Mark S. Rossi, Sally Edwards, Cheri Peele, & Tim Greiner

May 19, 2016

The Chemical Footprint Project (CFP) is a project of Clean Production Action. The founding organizations of the CFP are Clean Production Action, the Lowell Center for Sustainable Production at the University of Massachusetts Lowell, and Pure Strategies.

Clean Production Action is an environmental organization that advances safer alternatives to toxic chemicals through its GreenScreen® and BizNGO programs. BizNGO is a unique collaboration of businesses and NGOs working together to promote safer chemicals and drive innovation into and across supply chains and government regulations.

www.cleanproduction.org

The Lowell Center for Sustainable Production is a research institute that works collaboratively with citizens, workers, businesses, and governments to create healthy work environments, viable businesses, and thriving communities that support sustainable production and consumption.

www.sustainableproduction.org

Pure Strategies is a leading sustainability consultancy that helps companies improve environmental and social performance through green product design and production, sustainable materials, strong community relationships, and transparent measures of progress.

www.purestrategies.com
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Part of the Clean Production Action team since 2004, Mark has the unique ability to bring together diverse groups and achieve innovative outcomes. In 2006, he founded BizNGO, a collaboration of organizations who work together to advance safer chemicals and sustainable materials. Mark is the co-author of GreenScreen® for Safer Chemicals. Launched in 2007, GreenScreen is now the gold standard in hazard assessment tools. In 2014, he co-founded the Chemical Footprint Project. Mark’s career includes stints at Tellus Institute, the Toxics Use Reduction Institute, and Health Care Without Harm. His doctorate is in Environmental Policy from MIT.

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Sally has many years of experience in engaging a wide range of stakeholders to promote the environmental health of communities and develop safer and greener products. She conducts research to identify environmentally sound solutions and works actively with the Green Chemistry & Commerce Council to advance the use of green chemistry in product design and development. Sally holds an MS in Environmental Health Science from Harvard University and a BA in Human Biology from Stanford University. She completed her doctorate at the University of Massachusetts Lowell. Her book, Beyond Child’s Play: Sustainable Product Design in the Global Doll-Making Industry was published in 2009.

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Acknowledgments

Our colleagues from across the globe helped to make this first Chemical Footprint Project 2016 Annual Report possible. It is only with their support and inspiration that we can work to transform chemical use to be healthy for people, the planet, and the economy.

Sonja Haider and Richard Liroff, thank you for reviewing an early draft and providing insightful comments. Chemical Footprint Project Steering Committee members, thank you for your wisdom. With your strategic advice and guidance we were able to navigate the challenges of launching a new standard for chemical footprinting.

Thank you to our Investors Ad Hoc Committee, which includes Danielle Ginach, Larisa Ruoff, and Mike Lombardo, in addition to several Steering Committee members. We appreciate your support and guidance in engaging manufacturers and brands to participate in the Chemical Footprint Project. Thank you to Tara Brown, formerly of Target, who served on the Chemical Footprint Project Steering Committee and helped guide the program to its launch.

Thank you to the BizNGO Chemicals Work Group and its members that joined our Technical Review Committee in the early development of the survey: Sara Cederberg, Beth Eckl, Sonja Haider, Rich Liroff, Barbara Kyle, Brian Martin, Kendra Martz, Roger McFadden, Joe Rinkevich, Annie Schmidt, Joyce Taylor, and Howard Williams.

Thank you to our financial supporters who provide the foundation for our work, including The John Merck Fund, The New York Community Trust, and MMHO Fund.

None of this would be possible without our amazing production team of Alison Poor, Ellen Goldberg, Monty Lewis, and David Gerratt.

Finally, we thank our families who supported us when we worked nights and weekends to complete this report.

We take responsibility for all errors, oversights, and misrepresentations, and look forward to working with all interested parties on the 2017 annual report.

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Foreword

By Matthew W. Patsky
CEO and Portfolio Manager, Trillium Asset Management, LLC

The use of hazardous chemicals creates direct risks for workers, communities, and our environment. These chemicals also present reputation, regulatory, and redesign risks across a broad range of industry sectors. Investors need to understand how companies are meaningfully managing these risks.

The Chemical Footprint Project is the first initiative to create a quantitative framework for investors to understand chemical risks (the financial risks hazardous chemicals pose to companies) as well as the chemical opportunities (the financial opportunities available through the use of safer alternatives).

For responsible investors the Chemical Footprint Project:
• Adds a specific focus on health in the Environmental, Social and Governance (ESG) factors that are fundamental to the Sustainable and Responsible Investment industry (SRI).
• Creates a common standard for companies to report their chemical footprinting: to date, investor decisions on chemicals and health have been limited to anecdotal evidence. With the release of this first annual report, the Chemical Footprint Project is on the path to collecting systematic and consistent data that investors can use to evaluate and benchmark companies within the same sector.
• Identifies gaps in corporate chemical management programs by highlighting decisions companies need to make to stay ahead of regulations and trending consumer interests.
• Empowers investors to demand chemical footprints, potentially increasing the value of companies with better management of their hazardous chemicals.

The number of investors who integrate ESG criteria into investment decisions continues to grow. By accessing data from the Chemical Footprint Project, these investors will be better equipped to engage companies and identify leaders who are producing and using chemicals in ways that minimize impacts to human health and the environment.

As a strong supporter of the Chemical Footprint Project, Trillium encourages investors to demand and companies to provide consistent, transparent, data on their use of hazardous chemicals. Integrating this information into our investment processes will help identify industry leaders and reduce company-specific risk in our portfolios.

Together, we can work toward a world where human health and the environment are free from the harms of hazardous chemicals.

Sincerely,

Matthew Patsky
CEO and Portfolio Manager, Trillium Asset Management, LLC
Signatories to the Chemical Footprint Project

Signatories agree to:

1. Encourage companies in their sphere of influence to participate in the Chemical Footprint Project.
2. Be listed on the Chemical Footprint Project website.
3. Provide feedback on how to improve implementation of the Chemical Footprint Project.

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Discharge of Hazardous Chemicals (ZDHC)
Executive Summary
Executive Summary

In a world where chemical regulations and market demands for safer chemicals are on the rise, how can investors know which firms are most at risk from these emerging trends and which are best positioned to capture new markets with safer products? How can institutional purchasers know which suppliers are taking the systematic steps necessary to identify and reduce chemicals of high concern in products and supply chains? And how can companies demonstrate to purchasers and investors their leadership in chemicals management when they lack an objective, third party metric that recognizes their efforts?

The Chemical Footprint Project sets a new standard for evaluating and comparing companies on their policies, programs, and practices for managing chemicals. By assessing companies on their overall progress in avoiding chemicals that can cause adverse health effects such as cancer, birth defects, and learning disabilities, along with using safer alternatives, the Chemical Footprint Project adds the “H” of human Health to Environmental, Social, and Governance (ESG) factors—thereby filling a critical missing gap in the sustainability mosaic. Signatories to the Chemical Footprint Project include investors and institutional purchasers with over $2.3 trillion in assets under management and $70 billion in purchasing power.

This first annual Chemical Footprint Project report highlights the financial risks that companies face due to chemicals of high concern (CoHCs) to human health and the environment in their products and supply chains. The report features key findings from the 2015 survey, including an assessment of how companies manage the potential liabilities posed by hazardous chemicals and opportunities for improvement.

Chemical Risks

In his Foreword, Matthew Patsky of Trillium Asset Management highlighted three different types of chemical risks companies face: regulatory, reputation, and redesign.

Regulatory risks are the potential costs from current and future regulations. The liabilities associated with current regulations emerge from the failure to comply with them. For example, from 2011–2013, six retailers in the United States paid almost $200 million in fines for failure to comply with hazardous waste regulations.1 Companies are also at risk from significant additional costs due to new chemical substance regulations, which are increasing faster than for any other environmental issue, including climate change.

Signatories to the Chemical Footprint Project include investors and institutional purchasers with over $2.3 trillion in assets under management and $70 billion in purchasing power.
The Chemical Footprint Project provides a window into corporate regulatory risk management by examining key policies and practices. Companies that track global chemical restrictions reduce the risks of product recalls and fines for non-compliance by incorporating restricted substances lists (RSLs) into supplier contracts, auditing suppliers, and routinely testing supplier parts for compliance. Similarly, companies that create corporate policies and RSLs that go beyond current laws can reduce costs associated with future regulations.

**Reputation risks** are the potential costs of being exposed publicly with hazardous chemicals in products or supply chains. For example, Lumber Liquidators’ stock plummeted by 70% and its chief executive officer (CEO) resigned after non-governmental organizations (NGOs) revealed elevated levels of formaldehyde in its products. Lower sales, reduced market valuation, decreased customer loyalty, and lawsuits are among the costs related to reputation risks.

The Chemical Footprint Project provides insights into how companies manage these reputation risks. Companies that integrate chemicals management into business strategy incentivize employees and senior management to reduce hazardous chemical use, and provide authentic disclosure on chemical use and reduction efforts will reduce their reputation risks when compared to less proactive firms.

**Redesign risks** are the potential costs related to the continued use of hazardous chemicals in products and manufacturing processes and not redesigning products before regulations change or markets shift. Sony, for example, incurred over $150 million in redesign and recall costs when it failed to remove cadmium from its Playstation products. Redesign risks include losing market share to a competitor or being forced to make product changes under crisis conditions.

Using the Chemical Footprint Project lens to examine redesigning goods provides companies with strategies to reduce this risk. Companies that know the hazard profile of chemicals in their products and have scientifically robust criteria for evaluating potential substitutes and identifying safer alternatives will be better equipped to develop and expand markets for safer products.

**Chemical Footprint Project**

In 2015, the Chemical Footprint Project along with Signatory investors and purchasers reached out to leading manufacturers and brands to participate in the first annual business survey. Outreach focused on downstream users of chemicals because they bear disproportional risks due to the hidden liabilities associated with hazardous chemicals in their products and supply chains.

A diverse group of 24 companies participated in the first annual survey. Respondents include both privately- and publicly-held companies from seven sectors: consumer durables & apparel, household & personal products, health care equipment & services, capital goods, technology hardware & equipment, consumer services, and food, beverage & tobacco. Of the 24 participating companies, 22 agreed to be named publicly (see sidebar). Participation in the first annual survey reflects each company’s leadership in chemicals management and its openness to opportunities for improvement.

The 2015 Chemical Footprint Project survey included 20 questions scored to a total of 100 points, covering four key performance categories:

- **Management Strategy**: the policies and strategies companies put into place to manage chemicals.
- **Chemical Inventory**: the information companies collect on chemicals in products and supply chains.
- **Footprint Measurement**: the baseline data companies have on chemicals of high concern.
in products and their tracking of progress to safer alternatives.

- **Disclosure and Verification**: the sharing of information on chemicals in products with the public, disclosure of participation in the Chemical Footprint Project, and steps taken to verify responses to the Chemical Footprint Project survey.

The survey challenged companies to report on their policies, programs, practices, and progress in developing comprehensive chemicals management systems. In the first year, we did not ask respondents to publicly report their scores. Rather, we asked companies to publicly identify their participation and report their responses. In future years, we will encourage participating companies to report their scores publicly.

### Key Findings from 2015 Survey

The findings provide the first ever evaluation of the current landscape of chemicals management among a diverse set of companies selling formulated products and articles, based on a common set of questions and scoring developed by an independent third party. Company scores ranged from 12 points to 89 points, with an average score of 41 points (see Figure ES-1, p. 4). Across the four key performance categories, average scores were highest for Chemical Inventory and lowest for Disclosure & Verification. The wide range in scores reflects the new reporting standard set by the Chemical Footprint Project, the diversity of corporate chemical management programs, along with the variety of participating companies in terms of size, sector, and business strategy.

The results from the first annual survey highlight that:

- **Senior leadership matters**: From a senior management accountability standpoint, the 29% of firms with board level oversight or senior management compensation for chemicals management performed better overall than firms with no such accountability.

  **The 29% of firms with board level oversight or senior management compensation for chemicals management performed better overall than firms with no such accountability.**

- **Chemicals in products are the priority**: Corporate policies focus primarily on chemicals in products rather than on manufacturing, supply chains, or packaging. Almost 90% of the participating companies have a policy to avoid CoHCs in products, whereas only 54% of policies address CoHCs in supply chains. Similarly, 67% of policies address a preference for safer alternatives in products, while 42% include a preference for safer alternatives in supply chains.

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### Participants in the 1st Annual Chemical Footprint Project Survey

- Becton Dickinson & Co.
- Beautycounter
- California Baby
- Clorox Company
- Construction Specialties, Inc.
- Forms+Surfaces
- GOJO Industries, Inc.
- Hanseatic Bedding Products, Inc.
- Humanscale Corporation
- Interface, Inc.
- Jasper Group
- Johnson & Johnson
- Kimball International, Inc.
- KYOCERA Corporation
- Levi Strauss & Co.
- Radio Flyer, Inc.
- Seagate Technology, PLC
- Sealed Air Corporation
- Shaw Industries Group, Inc.
- Standard Textile Company, Inc.
- SYSCO Corporation
- WaterWipes (a division of Irish Breeze Ltd)
Across every category companies have more practices in place than they share publicly. For example, while 79% of participating companies have a legally restricted substances list, only 17% of those companies make their RSL public.

“Design for Health” strategies drive the leading edge of performance: “Design for Health” companies, defined as those that implement safer chemical policies, procedures, and practices into all elements of the business, averaged 62 points out of 100, well above the 41 point mean score for all responders.

Chemical footprint measurement is new and challenging: In 2015, the Chemical Footprint Project asked each participating company to quantitatively assess its overall chemical footprint, defined as CoHCs in all products sold (with a CoHC specified as a chemical on the California Candidate Chemicals List). Responders found this measurement challenging, and thus on average garnered slightly more than a quarter of possible points for quantifying their chemical footprint.

Opportunities for Improvement
The first annual survey results reveal multiple opportunities for improving chemicals management systems, including:

- Establish comprehensive chemicals policies: Firms can begin by establishing a corporate-wide policy to avoid CoHCs and prefer safer alternatives in manufacturing, supply chains, products, and packaging.
- Engage senior management and/or boards of directors: Senior management engagement is central to integrating chemicals policy into business strategy.
- Increase chemical knowledge: Many companies start their chemicals management programs by creating a list of legally restricted substances lists (RSLs) and then proceed to collect more
complete chemical ingredient information in products. Engaging suppliers in avoiding restricted substances, identifying safer alternatives, and assuring compliance with policies is critical to success.

- **Measure footprint performance:** The survey found that companies in general do not know the number of CoHCs or overall mass of CoHCs in their products. Once companies begin to quantitatively measure their chemical footprint, they can track progress over time.

- **Improve transparency:** The survey results reveal significant opportunities to narrow the gap between current business practice and the demand for greater transparency from consumers, institutional purchasers, and investors.

The firms that participated in the 2015 Chemical Footprint Project represent the vanguard in corporate chemicals management. With comparative data on performance and a clear set of improvement options identified, these pioneering companies are better prepared to manage their chemical risks and achieve the reputation and market benefits that come with improved chemicals management. We commend their participation and look forward to engaging with them again and a broader array of companies in 2016.

**Join us!**

The Chemical Footprint Project welcomes Signatories and Responders. Signatories are investors and institutional purchasers who outreach to companies to participate in the survey. Responders are brands, manufacturers, and suppliers who participate in the annual Chemical Footprint Project survey.

[www.chemicalfootprint.org](http://www.chemicalfootprint.org)
Chemical Footprinting Has Arrived
Chemical Footprinting Has Arrived

Hazardous chemicals are frequently in the headlines. A quick search of the news from March to April 2016 reveals many stories on hazardous chemicals in products, including:

- “Food companies move away from potentially toxic chemicals in cans”
- “Lumber Liquidators stock falls 15% [on recent formaldehyde findings]”
- “Traditional cosmetics, soaps drastically increase endocrine-disrupting chemicals in body”
- “New law will ban 5 chemicals from kids’ products in Washington state”

Underlying each headline are chemicals of high concern (CoHCs) to human health or the environment—chemicals that can cause cancer, birth defects, learning disabilities like autism, and other adverse effects. Consumers are understandably concerned about being exposed to toxic chemicals in products they commonly use on their bodies (personal care products), have in their homes (furniture and flooring), or eat (food packaged in cans). Parents are especially concerned with their children’s exposure to these chemicals.

These news stories also highlight the companies most financially vulnerable to hazardous chemicals in products and supply chains: businesses selling directly to consumers rather than the manufacturers of the CoHCs. For example, the food and beverage sector is vulnerable to concerns with Bisphenol A (BPA) in food cans and has been targeted by non-governmental organizations (NGOs). Campbell’s recently announced its progress towards eliminating
BPA in cans by the middle of 2017 (rather than a chemical manufacturer announcing it will no longer sell BPA for use in can linings). The consumer durables sector is affected by a range of hazardous chemicals including formaldehyde (for example, Lumber Liquidators) and flame retardants in furniture. The personal care products sector is vulnerable to concerns regarding endocrine disrupting chemicals.

The Chemical Footprint Project adds the “H” of human Health to Environmental, Social, and Governance (ESG) factors—thereby filling a critical missing gap in the sustainability mosaic.

Reflecting the concerns of their constituents, governments are increasing their regulatory oversight of chemicals. In the United States, over 30 states have passed laws regulating hazardous chemicals in the past 10 years. Flame retardants, phthalates, antimicrobials such as triclosan, and formaldehyde are among the many CoHCs regulated by states. In Europe, the European Chemicals Agency adds more chemicals each year to its list of substances of very high concern under the REACH (Registration, Evaluation and Authorization of Chemicals) regulation. Denmark is leading the European Union in restricting phthalates. While in Asia, China and South Korea are implementing increasingly stringent chemical regulations.

In a world where chemical regulations and market demands for safer chemicals are on the rise, how can investors know which firms are most at risk from these emerging trends and which are best positioned to capture new markets with safer products? How can institutional purchasers know which suppliers are taking the systematic steps necessary to identify and reduce chemicals of high concern in products and supply chains? And how can companies demonstrate to purchasers and investors their leadership in chemicals management when they lack an objective, third party metric that recognizes their efforts?
The Chemical Footprint Project sets a new standard for evaluating and comparing companies on their policies, programs, and practices for managing chemicals. Chemical footprinting is the process of assessing progress toward the use of safer chemicals and away from chemicals of high concern to human health or the environment. By assessing companies on their overall progress in avoiding chemicals that can cause adverse health effects such as cancer, birth defects, and learning disabilities, along with using safer alternatives, the Chemical Footprint Project adds the “H” of human Health to Environmental, Social, and Governance (ESG) factors—thereby filling a critical missing gap in the sustainability mosaic. Signatories to the Chemical Footprint Project include investors and institutional purchasers with over $2.3 trillion in assets under management and $70 billion in purchasing power.

Today the typical Fortune 1000 company tracks its carbon footprint—and increasingly tracks water use, waste generation, and recycling rates—on an annual basis using standardized metrics for communicating progress in sustainability. Until now, companies lacked a common standard for reporting chemical use and progress to safer chemicals.

The Chemical Footprint Project is the first effort to shed a consistent light on the performance of companies in managing chemicals beyond regulatory compliance. Launched in 2014, the Chemical Footprint Project applies clear and consistent metrics for evaluating enterprise-level progress to safer chemicals. The metrics emerged from years of work by the co-founding organizations in documenting best practices in corporate performance. This body of work includes Healthy Business Strategies (2006), BizNGO Principles for Safer Chemicals (2008), and the Guide to Safer Chemicals (2012), which provides the foundation for the questions comprising the Chemical Footprint Project survey.

In the chapters ahead, you will learn about:

- Materiality impacts driving investors and purchasers to request these scores (Chapter 2)
- Methodology for collecting data and scoring companies (Chapter 3)
- Findings from the first cohort of companies in the Chemical Footprint Project (Chapter 4)
- How companies manage the chemical risks of regulation, reputation, and redesign (Chapter 5)
- Key conclusions and next steps for the Chemical Footprint Project (Chapter 6)

This first annual Chemical Footprint Project report highlights the financial risks that companies face due to CoHCs in their products and supply chains and the key findings from the first annual survey. In 2015, a select group of 24 leading edge businesses stepped forward to participate in the Chemical Footprint Project and receive a score on their corporate chemicals management practices. The initial results, based upon data from a diverse set of companies, provide a window into current business practice. We look forward to more companies responding to the challenge and participating in the 2016 survey.
Strategies for Managing Chemical Risks
Manufacturers use thousands of chemicals of high concern (CoHCs) to make products, and many of these chemicals end up in the final products workers, consumers, and children use every day. BPA, formaldehyde, lead, and cadmium are well-known CoHCs, but there are many other lesser-known hazardous chemicals. The European Union’s REACH Candidate List of Substances of Very High Concern (SVHCs) includes over 160 chemicals. ChemSec’s (a European non-governmental organization or NGO) Substitute It Now (SIN) List includes over 800 chemicals. The State of California’s Candidate Chemicals List, developed as part of its Safer Consumer Products regulations, includes over 2,000 chemicals. The GreenScreen® List Translator tool developed by the U.S.-based NGO Clean Production Action identifies over 2,700 CoHCs and another 6,000 potential CoHCs. These varied lists point to chemicals that are candidates for future restriction, with the REACH SVHCs and a few chemicals on the California Candidate Chemicals List most likely to be regulated in the near future.
Companies employing an active chemicals management strategy mitigate their chemical risks and create opportunities for innovating and growing market share and valuation.

CoHCS in manufacturing and in products present “chemical risks”—the financial liabilities companies carry due to hazardous chemicals in their products, manufacturing processes, supply chains, and packaging. Chemical risks are hidden liabilities when companies do not know the hazardous chemicals in their products and supply chains. For example, companies that manufacture and sell “articles” (hard goods such as computers, toys, apparel, and other non-formulated products) are often unaware that their products even contain hazardous chemicals.22

**Strategy: From Passive to Active**
Most companies employ a passive strategy to manage their chemical risks. They wait until regulations, market pressures, or consumer demands create enough internal pressure to act. Companies employing a passive strategy to chemicals management are vulnerable to losing customer trust, market share, and market valuation, and increasing costs when markets shift, new competitors emerge, and regulations change. In contrast, companies employing an active chemicals strategy seek to use the safest chemicals available, thereby meeting regulations and the needs of their most demanding customers, while anticipating future shifts in laws and markets. To implement an “active” strategy, companies must have significant knowledge about the chemicals in their products and supply chains, assess the hazards of these chemicals, and use safer alternatives.

Companies employing an active chemicals management strategy mitigate their chemical risks and create opportunities for innovating and growing market share and valuation. In contrast, companies that employ a passive strategy are especially vulnerable to regulatory, reputation, and redesign risks.

**Regulatory risks** are the potential costs from current and future regulations. Hazardous chemicals in products and supply chains put companies at risk of failing to comply with regulations. For example, companies that manufacture and sell “articles” (hard goods such as computers, toys, apparel, and other non-formulated products) are often unaware that their products even contain hazardous chemicals.

<table>
<thead>
<tr>
<th>Managing Regulatory Risks</th>
<th>Passive Strategy</th>
<th>Active Strategy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strategy</td>
<td>Wait for regulations to arise or fines to occur before acting</td>
<td>Anticipate future regulations by identifying chemicals in products, especially chemicals of high concern (CoHCS), substitute CoHCS with safer alternatives, and test suppliers for conformance to corporate policies</td>
</tr>
</tbody>
</table>
| Costs/Opportunities       | • Increased costs for compliance and legal fees  
                           • Vulnerable to government fines, product recalls, and future regulations | • Higher initial costs for establishing and implementing programs  
                           • Lower costs for compliance and legal fees  
                           • Less vulnerable to government fines, product recalls, and future regulations |
| Examples                  | Walmart, Target, Walgreens, CVS, Costco, and Unilever fined almost $200 million (2011-2013) | Seagage Technology, PLC lowers cost of compliance and anticipates future regulations with chemical inventory system |

Sources:
Managing Reputation Risks

<table>
<thead>
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<tr>
<td>Strategy</td>
<td>Assume regulatory compliance is sufficient and do not make effort to determine chemicals of high concern (CoHCs) in products or supply chains (beyond legal requirements)</td>
<td>Identify CoHCs in products and supply chains and substitute safer alternatives</td>
</tr>
</tbody>
</table>
| Costs/Opportunities       | IF CoHCs found by governments, NGOs, or customers, vulnerable to:  
  • lower market valuation & work satisfaction  
  • lost customer loyalty, sales, and/or market share  
  • shareholder resolutions, NGO campaigns, and lawsuits | Opportunities to: increase customer loyalty, sales, market share, worker satisfaction, and/or market valuation; capture positive press, reception from shareholders, and/or NGOs  
  • Less vulnerable to shareholder resolutions, NGO campaigns, and lawsuits |
| Examples                  | Lumber Liquidators stock down 70% due to formaldehyde in products as revealed by NGOs (2015)  
  • Sigg AG USA files for bankruptcy due to BPA (2011) | Skanska & HP capture increased market share by meeting customer demands for safer chemicals |

Sources:

While companies may require their suppliers to avoid regulated substances, the complexity of supply chains means that companies need to routinely test products to ensure conformance.

adequately regulate hazardous chemicals in returned products, they paid fines totaling almost $200 million (see Table 1).\(^{24}\) Product recalls are another serious regulatory risk. While companies may require their suppliers to avoid regulated substances, the complexity of supply chains means that companies need to routinely test products to ensure conformance. Companies are also at risk from added costs due to new chemical substance regulations, which are increasing faster than for any other environmental issue, including climate change.

Reputation risks are the potential costs of being exposed publicly with hazardous chemicals in products or supply chains. For example, Sigg AG USA Distributor first lost sales and then went bankrupt from lawsuits after the company failed to disclose BPA in its aluminum water bottles.\(^{25}\) Lumber Liquidators’ stock plummeted by 70% and its chief executive officer (CEO) resigned after non-governmental organizations (NGOs) revealed elevated levels of formaldehyde in its products.\(^{26}\) Lower sales, reduced market valuations, decreased customer loyalty, and lawsuits are among the costs related to reputation risks (see Table 2).

Redesign risks are the potential costs related to the continued use of hazardous chemicals in products and manufacturing processes and not redesigning or reformulating products before regulations change or markets shift (see Table 3). Losing market share to a competitor that innovates and replaces hazardous chemicals with safer alternatives, and missing out on faster than average growth rates in markets for safer products are examples of redesign risks. Being forced to change product design under crisis conditions...
is another redesign risk. Sony, for example, incurred over $150 million in redesign and recall costs when it failed to removed cadmium from its Playstation products.\textsuperscript{27}

Regulatory, reputation, and redesign risks are greatest for companies that sell directly to consumers, use large numbers of CoHCs, are unaware of these chemicals in their products and supply chains, do not replace these chemicals with safer alternatives, and/or have not implemented comprehensive policies, programs, and practices to manage them.

Financial opportunities—increased sales and market share, higher rates of customer loyalty and employee satisfaction, and lower compliance costs—abound for companies employing active strategies. In this report we distinguish between two types of active strategies that companies employ: “continuous improvement” and “design for health.” Companies employing \textit{Continuous Improvement} strategies are integrating safer chemical policies, procedures, and practices into existing product lines and new product development. Companies employing \textit{Design for Health} strategies are implementing safer chemical policies, procedures, and practices into all elements of their business, including marketing, business development, and research and design.

### Value of Chemical Footprint Project for Investors and Purchasers

The Chemical Footprint Project holds the potential to provide significant value to investors, purchasers, manufacturers, and brands as it establishes a common standard, provides a platform for substantive investor and purchaser engagement with stakeholders, and creates a market differentiator for manufacturers and brands. As Mary Ellen Leciejewski of Dignity Health (the fifth largest non-profit health system in the U.S.)\textsuperscript{28} highlights in the sidebar, a common standard is fundamental to evaluating companies consistently and provides a basis for cross comparison. Investors and purchasers can now ask companies for their Chemical Footprint scores and the data behind these scores, which will allow an in-depth dialogue about chemicals management practices. Finally, these scores can be a market differentiator and thereby provide a competitive advantage for business leaders in chemicals management.
Why Health Care Values Chemical Footprinting

Dignity Health’s commitment to the Chemical Footprint Project furthers our mission and vision of improving quality of life for our patients, staff, and the communities we serve. Environmentally preferable purchasing and utilizing safer chemicals in health care is important because as a provider, we have an obligation to make the best choices on behalf of our patients. Regardless of a patient’s need to visit our facilities, we serve as their advocate. Everything from the tissues in the waiting room to the medical device that may be implanted into their body needs to be considered for safety, especially since many of these decisions are made on their behalf. One of our main priorities is to ensure they maintain their dignity while being a patient.

The same applies to our staff. We have an obligation to ensure that our staff are safe and also have an understanding of the products we use—who they’re made, what’s in them, and whether they can be recycled. We’re also invested in an evidence-based decision-making process. When it comes to procurement, the Chemical Footprint Project fills a critical missing gap in sustainability data. The information collected by the Chemical Footprint Project assessment will enable us to include a company’s key sustainability metrics, specifically around chemicals, into the decision-making process.

The Chemical Footprint Project provides a standard metric with which we can engage our suppliers and measure their progress to safer chemicals in the products we purchase. For our suppliers, the Chemical Footprint Project creates long-term value by enhancing brand reputation, increasing sales, promoting innovative products, increasing supply chain reliability, and avoiding the high costs of chemical crises.

Mary Ellen Leciejewski
Director of Ecology
Scoring Methodology and Data Analysis
In 2015, the Chemical Footprint Project along with Signatory investors and purchasers reached out to over 100 leading brands and manufacturers to participate in the first annual survey.

In 2015, the Chemical Footprint Project released its first annual survey to assess the current state of corporate-wide chemicals management. It includes 20 questions scored to a total of 100 points, covering four key performance categories related to managing chemicals in products and supply chains:

- **Management Strategy (20 points):** This section asks about the scope of corporate chemical policies and their integration into business strategy, accountability, and employees’ incentives for safer chemical use, as well as support of public policies for safer chemicals.
- **Chemical Inventory (30 points):** This section asks about the efforts a company has taken to identify chemicals of concern (CoHCs) in its products, the extent of chemical data collected from its suppliers, and its systems for managing chemical data and ensuring supplier compliance with its reporting requirements.
- **Footprint Measurement (30 points):** This section asks about the goals that a company sets to reduce CoHCs, its efforts to establish a

CHAPTER 3
Scoring Methodology and Data Analysis
baseline chemical footprint and measure progress, and its process for assessing and implementing safer alternatives.

- **Disclosure & Verification (20 points):** This section asks if a company publicly discloses the chemicals in its products beyond regulatory requirements, if it discloses its participation in the Chemical Footprint Project and its answers to the questions, and asks if its answers have been independently verified by a third party.

For a complete list of common terms used in the survey and this report see Appendix 1. For the questions and associated point values see Appendix 2.

In 2015, the Chemical Footprint Project along with Signatory investors and purchasers reached out to over 100 leading brands and manufacturers to participate in the first annual survey. Companies submitted answers to the survey questions via an online tool. For each question, participants were asked to submit supporting documentation to provide concrete evidence of their efforts. For example, companies were asked to provide their chemicals policy as evidence for Management Strategy indicator M1: *Does your company have a chemicals policy that aims to avoid chemicals of high concern?* Other examples of supporting documentation include: information from a company website about goals for reducing use of CoHCs; public reports on progress toward goals; or non-public documents, such as an internal chemicals policy or descriptions of employee incentive and accountability programs with regard to reducing CoHCs and using safer alternatives. For a complete list of questions and response options see the Chemical Footprint Project Guidance for Using the CFP Assessment Tool.

The Chemical Footprint Project scored companies by reviewing their self-assessments and the documentation they provided. Where documentation supported a company’s response and aligned with definitions and guidance provided by the Chemical Footprint Project, we awarded the assigned point value.

Chapter 4 includes an assessment of respondent scores overall and by key performance category (Management Strategy, Chemical Inventory, Footprint Measurement, and Disclosure & Verification). In addition, Chapter 4 analyzes
how firm size, product type, and business strategy affected scores. These terms are defined as follows:

- **Firm size** defined based on revenues. Large firms have revenues greater than $5 billion. Medium firms have revenue ranging from $0.5-$5.0 billion. Small firms have revenues less than $0.5 billion. For privately held firms, revenues were estimated based upon publicly available data.

- **Product type** defined as formulated products and/or articles. A “formulated product” is a preparation or mixture of chemical substances that can be gaseous, liquid, or solid (for example, paints, liquid cleaning products, adhesives, coatings, cosmetics, detergents, dyes, inks, and lubricants). An “article” is an object that during production is given a special shape, surface or design which determines its function to a greater degree than its chemical composition.

- **Business strategy** defined on the basis of how companies integrate proactive chemicals management into business practices (versus chemicals management that is focused only on meeting regulatory requirements). We categorized participating companies as employing either a Continuous Improvement or Design for Health strategy. “Continuous improvement” companies integrate safer chemical policies, procedures, and practices into existing products and new product development. “Design for Health” companies implement safer chemical policies, procedures, and practices into all elements of their business, including research and design, supply chain management, and marketing. Companies employing a Design for Health strategy use either safer chemicals or natural materials by design.

Chapter 5 includes an assessment of how companies manage the “chemical risks”—the financial liabilities—of regulation, reputation, and redesign. To gain a preliminary understanding of how well companies manage these risks, we categorized the 20 questions in the survey by risk type and assessed how companies performed.
Key Findings from the 2015 Chemical Footprint Project Survey
CHAPTER 4

Key Findings from the 2015 Chemical Footprint Project Survey

The results from the 2015 Chemical Footprint Project survey provide valuable insights into how 24 different companies manage chemicals in their products and supply chains. This first data set provides a window into current business practice and is an indicator of how front-runners manage chemicals in their products and supply chains.

This chapter begins with a brief discussion of the initial data set and its quality, then summarizes and analyzes the results for the four key performance categories as a whole, and for each of the four categories of Management Strategy, Chemical Inventory, Footprint Measurement, and Disclosure & Verification.

Respondents to the 2015 Survey & Data Quality

Participating companies varied by business sector (see Figure 1), product type, firm size, and whether they are publicly-traded or privately-held. Of the 24 companies, 19 sell articles and five sell formulated products. Nine companies are large, five are medium, and ten are small in size. We categorized 20 companies as using a Continuous Improvement business strategy and four as using a Design for Health business strategy (see Chapter 3 for definitions). The four Design for Health companies are all small in size, with two selling formulated products and two selling articles.

Regarding the answers submitted by the 24 companies, note the following caveats:

• Division-not corporate-wide data: five companies reported data for divisions of their business, rather than the entire corporation (while the intent of the survey is to include the entire corporation).

• Inconsistent application of terms: participating companies did not consistently apply the

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Chemicals of High Concern (CoHCs)

The Chemical Footprint Project defines a CoHC as a chemical that meets any of the following criteria:

- Carcinogenic, mutagenic, or toxic to reproduction (CMR);
- Persistent, bioaccumulative, and toxic (PBT);
- Any other chemical for which there is scientific evidence of probable serious effects to human health or the environment that gives rise to an equivalent level of concern (for example, an endocrine disruptor or neurotoxicant); or
- A chemical whose breakdown products result in a CoHC that meets any of the above criteria.

For 2015, respondents were asked to measure their use of CoHCs (Indicator F1) on the basis of chemicals listed on the California Candidate Chemicals List.
The Chemical Footprint Project’s definitions for: “Chemicals of High Concern (CoHCs),” “Restricted Substances List (RSL),” “Beyond RSL,” “Chemical Ingredient Information,” or “Safer Alternative” (see glossary of terms in Appendix 1). For the 2015 survey, the Chemical Footprint Project specified a CoHC as any chemical on the State of California’s Candidate Chemicals List. These inconsistencies affected how companies answered questions and affected their final scores. This lack of harmonization on the language of chemical footprinting limited our ability to compare companies.

- **Natural material exception**: Companies using natural materials such as cotton or wool were not expected to know or provide chemical composition of those materials, unless these materials were known to contain CoHCs. In the future companies will need to demonstrate that natural materials do not contain CoHCs.32

In updating the survey and guidance for 2016, the Chemical Footprint Project will clarify and emphasize what terms mean, how they must be applied, and how to report data related to natural materials.

**Results Across All Indicators**

Scores of the 24 respondents to the first annual Chemical Footprint Project survey varied widely, ranging from 12 to 89 points, while the average

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**Beautycounter is fully transparent to the public about ingredients in our products, including fragrances, and preservatives and flavors.**

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**FIGURE 2 Chemical Footprint Project Survey: Points Scored by Each Company**


Management Strategy | Chemical Inventory | Footprint Measurement | Public Disclosure and Verification

89 | 73 | 57 | 55 | 54 | 53 | 52 | 51 | 51 | 50 | 41 | 39 | 38 | 37 | 35 | 34 | 32 | 29 | 28 | 26 | 22 | 21 | 20 | 15 | 12 | 0 | 10 | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 100

Photo: © Thinkstockphoto/Fuse
Leading the Way in Safer Chemical Use and Public Disclosure

The beauty industry is complex: there is little regulatory oversight, abundant consumer confusion, and much that is unknown about ingredients in products people put on their bodies everyday. Beautycounter is an education-first, mission-driven company building a movement for better beauty. Our 5 Step Ingredient Selection Process, coupled with our commitment to product performance, sets us apart from other skin care and cosmetic brands.

**Step 1: Ban Intentionally** — We begin our formulation process with our “Never List”—more than 1500 questionable or harmful ingredients that we formulate without. In this way, we preemptively avoid the use of chemicals of high concern.

**Step 2: Screen Rigorously** — We go much further than a restricted substance list: We screen every potential ingredient using the best available data, and avoid ingredients associated with hazards such as cancer, developmental toxicity, and hormone disruption. This helps our company to avoid “regrettable substitution,” or replacing one undesirable chemical with another that might have the same concerns.

**Step 3: Learn Constantly** — The absence of data does not mean that a chemical is safe. We regularly review emerging data on ingredients and we have begun to commission new studies to better inform our company’s decisions and to build the collective knowledge base. We consult with scientists and thought leaders working to reduce exposure to toxic chemicals, and hope to inspire the development of safer, greener chemicals from the start.

**Step 4: Source Responsibly** — We choose the best available organic, natural, or synthetic ingredient options that meet our high performance and safety standards. Over 80% of the ingredients in our products are natural or plant-derived. We work to source ingredients from sustainable, non-GMO sources and believe in supporting the U.S. economy. We do not test products or ingredients on animals, nor do we ask others to do so.

**Step 5: Share Transparently** — Beautycounter is transparent about ingredients in our products, including preservatives, fragrances, and flavors. We disclose ingredients on product packaging, on our website, and our online Ingredient Glossary lists every ingredient’s source and function—not only “key ingredients”—as well as the products in which it is used.

Beautycounter strives to be “far better,” not “less bad.” This is what it will take to truly lead in corporate chemicals management. Our belief in continual progress and raising the bar on safety and transparency—all while delivering exceptional product performance and empowering women—is the foundation of our company.

*Mia Davis*
Head of Environment, Health & Safety

**BEAUTYCOUNTER**
The Chemical Footprint Project score was 41 points. Figure 2 shows the total score of each company sub-divided by the four key performance categories of Management Strategy, Chemical Inventory, Footprint Measurement, and Disclosure & Verification. Four companies scored above average for all four of the key performance categories. Nine additional companies scored at or above average in at least two of the four key performance categories. Of the 11 companies that had scores equal to or above 41 points, nine scored above average for Management Strategy, 10 scored above average for Chemical Inventory, eight scored above average for Footprint Measurement, and six scored above average for Disclosure & Verification.

The five companies selling formulated products averaged 61 points, while the 19 companies selling articles averaged 36 points. Companies selling formulated products have the advantage of knowing their products contain chemicals because they are legally required to list many of the chemicals on their product labels and they specify the chemicals in their formulations. Companies selling articles typically only know a few CoHCs in their products and they generally specify materials rather than full chemical formulations. Formulated product companies performed better on average than companies selling articles on every measure, from chemical risks (regulation, reputation, and redesign) to the key performance categories of Management Strategy, Chemical Inventory, Footprint Measurement, and Disclosure & Verification.

The four companies employing a Design for Health business strategy averaged 62 points, a significantly higher average score than the 37 points scored by the 20 companies using a Continuous Improvement business strategy. This is expected, given that these four companies integrate health and sustainability concerns into all facets of their business from the outset, including corporate policies, research and development, chemical and material evaluation and selection, marketing, and business strategy. Beautycounter’s approach to chemicals management (see side box) exemplifies the implementation of a Design for Health strategy.

Scores also varied by company size (note the caveat to these findings due to five of the large companies reporting data for divisions instead of the entire company). The nine large firms averaged 46 points, followed by the ten small companies that averaged 43 points. The four companies employing a Design for Health strategy, all small, elevated the average score of the small companies. The five medium companies averaged 30 points.

Of the four key performance categories, companies scored highest on Chemical Inventory, followed by Footprint Measurement, Management Strategy, and lastly, Disclosure & Verification.

Figure 3 delineates the percent of total possible points companies averaged for each performance category, with the dashed red line representing the average score (as percent of total possible points) for all 20 indicators. For example, for Footprint Measurement the 24 respondents scored 299 points out of a possible 720 points or 42% of total possible points. Figure 3 normalizes the scores because the total (possible points) was not the same for every key performance category.

The following sections delve into the details behind the average scores by key performance category. For a complete list of the 20 survey questions by key performance category see Appendix 2.
The five Management Strategy indicators (see side box) include the policies and strategies that companies implement to manage chemicals. Companies showing leadership in Management Strategy have comprehensive chemicals policies that avoid CoHCs and prefer safer alternatives, and integrate these policies into business strategy, job responsibilities, and public policy engagement. In the best case scenario, a leadership company will have chemicals management policies that cover its supply chain, manufacturing, products, and packaging. These policies will be public. A leadership company will determine safer substitutes based on a hazard assessment rather than relying solely on an authoritative list such as the European Union’s REACH Candidate List of Substances of Very High Concern. A leadership company will have board-level engagement in chemicals management, compensate senior leadership based on chemicals management, and set and report publicly on goals. In addition, the company will engage in external initiatives to promote safer chemicals, including public policies.

Overall performance on Management Strategy was relatively weak in comparison to the other key performance categories, with firms earning on average 7.4 out of a possible 20 points (or 37 percent of the total possible points). Figure 4 details the scores of each company for the five Management Strategy indicators. Scores ranged widely from one point to 16 points. Those at the upper end of the scale have chemicals policies and integrate them into their business strategies, while those at the lower end have yet to formalize practices into policies, set goals, and integrate policies into ongoing responsibilities.

Management Strategy performance among companies was generally similar regardless of company size, with large firms performing slightly better than small and medium firms. Interestingly, companies with Design for Health
strategies scored only somewhat better than companies with Continuous Improvement strategies. A key differentiator was product type, with firms that sell formulated products having nearly double the score compared to firms that sell articles. As formulated product companies face significant consumer demand for safer chemicals in their products and are more likely to have information on the chemicals in their formulations than companies that sell articles, it is not surprising that these companies are more advanced in developing formal policies and implementing them in their business strategies.

Figure 5 lists the average score (as the percent of total possible points) for each of the five Management Strategy indicators, and compares each indicator to the average score for all Management Strategy indicators (the red dashed line). Companies received the most points for having a restricted substances list (M1); followed by having goals (M3), a preference for safer alternatives policy (M2), and corporate incentives (M5); and the fewest points for policy engagement (M4).

The key findings for each of the five Management Strategy indicators are included below and grouped by corporate policies (M1 and M2), corporate integration and accountability (M3 and M5), and public policy engagement (M4). For further details on the responses by each indicator see Appendix 3.

Management Strategy: Corporate Policy Indicators (M1 and M2)
The two corporate policy indicators are M1 (policies to address CoHCs) and M2 (policies to prefer safer alternatives). For both policies, companies were more likely to address chemicals in products than chemicals in manufacturing, supply chains, and/or packaging (see Figure 6). Only four companies have comprehensive corporate policies that aim to avoid CoHCs in products, manufacturing, supply chains, and packaging (M1). And four companies (interestingly only two of which overlap with M1) have comprehensive corporate policies that specify a preference for safer alternatives in products, manufacturing, supply chains, and packaging (M2).

While the majority of companies have policies to address CoHCs, half or less are not making these policies public. For example, only 50 percent of the companies either with policies for CoHCs in products (M1) or with policies preferring safer alternatives (M2) make them available to the public.
Levi Strauss & Co. (LS&Co.) is committed to minimizing the environmental impacts associated with the manufacturing of our products. For years, LS&Co. has been working to advance responsible chemical management and drive innovation on sustainable chemistry within the apparel industry. We are committed to the goal of zero discharge of hazardous chemicals by 2020, as reflected in our commitment to and participation in the Joint Roadmap Toward Zero Discharge of Hazardous Chemicals (ZDHC). To make this commitment a reality, LS&Co. began work on its Screened Chemistry Program in 2013.

LS&Co.’s goal was to create a program for screening chemicals against human health and environmental toxicity hazard endpoints to identify best in class chemicals or better alternatives. The program leverages existing credible and transparent chemical hazard assessment methodologies, including the U.S. Environmental Protection Agency’s Safer Choice Program and GreenScreen® for Safer Chemicals, to identify and substitute best in class or better alternatives upfront during the design phase, removing hazardous chemicals, and making decisions on alternatives before chemicals enter the supply chain. We believe this approach enables us not only to move toward zero discharge of hazardous chemicals, but also to identify where further research and development on alternatives is needed, and to achieve greater transparency overall on chemicals within the apparel supply chain.

LS&Co.’s Screened Chemistry program allows us to engage with our suppliers to scrutinize both approved and restricted chemicals for use in garment finishing and raw materials processing. It is a continuous improvement approach that promotes innovation and increases awareness with suppliers of good chemical management. As the program matures and moves from pilot to full implementation, all LS&Co. suppliers will transition to using a preferred chemical list, which includes a list of all chemicals screened to date and their score. LS&Co. understands that systemic change across the industry is required and is working with other brands, garment manufacturers, the chemical industry, NGOs, and other stakeholders to achieve this goal. LS&Co. has shared its Screened Chemistry program with the other apparel brands and is encouraging its wide adoption.

LS&Co. is committed to working with our suppliers and others to identify better alternatives when it comes to chemicals. We believe that innovation in this realm, both on our own and together with our garment manufacturers and chemical suppliers, presents significant business opportunities and that the time for action is now.

Bart Sights
Vice President, Technical Innovation

LEVI STRAUSS & CO.
Management Strategy: Corporate Integration & Accountability Indicators (M3 and M5)
The Integration & Accountability indicators are M3—integration of policies into business strategy and M5—responsibilities and incentives for policy implementation. For indicator M3, 71 percent of companies have a process for setting goals for safer chemicals and measuring progress toward those goals, yet only 24 percent of the companies that set goals make them public.

From a senior management accountability standpoint (M5), the 29 percent of firms with board-level oversight or senior management compensation tied to chemicals management performed better overall than firms with no such accountability—all seven firms had average or above average overall scores. Together these seven firms account for over half of the respondents with average or above average overall scores: three are formulated product companies and four are companies making articles.

Management Strategy:
Public Policy Engagement Indicator (M4)
Authentic engagement in public policies to advance safer chemicals is a challenge for most companies, as reflected by the data collected for indicator M4. Fewer than half of the respondents engage in a public policy initiative that advances safer chemicals, including collecting data on chemical hazards (25 percent of companies), reducing the use of CoHCs (29 percent of companies), development and use of safer alternatives (25 percent of companies), and public disclosure of chemicals in products (21 percent of companies).

Examples of public policy activities for which companies scored points included: hosting briefings for politicians on the need for better regulations and testifying or providing comments to regulatory agencies. Only two firms (8 percent), engaged in all five policy elements included in the survey.

Opportunities for Improvement
Companies can improve their corporate chemical policies and strategies by:

- Establishing or refining policies for CoHCs (M1) and preferring safer alternatives (M2) and broadening these policies to address chemicals in manufacturing, supply chains, products, and packaging for both M1 and M2.
- Setting and measuring progress to goals (M3).
- Engaging senior management and/or the board of directors in chemicals management (M5).
- Being transparent about efforts in chemicals management, including policies on CoHCs and safer alternatives (M1 and M2); setting goals to avoid CoHCs (M3); and engaging in public policies to promote the use of safer chemicals (M4).

For specific examples of Management Strategy activities see the sidebar on Levi Strauss & Co.’s approach to chemicals management.
Chemical Inventory indicators include the information companies seek on chemicals in products and supply chains—ranging from CoHCs to all chemical ingredients in products. Companies showing leadership in Chemical Inventory prioritize the elimination of known CoHCs, seek to know 100 percent of the chemical substances in their products, and work with suppliers to collect that data and ensure its accuracy. In the best case scenario, a leadership company will know all of the chemical ingredients in its products and will engage regularly with suppliers, including conducting trainings and performing audits.

**Key Findings**

Overall company performance on Chemical Inventory was relatively strong in comparison to the other key performance categories, with firms earning on average 15 out of a possible 30 points (or 50 percent of the total possible points). Figure 7 details the total scores of each company for Chemical Inventory. Similar to Management Strategy, respondent scores varied widely, in this case, from zero to 28 points.

The Chemical Footprint Project distinguishes between legally restricted substances (RSLs) (I1) and beyond legally restricted substances (Beyond RSLs) (I2). A legally restricted substance is defined as a chemical that is restricted or banned in finished products by any country in the world. Beyond restricted substances are defined as hazardous chemicals identified by a company for management, reduction, elimination, or avoidance beyond legal requirements.

Companies with higher scores have RSLs and Beyond RSLs, actively engage suppliers, and create systems to manage chemicals data. Companies with lower scores are at the beginning of their journey to improve chemicals management and companies using natural materials scored lower as they do not track chemical use in their products.
while small companies averaged 16 points and medium companies averaged eight points. Companies with Design for Health strategies performed higher (averaging 23 points) than companies with Continuous Improvement Strategies (14 points).

Figure 8 lists the average score (as the percent of total possible points) for each of the six indicators, and compares each indicator to the average score (50 percent – the red dashed line) for all Chemical Inventory indicators. Companies received the most points for collecting information on legally restricted CoHCs (I1), followed by knowing chemical ingredients in products (I4), managing data on chemical ingredients in products, (I5), and collecting chemical information from suppliers (I3). Companies earned the fewest points for collecting information on beyond legally restricted substances (I2) along with ensuring supplier conformance to organizational policies (I6).

The key findings for each of the six Chemical Inventory indicators are included below and grouped by restricted substances lists (I1 and I2), chemical ingredients (I4 and I5), and suppliers (I3 and I6). For further details on the responses by each indicator see Appendix 4.

Restricted Substances List (RSL) Indicators (I1 and I2)
The average performance for RSL-related indicators was mixed, with the best performance on legally restricted substances (I1) where companies averaged 59 percent of possible points. Companies scored significantly lower for Beyond RSLs (I2), averaging 48 percent of possible points. Twenty companies either have an RSL or procedures that eliminate the need for an RSL. Of the companies with RSLs, most do not disclose their lists to the public: only three companies disclose their RSL (I1) and only four companies disclose their Beyond RSL (I2). Additionally, a few companies do not update their RSLs annually (see Appendix 4—Figure 1 for details).

Two-thirds of respondents (16 companies) review chemical hazard information beyond safety data sheets (SDSs) and/or engage with external stakeholders to identify additional CoHCs (I2). SDSs are a starting point for evaluating chemical hazards, but SDSs do not provide complete chemical inventories and a product’s SDS may not list all CoHCs in the product.

Chemical Ingredient Indicators (I4 and I5)
The most advanced companies are moving beyond tracking only CoHCs to collecting information on all chemicals in their products. With complete chemical ingredient information companies can be proactive and respond to new regulations and market demands by quickly checking databases to see if their products contain an emerging chemical of concern.

Nearly two-thirds of the companies collect chemical ingredient information for their products (I4). Of those 15 companies, 60 percent (nine companies) collect full chemical ingredient information for 99 percent or more of their products. Of these nine companies, three employ a Design for Health strategy and six employ a Continuous Improvement strategy; four are formulated product companies and five are companies making articles; four are small, one is medium, and four are large companies.

Almost two-thirds of the companies have a data system for chemical inventory (I5). Interestingly, not all the companies that collect ingredient information (I4) scored points for having a data system (I5) and vice versa, not all companies with data collection systems scored points for collecting ingredient information. Possible explanations for these anomalies may include: some companies use only natural materials and know what is in their products but do not collect
chemical ingredient information, while others may not invest in linking chemical ingredient data to hazard data on those chemicals.

**Supplier Indicators (I3 and I6)**

Indicator I3 addresses the information companies request or require of their suppliers. Overall, 83 percent (20) of the respondents request or require some chemical information from suppliers, ranging from RSLs to full chemical ingredient information. Fifty-eight percent (14) of the respondents require RSL information and 63 percent (15) of the respondents request or require full chemical ingredient information. Only 17 percent (4) of the companies do not request or require any type of chemical information from their suppliers. Interestingly five of the 19 companies with RSLs do not include RSL requirements in supplier contracts.

A challenge for any company is to ensure that suppliers comply with the company’s environmental, health, social, and governance requirements. Indicator I5 assesses how companies assure conformance to their policies. Two-thirds (16) of the companies perform at least one of the following activities: audit or train suppliers, test supplier products, or require suppliers to test their own products. Supplier audits (46 percent), routine testing of supplier products (42 percent), and training suppliers (38 percent) are the most common activities. One-third (8) of the companies do not engage their suppliers in any activity to determine conformance.

**Opportunities for Improvement**

Companies can improve their chemical knowledge and supplier conformance by:

- Creating a list of legally restricted substances (I1) to communicate to suppliers (or sell products that contain no legally restricted substances—although given the complexities of supply chains most companies need to have a list of legally restricted substances for their suppliers).
- Updating RSLs (I1) and Beyond RSLs (I2) at least annually because global regulations and lists of CoHCs are frequently updated by governments and other authoritative bodies.
- Informing investors and the public that they have an RSL and Beyond RSL.
- Including in supplier contracts (I3) requirements to comply with RSLs.
- Beginning to collect full chemical ingredient information (I4).
- Establishing a data system either in-house or with a third party to manage data on chemical ingredients in products (I5).
- Assuring supplier conformance to an RSL with audits and/or routine testing of products (I6).
The Footprint Measurement indicators assess the extent to which companies have baseline data on CoHCs in their products and track their progress to safer alternatives. Companies show leadership in Footprint Measurement by avoiding CoHCs by design or by collecting relevant data and reporting it. Companies employing a Design for Health strategy use safer chemicals and materials (e.g., natural fibers) by design and do not have CoHCs to report.

Companies employing a Continuous Improvement business strategy show leadership in Footprint Measurement by collecting data and reporting on their progress towards reducing the use of CoHCs. This requires companies to have an in-depth knowledge of chemicals in their products and supply chains, systems in place for tracking chemical ingredients in products, knowledge of those chemicals’ hazards, and data on annual sales of their products. Additionally, leadership companies employ robust methods to evaluate chemical hazards and identify safer alternatives.

Footprint measurement may be the most challenging component of the Chemical Footprint Project, yet once companies collect the necessary data, they will have the capacity to track their progress from CoHCs toward safer alternatives.

**Key Findings**

In relation to the other key performance categories, companies performed second best with the Footprint Measurement indicators. The average company score was 42 percent of total possible points. However, Footprint Measurement performance was relatively weak with the exception of one indicator, F4 (methods for assessing chemical hazards), and for companies that employ a Design for Health strategy. If the points received for indicator F4 (where companies averaged 75 percent of total possible points) are eliminated the average score for Footprint Measurement drops to 33 percent.

Company performance on the Footprint Measurement indicators, as detailed in Figure 9, varied far more than any other key performance category, from one point to a perfect score of 30 points. The four companies employing a Design for Health business strategy scored 25 to 30 points as by design their products do not contain intentionally added CoHCs. In contrast, companies using a Continuous Improvement business strategy averaged only nine points. Small
companies averaged 18 points (aided by the Design for Health companies), large companies ten points, and medium companies five points. Companies selling formulated products averaged 27 points while companies selling articles averaged nine points.

The key findings for each of the five Footprint Measurement indicators are included below and grouped by measurement indicators (F1, F2, and F3) and safer alternatives (F4 and F5). For further details on the responses by each indicator see Appendix 5.

Measurement Indicators (F1, F2, and F3)
The Chemical Footprint Project measurement indicators are F1-goals to reduce CoHCs in products, F2-baseline chemical footprint measurement, and F3-reductions in intentionally added CoHCs. On average, respondents scored 46 percent of possible points for F1, 27 percent of possible points for F2, and 24 percent of possible points for F3 (see Figure 10).

For F1, the majority of companies (67 percent) reported setting goals for reducing CoHCs (13 companies) or not using CoHCs (four companies), while 33 percent (eight) of the companies reported not setting goals related to reducing CoHCs. Far fewer companies have the capacity or have begun trying to measure their footprint (F2). Only three companies reported knowing the number of CoHCs in their products; of those, one company also reported knowing the mass of CoHCs in its products. With the four companies that have no intentionally added CoHCs in their products, a total of seven companies (33 percent) either know their CoHCs by number or mass or note that they do not use CoHCs. The remaining 71 percent (17) companies either do not know or did not report their use of CoHCs.

Measurement indicator F3 provides companies with the opportunity to report reductions in the use of CoHCs over the past two years. Six of the companies received points for F3, with two companies reporting reductions and four companies receiving points for not using CoHCs. Of the two reporting reductions, one company eliminated the use of one CoHC in its products. The remaining 75 percent of the companies report no reductions, with 16 of those noting that they do not have the necessary baseline data.

Safer Alternatives Indicators (F4 and F5)
On average, respondents scored 75 percent of possible points for F4 and 35 percent of possible points for F5. Companies scored 75 percent of the possible points for indicator F4, with 18 companies either using a tool (14) or asking their suppliers to perform the assessments (4). Six of the companies (25 percent) are not assessing the hazards of their chemicals. All of the six companies not assessing hazards sell articles and are evenly split across company size—two each for small, medium, and large companies.

Indicator F5 assesses the strategies companies use to encourage the use of safer alternatives. Overall 79 percent (19) of the companies use at least one of the approaches, such as asking suppliers to use their definition of safer alternative. Five of the companies (21 percent) are not taking any action to promote safer alternatives.
Opportunities for Improvement

Companies can improve their footprint measurement by:

- Specifying the avoidance of CoHCs in the product design and development process.
- Setting goals and reporting progress in reducing CoHCs.
- Systematically collecting data on CoHCs in products, specifically chemicals on the California Candidate Chemicals List (a requirement for indicator F2).
- Using the baseline data on CoHCs in products (F2) to document progress to safer chemicals (F3).
- Developing initiatives to engage suppliers in identifying safer alternatives (F5), including: developing a clear definition of safer alternatives and making it public, rewarding suppliers that use safer alternatives, and integrating safer alternatives criteria into product design.
The Disclosure & Verification indicators evaluate the sharing of information on chemicals in products with the public beyond legal requirements, disclosure of participation in the Chemical Footprint Project, and steps taken to verify answers to the Chemical Footprint Project survey. Companies can show leadership in Disclosure & Verification by being transparent and verifying responses.

Key Findings

In general, across all the key performance categories, public disclosure lags behind company practice. Many of the indicators in other key performance categories include response options that give points for disclosure. For example, indicator M1 gives points for disclosing a company’s policy to avoid CoHCs. Figure 11 compares the percent of companies that answered “yes” to an indicator (the “red” bar) to the percent of companies that answered “yes” and discloses their details publicly (the “blue” bar). From corporate policies (Management Strategy indicators M1, M2, and M3) to collecting data on CoHCs (Chemical Inventory indicators I1 and I2) to setting CoHC reduction goals (Footprint Measurement indicator F1) companies disclose less than they actually practice. This may reflect a variety of factors, including: incomplete knowledge of chemicals in products and supply chains especially for companies making articles; perception of or actual limited external demand for transparency on chemicals management; and/or an approach to report successes only when complete, rather than report on interim progress.
Overall, companies received the lowest percentage of possible points for Disclosure & Verification, receiving an average of 30 percent of available points. Company performance on the Disclosure & Verification indicators, as detailed in Figure 12, varied from zero to 15 out of 20 possible points. On average, companies scored six points for all four Disclosure & Verification indicators. Those selling formulated products averaged eight points and those employing a Design for Health strategy averaged nine points, while those selling articles averaged six points and those employing a Continuous Improvement strategy averaged six points. Small, medium, and large companies all scored an average of six points.

Figure 13 details the average score (as percent of total possible points) for each indicator and compares it to the average score of 29 percent (red dashed line) for all Disclosure & Verification indicators. Absent D2, for which respondents received 92 percent of possible points, the average score for Disclosure & Verification indicators D1, D3, and D4 is 14 percent of total possible points. The key findings for each of the four Disclosure & Verification indicators are included below and grouped by disclosure (D1, D2, and D3) and verification (D4). For further details on the responses by each indicator see Appendix 6.

**Disclosure Indicators (D1, D2, and D3)**

The Disclosure indicators measure the extent to which companies share information with the public, including: sharing chemical ingredient information (D1), participating in the Chemical Footprint Project survey (D2), and making Chemical Footprint Project answers available (D3). Disclosure is limited except for question D2 where 92 percent of the respondents answered “yes” (see side box). For D1, the average company scored 21 percent of total possible points. Four of the five formulated product companies and five of the 19 companies making articles received points for D1.

Three companies agreed to make their answers public and received points for D3. They are: Becton Dickinson & Co., Beautycounter, and KYOCERA. Their answers can be found at [www.chemicalfootprint.org](http://www.chemicalfootprint.org).
Opportunities for Improvement
Companies can improve disclosure and verification by:

- Publicly disclosing chemicals in products beyond regulatory requirements.
- Making their Chemical Footprint Project answers available to the public.
- Seeking third party verification of responses.

In Summary
A mix of business types—various sizes, product types, and business strategies—scored above average across all four key performance categories. While all of companies with Design for Health strategies scored much better than average, some companies with Continuous Improvement strategies also scored above average, demonstrating the multiple pathways companies can take to improving their chemicals management performance. Opportunities for improvement abound, including implementing more comprehensive corporate policies, engaging suppliers in all facets of chemical management work, measuring the reduction of CoHCs, and being more transparent about current activities.
Managing the Chemical Risks of Regulation, Reputation and Redesign
Managing the Chemical Risks of Regulation, Reputation, & Redesign

The Chemical Footprint Project results provide a window into how companies manage the “chemical risks”—the financial liabilities—of regulation, reputation, and redesign. To gain a preliminary understanding of how well companies manage these risks, we categorized the 20 indicators in the survey by risk type and assessed how companies performed.

Regulatory Risks: Current & Future Regulations
Seven indicators in the Chemical Footprint Project survey relate to how well companies manage for current and future regulatory risks. Two indicators in the survey directly relate to managing current regulatory risks, such as

Regulatory Risks

Current Regulations: Meeting Global Requirements
- 11. Managing legally restricted substances, including contracting requirements for suppliers
- 16. Assuring conformance with policies, especially among suppliers

Future Regulations: Anticipating Change
- M1. Creating a policy to avoid CoHCs beyond legal restrictions
- M4. Engaging in public policies to promote the use of safer alternatives
- I2. Developing a beyond restricted substances list (RSL)

Future Regulations: Acting Ahead of Government
- F1. Setting goals for reducing CoHCs & measuring progress
- F3. Measuring reduced use of CoHCs
TABLE 4 Regulatory Risks: Relevant Indicators and Average Score as Percent of Possible Points

<table>
<thead>
<tr>
<th>Regulatory Risks: Chemical Footprint Project Indicator</th>
<th>Average score as percent of possible points</th>
</tr>
</thead>
<tbody>
<tr>
<td>I1: Manage restricted substances</td>
<td>57 percent</td>
</tr>
<tr>
<td>M1: Have policy to avoid CoHCs</td>
<td>47 percent</td>
</tr>
<tr>
<td>I2: Manage beyond restricted substances</td>
<td>44 percent</td>
</tr>
<tr>
<td>F1: Set goals for reducing chemicals of high concern (CoHCs)</td>
<td>46 percent</td>
</tr>
<tr>
<td>I6: Assure supplier conformance</td>
<td>36 percent</td>
</tr>
<tr>
<td>M4: Engage in public policies</td>
<td>26 percent</td>
</tr>
<tr>
<td>F3: Reduce use of CoHCs</td>
<td>24 percent</td>
</tr>
<tr>
<td>All regulatory risk indicators</td>
<td>41 percent</td>
</tr>
</tbody>
</table>

Companies anticipate future chemical restrictions by creating corporate policies (M1) and restricted substances lists (I2) that go beyond current regulations. Chapter 2 notes examples of beyond legally restricted substances lists developed by governments and NGOs that identify known and potential CoHCs. Companies scored above average for M1 and I2.

Companies also “anticipate” regulations by actively engaging in their creation (M5). Prior research indicated that companies that use chemicals in manufacturing rarely support public policies that restrict CoHCs, require labeling of chemical ingredients, and/or prefer safer alternatives.36 Results from the survey confirmed this finding, with companies scoring far below...
average for proactive public policy engagement for M4.

Setting goals (F1) and measuring progress away from CoHCs (F3) are additional actions companies can take to reduce their regulatory risks. Companies struggled with answering F3, scoring far below average as compared with the other regulatory risk indicators. This is in part due to the fact that many companies lack the baseline data to evaluate their chemical footprint.

Opportunities for Improvement: Companies can readily reduce risks from current regulations—such as product recalls and non-compliance fines—by: tracking global chemical restrictions (I1), including RSLs in supplier contracts (I1), and auditing suppliers or routinely testing supplier parts for compliance (I6). Companies can also reduce risks from future regulations by creating corporate policies and RSLs that go beyond current regulations (M1 and I2).

Reputation Risks: Trust & Transparency

“It takes 20 years to build a reputation and five minutes to ruin it.” –Warren Buffett

Reputation risks are the potential costs of being exposed publicly with hazardous chemicals in products or supply chains. The perceptions of employees, suppliers, customers, and other stakeholders, including investors, the media, NGOs, and communities all affect corporate reputation. The revelation of hazardous chemicals in products and supply chains can quickly affect relationships with these constituencies. As highlighted in Chapter 2, hazardous chemicals pose potentially significant risks to brand reputation—witness the impacts on Sigg USA and Lumber Liquidators. Lower sales, reduced market valuation, reduced customer loyalty, and lawsuits are among the costs related to reputation risks.

Trust and transparency are important contributors to a positive corporate reputation. Companies generate trust through a variety of means including vision and leadership, social and environmental responsibility, products and services, workplace environment, and financial performance. Transparency, in turn, generates trust and enhances a company’s reputation. The Chemical Footprint Project indicators provide a window into reputation risk from chemicals by assessing the depth to which companies integrate chemicals management into their strategies and incentives, and are public about their efforts.

Companies that successfully embed safer chemicals into business strategy will engender the loyalty and trust of their key constituencies, especially employees, customers, and NGOs (M3). Indicator M5 is the only question in the

<table>
<thead>
<tr>
<th>Reputaion Risk Indicators: Chemical Footprint Project Indicator</th>
<th>Average score as percent of possible points</th>
</tr>
</thead>
<tbody>
<tr>
<td>D2: Disclose participation in Chemical Footprint Project (CFP)</td>
<td>92 percent</td>
</tr>
<tr>
<td>M3: Integrate policies into strategy</td>
<td>37 percent</td>
</tr>
<tr>
<td>M5: Develop incentives for policies</td>
<td>37 percent</td>
</tr>
<tr>
<td>F2: Measure baseline footprint</td>
<td>27 percent</td>
</tr>
<tr>
<td>D1: Disclose chemical ingredients</td>
<td>19 percent</td>
</tr>
<tr>
<td>D3: Disclose CFP responses</td>
<td>13 percent</td>
</tr>
<tr>
<td>D4: Verify CFP responses with 3rd party</td>
<td>4 percent</td>
</tr>
<tr>
<td>All reputation risk indicators</td>
<td>29 percent</td>
</tr>
</tbody>
</table>
The Chemical Footprint Project that directly addresses employee incentives and responsibilities—providing the most direct question related to workplace environment. Indicator D4, third party verification, addresses the concern by some stakeholders that self-assessments by companies cannot be trusted unless reviewed by a third party.

Companies scored below average (note average is 41 percent for all indicators) for all three indicators. For both M3 and M5 companies scored 37 percent and for D4 companies scored four percent of total possible points (see Table 5). Indicator D4 is a particular challenge because companies have yet to establish the necessary processes and procedures for verifying answers to the survey.

Transparency can reduce reputation risks for companies. Customers, NGOs, the media, and investors want greater transparency, and generally are more trusting of corporations that are more transparent. The Chemical Footprint Project encourages companies to be transparent about their chemicals management systems. Indicators in the survey either give partial credit (for example, M1) or full credit (D1, D2, or D3) for publicly disclosing answers. Indicators D1, D2, and D3 ask directly about disclosure, including whether a company discloses its chemical ingredients beyond what is legally required (D1), and whether the company discloses participation in the Chemical Footprint Project (D2) and its responses to the Chemical Footprint Project survey (D3).

Companies scored far above average for D2, 92 percent of possible points, with 22 of 24 companies disclosing participation in the Chemical Footprint Project. For D1 and D3, companies were far below average, scoring 19 percent of possible points for D1 and 13 percent of possible points for D3.

Trust & Transparency: Indicator F2—measure baseline chemical footprint—is a fundamental indicator because it relates to regulatory and redesign risks, as well as reputation risk. To quantitatively measure its chemical footprint a company must know the chemicals in its products and assess these chemicals for hazards, and must have a system for calculating the mass of CoHCs sold in products (unless the company employs a Design for Health strategy). A company that calculates its chemical footprint is likely to generate trust among NGOs and investors, and is prepared to be transparent concerning its enterprise-wide chemical footprint. Indicator F2 is relevant to Regulatory and Redesign Risks because companies with a low or zero chemical footprint will have low Regulatory and Redesign Risks as well; conversely, companies with a high chemical footprint might have high Regulatory and Redesign Risks. We include Indicator F2 in Reputation Risk as it encompasses the largest challenge, that of making the company’s chemical footprint public. Companies scored 27 percent of possible points for F2.

Companies scored far below average, 29 percent, for Reputation Risks, reflecting limited transparency related to chemicals management (see Table 5). For the Reputation Risk indicators, companies scored above average only for D2 (92 percent)—disclosing participation in the Chemical Footprint Project. The other Disclosure indicators, D1 (19 percent), D3 (13 percent), and D4 (4 percent) were among the lowest scoring indicators in the entire survey.

Opportunities for Improvement: Addressing Reputation Risk is challenging because many actions require senior management buy-in, including: public disclosure (D1, D2, D3), investing in verification (D4) and/or employees (M5), and
business strategy integration (M3). Beyond publicly disclosing participation in the Chemical Footprint Project (D2), an important step forward to build and improve reputation is to begin measuring a baseline chemical footprint (F2). As more investors and purchasers engage in the Chemical Footprint Project, disclosure and verification questions will likely become of greater interest (D1-D4).

**Redesign Risks: Chemical Knowledge & Safer Alternatives**

Redesign risks are the potential costs related to the continued use of hazardous chemicals in products and manufacturing processes, and not redesigning or reformulating products before regulations change or markets shift. Typically redesign is a positive opportunity for a company as substituting hazardous chemicals with safer alternatives can offer new business prospects. The Chemical Footprint Project indicators address redesign risks by evaluating the preparations companies take to move from CoHCs to safer alternatives.

Redesign risks emerge in two forms. First, redesign may occur too slowly. In the “too slow to redesign” risk scenario, a company does not select a safer alternative (either because it does not know a CoHC is in the product or because it deems the CoHC not worth removing). Over time regulations and/or markets shift, sometimes suddenly. The bankruptcy of Sigg AG USA noted in Chapter 2 provides an example of a company that knew its product contained a CoHC (BPA), did not remove it, and made the reputation mistake of not stating its product contained it. When markets shift and regulations change, companies with CoHCs then must make substitutions—they are at risk of lost sales and market share, higher costs of reformulation under crisis conditions, and regrettable substitutes.

Regrettable substitutes are a second form of redesign risks. A “regrettable substitute” is an alternative to a CoHC that is equally hazardous to, or more hazardous than, the existing CoHC. A typical scenario for selecting an alternative to a CoHCs in a product, especially in an article, is as follows. Government regulations or market forces drive a company to seek an alternative to a CoHC. The company evaluates alternative(s) based on price and performance requirements, and reviews Safety Data Sheets (SDSs) to learn if any major health and safety concerns exist with the alternative. Companies may also determine whether the alternative is on a list of regulated CoHCs.

In researching only SDSs or regulatory lists, companies risk making regrettable substitutions. Some examples of regrettable substitutes include: substituting Bisphenol S (BPS) for BPA in receipt papers; substituting 2,3-pentanedione for diacetyl in butter flavoring for microwavable popcorn; and substituting n-hexane for chlorofluorocarbons (CFCs) in brake cleaners. Hewlett-Packard estimates the cost of a chemical substitution to be at least $6 million.

Companies want to avoid making regrettable substitutions because of the high costs of substitution and the potential impacts to their reputation.

### TABLE 6 Redesign Risks: Relevant Indicators and Average Score

<table>
<thead>
<tr>
<th>Redesign Risks: Chemical Footprint Project Indicator</th>
<th>Average score as percent of possible points</th>
</tr>
</thead>
<tbody>
<tr>
<td>F4: Assess hazards</td>
<td>73 percent</td>
</tr>
<tr>
<td>I5: Manage chemical data</td>
<td>52 percent</td>
</tr>
<tr>
<td>I4: Know chemicals in products</td>
<td>52 percent</td>
</tr>
<tr>
<td>I3: Collect data from suppliers</td>
<td>48 percent</td>
</tr>
<tr>
<td>M2: Have policy for safer alternatives</td>
<td>36 percent</td>
</tr>
<tr>
<td>F5: Encourage safer alternatives</td>
<td>34 percent</td>
</tr>
<tr>
<td>All redesign risk indicators</td>
<td>52 percent</td>
</tr>
</tbody>
</table>

**Redesign Risks**

**Chemical Knowledge**

- I3. Collecting data from suppliers
- I4. Knowing chemical ingredients in products
- I5. Managing chemical ingredient information
- F4. Assessing the hazards of chemicals

**Safer Alternatives**

- M2. Including a preference in corporate policy for the use of safer alternatives
- F5. Encouraging the use of safer alternatives
The Chemical Footprint Project provides a window into how well companies prepare for redesign risks. Two types of indicators are important to anticipating redesign risks—those that assess a company's chemical knowledge and those that consider its investment in safer alternatives.

Companies ahead of the curve in avoiding CoHCs in their products embed into their organizations two important types of chemical knowledge: ingredient knowledge and hazard knowledge. “Chemical ingredient knowledge” reflects how much a company knows about the chemical substances in its products, including intentionally added substances and impurities that are CoHCs. Indicators I3, I4, and I5 assess a company’s chemical ingredient knowledge. Companies performed above average for all three of these indicators. Companies scored above average (41 percent of possible points for all indicators) for these three indicators (see Table 6). For indicator I3 (assess the scope of chemical ingredient information collected from suppliers, from RSL to all chemical ingredients) companies averaged 48 percent. For indicator I4 (percentage of products collecting chemical ingredient information beyond CoHCs) companies averaged 52 percent. For indicator I5 (managing chemical ingredient data) companies averaged 52 percent. Note that the Chemical Footprint Project gives credit for both internal and outsourced data management systems.

“Chemical hazard knowledge” reflects how much a company knows about the hazards of the chemical ingredients in its products. Some companies in-source hazard knowledge whereas other companies outsource it—the Chemical Footprint Project gives credit for either approach. For indicator F4 (using systems or tools to assess hazards) companies averaged 73 percent. Overall the responses to chemical knowledge-specific questions (beyond RSLs and CoHCs) indicate a positive pattern: respondent companies are taking steps to collect chemical ingredient information and assess the hazards of those ingredients.

Companies reduce their redesign risks by investing in safer alternatives. The Chemical Footprint Project assesses progress towards safer alternatives with two indicators. Indicator M2 assesses whether corporate policies specify a preference for safer alternatives and Indicator F5 assesses the practices a company implements to encourage safer alternatives internally as well as with suppliers. For both of these indicators, companies scored below average. For Indicator M2 companies averaged 36 percent and for Indicator F5 companies averaged 34 percent. Implementing F5 will require that companies have systems in place to assess and identify safer alternatives, and work with suppliers to implement alternatives that are safer and meet price and performance requirements.

Overall companies performed above average, scoring 52 percent of total potential points, for indicators relating to Redesign Risks. Companies performed better than average in knowing chemicals in products, managing chemical ingredient data, and assessing the hazards of those chemicals. Yet they performed below average in having a corporate policy to prefer safer alternatives and in encouraging suppliers to develop and use safer alternatives (see Table 6).

**Opportunities for Improvement:** Companies can reduce their redesign risks by investing in systems to improve their knowledge of chemical ingredients and hazards, and selecting safer alternatives. The pathway to increasing chemical knowledge is fairly straightforward and includes: a) engaging suppliers in providing chemical ingredient information beyond RSLs and CoHCs (I3); b) collecting ingredient information for all products (I4); and c) having a data system—either internal or external—for managing chemical ingredient information. An array of tools, resources, and service providers are available to support companies in reducing redesign risks by helping to increase chemical knowledge and identify safer alternatives. Compilations of tools and resources can be found in: Chemical Footprint Project Guidance document, BizNGO Guide to Safer Chemicals, and publications of the Green Chemistry and Commerce Council such as Measuring Progress to Safer Chemicals.

**Summary**

The Chemical Footprint Project indicators provide a new window into the chemical risks that companies face and a roadmap for mitigating...
these risks. Key findings and opportunities from this initial analysis include:

- **Regulatory risks:** managed but opportunities for improvement exist by adopting more wide-reaching chemicals policies and RSLs, and by working more closely with suppliers to ensure that CoHCs are not in products.
- **Reputation risks:** limited transparency among respondents means companies have ample opportunities for increasing engagement with their stakeholders through greater disclosure of their chemicals management practices.
- **Redesign risks:** mixed results with most respondents appearing to have good knowledge of the chemicals in their products, but needing to build and improve their programs for identifying and implementing safer alternatives.

 Companies ahead of the curve in avoiding CoHCs in their products embed into their organizations two important types of chemical knowledge: *ingredient knowledge and hazard knowledge.*

Reducing chemical risk is challenging and requires leadership, training and incentives for employees and suppliers, and investment in data management systems. While these changes may initially be resource-intensive, they can significantly increase customer trust and loyalty and open up new business opportunities, especially for companies selling directly to consumers.
Conclusions & Next Steps
Companies have many pathways to improve their performance in managing chemicals, reducing chemical risks, and capturing new market opportunities. Authentic success requires investing in systems to address all four key performance categories of Management Strategy, Chemical Inventory, Footprint Measurement, and Disclosure & Verification. The firms that participated in the 2015 Chemical Footprint Project survey are front-runners in chemicals management. With comparative data on performance and a clear set of improvement options identified, these pioneering companies are prepared to better manage their chemical risks and achieve the reputational and market benefits that come with improved chemicals management.

Our analysis reveals that many companies begin their efforts to systematically manage chemicals in their supply chains and products by creating an RSL and working with suppliers to ensure that these chemicals are not in products. Following this first step, many companies recognize that this action is not sufficient and work to become much more proactive in chemicals management. They may create a beyond legally restricted substance list that includes CoHCs not yet regulated, build a system to manage chemicals data, create a corporate chemicals policy and work to integrate it into their company’s business strategy, set goals for reducing the use of CoHCs, develop an approach for evaluating safer alternatives, and begin to publicly disclose information about chemicals in their products beyond what is legally required.

Specific opportunities for improvement include:
- **Establishing comprehensive chemicals policies.** The survey found that most companies do not have comprehensive corporate chemical policies—they focus primarily on chemical in products rather than on manufacturing, supply chains, and packaging.
- **Engaging senior management and/or boards of directors.** Companies with engaged senior management and/or board of directors scored better than average.
- **Anticipating future regulations** with lists of beyond legally restricted substances.
- **Knowing chemicals in products,** because this is foundational to measuring chemical footprints, anticipating future regulations, and avoiding redesign risks.
- **Learning from companies with “Design for Health” strategies,** which drive the leading edge by integrating safer and healthier chemicals into all elements of their business practice.
- **Measuring the chemical footprint of products** to establish a baseline data point for CoHC use by the company.
- **Increasing transparency,** The survey found that companies are much more active in chemicals management than they reveal publicly. Increasing transparency on chemicals management reduces exposure to reputation risks.

With increased transparency, comparability, and accountability for chemicals management, companies will shift strategy from mitigating chemicals risks to capturing new markets for safer and healthier products that benefit people, the environment, and the economy.
The Chemical Footprint Project survey is conducted annually. In 2016, we will work with the Chemical Footprint Project Signatories and reach out to additional brands and manufacturers to participate in the survey.

Chemical footprinting incentivizes corporate behavior to a future in which there is a high level of business awareness, attention, and action on hazardous chemicals commensurate with their health and environmental impacts. With increased accountability, comparability, and transparency for chemicals management, companies will shift strategy from a focus on mitigating chemical risks to developing new markets for safer and healthier products that benefit people, the environment, and the economy.

Join us!

The Chemical Footprint Project welcomes Signatories and Responders.

Signatories are investors and institutional purchasers who outreach to companies to participate in the survey. Responders are brands, manufacturers, and suppliers who participate in the annual Chemical Footprint Project survey.

www.chemicalfootprint.org
APPENDIX 1

Glossary of Terms

**Alternatives Assessment**
A process for identifying, comparing and selecting safer alternatives to chemicals of concern (including those in materials, processes or technologies) on the basis of their hazards, performance, and economic viability. A primary goal of Alternatives Assessment is to reduce risk to humans and the environment by identifying safer choices.

**Article**
An object which during production is given a special shape, surface or design which determines its function to a greater degree than its chemical composition.

**Beyond Restricted Substances List**
Hazardous chemicals identified by a company for management, reduction, elimination, or avoidance beyond legal requirements; that is, beyond legally restricted and reportable substances.

**Brand**
The originator of the final product and owner of any associated label/trademark. “Brand” includes a retailer’s private label/private brand products.

**Chemical** —
- **In product (Chemistry)**—Chemicals that are intended to be part of the finished product. An example is a durable water repellent chemical formulation that is applied to a textile. Another example is a chemical plasticizer added to a plastic product or component.
- **Management Process**—A task or function towards a defined goal or objective. The combination of related processes comprises a management system.
- **Management System**—The set of procedures an organization needs to follow in order to meet its objectives. A “chemicals management system” describes the set of procedures an organization needs to follow to meet its chemicals management objectives.
- **Manufacturer**—The company that manufactures the chemical product/substance.
- **Process (Chemistry)**—Any chemical or substance used in a process to make a product.
- **Product**—Synonymous with “chemical substance” and “chemical.”
- **Substance**—Synonymous with “chemical product” and “chemical.”
- **Supplier**—The company that sells the chemical product (may or may not be the manufacturer of the chemical; may be a formulator).
- **Safer**—A chemical that, due to its inherent chemical and physical properties, exhibits a lower propensity to persist in the environment, accumulate in organisms, and induce adverse effects in humans or animals.

**Chemical Footprint**
The total mass of chemicals of high concern (CoHCs) in products sold by a company, used in its manufacturing operations and by its suppliers, and contained in packaging.

**Chemical Footprinting**
The process of assessing progress toward the use of safer chemicals and away from chemicals of high concern to human health or the environment.

**Chemical Hazard Assessment**
The process of determining whether a chemical is capable of causing adverse effects to humans and the environment and the circumstances under which these effects may occur.
Chemical Ingredient Information

- For Formulated Products—A company knows 100% of the intentionally added substances by mass and any impurities that are both a CoHC and present at 100 parts per million (ppm) or higher in the formulation.
- For Articles—A company knows 95% of the intentionally added substances by mass and any impurities that are both a CoHC and present at 1000 ppm or higher in a homogeneous material.

Chemical of Concern
A chemical that is of moderate to high concern for ecotoxicity or human toxicity, but is not a Chemical of High Concern (CoHC).

Chemical of High Concern (CoHC)
A chemical that meets any of the following criteria:
- Carcinogenic, mutagenic, or toxic to reproduction (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 (for example, an endocrine disruptor or neurotoxicant); or
- A chemical whose breakdown products result in a CoHC that meets any of the above criteria.
- For the 2015 reporting period, the CFP specifies a CoHC as any chemical on the California Candidate Chemicals List. See: https://dtsc.ca.gov/SCP/ChemList.cfm.

Chemicals in Products
Refer to chemicals that are intended or anticipated to be part of the finished product. Examples include dyes, silicone finishes, screen printing, inks, labels, a durable water repellent chemical formulation, or a chemical plasticizer added to a plastic product or component.

Chemicals Policy
A statement of how a company manages chemicals in its materials, supply chains, products, and operations beyond what is required by regulation.

Disclosure
Synonymous with “public disclosure,” meaning that information is available to the general public through means such as print media, internet/web sites, in annual progress and sustainability reports, at investor and stakeholder meetings, or on packaging.

Final Product
Refers to a consumer-ready product (e.g., a shirt for sale to a consumer).

Formulated product
A preparation or mixture of chemical substances that can be gaseous, liquid, or solid (e.g., paints, liquid cleaning products, adhesives, coatings, cosmetics, detergents, dyes, inks, lubricants). Can be an intermediate product sold to another formulator, fabricator, or distributor or final product sold to a consumer or retailer (see also Chemical product, Chemical substance).

Generic Material Content
The general name of a material, such as steel, nylon fabric, adhesive, or type of plastic (e.g., polyethylene terephthalate (PET)). CAS# is not required.

GreenScreen® for Safer Chemicals
A method for comparative Chemical Hazard Assessment (CHA) that can be used for identifying chemicals of high concern and safer alternatives. The GreenScreen® tool considers 18 human and environmental health endpoints and can be used to evaluate the hazard of a single chemical or mixtures and polymeric materials. GreenScreen® uses a set of four benchmarks to screen out chemicals that are associated with adverse health and environmental impacts. Chemicals that do not pass through Benchmark 1 are deemed Chemicals of High Concern and should be avoided; chemicals at Benchmark 2 are categorized as usable, but efforts should be taken to find safer alternatives; Benchmark 3 chemicals are those with an improved environmental health and safety profile but could still be improved; and chemicals that pass through all four benchmarks are considered safer chemicals and are therefore preferred.
**GreenScreen® List Translator**
An abbreviated version of the full GreenScreen® method that can be automated. It is based on the hazard lists that inform the GreenScreen® method. The GreenScreen® List Translator maps authoritative and screening hazard lists, including GHS country classifications, to GreenScreen® hazard classifications. The GreenScreen® List Translator can be accessed through Healthy Building Network’s Pharos Chemical and Material Library, a fee-for-service database.

**Hazard (Chemical)**
Inherent property of a substance having the potential to cause adverse effects when an organism, system, or population is exposed, based on its chemical or physical characteristics. Hazard Assessment—The process of determining under what exposure conditions (e.g., substance amount, frequency and route of exposure) a substance can cause adverse effects in a living system. Toxicology studies are used to identify the potential hazards of a substance by a specific exposure route (e.g., oral, dermal, inhalation) and the dose (amount) of substance required to cause an adverse effect.

**Homogenous Material**
A material: 1) with a uniform composition throughout; or 2) that consists of a combination of materials, that cannot be disjointed or separated into different materials by mechanical actions such as unscrewing, cutting, crushing, grinding or abrasive processes. Examples of homogeneous materials include a plastic cover to a computer screen, a copper wire inside a cable, and the solder part of a solder joint.

**Impurity**
An unintended constituent present in a substance as manufactured. It may, for example, originate from the starting materials or be the result of secondary or incomplete reactions during the production process. While it is present in the final substance it was not intentionally added. In most cases impurities constitute less than 10% of the substance.

**Manufacturer**
An entity that makes goods through a process involving raw materials, components, or assemblies, typically with different operations divided among different workers. Commonly used interchangeably with producer.

**Mass**
The quantity of matter in a sample; the sum of the masses of the components of a sample is equal to the mass of the whole sample. The mass of a particular object is a fixed quantity.

**Preferred—**
- **Substances List**—A list of substances that have been assessed for their human and environmental health attributes, safety, environmental impacts and performance properties and recommended for use.
- **Chemical (Chemistry)**—a chemical or substance which has been assessed for its human and environmental health attributes, safety, environmental impacts and performance properties and recommended for use.

**Product—**
- **Chemistry**—The chemicals in a final product, their hazard characteristics, the potential for exposure to these chemicals and possible harm.
- **Final**—Refers to a consumer-ready product (e.g., a shirt for sale to a consumer).
- **Formulated**—Describes a chemical product that is a physical mixture of other chemical products.
- **Intermediate**—Refers to any item such as components and/or materials and/or substances used to make a final product. An intermediate product is not used by a consumer. An example of an intermediate product is dyed fabric made by a dye house and sold to a cut and sew factory to be made into a garment for a consumer.

**Public Disclosure**
Information that is available to the general public through means such as print media, Internet/websites, annual progress and sustainability reports, investor and stakeholder meetings, or product packaging.
**Public Policy**
A system of laws, regulatory measures, courses of action, and funding priorities concerning a given topic promulgated by a governmental entity or its representatives.

**REACH**
The European Union’s Regulation on Registration, Evaluation, Authorisation and Restriction of Chemicals that entered into force in June 2007. REACH makes industry responsible for assessing and managing the risks posed by chemicals and providing appropriate safety information to users.

**Restricted Substances List (RSL)**
Chemicals that are currently restricted or banned in finished products because of a regulation or law; that is, legally restricted substances.

**Safer Chemical**
A chemical that, due to its inherent chemical and physical properties, exhibits a lower propensity to persist in the environment, accumulate in organisms and induce adverse effects in humans or animals.

**Safer Alternative**
A chemical that due to its inherent chemical and physical properties exhibits a lower propensity to persist in the environment, accumulate in organisms, and induce adverse effects in humans or animals than chemicals in current use. In addition, the alternative must deliver the needed functional performance. A safer alternative may eliminate the need for the chemical through material change, product re-design, or product replacement; or by altering the functional demands for the product through changes in consumer demand, workplace organization, or product use.

**Supplier**
Any actor in the supply chain that provides intermediate and/or final products and/or supporting services to brands and/or retailers. This includes materials, assembly, and finished product suppliers.

**Toxic Substance**
Any chemical or mixture that may be harmful to the environment or to human health if inhaled, swallowed, or absorbed through the skin.
APPENDIX 2

Chemical Footprint Project Survey Questions by Key Performance Category

Management Strategy (M) (20 points)
- M1. Does your company have a chemicals policy that aims to avoid chemicals of high concern (CoHCs)? (4 points)
- M2. Does your company have a chemicals policy that in addition to avoiding chemicals of high concern includes a preference for the use of safer alternatives? (4 points)
- M3. Is reducing CoHCs and/or advancing safer alternatives beyond regulatory requirements integrated into your company’s business strategy? (4 points)
- M4. How does your company engage in the following types of public policy initiatives to promote the use of safer chemicals? (4 points)
- M5. What job responsibilities and incentives does your company have in place to ensure implementation of your chemicals policy? (4 points)

Chemical Inventory (I) (30 points)
- I1. What steps has your company taken to manage legally restricted CoHCs? (5 points)
- I2. What actions does your company take to develop a Beyond Restricted Substances List and determine their presence in your products? (5 points)
- I3. What chemical information does your company collect from suppliers? (5 points)
- I4. For what percentage of products sold by your company do you collect chemical ingredient information? (5 points)
- I5. What capabilities does your company have for managing data on chemical ingredients in its products? (5 points)
- I6. How does your company assure conformance with your chemicals policy? (5 points)

Footprint Measurement (F) (30 points)
- F1. Has your company set goals for reducing CoHCs in the products you sell and measured progress against these goals? (6 points)
- F2. How does your company measure its baseline chemical footprint? (6 points)
- F3. Over the past two years how much have intentionally added CoHCs in your products changed? (6 points)
- F4. How does your company assess the hazards of chemicals in its products beyond regulatory requirements? (6 points)
- F5. How does your company encourage the use of safer alternatives to CoHCs? (6 points)

Public Disclosure and Verification (D) (20 points)
- D1. What information beyond legal requirements does your company disclose about the chemical ingredients in its products? (8 points)
- D2. Does your company agree to publicly disclose that it participated in the Assessment Tool? (4 points)
- D3. Does your company agree to publicly disclose its responses to the questions in the Assessment Tool? (4 points)
- D4. Have any of your company’s responses to the questions in the Assessment Tool been verified by an independent, third party? (4 points)
APPENDIX 3

Management Strategy Indicators: Questions, Response Options, and Survey Results

This appendix includes for each of the five Management Strategy indicators: the question asked of respondents, the response options, and the survey results.

Indicator M1: Chemicals policy that aims to avoid CoHCs

M1. Does your company have a chemicals policy that aims to avoid chemicals of high concern (CoHCs)? (4 points)

Response Options
Check all that apply our company:

a. Products: has a chemicals policy on CoHCs that is applicable to our products
b. Products: if yes to “a,” our policy for products is publicly available on our website
c. Manufacturing: has manufacturing operations (if no, skip to “g”)
d. Manufacturing: if yes to “c,” has a chemicals policy on CoHCs that is applicable to our manufacturing operations
e. Manufacturing: if no to “c,” N/A—my company has no manufacturing operations
f. Manufacturing: if yes to ‘c,’ our chemicals policy for manufacturing is publicly available on our website
g. Supply Chains: has a chemicals policy on CoHCs applicable to our supply chains
h. Supply Chains: if yes to ‘g,’ our policy for supply chains is publicly available on our website
i. Packaging: has a chemicals policy on CoHCs applicable to our primary packaging
j. Packaging: if yes to ‘h,’ our policy for packaging is publicly available on our website
k. Has no established policy at this time.

APPENDIX 3 FIGURE 1 Indicator M1 Survey Results
Indicator M2: Chemicals policy that prefers safer alternatives

M2. Does your company have a chemicals policy that in addition to avoiding chemicals of high concern includes a preference for the use of safer alternatives? (4 points)

Response Options
a. Products: has a chemicals policy preferring safer alternatives that is applicable to our products
b. Products: if yes to “a,” our policy for products is publicly available on our website
c. Manufacturing: has a chemicals policy preferring safer alternatives that is applicable to our manufacturing operations
d. Manufacturing: Not applicable (We have no manufacturing operations.)
e. Manufacturing: if yes to ‘c,’ our policy for manufacturing is publicly available on our website
f. Supply Chains: has a chemicals policy preferring safer alternatives that is applicable to our supply chains
g. Supply Chains: if yes to ‘f,’ our policy for supply chains is publicly available on our website
h. Packaging: has a chemicals policy preferring safer alternatives that is applicable to our primary packaging
i. Packaging: if yes to ‘h,’ our policy for packaging is publicly available on our website
j. Has no established policy at this time.

APPENDIX 3 FIGURE 2  Indicator M2 Survey Results

<table>
<thead>
<tr>
<th></th>
<th>Policy Developed</th>
<th>Policy Publicly Available</th>
</tr>
</thead>
<tbody>
<tr>
<td>Products</td>
<td>16</td>
<td>8</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>13</td>
<td>8</td>
</tr>
<tr>
<td>Supply Chains</td>
<td>10</td>
<td>8</td>
</tr>
<tr>
<td>Primary Packaging</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>No established policy at this time</td>
<td>8</td>
<td>8</td>
</tr>
</tbody>
</table>

Number of Companies
**Indicator M3: Chemicals policy integration into business strategy**

M3. Is reducing CoHCs and/or advancing safer alternatives beyond regulatory requirements integrated into your company’s business strategy? (4 points)

**Response Options**
Check all that apply. Our company integrates reducing CoHCs and/or advancing safer alternatives beyond regulatory requirements into business strategy as follows:

a. has a process for setting goals/planning for safer chemicals use and measuring progress towards these goals that is part of our overall business strategy

b. reports to business customers on progress toward these goals

c. reports publicly on progress toward these goals

d. does not integrate at this time.

---

**APPENDIX 3 FIGURE 3**  
**Indicator M3 Survey Results**

- **Set and measure progress toward goals**: 17 companies
- **Report to business customers on goals**: 6 companies
- **Report publicly on goals**: 4 companies
- **Do not set or measure progress toward goals**: 7 companies
**Indicator M4: Engagement in public policy initiatives in support of safer chemistry**

**M4. How does your company engage in the following types of public policy initiatives to promote the use of safer chemicals? (4 points)**

**Response Options**
Check all that apply. Our company engages in initiatives that clearly promote the:

- a. collection and publication of data on the inherent hazard characteristics of chemicals
- b. prioritization of chemicals for reduction based on their inherent hazards
- c. reduction in the use of CoHCs
- d. development and use of safer alternatives
- e. public disclosure of CoHCs or other chemical ingredients in products
- f. none of the above

**APPENDIX 3 FIGURE 4 Indicator M4 Survey Results**

- Collection & publication of data on inherent hazard: 6
- Prioritization for reduction based on inherent hazard: 7
- Reduction in the use of CoHCs: 7
- Development and use of safer alternatives: 6
- Public disclosure of CoHCs/other chemical ingredients: 5
- None of the above: 13

Number of Companies

![Bar Chart](chart.png)
Indicator M5: Enterprise incentives for safer chemicals

M5. What job responsibilities and incentives does your company have in place to ensure implementation of your chemicals policy? (4 points)

Response Options
Check all that apply. Our company:

a. works with employees and/or labor representatives to implement our chemicals policy
b. provides financial and other incentives to employees for successful implementation of our chemicals policy
c. assigns a member of senior management responsibility for implementing our chemicals policy
d. links compensation of senior management to successful implementation of our chemicals policy
e. has Board level oversight and engagement in the implementation of our chemicals policy
f. has no established policy at this time

APPENDIX 3 FIGURE 5 Indicator M5 Survey Results

![Bar chart showing the distribution of responses for different incentives and responsibilities.]

- Work with employees and/or labor representatives: 15 companies
- Provide financial and other incentives to employees: 5 companies
- Member of senior management assigned responsibility: 2 companies
- Board level oversight and engagement: 7 companies
- None of the above: 4 companies
- Total number of companies: 16
APPENDIX 4

Chemical Inventory Indicators: Questions, Response Options, and Survey Results

This appendix includes for each of the six Chemical Inventory indicators: the question asked of respondents, the response options, and the survey results.

I1: Steps taken to manage Restricted Substances List (RSL)

I1. What steps has your company taken to manage legally restricted CoHCs? (5 points)

Response Options
Check all that apply in “a-e” to answer only “f.” Our company:

a. has a Restricted Substances List or equivalent
b. delineates requirements for complying with our Restricted Substances List in contracts with suppliers
c. trains suppliers about how to comply with our Restricted Substances List
d. updates our list at minimum on an annual basis
e. publicly discloses its Restricted Substances List
f. has default procedures that have eliminated the need for a Restricted Substances List

APPENDIX 4 FIGURE 1 Indicator I1 Survey Responses
I2: Beyond Restricted Substances List (RSL) and their presence in products

I2. What actions does your company take to develop a Beyond Restricted Substances List and determine their presence in your products? (5 points)

Response Options
Check all that apply. Our company:

a. reviews various sources of chemical hazard information to identify chemicals of concern beyond our Restricted Substances List
b. engages external stakeholders such as non-government organizations (NGOs), business customers and consumers in the development of our Beyond Restricted Substances List
c. collects data on chemicals in our products and evaluates against our Beyond Restricted Substances List or hazard criteria
d. updates our Beyond Restricted Substances List at a minimum on an annual basis
e. publicly discloses its Beyond Restricted Substances List
f. has no actions developed at this time

APPENDIX 4 FIGURE 2 Indicator I2 Survey Responses
I3: Chemical information collected from suppliers

I3. What chemical information does your company collect from suppliers? (5 points)
Response Options
Check all that apply. Our company:

a. requires suppliers to provide chemical information as delineated in our Restricted Substances List
b. requires suppliers to provide chemical information as delineated in our Beyond Restricted Substances List
c. requests suppliers to provide chemical ingredient information
d. requires suppliers to provide chemical ingredient information
e. has not addressed chemicals with supply partners at this time

APPENDIX 4 FIGURE 3 Indicator I3 Survey Responses

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Number of Companies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Require RSL information</td>
<td>14</td>
</tr>
<tr>
<td>Require Beyond RSL information</td>
<td>12</td>
</tr>
<tr>
<td>Request full chemical ingredient information</td>
<td>12</td>
</tr>
<tr>
<td>Require full chemical ingredient information</td>
<td>7</td>
</tr>
<tr>
<td>None of the above</td>
<td>4</td>
</tr>
</tbody>
</table>
I4: Scope of collecting chemical ingredient information in products

I4. For what percentage of products sold by your company do you collect chemical ingredient information? (5 points)

Response Options
I4a. Formulated products:
   i. N/A because your company does not sell formulated products
   ii. ___ if applicable, for what percentage of formulated products sold by your company is chemical ingredient information collected?

I4b. Articles:
   i. N/A because your company does not sell articles
   ii. ___ if applicable, for what percentage of articles sold by your company is chemical ingredient information collected?

APPENDIX 4 FIGURE 4 Indicator I4 Survey Responses
I5: Capabilities for managing chemical ingredients in products

I5. What capabilities does your company have for managing data on chemical ingredients in its products? (5 points)

Response Options
Check all that apply. Our company has:

a. an internal named point(s) of contact or outside contractor who communicates with suppliers concerning our chemical information requirements
b. a data system (either internal or third party) to manage an inventory of chemicals in products
c. a data system (either internal or third party) that links our inventory of chemicals in products to chemical hazard information
d. a data system for generating reports on chemical/material ingredient declarations to customers
e. no chemical management system in place at this time

APPENDIX 4 FIGURE 5 Indicator I5 Survey Responses
I6: Methods for assuring conformance with chemicals policy

I6. How does your company assure conformance with your chemicals policy? (5 points)

Response Options
Check all that apply. Our company:

a. has an audit program to verify supplier submitted data
b. requires suppliers to test parts in third-party approved labs and provide results
c. trains suppliers on how to comply with reporting requirements
d. routinely tests parts, components, or products to assure conformance with reporting requirements
e. does not have a chemical management system in place at this time

APPENDIX 4 FIGURE 6 I6 Survey Responses
APPENDIX 5

Footprint Measurement Indicators: Questions, Response Options, and Survey Results

This appendix includes for each of the five Footprint Measurement indicators: the question asked of respondents, the response options, and the survey results.

F1: Goals for reducing CoHCs and measuring progress against these goals

F1. Has your company set goals for reducing CoHCs in the products you sell and measured progress against these goals? (6 points)

Response Options

Check all that apply in “a-d” or answer only “e.” Our company:

a. has set goal(s) for reducing CoHCs by count or mass
b. publicly discloses the goal(s) (at minimum includes percentage reduction and time period)
c. publicly discloses specific CoHC(s) included in the goal(s)
d. publicly reports annually on progress toward meeting goals
e. has no CoHCs in our products and publicly discloses this information
f. has not established goals for reducing CoHCs in the products we sell

APPENDIX 5 FIGURE 1 Indicator F1 Survey Responses

Goal(s) set to reduce CoCHs by count or mass
Goal(s) publicly disclosed
Specific CoHCs included in goal(s) publicly disclosed
Progress toward goal(s) publicly reported annually
Products contain no CoHCs, publicly disclosed
None of the above

Number of Companies
F2 & F3: Measuring baseline chemical footprint and avoidance of CoHCs

The Chemical Footprint Project defines “chemical footprint” as the total mass of CoHCs in products sold by a company, used in its manufacturing operations and by its suppliers, and contained in packaging. For 2015, companies were asked to only measure CoHCs in products sold by the company (not CoHCs in manufacturing, supply chains, or packaging).

F2. How does your company measure its baseline chemical footprint? (6 points)

Response Options
Please provide answers for one of the following three options: 1) “a-b,” 2) “c,” or 3) “d.” Our company:

a. had intentionally added CoHCs in its products for the fiscal year (FY) 2014 = ___ CoHCs by count FY 2014 and/or
b. had intentionally added CoHCs in its products in FY 2014 = ___ CoHCs by mass (kg) for FY 2014, or
c. had intentionally added CoHCs in its products in FY 2014 and cannot calculate count or mass of CoHCs, or
d. had no intentionally added CoHCs in its products in FY 2014

___ if “a,” enter CoHCs by count FY 2014
___ if “b,” enter CoHCs by mass (kg) for FY 2014

APPENDIX 5 FIGURE 2  Indicator F2 Survey Responses

<table>
<thead>
<tr>
<th>Measure CoHCs by count</th>
<th>Measure CoHCs by mass</th>
<th>Measure CoHCs by count and mass</th>
<th>Products do not contain CoHCs</th>
<th>Do not establish chemical footprint baseline</th>
</tr>
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<tbody>
<tr>
<td>3</td>
<td>1</td>
<td>1</td>
<td>4</td>
<td>17</td>
</tr>
</tbody>
</table>

Number of Companies
F3. Over the past two years how much have intentionally added CoHCs in your products changed? (6 points)

Response Options
Provide answers for one of the following three options: 1) “a-b,” 2) “c,” or 3) “d.” Our company's:

a. count of intentionally added CoHCs in products: FY 2014 minus FY 2013 = ___ CoHCs by count and/or

b. mass of intentionally added CoHCs in products: FY 2014 minus FY 2013 = ____ CoHCs by mass (kg), or

c. products contain intentionally added CoHCs and we cannot calculate changes in CoHCs by count or mass for the reporting years of FY 2013 and FY 2014, or

d. products did not contain intentionally added CoHCs for FY 2013 and FY 2014

e. baselines have not been established at this time

_____ enter the count of intentionally added CoHCs in products: FY 2014 minus FY 2013 = 
__ CoHCs by count

_____ enter the mass of intentionally added CoHCs in products: FY 2014 minus FY 2013 = 
__ CoHCs by mass (kg)
**F4: Methods used to assess chemical hazards**

**F4. How does your company assess the hazards of chemicals in its products beyond regulatory requirements?** (6 points)

**Response Options**

Check all that apply. Our company:

a. uses a system or tool (internal or third party) to evaluate chemical hazards
b. asks suppliers to provide their evaluations of chemical hazards in the products they sell to us
c. has not completed assessments at this time

If a, identify the system or tool: ___________________

---

**APPENDIX 5 FIGURE 3 Indicator F3 Survey Responses**
F5: Methods used to encourage the use of safer alternatives to CoHCs

F5. How does your company encourage the use of safer alternatives to CoHCs? (6 points)

Response Options
Check all that apply in ‘a-f’ or answer only ‘g’ or ‘h.’

a. has developed a definition for a safer alternative that is consistent with the CFP definition, and we include such criteria in our business practices
b. communicates about and asks suppliers to use our company’s criteria for a safer alternative
c. rewards suppliers that use safer alternatives
d. has integrated our company’s criteria for a safer alternative into our product development process (e.g., through our design and safety processes)
e. has established a goal and is tracking progress to improve the profile of chemicals across our products, consistent with our company’s criteria for a safer alternative
f. publicly discloses our company’s definition for a safer alternative and our approach to integrating it into our business practices
g. does not have CoHCs in its products and consistently seeks to avoid any chemical of concern

APPENDIX 5 FIGURE 4  Indicator F4 Survey Responses

<table>
<thead>
<tr>
<th>Method</th>
<th>Number of Companies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Safer alternative definition consistent with CFP</td>
<td>2</td>
</tr>
<tr>
<td>Ask suppliers to use company’s criteria for safer alternative</td>
<td>3</td>
</tr>
<tr>
<td>Reward suppliers for use of safer alternatives</td>
<td>9</td>
</tr>
<tr>
<td>Integrate safer alternative criteria into product development</td>
<td>3</td>
</tr>
<tr>
<td>Set and track goals to improve chemical profile</td>
<td>8</td>
</tr>
<tr>
<td>Publicly disclose definition of safer alternative</td>
<td>1</td>
</tr>
<tr>
<td>No CoHCs in products</td>
<td>5</td>
</tr>
<tr>
<td>None of the above</td>
<td></td>
</tr>
</tbody>
</table>
APPENDIX 6

Disclosure & Verification Indicators: Questions, Response Options, and Survey Results

This appendix includes for each of the five Management Strategy indicators: the question asked of respondents, the response options, and the survey results.

D1: Disclosure of chemical ingredients in products beyond legal requirements

D1. (8 points)
D1a What information beyond legal requirements does your company disclose about the chemical ingredients in its products?

Response Options
i. chemical identity beyond legal requirements for a percentage of sales at the SKU level
ii. All intentionally added chemicals with the exception of fragrances (for which our company provides a separate list distinct from the SKU) for a percentage of sales at the SKU level
iii. All intentionally added chemicals including fragrances, flavors, and preservatives in products for a percentage of sales at the SKU level
NA. We do not sell formulated products.

i. Percentage of sales at the SKU level for which chemical identity beyond legal requirements is disclosed
ii. Percentage of sales at the SKU level for which chemical identity of all intentionally added chemicals with the exception of fragrances (for which our company provides a separate list distinct from the from the SKU) is disclosed
iii. Percentage of sales at the SKU level for which chemical identity of all intentionally added chemicals including fragrances, flavors, and preservatives in products is disclosed

D1b. Enter all the percentages that apply. For articles, our company publicly discloses:

i. generic material content for 95% by mass of chemicals for products in ___ percentage of sales at the SKU level
ii. Chemical identity for 95% by mass of chemicals for ____ percentage of sales at the SKU level
NA. We do not sell articles.

i. Percentage of sales at the SKU level for which generic material content for 95% by mass of chemicals in products is disclosed.
ii. Percentage of sales at the SKU level for which chemical identity for 95% by mass of chemicals in products is disclosed.
APPENDIX 6 FIGURE 1  Indicator D1 Survey Responses for Formulated Products

- Chemical identity beyond legal requirements: 2 companies
- All intentionally added chemicals except fragrances (provide separate list): 1 company
- All intentionally added chemicals: 3 companies

Number of Companies

APPENDIX 6 FIGURE 2  Indicator D1 Survey Responses for Articles

- Generic material content for 95% by mass of chemicals: 6 companies
- Chemical identity for 95% by mass of chemicals: 5 companies

Number of Companies
D2 & D3: Disclosing participation in the survey and responses to the survey

D2. Does your company agree to publicly disclose that it participated in the Assessment Tool? (4 points)

Response Options
Our company agrees to be publicly listed as having fully completed the Assessment Tool. Answer “a” or “b”:

a. Yes __
b. No __

Note answering “yes” only means that your company will be listed publicly as participating in and completing the Assessment Tool. Your answers and your score will not be shared publicly.

D3. Does your company agree to publicly disclose its responses to the questions in the Assessment Tool? (4 points)

Response Options
Our company agrees to share its answers publicly. Answer “a” or “b”:

a. Yes __
b. No __

Not answering “yes” only means that your answers will be listed publicly, but your score will not be shared publicly. You must answer “yes” to D2 to be able to answer “yes” to D3.
D4: Verification of survey responses by independent, third party

D4. Have any of your company’s responses to the questions in the Assessment Tool been verified by an independent, third party? (4 points)

Response Options
Check only one response option. Our company’s options have been verified by an independent third party for:

a. none to one of our response options
b. two to four of our response options
c. at least eight of our response options
d. at least twelve of our response options
e. all response options except D2, D3, and D4.

APPENDIX 6 FIGURE 5
Indicator D4 Survey Responses

0 Responses Verified
2–4 Responses Verified
Endnotes


3. See note 1 above.


5. By GICS code, the sectors are consumer durables & apparel (3020), household equipment & services (3510), capital & personal products (3030), healthcare durables & apparel (2520), household equipment & services (3510), consumer services (4520), and food, beverage & tobacco (2340).

6. “Candidate Chemicals List,” DTSC, accessed April 13, 2016, https://www.dtsc.ca.gov/SCP/CandidateChemicals.cfm. The Candidate Chemicals List is compiled from 23 authoritative lists identified in the State’s Safer Consumer Products Regulations: 15 of the lists are hazard trait-based and eight of the lists were developed based on exposure potential concerns.


13. For details, see http://www.saferstates.com/.


21. For details on the Chemical Footprint Project and how to participate, go to www.chemicalfootprint.org.


23. See note 1 above.

24. See note 1 above.

25. See note 1 above.

26. See note 2 above.

27. See note 1 above.


30. Note 25 companies submitted surveys, but data from 24 companies were included since one company did provide supporting documentation.
31. See note 6 above.
32. Hazardous chemicals that may be used in farming or raw material processing will be evaluated in a future iteration of the Chemical Footprint Project survey that includes a supply chain analysis.
33. For formulated products: a company knows 100 percent of the intentionally added substances by mass and any impurities that are both a CoHC and present at 100ppm or higher in the formulation. For articles: a company knows 95 percent of the intentionally added substances by mass and any impurities that are both a CoHC and present at 1000 ppm or higher in a homogeneous material.
34. Note that since companies have more than one response option they did not get full points for indicator I1 for having an RSL.
35. See note 20 above.
38. See note 1 above.
39. See note 2 above.
46. Currently the Chemical Footprint Project does not have an indicator for quantitatively measuring total use of safer alternatives. Instead the quantitative metrics measure use of CoHCs (F2) and reduction in CoHCs (F3).
47. Assessing hazards and selecting safer alternatives that avoid regrettable substitutes requires a robust framework such as that provided by GreenScreen® for Safer Chemicals.
48. See note 29 above.
49. See note 20 above.
our vision
The Chemical Footprint Project envisions a world where chemicals are healthy for people and the environment; where chemically related disease rates for cancer, infertility, asthma, and learning disabilities are low; and where consumer, government, and business demand drives the widespread supply of safer products.

our mission
The mission of the Chemical Footprint Project is to transform global chemical use by measuring and disclosing data on business progress to safer chemicals.

www.chemicalfootprint.org