.

Product Sectors

There are two main approaches retailers use to describe their retail operations: store type or product sector. Store types include: big box, department, discount, general merchandise, warehouse, variety, mom-and-pop, specialty, convenience, hypermarkets, supermarkets, malls, e-tailers, etc.

Generally, a retail operation is classified by product sector or the type of products sold. The three main product sectors are food products (including pharmacy), hard goods (including appliances, electronics, furniture, sporting goods, etc.), and soft goods (including clothing, apparel, other fabrics and supplies). Each of these sectors can be further divided into sub-sectors. In the hard goods sector, for example, a sub-sector includes retailers that sell electronics only. A sub-sector of this group includes retailers that sell computers only.

The Retailer Portal uses the product sector approach, organizing the tools by 19 product sectors: Apparel & Footwear; Automotive; Building Materials & Products; Cleaning & Janitorial Products (Residential & Commercial/Industrial); Electronics; Food & Beverage; Furniture; Hard Goods & Appliances; Health & Beauty, Cosmetics, & Pharmacy; Jewelry & Crafts; Lawn & Garden; Outdoor/Sporting Goods; Paints & Coatings; Pet; Photo & Printing; Pool & Spa; Textiles; Tools, Hardware & Plumbing; and Toys.

Tool Categories

Within each product sector, tools are divided into four categories: restricted substances lists; standards, labels and certifications; third party evaluation systems; and consumer guides.

Restricted Substances Lists (RSLs)

RSLs are developed by companies, government agencies, non-profit organizations, and other bodies, such as trade organizations. RSLs classify chemicals of concern according to various criteria which may vary but often include acute human toxicity, carcinogenicity, mutagenicity, reproductive toxicity, endocrine disruption, eco-toxicity, and persistence and bioaccumulation. Some RSLs include only chemicals that are currently regulated while others include chemicals of concern that are not yet restricted but may be on government or other watch lists.

Standards, Certifications, and Labels

Standards, certifications, and labels are usually developed by third-party organizations that evaluate products against established criteria and specifications. Certification labels owned and administered by non-profit organizations are generally transparent, open to public review and input, and are updated periodically. Those developed by private organizations may not have the same level of transparency.

Certifications are typically good for a certain period of time, after which they must be renewed by the subscriber (manufacturer or service provider). In some cases, this renewal process is built into label requirements. Periodically, the criteria for the standard itself are reviewed and updated. Third-party certifications can give retailers and consumers a degree of confidence that products with these labels meet high standards for environmental responsibility in their class, especially if the process is transparent and standards are updated periodically.

Third-Party Evaluation Tools

Third-party evaluation tools and systems are generally developed by for-profit companies or non-profit organizations with powerful software and trained professionals who can produce customized and rapidly updated analyses for retailers as their inventory needs change. These tools can evaluate the chemical ingredients against multiple lists generated by government and scientific bodies, while some evaluate the scientific literature or hazard classifications of a particular substance.

Many of these tools have been organized into databases that can easily evaluate thousands of products and can be accessed in real time by the retailer. The retailer can customize criteria and weightings which can be disclosed or not depending on the retailer and tool provider, and results can be presented as yes / no results, an absolute score, or a score that compares the product or chemical to similar ones in its class.

Consumer Guides

Some systems are designed to help guide consumers in the purchase of "greener" or safer products. These tools can also be useful to retailers as they embark on a path to green their inventory. GoodGuide has been included in the Retailer Portal as it provides information on health, environmental, and social attributes of products that may be of interest to product manufacturers and retailers.

Standard Format Used to Characterize Each Tool

The data summarized for each tool include:
- At a Glance: A brief summary of the tool, its goal and how retailers can use it;
- Tool Owner/Sponsor;
- Type of Entity: Non-profit, for-profit, academic, government, industry trade association, etc;
- Tool Web site(s);
- Focus of Evaluation: Substances (chemicals, ingredients), products (articles), companies/product lines;
- Product Stage of Life Evaluated: Raw materials, manufacturing, transportation, consumer use, end of life;
- Impacts Evaluated: Air emissions (includes VOCs & indoor air quality), ecological health (includes persistent, bioaccumulative and toxic chemicals (PBTs) and aquatic toxicity), energy use (includes embodied energy and renewable energy), greenhouse gases (GHGs) (includes carbon emissions), material impacts (includes material intensity, land use, recyclability, compostability, recycled content, biodegradability, waste, end of life), ozone depletion, human health (includes carcinogens, mutagens, reproductive toxicants (CMRs),endocrine disrupting chemicals (EDCs), neurotoxicants, developmental toxicants,

other chronic or acute human health impacts), social responsibility, water use, water emissions, and worker health and safety;

- Process Description: A summary of how the tool works;
- Product Category: The product types or industries the tool evaluates;
- Data Needs: The type of data needed to use the tool e.g., MSDSs, ingredient lists, etc., and who needs to supply the data e.g., retailers, suppliers, etc;
- Cost of Tool: Fee structure;
- Evaluation Frequency: How often the chemicals, manufacturers, or products are required to be re-evaluated if appropriate;
- Strengths and Weaknesses: A sentence describing the strengths and limitations of each tool (provided in most but not all cases);
- Some Retailers That Use It;
- Similar Tools: Tools that serve the same industry or product category;
- Contact Information; and
- Additional Comments.

How Retailers can use the Tools

Many retailers begin their efforts to improve product chemicals management with the development and use of a restricted substances list (RSL). Some retailers have created RSLs for internal use. Some make their RSL publicly available. For example, Nike has developed an RSL and Sustainable Chemistry Guidance[iii] and Boots has established its Priority Substances List (PSL).[iv]

There are also sector-wide RSLs that list chemicals that are restricted or banned anywhere in the world. Examples included in the Retailer Portal are the American Apparel & Footwear Association (AAFA) Restricted Substances List, the Ecological and Toxicological Association of Dyes and Organic Pigment Manufacturers (ETAD) Restricted Substances List, the Global Automotive Declarable Substance List (GADSL), and the Joint Industry Guide (JIG).

Standards, labels, and certifications make up the largest group of tools in the Retailer Portal. There are more than 300 eco-labels according to the Website *www.ecolabelling.org*. The Retailer Portal includes five commonly used and recognized eco-labels and certifications: McDonough Braungart Design Chemistry (MBDC)'s Cradle to Cradle® certification, the US EPA's Design for Environment (DfE) Safer Product Labeling Program, EcoLogo, GreenSeal, and the US Department of Agriculture's National Organic Program (NOP).

In addition, standards and certifications for specific product sectors have been included. Bluesign®, for example, is a multi-attribute certification for materials, products and systems that has been adopted by many retailers in the outdoor apparel sector.

Some retailers recognize standards, labels and certifications outright while others require additional information before buying a product to sell in its retail operation. Understanding the range of impacts evaluated and their criteria is often the basis for a retailer's decision to use a standard, label or certification, or require more information.

Third-party evaluation tools and systems are useful for both small and large retailers. They are useful to small retailers that have limited internal resources to develop their own internal assessment

systems. They are also useful to large retailers that want a degree of automation to manage the large number of products they sell; a system to deal with their often rapidly updating inventories; and one that can be customized to their needs. There are a growing number of these systems available to retailers. Most evaluate chemical ingredients based on authoritative lists of chemicals of concern. The criteria to be evaluated, weighting, and scoring methodology are generally determined by the retailer.

These third-party evaluation systems can be used in a variety of ways. They are useful to ensure compliance with current regulations, and some of these tools can be used for comparing alternative chemicals to determine if a safer choice is available. When customizing these systems, a retailer must decide what types of hazard endpoints the tool will evaluate and how it will evaluate these endpoints––what authoritative lists of chemicals of concern will be used, what the criteria for evaluating the endpoints are, what the weighting and scoring of criteria are, and whether the scores are combined into a single score representing multiple reviewed endpoints.

Some systems result in combined scores, some include a combined score along with individual scores for each criteria, and some provide only individual scores. When results are given as individual scores, users must determine which criteria are of most importance to their retail operation. Some tool developers include default or suggested criteria and rankings to assist in the decision-making process.

There is a third-party evaluation tool listed in the Retailer Portal that fits into an emerging category of tools known as industry scorecards. The Outdoor Industry Association Eco-Index is considered to be a scorecard because it provides information about the environmental performance of products and has been developed through collaboration among retailers and manufacturers. Scorecards are generally designed for business-to-business use.

Consumer guides are generally designed to be transparent to consumers and allow the consumer (and retailer) to understand more about product content which may include the hazard and exposure criteria used, the weightings given to these criteria, and information about the ranking system adopted. As with the third-party evaluation systems, some systems result in a combined score, some include a combined score along with individual scores, and some provide only individual scores. Other consumer guides evaluate just one set of data such as whether a chemical of concern is present or not.

GoodGuide provides consumers with information about the health, environmental, and social impacts of products. Manufacturers can use GoodGuide to communicate this information to consumers and can gain insight about their products through the GoodGuide scores.

Some commonly used consumer databases are not included in the Retailer Portal, such as Healthy Stuff.org[v] and Skin Deep[vi]. HealthyStuff.org was developed by the Ecology Center of Ann Arbor and includes a range of consumer products that have been tested for certain chemicals of concern. Skin Deep, was developed by the Environmental Working Group and provides information about chemicals of concern found in personal care products such as makeup, products for skin, hair, eyes, nails, and oral care, sun protection; and baby products.

Conclusion

A growing number of tools and systems are available to retailers interested in improving the management of chemical ingredients in the products they sell. Retailers can choose to adopt a single tool or system, or a combination of tools. For a retailer with products in a wide variety of categories, it may be useful or necessary to employ more than one tool to evaluate and improve their inventory.

Some product sectors have already developed tools and systems to assist retailers, for example, cleaning and janitorial products, furniture, and apparel and footwear, while other sectors have not yet developed tools. In some cases tools have been developed by companies further up the supply chain as they work to green their production processes and product outputs, but they are also relevant to retailers.

As consumer, marketplace, and legislative pressure for chemical information and safer chemicals and products increases, retailers will need to invest sufficient time and effort into researching the best tools and systems they can use to improve the management of chemical ingredients in the products they sell. By using the Retailer Portal and engaging with networks like the Green Chemistry and Commerce Council where retailers are working collaboratively, retailers can overcome challenges to identifying chemicals of concern in their products and transition to safer chemistry.

Endnotes

[i] See http://www.greenchemistryandcommerce.org/downloads/uml-rptBestPractices7-10.pdf
[ii] See http://www.patagonia.com/us/patagonia.go?assetid=23429
[iii] See http://www.nikebiz.com/responsibility/considered_design/restricted_substances.html
[iv] See http://www.boots-uk.com/App_Portals/BootsUK/Media/PDFs/CSR%202010/priority_substances_list%20July%202010%20FINAL.pdf (priority list 2010)
[v] See http://www.healthystuff.org/
[vi] See http://www.ewg.org/skindeep/