

The Guide to Safer Chemicals

Implementing the BizNGO Principles for Safer Chemicals

PRINCIPLE #1B

Disclose Chemicals across the Life Cycle of Products

In Principle #1 of the BizNGO Principles for Safer Chemicals—Know and Disclose Product Chemistry—“know” refers to the sharing of chemical information from business-to-business and “disclose” refers to the reporting of chemical information to the public. “Disclosing” the life cycle chemistry of a product includes reporting to the public: 1) feedstocks: sources of feedstocks and chemicals used in extraction and processing; 2) chemicals in processes: chemicals used across the supply chain in manufacturing processes; 3) chemicals in product: chemicals contained in the product; and 4) byproducts that can form during the degradation¹ of the chemical at any point in its life cycle, including end of life management.

Ideal for Disclosing Chemicals

Ideally all chemicals all along the supply chain are publicly disclosed. All chemical constituents in products down to 100 ppm are reported to the public as well as the presence of residuals of high concern, such as mercury or 1,4-dioxane, above background levels in the environment.

In addition, the sources of feedstocks, the chemicals used in extracting or growing feedstocks, and the chemicals in manufacturing processes are publicly available as well. See box for Principle #1 as stated in the Principles for Safer Chemicals.

Intent for Disclosing Chemicals

Disclosing chemicals in products and manufacturing processes is foundational to advancing the development and use of safer chemicals. The public reporting of chemical information enables all customers, non-governmental organizations (NGOs), and others to evaluate the chemicals in products, processes, or feedstocks. While the numbers of individual consumers who have the capacity to evaluate the hazard of chemicals in products is low, other organizations including institutional customers and NGOs may have the expertise to evaluate the hazards of chemical ingredients.

BizNGO Principle #1b in application does not mean companies must disclose to the public every single aspect of the chemistry of a product across every stage of the product’s life cycle. But the application of Principle #1b does mean that companies continuously improve their disclosure of feedstocks, the chemicals used in growing and extracting these feedstocks and manufacturing processes, and the chemicals contained in products.

Context for Disclosing Chemicals

Chemical disclosure across the supply chain is part of a larger trend towards increasing transparency in business practices. As Christopher Meyer and Julia Kirby state in their “Leadership in the Age of Transparency” article in

PRINCIPLE #1:

Know and Disclose Product Chemistry

Manufacturers will identify the substances associated with and used in a product across its lifecycle and will increase the transparency of the chemical constituents in their products, including the public disclosure of chemicals of high concern. Buyers of products will request product chemistry data from their suppliers.

Harvard Business Review (April 2010), “The first thing we can all agree on is that greater accountability for corporate impact is unavoidable.”² They articulate a growing expansion of transparency—that they refer to as “ripples of responsibility”—that emanates out from the core business as shown in Figure 1b-1, page 22. While Meyer and Kirby do not explicitly call out chemicals, the implications are clear: businesses, especially brands, are encountering growing demand for transparency up and down their supply chains. Applying Meyer and Kirby’s “ripples of responsibility” to trends in chemical transparency we see downstream businesses taking ownership of chemicals in their products, taking action on chemicals in production processes, and taking interest in the sources of their feedstocks.

Yet, of all the BizNGO Principles for Safer Chemicals, disclosing chemicals across the life cycle of a product is the most challenging and the principle where we see the least amount of activity. Significant barriers to disclosure are: 1) confidential business information—downstream users don't have the chemical ingredient information or if they do they signed non-disclosure agreements to get it; 2) challenges of managing the data and reporting it out to the public; and 3) failure to see the benefits of full disclosure, including questions of what consumers will do with the information.

Companies that take the challenge see increased transparency as:

ESSENTIAL TO INNOVATION

- **Method**—“There can be no sustainability without transparency. That's because no business today, and no product, is yet sustainable. So in order to reach sustainability, then, you have to be committed to getting continually better. Transparency encourages dialogue and innovation, and therefore, is a cornerstone of sustainability.”

ESSENTIAL TO CLEAR COMMUNICATION TO CUSTOMERS

- **Interface**—“Creating an EPD [Environmental Product Declaration] requires the increased transparency that people are requesting and we are committed to being open about our products' environmental impact. Not just a green claim or promise, EPD shares product information in a consistent way, certified to a public standard and verified by a credible third party.”

FIGURE 1B-1

Meyer and Kirby, Ripples of Responsibility, from “Leadership in the Age of Transparency”



ESSENTIAL TO INFORMED DECISIONS

- **Construction Specialties**—“It is our belief that building products that are harmful to humans, animals, and the environment should be avoided when there are reasonable alternatives. To that end, we seek to create a means [a labeling system] that allows people to make informed decisions when they fabricate, specify, install, use, and dispose of building products.”
- **Health Product Declaration Form**—“The building industry needs a product contents transparency system to support informed product selection during the material specification and construction processes in order to meet health and toxicity needs and concerns. Such a transparency system must be based upon full disclosure of product contents and emissions, accompanied by authoritative, data-based information on the hazards associated with those contents and emissions.”

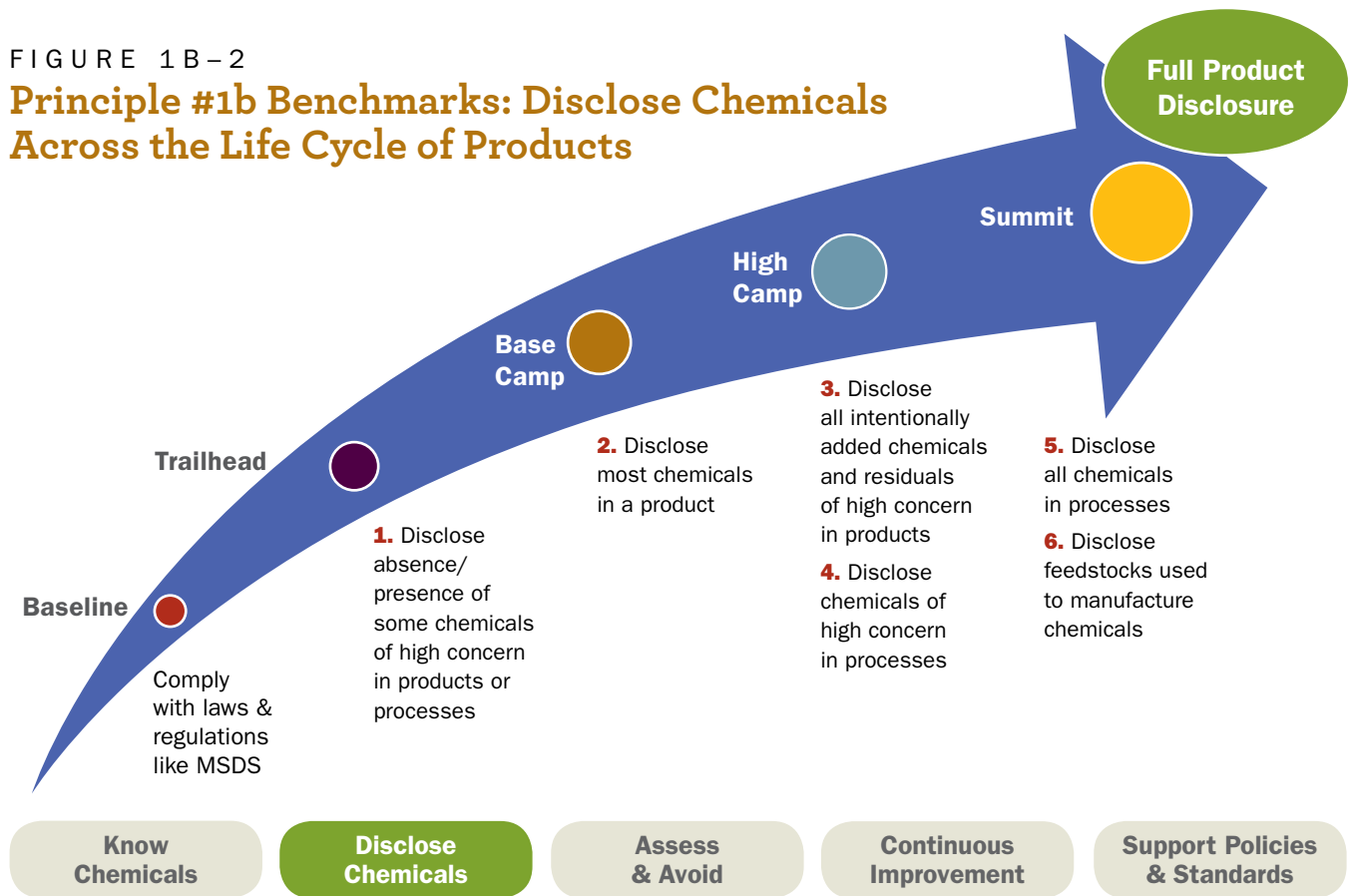
Note that disclosure is not relevant for certain downstream users of chemicals including health care organizations and architects. While disclosure of chemicals in products is not the role of retailers, retailers can set disclosure specifications for products sold in their stores.

Benchmarks to Disclosing Chemicals in Products, Processes, and Feedstocks

Figure 1b-2 depicts the benchmarks—from Trailhead to Summit—for disclosing chemicals in products, processes, and feedstocks. The trajectory of the benchmarks (beyond meeting regulatory requirements at Baseline) is from disclosing a little about chemicals of high concern (their absence) in products or processes at Trailhead to disclosing all chemicals in products at High Camp to disclosing all chemicals in processes and feedstocks at the Summit.

FIGURE 1B-2

Principle #1b Benchmarks: Disclose Chemicals Across the Life Cycle of Products



Baseline
Baseline is compliance with all laws and regulations. Interestingly in the electronics sector companies are known to highlight that their product is “RoHS compliant”—that is, in compliance with European Union’s Restriction on Hazardous Substances Directive. The baseline level of regulatory compliance is to have material safety data sheets (MSDSs) for chemicals used in facilities as well as for chemical intensive products.

Trailhead
1b.1—Action: Disclose the absence/presence of some chemicals of high concern in products or manufacturing processes.
NOTE: The most common form of disclosure beyond compliance is to state to the public that a product or a production process does not use a chemical or chemicals of high concern. Recent examples include statements that a product is: “BPA-free,” “DEHP-free,” or “PVC-free.” While publicly disclosing the absence of a chemical of high concern is the most common form of disclosure,

it is by no means easy. Tracking that data across an entire organization’s product line can be a significant challenge.

EXAMPLE

Timberland in its report on progress to “eco-conscious materials (footwear)” notes that 95% of its products by volume of product types (SKUs) are now PVC-free.

Base Camp
1b.2—Action: Disclose most chemicals in a product.

NOTE: The trajectory among downstream users is to disclose ever greater information on chemicals in products beyond the limited requirements of MSDSs. The examples that follow highlight how companies are increasing the public disclosure of the material contents of their products. It is important to note, however, that many materials such as plastics contain additives, catalysts, and unreacted monomers at low levels, some of which may be chemicals of high concern.

FIGURE 1A-1

Principle #1b Benchmarks: Disclose Chemicals to the Public

Base Camp (CONTINUED)

EXAMPLES

[Interface](#) publishes the material content in its environmental product declarations (EPDs), including information on general material types in the product. For example, its [EPD for Carpet Tile: GlasBac, Type 6 Nylon](#) includes the following material content list:

- Nylon 6 post industrial and post consumer recycled = 17% by weight
- Polyester = 3% by weight
- Ethylene vinyl acetate = 5% by weight
- Calcium carbonate = 15% by weight
- Silica = 1% by weight
- PVC copolymer = 10% by weight
- Di-isononyl phthalate = 10% by weight
- Calcium alumina glass spheres, post industrial = 39% by weight

The Interface EPD disclosure is a major step toward full disclosure. However, since the disclosure is at a generic material level, for example, “polyester,” the EPD does not report all chemical constituents in a product, such as the additives and monomers that are in the polyester.

[Clorox](#) discloses on its website all the chemical ingredients for each product, with the exception of fragrances, preservatives, dyes, and other mixtures where manufacturers claim confidential business information. To maintain confidential business information claims for fragrances, for example, [Clorox lists all the fragrances used in all of its consumer and professional cleaning and laundry products in one place on its website](#).

[Method](#) discloses all the chemical ingredients in its products with the exception of fragrances, for which it provides a generic description—fragrances are “free of phthalates and other dirty ingredients, not irritating to skin or toxic in use; partial natural essential oil content, partially synthetic ingredients.”

[Construction Specialties](#) publishes its Cradle to Cradle Certified reports, which list generic names for the chemicals and materials in its products and the chemical and material risk score that MBDC assigns to that substance.

High Camp

1b.3—Action: Disclose all intentionally added chemicals and residuals of high concern by Chemical Abstracts Service number (CAS #) or equivalent classification system.

NOTE: The challenge here is to clearly disclose all intentionally added chemicals and residuals of concern. For the most part businesses are getting better at disclosing aggregate data—as in the material content in Interface’s EPD (noted above)—but detailed data on chemical ingredient content outside of the home and personal care products sector is uncommon. Full disclosure of chemical ingredients means, for example, if your product contains PVC, it is not enough to state PVC. Suppliers need to acknowledge the presence of the additives in PVC—such as heat stabilizers and plasticizers—as well as unreacted monomers (in this case, vinyl chloride monomer) and catalysts.

EXAMPLES

The Health Product Declaration (HPD) [Open Standard](#) is a just-released format for the reporting of product content and associated health information for individual building products and materials. It specifies criteria for publicly reporting chemical ingredient and related information for building products—see “Disclose Chemicals” Vignette #2, page 27, for further details.

[Seventh Generation](#) posts all ingredients for all its products on its website, including the essential oils and extracts that it uses for fragrances. Seventh Generation uses the International Nomenclature of Cosmetic Ingredients (INCI), which is a system of names for ingredients used in cosmetics, soaps, and other similar products.

1b.4—Action: Disclose chemicals of high concern in manufacturing processes.

NOTE: Downstream users rarely report data on chemicals, even chemicals of high concern, used in upstream manufacturing processes. At best, downstream users are likely to provide anecdotal examples (see Seventh Generation below) of chemicals of high concern in upstream manufacturing, but do not provide consistent reporting of that data.


E X A M P L E

As noted in Action 1a.9, Seventh Generation identified and disclosed on its website two chemicals of concern used in the manufacture of sodium lauryl sulfate: methanol and sulfur trioxide.

A notable step towards full disclosure of chemicals in processes is [Timberland](#), which reports a complete list and location of all of its global suppliers.

 **Summit**
1b.5—Action: Disclose all chemicals in manufacturing processes.

NOTE: OEMs and brands are increasingly collecting data on the chemicals used to manufacture their products. However, examples of companies publicly reporting that data beyond chemicals of high concern are so rare they are hard to find. Some examples may exist, but to date our scan of corporate leaders in the field found none.

 **1b.6—Action: Disclose the feedstocks used to manufacture the chemicals or materials in the product.**

NOTE: Often the fastest route to more sustainable materials is the use of post-consumer recycled content in products. It avoids the need for virgin materials that consume the use of chemicals in the first place and is relatively easy to report. Companies readily report their use of recycled content, both post-industrial and post-consumer, in their products. However, beyond recycled content in products and legal requirements,

such as reporting on conflict minerals, reporting of feedstocks is rare.

E X A M P L E S

Nike, through its [Materials Sustainability Index \(MSI\)](#), has made significant strides in evaluating the materials in its products. MSI evaluates materials on the basis of: chemistry, energy and greenhouse gas intensity, water and land use intensity, and physical waste. The chemistry score as detailed in Action 1a.9 rolls up the upstream concerns with materials production from both the perspective of feedstocks and manufacturing processes. However, because Nike rolls the data up into a single score it is impossible to deconstruct how it arrives at the final chemistry score for a given material.

[Nike's Environmental Preferred Materials \(EPM\)](#) program is an effort to specify requirements for improving the life cycle sustainability of materials. Its target EPMs are: organic cotton, recycled polyester, environmentally preferred rubber, leather (improved sustainability through meeting specifications of the Leather Working Group), and synthetic leather (reduce and eliminate solvents).

[Timberland's preferred materials for its Earthkeepers collection](#) are: organic cotton, natural rubber, aluminum, and leather.

[Seventh Generation](#) is starting down the path of feedstock disclosure by reporting the sources of its raw materials as well as its purchase of certified sustainable palm oil.

DISCLOSE CHEMICALS: VIGNETTE 1

Whole Foods Eco-Scale Requires Full Disclosure

Whole Foods Market’s Eco-Scale Rating System establishes four tiers of criteria that it applies to labeling household cleaning products stocked on its shelves. “Red” means that the product fails to meet the “orange” criteria—see Table 1b-1—and cannot be sold in the store. Core to the baseline “orange” criteria is the requirement of “full disclosure of ingredients on packaging.” Whole Foods defines full disclosure as requiring that all intentionally added

ingredients must be listed on all products using INCI names. If an ingredient does not have an INCI name, then it must be listed by its common chemical name or IUPAC name.

The Eco-Scale rating criteria also include elements related to BizNGO Principle #2 of Assess and Avoid Hazards, with increasingly more stringent requirements on allowable ingredients in the products. This includes report-

ing on the hazards and sources of those ingredients, with an increasing preference for plant- and mineral-derived ingredients. The purpose of the Eco-Scale Rating System is to enable customers to “make informed decisions about the products they buy.”

Household cleaning products that achieve “orange” or higher in the Eco-Scale Rating System would achieve the Disclose High Camp benchmark in the BizNGO Guide to Safer Chemicals.

TABLE 1B-2

Whole Foods Market Eco-Scale Rating for Household Cleaning Products

Criterion	Red—Not for sale at Whole Foods	Orange	Yellow	Green
Transparency	Fails any of the “Orange” criteria	Full disclosure of ingredients on packaging	Full disclosure of ingredients on packaging	Full disclosure of ingredients on packaging
Compliance		Third party verified	Third party verified	Third party verified
Ingredient hazards		No significant environmental or safety concerns	No moderate environmental or safety concerns	No moderate environmental or safety concerns
Formaldehyde-donors		None	None	None
Phosphates, chlorine, or synthetic colors		None	None	None
Animal testing		None	None	None
Natural fragrances			100%	100%
Surfactants that have the potential to contain nitrosamines and other impurities			No DEA, MEA, or TEA	No DEA, MEA, or TEA
Synthetic, petroleum-derived thickeners from non-renewable sources			None	None
Plant- and mineral-derived ingredients only				Yes
Petroleum-derived ingredients				None

Source: Whole Foods Market Eco-Scale Rating for Household Cleaning Products

DISCLOSE CHEMICALS: **VIGNETTE 2****Health Product Declaration (HPD) Form sets Standard for Disclosure**

Released in November 2012, the [Health Product Declaration Form \(HPD\)](#) is perhaps the most ambitious effort to publicly disclose all chemical content in an article by Chemical Abstract Services number (CAS#). While ingredients in chemical intensive products such as cleaning products, detergents, and cosmetics are all more widely disclosed largely due to legal requirements, chemical ingredients in articles are rarely reported beyond the level noted in Action 1b.2.

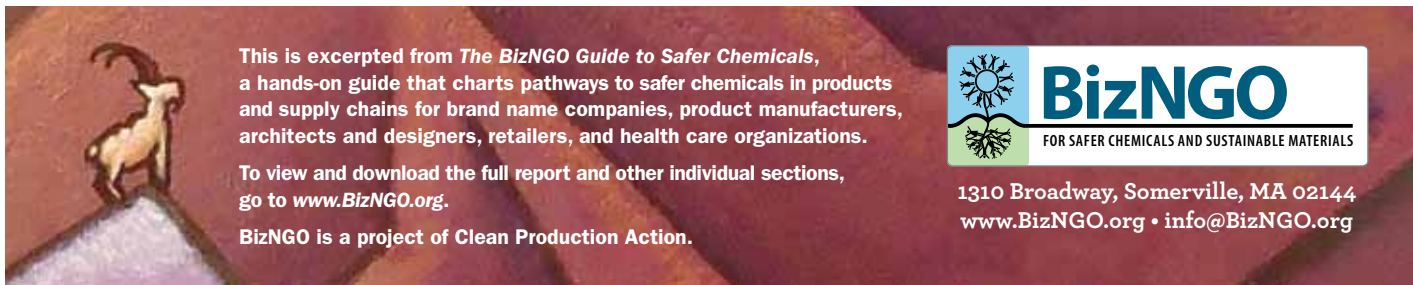
The purpose of the HPD is to facilitate “transparency in the building material industry to support the selection of healthy building products.” Initiated in 2011 through a collaboration of the Healthy Building Network and BuildingGreen, Inc., the draft HPD was endorsed by 50 companies representing architecture, design, engineering and building owners. The pilot program involved 30 product manufacturers and 50 expert reviewers from across the building sector. Released in November 2012, the HPD will be managed by a new membership organization, the [Health Product Declaration Collaborative](#). The Collaborative has already obtained the sponsorship of

nearly 50 firms in the building industry. If successful in its uptake the HPD will create a consistent reporting format for product content and associated health information and increase the transparency of that data.

The HPD includes chemical ingredients by CAS# and volume as well as a hazard summary of each chemical in the product. The hazard or fate endpoints for chemicals include cancer, reproductive toxicity, and persistence, bioaccumulation, and toxicity. An HPD with no confidential business information claims will achieve the Disclose High Camp benchmark in the BizNGO Guide to Safer Chemicals.

Principle #1b Endnotes

- 1 We use “degradation” broadly to refer to any transformation of chemical compounds by any means, including living organisms and sunlight. A narrower scope is “biodegradation”, which the U.S. EPA defines as: “A process by which microbial organisms transform or alter (through metabolic or enzymatic action) the structure of chemicals introduced into the environment” (see <http://toxics.usgs.gov/definitions/biodegradation.html>) (accessed November 11, 2012).
- 2 C. Meyer and J. Kirby, 2010, “Leadership in the Age of Transparency,” *Harvard Business Review*, April.



This is excerpted from *The BizNGO Guide to Safer Chemicals*, a hands-on guide that charts pathways to safer chemicals in products and supply chains for brand name companies, product manufacturers, architects and designers, retailers, and health care organizations.

To view and download the full report and other individual sections, go to www.BizNGO.org.

BizNGO is a project of Clean Production Action.



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