# Manufacturer User Guide: Using Health Product Declaration® (HPD) Open Standard, version 2.1

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Health Product Declaration Collaborative
www.hpd-collaborative.org

# Manufacturer Guide to the HPD® Open Standard 2.1

## Contents

Contents ..... 1
About this Guide ..... 3
1. Introduction ..... 4
How does the HPD Open Standard work – what does it do? ..... 5
What does the HPD Open Standard not do? ..... 5
What makes an HPD a "good" HPD? ..... 5
How did the HPD Open Standard Evolve? What's New in HPD 2.1? ..... 6
How does the HPD relate to other standards, certifications and information tools? ..... 8
The Health Product Declaration (HPD) Collaborative – Resources for Manufacturers ..... 8
2. About the Standard and How to Use It ..... 10
2.1 What's in the HPD Open Standard? ..... 10
Chapter 1: Overview of the Health Product Declaration Open Standard ..... 10
Chapter 2: HPD Open Standard Format Section-By-Section Guidance ..... 10
Chapter 3: Variations ..... 12
Chapter 4: Checklist for a Compliant HPD ..... 12
Chapter 5: Glossary ..... 12
Appendices ..... 12
2.2 How to Use the HPD Open Standard in Creating HPDs ..... 12
Key Concepts and Definitions ..... 13
Descriptors of the completeness and type of reporting ..... 15
Hazard Screening and Assessment ..... 15
3. Creating an HPD–Process Recommendations ..... 18
3.1 Overview of the Process ..... 18
3.2 Getting Started – Initial Decisions ..... 18
Decide whether to create your HPD in-house or with a consultant ..... 19
Determine disclosure goals or requirements ..... 20
Decide on inventory method and threshold ..... 20

3.3 Gathering Data ..... 20
Gather In-House Information ..... 21
Contact suppliers with requests for missing information ..... 22
3.4 Creating an HPD using the HPD Builder online tool ..... 22
3.5 Creating an HPD using methods other than the HPD Builder ..... 25
3.6 Communicating with Design Teams and the Public ..... 26
3.7 Tips for Success in Creating your HPD ..... 27
4. Case Studies and Examples ..... 32
Appendix – HPD Open Standard 2.1 Table of Contents ..... 33

# About this Guide

This Guide was written for manufacturers and reflects the practices of reporting, disclosure, and transparency to support the use of material health information in the design, development, selection, and specification of building products, from the manufacturer's perspective. It is designed to assist the people who create HPDs:

- To understand the benefits of reporting ingredient and associated health information,
- To understand processes that will help you report information about your products in compliance with the HPD Open Standard, and
- To be able to gather and report the required information successfully and efficiently.

The Guide recognizes that working with information on chemical-level ingredients and health is new territory for many manufacturers and that most manufacturers don't have staff toxicologists, industrial hygienists, and other experts to help you navigate this new territory. While the Guide isn't intended to replace this expertise, it will help manufacturers better understand the HPD Open Standard and how to meet these requirements.

***The Guide is not intended to replace the HPD Open Standard which consists of a Format and Instructions*** (download free). The Instructions in the Standard are the authoritative source for detailed guidance on each data field to be completed – *what* is to be reported. The Guide does not repeat this information but instead suggests *processes and steps* that will help you create your HPDs. Because our understanding of these processes and the resources available is evolving rapidly, the Guide provides basic information with links to resources on the HPDC website that will evolve along with the market.

The Standard answers many questions and provides guidance on how to use the HPD when your product or data seems to vary from what's presented in the Standard Instructions. The Guide gives you an overview of the Standard, how it's organized, and how to find answers to your questions – we encourage you to become familiar with the Standard so you can turn to it along with the other resources provided by the Health Product Declaration Collaborative and other experts.

**This Guide is not intended to replace the HPD Open Standard and its instructions. The Standard is the authoritative source for detailed guidance …. We encourage you to become familiar with it.**

The Guide is organized into the following chapters:

1. *Introduction* – what is the HPD Open Standard? How has it evolved? What's new in HPD 2.1?
2. *About the Standard and How to Use It* – What's in the Standard? How do I find specific guidance? Why is this Guide needed? What are the key concepts I need to understand?
3. *Creating an HPD – Process Recommendations* – What is the overall process? What decisions do I have to make? How do I gather the information from various sources? How do I use the Builder? How do I overcome problems and issues?
4. *Case Studies and Examples* – Where can I find samples of HPDs? Where can I hear how other manufacturers have handled this process and learn from them?

This version of the Guide is based on version 2.1 of the HPD Open Standard. As the Standard is updated and revised periodically, the Guide will also be updated to reflect the changes.

# 1. Introduction

The HPD Open Standard is a voluntary technical specification for reporting information on product contents and associated health information. Developed by a coalition of manufacturers, architects, designers, specifiers, owners, contractors, materials researchers, and Non-Governmental Organizations, the HPD Open Standard is a key element in the movement toward achieving greater transparency and disclosure in reporting the human and environmental health aspects of building products.

Ultimately, the goal of transparency and disclosure is product innovation, improvement, and optimization – enabling open collaboration of voluntary market participants to enhance the healthfulness of materials used in the built environment. The rewards of participation can accrue to all: For building owners and designers, an HPD provides the data needed for product selection incorporating health considerations. For manufacturers, this same information can inform product design. As disclosure takes place and products are developed that have superior health characteristics, HPDs enable these efforts to be publicly known – and rewarded – by those who make decisions about product specification and procurement.

Creating an HPD, which is the responsibility of the product manufacturer, is the first step in this process. The HPD Open Standard provides specifications for consistent reporting of the basic information that opens the door to the collaborative process that brings together manufacturers and project teams in an ongoing cycle of innovation and improvement. Although this process doesn't always work perfectly, as information improves and collaborative relationships are built among all participants, it will continue to evolve and to be more productive for all.

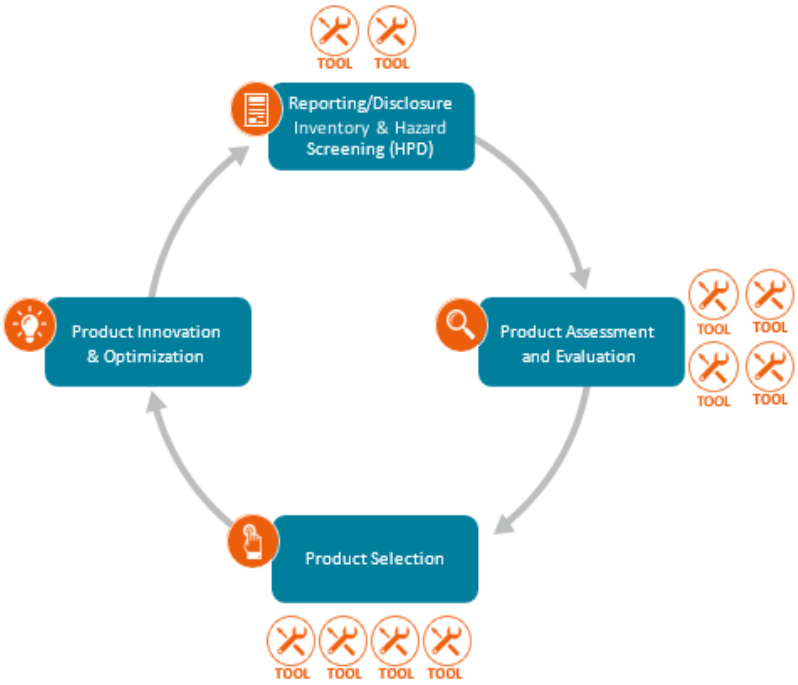



*Figure 1. Virtuous Cycle of Collaborative Innovation to Improve Building Products and Disclosure*

## How does the HPD Open Standard work – what does it do?

The **HPD Open Standard** consists of a reporting **Format** and **Instructions.** When a manufacturer enters product data into the Format, it becomes the completed **"HPD"** – the document used by project teams.

- The HPD Open Standard is a voluntary technical specification for reporting data about product contents and associated health information.
- It provides detailed technical specifications – **Format** and **Instructions** – for reporting data about the attributes of a product, as delivered to the job site.
- It defines how to report screening of the product contents, using authoritative lists of hazards and other information that is valuable for further analysis and assessment of health-related questions.
- It allows for reporting of any additional information, not explicitly specified in the Format, that the manufacturer wishes to provide about a product. This can include additional health-related information, such as exposure and/or risk assessments.
- It provides a single reporting format that is accepted as documentation to meet the requirements of various certification systems, standards, and assessment tools, including LEED™, WELL®, and Cradle to Cradle™, and using the HPD Builder, manufacturers will be able to choose to automatically share data with other tools.
- By providing a common standard for reporting across products and product categories, it reduces duplication of effort and conflicting requirements for manufacturers, and enables decision-makers to directly compare information from different products.
- It enables manufacturers to disclose information to the level you choose or based on the information you have – from meeting minimum requirements to full disclosure and transparency.
- It assists manufacturers and users in the design community to use a common language and database to discuss improving and optimizing products from a health perspective.
- It is managed and supported by the HPD Collaborative (HPDC), a non-profit member organization representing a large and growing cross-section of building industry participants. The HPDC's standard development process ensures that all perspectives are represented and that the HPD Open Standard is an evolving standard that will incorporate reporting for new health-related data as it becomes available.

## What does the HPD Open Standard not do?

- It is not a certification or label – it is a *standard* specification for how to report information about product contents and associated health information.
- It does not assess or certify products, materials, or substances; in this way, it is different from certifications such as Cradle to Cradle, Declare, etc.
- It is not an assessment of product performance.
- It is not a life cycle assessment.
- It does not identify whether a product is "better" or "worse" than another.

## What makes an HPD a "good" HPD?

- The quality of an HPD is judged by the completeness and accuracy of the information provided. The HPD Open Standard provides technical specifications for the Format and Instructions on how to complete an HPD. A "good HPD" complies with the technical specifications defined by the HPD Open Standard.
- An HPD is often used as a reporting tool to document compliance with credits or criteria in one or more certifications, such as the LEED v4 Material Ingredients credit, for example. To provide a "good HPD" for such

purposes, the creator of the HPD needs to ensure that the information reported meets the criteria for the certification. The definitive guidance for compliance is always the issuing organization's own documents.

- The HPD Open Standard provides you with a defined, standardized methodology to report at higher levels of disclosure – and more stringent thresholds – than may be required for a given certification. You may also choose to include additional information in Notes sections. And, you can show support for transparency by publishing your HPDs in the HPD Public Repository.

## How did the HPD Open Standard Evolve? What's New in HPD 2.1?

If you have used HPD version 1.0 or HPD version 2.0, you will see some changes in HPD version 2.1. The HPD Open Standard has evolved since it was first created; this evolution has been the result of feedback from manufacturers and project teams, as well as the evolution of the "ecosystem" in which the HPD operates. Maintenance and evolution of the Standard is governed by the HPDC Technical Committee and Board of Directors through an open, stakeholder standards development process.

HPD Version 1.0 was introduced at Greenbuild 2012. Then in 2013, LEED approved the HPD as a method for achieving the Material Ingredients credit in LEED v4. Based on feedback from manufacturers and users, work began on HPD 2.0 in 2014. The 2.0 revision was intended to clarify requirements and to reflect the ability of manufacturers to respond to these requirements. It also was designed to harmonize with other related tools, such as Cradle to Cradle. HPD 2.0 was released in September 2015.

HPD 2.1 is not a fundamental revision of the Standard; instead it focuses on further harmonization, especially with the LEED v4 requirements, as well as clarifications, addenda, and corrections. Some changes respond to manufacturers' feedback and other changes are designed to make the HPD easier for project team users to understand.

***New in HPD 2.1***

- ❖ Further harmonization with LEED v4 Material Ingredients credit
- ❖ Clarification of existing material in the Standard
- ❖ Updates and corrections to existing material in the Standard.

In May 2017, HPD 2.1 was released to further harmonize with the LEED v4 Material Ingredients credit and an April 2016 USGBC interpretation of that credit. The interpretation was issued to affirm the use of HPD 2.0 to meet the credit requirements. It also defined an additional method for creating the inventory. The methods for creating a content inventory are based on:

- how *contents* are categorized and listed (for the entire product or for each of the materials that comprise the product)
- how reporting *thresholds* are applied (a single threshold for the entire product or individual thresholds for each material).

Now, you can choose among the following methods

- **Nested Materials Inventory with Material-level Thresholds**. In this method, thresholds are established for each material and these thresholds govern which substances must be listed under each material.
- **Nested Materials Inventory with Product-Level Threshold** (new in HPD 2.1). In this method, a single threshold is established for the product and is used to determine which substances are listed under the various materials.
- **Basic Inventory Method:** contents are reported only at the substance level, regardless of the material structure of the product. A product-level threshold must be used.

***New in HPD 2.1***

In addition to the Nested Material Inventory with material-level thresholds and the Basic Inventory with product-level thresholds used in HPD 2.0, HPD 2.1 allows a Nested Material Inventory with a product-level threshold.

Revisions were made in the HPD 2.1 Instructions and Format needed to implement this new method. The Nested and Basic Inventory methods are illustrated below.

Nested Materials Method

Basic Method

In June 2017, USGBC approved HPD 2.1 and subsequent versions for use in the LEED Credit.

HPD 2.1 introduces a new data field as part of the harmonization effort. The new LEED Pre-Check Indicator is an optional (selected by the manufacturer) cross-check to determine whether all required fields have been completed and whether basic requirements of the LEED v4 Material Ingredients credit, Options 1 and/or 2, have been met. For example, is the correct threshold, 100 ppm or 1000 ppm, indicated? Are all contents characterized, screened, and identified as required? This indicator does not assess data quality or the information in the data fields. It does not "verify" that information is accurate. It's just a preliminary scan to help you identify areas of your HPD that might need revision if your HPD is designed to contribute to LEED submittals, and to help project teams quickly identify HPDs that are most likely to contribute to their submittals. In the HPD Builder, the LEED Pre-Check performs these cross-checks; if you use the HPD PDF fillable form or another automated tool and choose to do a Pre-Check, you must ensure that the tools/methods used accurately implement the requirements in the HPD Open Standard and Emerging Best Practices. This process can be very time consuming to perform manually; users are cautioned to verify that LEED Pre-Checks conducted with tools other than the HPD Builder are accurate. We recommend consulting with the tool provider to ensure that all aspects of tool performance are compliant with the HPD Open Standard.

HPD 2.1 also includes clarifications and corrections of existing material in the Standard. Examples include:

- Update of the Third-Party Verification data fields to include third party verification status, and to identify preparers and/or verifiers
- Update of the Publication field to reflect the HPDC Public Repository
- Update of the Priority Hazard Lists used in screening
- Revision of "UNK" to "NoGS" to indicate that there is no GreenScreen listing
- Clarification of the Manufacturer Contact Name in References to reflect responsibility for content of HPD
- Addition of a required response to Section 4: Accessories when no accessories are required
- Update of references to GreenScreen Benchmarks, referenced links
- Update to Glossary

More information on HPD 2.1 revisions can be found on the HPDC website.

## How does the HPD relate to other standards, certifications and information tools?

The HPD is used as a data entry and reporting tool and also as a data source through different stages of information use, from reporting content inventories through certification.

- HPDs receive hazard screening information from Pharos and GreenScreen® and provide content inventory information to these tools.
- HPDs can also provide inventory and hazard information to support Declare. HPDs can feed into Cradle to Cradle and Portico.
- HPDs can also be used as documentation for credits in the USGBC's LEED rating system and the WELL Building Standard.

Through the ongoing work of the HPDC's Harmonization Technical Sub-Group, data entered into, and information from HPDs, can be shared with a growing ecosystem – across this usage spectrum – where information about product contents and health is sought. This automatic sharing of information is optional and at the discretion of the product manufacturer. It has the potential to reduce the redundant entry of data into different systems, saving time and effort.

## The Health Product Declaration (HPD) Collaborative – Resources for Manufacturers

The HPD Collaborative (HPDC) is a not-for-profit, member organization that is responsible for the maintenance, evolution and industry adoption of the HPD Open Standard. Through its Technical Committee, Technical Sub-Groups, and Advisory Panels, HPDC works proactively with manufacturers, users, and the broader materials ecosystem to remove barriers, and lower the cost of reporting and using this information. HPDC encourages you to participate in these efforts.

In addition to this Manufacturer User Guider, HPDC provides important tools to support manufacturers in creating and publishing HPDs for your products. For example:

- HPD Builder
- HPD Fillable Form
- HPD Public Repository
- HPD Support Portal
- HPDC Website

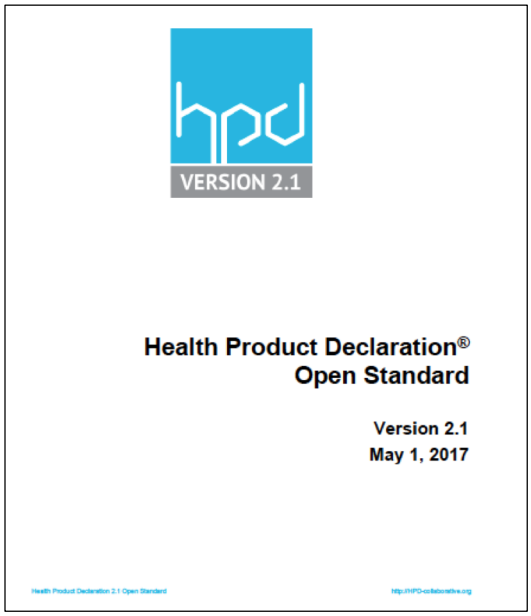
The HPD Open Standard is open for all to use, governed by the Creative Commons license. If you are using tools and services provided by the HPD Collaborative you are assured that they operate in full compliance with the HPD Open

Standard. If you are using tools and services provided by other organizations, you should check with them to ensure that their materials are in compliance with the HPD Open Standard and the requirements of the Creative Commons license.

Finally, HPDC has developed a third party verification program, with approved verifiers as well as a list of approved third party preparers, and that is now reflected in the Standard.

# 2. About the Standard and How to Use It

The HPD Open Standard is the authoritative source for instructions on how to create an HPD – it contains definitions, rules, explanations, and other crucial information you need to ensure your HPD is accurate, correct, and meets the requirements you intend. It will also answer many of your questions if your product doesn't seem to "fit" the data requirements. Before starting your HPD, you should become familiar with the information in the Standard. Even if you don't remember all of the detailed instructions, you will be able to return to the Standard document and find what you need.




This section introduces you to the Standard, its organization, and its contents. This section does not duplicate the detailed information in the Standard and is not intended as a substitute for this information. Instead, this section presents an overview of the organization of the Standard to help you find the information you need. A complete Table of Contents for the Standard is included as an Appendix to this Guide.

Section 3 of this document provides guidance on the process for creating HPDs, using the HPD Builder tool and other methods. Use of the Builder is highly recommended since the task of manually entering all contents and screening them against HPD Priority Hazard Lists can be time-consuming and the possibility for error exists. Project teams understand that HPDs created outside the Builder require more scrutiny to check for errors.

## 2.1 What's in the HPD Open Standard?

The HPD Open Standard contains five Chapters and several Appendices:

### Chapter 1: Overview of the Health Product Declaration Open Standard

This brief Chapter describes the purpose and scope of the Standard, and initial guidance for manufacturers on preparing an HPD. This section also introduces the Health Product Declaration Collaborative.

### Chapter 2: HPD Open Standard Format Section-By-Section Guidance

This Chapter presents the detailed requirements for all of the data fields in the HPD. Its organization is based on the HPD Format that includes six sections. Each of these sections is described below.

#### *Section 1: Overview*

This section summarizes information primarily for project teams and other users. It contains general information about the product and manufacturer, the HPD itself, and summaries of the more detailed information from the remaining sections. This includes:

- Information on the inventory, including the inventory method and threshold(s) used for the inventory, whether residuals and impurities were considered, and whether all contents were characterized, screened, and identified.
- A list of all contents in the inventory and identified hazards including GreenScreen scores, and inventory and screening notes.
- Information on VOC content and certifications from other programs.
- A preliminary indicator of whether the HPD is consistent with LEED v4 Material Ingredients credit requirements (optional).
- Information on third party verification and preparation.
- Key dates, including screened, published, and expiration dates.
- Location where the HPD is publicly available, generally the HPDC Public Repository.

Much of the information in Section 1 is drawn from other sections of the HPD. If you are using the HPD Builder tool to create your HPDs, some of this information will be automatically populated, based on responses in the other sections of the Standard. If you are using the fillable-form PDF version of the HPD, you will have to enter all of the data in this Section manually based on the Instructions in the Standard.

### *Section 2: Content in Descending Order of Quantity*

This section presents instructions for each data field in the inventory, including instructions that will answer many questions you might have. This includes:

- For each Material (Nested Inventory method only) – name, percent, inventory threshold, residuals and impurities considered, residuals and impurities notes, and other material notes.
- For each Substance – name, identifier (usually the CAS RN), percent, role, recycled content, hazards, GreenScreen score, nanomaterial, and substance notes.

You must select one of the three available inventory formats to create your inventory – Nested Materials Inventory with material-level thresholds, Nested Materials Inventory with product-level threshold, or Basic Inventory with product-level threshold.

### *Section 3: Certifications and Compliance*

This section presents instructions for required and optional reporting of VOC emissions, VOC content, and other certifications.

### *Section 4: Accessories*

This section presents instructions for required reporting of accessory products used in installation, maintenance, cleaning or operation of your product. A new requirement in HPD 2.1 is to note if no accessories are required; this field should not be left blank.

### *Section 5: General Notes*

This section lists the information that is required or optional for this data field. Many entries can be reported here or under Material or Substance Notes.

### *Section 6: References*

This section includes instructions for reporting information on the manufacturer, including a new requirement that the contact name be the person attesting to the contents of the HPD. This section also includes a list of acronyms and abbreviations for reference.

### Chapter 3: Variations

This chapter provides very useful information for HPDs that are more complex or raise specific issues. It provides specific instructions for:

- Listing multiple products in a single HPD
- Including alternate materials or substances
- Variable composition due to multiple suppliers
- Products composed of combinations of parts
- Special conditions for materials and substances. This section lists materials and substances that are not easily handled in the HPD and refers to the Emerging Best Practices section of the HPDC website for guidance. HPD 2.1 includes the following materials and substances as Special Conditions: biological materials, ceramics, defined substances without an identifier, electronics, float glass, form-specific hazards, geological material, material with a CAS RN but no specific molecular structure, metal alloy material, mixed hardware, reaction products, and recycled content mixtures.

### Chapter 4: Checklist for a Compliant HPD

This chapter summarizes the data elements required for the HPD to be considered compliant with the HPD Open Standard.

### Chapter 5: Glossary

The Glossary includes definitions for many terms used in the Standard. These definitions can help clarify exactly what the Standard refers to or requires. These definitions can contribute significantly to your understanding of the Standard and its requirements.

### Appendices

The Appendices for HPD Open Standard 2.1 are:

- The HPD Open Standard Format
- HPD Priority Endpoints: Including a translation of GreenScreen Hazard categories to HPD Hazard Categories.
- HPD Priority List Criteria: criteria used by HPDC to select authoritative hazard lists to be scanned for hazards in the HPD hazard screening process.
- HPD Priority List Sources: the full list titles and issuing agencies, as well as abbreviations used.
- HPD Priority List Warnings: moved from the appendix to the HPDC website due to its size.
- VOC Emissions Testing Standards and Programs: description of referenced testing standards and programs.

## 2.2 How to Use the HPD Open Standard in Creating HPDs

The HPD Open Standard is a valuable resource for you as you create your HPDs and review other companies' HPDs. It can work in conjunction with other resources such as this Guide, the HPD Builder screens, FAQs, and other tools on the HPDC website, and inquiries to the HPDC Support Desk. Frequently, the Standard can be the quickest way to find an answer to questions such as:

- How long does an HPD remain in effect and when does it expire? See Section 2.1.6.7 Expiry Date.
- Does my data need to be exact or can I report ranges? See Section 2.2.1.2 Percent (%).

- Can I combine several products into one HPD? What are the requirements? See Section 3.1.
- What if the composition of my product varies? See Sections 3.2 and 3.3.
- Where should I publish my HPD to make sure it meets the LEED requirements for "publicly available"? See Section 2.1.6.6.
- What do I have to do if I update some of the data in my HPD? See Section 2.1.6.7.

These are just examples, of course. You can always contact the Support Desk for personal responses to your questions. And, HPDC will be building a body of knowledge based on the experience of manufacturers who are creating HPDs for their products.

## Key Concepts and Definitions

There are three important concepts underlying the HPD Open Standard that are key to HPDs:

- **Content inventory**, including definitions of contents (materials and substances), thresholds, and content inventory methods
- **Descriptors of the completeness and type of reporting** – characterized, screened, and identified
- **Hazard screening and GreenScreen® for Safer Chemicals scores**

These concepts are introduced in the following section.

### *Content inventory*

#### Contents: Materials and Substances

The content inventory lists contents in the product as well as the thresholds established for their reporting, hazard screening information, and other relevant information. Within the HPD this information is summarized in Section 1, which is always the first page of an HPD. Details of the content inventory are reported in Section 2, which begins on page 2 of the HPD, and continues for the number of pages required to report the complete information.

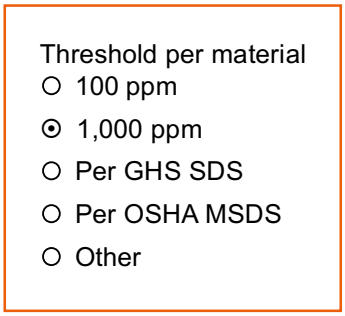
Contents are reported in an HPD as they exist in the product "as delivered to the job site." A product's *contents* can include the *materials* and itemized *substances* that comprise each material:

- **Material.** A "material" is a uniform solid, liquid, or gas. Materials are composed of one or more "substances." For example, a coating or finish must be itemized as a distinct material, whether present on a supplied part or added by the manufacturer producing the HPD, whereas supplied materials that do not remain distinct in the finished product are not inventoried separately (e.g., solution dyes for fabrics).
- **Substance.** A "substance" is matter that can be characterized by the entities that comprise it (molecules, atoms, etc.) and by its physical properties, such as density, refractive index, electric conductivity, melting point, etc.
- **Content.** The word "content" is used in the HPD Open Standard to refer to both materials and substances more generally, and to refer to materials and substances together.

Most products are composed of one or more materials, and materials are composed of one or more substances. Products can be composed of just a few materials or can be very complex, involving numerous materials and extensive supply chains.

#### Threshold

"Threshold" is key to understanding the precision of reporting used in the HPD (and ability of the HPD to comply with LEED, Cradle to Cradle, and other programs). The threshold is the amount or concentration of a substance that must be present for that substance to be reported, at the specified threshold level.



A lower threshold means that smaller amounts of substances will be reportable and therefore disclosure will be more complete. There are several ways thresholds can be reported:

- Parts per million (ppm) in which a threshold of 100 ppm is more stringent and requires reporting of substances present at lower concentrations than a threshold of 1,000 ppm, and hence is likely to lead to disclosure of more substances. Note that concentrations can also be expressed as percentages, with 100 ppm = 0.01%, 1,000 ppm = 0.1%, and 10,000 ppm = 1.0%.
- Safety Data Sheet (SDS), based on the Globally Harmonized System (GHS) of Classification and Labeling of Chemicals. The SDS requires content reporting at 1,000 ppm (0.1%) only for reproductive toxicants, carcinogens, and category 1 mutagens, and at 10,000 ppm (1%) for all other hazard categories. The SDS is required to report certain hazardous contents that will be handled by workers in factories and does not require reporting of all substances.
- OSHA MSDS, the U.S. Occupational Safety and Health Administration's Material Safety Data Sheet, an older format that has been replaced by the SDS. It requires reporting carcinogens at 1,000 ppm and all other contents at 10,000 ppm.

Thresholds can apply to the whole product or to each material in the product. If thresholds are reported for each material, the summary can include several different thresholds; for example, 1,000 ppm for some materials and 100 ppm for others.

### Content inventory methods

HPD 2.1 revises the methods that can be used to create a Content Inventory, to harmonize with requirements for achieving the LEED v4 Material Ingredients credit with HPD version 2 (the LEED credit language is based on HPD 1.0 and is not consistent with HPD 2.0). The methods for creating a content inventory are based on how *contents* are categorized (for the entire product or for each of the materials that comprise the product) and how reporting *thresholds* are applied (a single threshold for the entire product or individual thresholds for each material). The creator of the HPD, the product manufacturer (or, on behalf of the manufacturer, a third party preparer) determines which of these content inventory reporting methods is used in a given HPD.

***New in HPD 2.1 – Content Inventory Methods***

In addition to the Nested Materials Inventory with material-level thresholds and Basic Inventory with product-level threshold, HPD 2.1 allows a Nested Materials Inventory with product-level threshold.

- **"Nested Materials" Inventory method.** This method lists **all** materials in the product. Substances within each material that are above the threshold level specified are itemized under that material – hence, the inventory has a "nested" structure. If a substance appears in multiple materials, it will be listed multiple times in the inventory, appearing under each material where it is a constituent. There are two variations of this Inventory, based on the way the threshold is specified – at the material level or at the product level.
  - **Nested Materials Inventory with material-level thresholds**. In this method, thresholds are established for each material and these thresholds govern which substances must be listed under each material. If **material-**level thresholds are used for all materials in the product, they are indicated in the threshold data field for each material.
  - **Nested Materials Inventory with a single product-level threshold**. In this method, a single threshold is established for the product and is used to determine which substances are listed under the various materials. If a **product-**level threshold is used for a Nested Materials Inventory, all substances above the per product threshold must be reported under the appropriate materials. It is possible that a material can be

listed with no substances nested under it. This could occur if all substances in the material are below the product-level threshold indicated.

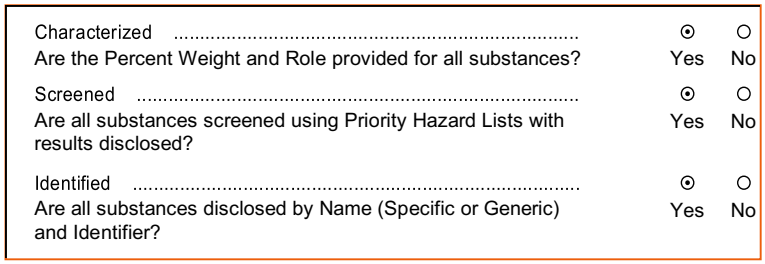
- **"Basic" Inventory method.** This method does not identify materials and creates a single list of all substances within the product based on a product-level threshold. A product-level threshold must be used.

Examples of HPDs created with these different methods are provided on the HPDC website.

## Descriptors of the completeness and type of reporting

### *Characterized, Screened, Identified*

This section summarizes the completeness and type of reporting in the HPD.




- "Characterized" indicates whether the percent weight (quantity) and role or function are provided for all substances above the threshold indicated.
- "Screened" indicates whether all substances above the threshold were screened for hazards using lists in the HPD Open Standard, and results are reported.
- "Identified" indicates whether all substances above the threshold are reported by name and identifier (Chemical Abstract Service Registration Number – CAS RN).

In creating an HPD, it is possible to "Characterize" and "Screen" one or more substances but not "Identify" them. This reporting approach provides a way to withhold disclosure of proprietary or confidential information, but still report information about potential hazards associated with the product contents. Such reporting provides for compliance with certification requirements, such as for the LEED v4 Material Ingredients credit. To accommodate use of Special Conditions, additional options will be included under Screened and Identified, allowing "except Special Conditions" to be indicated.

## Hazard Screening and Assessment

### *Pharos Chemical and Materials Library and GreenScreen® for Safer Chemicals scores*

> ***New in HPD 2.1 – Hazard Screening Lists***
>
> HPD 2.1 has updated the Hazard Screening Lists and the version of GreenScreen cited.

An integral element of reporting about products with the HPD Open Standard is to include a hazard screening of the substances in the product and a listing of hazards that have been associated with these substances. This association information has been determined by many different, independent authoritative bodies, based on criteria that they have established using the results of epidemiological, toxicological, and scientific research studies. The HPD Open Standard specifies which of the lists created by these authoritative bodies are to be considered in the hazard screening information reported in an HPD (see Appendices B-E of the HPD Open Standard for further information on the authoritative bodies and hazard lists. Appendix E, HPD Priority List Warnings is now on the HPDC website, not in the Standard document, due to length.)

It is important to understand that a screening result that indicates an association of a substance with a hazard does not provide information about the exposure to or risk of that hazard in the product. Determination of exposure and risk requires additional assessment of the product and its usage in buildings. Should you wish to include such information in your HPDs you can do so by including it in the Notes sections of the HPD.

In the HPD Open Standard, hazard information for reported substances consists of two categories of results:

### Reporting of Hazard Warnings

This reporting is performed using the HPD Open Standard Priority Lists. These lists are primarily based on the GreenScreen® for Safer Chemicals, a program of the non-profit organization Clean Production Action, but also include lists from the U.S. Environmental Protection Agency, the European Union, and other governmental organizations. Typically, the hazard warning results that are reported in an HPD will have been produced using the HPD Builder tool. Within the Builder tool, the hazard warning function is automated through the use of the Pharos Chemicals and Materials Library database, which is created and maintained by the Healthy Building Network. It is also possible for this screening to be performed if an HPD has been created using other automated tools. Due to the complexity of the hazard warning protocol in the HPD Open Standard, we do not recommend manual hazard warning calculation.

### Reporting of GreenScreen® List Translator and Benchmark Assessment results

The GreenScreen® approach facilitates comparative chemical hazard screening and assessment at the substance level. There are two types of GreenScreen® results that can be reported in an HPD:

- *List Translator(LT) scores*: these are produced using the GreenScreen List Translator method that *screens* against GreenScreen hazard lists. No additional assessment is performed.
- *Benchmark (BM) scores:* these are produced through a Certified Full GreenScreen® Method assessment that includes a toxicological review of all available information from scientific studies, hazard lists, and modelling or analogs. Benchmark scores represent a more comprehensive assessment than List Translator scores.

The HPD Hazard Screening Summary includes two summary indicators based on GreenScreen®:

- **Number of GreenScreen® BM-3/BM-4 Contents.** This section reports on the total number of substances with *lower* hazards – Benchmark 3 (use but there's still opportunity for improvement) or Benchmark 4 (prefer – safer chemical). This data is reported when there are publicly-available Benchmark Assessments for the substance. If the manufacturer is aware of a privately-available Benchmark Assessment for a substance reported in their HPD, they should contact the assessor to discuss the potential to include this information in their HPD reporting.

Number of GreenScreen BM-4/BM-3 contents .....0
Contents highest concern GreenScreen Benchmark or List translator Score .....LT-1

- **Contents' highest concern GreenScreen® Benchmark or List Translator Score**. This section reports on the most hazardous GreenScreen® List Translator or Benchmark score found in any of the substances in the product.

### *HPD Open Standard Emerging Best Practices for Automated Hazard Warning and Hazard Screening*

In order to ensure consistency of Hazard Warning and Screening results, as well as compliance with the HPD Open Standard, additional guidance is provided for automated tools in the "Emerging Best Practices" section of the HPD Open Standard. Emerging Best Practices are available on the HPDC Website. This information provides specific requirements to help developers of automated tools ensure that their Hazard Warning and Screening functions are implemented

consistently and in compliance with the requirements of the HPD Open Standard.

Completed HPDs indicate which tool was used to create the HPD. This reference appears in the upper right hand corner of the HPD Summary page.

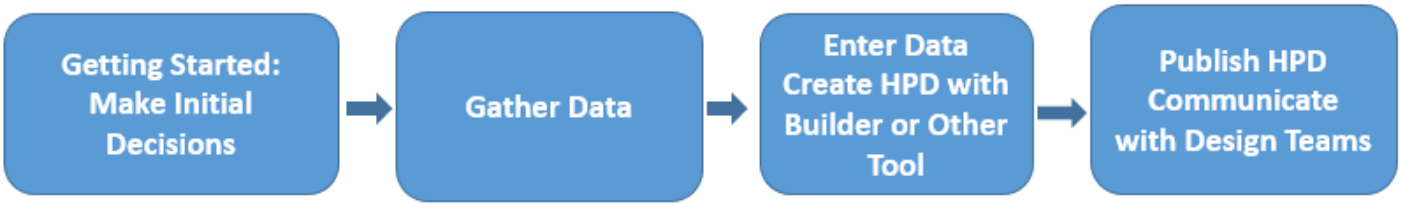
Manufacturers should consult with the tool providers they are using to ensure that the Hazard Warning and Screening functions are consistent and in compliance with the requirements of the HPD Open Standard, and updated with the latest Emerging Best Practices guidance.

# 3. Creating an HPD–Process Recommendations

This chapter of the Guide outlines a process that you can use as the basis for organizing the tasks involved in creating an HPD. This is only a suggestion and each HPD and manufacturer is different. Since the understanding of these process steps is evolving, this Guide provides an overview and a link to the HPDC website where this growing body of knowledge will able to evolve.

## 3.1 Overview of the Process

Each manufacturer will use different methods, based on the product and processes used to create it. The process outlined below and in this chapter provides general guidelines to be modified and expanded as needed.




## 3.2 Getting Started – Initial Decisions

If you are already creating and publishing HPDs for your products – congratulations on becoming an early participant in disclosure, transparency, and the movement toward healthier products and projects!

If you are still wondering whether to create HPDs for your products, consider these benefits:

- Many leading architecture firms and influential owners now require material disclosure for products prior to considering them for inclusion in their libraries and projects. HPDs provide a format for disclosure directly or for providing data to other reporting tools.
- HPDs are used by projects to achieve LEED material disclosure and optimization credits – your product will stand out if it has a LEED-compliant HPD.
- HPDs are used to document WELL projects and can exchange data with the Declare program, Portico, and Cradle to Cradle. You can save significant time, energy and money by documenting data with the HPD for use in these other reporting tools.
- Consumer demand for ingredient information is increasing across a wide range of consumer products. Some home improvement and "big box" stores are prohibiting specific chemicals in specific products in reaction to these trends. HPDs provide a means for reporting this information.

> "Thanks to the market demand created by LEED and several supporting campaigns, EPDs, HPDs, and other ingredient disclosure documents are now widely available and are becoming more so all the time. LEED users still have to check to ensure that any EPDs or HPDs they are collecting for documentation meet LEED requirements, as many do not. But for all but the smallest projects, finding at least 20 products with EPDs and 20 with HPDs isn't hard. It might even be possible to double that number and earn an exemplary performance innovation point."
>
> Reality Check for LEED v4 Materials Credits, Nadav Malin
> Building Green, June 16, 2017

- The information gathered for your HPD can help you get out ahead of future risks. You can identify ingredients that could prove problematic in the future and start now to design them out or to find alternatives. Given some lead time, you can seek suppliers that offer more acceptable alternatives or encourage them to develop such alternatives.
- It's the right thing to do. Taking the first step toward learning about potential hazards in your ingredients, by creating HPDs, is a first step in seeking safer alternatives and improving your products and making them more attractive to those that specify or purchase them.

Now that you have decided to create an HPD, how do you get started? There are a few initial decisions that are necessary.

## Decide whether to create your HPD in-house or with a consultant

The HPD Open Standard was designed to be usable by manufacturers, without requiring you to hire outside consultants. In some cases, though, it makes sense to get help. There are third party preparers who are recognized by HPDC and can be depended upon to provide quality services; there are other consultants as well who offer these services. Here are a few questions to help you think about this issue:

- Do you have an employee who has time to devote to this effort? For a simple product with a small and cooperative supply chain, an HPD can be created fairly quickly. However, if all of your employees are already very busy, you might not be able to support the effort in-house.
- How quickly do you need to get the HPD created? Are there project teams demanding an HPD *now* for a project submittal? Can you fit this into your regular workload and still meet these requests?
- Do the available employees have the needed expertise and knowledge of the product to enable them to gather and process the data accurately? Are they familiar with suppliers and can they work effectively with them if data must be requested from them?
- Do you want to devote staff time to learning about HPDs as an investment in creating future HPDs? Or, if it's unlikely that additional HPDs will be created, does this investment still make sense?
- How complex - and known to you - is your supply chain? For complex products there can be a multi-tiered, complicated supply chain that you will need to work with to determine the contents of your products at the level of homogeneous materials and/or substances. This information generally is not the same as what is in your Bill of Materials (BOM) for the product. The work required to complete an HPD will vary significantly, based on these variables.
- Finally, do you have suppliers that will not release information to you about ingredients? If so, a third party working under a Non-Disclosure Agreement might be an effective way to obtain that data and enable you to create a LEED-compliant HPD. LEED allows withholding of the name and identifier of proprietary ingredients, as long as they are characterized (role and amount in the product) and screened for hazards. Third party preparers can arrange this.

You can revisit this decision as the work on the HPD progresses. At any point, you may decide that a consultant would be helpful in:

- Scoping the HPD
- Planning and organizing data collection
- Approaching suppliers
- Evaluating data received from suppliers
- Other tasks involved in creating an HPD.

### Determine disclosure goals or requirements

Why are you creating this HPD? How will it be used? Are there outside requirements it must meet? The answers will help you make important decisions. Here are a few reasons for creating HPDs:

- Your company supports disclosure and transparency and wants to demonstrate leadership by providing the information that you have available.
- Your company wants to market its products as compliant with LEED, WELL, Portico, etc. In this case, you need to be very familiar with the requirements of these programs. The HPDC website has guidance for using HPDs in various systems. This guidance was developed in collaboration with the sponsors of these systems – USGBC/ GBCI, WELL Building Institute, Google, and so forth. This guidance is updated as the programs evolve.
- Your company plans to pursue Declare labels or Cradle to Cradle certification and wants to avoid redundant forms for data submittal. The HPD Open Standard was developed with the Harmonization Task Group and continues to strive for harmonization with all potential users of HPD data. Your company can complete an HPD and can share the data automatically with several other programs, saving you time, money, and potential errors.

As work progresses on your HPD, you might find that you have to revise your goals. For example, you might learn that your product cannot meet the LEED Material Ingredients credit Option 2, which requires inventory reported to 100 ppm and no GreenScreen Benchmark-1 or List Translator-1 scores. But, the product could still qualify under Option 1, which rewards disclosure rather than optimization.

### Decide on inventory method and threshold

Early in the process, you will need to decide on what inventory method and threshold(s) to use. As described earlier in this Guide, there are three methods for creating an HPD inventory: Nested Materials Inventory with Material-level Thresholds, Nested Materials Inventory with Product-Level Threshold (new in HPD 2.1), and Basic Inventory Method**.** Once you select a method and start creating your HPD in the HPD Builder, you will not be able to change to another method.

Each approach has advantages. Advantages of Nested Materials Inventories include:

- Allows supplier data to be updated without changing the entire HPD.
- For products with many variations, you can switch out just the component that changes without requiring recalculation of the entire HPD.
- For complex products that you assemble, you can build the HPD component by component from supplier data.
- Identifies the specific material(s) that contain hazards so alternatives can be sought.
- More closely matches your existing ordering and recordkeeping systems.
- Nested inventories with material-level thresholds provide the most rigorous reporting.

The advantages of Basic Inventories include:

- Easy for simple products with few ingredients.
- Enables you to avoid reporting small quantities of substances that would be required under material-level thresholds.

## 3.3 Gathering Data

The HPD contains information on the contents of your product “as it is delivered to the job site.”

- In some cases, for fairly simple products, this information may be found on a Bill of Materials (BOM).

- In many other cases, homogeneous materials and/or substances, which are the reported in an HPD, are lower level inputs into the materials in your product BOM. So, you will need to gather this information from your supply chain rather than your direct suppliers.
- Another consideration in gathering data for your HPD is whether the inputs (which are reported on a BOM) are transformed at the chemical level during your manufacturing processes. If so, you will need to report these process outcome level ingredients - not simply inputs. You might not have an exact breakdown of the ingredients and their quantities in the final product, as delivered, if you have not had that final product tested and characterized.

The following is a suggested outline of a process for gathering and assembling the information you will need to create your HPD. Each manufacturer will need to tailor these steps to your own systems and products. As more is learned about what works best, HPDC will add examples.

## Gather In-House Information

Once preliminary decisions outlined in the previous section have been made, the first step is to gather available in-house information.

- Determine hierarchy of product: assembly, part/component, subcomponent, material, substance. This is useful in identifying and organizing data to be gathered and gaps in that data. Determine the suppliers you will need to contact to determine information at the homogeneous material and/or substance level that is not already available to you from your direct supplier list.
- Create an Inventory of product contents – materials and substances – of available information based on this hierarchy (many use a spreadsheet to organize this information). Include "intentionally added ingredients" and "residuals and impurities" as defined in the Standard. The contents should be "as delivered to the job site" if possible. Sources can include certificate of analysis and results of product testing; bill of materials; MSDS/SDS, TDS, etc. for final product and each ingredient (material/substance); shipping receipts, etc. Note that just because an ingredient in the product is used for a certain reason (i.e. is an "active" ingredient), that doesn't mean that the ingredient is composed only of the active substance. There are usually other substances present in the ingredient (e.g. fillers, modifiers, etc.). For example, when a paint manufacturer gives a formulation, it usually states that there is x% TiO2. However, that is referring to the % TiO2 ingredient used, not the actual amount of TiO2 in the pigment product (which can vary greatly depending on the supplier and product).
- Use the process outlined in "Best Practices" on the HPDC website to identify residuals and impurities in your product.
- If you are using the Nested Material Inventory method you must include *all* materials and, for each material list data specified in the Standard.
- For both Nested Material Inventory method and Basic Inventory method, you must list all substances that are above the threshold selected, as specified in the Standard.
- Check to determine if any materials or substances might be considered Special Conditions by HPDC and if so, go to "Emerging Best Practices: Special Conditions" to learn how to handle these materials or substances. Examples include materials without CAS RNs such as biological or geological materials,
- Identify materials/substances that are trade secrets and should be reported as proprietary.

**Special Conditions**:

Biological material … Metal Alloy material … Float Glass … Ceramics … Geological material … Reaction products … Mixed Recycled content … Electronics … Form specific hazards … Material with CAS RN, no molecular structure … Defined substances without identifier … Plastics and polymers … Fasteners

In addition to the Content Inventory, the HPD requires that you include the following information that you will need to gather:

- VOC content for all liquid/ wet applied products
- Any additional certifications.

### Contact suppliers with requests for missing information

Consider the best approach for each supplier – they will differ in their ability and willingness to provide information. You might also need to bring in outside consultants to help with this process.

- Try to give suppliers adequate time to gather and provide the information. In the case of a multi-tiered supply chain, work with your direct supplier(s) to understand what is going to be required on their end to provide the level of information that an HPD requires.
- Be specific. Tell them exactly what you need; include definitions, thresholds, and any other information that will increase the likelihood that you will get the data you need. Don't expect them to respond to your request that they give you "data needed to meet LEED v4 credit requirements" – be explicit.
- Tell them why this is important – that an HPD could enhance use of the product and sales volume, which is in the best interest of the supplier as well as the manufacturer.
- Make sure you get a contact person in case you have additional questions about the information provided.
- Send a material content data request form or spreadsheet including request for missing data (product name/ID, supplier name, complete inventory of intentional ingredients [substance name, CASRN, % by weight in supplier's product, role in product] residuals/impurities [substance name, CASRN, % by weight/ppm/ppb, expected/known source, name of disclosing contact with signature and date])
- Be prepared to sign Non-Disclosure Agreements (NDAs) with suppliers as necessary. Some suppliers will only work through a third party under an NDA. In this case, if you are not already working with a third party preparer, check the HPDC website for a list of preparers working with HPDs (coming soon).
- Use supplier-provided data to fill in the gaps in the Inventory. Assess completeness and whether you are ready to proceed.

> "Knowing your ingredients is key, and most manufacturers only know of about 50% of what is really in their products….. But remember, most of the info is usually not in possession of that first supplier and the information will come from suppliers further down the chain. The manufacturer will not know their names since they are proprietary to their Tier one supplier."
>
> Ed Pavia
> ToxServices LLC

HPDC's Technical Committee and Supply Chain Technical Sub-Group are developing a "Supplier HPD" that will assist in this process.

## 3.4 Creating an HPD using the HPD Builder online tool

Once you decide you are ready to proceed to creating your HPD, you first must decide what tool you will use. HPDC provides the HPD Builder, a web-based system, which is an authoritative method to create HPDs for your products. Please Note: There are other tools marketed by other organizations to create HPDs; the quality and validity of these tools are not verified by HPDC. The HPD Open Standard fully allows for multiple implementations to be provided by ecosystem participants. It is important for manufacturers to note that it is the responsibility of the tool provider to ensure that their tools are in full compliance with the requirements of the most current version of the HPD Open Standard, and fully up-to-date with Emerging Best Practices guidance for that version. Manufacturers are encouraged to

consult with the tool provider about compliance. See 3.5 for more information about HPDC's quality control procedures to ensure consistency and compliance of all tools.

The HPD Builder has specific advantages:

- It provides an information management tool for creating, managing, printing and publishing your HPDs.
- It is guaranteed to be compliant with the current version of the HPD Open Standard and updated with the latest Emerging Best Practice guidance.
- It provides significant online guidance and format checking while you are creating HPDs.
- It does an automatic hazard screening and hazard warning reporting, that complies with the HPD Open Standard. Manual calculation of these results is not recommended, due to the complexity of the protocol.
- It does an automatic completeness check, which finds inconsistencies with the Standard and reminds you if you have not filled in a required data element.
- It provides you with the option to perform an automatic LEED Pre-Check to indicate consistency with LEED v4 Material Ingredient credit requirements.
- It provides for automated publishing, and management of your HPDs, in the HPD Public Repository
- It links electronically with an increasing number of other tools, standards, and certifications to provide for automated data exchange of information in your HPDs. This feature is controllable by you, so that you can exchange date with only those tools and systems of your choosing. As of Q3 2017, this data exchange has been implemented with the Portico system. Other automated data exchange capabilities are in development, and will be updated within the Builder system – new additions will be announced on the HPDC website.

The steps that follow are for creating HPDs using the HPD Builder. Section 3.5 describes steps for completing an HPD using other methods.

You should have a copy of the HPD Open Standard Instructions available for reference as you enter your data. The Builder includes excerpts from the Instructions that apply to each section of the Builder, but additional detail is provided in the Standard Instructions as well as guidance in handling specific variations.

- Create an account in the HPD Builder. There are two options for accessing the Builder:
    - Your company can become a member of the HPDC and have unlimited use of the Builder or
    - Your company can use the Builder on a per use basis, purchasing one or more HPD bundle packs that contain five "tokens" for creating HPDs.

  Visit the HPDC website to learn more about membership and HPD bundle pack.
- Once have you have accessed the Builder, it will guide you through the process. First, add a new product and create a new record. The product name is important since that will be the title of the HPD, how it will appear in the Repository. For HPDs covering multiple products, use product category or brand for the product name.
- Select the inventory method you will use for this HPD – Nested Material Inventory or Basic Inventory. You cannot change inventory method once you begin entering data.
- You are now ready to start building your HPD.
    - Section 1. Summary
        - Add product description ("Add Description"). Include a short description of the product or products covered in the HPD and information about product functionality, intended use, and additional specification numbers/IDs.
        - Enter VOC data. You must click "Edit VOC Data" and choose whether the product is "liquid/ wet applied" or not. If "yes" then relevant information must be entered; if "no" the additional information will not be required.

- The rest of the fields in Section 1 will be auto-populated with data/content provided in the following sections.

- Section 2. Content in Descending Order of Quantity (click "Edit Content Inventory").
  - Enter Inventory details
    - Select threshold for reporting – either per material or per product (Basic Inventory must have a per product threshold; Nested Inventory may have per product or per material threshold)
      - If per product, select the product threshold level that will apply to all substances in the entire product
      - If per material, thresholds must be entered under each material to apply to the substances that comprise that material
    - Provide inventory and screening notes as needed (you might need to return to these Notes after you have completed your inventory).
    - The "Re-screen substances" button should be used if there has been an interval between last entering a substance (and automatically screening) and "publishing" the HPD. The expiration date is based on the last screening date, so you can rescreen right before you publish to extend the expiration date as far into the future as possible.
    - The "Conduct LEED v4 Precheck" button will be used after you have entered the inventory data for all contents.
  - Create new materials for a Nested Inventory using "Add A Material." Include Residuals and Impurities "considered" through the HPDC Best Practices for Residuals and Impurities guidance and include notes required by that guidance. If using Basic Inventory, the product is automatically listed.
  - Add corresponding substances to each material/product using "Add A Substance".
  - Substances are automatically screened against priority hazard lists when they are selected from the "type-ahead" in the substance search box. When a substance is not available in the type-ahead, is a Special Condition, or is proprietary, select "Add New Substance" option to enter substance data manually. You will be able to enter hazard information once the substance has been added to the inventory.
  - Add explanatory notes as needed
- Section 3: Certifications and Compliance
  - An entry is required for VOC emissions for all products [see Instructions for details].
  - An entry is required for VOC content for all liquid/ wet applied products [see Instructions for details].
  - Optional: Other certifications related to health may also be listed. Claims related to construction-level certifications should be entered in Section 5: General Notes.
- Section 4: Accessories
  - An entry is required for Section 4.
  - List all products required for installation or by warranty, with HPD URL if available – examples include adhesives, fasteners, field coatings, and cleaning or maintenance products
  - Optional: list recommended accessory products.
  - If no accessories are required, check the appropriate box.
- Section 5: General Notes
  - No entry is required in this section unless one or more of the potential conditions listed in the Instructions exists.
- Section 6:
  - Enter company and contact information.
  - If you used a Third Party Preparer or Verifier, they will enter their identifying information.

- Conduct a completeness check and fill in gaps as needed. The completeness check shows which sections are complete (green), missing required information (red), and potentially incomplete (yellow to light pink); the colors might vary on different computers.
- Optional – conduct a LEED Pre-Check to see if this preliminary, mechanical cross-check indicates that the HPD is consistent with LEED requirements for items checked. You can choose not to do the Pre-Check or not to disclose the results. The Pre-Check Indicator is found in the Edit Content Inventory screen.
- Print draft/internal use HPD for review. You can review all of the information you entered into the HPD and the auto-populated sections.
- Publish your HPD. This will add dates for Screening, Expiration, and Publication. Once published your HPD is automatically added to the HPD Public Repository.
- For additional information, check FAQs on the HPDC solutions page.

## 3.5 Creating an HPD using methods other than the HPD Builder

If you choose to create an HPD without the HPD Builder, you may use one of the following steps.

1. Use HPD Fillable Form. The HPD Fillable Form provides you with an HPD Open Standard fully-compliant format for creating HPDs completely offline.
   - Download the HPD 2.1 Fillable PDF Form and instructions for its use from the HPDC website.
   - In addition to content inventory, obtain hazard, warnings and GreenScreen scores from HPD-compliant external sources such as the Pharos Chemicals and Materials Library and enter on form. Substances must be screened against all of the HPD Priority Hazard Lists using best practice requirements for list updating and chemical classes; see the HPD Open Standard, Appendices B, C, D, and E for more information on HPD Priority Hazard Lists.
   - Review completeness by checking against the Checklist for Completeness provided in section 4 of the HPD Open Standard.
   - If desired, ensure that your calculations to support the reporting of the LEED Pre-Check Indicator are compliant with the HPD Open Standard.
   - Add new pages to the form as needed. If you are not able to do this, contact HPDC support to request an update to the form.
2. Use another tool or method of your choosing.
   - Third party tools are allowed for the creation of HPDs, as long as the output that they create is fully-compliant with the HPD Open Standard. In particular, manufacturers should consult with the tool provided to ensure that their processes for hazard warning and screening, and other automated functions are in compliance with the current-version of the HPD Open Standard, published errata and up-to-date with requirements contained in Emerging Best Practices. The HPD Open Standard is available for use under the terms of HPDC's Creative Commons license. HPDC does not review or validate the accuracy or compliance of such third party tools; It is the responsibility of the tool provider to ensure that these conditions are met.

To ensure consistency in published HPDs, and full compliance with the requirements of the HPD Open Standard, HPDC has implemented a Quality Control protocol for published HPDs, that is applied to all completed HPDs at the time of publishing to the HPD Public Repository. Manufacturers whose published HPDs are found to be not in compliance with the HPD Open Standard after publishing, will be notified and given the opportunity to correct compliance issues. During this period, the HPD will have a "pending" status, and while searchable in the Repository, will not be available for direct download. Repository users will be notified to contact the manufacturer, in such instances.

## 3.6 Communicating with Design Teams and the Public

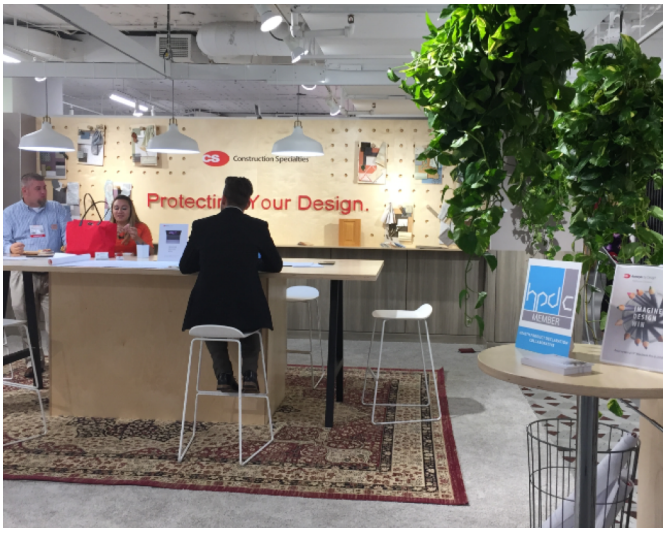
Once you have completed your HPD, how can you make sure design teams know about it? Some suggestions include:

- **HPD Public Repository.** The HPD Public Repository is the authoritative source and archive for all published HPDs. Your completed HPD will be held in the HPD Public Repository as a PDF file, once you have "published" it through the Builder or have uploaded a PDF version to the Repository. Once an HPD is published in the Repository, it is considered to be "public." HPDC is working with various product directories and libraries to create automated upload of HPDs published to the Repository. A listing of these directories receiving an automated upload will be provided on the HPDC website. Not only will this make your HPDs more accessible - once published - but, it will also save you the effort of updating the many and growing number of product directories that provide HPDs to their users. HPDC is also reaching out to project teams to encourage them to use the Repository as their first resource for finding HPDs. You can also recommend the Repository to project teams that contact you for HPDs.

> "When we started the project, it was almost impossible to find HPDs. As time went on, though, it became easy through the HPD Public Repository – instead of the required 20 HPDs for the LEED credit, we found 40 HPDs and achieved exemplary performance!"

- **Company Website**. Highlight your commitment to disclosure and transparency on your own website. Let project teams know which of your products have HPDs available and where to find them. You can offer HPDs on your own website, but we are encouraging project teams to use the Repository to make sure they have the most up-to-date published versions. So, you may want to use a link to the Repository on your website as opposed to maintaining a copy there - the choice is up to you. Using the Repository link will also ensure that your company website has the most recent versions displayed. Check out how other companies have showcased their focus on healthier products and disclosure.
- **Sales reps**. Train your sales reps so they can promote your company's commitment to disclosure and healthier products, present your HPDs, and explain their value to customers. For example, having LEED compliant HPDs can be an important selling point. This Guide can help reps understand HPDs and the LEED guidance on the HPDC website can help them point out the specifics in an HPD that make it LEED compliant. The more knowledgeable they are, the more effective they will be in promoting this new aspect of your products. Since this is new territory for them, provide time for them to learn about HPDs and consider holding internal lunch and learns for your sales staff. HPDC's website provides useful materials for further training your team.
- **"Lunch and learn" for customers**. You might already offer this type of program to familiarize customers with your products – you can add HPDs to these presentations or offer more in-depth lunch and learns on the health aspects of your products and what you are doing about this topic. Check the HPDC website for resources that might be useful for incorporating HPD topics in these sessions.
- **Advertising**. Product advertising often highlights features that relate to sustainability, environmental performance, and health. In publications targeted to the green building market, advertising often includes LEED, WELL and other compliance. If you want to use the HPD logo in your advertising, please contact us at support@hpd-collaborative.org for more information.

- **Conferences and trade shows**. In your booth at trade shows and exhibits, you can highlight your HPDs. If you are an HPDC member, you can display a member sign. HPDC provides "HPDC Member" signage for use in your booth or other events. Please contact us at support@hpd-collaborative.org for more information on booth signage and logo usage. Further, manufacturers are presenting their experiences and accomplishments in regular sessions, reaching a new audience. These sessions are particularly effective when you can tell a story about your journey to disclosure and transparency, what it means to your company, what barriers you encountered and overcame. Team with users of your products to tell a more complete story. These presentations and discussions can contribute to a more positive, constructive relationship with your customers.




## 3.7 Tips for Success in Creating your HPD

What have we learned from experience that will help you create your HPD? The following tips were gathered from successful HPD creators and responses to inquiries.

- **Where can I get help or answers to questions while I am creating an HPD?**
  HPDC provides resources to help you find answers to your questions. For questions about the Standard, data requirements, and the Format:
  - The HPD Open Standard is the authoritative source for specification of data requirements in the HPD. It provides detailed explanations of each data field, including variations that are acceptable. The Standard is available for free download.
  - This Manufacturer's Guide provides advice on completing an HPD. It does not provide the complete and detailed specification that is in the Standard.
  - The FAQs on the HPDC website provide answers to questions. It is searchable and organized into categories.
  - If you do not find an answer to your question, you can submit a "ticket" to request assistance. In the Support Portal, go to Tickets and New. This system enables us to track all inquiries and ensures a timely response. Be as specific as possible.

  For questions about the Builder:
  - A short video explains the changes from HPD 2.0 to HPD 2.1.
  - You can go to FAQs or submit a ticket to the Support Portal as described above.
- **What are projects looking for? How can we make our HPD stand out?**
  Project teams will have different reasons for asking for and looking at your HPDs. Understanding those reasons will make sure your HPDs meet their expectations.
  - If project team users are planning to use the HPD to meet requirements of a particular certification system, make sure you know which one and the details. For example, if they are trying to achieve the LEED

Disclosure and Optimization credit, you need to know if they are trying to achieve Option 1 and/ or Option 2. The requirements are different for the two Options within that credit.
  - All users want a complete HPD that is reported in compliance with the requirements in the HPD Open Standard. If you are preparing HPDs in-house, someone in your organization needs to be very familiar with the Standard. There is a Checklist in the Standard that can be useful in ensuring completeness.
  - If you have reports, studies, or additional certifications that explain the contents of your product, especially the hazards it contains, include reference to those reports, studies, or additional certifications in Notes sections. Don't just include a vague statement that "there is no risk of exposure to this hazard" – provide links to evidence.
  - Provide explanations for anything else that might raise a question – why do you provide ranges for amounts of some substances rather than a fixed quantity? Why were you not able to consider residuals and impurities in some materials?
  - Consider Third Party Verification of your HPD. HPDC's Third Party Verification program will be fully implemented during Q4 of 2017.
- **How can we avoid problems with reviews and rejection of HPDs by LEED reviewers?**
  Each version of the HPD – from HPD 1.0 to HPD 2.0 to HPD 2.1 – has become easier for reviewers to review. The requirements have been clarified and the relationships between the data fields on the HPD and the LEED requirements have been clarified. If you have HPDs created with version 1.0 or 2.0 that have been rejected, create new HPDs with version 2.1. This new version has several built in advantages for LEED compliance:
  - The Builder conducts a "completeness" check automatically to notify you if a data field has not be filled in.
  - The Builder can do a Pre-Check of LEED compliance – this is an optional mechanical check that identifies any fields that have been left blank or are not completed in accordance with LEED requirements (such as threshold level or Characterized/ Screened/ Identified). It does not check the quality of the data in those fields, but it provides a preliminary check. If you run the Pre-Check and learn that your HPD does not meet the requirements, you can go back and see if items can be completed or corrected. If you are not able to meet the requirements, you can publish your HPD without disclosing the results of the Pre-Check.
  - Definitions of data field requirements have been clarified. For example, confusion over the "threshold" in version 1.0 (did it apply to residuals and impurities only or the entire product?) has been eliminated.

  HPDC's third party verification program will be available in the fourth Quarter of 2017. This program will provide an additional check on your HPD.
- **How can I work with my suppliers to obtain their data?**
  This can be the most difficult part of creating an HPD. Suppliers can be reluctant to provide the information, claiming that it's proprietary. A few successful strategies are:
  - Talk to the supplier to find out exactly why they won't provide the data – that will help you figure out the best strategy.
  - If they are willing to provide the data to you but not to allow it to be published, assure them that you can enter the identifying data, such as name and CAS RN, but then define that item as proprietary so the identifying information will not appear but the hazards resulting from screening will appear. If you want your HPD to be LEED compliant, this is allowed – name and CAS RN can be withheld as long as role, amount, and hazards are listed.
  - If they are not willing to provide the data to you, ask if they are willing to provide it to a third party who can create your HPD under a Non-Disclosure Agreement for that information. Third Party Preparers serve this role, as well as assisting in creation of the HPD.

- **What are Special Conditions and do they apply to my product?**
  If you find that it is difficult or impossible to complete the HPD due to specific aspects of your product – for example, use of materials that do not have CAS RNs to enable identification and screening – check the Special Conditions section of the HPDC Best Practices website. "Special Conditions" were defined in the HPD Open Standard 2.0 and 2.1 – they reflect the fact that some materials and substances cannot be identified or screened using current HPD methods. For example, there are some materials that lack CAS RNs, such as biological and geological materials, and some materials are highly variable, such as mixed recycled content. The Special Conditions listed in HPD Open Standard 2.1 include:
  - biological materials
  - geological materials
  - ceramics
  - electronics
  - float glass
  - form specific hazards
  - metal alloy materials
  - mixed hardware
  - reaction products
  - mixed recycled content
  - defined substances without an identifier
  - material with a CAS RN but no molecular structure.

  Specific best practices are under development for each Special Condition and will be posted to the website as they are approved.
- **Can I get my HPDs third party verified? Should I?**
  Third party verification is a process in which an objective outside party reviews your HPD and verifies specific data. This process is used in many reporting systems, and HPDC developed a third party verification program that is consistent with the ISO 17065 standard. A few key facts about HPDC's third party verification program:
  - It is a desk audit. It does not independently run laboratory tests or assess ingredients of your product. Instead, it checks data such as making sure the content inventory matches other documentation (e.g., Bills of Materials), and that undisclosed substances have been properly screened.
  - It checks compliance with the HPD Open Standard but does not check compliance with the LEED v4 Material Ingredients credit.
  - Third party verifications are performed by organizations that have met strict standards established by HPDC.
  - Work of the verifiers is audited by HPDC to ensure quality.

  Third party verifications give your customers more confidence in the HPD and its information. Some programs require verification or give "extra credit" for verified HPDs.
- **Do I need an outside consultant to help me prepare my HPD?**
  The HPD Open Standard was designed to be usable by manufacturers, without requiring you to hire outside consultants. In some cases, though, it makes sense to get help. There are third party preparers who are recognized by HPDC and can be depended upon to provide quality services. Here are a few questions to help you think about this issue:

- Do I have an employee who has time to devote to this effort? For a simple product with a small and cooperative supply chain, an HPD can be created fairly quickly. However, if all of your employees are already stretched, you might not be able to support the effort in-house.
- How quickly do I need to get the HPD created? Are there project teams demanding an HPD *now* for a project submittal? Can we fit this into our regular workload and still meet these requests?
- Do the available employees have the needed expertise and knowledge of the product to enable them to gather and process the data accurately? Are they familiar with suppliers and can they work effectively with them if data must be requested from them?
- Do I want to devote staff time to learning about HPDs as an investment in creating future HPDs? Or, if it's unlikely that additional HPDs will be created, does this investment still make sense?
- Finally, do I have suppliers that will not release information about ingredients? If so, a third party working under a Non-Disclosure Agreement might be an effective way to obtain that data and enable you to create a LEED-compliant HPD. LEED allows withholding of the name and identifier of proprietary ingredients, as long as they are characterized (role and amount in the product) and screened for hazards. Third party preparers can arrange this.

**How do Third Party Preparers work with manufacturers in creating an HPD?**

The manufacturer should assign a team member to be the "HPD Champion" for the company. This team member doesn't have to be a chemist or toxicologist, just a dedicated collaborator with a desire to get the job done. The HPD Champion works in tandem with the third-party consultant to collect information from within their company and from suppliers, verify and revise information, and ultimately publish the HPD. Typically, there is a kick-off meeting to discuss the goals of the manufacturer and plan the stages of the project. The third-party consultant and HPD Champion then work to collect all required data, and input this information into the HPD Builder. Once all of the information has been collected and reviewed, the HPD can be published and made available to design professionals.

Tara Blank
Elixir Environmental

- **What are the HPD Builder and HPD Public Repository APIs? How can they benefit my company?**

  An Application Program Interface or "API" is a mechanism for sharing of data among systems and tools. HPDC has implemented an API for the Builder and an API for the Repository.
  - The HPD Builder API is a mechanism for sharing the data elements in a manufacturer's HPD Builder account with selected other systems and tools. Participation is at the option of, and completely controlled by, the manufacturer, through an interface in the HPD Builder system. If you choose to participate, you will be able to export data from your HPD Builder files to those applications you select. In some cases, the HPD Builder will also accept data from other applications, in which case you will export that data from your account in the other participating application to the HPD Builder. The data to be shared, as to its update frequency and content, is totally controlled by the manufacturer, within the parameters of the participating application. Since each participating application is different, manufacturers should consult the HPD Builder application for additional information, or contact HPDC Staff with questions.
  - Once a manufacturer "publishes" an HPD to the Repository (whether automated via the HPD Builder, or manually via the Repository), the completed HPD PDF becomes a publicly-available document, and is automatically made available via two access methods:
    1. HPD Public Repository – direct access. A web-based search/download capability, for individual users. This capability is available, at no-charge, 24x7, via the HPDC website, at the following link: [link]
    2. HPD Public Repository – access via a participating library/directory. An electronic data exchange capability has been implemented by HPDC with participating libraries/directories. This interface enables

libraries and directories to electronically upload HPDs from the Repository, and display completed HPDs for use on these libraries and directories. A list of participating libraries and directories is maintained on the HPDC website, on the HPD Public Repository page [link]

- **What's the best way to "publish" my HPD?**
  The HPD Public Repository is the authoritative place to publish your HPD. To have the status of "Published," a completed HPD must appear in the HPD Public Repository. It may also appear on manufacturer websites, and in other public directories, but will not be officially "published" if not in the Repository. If you use the HPD Builder, you can automatically publish HPDs to the Repository, from the Builder, and also manage your published HPDs from your Builder account. Manual upload of completed HPDs to the HPD Public Repository is also provided.
- **Should I worry about legal questions?**
  American Institute of Architects published a white paper on legal concerns that might be helpful. You should consult with your own legal team on specific concerns.
- **What are some common mistakes and how can they be avoided?**
  The following are mistakes that can affect how project teams can use your HPD:
  - *Use MSDS/SDS to identify contents.* If the only information you have on contents of your product come from an MSDS or SDS, use them. However, be aware that thresholds used in MSDS and SDS do not meet LEED requirements. Further, these sources do not report many types of ingredients that are required for an HPD.
  - *Assuming your Bill of Materials will contain the required content list.* For more complex products with mutli-tiered supply chains, the Bill of Materials generally will not have the required detail. Be sure to understand the depth and breadth of your supply chain and allow adequate time and resources to obtain needed data.
  - *Other failure to report all contents.* You must report all materials in the product, if you are preparing a Nested Inventory, and all substances above the stated threshold (per product or per material).
  - *Use of incorrect CASRN.* Use of an incorrect CAS RN will result in inaccurate hazard screening. You must use the most applicable CAS RN for the substance; there might be several variations of the substance and it is important for you to identify the one used in your product.
  - *Threshold doesn't meet requirements for reporting (LEED, Portico, C2C).* It's important to understand how your HPDs will be used so that you can meet all of the applicable requirements. Choosing an incorrect threshold can result in an HPD that is non-compliant with the requirements.
  - *Failure to list VOC content for wet-applied products.* VOC content must be listed for all liquid/ wet applied products.

Finally, it's important to take the first step – create your first HPD. Remember that HPDs simply report your information - they do not rank or rate your product. Even if you can't get information on all contents, you are indicating to your customers and your employees that your company is part of the movement toward greater transparency and healthier products. As you gain more experience with creating and using HPDs, develop your data sources within your supply chain - and - most importantly - work with and gather feedback from project teams - you can update your HPDs to make them more complete. And, you can also begin to use the information in your HPDs to give your own product development teams insights into ingredients that you may want to improve.

# 4. Case Studies and Examples

The field of reporting, disclosure, and transparency is evolving rapidly, and the lessons provided by participants will be excellent resources for you and your company. This section links to case studies, stories, and interviews with manufacturers, third party preparers, reviewers, and other experts who provide their perspectives, experience and advice.

Examples of completed HPDs are provided on the HPDC website.

# Appendix – HPD Open Standard 2.1 Table of Contents

Health Product Declaration Open Standard Version 2.1

Effective Date: May 1, 2017

Table of Contents

1. Overview of the Health Product Declaration® Open Standard
1.0 About the Health Product Declaration® Open Standard
1.1 Purpose
1.2 Scope
1.3 HPD Open Standard Exclusions
2. HPD Open Standard Format Section-by-Section Guidance
2.0 Introduction
2.1 HPD Open Standard Format Section 1: Summary
2.1.0 HPD Open Standard Format Section 1 Overview
2.1.1 General Information
2.1.1.1 Product Name
2.1.1.2 Manufacturer Name
2.1.1.3 Classification
2.1.1.4 Product Description
2.1.1.5 HPD Tool Reference
2.1.1.6 HPD URL
2.1.2 Content Inventory
2.1.2.0 Inventory Reporting Methods
2.1.2.1 Threshold: Disclosed Per Material or Per Product
2.1.2.2 Residuals and Impurities Considered
2.1.2.3 Characterized, Screened, Identified
2.1.3 Content in Descending Order of Quantity
2.1.3.1 Content in Descending Order of Quantity
2.1.3.2 Number of GreenScreen BM-4/BM-3 contents
2.1.3.3 Contents highest concern GreenScreen Benchmark or List Translator Score
2.1.3.4 Nanomaterial
2.1.3.5 Inventory and screening notes
2.1.4 Volatile Organic Compound (VOC) Content

2.1.4.0 General Information on VOCs
2.1.4.1 Material (g/l)
2.1.4.2 Regulatory (g/l)
2.1.4.3 Does the product contain exempt VOCs?
2.1.4.4 Are ultra-low VOC tints available?
2.1.5 Certifications and Compliance
2.1.5.1 Type of Certification, Name of Certification
2.1.5.2 Pre-Checked for Consistency with Other Programs (optional)
2.1.6 Preparation, Verification, Publication
2.1.6.1 Third Party Verification
2.1.6.2 Preparer (optional
2.1.6.3 Third Party Verifier (optional)
2.1.6.4 Third Party Verification Number (optional)
2.1.6.5 Screening Date
2.1.6.6 Published Date
2.1.6.7 Expiry Date
2.2 HPD Open Standard Format Section 2: Content in Descending Order of Quantity
2.2.0 HPD Open Standard Format Section 2 Overview
2.2.1 Material or Product
2.2.1.0 General Information on Materials and Products
2.2.1.1 Material or Product Name
2.2.1.2 Percent (%)
2.2.1.3 HPD URL
2.2.1.4 Inventory Threshold
2.2.1.5 Residuals/Impurities
2.2.1.6 Residuals and Impurities Notes
2.2.1.7 Other Material or Product Notes
2.2.2 Substance
2.2.2.0 General Information on Substances
2.2.2.1 Substance Name
2.2.2.2 Identifier
2.2.2.3 Percent (%)
2.2.2.4 GreenScreen® (GS)
2.2.2.5 RC: Recycled content

2.2.2.6 Nano
2.2.2.7 Role
2.2.2.8 Hazards, Agency(ies) with Warnings
2.2.2.9 Substance Notes
2.3 HPD Open Standard Format Section 3: Certifications and Compliance
2.3.0 HPD Open Standard Format Section 3 Overview
2.3.1 General Requirements
2.3.2 Type of Certification
2.3.3 Name of Certification or Compliance
2.3.3.1 VOC Emissions
2.3.3.2 VOC Content
2.3.4 Certifying Party
2.3.5 Issue Date
2.3.6 Expiry Date
2.3.7 Certifier or Lab
2.3.8 Applicable Facilities
2.3.9 Certificate URL
2.3.1.0 Certification and Compliance Notes
2.4 HPD Open Standard Format Section 4: Accessories
2.4.0 HPD Open Standard Format Section 4 Overview
2.4.1 Accessory Product or Material Name
2.4.2 URL for Companion Health Product Declaration
2.4.3 Condition When Recommended or Required and/or Other Notes
2.5 HPD Open Standard Format Section 5: General Notes
2.5.0 HPD Open Standard Format Section 5 Overview
2.5.1 Required Entries
2.5.2 Optional Entries
2.6 HPD Open Standard Format Section 6: References
2.6.0 HPD Open Standard Format Section 6 Overview
2.6.1 Manufacturer information
2.6.1.1 Manufacturer
2.6.1.2 Address
2.6.1.3 Contact Name
2.6.1.4 Title

2.6.1.5 Phone
2.6.1.6 Email
2.6.1.7 Website
2.6.2 Abbreviations and acronyms
2.6.2.1 Hazard Types
2.6.2.2 GreenScreen®
3. Variations
3.0 Introduction
3.1 Listing Multiple Products in a Single HPD
3.2 Alternate Materials or Substances
3.3 Variable Composition Due to Multiple Suppliers
3.4 Products Composed of Combinations of Parts
3.5 Special Conditions for Materials and Substances
4. Checklist for a Compliant HPD
5. Glossary
Appendices
Appendix A: HPD Open Standard Format
Appendix B: HPD Priority Endpoints
Appendix C: HPD Priority List Criteria
Appendix D: HPD Priority List Sources
Appendix E: HPD Priority List Warnings (link to HPDC website)
Appendix F: VOC Emissions Testing Standards and Programs