

the chemical footprint project

2017 Annual Report





the chemical footprint project

2017 Annual Report

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

August 2, 2017 • Revised October 26, 2017

The mission of CFP is to transform global chemical use by measuring and disclosing data on business progress to safer chemicals. It provides a tool for benchmarking companies as they select safer alternatives and reduce their use of chemicals of high concern.

CFP was founded by the environmental non-profit Clean Production Action, the research institute The Lowell Center for Sustainable Production at the University of Massachusetts Lowell, and the sustainability consultancy Pure Strategies.

Clean Production Action is an environmental organization that advances safer alternatives to toxic chemicals through its GreenScreen® and BizNGO programs. GreenScreen is a chemical hazard assessment method and 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



Contents

v	<i>Acknowledgments</i>
vi	<i>About the Authors</i>
vii	<i>Signatories to the Chemical Footprint Project</i>
ix	<i>Foreword by Dr. Jan Amrit Poser, Chief Strategist & Head Sustainability, Bank J. Safra Sarasin Ltd.</i>
1	<i>Executive Summary</i>
	CHAPTER 1
10	<i>Chemical Footprinting is Moving to the Mainstream</i>
	CHAPTER 2
18	<i>Key Findings from the 2016 CFP Survey</i>
26	<i>2.1 Management Strategy: Policies & Strategies for Effective Organizations</i>
32	<i>2.2 Chemical Inventory: Specifications & Procedures for Knowing Chemicals in Products & Supply Chains</i>
37	<i>2.3 Footprint Measurement: Metrics for Management</i>
43	<i>2.4 Disclosure & Verification: Leadership with Transparency</i>
	CHAPTER 3
50	<i>Conclusions & Next Steps</i>
	APPENDIX 1
53	<i>Glossary of Terms</i>
	APPENDIX 2
57	<i>Methodology for Scoring & Data Analysis</i>



FIGURES

- 6 *Figure ES-1.* All CFP Pillars: Small and Large Companies Selling Formulated Products (average percent of points)
- 7 *Figure ES-2.* All CFP Pillars: Small, Medium, and Large Companies Selling Only Articles (average percent of points)
- 12 *Figure 1.* New Regulations Implemented Globally by Selected Topic and Year of Entry into Force
- 14 *Figure 2.* U.S. Funds Incorporating Environmental, Social, and Governance (ESG) Criteria from 1995–2016
- 21 *Figure 3.* All CFP Pillars: Each Pillar (average percent of points)
- 23 *Figure 4.* All CFP Pillars: Product Type and Company Size (average percent of points)
- 23 *Figure 5.* All CFP Pillars: Small and Large Companies Selling Formulated Products (average percent of points)
- 24 *Figure 6.* All CFP Pillars: Small, Medium, and Large Companies Selling Only Articles (average percent of points)
- 25 *Figure 7.* Across CFP Pillars: Transparency-Related Questions (percent of companies)
- 26 *Figure 8.* Management Strategy: Each Indicator (average percent of points)
- 27 *Figure 9.* Management Strategy: Chemicals of High Concern (CoHCs) (M1) and Safer Alternatives (M2) Indicators (percent of companies)
- 27 *Figure 10.* Management Strategy: External Engagement (Indicator M4) (percent of companies)
- 29 *Figure 11.* Management Strategy: Responsibilities & Incentives (Indicator M5) (percent of companies)
- 30 *Figure 12.* Management Strategy: All Indicators—Product Type and Company Size (average percent of points)
- 31 *Figure 13.* Management Strategy: Each Indicator—Small and Large Companies Selling Formulated Products (average percent of points)
- 31 *Figure 14.* Management Strategy: Each Indicator—Small, Medium, and Large Companies Selling Only Articles (average percent of points)
- 32 *Figure 15.* Chemical Inventory: Each Indicator (average percent of points)
- 33 *Figure 16.* Chemical Inventory: Supplier Requirements (Indicator I3) (percent of companies)
- 33 *Figure 17.* Chemical Inventory: Chemicals in Products (Indicator I4) (percent of companies)

FIGURES *continued*

- 33 *Figure 18.* Chemical Inventory: Supplier Conformance (Indicator I6)
(percent of companies)
- 34 *Figure 19.* Chemical Inventory: All Indicators—Product Type and Company Size
(average percent of points)
- 35 *Figure 20.* Chemical Inventory: Each Indicator—Small and Large Companies
Selling Formulated Products (average percent of points)
- 36 *Figure 21.* Chemical Inventory: Each Indicator—Small, Medium, and Large
Companies Selling Only Articles (average percent of points)
- 37 *Figure 22.* Footprint Measurement: Each Indicator (average percent of points)
- 39 *Figure 23.* Footprint Measurement: Safer Alternatives (Indicator F5)
(percent of companies)
- 40 *Figure 24.* Footprint Measurement: All Indicators—Product Type and Company
Size (average percent of points)
- 41 *Figure 25.* Footprint Measurement: Each Indicator—Small and Large Companies
Selling Formulated Products (average percent of points)
- 42 *Figure 26.* Footprint Measurement: Each Indicator—Small, Medium, and Large
Companies Selling only Articles (average percent of points)
- 43 *Figure 27.* Disclosure & Verification: Each Indicator (average percent of points)
- 44 *Figure 28.* Disclosure & Verification: Levels of Transparency in CFP Participation
- 47 *Figure 29.* Disclosure & Verification: All Indicators—Product Type and Company
Size (average percent of points)
- 47 *Figure 30.* Disclosure & Verification: Each Indicator—Small and Large Companies
Selling Formulated Products (average percent of points)
- 49 *Figure 31.* Disclosure & Verification: Each Indicator—Small, Medium, and Large
Companies Selling Only Articles (average percent of points)

TABLES

- 15 *Table 1.* Comparing the Sustainability Accounting Standards Board's (SASB)
Accounting Metrics to the Chemical Footprint Project's (CFP) Indicators
- 22 *Table 2.* All CFP Pillars: Small, Medium, and Large Size Companies (average score)

Acknowledgments

The Chemical Footprint Project (CFP) 2017 Annual Report would not be possible without the intrepid efforts of a broad network of investors, manufacturers, retailers, purchasers, non-governmental organizations, and governments committed to the use of chemicals that are healthy and safe for people and the planet.

We thank the CFP Steering Committee for its support, wisdom, and engagement. With its strategic guidance we embarked on a journey to establish chemical footprinting as common practice in commerce.

We appreciate the support of the Investors Ad Hoc Committee, which includes Danielle Jezienicki, Larisa Ruoff, Holly Testa, and Mike Lombardo, in addition to several CFP Steering Committee members. We value the support of Sara Cederberg, formerly of the U.S. Green Building Council, for serving on the CFP Steering Committee.

We are grateful to the members of the BizNGO Chemicals Work Group who helped shape the CFP Survey and Guidance documents. In particular, we are thankful to Boma Brown-West of the Environmental Defense Fund, Jennifer Reece of HP Inc., and Antonio Quiñones-Rivera and Nicole Koharik of GOJO Industries for their insights to chemical footprinting.

Thank you to our financial supporters who provide the foundation for this project, 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.

We take responsibility for all errors, oversights, and misrepresentations, and look forward to working with all interested parties on the 2018 annual report.

— Mark S. Rossi, Cheri Peele, Sally Edwards, and Tim Greiner

DESIGN
David Gerratt
NonprofitDesign.com

ILLUSTRATION
Monty Lewis
lewisarts.com

PHOTOGRAPHY
© Thinkstockphoto



Chemical Footprint Project Steering Committee

Constantina Bichta
Boston Common Asset Management

Sonja Haider
ChemSec

**Elise Nagowski &
Mary Ellen Leciejewski**
Dignity Health

Sarah Vogel
Environmental Defense Fund

Richard Liroff
Investor Environmental Health Network

Vanessa Lochner
Kaiser Permanente

Roger McFadden
McFadden and Associates, LLC

Monica Nakielski
Partners HealthCare

Mark Buckley
Staples, Inc.

Greg Downing
Target Corporation

Susan Baker & Jeremy Cote
Trillium Asset Management, LLC

Dr. Ronald Hart & Anne Robertson
Independent Advisors

About the Authors



Mark S. Rossi, PhD

Executive Director, Clean Production Action

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.



Cheri Peele, MCP

Senior Research Associate, Clean Production Action

Cheri brings over 15 years of environmental policy experience, working closely with governments, non-profits, and businesses. Prior to working at Clean Production Action, she consulted on chemicals policy and product stewardship. Clients included Lowell Center for Sustainable Production and King County. As a Senior Project Manager for TechLaw, she was a member of the team that established Northwest Green Chemistry. Prior to her work as a consultant, Cheri worked for the states of Massachusetts and Washington. Cheri received her Bachelor of Science (BS) from Cornell University and a Master in City Planning (MCP) with an emphasis on environmental policy from MIT.



Sally Edwards, ScD

Senior Research Associate,

Lowell Center for Sustainable Production at the University of Massachusetts Lowell

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 is a co-founder of the Chemical Footprint Project and works actively with the Green Chemistry & Commerce Council to advance the use of green chemistry in product design and development. Sally holds a 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.



Tim Greiner, MSM, MCP

Co-Founder and Managing Director, Pure Strategies

Tim specializes in building environmental and social integrity into products, brands, and businesses. He consults with manufacturers, socially responsible businesses, and environmental advocacy groups. Tim is building sustainability into corporate and brand strategy. Current and former clients include Seventh Generation, The North Face, Timberland, Stonyfield Farm, US EPA, NRDC, Walmart, Millipore, and Dell. Tim holds a BS in Materials Science Engineering from Rensselaer Polytechnic Institute and an MCP and Master in Science Management (MSM) from MIT. Prior to co-founding Pure Strategies he worked as a Process Engineer for Fairchild Semiconductor and Project Director and Chief Engineer for the Massachusetts Office of Technical Assistance.



Signatories to the Chemical Footprint Project

CFP Signatories are investors, retailers, health care organizations, governments, and NGOs that encourage manufacturers and brands to participate in the CFP Survey. CFP Signatories represent over \$2.3 trillion in assets under management and more than \$600 billion in purchasing power.

Signatories agree to:

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

Adrian Dominican Sisters
 Advocate Health Care
 Anne Arundel Medical Group
 Arjuna Capital
 As You Sow Foundation
 Australian Ethical Investment
 Aviva Investors
 Bank J. Safra Sarasin Ltd.
 BNP Paribas Investment
 Partners
 Boston Common Asset
 Management
 Calvert Investments
 Carnegie Investment Counsel
 ChemSec
 Christopher Reynolds
 Foundation
 CVS Health
 Daughters of Charity,
 Province of St. Louise
 Dignity Health
 Domini Impact Investments
 Dominican Sisters of Hope
 Edward-Elmhurst Healthcare
 Environmental Defense Fund
 Everence Financial
 Fairview Health Services
 First Affirmative Financial
 Network

Geisinger Health System
 Green Century Capital
 Management
 Hackensack University
 Medical Center
 Harrington Investments
 Impax Asset Management
 Inova Health Systems
 Investor Environmental
 Health Network
 Investor Voice
 Kaiser Permanente
 Legal & General Investment
 Management
 Maryknoll Sisters
 Mercy Health
 Mercy Investment Services
 Miller/Howard Investments
 Natural Investments
 Newground Social Investment
 NorthStar Asset Management
 Northwest Coalition for
 Responsible Investment
 Parnassus Investments
 Pax World Funds
 Partners Healthcare
 Premier, Inc.
 Rhode Island Treasury
 San Francisco Department
 of Environment

Sisters of St. Francis
 of Philadelphia
 Sonen Capital
 St. Joseph Health
 Staples, Inc.
 The Rose Foundation
 for Communities and
 the Environment
 The Sustainability Group
 of Loring, Wolcott and
 Coolidge
 Trillium Asset Management
 Trinity Health
 University of Cantabria
 University Hospitals
 Ursuline Sisters of Tildonk
 Vizient, Inc.
 Walden Asset Management
 Wal-Mart Stores, Inc.
 WHEB Asset Management
 Zero Discharge of Hazardous
 Chemicals (ZDHC)
 Zevin Asset Management



Foreword

By Dr. Jan Amrit Poser

Chief Strategist & Head Sustainability, Bank J. Safra Sarasin Ltd.

Hazardous chemicals are increasingly present in our daily lives and create major health and environmental risks. As understanding of such risks spreads, momentum around chemical safety rises and the material implications for companies become clear. For investors, hazardous chemicals represent “the new carbon.” Similar to greenhouse gas emissions, the investment community needs to grasp the implications of this evolution in chemical knowledge and action to fulfill our fiduciary duty and contribute to a more sustainable future.

At Bank J. Safra Sarasin, the assessment of chemical safety, exposure, and management is integral to a company’s sustainability rating. As a result, we avoid companies carrying major business and operational risks as well as negative impacts on human health and the environment. On the other hand, companies fostering change and providing alternatives to substances of very high concern (SVHCs) or developing relevant chemicals to address environmental challenges are likely to benefit from strong business opportunities and are being identified along the investment process.

The four pillars of the Chemical Footprint Project (CFP) Survey—Management Strategy, Chemical Inventory, Footprint Measurement, and Disclosure & Verification—are essential to assessing good chemicals management and governance practices. That is why Bank J. Safra Sarasin Ltd. supports CFP and strongly encourages all companies to participate in the survey.

By sharing their plans and achievements on the path to safer chemicals, companies can demonstrate leadership and enter into a positive dynamic of understanding and progress with investors. No company is perfect, but those that do not disclose their answers leave the door opened to doubts and speculations.

CFP results notably demonstrate how senior executive and board level engagement matters to managing the Regulatory, Reputational, and Redesign Risks of hazardous chemicals. This is essential in the context of regulations such as REACH in the European Union, which are the starting, not the ending, point for chemicals management. Investors worldwide have come to understand the financial risks around chemical hazard and are sending a signal to companies: reduction in use of hazardous chemicals is a priority.

By fostering and measuring corporate progress toward safer chemicals, CFP enables companies and investors to collaborate towards a low-hazard and circular materials economy.

We therefore invite you all to join us in the journey to ensuring that the chemicals in, on, and around us are safe and healthy for people and the planet.



J. SAFRA SARASIN



Sustainable Swiss Private Banking since 1841



Executive Summary

Executive Summary

Momentum toward chemical safety is rising and the financial implications of mismanagement are becoming clear. The human health and environmental drivers—as well as the social, technological, economic, and political drivers—for businesses to reduce their chemical footprints are rapidly increasing.

Witness the global Sustainable Development Goals (SDGs), which delineate the importance of reducing and managing hazardous chemicals to meet the global goals of ensuring healthy lives, ensuring the availability of clean water, and ensuring sustainable consumption and production patterns (see box).¹ The SDGs target hazardous chemicals because of their significant contributions to mental, behavioral, and neurological disorders; cancer; asthma; diabetes; and many other adverse health effects. A recent study of the disease and dysfunction costs of exposure to endocrine disrupting chemicals like Bisphenol A (BPA) estimated the costs to be €163 billion annually in the European Union alone.²

Global regulations for chemicals management are increasing faster than for any other environmental issue, including climate change.³ The current suboptimal management of hazardous chemicals creates ever more frequent and larger

United Nations' Sustainable Development Goals (SDGs) and Chemical-Related Indicators

- **Goal 3. Ensure healthy lives and promote well-being for all at all ages**—including by Indicator 3.9 substantially reducing the number of deaths and illnesses from hazardous chemicals
- **Goal 6. Ensure availability and sustainable management of water and sanitation for all by improving water quality**—including by Indicator 6.3 reducing pollution, eliminating dumping and minimizing release of hazardous chemicals
- **Goal 12. Ensure sustainable consumption and production patterns**—including by Indicator 12.4 achieving the environmentally sound management of chemicals

costs to businesses from regulatory,⁴ reputation,⁵ and redesign⁶ risks.

Socially, public interest and pressure to avoid hazardous chemicals in products is rising rapidly across the globe. Technologically, the capacity for manufacturers to make safer products of equal performance and price is growing rapidly. Economically, corporations carry significant liabilities with hazardous chemicals in their products and supply chains. Politically, the regulatory environment for chemicals in products is becoming more complex.

CFP Signatories, representing over \$2.3 trillion in assets under management and over \$600 billion in purchasing power, are engaging corporations in CFP.

Who We Are

The Chemical Footprint Project (CFP) is an initiative of investors, retailers, government agencies, non-governmental organizations (NGOs), and health care organizations that aspire to support healthy lives, clean water and air, and sustainable consumption and production patterns through the effective management of chemicals in products and supply chains. CFP

Signatories, representing over \$2.3 trillion in assets under management and over \$600 billion in purchasing power, are engaging corporations in CFP. As with carbon footprint reduction, the participants in CFP recognize that a global transition to a reduced chemical footprint is necessary. CFP gives Signatories an invaluable tool to discern which firms bear the highest chemical risk and which are best positioned to capture new markets with safer products.

The four pillars of CFP “are essential to assessing good chemicals management and governance practices. That is why Bank J. Safra Sarasin Ltd. supports CFP and strongly encourages all companies to participate in the survey.”

— Dr. Jan Amrit Poser of Bank J. Safra Sarasin Ltd.

Companies cannot manage what they don’t measure. A lack of a common sustainability metric for chemical management presents significant risks to corporations. Tracking chemical inputs and measuring progress to safer chemicals is becoming an important metric in corporate reporting standards such as those developed by the Sustainability Accounting Standards Board (SASB).

Our annual CFP Survey and Report provide a clear map for benchmarking corporate progress away from hazardous chemicals to safer alternatives. The four pillars of CFP—Management Strategy, Chemical Inventory, Footprint Measurement, and Disclosure & Verification—enable participating companies to benchmark their progress internally and externally, and empower investors and purchasers to evaluate and hold companies accountable.

Value

Brands face significant hidden liabilities with chemicals of high concern (CoHCs) to human health and the environment in their products.

Costs from these liabilities can run to the tens or hundreds of millions of dollars, tarnish reputations, and result in loss of market share and valuation. Until now, investors and purchasers had insufficient information to differentiate companies on their overall chemicals management approaches—thereby hiding the potential impacts of chemical risks on corporate performance.

INVESTORS

Hazardous chemicals present regulatory, reputation, and redesign risks to companies—risks for which investors have no common metric for evaluation. The CFP Survey directly addresses these risks by gathering data on: where companies stand in addressing current and future regulatory risks; the steps companies take to grow and maintain trust and be transparent about their chemical management practices; and what companies know about chemicals in their products and supply chains and the actions they take to use safer alternatives to hazardous chemicals.

As Dr. Jan Amrit Poser of the Switzerland-headquartered Bank J. Safra Sarasin Ltd., a leading sustainable private bank, highlights in the Foreword to this report, “The four pillars of the Chemical Footprint Project (CFP) Survey—Management Strategy, Chemical Inventory, Footprint Measurement, and Disclosure & Verification—are essential to assessing good chemicals management and governance practices. That is why Bank J. Safra Sarasin Ltd. supports CFP and strongly encourages all companies to participate in the survey.” CFP aligns investors with companies to advance changes in chemicals management that will be healthy for people and the planet and advances chemical-related metrics that matter to investors, including SASB’s standards and the global SDGs.

PURCHASERS

Before the advent of CFP, businesses, health care organizations, and government agencies lacked a common third-party standard for evaluating whether suppliers systematically manage their chemical risks and if they have a plan for continuous improvement to safer chemicals use. CFP provides large purchasers with data that readily enable comparisons of suppliers on their



corporate-wide chemical footprints. The CFP Survey empowers purchasers to request chemical footprint data from suppliers and enables purchasers to recognize and reward suppliers for performance.

CFP aligns with the mission and values of many organizations. Health care providers, for example, see CFP as aligned with their mission to protect the health and wellbeing of their patients, workers, and communities. Similarly, many retailers recognize their role in protecting the health of their customers and are working to ensure safer chemicals in products. These retailers see CFP as supporting these efforts.

Purchaser Signatories—CVS Health, Kaiser Permanente, Dignity Health, Advocate Healthcare, Partners Healthcare, Vizient, and others—are engaging their suppliers in the CFP Survey. Dignity Health, the fifth largest health care system in the U.S., highlighted in its annual sustainability report that they “advanced CFP by requesting that 18 of our leading suppliers participate in the first annual business survey. Our goal was to create a quantitative framework and set a new standard for evaluating companies on policies, programs, and practices for managing chemicals.”⁷

Dignity Health “advanced CFP by requesting that 18 of our leading suppliers participate in the first annual business survey. Our goal was to create a quantitative framework and set a new standard for evaluating companies on policies, programs, and practices for managing chemicals.”

BRANDS AND MANUFACTURERS

Companies report that participating in the Survey brings unanticipated benefits to their organization through productive conversations across their organizations, actionable metrics to inform goals and priorities, increased customer and supplier engagement, and new opportunities to lead and learn. The CFP Survey supports brands and manufacturers in their efforts to reduce the regulatory, reputation, and redesign risks associated with hazardous chemicals and to communicate those efforts publicly. Prior to CFP, companies lacked the means to publicly demonstrate their

Participating companies in the 2016 CFP Survey had annual revenues over \$670 billion.

overall chemicals management performance using an independent, third-party tool. With CFP, brands and manufacturers have a common language for communicating to investors and large customers their progress on their journey to safer chemicals.

Findings

The results from the 2016 CFP Survey reveal how 24 companies manage chemicals in their products and supply chains. They provide a snapshot of chemicals management policies and practices

beyond regulatory compliance across a diverse set of businesses.

The CFP Survey evaluates companies and their chemicals management policies and practices based on four key pillars:

- **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 to human health and the environment (CoHCs) in products and their tracking of progress to safer alternatives
- **Disclosure & Verification**—the sharing of information on chemicals in products with the public, disclosure of scores and responses to the CFP Survey, and steps taken to verify responses to the Survey



Characteristics of Companies Participating in 2016 CFP Survey

Sectors

- Capital Goods
- Commercial & Professional Services
- Consumer Durables & Apparel
- Consumer Services
- Household Personal Products
- Health Care Equipment & Services
- Materials
- Technology Hardware & Equipment

Product Types

- Articles
- Formulated Products

Revenue

- From < \$500M to > \$400B

Ownership

- Privately Held
- Formulated Products

Chemical Footprinting is Moving to the Mainstream

The diversity of companies participating in the CFP Survey highlights the relevance and value of chemical footprinting across the business community. Companies participating in the 2016 CFP Survey have annual revenues over \$670 billion and market cap valuations over \$730 billion. They sell formulated products and articles. They range in size from small national brands to large multinational corporations. Their products include apparel and footwear, building products and furnishings, household and personal care products, electronics, toys, medical devices, and packaging (see box, left).

Of the 24 companies that participated in the 2016 Survey:

- 22 agreed to be listed publicly (see box, p. 5),
- three agreed to list their responses and score on the CFP website,
- two agreed to list their responses on the CFP website, and
- 11 participated in both the 2015 and 2016 Surveys, and
- two completed the Survey for a division of their company, rather than the entire company.

Companies demonstrate leadership by participating in the CFP Survey. They open themselves to evaluating and benchmarking their chemicals management practices to a rigorous third-party standard. These companies recognize that sound chemicals management is a journey that requires continuous improvement, and they now have a clear baseline to measure and publicly report on their progress.

FOR THE FIRST TIME EVER, COMPANIES ARE QUANTITATIVELY MEASURING AND REPORTING THEIR CHEMICAL FOOTPRINT

Companies participating in the 2016 Survey are breaking new ground by demonstrating how to calculate an organization-wide chemical footprint. In the 2016 CFP Survey, 42% of participating companies calculated their chemical footprints. Firms were given the option to calculate their footprint based on two lists—the European Union’s REACH Candidate List of Substances of Very High Concern (approximately 170 chemicals are on the Candidate List of SVHCs) and the CFP Chemicals of High Concern (over 2,000 chemicals are on the CFP’s CoHCs list, which is based on GreenScreen® List Translator and includes the REACH SVHCs). The 21% of companies that calculated their chemical footprint by mass shipped or sold products with 631 million pounds of CoHCs in 2015.

Companies reporting their chemical footprint now have clear metrics for evaluating progress to safer chemicals, including reducing the number and mass of CoHCs in products. A highlight in the 2016 CFP Survey responses is that 13% of companies reduced their use of CoHCs in products by 416 million pounds over the past two years.

Quantitative chemical footprinting is the new metric for assessing corporate performance. It can help companies meet the SDGs and report to the SASB standards, which ask companies to report on chemicals of concern by percent of revenue sales.

CFP SURVEY RESULTS ENABLE BENCHMARKING AND GAP ANALYSIS

Are you a small company selling articles or a large company selling both formulated products and articles? Where is your company or your



Companies Disclosing Their Participation in the 2016 CFP Survey

adidas AG
 Alima Pure
 Angelica Corporation
 Beautycounter
 Becton Dickinson and Co. (BD)
 Case Medical, Inc.
 Construction Specialties, Inc.
 GOJO Industries, Inc.
 Herman Miller, Inc.
 HP Inc.
 Inpro Corporation
 Johnson & Johnson
 Kimball Hospitality Inc.
 Levi Strauss & Co.
 nora systems, Inc.
 Radio Flyer
 Replenish
 Seagate Technology PLC
 Sealed Air Corporation
 Seventh Generation
 Wal-Mart Stores, Inc.
 WaterWipes

Thirteen percent of companies reduced their use of CoHCs in products by 416 million pounds over the past two years.

supplier on the journey to sound chemicals management?

The CFP Survey results provide metrics for benchmarking chemicals management performance based on company size, type of products sold, and CFP pillar. The 2016 Survey results divide into two broad categories of companies based on type of products sold: 1) companies that sell formulated products, either only formulated products or both formulated products and



articles; and 2) companies that sell only articles. Articles⁸ are typically “hard” products such as furniture, electronics, apparel, etc., while formulated products are typically liquid-based products such as cleaners, paints, personal care products, detergents, etc.

Companies that sell formulated products differ significantly from companies that sell only articles. Formulated product companies recognize that their products contain chemicals and they often specify the chemicals in the products they sell. Governments regulate the handling, shipping, disposal, as well as the labeling of formulated products much more rigorously than articles. Companies selling articles see their products as made from materials and may not consider the chemical content of those materials unless asked or required by customers or regulations.

Figure ES-1 compares companies selling formulated products (either only formulated products or both formulated products and articles) on the basis of company size for each of the four CFP Pillars as well as the average overall score for all of the Pillars combined. The patterns in Figure ES-1 reveal that:

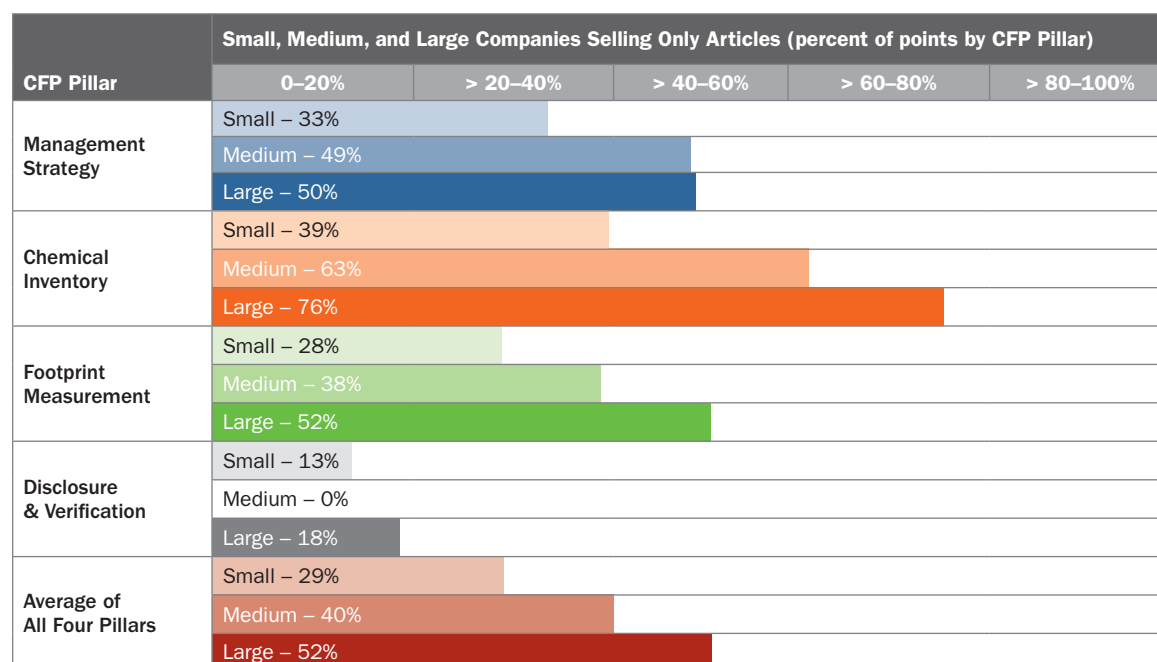
- large companies scored higher for the Management Strategy and Chemical Inventory Pillars,
- small companies scored higher for the Footprint Measurement and Disclosure & Verification Pillars, and
- small and large companies scored similarly for all of the Pillars combined.

FIGURE ES-1. **All CFP Pillars: Small and Large Companies Selling Formulated Products**
(average percent of points)

CFP Pillar	Small and Large Companies Selling Formulated Products (average percent points by CFP Pillar)				
	0–20%	> 20–40%	> 40–60%	> 60–80%	> 80–100%
Management Strategy	Small – 50%				
	Large – 86%				
Chemical Inventory	Small – 65%				
	Large – 82%				
Footprint Measurement	Small – 70%				
	Large – 56%				
Disclosure & Verification	Small – 37%				
	Large – 15%				



FIGURE ES-2. **All CFP Pillars: Small, Medium, and Large Companies Selling Only Articles**
(average percent of points) (Revised 10/26/17)



For sellers of formulated products, size was not a differentiating factor. Rather the data reveal for companies participating in the Survey that large companies scored higher for metrics that require developing and implementing policies, systems, and procedures for safer chemicals, while small companies scored higher for footprinting and disclosure, likely because many of the small firms participating in CFP avoid hazardous chemicals by design and are committed to greater transparency.

The learning opportunity for small companies selling formulated products is how to integrate their practices into formal organizational policies and develop or adopt systems for managing data and engaging suppliers. The learning opportunity for large companies selling formulated products is how to track and report on CoHCs, identify and use safer chemicals, and be more transparent about the chemicals in their products and participation in CFP.

For companies selling only articles, a clear pattern emerged across all pillars related to company size. In general, large companies scored higher overall, followed by medium

The learning opportunity for small companies selling formulated products is how to integrate their practices into formal organizational policies and develop or adopt systems for managing data and engaging suppliers.

companies, and then small companies (see Figure ES-2). The four CFP Pillars detailed in Figure ES-2 reinforce that pattern:

- large companies selling articles scored highest for every CFP Pillar, though by just a fraction for Management Strategy;
- medium companies selling articles scored higher than small companies for every CFP Pillar except Disclosure & Verification; and
- small companies selling articles are on the learning curve for how to implement environmentally sound chemicals management practices.



We attribute the higher scores for large companies selling articles to their greater awareness of hazardous chemicals in their products and supply chains, greater resources to manage hazardous chemicals including resources for supply chain engagement and creating/managing databases, and greater need to have corporate policies in place to develop and implement chemical management systems. Small companies in particular are encouraged to tap into the technical knowledge of peers and leverage resources available from governments, universities, and NGOs to offset their resource disadvantages. Note that due to the small sample size, these findings represent insights gleaned from the available data set and are not definitive.

CFP IDENTIFIES CLEAR STEPS TO ENVIRONMENTALLY SOUND CHEMICALS MANAGEMENT

The SDG Goal 12—ensure sustainable consumption and production patterns—includes “environ-

mentally sound management of chemicals” as an indicator for meeting this goal. The CFP Survey results reveal clear steps companies can take to improve their “sound management of chemicals” and achieve the SDG goal of sustainable consumption and production, including:

- **Corporate Policy:** establish a comprehensive chemicals policy.
- **Inventory:** know the chemicals in your company’s products and supply chains.
- **Measurement:** quantitatively measure your company’s chemical footprint, set measurable goals, and monitor progress to these goals.
- **Transparency:** engage the public, institutional customers, and investors in your firm’s journey to effective chemicals management by sharing publicly your CFP answers and score.

Companies taking these actions will be well on the path to the environmentally sound management of chemicals in their products and supply chains.



Conclusions & Next Steps

Regulatory requirements, customer demands, media attention, NGO advocacy, product recalls, and market opportunities are driving companies to develop and implement comprehensive chemicals management programs that track chemicals from initial use to ultimate fate, and to identify and select safer alternatives to hazardous chemicals. Chemical footprinting drives change in chemicals management and progress to safer materials through greater transparency, stronger supplier relationships, deeper supply chain knowledge, and clear metrics for assessing chemicals management and measuring progress.

The CFP 2016 Survey results reveal that:

- **Chemical footprinting is moving to the mainstream:** a diversity of companies across sectors and sizes now participates in the CFP Survey—demonstrating its relevance and application to a broad array of companies that sell and/or manufacture building products and furnishings, packaging, medical devices, electronics, toys, apparel and footwear, and household and personal products.
- **Companies are quantitatively measuring their chemical footprint:** with the growing demand for quantitative metrics that relate to impacts, the 2016 results now provide quantitative information on metric tons of CoHCs used and reduced over time. As the body of data gathered grows, it will enable more rigorous analysis, benchmarking, and measurement of progress to reducing chemical footprints. The data collected align with requirements in the

SASB standards for apparel and footwear, building products and furnishings, household and personal products, and toys and sporting goods.

- **Data are now available for benchmarking and gap analysis:** investors and purchasers now have access to data that enables the benchmarking of firms on their progress to sound chemicals management based on the four CFP Pillars. Brands and manufacturers now can assess where they stand relative to peers and identify and prioritize opportunities for improvement.
- **CFP identifies clear steps to environmentally sound chemicals management:** the CFP Pillars and related Indicators provide clear steps to how organizations can improve their chemicals management practices.

The CFP Survey is conducted annually. We will release the new Survey in the fourth quarter (Q4) of 2017 with the deadline for Surveys to be completed in the first quarter (Q1) of 2018.

Coming Soon: The 3 Rs Report

In the third quarter (Q3) of 2017 CFP will release a deep-dive analysis of the CFP Survey results from the perspective of investors, with a focus on the **Regulation, Reputation, and Redesign** risks of chemicals.



Join us!

Join us on the journey to create business opportunities, reduce business risks, and ensure that the chemicals in us, on us, and around us are safe and healthy for people and the planet.

The Chemical Footprint Project welcomes Signatories and Responders.

Signatories are investors and institutional purchasers that engage companies in participating in CFP. Responders are brands, manufacturers, and suppliers that participate in the annual CFP Survey.

www.chemicalfootprint.org

1

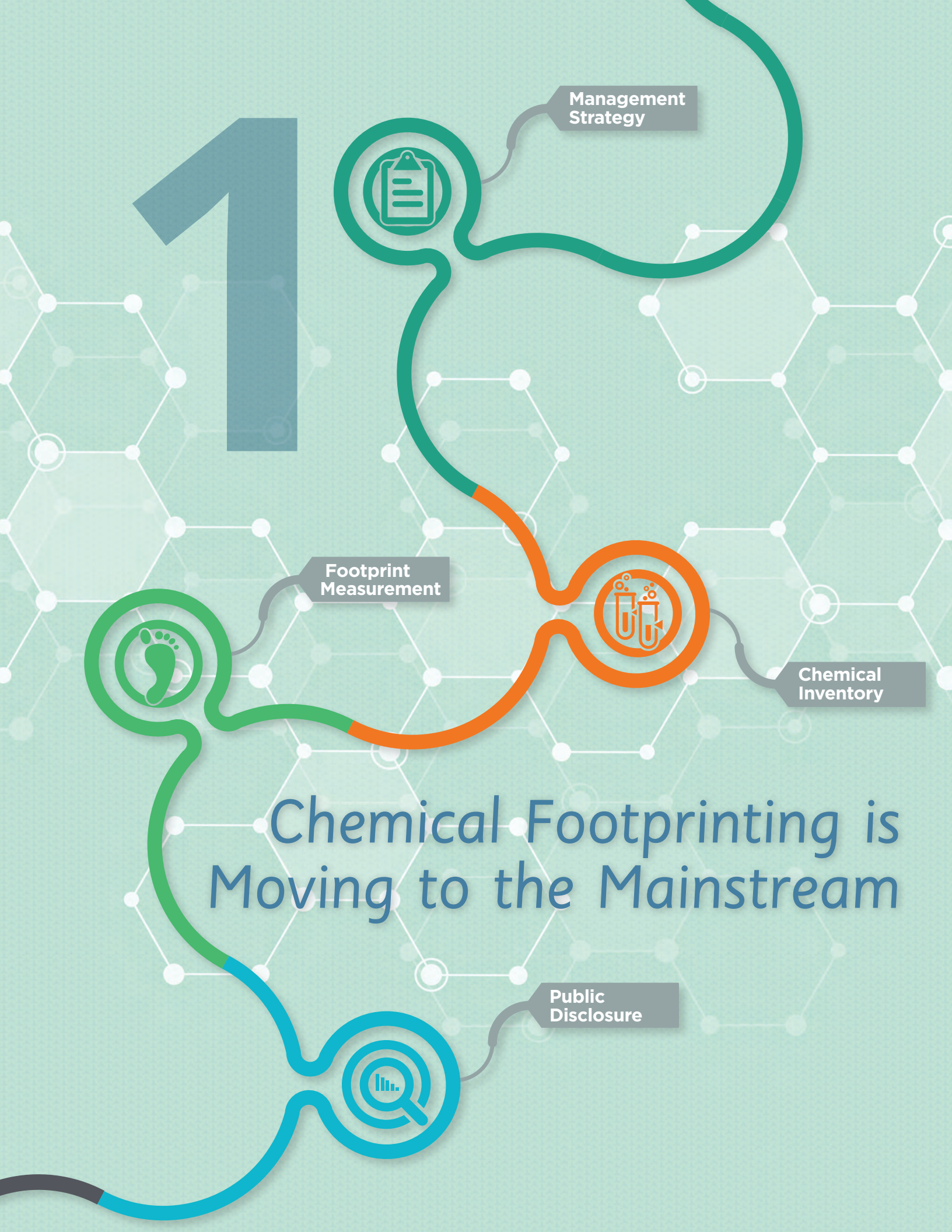
Management
Strategy

Footprint
Measurement

Chemical
Inventory

Chemical Footprinting is
Moving to the Mainstream

Public
Disclosure



CHAPTER 1

Chemical Footprinting is Moving to the Mainstream



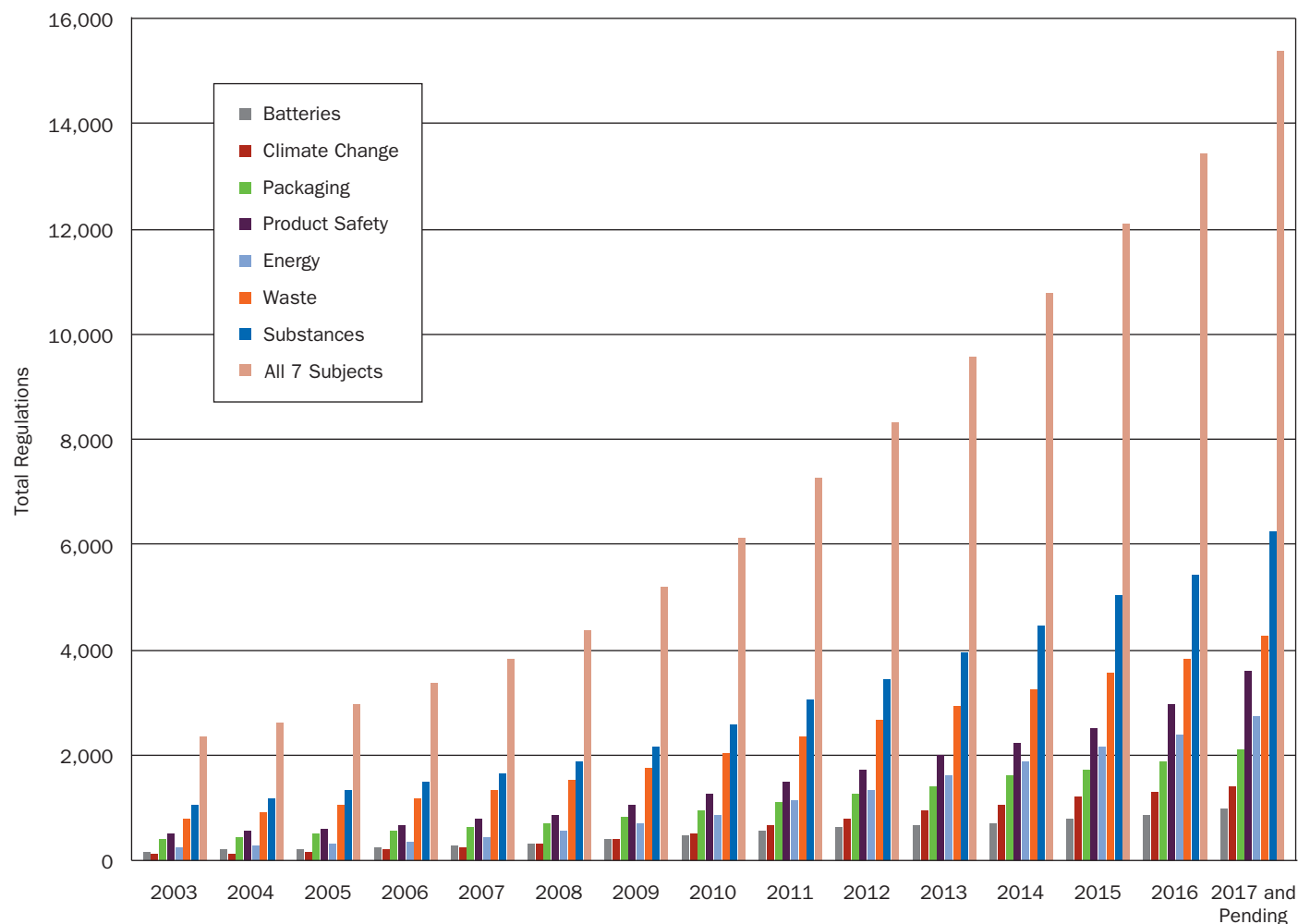
As nature's building blocks, chemicals form the foundation of our material world. Yet all chemicals are not created equal. Some chemicals, such as lead, mercury, Bisphenol A (BPA), and formaldehyde, are inherently hazardous, while others, such as water (H₂O), and oxygen (O₂), are inherently safer to human health and the environment. Hazardous chemicals are pervasive in consumer products and many end up in our bodies and in the environment. Yet there are clear pathways to replacing these hazardous chemicals with safer alternatives.

The Chemical Footprint Project (CFP) Survey enables the benchmarking of corporate progress away from hazardous chemicals toward safer alternatives. The four pillars of CFP—Management Strategy, Chemical Inventory, Footprint

Measurement, and Disclosure & Verification—enable participating companies to benchmark their progress internally and externally, and empower investors and purchasers to evaluate and hold companies accountable.

The Costs of Hazardous Chemicals

It is well documented that people and ecosystems across the globe are exposed to hazardous chemicals. The U.S. National Health and Nutrition Examination Survey (NHANES) tracks human exposure to over 300 chemicals, including pesticides, volatile organic compounds, phthalates, metals, dioxins, perfluoroalkyl and polyfluoroalkyl substances (PFAS), and many other substances.⁹ Exposure to these chemicals can cause adverse health effects including cancer, learning disabilities, and reproductive and

FIGURE 1. **New Regulations Implemented Globally by Selected Topic and Year of Entry into Force** (Revised 10/26/17)

developmental disabilities. The World Health Organization's report, *The Public Health Impact of Chemicals: Knowns and Unknowns* (2016), highlights the impacts of exposures to hazardous chemicals, including:

- 164,400 deaths annually from unintentional poisonings caused by chemical exposures at home and in the workplace;
- 2% to 8% of all cancers caused by occupational carcinogens;
- 99,100 deaths per year from lung cancer caused by occupational lung carcinogens;
- 233,500 deaths per year from Chronic Obstruction Pulmonary Disease (COPD), caused by occupational particulates; and
- in the general population, 14% of lung cancers are attributable to ambient air pollution,

17% to household air pollution, and 7% to occupational carcinogens.¹⁰

Exposure to chemicals such as lead, mercury, and organophosphate insecticides are clearly associated with adverse neurodevelopmental effects, such as lower IQ. At the same time, mental, behavioral, and neurological disorders account for 10% of the global disease burden, with hazardous chemicals clearly contributing to a portion of that burden.¹¹ A recent study of the disease and dysfunction costs of exposure to endocrine disrupting chemicals like BPA estimated the costs to be €163 billion annually in the European Union,¹² highlighting in economic terms the costs of hazardous chemicals upon society.



Increased global regulations represent the efforts of governments to curb the societal costs of hazardous chemicals, which in turn raises the cost of hazardous chemicals management for businesses. In an analysis of global environmental regulations over the past 15 years, the consulting firm Compliance and Risks documents the increasing burden of hazardous chemical regulations. Figure 1 highlights that since 2009 there has been a greater increase in regulations targeting “chemicals, substances, and materials” than any other category of environmental regulation. Underscoring these findings are recently passed laws and regulations that include: the Lautenberg Chemical Safety Act in the U.S. in 2016; overhaul of chemical regulations in Vietnam in 2017;¹³ new draft list of 103 substances to be restricted in consumer products in China in 2017;¹⁴ and a chemical management law based on the European Union’s REACH regulations passed in Turkey in 2017.¹⁵

Opportunities for Green Chemistry and Safer Alternatives

Along with regulations, increased demand from institutional and individual customers, along with investors, is spurring a growing need for safer alternatives. The Natural Marketing Institute, for example, finds that in general “[s]ustainability has moved from what some viewed as a fad, to what has become a fundamental cultural shift. It notes that **“those companies not engaged in the space will be squarely behind their competition as sustainability concerns are only poised to grow over the coming years** [emphasis added]. Ignoring this trend only gives the competition more time to establish market leadership.”¹⁷

Specific to consumer concerns related to hazardous chemicals, a 2015 Nielsen global survey of home cleaning and laundry attitudes revealed that “Consumers are looking for healthier, safer choices in the foods they eat and the products they use in their homes.”¹⁸ In the Asia-Pacific region, there is a growing interest in products with “no harsh chemicals,” with consumers “more inclined to say they’re looking for natural and ecofriendly products. Forty percent of respondents in the [Asia-Pacific] region say they seek detergents that don’t contain harsh

chemicals, compared with 35% globally.”¹⁹

Large retailers are increasingly addressing these concerns. For example, CVS Health, Walmart Stores, Inc., and Target Corporation have all developed chemicals policies and programs

The rapid growth in revenue and valuations of brands that focus on safety confirms that safety drives competitive advantage and puts pressure on existing brands to adopt safer chemistry.

— Marty Mulvihill, Co-Founder, Safer Made

to reduce hazardous chemicals in cleaning and personal care products.²⁰ Similar initiatives in the U.S. health care market are driving up demand for safer chemicals, with sector leaders including Kaiser Permanente, Dignity Health, Advocate Health, Hackensack Meridian Health, Premier, Inc., and Vizient signing on to CFP and implementing safer chemicals policies and programs.²¹

Institutional along with individual concerns with hazardous chemicals in products have created a multi-billion dollar demand for safer products. Unilever’s acquisition of Seventh Generation, a company that designs products with human health and the environment in mind, for approximately \$700 million in September 2016 highlights the market value of products designed for health and safety.²² Marty Mulvihill, co-founder of Safer Made (a new venture fund investing in companies and technologies that create safer products), concluded at BizNGO 2016 that “the rapid growth in revenue and valuations of brands that focus on safety confirms that safety drives competitive advantage and puts pressure on existing brands to adopt safer chemistry. Significant improvement in chemical and material safety—adoption driven by demand for safer products—protects the brand, and drives competitive advantage.”²³ These findings highlight a growth opportunity for brands that focus on ensuring their products are safer for human and environmental health.

CFP Value to Investors

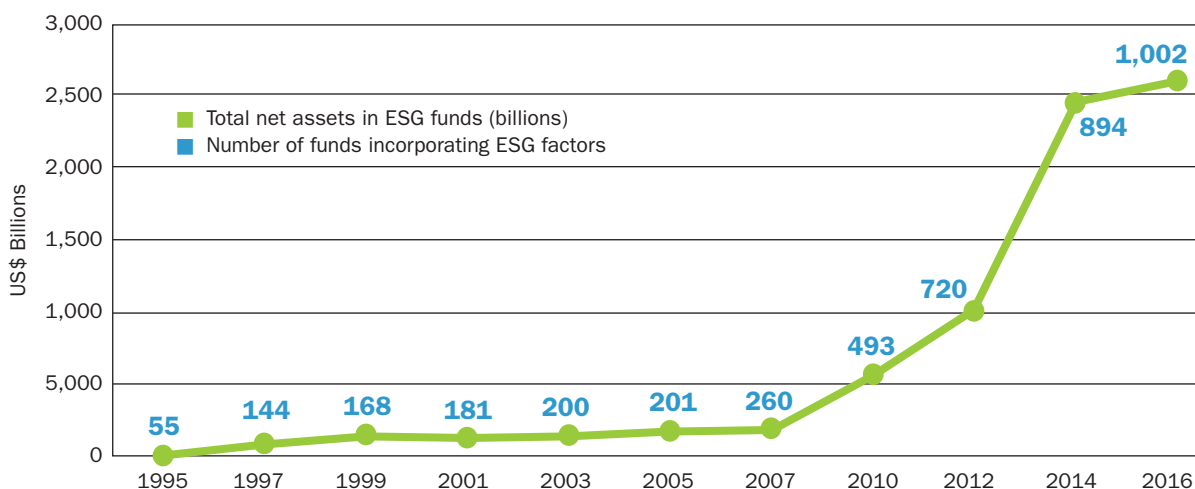
Assets managed according to sustainable investing criteria are growing faster than the financial industry at large. Catalyzing this growth is the view that private assets, not just government and philanthropy, are needed to solve global challenges. Investments into funds with Environmental, Social, and Governance (ESG) criteria have grown from essentially zero in 1995 to over 1,000 funds with \$2.5 trillion assets under management in the U.S. alone (see Figure 2).²⁴ **This growing interest in ESG in general and environmentally sound chemicals management in particular is underscored by the CFP Signatories in Europe and the U.S. and their \$2.3 trillion in assets under management.**

Companies that respond to the CFP Survey are well positioned to meet SASB's reporting standards and the SDG indicators targeting hazardous chemicals.

CFP advances chemical-related metrics that matter to investors, including the SASB standards and the global Sustainable Development Goals (SDGs). CFP aligns with the SASB accounting metrics for companies in its Consumption Sectors, in particular the following four SASB Standards for: Apparel, Accessories & Footwear; Building Products & Furnishings; Household & Personal Products; and Toys & Sporting Goods. Table 1 highlights how CFP's Indicators align with SASB's Accounting Metrics for chemicals in products and product environmental, health, and safety performance. In particular, the CFP Indicators for Chemical Inventory and Footprint Measurement, which include Restricted Substances List (RSLs) and Footprint Measurement, are directly relevant to SASB's accountability metrics. Companies that respond to CFP are well positioned to meet SASB's reporting standards and the SDG indicators targeting hazardous chemicals.

CFP aligns with the SDGs²⁶ because reduced hazardous chemicals use and sound chemicals management are central to meeting SDGs 3, 6, and 12. The CFP Survey supports companies

FIGURE 2. U.S. Funds Incorporating Environmental, Social, and Governance (ESG) Criteria from 1995–2016



Note: Includes funds that incorporate various ESG criteria. The data set is restricted to mutual funds, variable annuity funds, alternative investment funds, exchange-traded funds, closed-end funds, and other pooled products. It excludes community investing institutions and assets not associated with a dedicated fund or manager. Separate accounts were excluded beginning in 2014 to maintain exclusive focus on commingled products.

Source: World Resources Institute, 2016²⁵



TABLE 1. **Comparing the Sustainability Accounting Standards Board's (SASB) Accounting Metrics to the Chemical Footprint Project's (CFP) Indicators**

Sustainability Accounting Standards Board (SASB)			Chemical Footprint Project (CFP)
Standard	Topic	Accounting Metrics	CFP Indicators (that address the SASB Accounting Metrics)
Apparel, Accessories, & Footwear	Management of Chemicals in Products	<ul style="list-style-type: none"> Description of processes to maintain compliance with restricted substances regulations Description of processes to assess and manage risks associated with chemicals in products 	<ul style="list-style-type: none"> Restricted Substances List (I1) Beyond Restricted Substances List (I2) Footprint Measurement Indicators including: Chemical Footprint (F2) and Hazard Assessment (F4)
Building Products & Furnishings	Management of Chemicals in Products	<ul style="list-style-type: none"> Description of processes to assess and manage risks and/or hazards associated with chemicals in products Percentage of applicable products meeting volatile organic compound (VOC) emissions and content standards 	<ul style="list-style-type: none"> Footprint Measurement Indicators including: Chemical Footprint (F2) and Hazard Assessment (F4) VOCs are captured under Restricted Substances Lists (I1)
Household & Personal Products	Product Environmental, Health, and Safety Performance	<ul style="list-style-type: none"> Revenue from products that contain REACH substances of very high concern (SVHC) Revenue from products that contain substances on the California DTSC Candidate Chemicals List Discussion of process to identify and manage emerging materials and chemicals of concern Revenue from products designed with green chemistry principles 	<ul style="list-style-type: none"> Chemical Footprint (F2) Chemical Footprint (F2) Footprint Measurement Indicators including: Chemical Footprint (F2) and Hazard Assessment (F4) Addressed in part by Safer Alternatives (F5)
Toys & Sporting Goods	Chemical & Safety Hazards of Products	<ul style="list-style-type: none"> Number of recalls and total units recalled Number of Letters of Advice (LOA) received Amount of legal and regulatory fines and settlements associated with product safety Description of processes to assess and manage risks and/or hazards associated with chemicals in products 	<ul style="list-style-type: none"> Companies scoring well in the CFP Chemical Inventory Indicators—including Restricted Substances List (I1), Supplier Requirements (I3), and Supplier Conformance (I6)—would likely have low recalls, LOAs, and fines Footprint Measurement Indicators including: Chemical Footprint (F2) and Hazard Assessment (F4)

and investors in achieving these three SDGs, especially the CFP Footprint Measurement Indicators, which include: goals to reduce chemicals of high concern (CoHCs) (F1), chemical footprint measurement (F2), CoHCs reductions (F3), and safer alternatives (F5) (see Section 2.3 for details). The following bullets list the three SDGs most relevant to hazardous chemicals along with the SDG indicator that references chemicals and the CFP Indicators most relevant to achieving the goal:

- **Goal 3—Ensure healthy lives and promote well-being for all at all ages.** SDG indicator 3.9—“By 2030, substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination.”²⁷ **Relevant CFP Indicators:** measuring chemical footprint (F2), the setting of goals to reduce hazardous chemicals

(F1), and reduced Chemicals of High Concern (CoHCs) (F3).

- **Goal 6—Ensure availability and sustainable management of water and sanitation for all.** SDG indicator 6.3—“By 2030, improve water quality by reducing pollution, eliminating dumping and minimizing release of hazardous chemicals and materials, halving the proportion of untreated wastewater and substantially increasing recycling and safe reuse globally.”²⁸ **Relevant CFP Indicators:** measuring chemical footprint (F2), the setting of goals to reduce hazardous chemicals (F1), and accounting for reduced CoHCs (F3).
- **Goal 12. Ensure sustainable consumption and production patterns:** SDG indicator 12.4—“By 2030, achieve the environmentally sound management of chemicals and all wastes

throughout their life cycle, in accordance with agreed international frameworks, and significantly reduce their release to air, water, and soil in order to minimize their adverse impacts on human health and the environment.”²⁹

Relevant CFP Indicators: *the entire suite of CFP Indicators align with achieving the “environmentally sound management of chemicals.” In fact, the entire CFP Survey is a proxy for measuring progress to SDG indicator 12.4.*

According to the United Nations Principles for Responsible Investing (UN PRI), “achieving the SDGs is at the core of the responsible investment agenda over the next ten years.”³⁰ Investors in Europe and North America are beginning to recognize CFP’s value in meeting their sustainability goals because it:

- supports efforts to evaluate corporate progress towards the United Nations’ Sustainable Development Goals (SDGs) and compliance with SASB standards;
- offers insights into corporate chemicals management and supply chain management;
- is a proxy for good corporate governance practice and comprehensive sustainability programs;
- provides a platform for engaging companies in a dialogue on their chemicals management initiatives; and
- informs investment decision making.

For these reasons banks, management companies, pension funds, and other organizations have become CFP Signatories.

CFP Value to Purchasers—Health Care, Government, & Retailers

Until CFP was created, government, health care, and retailers lacked the means to evaluate whether their suppliers systematically manage their chemical risks and if they have a plan for continuous improvement to safer chemicals use. CFP provides institutional purchasers with data that readily enable comparison of suppliers on their corporate-wide chemical footprint. The CFP Survey empowers purchasers to request chemical footprint data from suppliers and enables purchasers to recognize and reward leading suppliers.

CFP Purchaser Signatories have over \$600 billion in purchasing power. These Signatories, including Kaiser Permanente, Dignity Health, Advocate Healthcare, Partners Healthcare, and Vizient are engaging their suppliers in participating in the CFP Survey. In 2016, CVS Health became the first pharmacy chain to become a Signatory to CFP as part of its new chemicals policy.³¹ “‘Our consumers expect both transparency and quality when it comes to ingredients in the products they use,’ said Eileen Howard Boone, Senior Vice President of CSR and Philanthropy at CVS Health. ‘This [our chemicals policy] is an important step, and we look forward to continuing to work with stakeholders to address additional chemicals of consumer concern and focus on more product categories in the future.’”³²

Participating health care organizations see CFP as supporting their mission. For example, as Kyle Tafuri, Senior Sustainability Advisor at Hackensack Meridian Health noted at BizNGO 2016, “Safer chemicals directly align with our strategic priorities of safety, population health, and prevention. CFP provides us with an invaluable tool to help us achieve our mission, while providing an avenue for supplier transparency as well as financial savings.”³³ Dignity Health, one of the nation’s five largest health care systems, highlighted its participation as a signatory in its 2016 Sustainability Report by noting that: “Dignity Health advanced the Chemical Footprint Project (CFP) by requesting that 18 of our leading suppliers participate in the first annual business survey. Our goal was to create a quantitative framework and set a new standard for evaluating companies on policies, programs, and practices for managing chemicals. Of 18 companies, four responded and three agreed to be named publicly.”³⁴

CFP Value to Responders

Until CFP, companies lacked the means to publicly demonstrate—using an independent, third party tool—their overall chemicals management performance. By participating in the CFP Survey companies can support their efforts to reduce the regulatory,³⁵ reputation,³⁶ and redesign³⁷ risks of hazardous chemicals. CFP increases customer and investor engagement and transparency in



supply chains, resulting in increased opportunities to capture new markets with safer products.

CFP is a tool for aligning purchasers and investors with brands and manufacturers as they work to improve chemicals management. What follows below are highlights on the value of CFP from three diverse companies: 1) a diversified, international consumer goods, medical devices, and pharmaceuticals company; 2) a small manufacturer of formulated products; and 3) a small manufacturer of toys.

As Al Iannuzzi, Senior Director of Worldwide Environment, Health, Safety & Sustainability at Johnson & Johnson, explained:

“We . . . participated in the inaugural Chemical Footprint Project last year as a way to demonstrate and benchmark our process and approach to management of chemicals and ingredients in our products. . . . Tools must be relevant to our business units and outcomes must be meaningful to our customers and stakeholders. We support cross-industry efforts and work closely with stakeholders, and focus on tools and rating systems that are valued by our customers. As an example, CVS Health, one of our largest customers in the United States recently awarded us with their inaugural Sustainability and Social Responsibility Supplier Award, in part because of our participation in the Chemical Footprint Project.”³⁸

Nicole Koharik, Corporate Communications Director at GOJO Industries, a manufacturer of formulated products, explained to investors at the SRI Conference 2016 how CFP has provided:

- a framework for implementing a whole systems approach to sustainable chemistry,
- productive conversations across the organization,
- actionable metrics to inform goals and priorities,
- increased customer engagement, and
- opportunity to lead and learn.³⁹

And for Radio Flyer, a small manufacturer of toys, the CFP Survey provides a blueprint for what companies need in a comprehensive chemicals management program. Eric Selner, Director of Operations & Sustainability at Radio Flyer, highlighted that “the footprinting effort has helped us reach new levels of achievement across our broad chemicals management program.”⁴⁰

Radio Flyer found that the CFP Survey facilitated:

- “greater transparency, knowing what is in its products and supply chains, in order to improve materials; and
- stronger accountability across the supply chain through a better understanding of inputs and processes (reaching across other company priorities, such as quality).”⁴¹

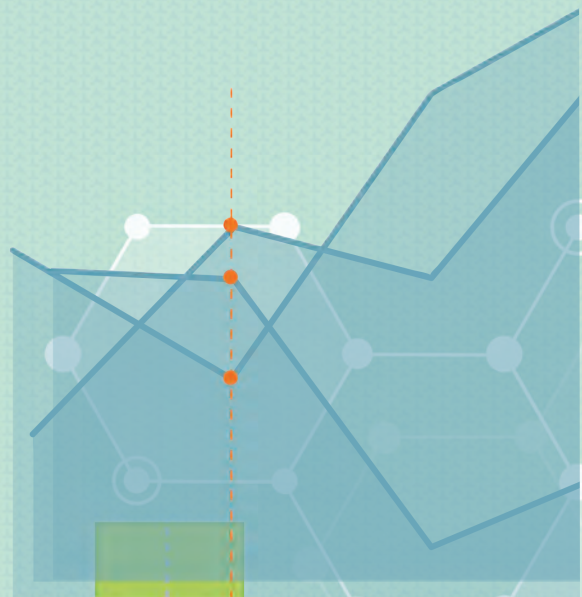
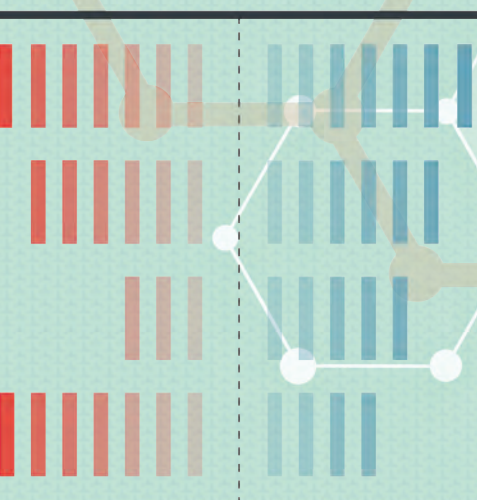
Radio Flyer is leveraging CFP to “gain greater transparency across the supply chain and understanding of potential chemicals of concern.”

— Eric Selner, Director of Operations & Sustainability, Radio Flyer

Radio Flyer is leveraging CFP to “gain greater transparency across the supply chain and understanding of potential chemicals of concern to get out ahead of the market and build on its legacy of responsibly producing products for children.”⁴²

In summary, CFP provides brands, manufacturers, investors, and institutional purchasers with a common platform for authentically communicating their organizational progress in chemicals management policies and practices that are healthy for people and the planet.

2



Key Findings from the 2016
Chemical Footprint Project Survey

CHAPTER 2

Key Findings from the 2016 CFP Survey

The results from the 2016 CFP Survey reveal how 24 companies manage chemicals in their products and supply chains. They provide a snapshot of chemicals management policies and practices beyond regulatory compliance across a diverse set of businesses. This chapter begins with a brief discussion of the companies that participated in the 2016 Survey, then summarizes and analyzes the results for the four CFP Pillars as a whole, and then for each of the four pillars of Management Strategy, Chemical Inventory, Footprint Measurement, and Disclosure & Verification.

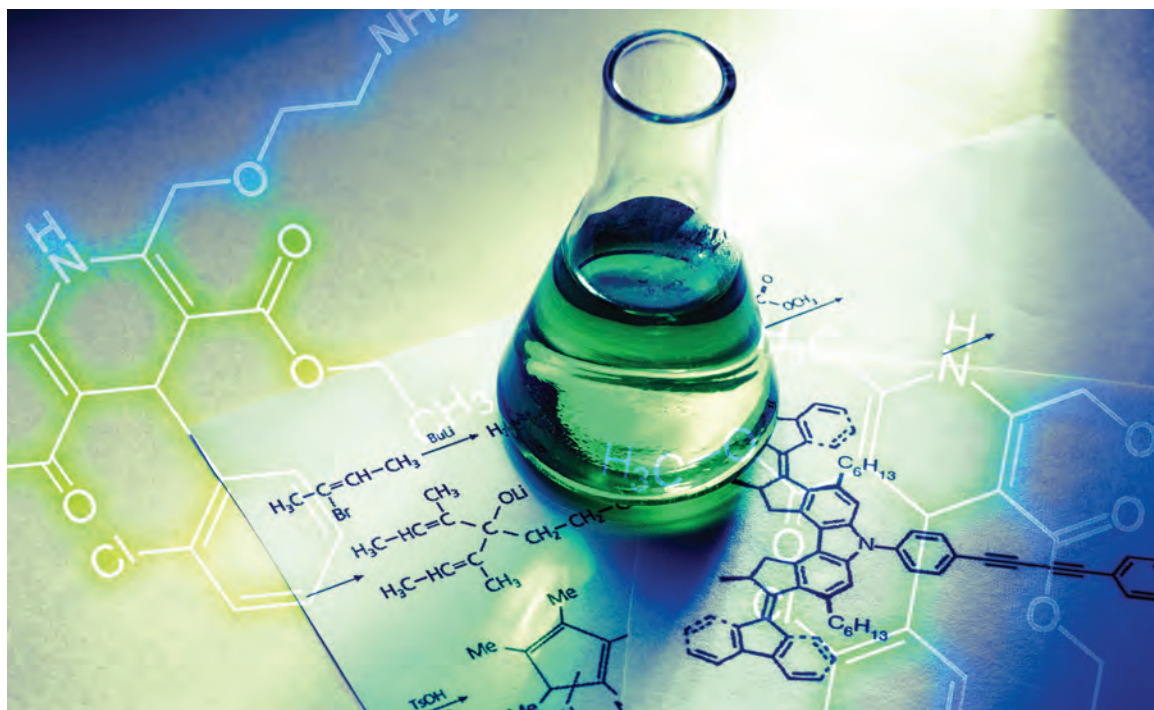
Companies Participating in the 2016 Survey

A wide range of companies of varying sizes and sectors participated in the 2016 CFP Survey. The 24 participating companies included:

The results from the 2016 CFP Survey reveal how 24 companies manage chemicals in their products and supply chains. They provide a snapshot of chemicals management policies and practices beyond regulatory compliance across a diverse set of businesses.

Sectors (and the number of companies)

- capital goods used in construction (1)
- commercial and professional services (2)
- consumer durables and apparel (3)
- consumer services for hospitality (1)
- health care equipment and services (3)





Companies Disclosing Their Participation in the 2016 CFP Survey

adidas AG
 Alima Pure
 Angelica Corporation
 Beautycounter
 Becton Dickinson and Co. (BD)
 Case Medical, Inc.
 Construction Specialties, Inc.
 GOJO Industries, Inc.
 Herman Miller, Inc.
 HP Inc.
 Inpro Corporation
 Johnson & Johnson
 Kimball Hospitality Inc.
 Levi Strauss & Co.
 nora systems, Inc.
 Radio Flyer
 Replenish
 Seagate Technology PLC
 Sealed Air Corporation
 Seventh Generation
 Wal-Mart Stores, Inc.
 WaterWipes

- household and personal products (7)
- materials—includes packaging and office or medical supplies (5)
- technology hardware and equipment (2)

Product type (and the number of companies)

- only articles (13)
- only formulated products (7)
- both formulated products and articles (4)

Size (and the number of companies)

- large—greater than \$5 billion in revenue (8)
- medium—\$0.5 to \$5 billion (4)
- small (12)—less than \$0.5 billion (12)

Public or private (and the number of companies)

- publicly traded (11)
- privately held (13)

Companies participating in the 2016 Survey have annual revenues totaling over \$670 billion and market cap valuations totaling over \$730 billion. Of the 24 participating companies:

- 22 agreed to be listed publicly (see box, left),
- three agreed to list their responses and score on the CFP website (see www.chemicalfootprint.org),
- two agreed to list their responses on the CFP website, and
- 11 participated in both the 2015 and 2016 Surveys.

Note that two of the participating firms completed the Survey for a division of their company, rather than for the entire company.

The CFP Pillars & Big Picture Results from the 2016 Survey

The CFP Survey evaluates companies and their chemical management policies and practices based on the four pillars of:

- **Management Strategy (20 points):** This Pillar evaluates the scope of corporate chemicals policies and their integration into business strategy, accountability, and employees' incentives for safer chemical use, as well as the company's external advocacy for safer chemical use.
- **Chemical Inventory (30 points):** This Pillar evaluates the efforts a company makes to identify chemicals of high 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 Pillar evaluates the goals that a company sets to reduce chemicals of high concern, its efforts to establish a baseline chemical footprint and measure progress, and its process for assessing and implementing safer alternatives.
- **Disclosure and Verification (20 points):** This Pillar evaluates the extent to which a company publicly discloses the chemicals in its products beyond regulatory requirements, discloses its

score and its answers to the CFP Survey questions, and whether its CFP Survey answers have been independently verified by a third party.

The four CFP Pillars encompass 20 questions scored to a maximum total of 100 points. For common terms used in the report, see the Glossary of Terms in Appendix 1 and for methodology details, including changes from the 2015 to the 2016 Survey, see Appendix 2.

The highest score received in the 2016 Survey was 92 out of 100 points, with an average score of 49 points. Overall average scores increased from 41 points in 2015 to 49 points in 2016, though a different set of companies participated in 2015 and 2016. The 11 companies that participated in both the 2015 and 2016 Surveys improved their overall scores by 20%.

Of the four CFP Pillars, companies scored the highest on average for Chemical Inventory, followed by Management Strategy, Footprint Measurement, and Disclosure & Verification (see Figure 3).

The higher scores for the Chemical Inventory Indicators highlight that companies in CFP are adopting Restricted Substances Lists (RSLs), collecting data on chemicals in products and their supply chains, and engaging their suppliers in these efforts. Integration of chemicals policies into Management Strategy continues to advance,

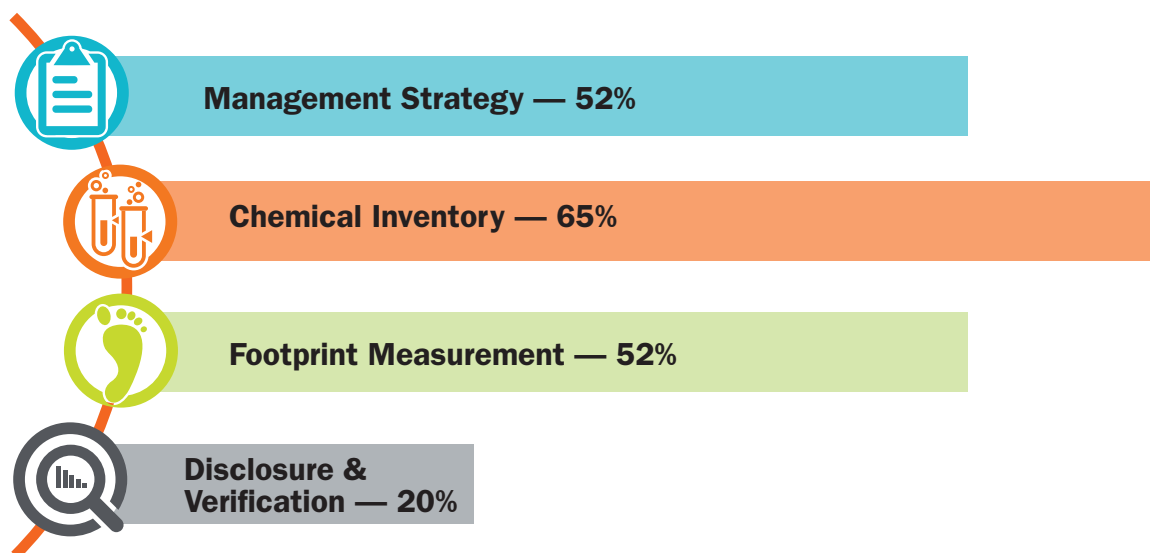
The higher scores for the Chemical Inventory Indicators highlight that companies participating in CFP overall are adopting Restricted Substances Lists (RSLs), collecting data on chemicals in products and their supply chains, and engaging their suppliers in these efforts.

with companies developing corporate-wide policies, embedding them into business strategy, and making them available to the public.

Companies are improving in the Footprint Measurement Pillar by collecting data that allow for measuring the reduction of CoHCs in products and continuing investments in identifying and implementing safer alternatives. Disclosure & Verification scores, which include public transparency of chemicals in products and CFP responses and scores, lag the other CFP Indicators as companies are slow to publicly share their progress to environmentally sound chemical management policies and practices.

The CFP Survey evaluated responses by product type (seller of formulated product

FIGURE 3. **All CFP Pillars** (average percent of points)



and/or article), company size (small, medium, and large), and the four CFP Pillars. This analysis, as highlighted below, enables the benchmarking of companies of similar sizes and product types (though note these benchmarks are indicative rather than definitive because they are based on a limited sample size).

Whether a company is privately held or publicly traded had no effect on its average overall CFP score, with both scores being essentially the same at 49.3% and 49.6%, respectively, of possible points. Among the 13 privately held companies: 12 were small and one was medium in size; and seven sold articles and six sold only formulated products or both formulated products and articles. Among the publicly held companies: three were medium and eight were large in size; and eight sold articles and three sold only formulated products or both formulated products and articles.

The 11 companies selling formulated products (only formulated products or both formulated products and articles) scored higher on average (59% of possible points) than the 13 companies selling only articles (41%). This is to be expected, as chemical ingredients are core to their business. They specify the chemicals in their products and governments often regulate the labeling of these ingredients.

In contrast, companies selling articles are usually not required to disclose the chemicals or materials used to make the product. Sellers of articles are less likely than sellers of formulated products to recognize they need to know the chemicals in their products and supply chains, and need to create and implement systems to collect and track those data. Because sellers of formulated products know more about chemicals in products than sellers of articles on average, this report aggregates sellers of only formulated products and both formulated products and articles into a single category, “sellers of formulated products.”

Scores also varied by company size. Large companies scored highest on average, followed by small and then medium companies (see Table 2). Company size alone, however, provides only part of the picture. As revealed below, analysis by both size and product type shows more relevant

TABLE 2. **All CFP Pillars: Small, Medium, and Large Size Companies** (average score)

Company Size: Sales (number of companies)	Average CFP Score (percent of total points)
Small: < \$500 Million (M) (12)	48%
Medium: \$500M – \$5 Billion (B) (4)	40%
Large: > \$5B (8)	56%

nuances between companies that sell similar types of products.

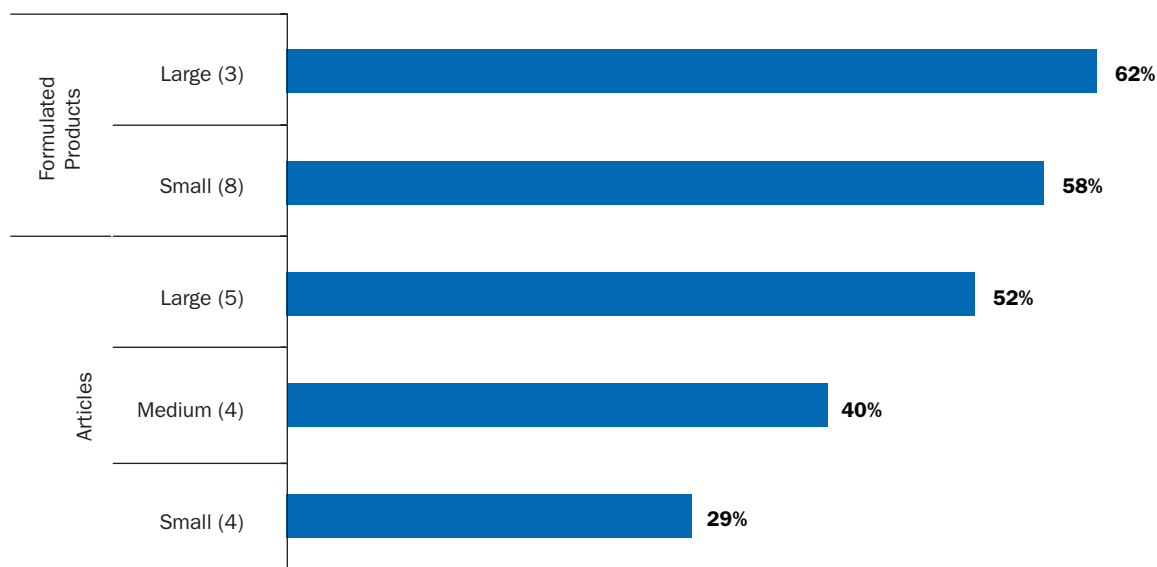
Figure 4 details CFP scores by product type and company size. The product types are formulated products (companies that sell only formulated products or both formulated products and articles) and articles. Some highlights embedded in Figure 2:

- Among companies selling formulated products there was essentially no difference in overall CFP scores between large and small companies, with large companies scoring only incrementally higher than small companies (no medium size companies selling formulated products participated in the 2016 Survey).
- Small companies selling formulated products scored higher than large companies selling only articles, demonstrating that advanced chemicals management policies and practices are not solely the domain of large companies.
- Among companies selling only articles a clear pattern emerged: large companies scored higher than medium companies, which in turn scored higher than small companies.

Benchmarking Formulated Product and Article Companies across the CFP Pillars

Are you a small company selling articles or a large company selling both formulated products and articles? Where is your company or your supplier on the journey to sound chemicals management? The 2016 CFP Survey results provide metrics for benchmarking chemicals management performance based on size, type of product sold, and CFP pillar.

Among companies selling formulated products the overall pattern described above is that small and large companies scored comparably

FIGURE 4. **All CFP Pillars: Product Type and Company Size** (average percent of points)

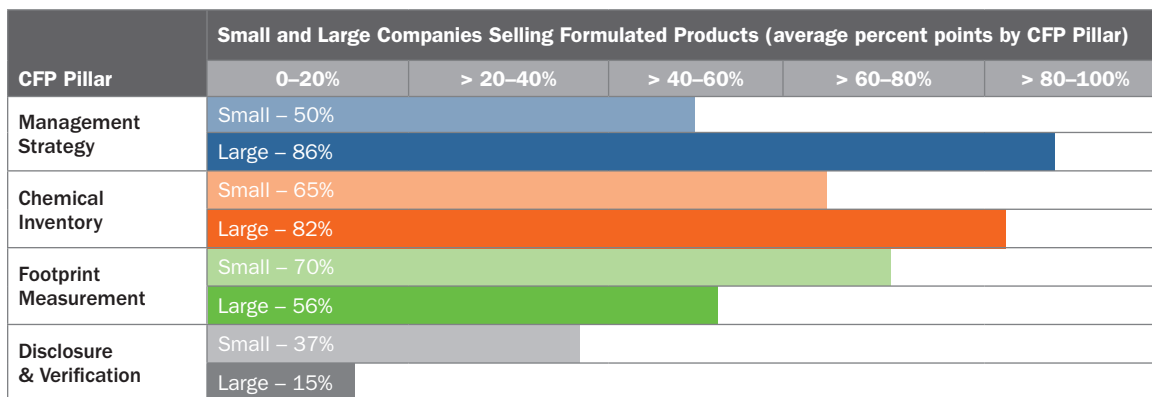
in the 2016 CFP Survey. The four CFP Pillars in Figure 5, however, reveal different paths to how the companies selling formulated products achieved their scores:

- large companies scored significantly higher for Management Strategy and notably higher for Chemical Inventory; and
- small companies scored notably higher for the Footprint Measurement and Disclosure & Verification Pillars.

Large companies selling formulated products scored higher on CFP Indicators that require corporate-wide policies (Management Strategy Pillar) and systems for managing data and

suppliers (Chemical Inventory Pillar), while small companies selling formulated products scored higher on CFP Indicators that require in-depth analysis of chemical use across all products and the selection of safer chemicals (Footprint Measurement Pillar), and public transparency of the chemicals in their products and their participation in CFP (Disclosure & Verification Pillar).

The learning opportunity for small companies selling formulated products is how to integrate their practices into formal organizational policies and develop or adopt systems for managing data and engaging suppliers. The learning opportunity for large companies selling formulated products is how to track and report on

FIGURE 5. **All CFP Pillars: Small and Large Companies Selling Formulated Products** (average percent of points)

CoHCs, identify and use safer chemicals, and be more transparent about the chemicals in their products and participation in CFP. Interestingly there are outliers within both sizes of companies. Some small companies scored well on Management Strategy and Chemical Inventory and some large companies scored well on Footprint Measurement and Disclosure & Verification. This finding highlights that companies have multiple pathways for improving their chemicals management practices.

Among companies selling only articles the overall pattern noted above is that large companies scored highest followed by medium and then small companies. The four CFP Pillars detailed in Figure 6 reinforce that pattern:

- large companies selling articles scored highest for every CFP Pillar, though by just a fraction for Management Strategy;
- medium companies selling articles scored higher than small companies for every CFP Pillar except Disclosure & Verification; and
- small companies selling articles are on the learning curve for how to implement environmentally sound chemical management practices.

We attribute the higher scores for large companies selling articles to their greater awareness of hazardous chemicals in their products and

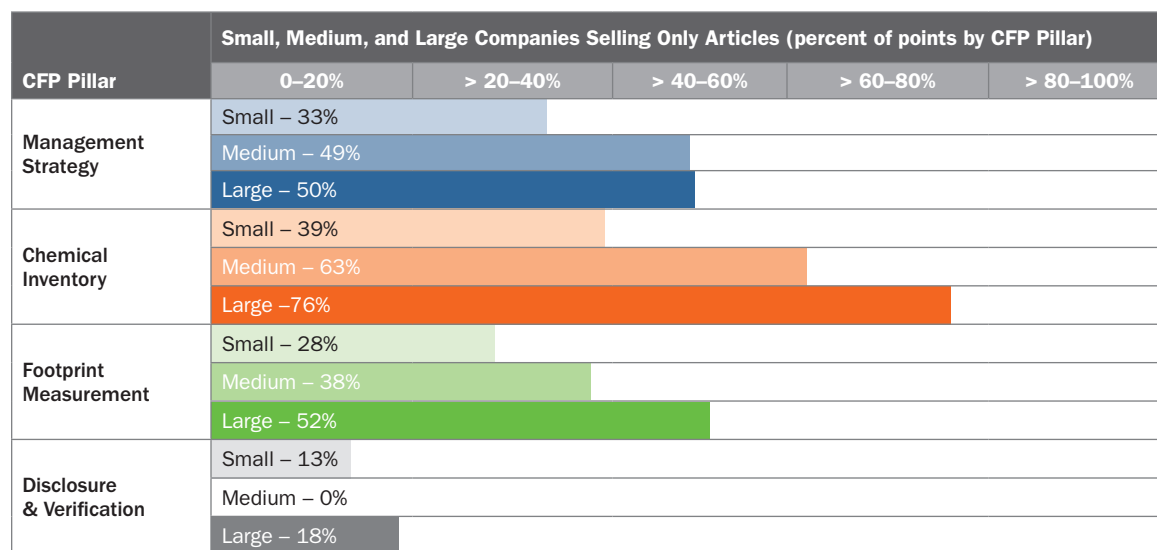
supply chains, greater resources to manage hazardous chemicals, including resources for supply chain engagement and creating/managing databases, and greater need to have corporate policies in place to develop and implement chemicals management systems. Small companies in particular are encouraged to tap into the technical knowledge of peers and leverage resources available from governments, universities, and NGOs to offset their resource disadvantages.

Transparency Lags Other CFP Indicators

The Disclosure & Verification Pillar presents the greatest opportunity for improvement among nearly every company that participated in the CFP Survey: transparency. Investors, institutional purchasers, consumers, and governments are all demanding greater transparency concerning sustainability and governance. Companies are slowly realizing that transparency in regard to chemicals management is increasingly sought and is unlikely to be curtailed in the foreseeable future. The question is not how to avoid transparency, but how to manage it.

The CFP Survey emphasizes transparency in the Disclosure & Verification Pillar, which is discussed in-depth in Section 2.4. In addition, the CFP Survey integrates questions of corporate transparency across the Pillars. For example,

FIGURE 6. **All CFP Pillars: Small, Medium, and Large Companies Selling Only Articles** (percent of points by CFP Pillar)

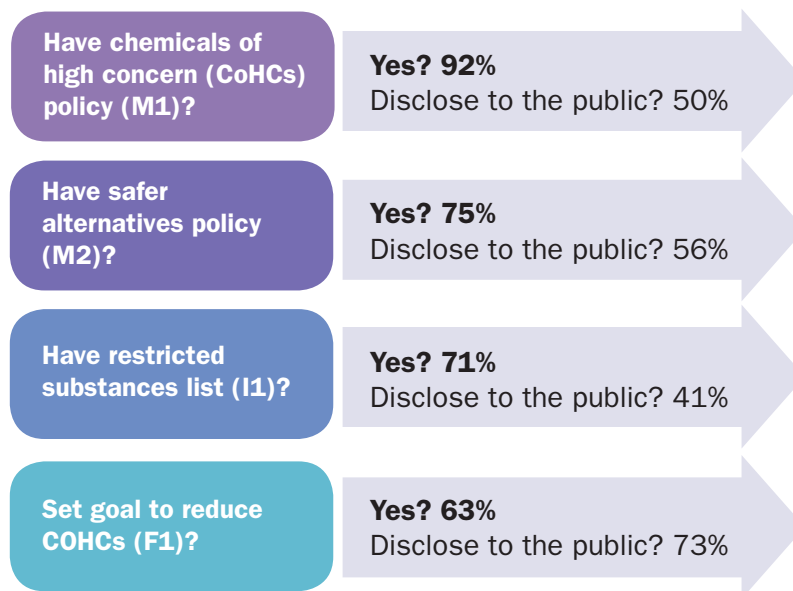




in the Management Strategy Indicator—M1, companies are asked if they have a chemicals of high concern (CoHCs) policy, and if yes, whether they make it public. This question is asked of other Indicators, including: M2—safer alternatives policy; I1—restricted substances list (RSL); and F1—goals for reducing CoHCs. Figure 7 details the answers to these questions. For each Indicator in Figure 7, the first question is, “Do you have a policy, RSL, or goal to reduce CoHCs?” For example, 92% of the companies have a CoHCs policy. Yet of that 92%, only half made their policy available to the public. That pattern is consistent across all the Indicators listed in Figure 7; companies are actually doing more than they reveal to the public. It is the philosophy of CFP Signatories that companies and the public will be better served by greater transparency, as these actions will accelerate the learning and knowledge transfers necessary to advance the development and use of safer chemicals.

In summary, the 2016 CFP data highlight the leadership of the companies participating in CFP and the many opportunities that remain for companies to implement more comprehensive chemicals management policies and practices.

FIGURE 7. **Across CFP Pillars: Transparency-Related Questions**
(percent of companies)



The next sections detail the findings from each of the four CFP Pillars: Management Strategy, Chemical Inventory, Footprint Measurement, and Disclosure & Verification.



2.1 MANAGEMENT STRATEGY

Policies & Strategies for Effective Organizations

Management Strategy Indicators (20 points)

- M1 – Chemicals of High Concern (CoHCs) Policy (4 points)
- M2 – Safer Alternatives Policy (4 points)
- M3 – Business Strategy (4 points)
- M4 – External Engagement (4 points)
- M5 – Responsibilities & Incentives (4 points)

The five Management Strategy Indicators (see box, above) include the policies and strategies that companies implement to effectively manage chemicals. Leading companies in chemicals management: have a comprehensive chemicals policy that includes avoiding chemicals of high concern (CoHCs) and preferring safer alternatives to hazardous chemicals; integrate these policies into their business strategy; have internal accountability for implementing these policies; and engage externally with NGOs, governments, and educational institutions to promote safer alternatives to chemicals of concern.

Management Strategy Indicators

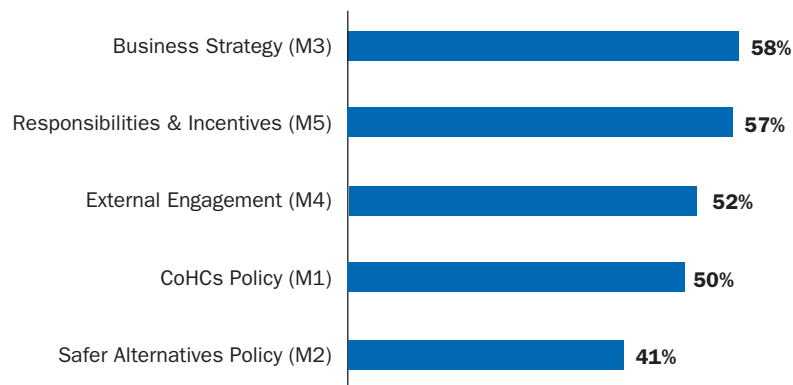
Overall, companies scored 52% of possible points for Management Strategy. They scored highest for the Business Strategy Indicator (58% of possible points) and lowest for the Safer Alternatives Policy Indicator (41% of possible points) (see Figure 8). The development of corporate-wide policies for CoHCs and Safer Alternatives were the most challenging indicators for participating companies.

CoHCs POLICY (M1) AND SAFER ALTERNATIVES POLICY (M2)

Companies typically develop corporate chemicals and/or materials policies that address multiple issues across the organization (see HP's "Chemicals and Materials Policy" cited in this section). For example, 92% of the participating companies in the 2016 CFP Survey have a chemicals policy that addresses CoHCs in products and 75% have a chemicals policy that encourages the use of safer alternatives in products. Figure 9 highlights the scope of chemicals policies in terms of whether they cover products, manufacturing, supply chains, and/or packaging for both M1 and M2. Consistently companies are more likely to have a chemicals policy that focuses on M1 than M2, and that policy is most likely to address products and least likely to address packaging. Figure 9 highlights that the greatest improvement opportunities are in extending product policies on chemicals to supply chains, manufacturing, and packaging.

HP Inc.'s "Chemicals and Materials Policy" (cited in this section) exemplifies a chemicals policy that addresses both CoHCs and safer alternatives by emphasizing the commitment to "proactively evaluate materials and chemicals;" "prioritize them for restriction based on published lists of chemicals of concern, customer preferences, and sound scientific analysis;" and "using a precautionary approach, reduce hazard by replacing a chemical of concern with a less hazardous alternative."

FIGURE 8. Management Strategy: Each Indicator (average percent of point)





Overall, companies scored highest in the Management Strategy Pillar for the **Business Strategy (M3)**, which assesses how a company integrates its chemicals policy into its business strategy. Seventy-five percent of participating companies have a process for integrating chemical goals into business strategy.

The **External Engagement (M4)** measures companies on their external engagement with NGOs, governments, and other entities such as educational institutions. External engagement includes initiatives that: prioritize chemicals based on their inherent hazards, aim to reduce the use of CoHCs, promote safer alternatives, and/or support the public disclosure of CoHCs or other chemical ingredients. Sixty-two percent of companies engage in a least one of these types of initiatives (see Figure 10), including:

- **Sectoral initiatives** such as the Apparel & Footwear International Restricted Substances Management Working Group (AFIRM); Beauty and Personal Care Sustainability

FIGURE 9. **Management Strategy: Chemicals of High Concern (CoHCs) (M1) and Safer Alternatives (M2) Indicators** (percent of companies)

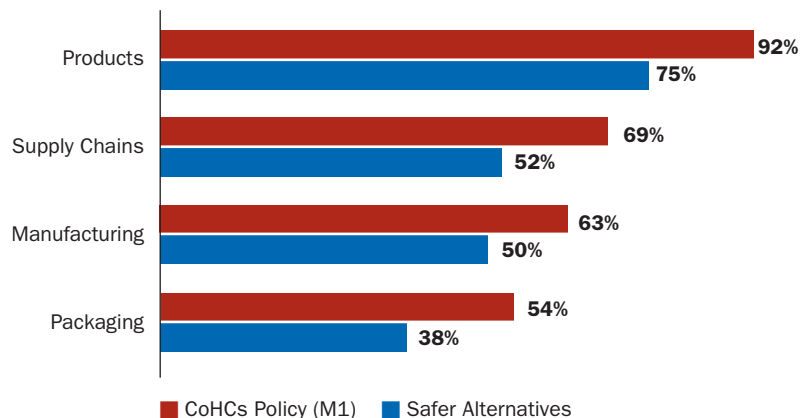
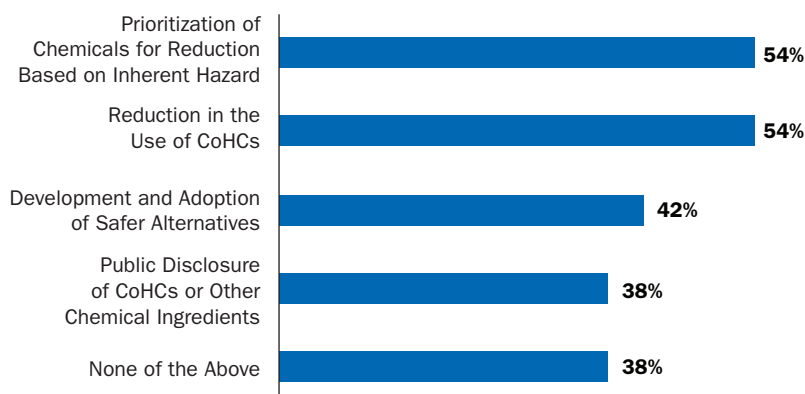


FIGURE 10. **Management Strategy: External Engagement (Indicator M4)** (percent of companies)



Project; Business and Institutional Furniture Manufacturers Association (BIFMA); Clean Electronics Production Network; Health Product Declaration Collaborative; Practice Greenhealth; Safe Cosmetics Business Network; and Zero Discharge of Hazardous Chemicals.

- **NGOs** including the American Sustainable Business Council, BizNGO, and the Green Chemistry & Commerce Council.
- **Government initiatives and policies** such as the United Nations Environment Programme's Chemicals in Products Programme and alternatives assessment in the European Union, including under the REACH and RoHS Directives.

The HP Materials and Chemicals Management Policy

As part of HP's commitment to environmental leadership, we are dedicated to reducing the environmental and human health impacts of materials throughout our supply chain.

The HP Materials and Chemicals Management Policy guides how we specify materials and chemicals for use in products, packaging, and manufacturing processes. This policy applies to all HP employees and businesses worldwide, and also extends to HP's suppliers. Supplier expectations are set through the HP General Specification for the Environment and the HP Supplier Code of Conduct.

Materials and chemicals management at HP is based on the following principled commitments:

- Comply with laws and regulations where HP does business and adopt and apply international standards where laws are less stringent.
- Proactively evaluate materials and chemicals in HP's products and supply chain, and prioritize them for restriction based on published lists of chemicals of concern, customer preferences, and sound scientific analysis that reveals a potential impact to human health or the environment.
- Determine the hazard characteristics of chemical constituents and formulations in products, packaging, and manufacturing processes and, using a precautionary approach, reduce hazard by replacing a chemical of concern with a less hazardous alternative.
- Redesign products and processes to avoid the use of chemicals of concern.
- Collaborate with supply chain partners to drive innovation in the development and adoption of environmentally preferable alternatives.
- Support policies, standards, and harmonized legislation to ensure that comprehensive hazard data are available for chemicals on the market and to eliminate or reduce known hazards. These policies, standards, and legislation should be based on sound science and include assessment of relevant hazards, exposures and subsequent risks, and a preference for lower risk alternatives.
- Require our suppliers to have proper management systems to inventory chemicals, eliminate or manage chemicals of concern, and provide appropriate personal protective equipment and training to workers.
- Identify the materials and chemicals used in products, packaging, and manufacturing processes. Provide this information to customers, workers, communities, and other stakeholders, subject to the need to protect confidential information for legitimate business needs and innovation.

We are committed to ensuring the principles outlined in this policy are integrated into our business operations. This includes conducting assessments, defining performance goals and metrics, reviewing results with senior management regularly, and publicly reporting on our continual improvement in areas covered by this policy.

Judy Glazer

Global Head of Sustainability and Product Compliance



The purpose of the **Responsibilities & Incentives Indicator (M5)** is to evaluate whether a company's chemicals policy delineates the responsibilities of employees, senior managers, and/or the board of directors, and whether senior management have a financial incentive for policy implementation. Over 80% of the companies scored points for at least one responsibility/incentive included in the 2016 CFP Survey, with senior management being assigned responsibilities for chemicals policy scoring highest (see Figure 11).

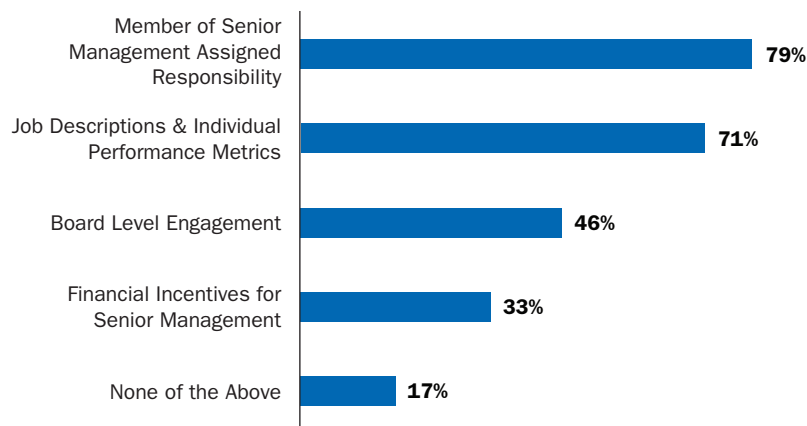
Management Strategy Leaders

A diverse group of eight companies scored in the top quartile with an average of 75% of possible Management Strategy points. They included companies of different sizes, product types, and sectors. One company even scored 100% of the potential Management Strategy points.

The eight leadership companies scored in the same pattern described above for all companies: Business Strategy—M3 (93% of possible points), Responsibilities & Incentives—M5 (88%); External Engagement—M4 (84%), CoHCs Policy—M1 (80%), and Safer Alternatives Policy—M2 (73%).

The eight Management Strategy leaders were also overall leaders, averaging 67% of total possible points (compared to the average of 49% for all companies). The leaders in Management Strategy led with Business Strategy and Responsibilities & Incentives, which includes senior management responsibility for and board level engagement in chemicals management. For example, one company's business strategy includes the integration of sustainable chemistry into business value creation, where sustainable chemistry is a vehicle for meeting or exceeding customer expectations, helping customers to meet their sustainability goals, and reducing organizational risks and costs associated with hazardous chemicals. Additionally that company's Vice Chair of the Board of Directors meets with the core sustainability leadership team monthly to engage in strategic sustainability oversight, including the implementation of the organization's chemicals policy.

FIGURE 11. **Management Strategy: Responsibilities & Incentives (Indicator M5)** (percent of companies)



Our “Vice Chair of the Board of Directors meets with the core sustainability leadership team monthly to engage in strategic sustainability oversight, including the implementation of the organization’s chemicals policy.”

Other examples of how companies engage their boards of directors in chemicals policy implementation include:

- “... we have top-down support as our CEO/ Founder and Board members have explicitly supported our company mission that every ... product has a high performance standard without compromising health and safety;” and
- Our company “has established a corporate governance structure to manage our sustainability work, which is led by the Vice President of Sustainability & Product Compliance, who provides regular updates to the executive staff and the board of directors.”

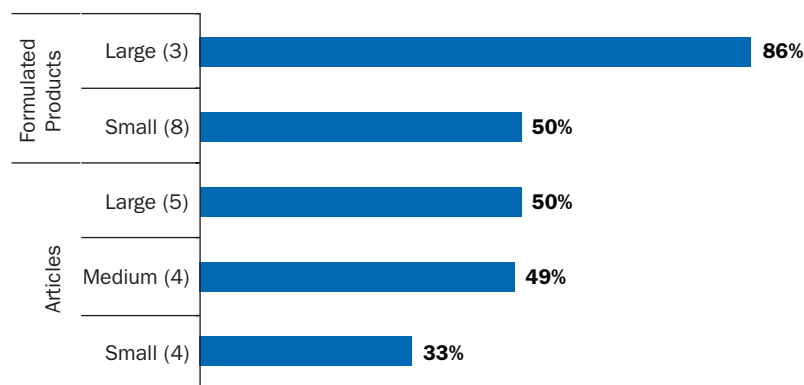
Companies overall, including the eight leading companies, scored lowest on average in establishing corporate-wide policies on CoHCs (M1) and Safer Alternatives (M2). The CFP's model comprehensive chemicals policy for manufacturers

and brands, which will be released in the fall of 2017, along with the Environmental Defense Fund's model Retailers Policy Model Chemicals Policy for Retailers of Formulated Products⁴³ provide guidance on what to include in a comprehensive chemicals policy.

Management Strategy Scores by Product Type and Company Size

Within the Management Strategy Pillar, among **companies selling formulated products**, large scored highest on average followed by small companies (see Figure 12). Note that the 2016 Survey participants did not include any medium size formulated product companies. Among companies selling articles, in a twist from the typical large companies scoring highest, medium companies scored equivalent to large companies, followed by small companies.

FIGURE 12. **Management Strategy: All Indicators—Product Type and Company Size** (average percent of points)



Large companies selling formulated products (either only formulated products or both formulated products and articles) landed in the top quintile for each of the five Management Strategy Indicators, scoring consistently higher than small companies (see Figure 13). In general the differences in scores were quite significant, especially for policies (M1 and M2) and business strategy (M3). Figure 13 details the percent of possible points scored by companies by size (small and large) across the five Management Strategy Indicators.

Large companies have greater resources to create policies, strategies, and systems to ensure

implementation of chemicals management. Small companies may not be able to focus their scarce resources here. To simplify implementation, small companies can learn from the efforts of larger companies and NGOs to develop blueprints for chemicals policies or management systems. NGO resources include the [BizNGO Guide to Safer Chemicals](#), the [Mind the Store scorecard](#), and the [Outdoor Industry Association's Chemicals Management Module](#), among others.

Among sellers of only articles, no company reached the top quintile for any Management Strategy Indicator, and large companies reached into the fourth quintile for only one Indicator—CoHCs policy (M1) (see Figure 14 below). Medium size companies scored consistently the same as large companies for every Management Strategy Indicator except Safer Alternatives Policy (M2), where they scored notably higher. Small article companies scored lowest for every Indicator. The greatest differentiation emerged in corporate policies—CoHCs and Safer Alternatives—where small companies lagged behind medium/large companies for both formulated products and articles only.

Management Strategy Opportunities

The Management Strategy Indicators highlight a number of pathways for evolving corporate policies and strategies, including:

- Making the identification and implementation of safer alternatives an integral component of business strategy. In so doing, firms will embed the development and use of safer alternatives into the business of their companies, enabling its diffusion into corporate policies, supply chain management practices, product development, and public transparency. These actions will drive systemic change within a company.
- Establishing and/or refining policies for reducing CoHCs and preferring safer alternatives, and broadening these policies to address chemicals in manufacturing, supply chains, and packaging. Corporate policies on CoHCs and Safer Alternatives present the greatest opportunity for improvement among the Management Strategy Indicators. Elements of more comprehensive policies include: clear identification of RSLs and

Beyond RSLs; active and ongoing evaluation of chemicals in products; details on applicability, scope, and actions to be taken; and specified preference for safer alternatives.

- Engaging externally with sector-based initiatives (for example, Zero Discharge of Hazardous Chemicals—ZDHC), NGOs, educational institutions, and/or governments

all provide valuable opportunities for learning about, developing, and implementing chemical management initiatives.

Important to overall success with Management Strategy is engaging senior management and/or the board of directors in chemicals management.

FIGURE 13. **Management Strategy: Each Indicator—Small and Large Companies Selling Formulated Products** (average percent of points)

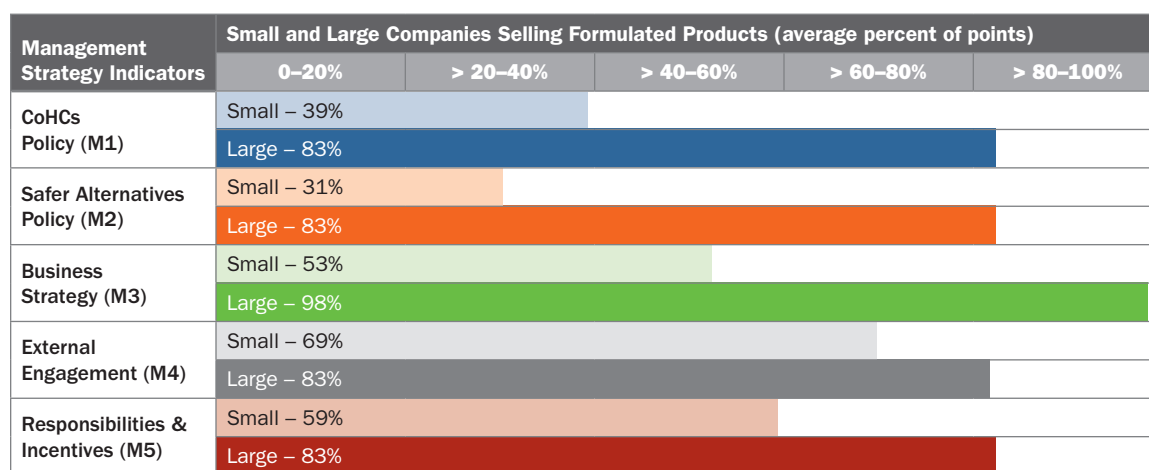
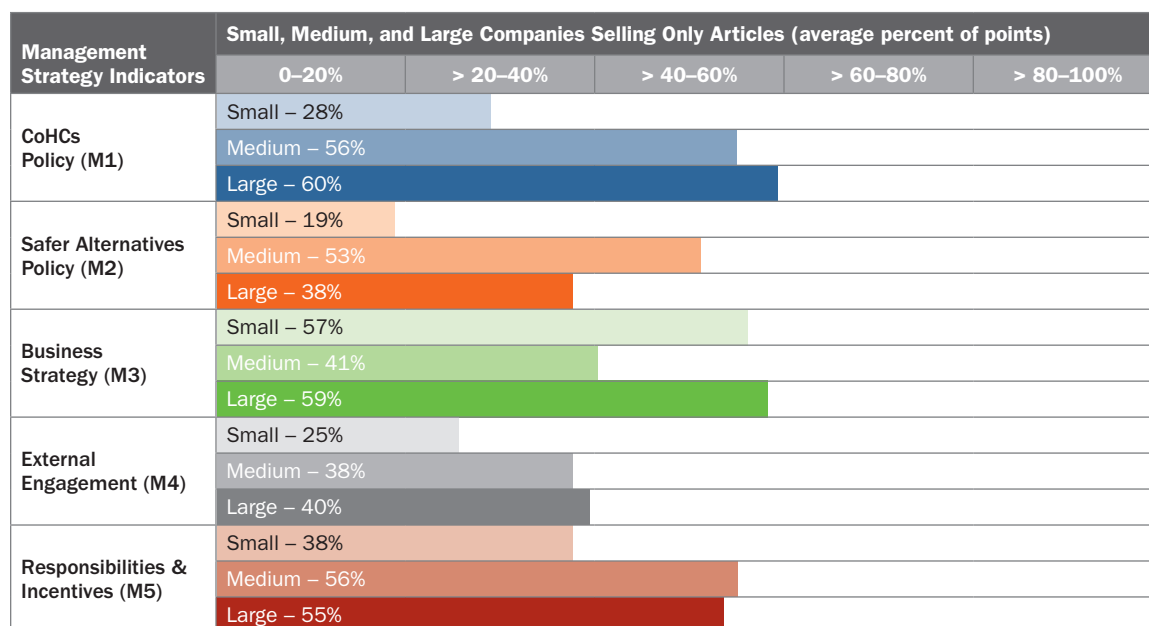
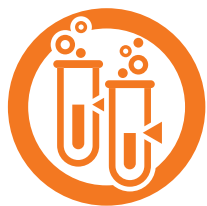


FIGURE 14. **Management Strategy: Each Indicator—Small, Medium, and Large Companies Selling only Articles** (average percent of points)





2.2 CHEMICAL INVENTORY

Specifications & Procedures for Knowing Products & Supply Chains



Chemical Inventory Indicators (30 points)

- I1 – Restricted Substances List (RSL) (5 points)
- I2 – Beyond RSL (5 points)
- I3 – Supplier Requirements (5 points)
- I4 – Chemicals in Products (5 points)
- I5 – Data Management (5 points)
- I6 – Supplier Conformance (5 points)

Chemical Inventory Indicators include the information companies seek on chemicals in products and supply chains, ranging from chemicals of high concern (CoHCs) to all chemicals in products and the means that companies use to collect and assure these data. Companies showing leadership in Chemical Inventory prioritize the elimination of CoHCs, seek to know 100% of the chemical substances in their products and supply chains, and work with suppliers to collect the data and ensure its accuracy. In the best

case, a leadership company will know all of the chemical ingredients in its products and will engage regularly with suppliers through trainings and audits.

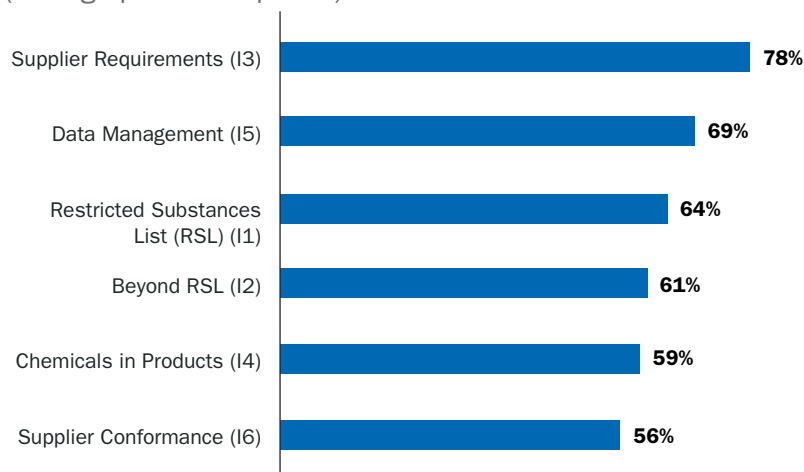
Chemical Inventory Indicators

Overall companies scored the highest on Chemical Inventory Indicators in comparison to the other CFP Pillars, with firms earning on average 64% of possible points. Figure 15 below provides the average score for each of the six Chemical Inventory Indicators. Companies scored the highest for Supplier Requirements–I3 (78% of possible points) and the lowest for Supplier Conformance–I6 (56% of possible points).

Restricted Substance Lists (RSLs–I1) are widely used among the CFP respondents, with 84% having an RSL or having designed their products to avoid CoHCs. More than half of the firms with RSLs make them available to the public. In addition, many of the companies track chemicals that are not currently regulated for their use, which is known within CFP as **Beyond RSLs–I2** (see Appendix 1 for definition). Fifty-eight percent of respondents use Beyond RSLs to track substances of concern to their company. The reality is very few CoHCs are legally restricted for most products, thus Beyond RSLs are especially important to predict future regulations and market pressures.

Supplier Requirements (I3)—A significant trend in the Chemical Inventory Pillar is the movement towards requiring suppliers to provide full chemical ingredient information; 58% percent of companies required full chemical ingredient information, from their suppliers. A diverse set of companies require full chemical ingredient information from their suppliers, including small, medium, and large companies that sell either articles or formulated products. As shown in Figure 16, firms that do not require full chemical ingredient information require other types of information from their suppliers including RSLs, Beyond RSL, and EU SVHCs. Only

FIGURE 15. **Chemical Inventory: Each Indicator**
(average percent of points)



13% of reporters do not require suppliers to provide any of this information.

Chemicals in Products (I4) evaluates the percent of full chemical ingredient information that a company collects on chemicals its products. The findings show that: a) 25% of companies collect full chemical ingredient information on all (100%) of their products; b) 25% collect full chemical ingredient information for 75% or more of their products; and c) 21% collect full chemical ingredient information for 50% or more of their products. Figure 17 provides further details, including the 21% that do not collect full chemical ingredient information on any of their products.

An advantage of collecting full chemical ingredient information in products is that it eliminates the need for repeated supply chain queries to update material declarations as governments and/or customers expand their RSLs. Additionally full chemical ingredient information also enables businesses to identify substances that could present high risks but are not on an RSL and supports the evaluation and prioritization of substances for redesign or replacement.

Data Management (I5) evaluates how companies manage their data and supplier relationships. Over 90% of the firms have specified a contact person on chemicals for their suppliers. Three-quarters of firms have data systems (either internal or third party) to manage an inventory of chemicals in products. And more than 70% have a data system (either internal or third party) that links their inventory of chemicals in products to chemical hazard information.

Supplier Conformance (I6) assesses how companies ensure supplier conformance with their policies. Almost two-thirds of participating

FIGURE 16. **Chemical Inventory: Supplier Requirements (Indicator I3)** (percent of companies by information collected)

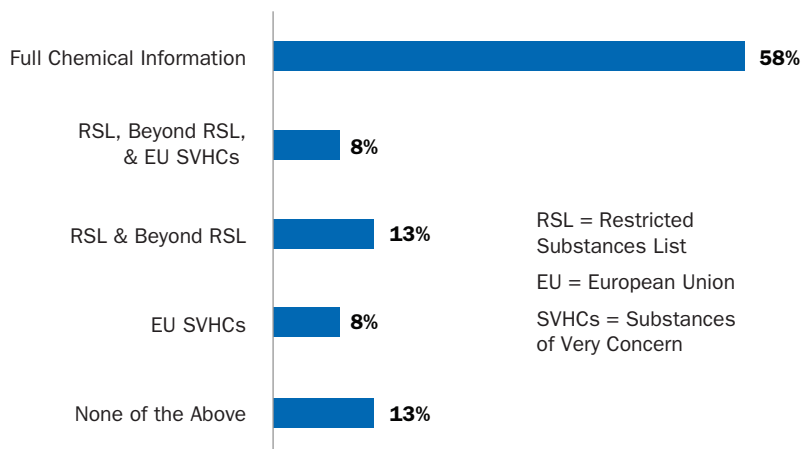


FIGURE 17. **Chemical Inventory: Chemicals in Products (Indicator I4)** (percent of companies)

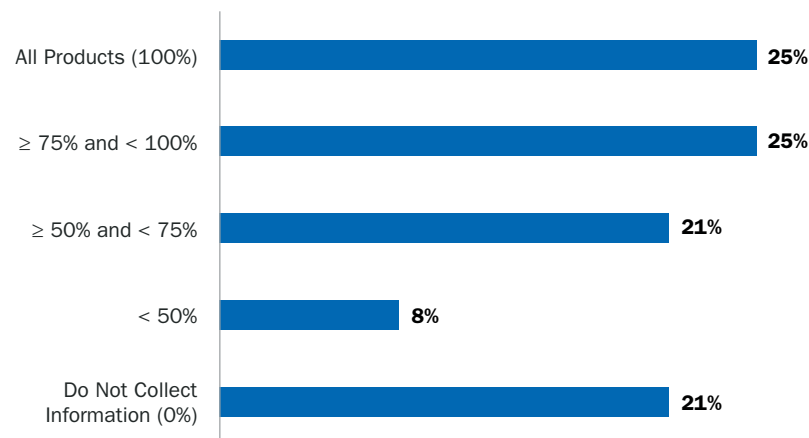
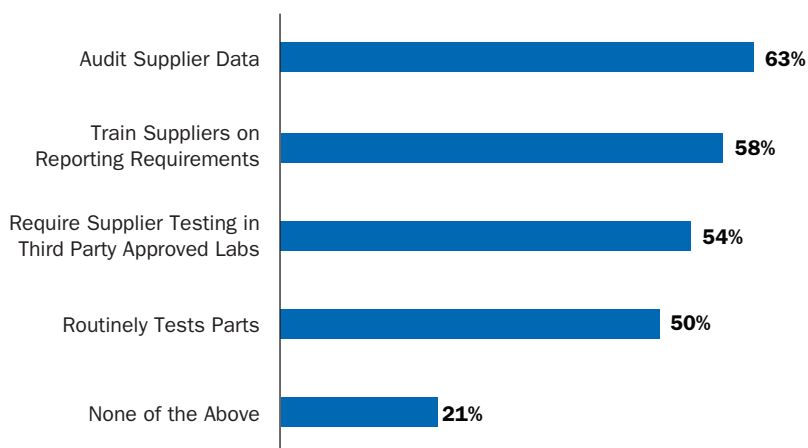


FIGURE 18. **Chemical Inventory: Supplier Conformance (Indicator I6)** (percent of companies)



A significant trend in the Chemical Inventory Pillar is the movement towards requiring suppliers to provide full chemical ingredient information.

companies have an audit program to verify supplier data. Slightly fewer train suppliers on reporting compliance or require suppliers to test parts and provide results. And half of the companies test parts for compliance (see Figure 18 for details).

Large companies excelled in the Chemical Inventory Indicators where they benefit from the resources to invest in systems, staff, subscriptions, and software.

Chemical Inventory Leaders

The top quartile of companies in Chemical Inventory averaged 90% of total points and included companies of diverse sizes, product types, and sectors, including electronics, building-related products, apparel, medical devices, and consumer goods. Three of the eight companies scored a near perfect 29 out of 30 points and included a mix of sellers of articles and formulated products.

Indicating a pathway to leadership in Chemical Inventory, the eight leaders scored highest for Supplier Requirements (I3) with a perfect 100% across all the companies, followed by Data Management (I5), RSL (I1), Beyond RSL (I2), Supplier Conformance (I6), and finally, Chemicals in Products (I4). What is interesting about the leaders

is their focus on supplier engagement, followed by data management. They then emphasized RSLs and Beyond RSLs, with the more challenging actions of Supplier Conformance and Chemical in Products trailing the pack of initiatives.

One of the leading companies has an “integrated software platform [that] allows us to manage our existing Ingredient Screen to more rapidly review chemicals for regulatory restrictions, chemicals of high concern, potential for exposure and related safety risks. This software platform serves to improve data accuracy in our existing ingredient screening tools and ingredient, and confirm the accuracy of our ‘Allowed,’ ‘With Approval,’ and ‘Prohibited’ ingredients more consistently through automatic searches on updated regulatory restrictions.”

Chemical Inventory Scores by Product Type and Company Size

Overall the scores for the Chemical Inventory Indicators followed the pathway of the large companies leading for both formulated products and articles, followed by medium companies for articles, and then small companies for both formulated products and articles (see Figure 19). The generally high scores for Chemical Inventory is a positive indicator that companies participating in the 2016 Survey are becoming prepared to quantitatively track their use and reduction of CoHCs because they increasingly know what chemicals are in their products and supply chains. And indeed the 2016 data for chemical footprinting (see Section 2.3) highlight the growing capacity to quantitatively track CoHCs in products.

Figure 20 details the percent of points scored by **companies selling formulated products** across the six Chemical Inventory Indicators. Large companies selling formulated products demonstrated outstanding leadership in the Chemical Inventory Indicators, scoring in the top quintile for four of the Indicators: RSLs (I1), Beyond RSLs (I2), Supplier Requirements (I3), and Data Management (I5). The only Indicators with significant room for improvement for large companies are to know Chemicals in Products (I4) and assure Supplier Conformance (I6).

Large companies excelled in the Chemical Inventory Indicators where they benefit from

FIGURE 19. **Chemical Inventory: All Indicators—**
Product Type and Company Size (average percent of points)

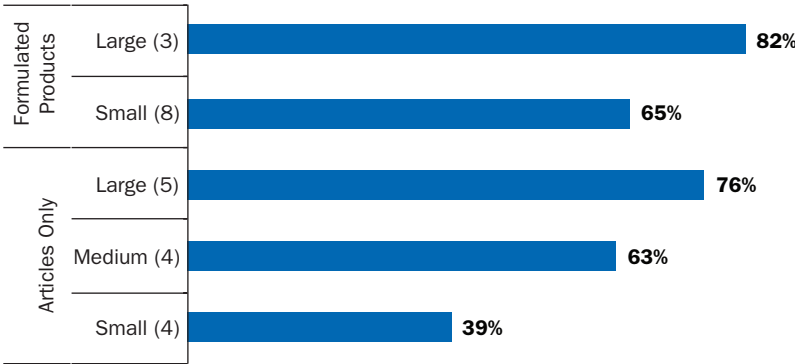


FIGURE 20. **Chemical Inventory: Each Indicator—Small and Large Companies Selling Formulated Products** (average percent of points) (Revised 10/26/17)

Chemical Inventory Indicators	Small and Large Companies Selling Formulated Products (average percent of points)				
	0–20%	> 20–40%	> 40–60%	> 60–80%	> 80–100%
Restricted Substances List (I1)	Small – 63%				
	Large – 93%				
Beyond RSL (I2)	Small – 60%				
	Large – 87%				
Supplier Requirements (I3)	Small – 75%				
	Large – 100%				
Chemicals in Products (I4)	Small – 74%				
	Large – 56%				
Responsibilities & Incentives (M5)	Small – 66%				
	Large – 92%				
Supplier Conformance (I6)	Small – 50%				
	Large – 67%				

having the resources to invest in systems, staff, subscriptions, and software:

- RSL implementation benefits from investment in subscriptions that track government regulations.
- Beyond RSLs require the capacity to evaluate chemicals based on hazards and track emerging concerns.
- Supplier Requirements and Supplier Conformance require systems and staff to engage, track, and manage suppliers.
- Data Management requires investments in internal or external systems.

Small companies with their smaller product portfolios demonstrated more robust knowledge of chemical ingredients in their products (I4) than large companies with their broader portfolio of products. For the other Chemical Inventory Indicators, small companies can learn from best practices in large companies and pursue assistance such as that offered by sector-based initiatives (for example, Zero Discharge of Hazardous Chemicals in the apparel sector) and leverage NGO resources to identify RSLs and Beyond RSLs.

Among companies selling only articles, Figure 21 details the pattern of large company leadership as well as its divergence across the Chemical

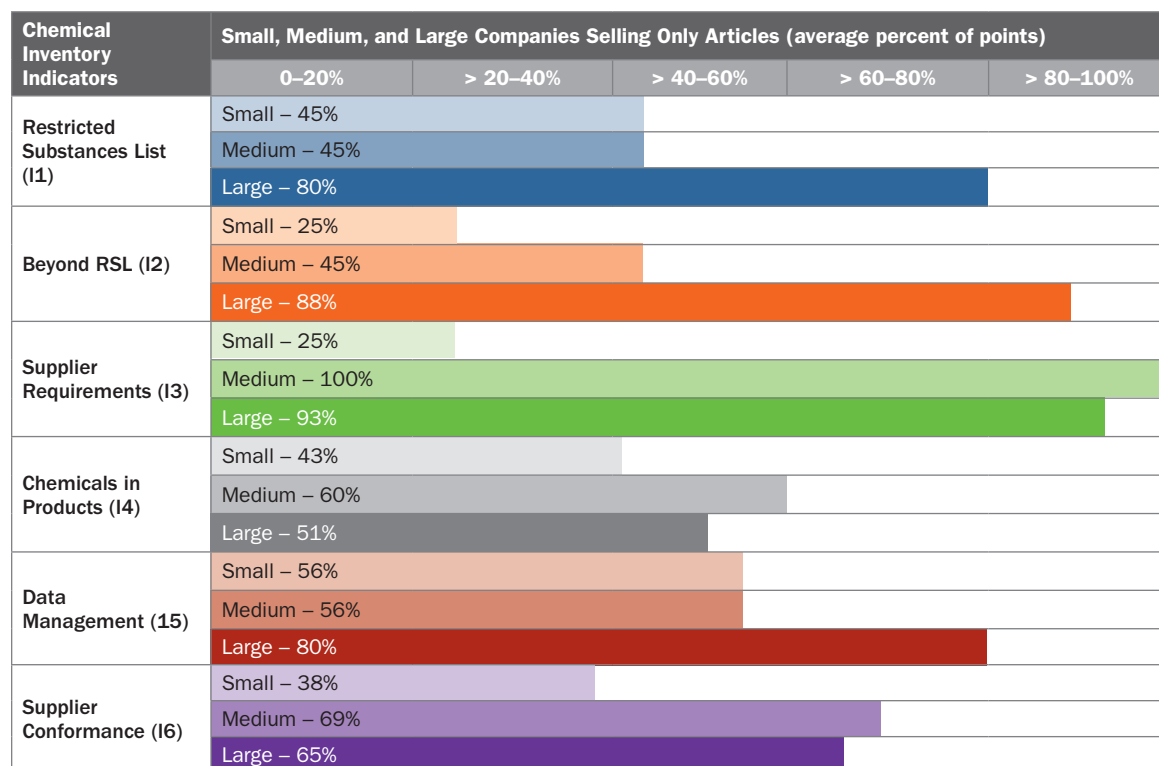
Inventory Indicators. Large and medium companies selling only articles scored near perfect and perfect, respectively, for I3—collecting data from supplier. This is a positive sign of in-depth supplier engagement, and mirrors the score of the large companies selling formulated products; though it contrasts with “assuring supplier conformance” (I6) through testing, training, and audits, where companies across all sizes continue to have opportunities for improvement.

Large companies selling only articles were in the top and fourth quintiles for five of the six Indicators. Knowing Chemicals in Products (I4) was challenging for all the companies selling articles.

Medium companies selling only articles scored in the third quintile for four of the six Indicators, signifying solid Chemical Inventory management and practices, along with a perfect score for Supplier Requirements (I3), and outscoring large companies for Supplier Conformance.

Small companies selling only articles, with their limited resources and capacities to invest in gathering chemical knowledge, scored in the second or third quintiles for all the Chemical Inventory Indicators, highlighting their need for resources to achieve this capacity.

FIGURE 21. **Chemical Inventory: Each Indicator—Small, Medium, and Large Companies Selling only Articles** (average percent of points)



Chemical Inventory Opportunities for Improvement

The Chemical Inventory Indicators track performance on RSLs and Beyond RSLs, Supplier Requirements and Conformance, and Chemicals in Products and Data Management. Overall, the more companies can put in place systems to collect, manage, and verify all chemicals in their products and supply chains, the better prepared they will be to avoid CoHCs and identify and implement safer alternatives. Across all companies, sizes, and product types the two most consistent challenges are knowing Chemicals in Products (I4) and assuring Supplier Conformance (I6). These challenges highlight that most companies continue to need to improve their knowledge of chemicals in their products and hold their suppliers accountable to their requirements through testing, training, and audits.



2.3 FOOTPRINT MEASUREMENT


Metrics for Management

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 on it. To measure their chemical footprint companies need to know the chemicals in their products and supply chains, need to have systems in place for tracking the chemicals, and need to align the data they collect on CoHCs in products with sales of those products. Additionally, leadership companies employ robust methods to evaluate chemical hazards and identify and implement safer alternatives. Leading companies are responding to demand from investors and purchasers to calculate their chemical footprint.

Footprint Measurement Indicators

Companies scored on average 53% of possible points for the Footprint Measurement Indicators, equivalent to the average of 54% of possible points scored for the Management Strategy Indicators. Among the five Footprint Measurement Indicators, average performance varied widely, from 83% of possible points for Hazard Assessment (Indicator F4) to 38% of possible points for CoHCs Reduction (see Figure 1).

CoHCs Goals (F1) evaluates companies on whether they have set goals to reduce CoHCs, publicly disclose those goals, and report annually on progress towards meeting the goals. In the 2016 Survey, over half of the companies (63%) set goals to reduce CoHCs with the remainder either having no CoHCs (8%) or setting no goals to reduce CoHCs (29%). Of the companies that set goals, less than half publicly released their goals (46%) or reported on annual progress (42%). GOJO Industries became the first company participating in CFP to publicly commit to reducing its chemical footprint, with



Footprint Measurement Indicators (30 points)

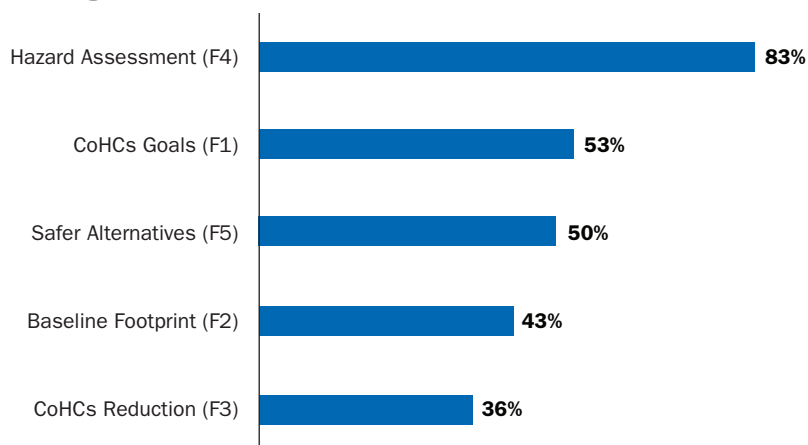
- F1 – CoHCs Goals (4 points)
- F2 – Baseline Footprint (8 points)
- F3 – CoHCs Reduction (6 points)
- F4 – Hazard Assessment (6 points)
- F5 – Safer Alternatives (6 points)

a goal of 50 percent reduction by 2020 (see company profile in this section).

Why Having a Sound Chemicals Management Program Matters

Baseline Footprint (F2) scores companies on their ability to calculate their chemical footprint. For the 2016 Survey, CFP measured “chemical footprint” as the total mass of CoHCs in products sold by a company and provided three pathways for companies to report on their baseline footprint:

FIGURE 22. **Footprint Measurement: Each Indicator**
(average percent of points)



Management Program Matters

At GOJO, our Purpose—Saving Lives and Making Life Better through Well-Being Solutions—compels us to create social, environmental, and economic value for our employees, our customers, society, and all our business touches. Our 2020 Sustainable Value Strategies and Goals are informed by the perspectives of our stakeholders and demonstrate our belief that understanding what matters most to the people we serve and working together to address shared challenges are paramount to our short- and long-term success. As part of our 2020 Goals, we became the first company to publicly commit to reducing our chemical footprint, with a goal of 50 percent reduction by 2020.

We see the opportunity to have a significant positive impact beyond our own operations, creating new sources of Sustainable Value for GOJO, our customers, people who rely on our well-being solutions to help them stay healthy, our suppliers, our team members, our collaboration partners, and our community.

It's for that reason that we have publicly committed to advancing our strategic priorities, along with our 2020 Goals. As we work toward 2020, we have aligned ourselves with the United Nations' Sustainable Development Goals (SDGs), which are designed to address the ways in which countries, companies, and citizens improve the lives of people around the world.

GOJO has formed an internal sustainable chemistry implementation team to focus on the chemical footprint reduction target. This team identifies projects to help the company review potential ingredients of concern and prioritize ingredients for reduction or substitution. Our 2016 progress reflects reductions of triclosan and parabens in existing products. We began phasing out triclosan as part of the implementation of our sustainable chemistry policy in 2013. During our involvement with the Chemical Footprint Project, we implemented additional projects to dramatically reduce parabens and titanium dioxide. We also devised internal communication tools to ensure Enterprise-wide awareness of our Footprint reduction efforts and to avoid using these ingredients in new products. We use informed substitution to guide our selection of ingredients in a manner that improves the human and environmental safety of our products without compromising their function.

GOJO was an early participant in the Chemical Footprint Project, responding to the 2014 pilot, and to the 2015 and 2016 Surveys. Completing the Surveys has provided a helpful framework to evaluate our chemical use, implement our sustainable chemistry policy, and ultimately declare our 2020 goal to reduce our chemical footprint by 50 percent.

This is an exciting time of growth and opportunity at GOJO, and our Purpose remains at the center of everything we do.

Nicole Koharik
Corporate Communications Director





1. “SVHCs” Pathway: report on use of REACH Candidate List of Substances of Very High Concern (SVHCs)—the Candidate List included 169 chemicals at the time of the release of the CFP Survey in September 2016;
2. “CoHCs” Pathway: report on use of CFP’s Chemicals of High Concern (CoHCs) List—the CFP CoHCs list (which is based on GreenScreen® List Translator) included roughly 2,200 chemicals and chemical groups (including the SVHC list); and
3. “No Data” Pathway: no report of baseline footprint because the company does not currently collect or have in hand that data.

Within both the SVHCs and CoHCs Pathways companies had three options for reporting data: a) products do not contain SVHCs/CoHCs; b) calculate SVHCs/CoHCs based on number of those chemicals in products (for example, our products contained 12 CoHCs); and c) calculate SVHCs/CoHCs based on mass of those chemicals in products (for example, our products contained 1,252 metric tons of CoHCs). Twenty five percent of the companies chose the SVHCs Pathway, 37.5% of the companies chose the CoHCs Pathway, and the remaining 37.5% of companies did not report data (the No Data Pathway).

In the 2016 Survey, 42% of the companies calculated their chemical footprint on the basis of SVHCs or CoHCs (by count or mass). By count, the number of SVHCs in products ranged from one to 13 and the number of CoHCs in products ranged from one to 632. And the 21% of companies that calculated their chemical footprint by mass shipped or sold products with 631 million pounds of CoHCs in 2015.

The companies that calculated their chemical footprints now have clear metrics for evaluating their progress to safer chemicals by reducing the number or mass of CoHCs in their products.

CoHCs Reduction (F3) evaluates whether companies reduced CoHCs over the past two years or do not use CoHCs. A highlight in the 2016 CFP Survey responses is that 13% of companies reduced their use of CoHCs in products by 416 million pounds over the past two years.

Hazard Assessment (F4) evaluates whether companies assess the hazards of chemicals in their products and supply chains. In the 2016

FIGURE 23. **Footprint Measurement: Safer Alternatives (Indicator F5)** (percent of companies)



The 21% of companies that calculated their chemical footprint by mass shipped or sold products with 631 million pounds of CoHCs in 2015.

(Revised 10/26/17)

responses, 83% of companies either evaluate chemical hazards or require suppliers to provide hazard evaluations, with the remaining 17% of companies not assessing the hazards of chemicals in their products beyond regulatory requirements. The reporting companies use a mixture of methods, tools, and databases to evaluate hazards, including: [3E Ariel WebInsight](#), [Actio Material Disclosure](#), [GreenScreen® for Safer Chemicals](#), [Pharos](#), [SciVeraLENS](#), [toxnot](#), and [UL Weracs](#).

Safer Alternatives (F5) evaluates how companies assess whether alternatives to CoHCs are safer for people and the planet. The majority of companies (58%) reported having two or more approaches for advancing safer chemicals in products and supply chains, with many specifying criteria for safer alternatives and communicating them to suppliers. Only 21% of companies have no activities for evaluating whether alternatives are safer (see Figure 23).

13% of companies reduced their use of CoHCs in products by 94,418 metric tons over the past two years.

Footprint Measurement Leaders

The top quartile of eight companies averaged 77% of total potential points with one company scoring 100% of possible points. The leading companies in Footprint Measurement tend to be small companies selling formulated products—they have corporate missions to use safer chemicals and smaller product portfolios. Two of the eight leaders in Footprint Measurement are large companies and two of the eight leaders sell only articles. The eight leadership companies in Footprint Measurement scored highest for Hazard Assessment (F4) with an average score of 89%, followed by: CoHCs Goal (F1)—75% of possible points Baseline Footprint (F2)—78% of possible points, CoHCs Reduction (F3)—72% of possible points, and Safer Alternatives (F5)—69% of possible points.

All the leadership companies in the Footprint Measurement Pillar either had no SVHCs or CoHCs in their products, or were able to calculate the mass of CoHCs in their products (F2). Additionally, some of the companies were able to

calculate reductions in the mass of CoHCs as well (F3).

One leadership company measured its footprint for articles by:

- Creating product content models for representative products from each family based on a combination of engineering drawings and specifications, safety data sheets, technical data sheets, disclosures, declarations, product teardowns, analytical testing, material database, literature search, and subject matter expertise. Based on this analysis, this firm identified greater than 95% of the chemical ingredient information for these products.
- Taking into account product attributes that are important for identifying CoHCs, including product size, number of components, and weight of plastics and metals.
- Adjusting metrics for different products.
- Completing this work for representative products that cover 90% of its products by sales volume for products.

The leadership companies in the Footprint Measurement Pillar led on safer alternatives (F5) by either having no CoHCs in their products or scoring points for three or more of the approaches for identifying safer alternatives.

Footprint Measurement Scores by Product Type and Company Size

The leading companies by size in Footprint Measurement were small companies selling formulated products, with an average score of 70% of possible points. Interestingly, large companies selling formulated products and articles scored similarly, 56% and 52%, respectively (see Figure 24).

Among the **companies selling formulated products** (only formulated products or both formulated products and articles), small companies scored higher than large companies on every Footprint Measurement Indicator. Small companies selling formulated products scored in the fourth and top quintiles for every Footprint Measurement Indicator, while large companies selling formulated products scored in the second to fourth quintiles, with average scores highest for Hazard Assessment (F4) and Safer Alternatives (F5), and lowest for CoHCs Reduction (F3) (see Figure 25).

FIGURE 24. **Footprint Measurement: All Indicators—Product Type and Company Size** (average percent of points)

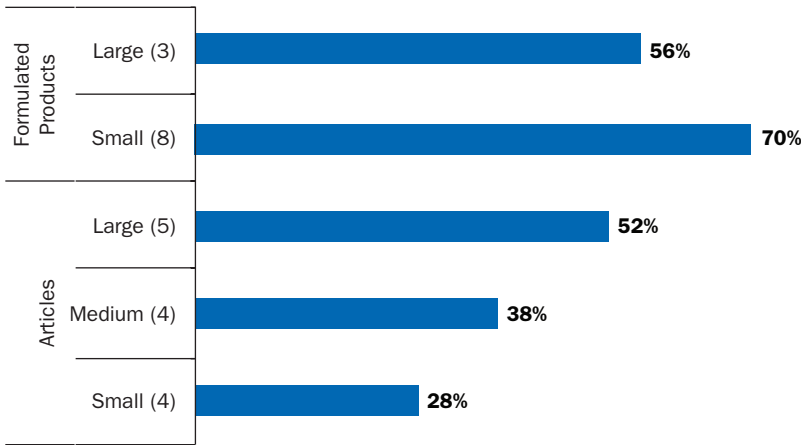


FIGURE 25. **Footprint Measurement: Each Indicator—Small and Large Companies Selling Formulated Products** (average percent of points) (Revised 10/26/17)

Footprint Measurement Indicators	Small and Large Companies Selling Formulated Products (average percent of points)				
	0–20%	> 20–40%	> 40–60%	> 60–80%	> 80–100%
CoHCs Goals (F1)	Small – 72%				
	Large – 58%				
Baseline Footprint (F2)	Small – 66%				
	Large – 58%				
CoHCs Reduction (F3)	Small – 67%				
	Large – 33%				
Hazard Assessment (F4)	Small – 88%				
	Large – 67%				
Responsibilities & Incentives (F5)	Small – 63%				
	Large – 61%				

The data indicate that small companies with their smaller product portfolio and mission alignment to safer chemicals may find it comparatively easier to establish a Baseline Footprint, set and implement goals, and evaluate chemical hazards.

For **companies selling only articles**, the dominant pattern of large companies leading, followed by medium and then small companies, held for the Footprint Measurement Indicators. Figure 26 reveals the pattern and its divergences across the Footprint Measurement Indicators. Outside of Hazard Assessment (F4), the highest quintile attained by sellers of articles was large companies reaching the fourth quintile for CoHCs Goals (F1). Medium and small size companies clustered in the first and second quintiles for CoHCs Goals (F1), Baseline Footprint (F2), and CoHCs Reduction (F3). Companies of all sizes (for sellers of articles) clustered together in the upper second quintile and lower third quintile for Safer Alternatives (F5).

Participating companies of all sizes that sell articles find it challenging to reduce CoHCs, implement safer alternatives, and measure their baseline footprint. Small and medium size companies selling articles are just beginning on the journey to measure and reduce CoHCs in their products.



Footprint Measurement— Opportunities for Improvement

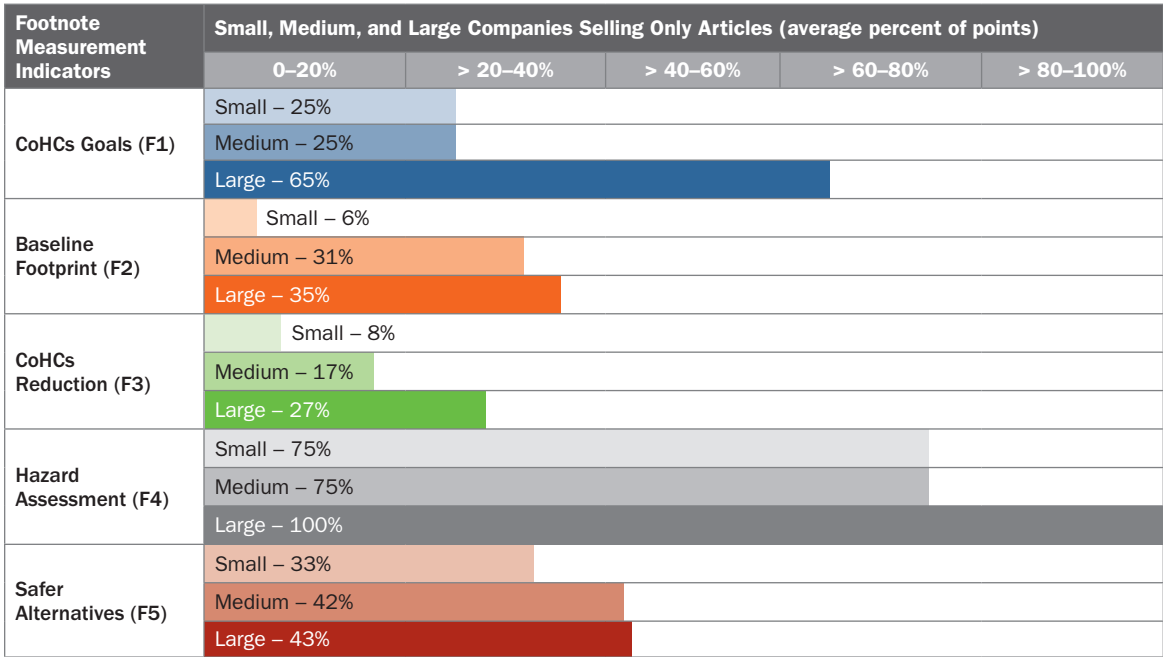
Companies can improve their Footprint Measurement by:

- 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.
- Using the baseline data on CoHCs in products (F2) to document progress to safer chemicals (F3).
- Developing initiatives to engage suppliers in identifying and implementing 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.

Companies selling articles were generally challenged by the Footprint Measurement Indicators, with the exception of Hazard Assessment. Creating goals, measuring baseline footprint, reducing CoHCs, and encouraging safer alternatives are all opportunities for improvement for companies that produce and sell articles.

FIGURE 26. **Footprint Measurement: Each Indicator—Small, Medium, and Large Companies Selling only Articles** (average percent of points)





2.4 DISCLOSURE & VERIFICATION

Leadership with Transparency

The Disclosure & Verification Indicators evaluate the sharing of information on chemicals in products with the public, the disclosure of responses and scores for the CFP Survey, and steps taken to verify answers to the CFP Survey. Companies show leadership in Disclosure & Verification by being transparent to the public and providing third-party verification of responses.

Disclosure & Verification Indicators

Trust is a critical component of a healthy corporate reputation. Firms generate trust through a variety of attributes including their demonstration of: vision and leadership, social and environmental responsibility, quality products and services, healthy workplace environment, and financial performance. Companies engender trust by disclosing information about their policies and practices in a variety of realms. Often this information is provided in an annual corporate social responsibility report. In addition to annual reporting, many companies share information about their policies on websites and information about chemical ingredients in products on websites and packaging. Corporate transparency about chemicals generates trust as investors, customers, and the public understand where a firm is on its journey to safer chemicals. It also provides a means for deciding whether to invest in a company or purchase products based on their chemical content.

In comparison to the other CFP Pillars, companies received the lowest percent of possible points for the Disclosure & Verification Pillar, scoring an average of 20% of points, with a range of company scores from zero to 80% of possible points. Figure 27 details the average score as a percent of possible points for each Disclosure & Verification Indicator.

The **Chemicals in Product Disclosed (D1) Indicator** evaluates to what extent and for what percent of sales a company discloses chemical ingredients in products. As the Natural



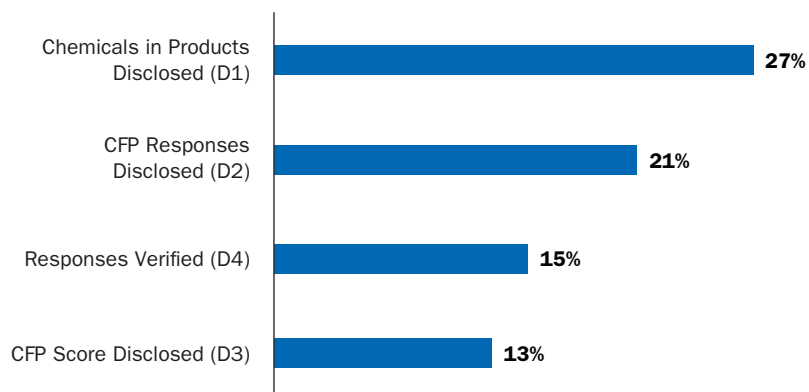
Disclosure & Verification Indicators (20 points)

- D1 – Chemicals in Products (8 points)
- D2 – CFP Responses (3 points)
- D3 – CFP Score (5 points)
- D4 – Responses Verified by Third Party (4 points)

Marketing Institute concluded in its annual state of sustainability report, “Demand for product transparency is on the rise, and brands that fulfill this demand by providing comprehensive product information from sourcing to manufacturing to ‘cause’ efforts are positioned to gain favor.”⁴⁴ The disclosure requirements in the CFP Survey vary depending on whether the company sells formulated products or articles, with the requirements for formulated products being more rigorous than for articles.

Companies selling formulated products—The 2016 CFP Survey differentiated between four levels of disclosure for companies selling formulated products: 1) no disclosure beyond legal requirements; 2) chemical identity beyond legal

FIGURE 27. **Disclosure & Verification: Each Indicator**
(average percent of points)



requirements; 3) all intentionally added chemicals with the exception of fragrances; and 4) all intentionally added chemicals. Of the companies selling formulated products, 36% disclose all intentionally added chemicals, 27% disclose all intentionally added chemicals except fragrances, 9% disclose some but not all chemicals beyond

For the 36% of companies disclosing all intentionally added chemicals, the majority provide that data for all of their products.

legal requirements, and 36% do not disclose beyond legal requirements. Note that since companies report the percent of products with disclosure, they can be listed in more than one disclosure level; for example, companies can disclose “all chemicals” for a percent of their products and disclose “all but fragrances” for another percent of their products. This is why the percentages for the disclosure levels listed above do not add up to 100%. For the 36% of companies disclosing all intentionally added chemicals, the majority provide that data for all of their products.

Companies selling articles—The 2016 CFP Survey differentiated between three levels of disclosure for companies selling articles: 1) no disclosure beyond legal requirements; 2) generic material content for greater than or equal to 95% by mass; and 3) chemical identity for greater than or equal to 95% by mass. Of the companies selling articles, 24% received points for disclosing generic material content (for example, polyester, steel, etc.); 18% received points for disclosing chemical ingredients by CAS number; and the majority do not disclose beyond legal requirements.

Disclosing CFP Responses (D2) and CFP Score (D3)—All companies are encouraged to participate in the CFP Survey to evaluate their company’s chemicals management systems. This self-assessment provides a valuable gap analysis for determining how to make needed improvements and can be done anonymously. CFP encourages participating companies to be transparent about their participation and awards additional points to those firms that agree to disclose their score and responses.

Figure 28 depicts five levels of transparency related to participation in the CFP Survey. At the base level are the companies that have yet to participate in the Survey. At the next level are companies that participated in the Survey, but did not make their names public. Two companies opted to take this option in the 2016 Survey. These companies have taken the first step of reporting to a common standard in regard to their chemical management policies and practices beyond regulatory compliance. At the next level are the 17 companies that publicly stated their participation in the Survey, but have not shared their CFP Survey answers or scores.

The five leaders in CFP Survey transparency are Beautycounter, BD, Case Medical, Inpro Corporation, and Replenish. They occupy the top two levels of Figure 28. Inpro Corporation and Replenish agreed to make their responses publicly available, but not their scores (Indicator D2). Beautycounter, Becton Dickinson, and Case Medical agreed to publicly share both their responses and scores (Indicator D3). As Ellen Kondracki of BD highlights in this section, “BD believes that being transparent about where we are on the journey is critical in open communications

FIGURE 28. **Disclosure & Verification:**
Levels of Transparency in CFP Participation





to our customers and stakeholders. This is why we have made our responses and score to the CFP Survey public for 2016.” For a complete list of the companies that agreed to publicly state they participated in the 2016 Survey see the Executive Summary. Answers and scores can be found at www.chemicalfootprint.org.

Responses Verified by Third Party (D4)—The CFP Survey includes a question about third party verification to address stakeholder concerns about the veracity of self-assessment. The first step in verification of survey responses is the quality assurance and quality control review conducted by CFP staff. CFP conducts this evaluation based on information provided by companies as well as by reviewing publicly available information. Participating companies can choose to have their answers independently verified and receive additional points for this action. To receive points for D4, a company must attach an assurance statement from an independent third party verifying the authenticity for each response option for which it claimed credit. The

The top quartile of eight companies averaged 46% of possible points with the highest scoring company achieving 80% of possible points.

verification must clearly relate to each response option in the CFP Survey. Of the 29% of companies that had their answers verified: 17% had two to four responses verified; 4% had at least eight responses verified; and 8% had all of their responses verified by outside consultants.

Disclosure & Verification Leaders

The top quartile of eight companies averaged 46% of possible points with the highest scoring company achieving 80% of possible points. Included in the top quartile are small and large companies selling only articles or formulated



Among the companies selling formulated products, small companies scored consistently higher than large companies on the Disclosure & Verification Indicators.

products from a range of sectors, including medical devices, household and personal products, and electronics. The majority of leading companies in Disclosure & Verification are small companies selling formulated products. These companies have smaller product portfolios and in general their corporate missions include an emphasis on transparency. Two of the eight leaders in Disclosure & Verification are large companies that sell only articles.

The eight leadership companies in Disclosure & Verification scored significantly higher than

the average for this Pillar. The leaders averaged 46% of possible points compared to the Disclosure & Verification Pillar average of 20% of possible points. Leaders led by disclosing Chemicals in Products (D1) and disclosing CFP Responses (D2)—averaging 63% of possible points for both Indicators, followed by disclosing CFP Score (D3)—38%, and having Responses Verified by Third Party (D4)—13% of possible points.

Disclosure & Verification Scores by Product Type and Company Size

Small sellers of formulated products scored higher than large sellers of formulated products for the Disclosure & Verification Indicators, while large sellers of articles scored incrementally better than small sellers of articles (see Figure 29).

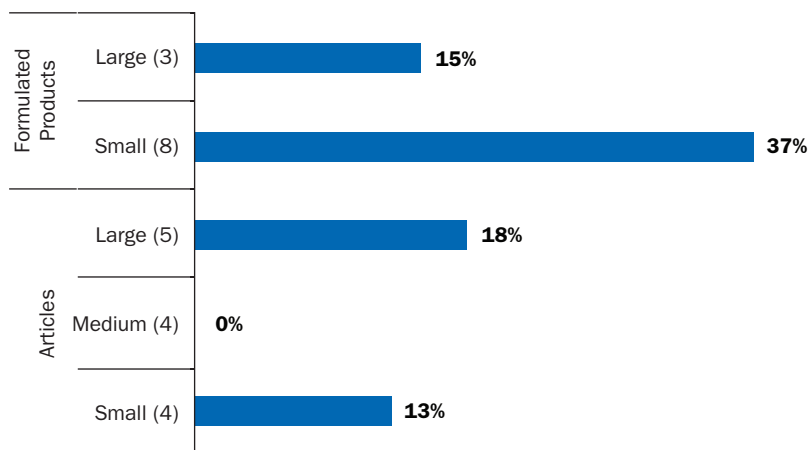
Among the **companies selling formulated products** (either only formulated products or both formulated products and articles), small companies scored consistently higher than large companies on the Disclosure & Verification

Indicators. Figure 30 details the percent of points scored by companies by size (small and large – the Survey did not have any medium size formulated product companies) across the four individual and overall Disclosure & Verification Indicators.

Small companies selling formulated products are much more transparent about chemicals in products (D1), as well as more willing to disclose their CFP Responses (D2) and Scores (D3), than larger companies selling formulated products. Only for the Verification Indicator did large companies outscore the small companies selling formulated products. This result indicates that the larger companies are more able to expend resources to verify their scores.

For companies selling only articles, the dominant pattern for Disclosure & Verification is that large and small companies scored similarly overall, with medium companies scoring zero points. Figure 31 details that dominant pattern and its divergences across the Disclosure & Verification Indicators. Both small and large companies scored similarly for Chemicals in Products (D1), CFP Responses (D2), and Verification (D4). Only for disclosing CFP Score did large companies score noticeably higher, with no small sellers of articles disclosing their score. Participating companies that are medium size and sell articles are not disclosing chemicals in products to the public at any level, nor were they willing to share their CFP Responses and Scores with the public.

FIGURE 29. **Disclosure & Verification: All Indicators—Product Type and Company Size** (average percent of points)



Disclosure & Verification Opportunities

Companies have ample opportunities for increasing engagement with their stakeholders through greater disclosure of their chemicals management practices. Companies can improve Disclosure & Verification by:

- Publicly disclosing chemicals in products beyond regulatory requirements. In particular, sellers of articles and large sellers of formulated products have room for growth in greater sharing of chemical ingredient information.
- Making CFP answers and scores available to the public. This could be an “easy” path for

FIGURE 30. **Disclosure & Verification: Each Indicator—Small and Large Companies Selling Formulated Products** (average percent of points)

Disclosure & Verification Indicators	Small and Large Companies Selling Formulated Products (average percent of points)				
	0–20%	> 20–40%	> 40–60%	> 60–80%	> 80–100%
Chemicals in Products (D1)	Small – 52%				
	Large – 17%				
CFP Response (D2)	Small – 38%				
	Large – 0%				
CFP Score (D3)	Small – 25%				
	Large – 0%				
Responses Verified (D4)	Small – 22%				
	Large – 42%				
Average of All Four Indicators	Small – 37%				
	Large – 15%				

Becton Dickinson and Co.'s Commitment to Chemical Safety

Our pledge to “helping all people live healthy lives” has inspired us to help address social and environmental challenges. This isn’t just the “right” thing to do; it’s much more than that. We believe it’s key to the future of our business.

For example, we see the need to minimize the use of hazardous materials in our processes and products. Among our 2020 sustainability goals launched in July 2015, we set goals to eliminate priority materials of concern in each of the following product categories:

- Devices: PVC and Phthalates
- Instruments: Phthalates, Brominated Flame Retardants (BFRs) and Heavy Metals
- Packaging: PVC and Expanded Polystyrene

Toward this end, in 2015, BD Intima II PLUS was launched for the Chinese market. It meets basic requirements for infusion and meets additional requirements for pediatric, gynecology, oncology, CT and specialty infusion processes. The new product is made from polyurethane, replacing DEHP-plasticized PVC that was used in the previous version of the product.

BD maintains a Materials of Concern list, which includes legally restricted or reportable chemicals, as well as additional substances added by BD such as PVC, latex and BPA. A decision to place a chemical on the list, beyond a legal requirement, is made by BD’s Chemical Review Board. The decision is based on the level of stakeholder interest combined with overall impact on our enterprise-wide portfolio.

To collect information on chemicals in products from our suppliers, we have developed a web-based communication tool and database called Material Disclosure. BD’s preferred approach is for suppliers to provide full material disclosure. In the long term, this eases the reporting burden on our suppliers, as only changes to the supplied material need to be communicated.

During 2016, BD funded a project to upgrade and implement a comprehensive supplier collaboration platform with automatic verification of chemical presence for all its purchased materials. This new platform will be linked to BD’s global ERP system and will feed chemical data and risk attributes into BD’s Global Specification database, housed within the ERP. This tool will allow engineers to identify potential chemicals of concern early in the development cycle and find safer alternatives if available. The new tool is being implemented to be fully operational at the end of 2017. BD has produced a guidance document to help our suppliers fulfill requirements for material disclosure. Additionally, we have developed a code of conduct for our suppliers, available in 12 languages. We expect all suppliers to review and acknowledge the code of conduct, and we hold a host of activities to connect and educate them.

BD makes our chemical policy, reduction goals, progress reports, and Materials of Concern list publicly available on its website, along with our documentation for suppliers. BD believes that being transparent about where we are on the journey is critical in open communications to our customers and stakeholders. This is why we have made our responses and score to the CFP Survey public for 2016.

At BD, we have the unique opportunity to fulfill our life’s work through our work life, and we take seriously our ability to serve unmet societal needs through business models and initiatives that also contribute to our commercial success. We will continue our unwavering support to make a difference—not just for our shareholders, but for the world as a whole.

Ellen Kondracki

Senior Director, Global Sustainability



FIGURE 31. **Disclosure & Verification: Each Indicator—Small, Medium, and Large Companies Selling Only Articles** (average percent of points)

Disclosure & Verification Indicators	Small, Medium, and Large Companies Selling Only Articles (average percent of points)				
	0–20%	> 20–40%	> 40–60%	> 60–80%	> 80–100%
Chemicals in Products (D1)	Small – 20%				
	Medium – 0%				
	Large – 23%				
CFP Response (D2)	Small – 25%				
	Medium – 0%				
	Large – 20%				
CFP Score (D3)	Small – 0%				
	Medium – 0%				
	Large – 20%				
Responses Verified (D4)	Small – 6%				
	Medium – 0%				
	Large – 5%				
Average of All Four Indicators	Small – 13%				
	Medium – 0%				
	Large – 18%				

companies to increase their Disclosure & Verification Score, but it will require participating companies to develop comfort with a greater level of transparency. For medium and large companies, it will require a greater willingness to use CFP as a tool to assist with the journey to environmentally sound management and to accept that the demand for greater transparency and engagement among investors and institutional customers requires increased sharing of information.

- Seeking third-party verification of responses. CFP will invest resources over the next several years to improve the capacity of organizations to verify CFP Responses.

Transparency continues to be the one of most challenging aspect of environmentally sound chemicals management. Many corporations are

Transparency continues to be the one of most challenging aspect of environmentally sound chemicals management. Many corporations are reluctant to be fully open about chemicals management.

reluctant to be fully open about chemicals management. This approach runs counter to growing demands for greater transparency from investors, institutional purchasers, and individual consumers. Leading businesses are learning how to provide more information to these audiences as they work to continuously improve their chemicals management systems.

3



Conclusions & Next Steps

CHAPTER 3

Conclusions & Next Steps

The diverse set of companies that participated in the 2016 CFP Survey and highlighted in this report demonstrate the value and viability of chemical footprinting. Their work generates meaningful change within and outside of their organizations, including deepened supply chain engagement and reductions of almost 100,000 metric tons of chemicals of high concern (CoHCs). The 24 firms that participated in the 2016 Survey are all leaders in chemical footprinting and efforts to achieve healthy lives, clean water and air, and sustainable consumption and production patterns for all across the globe.

CFP Signatories and Responders play a formative role in building awareness of the risks of chemicals mismanagement and the opportunities

Coming Soon: The 3 Rs Report

In the third quarter (Q3) of 2017 CFP will release a deep-dive analysis of the CFP Survey results from the perspective of investors, with a focus on the **Regulation, Reputation, and Redesign** risks of chemicals.

for improving management systems. CFP helps to build the business case for hazardous chemical reduction as it informs investment and purchasing decisions. Corporations are responding by making and disclosing their policies, tracking



their chemical footprints, and reducing the use of hazardous chemicals.

The CFP 2016 Survey results reveal that:

- **Chemical footprinting is moving to the mainstream:** a diversity of companies across sectors and sizes now participate in the CFP Survey —demonstrating its relevance and application to a broad array of companies that sell and/or manufacture building products and furnishings, packaging, medical devices, electronics, apparel and footwear, toys, and household and personal products.
- **Companies are quantitatively measuring their chemical footprint:** with the growing demand for quantitative metrics that relate to impacts, the 2016 results now provide quantitative information on metric tons of CoHCs used and reduced over time. As the body of data gathered grows, it will enable more rigorous analysis, benchmarking, and measurement of progress to reducing chemical footprints. The data collected align with requirements in SASB standards for apparel and footwear, building products and furnishings, household and personal products, and toys and sporting goods.
- **Data are now available for benchmarking and gap analysis:** investors and purchasers now have access to data that enables the bench-

marking of firms on their progress to sound chemicals management based on the four CFP Pillars. Companies can assess where they stand relative to peers and identify and prioritize opportunities for improvement.

- **CFP identifies clear steps to environmentally sound chemicals management:** the CFP Pillars and related Indicators provide clear steps to how organizations can improve their chemicals management practices.

The CFP Survey is conducted annually. We will release the new Survey in Q4 2017 with the deadline for Surveys to be completed by Q1 2018.

CFP welcomes Signatories and Responders.

Signatories are investors and institutional purchasers who engage companies in participating in CFP. **Responders** are brands, manufacturers, and suppliers who participate in the annual CFP Survey. More information is online at www.chemicalfootprint.org.

Join us on the journey to create business opportunities, reduce business risks, and ensure that the chemicals in, on, and around us are safe and healthy for people and the planet.



APPENDIX 1

Glossary of Terms

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 (source: <http://www.reach-compliance.eu/english/REACH-ME/engine/sources/definitions.html>).

Beyond Legally Restricted Substances List (Beyond Legal RSL)

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

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. Understanding the challenge of calculating a chemical footprint, for 2016, CFP asks participating companies to calculate either the total mass or count of chemicals of high concern (CoHCs) in the products they sell. Alternately, companies are given the option to calculate their chemical footprint based on a relatively short list of chemicals, the European Union's Candidate List of Substances of Very High Concern for Authorization (EU Candidate SVHC List). We are not asking companies to determine CoHCs used in their manufacturing operations and by their suppliers, and contained in packaging, though this information may be requested in the future.

Chemical of High Concern (CoHCs)

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.

Using this definition, CFP compiled its 2016 CoHC List from 14 lists of hazardous chemicals developed by governments and other authoritative bodies. The CFP 2016 CoHC List includes any chemical or chemical group that meets any combination of the CFP criteria for a CoHC on any of the 14 lists. Substances on these lists that could not plausibly be an intentionally added ingredient of a product were excluded from the CFP 2016 CoHC List (e.g., viruses, alcoholic beverages). The source lists and links to their websites can be found in Appendix D.

While each source list is dynamic, to simplify reporting the CFP 2016 CoHC List is static. It was compiled using July 1, 2016 versions of the source lists.

The CFP 2016 CoHC list aligns with the approach used by GreenScreen® for Safer Chemicals to identify CoHCs, known as "List Translator-1" chemicals (LT-1s) with two exceptions. First, CFP uses the European Union's Candidate List of Substances of Very High Concern to identify CoHCs, while GreenScreen uses the European Union's list of Substances of Very High Concern requiring authorization to identify LT-1 chemicals. Second, FP does not include EU-Reach Annex XVII CMRs.

Chemicals in Products

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.

Company Size

- “Large companies” have revenues greater than \$5 billion,
- “Medium companies” have revenue ranging from \$0.5-\$5.0 billion, and
- “Small companies” have revenues less than \$0.5 billion.

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.

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.

Full Chemical Ingredient Information

- **For Formulated Products**—A company knows: a) 100% of the intentionally added substances by mass and b) 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: a) 95% of the intentionally added substances by mass and b) any impurities that are both a CoHC and present at 1,000 ppm or higher in a homogeneous material.

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.

Global Harmonized System of Classification and Labeling of Chemicals (GHS)

An international system for standardizing and harmonizing the classification and labeling of chemicals.

Green Chemistry

The design of chemical products and processes that reduce or eliminate the use and generation of hazardous substances. See The 12 principles of Green Chemistry <https://www.epa.gov/greenchemistry/basics-green-chemistry>. See also Sustainable Chemistry.

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 (source: <http://www.oecdsaatoolbox.org/Home/Glossary>).

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.

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.

Legally Restricted Substances List (Legal RSL)

Chemicals that are currently restricted or banned in finished products because of a regulation or law anywhere in the world. Legal RSLs relate to specific products and/or sectors, such as the European Union's Restriction of Hazardous Chemicals (RoHS) Directive, which restricts chemicals used in electronics. Some companies adopt legal RSLs for all substances legally restricted by any jurisdiction, even though they may not sell in that jurisdiction.

Mass

The quantity of matter in a sample, and 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, but acceleration due to gravity, and therefore weight, varies with location.

Point of Contact

Point of Contact is a person or a department serving as the coordinator or focal point of information concerning chemical information and management systems for a company. Assigning a point of contact is critical where getting information is time-sensitive, accuracy is important, and when good customer relations need to be maintained.

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 are 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 is 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, in annual progress and sustainability reports, and at investor and stakeholder meetings or on packaging.

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.

Restriction

Any condition for or prohibition of the manufacture, use or placement on the market (<http://www.reach-compliance.eu/english/REACH-ME/engine/sources/definitions.html>).

Risk Assessment

A process that characterizes the nature and magnitude of health risks to humans (e.g., residents, workers, recreational visitors) and ecological receptors (e.g., birds, fish, wildlife) from chemical contaminants and other stressors that may be present in the environment.

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/or 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/or 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.

APPENDIX 2

Methodology for Scoring & Data Analysis

In 2016, CFP released its second annual survey to assess the current state of corporate chemicals management and identify leadership companies. The CFP Survey includes 20 questions scored to a total of 100 points, encompassing four key performance pillars:

Management Strategy (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 CoHCs includes an explicit 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 advocate externally for the use of safer chemicals? (4 points)
- M5. What means of accountability does your company have in place to ensure implementation of your chemicals policy? In documentation, include the title and description of responsibilities for the highest ranking person in the company responsible for chemicals management. (4 points)

Chemical Inventory (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 full chemical ingredient information? (5 points)
- I5. What capabilities does your company have for managing data on chemical ingredients in

its products? In documentation, include a description of your data system. (5 points)

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

Footprint Measurement (30 points)

- F1. Has your company set goals for reducing CoHCs in the products you sell and measured progress toward these goals? (2 points)
- F2. How does your company measure its baseline chemical footprint? (8 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? In documentation, include a description of your hazard assessment system or tool. (6 points)
- F5. How does your company encourage the use of safer alternatives to CoHCs? (6 points)

Public Disclosure and Verification (20 points)

- D1. What information does your company disclose about the chemical ingredients in its products? (8 points)
- D2. Does your company agree to publicly disclose its responses to the CFP Survey? (3 points)
- D3. Does your company agree to publicly disclose its score on the CFP website? (5 points)
- D4. Have any of your company's responses to the Survey questions been verified by an independent third party? (4 points)

Changes Made to the 2016 Survey

Following consultation with Signatories and 2015 Survey Responders, we made the following changes to the 2016 Survey:

1. Reference List: We changed the reference list for Chemicals of High Concern from the

California Candidate Chemicals List used in 2015 to the CFP 2016 CoHC list. The CFP 2016 CoHC List is compiled from 15 lists of hazardous chemicals developed by governments and other authoritative bodies that align with the CFP definition for a “chemical of high concern.” The CFP 2016 CoHC List includes any chemical or chemical group that meets any combination of the CFP criteria for a CoHC on any of the 15 lists. Substances on these lists that could not plausibly be an intentionally added ingredient of a product were excluded from the CFP 2016 CoHC List (e.g., viruses, alcoholic beverages). The source lists and links to their websites can be found in Appendix D of the 2016 CFP Guidance Document. Both the Guidance Document and the CFP 2016 CoHC List are available at: <https://www.chemicalfootprint.org/assess/cfp-tool-guidance-document-request>.

While each source list is dynamic, to simplify reporting the CFP 2016 CoHC List is static. It was compiled using July 1, 2016 versions of the source lists.

The CFP 2016 CoHC list aligns with the approach used by GreenScreen® for Safer Chemicals to identify CoHCs, known as “*List Translator-1*” chemicals (LT-1s) with one exception. CFP uses the European Union’s *Candidate List of Substances of Very High Concern* to identify CoHCs, while GreenScreen uses the European Union’s list of *Substances of Very High Concern requiring authorization* to identify LT-1 chemicals.

2. Question M4: In 2016, companies were asked to report on engaging in external initiatives, including promoting laws, regulations, or programs that support the use of safer chemicals. This question was revised from 2015, when the Survey asked about engagement strictly in public policy initiatives. Examples of external engagement include participation in groups like the Green Chemistry & Commerce Council and the Health Product Declaration Collaborative and speaking at conferences including GreenBiz, CleanMed, and SRI.

3. Questions F2 and F3: we added an option to questions F2 and F3 for measuring a company’s chemical footprint. Participating companies could: a) measure against the full CFP 2016

CoHC List (2,208 chemicals and chemical groups) or b) measure against a subset of the CFP 2016 CoHC List; specifically, the European Union’s list of 169 Candidate Substances of Very High Concern. If a company chose to use the EU REACH Candidate SVHC List, it received fewer points than if it used the CFP 2016 CoHC list.

4. Questions D2 and D3: The 2016 Survey asked if participating companies agreed to publicly disclose their responses and scores and awarded points to those firms that agreed to do so. This changed from 2015, when we awarded points to participating companies that agreed to publicly disclose their participation and/or their responses.

Outreach and Scoring

In 2016, CFP and its Signatory investors and purchasers reached out to over 100 leading brands and manufacturers to participate in the second 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 the questions and response options in the Survey, see *The Chemical Footprint Project Survey: 2016 Guidance Document*.

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



Endnotes

Executive Summary

1. “Sustainable Development Goals: 17 Goals to Transform Our World,” *United Nations*, accessed June 16, 2017, <http://www.un.org/sustainabledevelopment/sustainable-development-goals>.
2. L. Trasande, R. T. Zoeller, U. Hass, A. Kortenkamp, P. Grandjean, J. P. Myers, J. DiGangi, P. M. Hunt, R. Rudel, S. Sathyanarayana, M. Bellanger, R. Hauser, J. Legler, N. E. Skakkebaek, and J. J. Heindel, “Burden of disease and costs of exposure to endocrine disrupting chemicals in the European Union: an updated analysis,” *American Society of Andrology*, March 22, 2016, <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5244983>.
3. “Global Growth of Regulations,” *Compliance & Risks*, accessed June 16, 2017, http://www.complianceandrisk.com/public/growth_of_regulations_jan_2017.pdf.
4. Regulatory risk is commonly defined as “the risk that a change in laws and regulations will materially impact a security, business, sector or market.” (Source: “Regulatory Risk,” *Investopedia*, accessed June 16, 2017, http://www.investopedia.com/terms/r/regulatory_risk.asp.) In the context of “chemical regulatory risk,” CFP broadens the definition to include the risk of current, as well as future regulations. Current regulations pose risks because changes in government enforcement practices can increase the costs of non-compliance and pose significant financial impacts to companies that are found to illegally have hazardous chemicals in their products or fail to comply with hazardous chemical management practices.
5. Reputation risk “is a risk of loss resulting from damages to a firm’s reputation, in lost revenue; increased operating, capital or regulatory costs; or destruction of shareholder value, consequent to an adverse or potentially criminal event even if the company is not found guilty. Adverse events typically associated with reputation risk include ethics, safety, security, sustainability, quality, and innovation.” (Source: “Reputational Risk,” *Wikipedia*, accessed June 16, 2017, https://en.wikipedia.org/wiki/Reputational_risk.)
6. Redesign risk is the risk of a failed substitution—the replacement of a known hazardous chemical with an alternative fails due to lower performance, higher cost, and/or the alternative proves to be equally hazardous—as well as the risk of failing to substitute in time to anticipate market and regulatory forces.
7. Dignity Health, *Mission Integration: Annual Report 2016*, (San Francisco, CA: Dignity Health, 2016), <https://www.dignityhealth.org/-/media/cm/media/documents/Misc-01/Mission-Integration-Annual-Report-2016.ashx?la=en>.
8. “Article” is an object which during production is given a special shape, surface or design which determines its function to a greater degree than does its chemical composition.
9. Centers for Disease Control and Prevention, *Fourth National Report on Human Exposure to Environmental Chemicals*, (Atlanta, Georgia: U.S. Department of Health and Human Services, 2017), https://www.cdc.gov/exposurereport/pdf/FourthReport_UpdatedTables_Volume1_Jan2017.pdf.
10. World Health Organization, *The public health impact of chemicals: knowns and unknowns*, (Geneva, Switzerland: World Health Organization, 2016), <http://www.who.int/ipcs/publications/chemicals-public-health-impact/en/>.
11. A Prüss-Ustün, J Wolf, C Corvalán, R Bos, and M Neira, *Preventing disease through healthy environments: A global assessment of the environmental burden of disease*, (Geneva, Switzerland: World Health Organization, 2016), http://apps.who.int/iris/bitstream/10665/204585/1/9789241565196_eng.pdf.
12. See note 2 above.
13. Sunny Lee, “Overhaul of Vietnam chemical regulation expected in two months,” *Chemical Watch*, June 22, 2017, <https://chemicalwatch.com/57146/vietnam-chemical-regulation-overhaul-expected-in-two-months>.
14. “China drafts list of substances restricted in consumer products,” *Chemical Watch*, May 4, 2017, <https://chemicalwatch.com/55517/china-drafts-list-of-substances-restricted-in-consumer-products>.
15. “Turkey publishes law modelled on REACH,” *Chemical Watch*, June 29, 2017, <https://chemicalwatch.com/57284/turkey-publishes-law-modelled-on-reach>.
16. See note 3 above.
17. Natural Marketing Institute, *2017 State of Sustainability in America*, (Harleysville, PA: Natural Marketing Institute, 2017), <http://www.nmisolutions.com/index.php/research-reports/sustainability-reports/2017-state-of-sustainability-in-america>.
18. The Nielsen Company, *The Global Home-Care Report*, (New York City, NY: The Nielsen Company, 2016), <http://www.nielsen.com/content/dam/nielsen/global/eu/docs/pdf/Nielsen%20Global%20Home%20Care%20Report.pdf>.
19. See note 18 above, page 29.
20. Mike Schade and Mike Belliveau, “Is your favorite retailer selling toxic products?,” *GreenBiz*, December 15, 2016, <https://www.greenbiz.com/article/your-favorite-retailer-selling-toxic-products>.
21. Mike Wallace, “How Inova, Dignity and Kaiser advance healthcare sustainability,” *GreenBiz*, July 1, 2014, <https://www.greenbiz.com/blog/2014/07/01/how-health-care-industry-pushing-forward-sustainability>.
22. Saabira Chaudhuri and Sharon Terlep, “Unilever Buys ‘Green’ Products Maker Seventh Generation,” *The Wall Street Journal*, September 19, 2016, <https://www.wsj.com/articles/unilever-to-buy-u-s-home-and-personal-care-company-seventh-generation-1474303177>.
23. Marty Mulvihill, “A new approach to advancing the design and adoption of safer chemicals” (presentation, BizNGO 2016, San Francisco, CA, December 7–8, 2016) https://www.bizngo.org/conference/info/agenda_2016.
24. Elizabeth Lewis, Ariel C. Pinchot and Giulia Christianson, *Navigating the Sustainable Investment Landscape*, (Washington, DC: World Resources Institute, 2016), <http://www.wri.org/publication/sustainable-investment-landscape>.
25. See note 23 above.
26. See note 1 above.

Chapter 1

27. Inter-Agency and Expert Group on SDG Indicators, *Revised list of global Sustainable Development Goal indicators*, (New York, NY: United Nations Statistics Division, 2017), <https://unstats.un.org/sdgs/indicators/Official%20Revised%20List%20of%20global%20SDG%20indicators.pdf>.
28. See note 27 above.
29. See note 27 above.
30. “UN Sustainable Development Goals,” UN Principles for Responsible Investments, accessed June 16, 2017, <https://www.unpri.org/about/sustainable-development-goals>.
31. “CVS Health Takes Major Step to Address Chemicals of Consumer Concern,” *CVS Health*, April 19, 2017, <https://www.cvshealth.com/newsroom/press-releases/cvs-health-takes-major-step-to-address-chemicals-of-consumer-concern>.
32. See note 31 above.
33. Kyle Tafuri, “Safer Chemicals in Health-care,” (presentation, BizNGO 2016, San Francisco, CA, December 7-8, 2016) https://www.bizngo.org/conference/info/agenda_2016.
34. See note 7 above.
35. See note 4 above.
36. See note 5 above.
37. See note 6 above.
38. Jessica Lyons Hardcastle, “Are Manufacturers on Chemical Management Tool Overload?” *Environmental Leader*, December 5, 2016, <https://www.environmentalleader.com/2016/12/are-manufacturers-on-chemical-management-tool-overload>.
39. Nicole Koharik, “Chemical Footprinting: The New Carbon Disclosure Project?” (presentation, SRI Conference, Denver, CO, November 9-11, 2016) <http://www.sriconference.com/assets/presentations/SRIC16/Nov9-1550-ChemicalFootprinting-AllPresenters.pptx>.
40. Pure Strategies, *The Power of Chemical Footprinting: Radio Flyer Unlocks Their Safer Materials Strategy*, (Gloucester, MA: Pure Strategies, 2017), <https://purestrategies.com/documents/pure-strategies-the-power-of-chemical-footprinting-2017.pdf>.
41. See note 40 above.
42. See note 40 above.

Chapter 2

43. “Model Chemicals Policy for Retailers of Formulated Products,” *Environmental Defense Fund*, <http://business.edf.org/projects/model-chemicals-policy>, accessed June 29, 2017.
44. See note 17 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

