



## HP Standard 011 General Specification for the Environment

The HP General Specification for the Environment (GSE) includes the following eleven standards.

1. GSE Overview (HX-00011-00); Revision AE, 23-Jul-2024
2. Substances and Materials Requirements, All Products (HX-00011-01); Revision AE, 23-Jul-2024
3. \*Substances and Materials, Future Requirements (HX-00011-01A); Revision AE, 23-Jul-2024
4. \*Substances and Materials, Business-Specified Requirements (HX-00011-01B); Revision AE, 23-Jul-2024
5. Packaging Requirements (HX-00011-02); Revision AE, 23-Jul-2024
6. Manufacturing Process Substances Requirements (HX-00011-06); Revision K, 23-Jul-2024
7. \*Product requirements, EEE (HX-00011-11); Revision H, 23-Jul-2024
8. \*Requirements for Batteries and Battery Containing Products (HX-00011-12); Revision H, 23-Jul-2024
9. \*Requirements for Soft Goods (HX-00011-13); Revision H, 23-Jul-2024
10. \*Requirements for Chemicals and Formulated Products (HX-00011-14); Revision H, 23-Jul-2024
11. \*Requirements for Print Media (HX-00011-15); Revision H, 23-Jul-2024

\* Note that these standards are available on the [HP Supplier Portal](#) (registration required).



# HP Standard 011-00 General Specification for the Environment (GSE)— Overview

Document Identifier	HX-00011-00
Revision and Date	AE, 23-Jul-2024
Last Re-validation Date	23-Jul-2024
Abstract	The General Specification for the Environment (GSE) defines HP's environmental requirements for HP brand products. The GSE is a series of standards that is comprised of this standard (HP Standard 011-00) and the standards referenced in the References section of this standard.
Applicability	Compliance to HP's General Specification for the Environment (GSE) must be included in all HP contracts for design, manufacture, or purchase of HP brand products. Non-HP brand products must comply with applicable legal requirements.
Status	Approved

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## 1 Purpose

HP's General Specification for the Environment (GSE) is a series of standards that includes this standard (HP Standard 011-00) and the standards that are listed in the References section of this standard. The referenced standards shall be considered normative references and are required for application of this standard. Accordingly, any reference to the "GSE" or "HP Standard 011" or "HP Standard 011-00" means and includes the specifications and requirements of this document, HX-00011-00, and those requirements set out in the referenced standards.

## 2 Scope

The requirements specified in the GSE apply to all HP brand products. "HP brand products" in this standard are defined to be products branded by the HP brand, HP-owned brands, and HP brand-licensed products, including parts, materials, components, and packaging incorporated into such products. Non-HP brand products are products sold, leased, and marketed by HP, but that do not meet the definition of HP brand products. Non-HP brand products must meet or exceed the applicable legal requirements in each country in which these third-party products will be sold, leased, or marketed.

HP Standard 011-00 applies to all such products and to all HP business units involved in their design, manufacture, or purchase worldwide.

HP Standard 011 (the GSE) is a series of documents that define HP's global environmental requirements for HP brand and HP-owned brand products and their manufacturing. It is not intended to be a listing of all environmentally related product design requirements that may be established by HP's business units or by law. Supplier's compliance with this standard does not relieve or diminish the supplier's obligation to comply with any other HP product specification or its obligation to comply with all applicable laws.

On November 1, 2022, HP Inc. announced the completion of its acquisition of Poly. All Poly products continue to be subject to applicable legacy Poly standards, including Poly Standard 61918, Poly WW Hazardous Substances Specification, and related documents. In addition, the applicable GSE requirements also apply to Poly products.

### 2.1 Refurbished HP products

Products refurbished by HP or by HP-approved refurbishers (Refurbished HP products) generally must comply with the GSE requirements in force when the original product was produced. If material is added to a product during refurbishment (for example, installing a new hard drive, new keyboard, new memory DIMM, etc.), that new material must meet current GSE requirements as described in HX-00011-00 (this document) and the references contained in HX-00011-00. Section 3 Supplier Verification of HX-00011-00 is applicable to suppliers doing the refurbishment. The manufacturing chemicals requirements of the GSE found in HX-00011-06 apply to refurbishing processes. Current packaging requirements found in HX-00011-02 apply to the refurbished product's packaging.

Depending on the details of the refurbishment process (source of refurbished product, location of refurbishment, location of end-user, etc.), there may be additional regulatory requirements.



### 3 Supplier Verification

When specified by HP or in response to a request by HP, the supplier shall be responsible for verifying compliance to the GSE. Suppliers must keep on file any documentation or test data that demonstrates specific actions taken by the supplier to verify compliance. This documentation or test data shall be kept for 10 years from the date the product is last placed on the market by HP. An example of such documentation is the requirements in the Supplier Verification and Additional Substance Requirements section of HP Standard 011-01 General Specification for the Environment—Substances and Materials Requirements, All Products ([HX-00011-01](#)). The documentation may include analytical test reports, parts testing schema, and any information required for HP to comply with classification, packaging, or labeling requirements. Also included are documentation and data collected by the supplier from the supplier's supply chain and supplier's own records on the substance or material content and design of the products.

Additionally, Supplier shall, upon request by HP,

- Provide such documentation mentioned above.
- Obtain information from their upstream supply chain.
- Verify compliance of parts, components, materials, or products using analytical testing or other suitable means approved by HP.
- Disclose all intentionally added substances, by mass or concentration.

Supplier shall further ensure that parts, components, materials, packaging, or products provided to HP are not designed to perform differently under test conditions than under normal conditions of use. Test conditions include, but are not limited to, analytical testing protocols or other methods used to verify compliance with the GSE or applicable regulatory requirements.

### 4 Product types

**Electronic and electrical equipment (EEE)**—a part or product that has at least one intended function which is dependent on electric current or electromagnetic fields. A product or part qualifies as EEE even if the majority of its functions do not depend upon electric current or electromagnetic fields.

**Batteries**—‘battery’ or ‘accumulator’ means any source of electrical energy generated by direct conversion of chemical energy and consisting of one or more primary battery cells (non-rechargeable) or consisting of one or more secondary battery cells (rechargeable).

**Battery pack**—means any set of batteries or accumulators that are connected together and/or encapsulated within an outer casing so as to form a complete unit that the end-user is not intended to split up or open.

**Chemicals and formulated products**—For the purposes of the GSE, chemicals include substances and mixtures. A substance is a chemical element and its compounds used or incorporated in its neat form. A formulated product is a mix or solution of two or more substances. Examples of chemicals and formulated products in the context of the GSE include ink and toner formulations, cleaning fluids, bonding agents, and other formulated products.

**HP brand products**— products branded by the HP brand, HP-owned brands, and HP brand-licensed products, including parts, materials, components, and packaging incorporated into such products.

**Non-HP brand products**— products sold, leased, and marketed by HP, but do not meet the definition of HP brand products.



**Other non-EEE (furniture, wooden products, clothing, etc.)**—a part or product that is not considered EEE and is not included in other product type definitions. Examples of other non-EEE are furniture, wooden products, and luggage.

**Soft Goods**—Soft goods are articles made from textiles and other soft material including leather and soft plastics. Examples of soft goods are clothing, bags, covers, and mousepads.

**Print Media**—products that are the substrate for the application of an image. Such products include paper, photo paper, posters, banners, textiles, and other substrates used for application of an image (printing, copying, projection, etc.). For purposes of this standard, the term “media” does not include optical media such as CDs or DVDs.

## 5 General

The most current revisions of the following standards must be used. HP products shall comply with the requirements contained in all standards relevant to their respective product types. More than one standard may apply to a single product type. The descriptions for each of the standards below provide guidance on relevance. However, Supplier bears full responsibility for reviewing each of the following standards and identifying the relevant standard(s) for each product type supplied to HP. See Section 7.7 for a non-exhaustive list of examples for determining the relevance of a standard.

There are two types of standards:

- HP Standards 11-0x and HP Standard 14-02, which include requirements for all products, regardless of product type.
- HP Standards 11-1x and HP Standard 25-0x, which include requirements that are specific for a certain subset of HP products.

## 6 Standards that apply to all product types

### 6.1 HP Standard 011-01 GSE—Substances and Materials Requirements, All Products (HX-00011-01)

[HX-00011-01](#) contains requirements for all products, regardless of product type.

### 6.2 HP Standard 011-01A GSE—Substances and Materials, Future requirements (HX-00011-01A)

The requirements in HX-00011-01A apply globally to all HP brand and HP-owned brand products and all parts, materials, and components that are incorporated into HP brand and HP-owned brand products on the future effective date provided, unless an HP business specifies in product and component specifications an earlier effective date.

### 6.3 HP Standard 011-01B GSE—Substances and Materials, Business-specified requirements (HX-00011-01B)

The requirements in HX-00011-01B are applicable only when and as specified by an HP business.

### 6.4 HP Standard 011-02 GSE—Packaging Requirements (HX-00011-02)

The requirements specified in [HX-00011-02](#) apply globally to all packaging used for selling or shipping HP brand and HP-owned brand products.



## 6.5 HP Standard 011-04 GSE—Product Requirements (HX-00011-04)

*HP Standard 011-04 has been discontinued. The requirements in HP Standard 011-04 have been moved to HP Standard 011-01 and HP Standard 011-11 through HP Standard 011-15*

## 6.6 HP Standard 011-05 GSE—Disclosure Requirements (HX-00011-05)

*HP Standard 011-05 has been discontinued. The requirements in HX-00011-05 have been moved to HX-00011-01.*

## 6.7 HP Standard 011-06 GSE—Manufacturing Substances Requirements (HX-00011-06)

The requirements specified in [HX-00011-06](#) apply globally for manufacturing processes used to produce HP brand and HP-owned brand products and the manufacturing processes for all parts, components, and materials incorporated into HP brand and HP-owned brand products.

## 6.8 Environmental Management System for Products—HP Standard 014-02 Supplier Requirements for Safe and Legal Products (HX-00014-02)

The requirements specified in HX-00014-02 apply globally to all HP brand products.

# 7 Standards that apply to specific product types

## 7.1 Requirements for EEE

EEE have at least one intended function which is dependent on electric current or electromagnetic fields. A product qualifies as EEE even if the majority of its functions do not depend upon electric current or electromagnetic fields.

### 7.1.1 Materials Requirements for EEE

For materials requirements for EEE, see Section 6.1. Materials requirements for EEE products are found in [HX-00011-01](#).

### 7.1.2 HP Standard 011-11 GSE—Product requirements for EEE (HX-00011-11)

This standard includes global product requirements for electronic and electrical equipment (EEE). Such requirements are labeling, documentation, performance, registration, and declaration requirements.

## 7.2 HP Standard 011-12 GSE—Requirements for Batteries and Battery Containing Products (HX-00011-12)

This standard is relevant for batteries and for products that contain batteries. This includes all types of battery form factors and battery chemistries.

## 7.3 HP Standard 011-13 GSE—Requirements for Soft Goods and Other Non-EEE (furniture, wooden products, clothing, etc.) (HX-00011-13)

This standard is relevant for products that are considered soft goods. This standard also includes requirements for non-EEE parts of wearable devices (e.g., wrist straps).

A product that is considered EEE is subject to HX-00011-13 if it contains materials subject to the requirements of HX-00011-13 (for example, a backpack with charging capability would be subject to both non-EEE and EEE related standards)



#### 7.4 HP Standard 011-14 GSE—Requirements for Chemicals and Formulated Products (HX-00011-14)

This standard is relevant for product types considered substances, mixtures, chemicals, or formulated products. Such product types include ink, ink components, 3D print powder, cleaning agents, cleaning kits, other non-ink formulations, and those products considered substances and formulations.

#### 7.5 HP Standard 011-15 GSE—Requirements for Print Media (HX-00011-15)

This standard is relevant for product types considered print media. Such products include paper, photo paper, posters, banners, textiles, and other substrates used for application of an image (printing, copying, projection, etc.). Optical media (CD, DVD, etc.) is out of scope of HX-00011-15. This standard is relevant for HP branded and HP brand licensed products. Requirements of in-box documentation (like user guides and printed regulatory notices) may be found in HX-00011-02.

#### 7.6 HP Standard 025-01— Supplemental Environmental Specification—Commodity and Component (HX-00025-01)

This standard is applicable to parts and components in scope of the standard.

#### 7.7 Examples of products and relevant standards

Examples in Table 1 are given to provide guidance on relevant requirements for unique product types.

Product	HX-00011-01 All Products	HX-00011-11 Product Req, EEE	HX-00011-12 Batteries	HX-00011-13 Soft Goods and Other Non-EEE	HX-00011-14 Chemicals	HX-00011-15 Print Media
Notebook computer	X	X	X			
Desktop computer	X	X	X			
Display	X	X				
Printing hardware (Inkjet, LaserJet, Scanners, Web Press, Indigo, Scitex, Latex, DesignJet, etc.)	X	X	X			
Supplies cartridge (including ink/toner)	X	X			X	



Table 1. Examples of Relevant Requirements for Product Types						
Product	HX-00011-01 All Products	HX-00011-11 Product Req, EEE	HX-00011-12 Batteries	HX-00011-13 Soft Goods and Other Non-EEE	HX-00011-14 Chemicals	HX-00011-15 Print Media
Ink, toner, 3D print powder <sup>1</sup>	X				X	
Board loadable component (resistor, etc.)	X					
Point of Sale product with thermal printer	X	X	X			X
Printers shipped with print media	X	X	X			X
Battery pack	X		X			
External power supply	X	X				
Wireless headsets	X	X	X	X		
Wearable device containing textiles	X	X	X	X		
Textile based print media	X			X		X
Furniture	X			X		

## 8 Requirements for Poly products

HP acquired Poly in November 2022 and therefore Poly and its brands are HP-owned brands. All Poly products continue to be subject to applicable legacy Poly standards, including Poly Standard 61918, Poly WW Hazardous Substances Specification, and related documents. In addition, the GSE also applies to Poly products. In the case of conflict between the GSE and the legacy Poly standards the strictest requirement applies.

<sup>1</sup> HP 3D print powders are subject to requirements in HX-00011-01 and HX-00011-14; articles manufactured by HP using HP 3D print powders are assumed to meet those requirements.





## 9 References

Each of the following standards forms a part of [HP's GSE](#) and is incorporated herein by reference:

[HP Standard 011-00 General Specification for the Environment—Overview \(HX-00011-00\)](#)

[HP Standard 011-01 General Specification for the Environment—Substances and Materials Requirements, All Products \(HX-00011-01\)](#)

HP Standard 011-01A GSE—Substances and Materials, Future Requirements (HX-00011-01A)

HP Standard 011-01B GSE—Substances and Materials, Business-Specified Requirements (HX-00011-01B)

[HP Standard 011-02 GSE—Packaging Requirements \(HX-00011-02\)](#)

[HP Standard 011-06 GSE—Manufacturing Substances Requirements \(HX-00011-06\)](#)

HP Standard 011-11 GSE—Product requirements for EEE (HX-00011-11)

HP Standard 011-12 GSE—Requirements for Batteries and Battery Containing Products (HX-00011-12)

HP Standard 011-13 GSE—Requirements for Soft Goods and Other Non-EEE (furniture, wooden products, clothing, etc.) (HX-00011-13)

HP Standard 011-14 GSE—Requirements for Chemicals and Formulated Products (HX-00011-14)

HP Standard 011-15 GSE—Requirements for Print Media (HX-00011-15)

HP Standard 014-02 Supplier Requirements for Safe and Legal Products

HP Standard 025-01 Supplemental Environmental Specification—Commodity and Component (HX-00025-01)

## 10 Revision History

[Prior revision history](#)

Revision, Date, Change Number	Brief Description of change
T, 1-Jun-2015	Added new HP Standard 011-06 General Specification for the Environment – Manufacturing Process Substances Requirements. Added Table 1 from HP Standard 011-01. Added TBBPA to Table 1. Updated Table 1 for 1,2,5,6,9,10-Hexabromocyclododecane (HBCDD or HBCD) in HP 011-01 document Table 1 and HP 011-01A document Table 1. Updated Table 1 for PAH (also moved the PAH table 3 to 01 document) in HP 011-01 document.
01-Aug-2015	Cloned the standards for HPI.
U, 15-Jul-2016	Editorial changes, updated Table 1.



V, 3-Jul-2017	<p>Added information to reflect new structure of GSE documents.</p> <p>Added table of example products and relevant standards.</p> <p>Added definitions of product types.</p> <p>Clarified HP brand licensed products are in scope.</p> <p>Editorial changes</p>
W, 26-Jul-2018	<p>Clarified supplier obligation for records retention.</p> <p>Added reference to HX-00025-01.</p> <p>Editorial changes</p>
X	Per standard versioning best practices, there is no version X.
Y, 13-Sep-2019	<p>Changed title of HX-00011-13 to include other non-EEE.</p> <p>Defined "other non-EEE."</p> <p>Included furniture in product examples.</p> <p>Editorial changes</p>
Z	Per standard versioning best practices, there is no version Z.
AA, 29-Jul-2020	No changes
AB, 28-Jul-2021	Refined scope; added definitions of HP brand product and non-HP brand product.
AC, 26-Jul-2022	No changes
AD, 28-Jul-2023	Added section Requirements for Poly products.
AE, 23-Jul-2024	<p>Added section Refurbished HP products</p> <p>Updated section Supplier Verification (Disclose all intentionally added substances, by mass or concentration.)</p> <p>Added Ink, toner, 3D print powder footnote to Table 1</p> <p>Removed and archived revision history prior to 2015</p>



# HP Standard 011-01 General Specification for the Environment— Substance and Materials Requirements, All Products

Document Identifier	HX-00011-01
Revision and Date	AE, 23-Jul-2024
Last Revalidation Date	23-Jul-2024
Abstract	This standard defines HP's global environmental requirements for restricting certain substances and materials in HP brand products; this document also contains other environmental requirements. HX-00011-01 applies to all products, regardless of product type.
Applicability	All HP design centers, HP manufacturing facilities, and HP's suppliers of HP brand products must comply with HP's General Specification for the Environment (GSE). Non-HP brand products must comply with applicable legal requirements.
Status	Approved

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## 1 Purpose

HP's General Specification for the Environment (GSE) is a series of standards that includes this standard (HP Standard 011-01) and the standards that are listed in the References section of this standard. The referenced standards shall be considered normative references and are required for application of this standard. This standard defines HP's global environmental requirements related to substances and materials in HP brand and HP-owned brand products. HX-00011-01 applies to all products, regardless of product type.

**NOTE:** This standard was formerly known as HP Standard 011-01 General Specification for the Environment – Substances and Materials Requirements and included substance and materials restrictions. Beginning with revision V of HX-00011-01, this standard includes substance restrictions as well as other requirements (such as labeling) that apply to all products.

## 2 Scope

The requirements specified in the GSE apply to all HP brand products. "HP brand products" in this standard are defined to be products branded by the HP brand, HP-owned brands, and HP brand-licensed products, including parts, materials, components, and packaging incorporated into such products. Non-HP brand products are products sold, leased, and marketed by HP, but that do not meet the definition of HP brand products. Non-HP brand products must meet or exceed the applicable legal requirements in each country in which these third-party products will be sold, leased, or marketed.

The ozone depleting substance restriction also applies to all manufacturing processes used to produce HP brand products, parts, components, and materials.

This standard, HP Standard 011-01 General Specification for the Environment (GSE)— Substances and Materials Requirements, All Products, is a component of HP's General Specification for the Environment (GSE). The GSE consists of the following standards:



- [HP Standard 011-00 GSE—Overview \(HX-00011-00\)](#)

Requirements that apply to all products:

- [HP Standard 011-01 GSE—Substances and Materials, All Products \(HX-00011-01\) \(the current document\)](#)
- HP Standard 011-01A GSE—Substances and Materials, Future Requirements (HX-00011-01A)\*
- HP Standard 011-01B GSE—Substances and Materials, Business-Specified Requirements (HX-00011-01B)\*
- [HP Standard 011-02 GSE—Packaging Requirements \(HX-00011-02\)](#)
- [HP Standard 011-06 GSE—Manufacturing Process Substances Requirements \(HX-00011-06\)](#)

Requirements that apply to specific types of products

- HP Standard 011-11 GSE—Product requirements, EEE (HX-00011-11)
- HP Standard 011-12 GSE—Requirements for Batteries and Battery Containing Products (HX-00011-12)
- HP Standard 011-13 GSE—Requirements for Soft Goods and Other Non-EEE (furniture, wooden products, clothing, etc.) (HX-00011-13)
- HP Standard 011-14 GSE—Requirements for Chemicals and Formulated Products (HX-00011-14)
- HP Standard 011-15 GSE—Requirements for Print Media (HX-00011-15)
- HP Standard 025-01 Supplemental Environmental Specification—Commodity and Component (HX-00025-01)\*

\*The restrictions in HP Standard 011-01A apply globally on the future effective date provided unless an HP business requires an earlier effective date. The restrictions in HP Standard 011-01B are applicable only when and as specified by an HP business. HP Standard 025-01 is applicable to parts and components in scope of the standard.

On November 1, 2022, HP Inc. announced the completion of its acquisition of Poly. All Poly products continue to be subject to applicable legacy Poly standards, including Poly Standard 61918, Poly WW Hazardous Substances Specification, and related documents. In addition, the applicable GSE requirements also apply to Poly products.

### 3 Substance and Materials Requirements

The restrictions and prohibitions specified in this standard apply to substances at the homogeneous material<sup>1</sup> level, unless specified otherwise.

When replacing substances, alternatives must have a lower potential impact to human health and the environment and meet HP Business performance and cost criteria. For example, when phasing out of GSE restricted phthalates, non-*ortho*-phthalate alternatives must be used. Refer to the HP Procurement

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<sup>1</sup> "Homogeneous material" means a material that cannot be mechanically disjointed into different materials. The term "homogeneous" means "of uniform composition throughout" and refers to materials such as plastics, metals, solders, resins, coatings, plating material, and so forth. The term "mechanically disjointed" means that the materials can, in principle, be separated by mechanical actions such as unscrewing, cutting, crushing, grinding, and abrasive processes. (Definitions taken from [BIS RoHS Regulations Government Guidance Notes](#))



Guidance for Phthalate Replacements (EX-MF908-01) and HP Procurement Guidance for Flame Retardants (EX-MF908-02) (both available at the [HP Supplier Portal](#), registration required).

The [BizNGO materials selection principles](#) constitute an overarching chemical management approach that should be used to establish the governing principles and constraints when performing a chemical alternatives assessment. There are many tools available to perform an alternatives assessment. The Organisation for Economic Cooperation and Development (OECD) has a “[toolbox](#)” that is designed to help organizations choose an appropriate method of alternatives assessment. Non-chemical alternatives should be considered first, such as redesign to avoid the need for chemical flame retardants. The following sources can help to identify potential alternatives:

- The [TCO Certified Accepted Substance List](#) includes flame retardants, plasticizers, and cleaning chemicals.
- [Chemical Data Commons](#), [chemsec Marketplace](#), [EPA's Safer Chemicals Ingredients List](#), [SUBSPORT](#), [Interstate Chemicals Clearinghouse](#), and [Green Chemistry and Commerce Council](#).
- Literature search of the chemical of concern and any possible alternatives by using [Scifinder](#) or [Google scholar](#), patents, academic research, government reports, technical reports, marketing literature, and industry magazines.
- The [Clean Electronics Production Network](#) includes links to several resources to find [safer alternatives](#) to manufacturing process chemicals.
- Ask chemical companies / formulators about available alternatives. Chemical companies that focus on finding alternatives to hazardous chemicals may be helpful.

For more information about HP materials program, see our [Materials & Chemical Management Policy](#), [Green Chemistry Timeline](#), and the [HP General Specification for the Environment page](#).

#### 4 Pan-HP Mandatory Restrictions for All Products

The restrictions and prohibitions specified in this standard apply to substances at the homogeneous material<sup>2</sup> level, unless specified otherwise.

The following restrictions are applicable to **all parts, components, materials, and products** that are in scope for each restriction, except for the listed exemptions, and apply globally across HP. Some restrictions have further clarification at the end of Table 1.

Note: “all parts, components, materials, and products” include EEE, batteries, and nonelectric and nonelectronic products (such as nonelectronic carrying cases and bags) as well as formulations and print media

Requirements specific to batteries are found in document HX-00011-12.

Requirements specific to soft goods and other non-EEE are found in document HX-00011-13.

Requirements specific to chemicals and formulated products (such as toner and ink) are found in document HX-00011-14.

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<sup>2</sup> “Homogeneous material” means a material that cannot be mechanically disjointed into different materials. The term “homogeneous” means “of uniform composition throughout” and refers to materials such as plastics, metals, solders, resins, coatings, plating material, and so forth. The term “mechanically disjointed” means that the materials can, in principle, be separated by mechanical actions such as unscrewing, cutting, crushing, grinding, and abrasive processes. (Definitions taken from [BIS RoHS Regulations Government Guidance Notes](#))



Requirements specific to print media (such as paper and banners) are found in document HX-00011-15. For future restrictions and business-specified restrictions, see HX-00011-01A and HX-00011-01B, respectively.



Table 1. Pan-HP Mandatory Restrictions for All Products						
Substances and Materials	Substance Identifier	Scope <sup>3</sup>	Threshold Limit / Criteria <sup>4</sup>	Exemptions	References <sup>5</sup>	Identification Number <sup>6</sup>
1,2,5,6,9,10-Hexabromocyclododecane (HBCDD or HBCD)†	CAS#: 25637-99-4, 3194-55-6, 134237-50-6, 134237-51-7, 134237-52-8	All products	Not intentionally added; 100 ppm if incidentally present <sup>7</sup>		Regulation (EU) 2019/1021 (POPs)	150601-11
Arsenic and its compounds	Various	All products	1000 ppm	Semiconductor chips (die only) and copper foil for printed circuit boards	HP Restriction	090807-98
Asbestos	CAS#: 1332-21-4 and others	All products	Not present		EU Regulation (EC) 1907/2006, Annex XVII (EU REACH)	980408-11
Benzidine-Based Dyes	See Table 3	All products	Not present		U.S. TSCA 40 CFR 721.1660	150309-30

<sup>3</sup> "All products" includes "parts, components, materials, and products", this includes EEE, batteries, and nonelectric and nonelectronic products (such as nonelectronic carrying cases and bags) as well as formulations and print media.

<sup>4</sup> The threshold limit is the maximum concentration value allowed, reported as ppm by weight in homogenous material, unless otherwise specified. "Not intentionally added" means that the substance is not used in a product; it is only incidentally present if it occurs at all.

<sup>5</sup> This column provides background on the source of the restriction. The reference list is not exhaustive, and more than the listed reference may apply. The cited reference is as amended.

<sup>6</sup> Identification number (GSE ID) is a unique identifier that can be used to reference the specific requirement. A unique requirement consists of Substance, Scope, Criteria, and Exemptions. Any differences in these criteria will result in a new GSE ID.

<sup>7</sup> Incidentally present means occurring as unavoidable impurities or unintentional trace contaminants; such incidentally present material is not intentionally added.





Table 1. Pan-HP Mandatory Restrictions for All Products						
Substances and Materials	Substance Identifier	Scope <sup>3</sup>	Threshold Limit / Criteria <sup>4</sup>	Exemptions	References <sup>5</sup>	Identification Number <sup>6</sup>
Bisphenol A	CAS#: 80-05-7	external plastics	300 ppm <sup>8</sup>		California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65)	160701-58
Decabromodiphenyl ether (DecaBDE)	CAS#: 1163-19-5	All products	Not intentionally added; Not incidentally present <sup>9</sup>		TSCA PBT Rule	200715-57
Dechlorane Plus and its <i>syn</i> -isomer and <i>anti</i> -isomer	CAS#: 13560-89-9, 135821-03-3, 135821-74-8, and others	All products	Not intentionally added; 1 ppm if incidentally present <sup>7</sup>		Stockholm Convention	200715-50
4,4'-diaminodiphenylmethane (MDA)	CAS# 101-77-9	All products	1000 ppm		EU Regulation (EC) 1907/2006, Annex XIV (EU REACH)	190831-88
Dibutyltin (DBT) compounds	See Table 5	All products	1000 ppm by weight of tin		EU Regulation (EC) 1907/2006, Annex XVII (EU REACH)	110727-77

<sup>8</sup> Typical levels of residual BPA in plastics are < 100 ppm (see for example, <http://www2.mst.dk/Udgiv/publications/2015/05/978-87-93352-24-7.pdf>)

<sup>9</sup> Recycled plastic may contain <1000 ppm DecaBDE if the source of the decaBDE is recycled plastic feedstock.



Table 1. Pan-HP Mandatory Restrictions for All Products						
Substances and Materials	Substance Identifier	Scope <sup>3</sup>	Threshold Limit / Criteria <sup>4</sup>	Exemptions	References <sup>5</sup>	Identification Number <sup>6</sup>
2,2'-dichloro-4,4'-methylenedianiline (MOCA)	CAS# 101-14-4	All products	1000 ppm		EU Regulation (EC) 1907/2006, Annex XIV (EU REACH)	190831-43
Diisononyl phthalate (DINP)	CAS# 28553-12-0, 68515-48-0, 71549-78-5	External plastics, including cords and cables	exposure of 146 µg/day		California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65)	160701-81
Diisononyl phthalate (DINP)	CAS# 28553-12-0, 68515-48-0, 71549-78-5	Wearable components in contact with the skin	50 ppm		California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65)	210722-18
N,N'-Ditolyl-1,4-phenylenediamine	CAS# 27417-40-9	All products	Do not use. Not intentionally added		Japan CSCL	230728-53
Flame Retardant, polybrominated biphenyls (PBBs)	See Table 6	All products	Not intentionally added; 1000 ppm if incidentally present <sup>7</sup>		EU RoHS Directive 2011/65/EU	980408-10
Flame Retardant, polybrominated diphenyl ethers (PBDEs)	See Table 6	All products	Not intentionally added; 1000 ppm if incidentally present <sup>7</sup>	Non-EEE has different criteria, see HX-00011-13, HX-00011-14, HX-00011-15	EU RoHS Directive 2011/65/EU	980408-50



Table 1. Pan-HP Mandatory Restrictions for All Products						
Substances and Materials	Substance Identifier	Scope <sup>3</sup>	Threshold Limit / Criteria <sup>4</sup>	Exemptions	References <sup>5</sup>	Identification Number <sup>6</sup>
Dimethylfumarate (DMF)	CAS#: 624-49-7	All products (leather and desiccant packs)	0.1 ppm		EU Decision 2009/251/EC	090807-44
Hexachlorobutadiene (HCBD)	CAS#: 87-68-3	All products	Not intentionally added; Not incidentally present <sup>7</sup>		TSCA PBT Rule Japan CSCL	230728-01
Isocyanates	Table 4	Polyurethane materials in wearable EEE devices	50 ppm total unreacted isocyanates		HP Restriction	220715-68
Lead carbonates, lead sulfates	Various	Paint	90 ppm		HR 4040 Consumer Product Safety Act	980408-27
Monomethyldibromodiphenylmethane (DBBT)	CAS#: 99688-47-8	All products	Not intentionally added		EU Regulation (EC) 1907/2006, Annex XVII (EU REACH); Regulation (EC) No 1272/2008 (CLP)	020221-74



Table 1. Pan-HP Mandatory Restrictions for All Products						
Substances and Materials	Substance Identifier	Scope <sup>3</sup>	Threshold Limit / Criteria <sup>4</sup>	Exemptions	References <sup>5</sup>	Identification Number <sup>6</sup>
Monomethyl-dichlorodiphenyl-methane (Ugilec 121, Ugilec 21)	CAS#: 81161-70-8	All products	Not intentionally added		EU Regulation (EC) 1907/2006, Annex XVII (EU REACH); Regulation (EC) No 1272/2008 (CLP)	020221-88
Monomethyl-tetrachlorodiphenyl-methane (Ugilec 141)	CAS#: 76253-60-6	All products	Not intentionally added		EU Regulation (EC) 1907/2006, Annex XVII (EU REACH); Regulation (EC) No 1272/2008 (CLP)	020221-32
Nickel	Various	External surface of any product with potential for direct and prolonged skin contact	0.5 µg/cm <sup>2</sup> /week. Measurement to be performed using EN 1811:2011.		EU Regulation (EC) 1907/2006, Annex XVII (EU REACH)	041210-68
Ozone Depleting Substances (ODS)	Refer to Annexes A, B, C, E of Montreal Protocol	All products; Manufacturing process	Not present in final products Not used in manufacturing processes	Refrigeration units in manufacturing facilities or data center facilities	Montreal Protocol and amendments	980408-15
Pentachlorothiophenol (PCTP)	CAS#: 133-49-3	All products	1% by weight		TSCA PBT Rule	200715-26



Table 1. Pan-HP Mandatory Restrictions for All Products						
Substances and Materials	Substance Identifier	Scope <sup>3</sup>	Threshold Limit / Criteria <sup>4</sup>	Exemptions	References <sup>5</sup>	Identification Number <sup>6</sup>
Perfluorooctane sulfonates (PFOS) and PFOS salts	See Table 8	All products	Not intentionally added; 1000 ppm if incidentally present <sup>7,10</sup>	Photoresists or antireflective coatings for photolithography processes Photographic coatings applied to films, papers, or printing plates	Regulation (EU) 2019/1021; Canada Regulation SOR/2008-177	070905-36
Perfluorooctane sulfonates (PFOS) and PFOS salts	See Table 8	All products	Not intentionally added; 1000 ppm if incidentally present <sup>7,10</sup>	None	Japan Chemical Substance Control Law (CSCL)	210722-63
Perfluorooctanoic acid (PFOA) and esters	See Table 9	All products	1000 ppm	Spare parts for products made available before 1-Jun-14	Norway Product reg 922 of 2004, 550, 2013	130604-16
Perfluorooctanoic acid (PFOA) and esters	See Table 9	Coatings of any products	1 µg/m <sup>2</sup>	Spare parts for products made available before 1-Jun-14	Norway Product reg 922 of 2004, 550, 2013	130604-48
Perfluorooctanoic acid (PFOA) and its salts; PFOA-related compounds	See Table 9	All products	25 ppb PFOA and salts; 1000 ppb PFOA-related substances; not intentionally added		Regulation (EU) 2020/784; Regulation (EU) 2019/1021 (POPs) Japan Chemical Substance Control Law (CSCL) –	170703-96

<sup>10</sup> Calculated with reference to the mass of structurally or micro-structurally distinct parts that contain PFOS.



Table 1. Pan-HP Mandatory Restrictions for All Products						
Substances and Materials	Substance Identifier	Scope <sup>3</sup>	Threshold Limit / Criteria <sup>4</sup>	Exemptions	References <sup>5</sup>	Identification Number <sup>6</sup>
C9-C14 linear and/or branched perfluorocarboxylic acids (C9-C14 PFCAs), their salts, and C9-C14 PFCAs-related substances	See Table 10	All products	25 ppb PFCAs and salts; 260 ppb PFCA-related substances	Semiconductors used in spare or replacement parts for finished electronic equipment placed on the market before 31 December 2023	Regulation (EU) 2021/1297 (REACH) Swiss ORRChem California Prop 65 (CAS#: 375-95-1)	220715-03
Perfluoroheptanoic Acid (PFHpA)	CAS#: 375-85-9	All products	500 ppb PFHpA		HP Restriction	220715-91
Perfluorohexane sulfonic acid (PFHxS) and related substances	See Table 7	All products	Not intentionally added; if incidentally present: 25 ppb PFHxS (linear and branched isomers) and its salts; 1000 ppb PFHxS-related substances		Swiss ORRChem Stockholm Convention	230728-46 <sup>11</sup>
Per- and polyfluoroalkyl substances (PFAS) <sup>12</sup>	Various <sup>13</sup>	All products	Any presence of PFAS is to be reported, see Section 4.4		US TSCA reporting	111822-63

<sup>11</sup> GSE ID 230728-46 is a combination of GSE ID 220715-45 and 190831-25.

<sup>12</sup> There are multiple definitions of PFAS. For this requirement, the definition used is from the ECHA registry of restriction intentions [entry](#) for PFAS. "PFAS are defined as substances that contain at least one fully fluorinated methyl (CF<sub>3</sub>-) or methylene (-CF<sub>2</sub>-) carbon atom (without any H/Cl/Br/I atom attached to it)." This definition does include fluoropolymers such as PTFE/ePTFE, ETFE, PFA, FEP, PVDF etc. The REACH definition is similar to the OECD definition of PFAS, found [here](#).

<sup>13</sup> Certain PFAS are addressed elsewhere in this document. This entry (GSE ID 111822-63) includes **all** PFAS, including those PFAS substances addressed elsewhere in this document.



Table 1. Pan-HP Mandatory Restrictions for All Products						
Substances and Materials	Substance Identifier	Scope <sup>3</sup>	Threshold Limit / Criteria <sup>4</sup>	Exemptions	References <sup>5</sup>	Identification Number <sup>6</sup>
Phenol, 2-(2H-benzotriazol-2-yl)-4,6-bis(1,1-dimethylethyl), 2-benzotriazol-2-yl-4,6-di-tertbutylphenol, (UV-320)	CAS#: 3846-71-7	All products	Not intentionally added		Japan Chemical Substance Control Law (CSCL, "Kashinho"), Law No. 117 of 1973; EU Regulation (EC) 1907/2006, Annex XVII (EU REACH)	090807-38
Phenol, isopropylated, phosphate (PIP) (3:1)	CAS#: 68937-41-7	All products	Not intentionally added; Not incidentally present	Processing and distribution in commerce for use in lubricants and greases	TSCA PBT Rule	200715-35
Phenylmercury and its compounds	CAS #: 62-38-4, 103-27-5, 13302-00-6, 13864-38-5, 26545-49-3	All products	100 ppm Hg by weight		EU Com Regulation 848/2012	140615-84
Polychlorinated biphenyls (PCBs)	See Table 14	All products	Not intentionally added; 0.1 ppm if incidentally present <sup>7</sup>		Regulation (EU) 2019/1021 (POPs) HP Requirement	980408-79



Table 1. Pan-HP Mandatory Restrictions for All Products						
Substances and Materials	Substance Identifier	Scope <sup>3</sup>	Threshold Limit / Criteria <sup>4</sup>	Exemptions	References <sup>5</sup>	Identification Number <sup>6</sup>
Polychlorinated naphthalenes	Various	All products	Not intentionally added		Japan Chemical Substance Control Law (CSCL, "Kashinho"), Law No. 117 of 1973	041210-90
Polycyclic Aromatic Hydrocarbons (PAHs)	see Table 11	Rubber or plastic material on the external or user accessed surfaces of a product <sup>14</sup>	1 ppm per PAH	Surfaces of internal parts that are not regularly user-accessed such as ceramics in electronic components, connectors, resistors, integrated circuit packaging, lubricants, internal cables, internal fans, and printed circuit assemblies. <sup>15</sup>	EU Regulation (EC) 1907/2006, Annex XVII (EU REACH)	130604-79
Radioactive substances	See Table 12	All products	Not detected (above background levels)	Thorium in UV lamps	Laws for the Regulation of Nuclear Source Material, Nuclear Fuel Material, and Reactors, 1986 (Japanese law)	041210-96

<sup>14</sup> External or regularly user accessed surfaces include, but are not limited to, black or grey rubber or plastic materials such as case parts, control panels, switches, cables, screens, paper trays, feeders, printer lids, printer cartridge body and carriage, and optical drives.

<sup>15</sup> Products out of scope are large scale stationary industrial tools and fixed installations as defined in EU RoHS Directive.





Table 1. Pan-HP Mandatory Restrictions for All Products						
Substances and Materials	Substance Identifier	Scope <sup>3</sup>	Threshold Limit / Criteria <sup>4</sup>	Exemptions	References <sup>5</sup>	Identification Number <sup>6</sup>
Short chain chlorinated paraffins (SCCPs)	CAS#: 85535-84-8, 68920-70-7, 71011-12-6, 85536-22-7, 85681-73-8, 108171-26-2 <sup>16</sup>	All products	Not intentionally added; 1000 ppm if incidentally present <sup>7</sup>		Commission Regulations (EU 2015/2030; Japan Chemical Substance Control Law; Vietnam POPs Korea Eco-label standards 'KOEKO'	020221-58
Tributyltin compounds (TBT)	See Table 5	All products	Not intentionally added; 1000 ppm by weight of tin if incidentally present <sup>7</sup>		EU Regulation (EC) 1907/2006, Annex XVII (EU REACH)	041210-84
Tributyltin oxide (TBTO)	See Table 5	All products	Not intentionally added; 1000 ppm by weight of tin if incidentally present <sup>7</sup>		EU Regulation (EC) 1907/2006, Annex XVII (EU REACH)	041210-37
Tris(2-chloroethyl) phosphate (TCEP)	CAS#: 115-96-8	All products	1000 ppm		DC Law 21-08	170703-03
Tris(1,3-dichloro-2-propyl) phosphate (TDCPP)	CAS#: 13674-87-8	All products	1000 ppm		DC Law 21-08	170703-49

<sup>16</sup> Any chlorinated alkane with a carbon length of 10 to 13 atoms and containing at least 48% by mass of chlorine including, but not limited to, the following CAS number: 85535-84-8. See HP Standard 011-01B for business-specified restriction for medium chain chlorinated paraffins (MCCPs).



Table 1. Pan-HP Mandatory Restrictions for All Products						
Substances and Materials	Substance Identifier	Scope <sup>3</sup>	Threshold Limit / Criteria <sup>4</sup>	Exemptions	References <sup>5</sup>	Identification Number <sup>6</sup>
2,4,6-tris(tert-butyl)phenol (2,4,6-TTBP)	CAS#: 732-26-3	All products	Not intentionally added; 3000 ppm if incidentally present		TSCA PBT Rule Japan CSCL	230728-75
Polychlorinated terphenyls (PCTs)	Various	Preparations (excluding lubricating oils and adhesives)	50 ppm		EU Regulation (EC) 1907/2006, Annex XVII (EU REACH)	980408-94
Triphenyltin compounds (TPT)	See Table 5	All products	Not intentionally added; 1000 ppm by weight of tin if incidentally present <sup>7</sup>		EU Regulation (EC) 1907/2006, Annex XVII (EU REACH)	041210-87
Arsenic and its compounds	Various	Computer display glass	10 ppm as trace contaminants or background levels; not intentionally added		HP Restriction	101118-42
2-(2H-benzotriazol-2-yl)-4,6-di-tert-pentylphenol (UV-328)	CAS#: 25973-55-1	All products	Not intentionally added; 1000 ppm if incidentally present		Stockholm Convention	111822-55
Beryllium and its compounds <sup>†</sup>	Various	All products	1000 ppm	Ceramics in electronic components and electrical bonding applications of beryllium-copper, such as connectors, springs, or EMI gaskets	HP Restriction	101118-59



Table 1. Pan-HP Mandatory Restrictions for All Products						
Substances and Materials	Substance Identifier	Scope <sup>3</sup>	Threshold Limit / Criteria <sup>4</sup>	Exemptions	References <sup>5</sup>	Identification Number <sup>6</sup>
bis(2-methoxyethyl) ether (Diglyme, DEGDME)	CAS#: 111-96-6	All products	1000 ppm		HP Restriction, EU Regulation (EC) 1907/2006 (EU REACH)	170703-25
Butyl benzyl phthalate (BBP) <sup>†</sup>	CAS#: 85-68-7	All products except wearable components in contact with the skin	1000 ppm	Non-EEE has different criteria, see HX-00011-13, HX-00011-14, HX-00011-15	Delegated Directive (EU) 2015/863 amending EU RoHS Directive 2011/65/EU	120621-20
Butyl benzyl phthalate (BBP) <sup>†</sup>	CAS#: 85-68-7	Wearable components in contact with the skin	50 ppm		California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65)	210722-31
Cadmium and its compounds	Various	All products	100 ppm	EU RoHS exemptions: 8(b)i, 13(b)ii. See HP-011-01A for exemption expirations.	EU RoHS Directive 2011/65/EU	980408-84
Responsible Minerals: Conflict Minerals, gold (Au)	Various	All products	Disclosure and sourcing requirement, see section 4.1		Conflict Minerals section to the Dodd-Frank Wall Street Reform and Consumer Protection Act	110727-71



Table 1. Pan-HP Mandatory Restrictions for All Products						
Substances and Materials	Substance Identifier	Scope <sup>3</sup>	Threshold Limit / Criteria <sup>4</sup>	Exemptions	References <sup>5</sup>	Identification Number <sup>6</sup>
Responsible Minerals: Conflict Minerals, tantalum (Ta)	Various	All products	Disclosure and sourcing requirement, see section 4.1		Conflict Minerals section to the Dodd–Frank Wall Street Reform and Consumer Protection Act	110727-92
Responsible Minerals: Conflict Minerals, tin (Sn)	Various	All products	Disclosure and sourcing requirement, see section 4.1		Conflict Minerals section to the Dodd–Frank Wall Street Reform and Consumer Protection Act	110727-87
Responsible Minerals: Conflict Minerals, tungsten (W)	Various	All products	Disclosure and sourcing requirement, see section 4.1		Conflict Minerals section to the Dodd–Frank Wall Street Reform and Consumer Protection Act	110727-37
Responsible Minerals: cobalt (Co) and its chemical compounds	Various	All products	Disclosure and sourcing requirement, see section 4.1		EU Battery Regulation; Eco-labels; RBA VAP standard	200715-49



Table 1. Pan-HP Mandatory Restrictions for All Products						
Substances and Materials	Substance Identifier	Scope <sup>3</sup>	Threshold Limit / Criteria <sup>4</sup>	Exemptions	References <sup>5</sup>	Identification Number <sup>6</sup>
Responsible Minerals: nickel (Ni) and its chemical compounds	Various	All products	Disclosure and sourcing requirement, see section 4.1		EU Battery Regulation	240723-64
Responsible Minerals: lithium (Li) and its chemical compounds	Various	All products	Disclosure and sourcing requirement, see section 4.1		EU Battery Regulation	240723-77
Responsible Minerals: natural graphite and its chemical compounds	Various	All products	Disclosure and sourcing requirement, see section 4.1		EU Battery Regulation	240723-34
Responsible Minerals: aluminum (Al)	7429-90-5	All products	Sourcing requirement, see section 4.1		HP requirement	240723-62
Dibutyl phthalate (DBP) <sup>†</sup>	CAS#: 84-74-2	All products except wearable components in contact with the skin	1000 ppm	Non-EEE has different criteria, see HX-00011-13, HX-00011-14, HX-00011-15	Delegated Directive (EU) 2015/863 amending EU RoHS Directive 2011/65/EU	120621-13



Table 1. Pan-HP Mandatory Restrictions for All Products						
Substances and Materials	Substance Identifier	Scope <sup>3</sup>	Threshold Limit / Criteria <sup>4</sup>	Exemptions	References <sup>5</sup>	Identification Number <sup>6</sup>
Dibutyl phthalate (DBP) <sup>†</sup>	CAS#: 84-74-2	Wearable components in contact with the skin	50 ppm		California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65)	210722-43
Di-(2-ethylhexyl) phthalate (DEHP) <sup>†</sup>	CAS#: 117-81-7	All products except wearable components in contact with the skin	1000 ppm	Non-EEE has different criteria, see HX-00011-13, HX-00011-14, HX-00011-15	Delegated Directive (EU) 2015/863 amending EU RoHS Directive 2011/65/EU	120621-15
Di-(2-ethylhexyl) phthalate (DEHP) <sup>†</sup>	CAS#: 117-81-7	Wearable components in contact with the skin	50 ppm		California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65)	210722-26
Diisobutyl phthalate (DIBP) <sup>†</sup>	CAS#: 84-69-5	All products	1000 ppm	Non-EEE has different criteria, see HX-00011-13, HX-00011-14, HX-00011-15	Delegated Directive (EU) 2015/863 amending EU RoHS Directive 2011/65/EU	120621-66



Table 1. Pan-HP Mandatory Restrictions for All Products						
Substances and Materials	Substance Identifier	Scope <sup>3</sup>	Threshold Limit / Criteria <sup>4</sup>	Exemptions	References <sup>5</sup>	Identification Number <sup>6</sup>
Diisodecyl phthalates (DIDP)	CAS#: 26761-40-0, 68515-49-1	Wearable components in contact with the skin	50 ppm		California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65)	210722-50
Di-n-hexyl phthalate (DnHP)	CAS#: 84-75-3	Wearable components in contact with the skin	50 ppm		California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65)	210722-03
Dimethyl-acetamide (DMAC)	CAS#: 127-19-5	All products	1000 ppm		HP Restriction, EU Regulation (EC) 1907/2006 (EU REACH)	180625-47
Flame retardant, chlorinated flame retardants (CFR) and brominated flame retardants (BFR)		DecaBDE replacements in external housing parts of computers and televisions	Not intentionally added; 1000 ppm combined if incidentally present <sup>7</sup>	Any formulation changes made before 1-Jun-2011	Maine (38 MRS S1609)	110727-18



Table 1. Pan-HP Mandatory Restrictions for All Products						
Substances and Materials	Substance Identifier	Scope <sup>3</sup>	Threshold Limit / Criteria <sup>4</sup>	Exemptions	References <sup>5</sup>	Identification Number <sup>6</sup>
Flame retardants, brominated	Various	External case plastic parts <sup>17</sup>	1000 ppm	Printed circuit board base materials or printed circuit assemblies	HP Restriction, ECMA 370 (The Eco Declaration, TED)	070905-88
Flame retardants, chlorinated	Various	External case plastic parts <sup>17</sup>	1000 ppm	Printed circuit board base materials or printed circuit assemblies	HP Restriction, ECMA 370 (The Eco Declaration, TED)	160701-45
Flame retardants, halogenated <sup>18</sup>	Various	Enclosures and stands of displays	1000 ppm halogen content	Halogen content not attributable to flame retardants	Commission Regulation (EU) 2019/2021; Commission Regulation (EU) 2021/341	210722-06
Flame retardants, halogenated <sup>19</sup>	Various	Enclosures and stands of stand-alone displays, tablets, and notebooks	Not intentionally added		OFR NY bill (S07737)	220715-88

<sup>17</sup> Parts visible to the customer in normal product operation.

<sup>18</sup> A "halogenated flame retardant" is "a flame retardant that contains any halogen". Practically speaking, this is limited to fluorinated, chlorinated, or brominated compounds used as flame retardants.

<sup>19</sup> A "halogenated flame retardant" in this sense is a chemical that contains at least one halogen element bonded to carbon AND "a functional use for the chemical is to resist or inhibit the spread of fire or as a synergist to chemicals that resist or inhibit the spread of fire." Practically speaking, this is limited to fluorinated, chlorinated, or brominated compounds.





Table 1. Pan-HP Mandatory Restrictions for All Products						
Substances and Materials	Substance Identifier	Scope <sup>3</sup>	Threshold Limit / Criteria <sup>4</sup>	Exemptions	References <sup>5</sup>	Identification Number <sup>6</sup>
Hexavalent chromium and its compounds	Various	Nonmetallic applications (such as paints, pigments, leather, and plastics)	1000 ppm		EU RoHS Directive 2011/65/EU	061020-79
Hexavalent chromium and its compounds	Various	Metallic applications (such as corrosion preventative coatings and conversion coatings)	Not a hexavalent chromium coating as determined by IEC 62321 series of test standards <sup>20</sup>		EU RoHS Directive 2011/65/EU	061020-24
Lead and its compounds	Various	Polyvinyl chloride (PVC) coating for external cables, wires, and cords, including connectors and plugs (For complete requirement see Section 4.2)	300 ppm		California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65)	031126-37

<sup>20</sup> HP-approved test methods are discussed in Section 4.4 *Supplier Verification*.



Table 1. Pan-HP Mandatory Restrictions for All Products						
Substances and Materials	Substance Identifier	Scope <sup>3</sup>	Threshold Limit / Criteria <sup>4</sup>	Exemptions	References <sup>5</sup>	Identification Number <sup>6</sup>
Lead and its compounds	Various	All products	1000 ppm <sup>21,*,‡</sup>	EU RoHS exemptions: 6(a)i, 6(b)i, 6(b)ii, 6(c), 7(a), 7(c)i, 7(c)ii, 13(a), 13(b)i, 15(a). See HP-011-01A for exemption expirations.	EU RoHS Directive 2011/65/EU; California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65)	061020-12
Mercury and its compounds	Various	All products	1000 ppm <sup>*,‡</sup>	EU RoHS exemptions: 4(f). See HP-011-01A for exemption expirations.	EU Regulation (EC) 1907/2006, Annex XVII (EU REACH), EU RoHS Directive 2011/65/EU	980408-14
Mercury and its compounds	Various	external electrode fluorescent lamp	Length ≤ 1.5 m: 5 mg Hg per lamp Length > 1.5 m: 13 mg Hg per lamp		Canada Products Containing Mercury Regulations	160701-18
Mercury and its compounds	Various	external electrode fluorescent lamp	Length ≤ 0.5 m: 3.5 mg Hg per lamp Length > 0.5 m and ≤ 1.5 m: 5 mg Hg per lamp Length > 1.5 m: 13 mg Hg per lamp		Japan Act on Preventing Environmental Pollution of Mercury; Regulation (EU) 2017/852	210722-19

<sup>21</sup> Lead restrictions in PVC, paint, and non-EE are more restrictive.



Table 1. Pan-HP Mandatory Restrictions for All Products						
Substances and Materials	Substance Identifier	Scope <sup>3</sup>	Threshold Limit / Criteria <sup>4</sup>	Exemptions	References <sup>5</sup>	Identification Number <sup>6</sup>
Mercury and its compounds	Various	Very high accuracy capacitance and loss measurement bridges and high frequency RF switches and relays in monitoring and control instruments	20 mg Hg per bridge, switch, or relay		Canada Products Containing Mercury Regulations; Regulation (EU) 2017/852	160701-16
Mercury and its compounds	Various	Switches and relays	Not intentionally added; Not incidentally present		Japan Act on Preventing Environmental Pollution of Mercury	210722-38
Mercury and its compounds	Various	high intensity discharge (HID) lamps	10 mg Hg per lamp or have Louisiana exemption permit; 100 mg Hg per lamp or have Louisiana AND Connecticut exemption certificate	require current valid exemption certificates	Connecticut Mercury Reduction and Education Act; Louisiana Mercury Risk Reduction Act; IMERC Guidance	160701-25



Table 1. Pan-HP Mandatory Restrictions for All Products						
Substances and Materials	Substance Identifier	Scope <sup>3</sup>	Threshold Limit / Criteria <sup>4</sup>	Exemptions	References <sup>5</sup>	Identification Number <sup>6</sup>
Mercury and its compounds	Various	cold cathode fluorescent lamps	Length ≤ 1.5 m: 10 mg Hg per lamp Length > 1.5 m: 13 mg Hg per lamp		Canada Products Containing Mercury Regulations	160701-87
Mercury and its compounds	Various	cold cathode fluorescent lamps	Length ≤ 0.5 m: 3.5 mg Hg per lamp Length > 0.5 m and ≤ 1.5 m: 5 mg Hg per lamp Length > 1.5 m: 13 mg Hg per lamp		Japan Act on Preventing Environmental Pollution of Mercury; Regulation (EU) 2017/852	210722-61
Mercury and its compounds	Various	non-HID lamps	10 mg Hg per lamp		Louisiana Mercury Risk Reduction Act; IMERC State Mercury-Added Product Ban & Phase-out Guidance	160701-98
Mercury and its compounds	Various	Light emitting diodes (LEDs) used in parts and products	Not intentionally added		IEEE 1680.1	220715-72



Table 1. Pan-HP Mandatory Restrictions for All Products						
Substances and Materials	Substance Identifier	Scope <sup>3</sup>	Threshold Limit / Criteria <sup>4</sup>	Exemptions	References <sup>5</sup>	Identification Number <sup>6</sup>
Polyvinyl Chloride (PVC)	Various & 9002-86-2	External case plastic parts of products <sup>22</sup>	Not intentionally added; 1000 ppm if incidentally present <sup>7</sup>	Sheathing of wires and cables, plastic parts <25 g, fabrics, protective product covers	HP Restriction; EPEAT and Korean ecolabel KOECO	041210-80
Red phosphorus	FR52 (ISO 1043-4) CAS#: 7723-14-0	Plastics (such as epoxy resins, polyamides, polypropylene) that contact a conductor, or are in close proximity to a conductor	Not present	Phos-bronze alloys (used in electrical contacts contain elemental phosphorus as part of the alloy makeup)	HP Restriction, Red Phosphorus Alert	140615-20

† Restrictions for these substances are also listed in HP Standards 011-01A and/or 011-01B.

‡ Restrictions for these substances are also listed in the [HP Standard 011-02 GSE—Packaging Requirements](#).

∞ More restrictive limits apply when this substance is used in batteries. See HX-00011-12.

<sup>22</sup> Parts visible to the customer in normal product operation.



#### 4.1 Responsible Minerals Sourcing

Responsible minerals scope:

- Conflict Minerals: include tin, tantalum, tungsten, and gold and are collectively referred to as “3TG”.
- Extended Materials: include cobalt, nickel, lithium, natural graphite and their respective chemical compounds, and aluminum

The following is required of HP suppliers, supplying products containing these minerals:

- Suppliers must have a Responsible Minerals policy, covering a list of minerals contained in products supplied to HP.
- Suppliers must establish a program consistent with the OECD Due Diligence Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas to survey their supply chains, conduct due diligence, and report information to HP using the approved Responsible Minerals Initiative (RMI) templates:
  - Conflict Minerals Reporting Template (CMRT) for conflict minerals
  - Extended Minerals Reporting Template (EMRT) for cobalt
  - Pilot Reporting Template (PRT) for other extended minerals
- HP encourages suppliers to use smelters that source minerals responsibly, including smelters with validated sourcing of minerals originating in conflict-affected and high-risk areas (CAHRAs), such as the DRC and adjoining countries.
- To demonstrate suppliers’ responsible sourcing, suppliers must ensure that any smelters processing minerals for HP products are on the Responsible Minerals Initiative (RMI) conformant list, or participant in an equivalent independent assessment program or source from 100% recycled or scrap sources. These smelters have had their sourcing practices validated by 3rd-party audit through participation in an assessment program.
- Suppliers must continuously work to ensure their minerals supply chains utilize only conformant smelters through direct engagement with:
  - Their suppliers to cascade responsible sourcing expectations through their supply chain, and
  - Smelters to encourage smelter participation in RMAP.
- If a smelter reported to HP is removed from the RMI conformant lists, HP suppliers must work with their suppliers and remove the smelter from HP’s supply chain within the timeframe specified by HP. If necessary, suppliers must transition to another smelter that is on the RMI conformant lists. HP may also request removal of a smelter from HP’s supply chain regardless of the smelter’s RMAP status. When requested, suppliers must provide an action plan to remove the smelter and respond within set timeframes.
- To support HP’s ongoing risk assessment procedures, HP may request suppliers to provide additional information including but not limited to those relating to product origin, supply chain and inventory management, traceability, and transportation.

HP encourages all suppliers to incorporate responsible minerals practices across their supply chain and participate in RMI.



#### 4.2 Lead in Polyvinyl Chloride (PVC) Coating for External Cables, Wires, and Cords.

The concentration of lead (Pb) in the PVC coating (outer jacket) of external PVC coated cables, wires, or cords must not exceed 0.03% (300 ppm) by weight in any homogeneous material. This requirement applies to the PVC coating (outer jacket) of external PVC coated cables, wires, or cords, including connectors and plugs, in any of the following parts, components, and products:

- Computer mouse, roller ball, and joystick cords
- Computer peripheral wires and cables, AC adapter cords, interface cables, and PCMCIA card cords for portable computers or portable peripheral devices
- Computer peripheral wires and cables designed to plug into portable devices, computers, and the front of desktop computers (for example, USB cords)
- Computer speaker cords used with portable computers
- Computer power/patch/pin cords designed to plug into the front of desktop computers
- External CD/DVD and tape drives for portable computers
- Laptop and notebook computer cords
- USB, FireWire, telephone, modem, LAN, and other cables, wires, and cords designed for and used with portable products including, but not limited to:
  - Cell phones
  - GPS devices
  - Handheld PCs and Personal Digital Assistants (PDAs)
  - Portable digital imaging equipment (cameras and webcams)
  - Portable CD and DVD players
  - Portable scanners
  - Portable projectors
  - Portable printers
  - Portable audio and video players
  - Portable storage devices including hard disk drives, media drives, solid state storage devices, ZIP drives, and so forth; and related accessories
  - Portable computer input devices including handheld mice, touch pads, keypads, and graphic input tablets

#### 4.3 RoHS Compliance

EU RoHS exemptions that are currently in force can be found in Annex III of RoHS Directive 2011/65/EU (and subsequent amendments) and are noted in the corresponding entries in Table 1. For information about future substance restrictions and exemption dates, see HX-00011-01A.

Any parts, components, and materials used in electrical and electronic products must comply with the European Union's RoHS Directive 2011/65/EU on the restriction of the use of certain hazardous substances in electrical and electronic equipment, including all amendments, and similar regulations that apply in other countries, states, or regions including, but not limited to, China, India, Korea, Vietnam, Taiwan, Singapore, Turkey, Ukraine, EAEU, California, and New Jersey. This standard specifies HP requirements for the substances covered by the RoHS laws:

- Cadmium and its compounds
- Brominated flame retardants
  - Flame Retardant, polybrominated biphenyls (PBBs)
  - Flame Retardant, polybrominated diphenyl ethers (PBDEs)



- Hexavalent chromium and its compounds
  - Metallic applications (such as corrosion preventative coatings and conversion coatings)
  - Nonmetallic applications (such as paints, pigments, leather, and plastics)
- Lead and its compounds
- Mercury and its compounds
- Butyl benzyl phthalate (BBP)
- Dibutyl phthalate (DBP)
- Di-(2-ethylhexyl) phthalate (DEHP)
- Diisobutyl phthalate (DIBP)

Supplier verification requirements are in Section 5 of this standard.

#### 4.4 PFAS Reporting Guidance

PFAS (including fluoropolymers) is a large class of compounds and precise future restrictions of PFAS are currently unknown. Some specific use restrictions already exist (for example, food contact and textile restrictions in certain U.S. States) and some jurisdictions are proposing widespread bans, however, precise future restrictions of PFAS are currently unknown. There are significant efforts throughout the supply chain to understand where PFAS are found to meet current disclosure requirements and existing and future PFAS restrictions. GSE ID 111822-63 provides a framework for reporting PFAS using HP tools: Suppliers shall report the presence of any PFAS in their products and materials using the HP Compliance Data Collection (HPCDC) full material disclosure form, the HP Materials Declaration Form, or other HP declaration tools. The following situations are instances of “any presences of PFAS” and would warrant reporting:

- PFAS are known or strongly suspected to be used in a product.
- PFAS are present at a detectable level (using standardized industrial testing lab methods like LC-MS or GC-MS).
- The detection of fluorine using XRF is assumed to be a reportable indication of PFAS, unless the fluorine can be readily attributed to a non-PFAS substance.
- The reporting of any PFAS as part of a Full Material Disclosure.
- The reporting of any PFAS as part of an IEC 62474 disclosure.

The following situation may be sufficient to conclude that PFAS are not present. In addition to this situation, suppliers must also rely on engineering judgment when concluding PFAS are not present.

- If a material is considered “low halogen” where the definition of low halogen includes fluorine, then PFAS are not likely to be present.

Because GSE ID 111822-63 addressed the presence of PFAS, the reporting threshold is 0 wt% per homogenous material. A precise concentration of PFAS should be reported when available (relative to homogenous material). If the homogenous material itself is PFAS, such as PTFE or PVDF, the concentration should be reported at 100%.

## 5 Supplier Verification

See the *Supplier Verification* section of [HP Standard 011-00](#).

**Analytical Testing:** Where the measurement of materials content is made to verify compliance or is specifically requested by HP, the supplier will use HP-approved test methodologies (see Test





Methodologies, below) to perform the testing. Samples tested must be of a homogeneous material. (See Section 3 for a definition of *homogeneous material*.)

**Test Methodologies:** Recognized HP-approved sample preparations, test standards, and quality control must be used. The HP-approved test methods are listed in Table 2. The sample size and number of samples tested must adhere to the standard being applied. Test reports must be kept on file and made available to HP on request.

**Parts Test Scheme:** Suppliers must comply with the requirements in the *HP Active Verification Material Testing Specification*. (External version EX-EN876-00 is on the [HP Supplier Portal](#); registration required).

**Table 2: HP-Approved Test Methods and IEC Global Standard Testing Methodologies**

Substance	Non-metal Materials	Metal Materials	Electronics (PWBs/ Components)
PBB/PBDE	GC/MS	Not applicable	GC/MS
Cr VI	Alkaline Digestion / Colorimetric Method	Boiling-water-extraction procedure  (Note: EPA 3060A is not an acceptable test method)	Alkaline Digestion / Colorimetric Method
Hg	CV-AAS, AFS, ICP-OES, ICP-MS		
Pb/Cd	ICP-OES, ICP-MS, AAS  (Note: Procedures vary for each material type, see IEC Standards)		
Phthalates	IEC 62321-8, GC-MS, Py-TD-GC-MS		
Azodyes	EN ISO 17234-1, EN ISO 17234-2, EN 14362-1, EN 14362-3		

IEC 62321 standards shall be used where applicable. Following IEC 62321-2, screening methods (such as those in IEC 62321-3-1 and IEC 62321-3-2) can be used prior to performing further quantitative chemical testing.

Definitions and References for Table 2:

AAS	Atomic Absorption Spectroscopy
AFS	Atomic Fluorescence Spectrometry
CV-AAS	Cold Vapor Atomic Absorption Spectrometry
GC/MS	Gas Chromatography/Mass Spectrometry
ICP-OES	Inductively Coupled Plasma-Optical Emission Spectrometry
ICP-MS	Inductively Coupled Plasma-Mass Spectrometry
Py-TD-GC-MS	Gas chromatography-mass spectrometry using a pyrolyzer/thermal desorption accessory



## 6 Substance Disclosure Requirements

HP will periodically request substance disclosure information for HP brand products and all parts, components, and materials incorporated into HP brand products to enable HP to make the necessary substance disclosures to comply with current regulations (including those set forth below). Suppliers are expected to understand what substances are contained in the products, parts, components, and materials that they sell to HP.

Material content information can be obtained from supply chain documentation such as materials specifications, part drawings, and product Bills of Materials (BOM). If material content is not provided in their own documentation, suppliers are expected to identify their component suppliers and request product content information from those suppliers. This process is repeated up the supply chain until the raw materials are identified.

Performing a chemical analysis on products, parts, or components to obtain this information should not be necessary.

Suppliers must respond with the requested information by the stated due date.

### 6.1 REACH

REACH (Registration, Evaluation, Authorization, and Restriction of Chemicals) Legislation, EU Regulation 1907/2006, O.J.L 396/01, was adopted to improve the protection of human health and the environment from the risks that can be posed by chemicals. REACH obliges manufacturers and importers to share data for substances identified as Substances of Very High Concern (SVHCs).

Member States' Competent Authorities or the European Chemical Agency (ECHA), on a request by the Commission, may prepare Annex XV dossiers for the identification of SVHCs and propose them for addition to the [Candidate List of substances of very high concern for Authorisation](#). The Candidate List is published twice per year and, in conformance with Article 33 of the regulation, HP is required to have product declarations completed and published on the same dates.

Product information for HP and HP-branded products (including aftermarket options, modules, components, and support parts) must contain the statement below.

*HP is committed to providing our customers with information about the chemical substances in our products as needed to comply with legal requirements such as REACH (Regulation EC No 1907/2006 of the European Parliament and the Council). A chemical information report for this product can be found at: <http://www.hp.com/go/reach>.*

The above statement must accompany the product in electronic media, software, or paper form.

### 6.2 International Electrotechnical Commission (IEC) 62474

HP gathers data on substances listed in the IEC 62474 database to answer customer inquiries concerning the material content of the products they purchase or to obtain Electronic Product Environmental Assessment Tool (EPEAT) eco label certifications.

Substances and their reporting thresholds can be found in the [IEC 62474 database](#).

### 6.3 Additional Substance-Related Requirements

This section defines substance information availability requirements, including for substances in products that are subject to current or enacted legal requirements regulating their import, export, offer, sale, distribution, or related needs. Any documents and information requested by HP to confirm details of those



substances present in products must be obtained, supplied, and updated to HP in the form and within the time frames set by HP. The documents and information may consist of the following:

- Identity and quantity of substances
- Human health or environmental hazards or risks associated with the substances, including any physicochemical, toxicological, and ecotoxicological testing information and any other information required for HP to comply with data submission requirements for a substance or products that contain the substance
- Any precautions necessary for safe use
- Intended use and any risk management measures taken or recommended including, but not limited to, applications involving direct and indirect food contact
- Any other information required for HP to comply with classification, packaging, or labeling issues or requirements in respect of any substances present, either as intentionally added or known impurities/byproducts, often referred to as “Not Intentionally Added Substances” (NIAS)
- Full material disclosure in accordance with IPC1752A Class D submitted using the HP Compliance Data Collection form (HPCDC)

Such documents and information must be kept on file for 10 years from the date the product is last placed on the market by HP and provided to HP on request. HP may request this information in the form of a certification of analysis (CoA) and/or quantitative impurity profile.

Substances present in the products, parts, mixtures, preparations, or other materials supplied to HP must be registered or notified (including premanufacture notification) with confirmation to HP and must conform to any related chemical inventory or registration requirements where necessary to allow HP or its customers to import, place on the market, supply, or use the HP products in any jurisdiction, market, or region.

Jurisdictions that require or will require such registrations and notifications include, but are not limited to, Australia, Canada, the Canadian Province of Ontario, People’s Republic of China, Japan, Malaysia, New Zealand, Philippines, South Korea, Switzerland, Taiwan, Turkey, United States, and Member States of the European Union and European Economic Area.

## 7 Other environmental requirements for All Products

The following are requirements for all HP brand and HP-owned brand products, including subassemblies, parts, components, materials, and batteries that are incorporated into HP brand and HP-owned brand products.

Note: “all parts, components, materials, and products” include EEE, batteries, and nonelectric and nonelectronic products (such as nonelectronic carrying cases and bags) as well as formulations and print media

Requirements specific to EEE are found in document HX-00011-11.

Requirements specific to batteries are found in document HX-00011-12.

Requirements specific to soft goods and other non-EEE are found in document HX-00011-13.

Requirements specific to chemicals and formulated products (such as toner and ink) are found in document HX-00011-14.



Requirements specific to print media (such as paper and banners) are found in document HX-00011-15. For future restrictions and business-specified restrictions, see HX-00011-01A and HX-00011-01B, respectively.

## 7.1 Product Plastic Part Marking

Plastic parts weighing more than 25 g shall be physically identified with plastic material codes according to ISO 11469, *Plastics—Generic identification and marking of plastics products*, which includes ISO 1043, parts 1–4, *Plastics—Symbols and abbreviated terms*. **Note:** All plastics containing flame retardants that have been intentionally added or that exceed 1% by material weight shall include the flame retardant code according to ISO 1043-4, *Plastics—Symbols and abbreviated terms—Part 4: Flame retardants*. For detailed requirements applicable to physical plastic part marking requirements, refer to the HP Standard 5951-1741-1, *Plastic Part Marking Algorithm Standard*, available [here](#).

## 7.2 Product Brand Labeling

HP products must be identified by the use of an HP logo, HP jewel, or the term HP on the manufacturer's brand label, or other HP-owned brands (as instructed by the supplier's HP Business Relationship Manager).

## 7.3 Biocides – Use, Claims, and Labels

### 7.3.1 Use of Biocides Generally, and Claims About Biocides

In general, biocide uses in HP products (whether in supplies products or in hardware) should be limited to applications that conform to biocidal/pesticidal regulations applicable to “treated articles” (or the equivalent concept in national law). Biocides used in “treated articles” are typically incorporated to confer a preservative function with respect to the product that is treated. Although the biocides may have an antimicrobial impact, that impact is designed for internal effects (i.e., to protect the article being treated, such as to avoid discoloration of a keyboard polymer), rather than to provide a public health or confer an external impact (e.g., “to kill germs” on a keyboard or surface coating).

Use of biocides to confer an external biocidal effect, depending on factors such as intent and express or even implied claims, mean that an article that has been treated with a biocide will itself be subject to regulation as a biocidal product. Biocidal products are subject to comprehensive regulatory requirements in many jurisdictions, and can require extensive pre-market approval, labeling, packaging, and production obligations.

For this reason, any claim about the presence of or effect of a biocide in an HP product, or biocidal effect of an HP product itself, whether in marketing or advertising material, or on packaging or product information sheets, must be subject to prior review by HP Legal. The sole exception is a claim that is limited to the presence of a “preservative” to protect the product itself.

### 7.3.2 United States Biocidal requirements

For products treated with biocides for the U.S. market, the treated article must be treated with a pesticide that has been registered by the US EPA for uses that are consistent with its intended use in the HP product. Biocidal claims cannot be made, except as provided in Section 7.3.1.

### 7.3.3 EU Biocide Product Label

Any treated article (materials, parts, components, or products treated with or incorporating biocides) must meet the following requirements:



- 1) All active substances contained in the biocide(s) used to treat or incorporated into the article must be on the European Union approved list or under the review program or have applied for approval by 1-Sep-2016 per product type and used or be in Annex 1 of Regulation (EU) No 528/2012<sup>23</sup>.
- 2) If the active substance is already included in the European Union approved list or in Annex I, the conditions and restrictions specified therein must be met.
- 3) If a biocidal claim is made (see Section 7.3.1), the treated article must be labeled.
- 4) If a biocide is used, the approval conditions may require labeling.
- 5) Even if a label is not otherwise required under Requirements 3 or 4, a label with any relevant instruction of use, including any precautions to be taken, is required if this is necessary to protect humans, animals, and the environment.

Label requirements:

**Location of label:** On the treated article. If prohibitive because of size or function, then it can be on the packaging, instructions, or warranty card.

**Design of label:** The label shall be clearly visible, easily legible, and appropriately durable.

**Language of the label:** Label needs to be in the official language(s) of the EEA country in which it is sold. The official languages can be found at: [https://european-union.europa.eu/principles-countries-history/languages\\_en](https://european-union.europa.eu/principles-countries-history/languages_en); the official language for Norway is Norwegian and for Iceland is Icelandic.

### **EU Biocidal Products Regulation (BPR) 528/2012**

This product is a treated article and incorporates biocidal substances.

The (fill in) is the biocidal property attribute of the treated article.

Active biocidal substance(s): (List all)

(If present add:) Nano materials contained in the biocidal product: (list materials followed by the parenthetical (nano))

Instructions of use or precautions: (Fill in, if applicable)

Figure 1: Example Biocides Label

Approved active substances:

<http://echa.europa.eu/web/quest/information-on-chemicals/biocidal-active-substances>

Biocide Product types: <http://echa.europa.eu/regulations/biocidal-products-regulation/product-types>

Substances under review (per product type), under Article 89(1) of Regulation EU (No) 528/2012:

<https://echa.europa.eu/regulations/biocidal-products-regulation/approved-suppliers>

Nanomaterials definition: [http://ec.europa.eu/environment/chemicals/nanotech/fag/definition\\_en.htm](http://ec.europa.eu/environment/chemicals/nanotech/fag/definition_en.htm)

<sup>23</sup> REGULATION (EU) No 528/2012 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 22 May 2012 concerning the making available on the market and use of biocidal products



### 7.3.4 China Biocide Label

Antimicrobial claims of HP's treated articles in China must comply with China's antimicrobial requirements and be certified by the certification entities accredited by Chinese government for conducting the antibacterial certification.

### 7.3.5 Other biocide use and labeling requirements

Any treated article must comply with worldwide biocidal requirements and have relevant certifications for jurisdictions in which it will be sold.

## 7.4 Information for Users on the Chemical Content of HP Products

Product information for HP and HP-owned brand products (including aftermarket options, modules, components, and support parts) must contain the statement below.

*HP is committed to providing our customers with information about the chemical substances in our products as needed to comply with legal requirements such as REACH (Regulation EC No 1907/2006 of the European Parliament and the Council). A chemical information report for this product can be found at: <http://www.hp.com/go/reach>.*

The above statement must accompany the product in electronic media, software, or paper form.

## 7.5 Recycled and certification requirements for wood, paper, and fiber in HP products

All HP brand paper, paper-based and fiber-based product packaging<sup>24</sup>, and wood<sup>25</sup> used in HP products must be derived from certified or recycled sources. These materials must meet one of the following criteria:

- Chain-of-custody certified and carry the certification label.
- Chain-of-custody certified from the source at least through the converter. This material must be accompanied by the appropriate documentation, for example invoice or bill of lading, with certification information noted as applicable per a certification standard.
- Made of recycled content, which is to be verified by an independent third party in accordance with the applicable industry standards.

FSC-certified fiber is preferred. PEFC certification or relevant national certification schemes that comply with our sustainable paper and wood policy can be used in regions where they are recognized to not accept forest conversion, are endorsed by competent independent stakeholders, and ensure a reliable guarantee of responsible sources.

HP partners and suppliers shall maintain documentation and report annually the total annual tonnage of certified and recycled content per certification scheme.

## 7.6 Wood, paper, and other plant-based product sourcing requirements

Parts, components, materials, and products must not contain any wood material or other wild plant material that was illegally sourced from its country of origin. Examples of illegally sourced materials include, but are not limited to, wood or wild plant materials stolen from parks, reserves, or other protected areas; materials harvested without permission or contrary to applicable harvesting regulations;

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<sup>24</sup> The requirement for all paper-based and fiber-based product packaging to be derived from certified and recycled sources applies to the box that comes with the product and all paper (including packaging and materials) inside the box.

<sup>25</sup> Wood was added to the commitment in 2019 due to wood now being used in some HP products.



materials for which the applicable royalties, taxes, or fees were not paid; and materials exported in violation of log or other export bans.

To meet the due diligence requirements of wood and plant-derived product regulations, suppliers must:

- 1) Commit to using only legally-sourced wood and plant materials for products and materials supplied to HP;
- 2) Determine the country of origin, and genus and species of wood and plant-derived materials; and
- 3) Maintain and make available records that verify the legal origin of plant materials, as set forth in the Supplier Verification section of [HP Standard 011-00](#).

The worldwide requirements in this paragraph address the requirements of the following regulations: the [U.S. Lacey Act](#) Amendments of 2008 (codified at 16 U.S.C. §§ 3371–3378) effective May 22, 2008; the [EU Timber regulation](#) (Regulation (EU) No 995/2010) effective Oct 20, 2010; and the [Australian Illegal Logging Prohibition Act](#) (No. 166, 2012) effective Nov 29, 2012.

### 7.6.1 Lacey Act Wood and Paper Product Import Declaration

Wood materials, furniture, and other wood and paper-based products listed by Harmonized Tariff Schedule (HTS) chapters included in the APHIS Schedule of Enforcement must include an import declaration, PPQ FORM 505: Lacey Act Plant and Plant Product Declaration Form, when entering the United States. This requirement does not apply to packaging that is directly supporting or protecting a product, such as pallets or boxes carrying a product, or sundries that accompany the product (such as warranty cards, labels, and manuals).

### 7.6.2 Australian Illegal Logging Prohibition Act Wood and Paper Product Import Declaration

Timber products (including wood materials, furniture, packaging, and paper products) listed in “Schedule 1-Regulated timber products” of the Illegal Logging Prohibition Amendment Regulation 2013 (No. 1) must include a customs declaration when entering Australia. This requirement does not apply to packaging that is directly supporting or protecting a product, such as pallets or boxes carrying a product, or sundries that accompany the product (such as warranty cards, labels, and manuals). It also does not apply to a regulated timber product that is entirely made of recycled material, as well as to the part of a regulated timber product that is partially made from recycled material. See section “Wood, Paper and other Plant-based Products” of [HP Standard 011-01](#) and [HP Standard 011-02](#).

## 7.7 Leather, hides, and other animal-based product sourcing requirements

Parts, components, materials, and products that contain leather, skins or animal-based products shall be subject to the requirements to this section. For additional requirements for soft goods and other non-EEE (furniture, clothing, etc.) related to leather see HX-00011-13.

HP prohibits the use of leathers, hides, or skins from animals that have been inhumanely treated, whether these animals are wild or farmed.

HP prohibits:

- Any endangered or threatened species, as defined by the International Union for Conservation of Nature and Natural Resources (IUCN) in its red list.
- Exotic or protected animals. Examples include, but are not limited to, alligator, cheetah, crocodile, elephant, fish, leopard, lion, lizard, marine mammals, ostrich, shark, snake, tiger, rays, rhinoceros, etc.
- Skins derived from any species of domesticated or feral dog or cat.
- Furs or hair of any kind, including, but not limited to, mink, coyote, fox, horse, mountain lion, cougar, angora rabbit



- Animals raised or slaughtered in China, India, and Brazil's Amazon Legal (as defined by IBGE), including the Amazon Biome.

HP partners and suppliers must meet the Five Freedoms for Animal Welfare, as defined by the [Farm Animal Welfare Council \(FAWC\)](#), the internationally accepted standards for animal care. The Five Freedoms ensures the primary welfare of animals are met by providing:

- freedom from hunger, malnutrition, and thirst
- freedom from fear and distress
- freedom from physical and thermal discomfort
- freedom from pain, injury, and disease
- freedom to express normal patterns of behavior

All leather must be from [Leather Working Group \(LWG\)](#) certified sources and receive LWG's Gold Rating. The LWG is a multi-stakeholder group that promotes sustainable business practices within the leather industry. The LWG has developed stringent standards and audit protocols benchmarked against industry best practices, and checks compliance through independent monitoring.

HP partners and suppliers shall maintain credible chain of custody (traceability) from farm/ranch to final product to ensure the above requirements are met. Chain of custody documentation shall be provided to HP upon request that verifies that the materials meet the above requirements. In addition, HP requires suppliers of Brazilian leather to provide certificates of origin upon request to ensure that the leather does not originate from the Amazon Biome.

## 7.8 HP products that may be considered toys or children's products

In general, HP products are not considered toys or children's products. Certain jurisdictions may have specific criteria for a product to be considered a toy or children's product. Such toys or children's product may have different regulatory requirements than other HP products.

As an example of the diverse regulatory definitions, the U.S. Consumer Product Safety Improvement Act (CPSIA) defines a "children's toy" as "a consumer product designed or intended by the manufacturer for a child 12 years of age or younger for use by the child when the child plays". The EU Toy Safety Directive (Directive 2009/48/EC of the European Parliament and of the Council of 18 June 2009 on the safety of toys) defines toys as "products designed or intended, whether or not exclusively, for use in play by children under 14 years of age".

If there are products that may be considered toys or children's products because of design, marketing, or other reasons then the HP business unit needs to consult with Materials Stewardship on appropriate actions.

## 7.9 Bio feedstock requirements

Parts, components, materials, and products that contain bio feedstocks used to make plastic polymers, bio polymers, or any other bio-based material added to parts, components, materials, or products shall be subject to the requirements of this section.

Bio feedstocks sourcing criteria:

1. Bio feedstocks from waste products (second generation) or non-traditional organisms (third generation, such as algae) are preferable to virgin bio feedstocks.





2. If virgin bio feedstocks are used, then the feedstocks must be credibly certified to ensure they are legal, renewable, and sustainably grown without impacting regional food security, land use practices, or critical ecosystems.
3. Life Cycle Assessment (LCA) compliant with ISO 14044:2006 must be performed that shows the bio-based material is less impactful than what it's replacing.
4. Must be in compliance with the substance restrictions in Substance and Materials Requirements section of HX-00011-01.

HP partners and suppliers shall maintain credible chain of custody (traceability) from farm/forest/waste process to final product to ensure the above requirements are met. HP prefers the following certifications as recommended by the [Bioplastic Feedstock Alliance](#):

- Bonsucro Production Standard – Sugarcane
- Forest Stewardship Council – Wood & Tree-based Products
- Roundtable on Sustainable Palm Oil (RSPO) – Palm Oil
- Roundtable on Responsible Soy (RTRS) – Soy
- Roundtable on Sustainable Biomaterials – Other Feedstocks

ISCC certification is acceptable if the feedstock is evaluated to ensure it meets HP's bio feedstock sourcing criteria or the bio feedstock is derived from waste materials (bio-circular).

HP prefers physical segregation of bio feedstocks from petroleum-derived feedstocks so that the amount of bio-based material can be verified through testing (ASTM D6866 or equivalent). However, mass balance certified material is currently accepted for use in products if it's not feasible to have physically segregated material.

Bio feedstocks end-of-life criteria:

1. Bioplastic resins used to make parts or components for HP products should be drop-in replacements for resins already used (e.g., bio-Polycarbonate (PC), bio-Acrylonitrile Butadiene Styrene (ABS)) so they can be recycled within existing infrastructure.
2. The addition of bio feedstocks (e.g., coffee grounds) to plastic resin must not impact the recyclability of the resins.

Documentation shall be provided to HP upon request that verifies that the materials meet the above requirements.



## 8 Substance Tables

\* CAS = Chemical Abstract Service. Chemical classes do not have CAS numbers, but examples have been included when possible.

**Table 3: Benzidine-based Substances**

Name	CAS* Numbers
1,3-Naphthalenedi-sulfonic acid, 7-hydroxy-8-[2-[4'-[2-(4-hydroxyphenyl)diazenyl][1,1'-biphenyl]-4-yl]diazenyl]-	117-33-9
1,3,6-Naphthalenetri-sulfonic acid, 8-hydroxy-7-[2-[4'-[2-(2-hydroxy-1-naphthalenyl)diazenyl][1,1'-biphenyl]-4-yl]diazenyl]-, lithium salt (1:3)	65150-87-0
2,7-Naphthalenedi-sulfonic acid, 5-amino-3-[2-[4'-[2-(7-amino-1-hydroxy-3-sulfo-2-naphthalenyl)diazenyl][1,1'-biphenyl]-4-yl]diazenyl]-4-hydroxy-, sodium salt (1:2)	68214-82-4
2,7-Naphthalenedi-sulfonic acid, 4-amino-5-hydroxy-3-[2-[4'-[2-[2-hydroxy-4-[(2-methylphenyl)amino]phenyl]diazenyl][1,1'-biphenyl]-4-yl]diazenyl]-6-(2-phenyldiazenyl)-	72379-45-4
2,7-Naphthalenedi-sulfonic acid, 4-amino-5-hydroxy [[[substituted phenylamino] substituted phenylazo] diphenyl]azo-, phenylazo-, disodium salt.	Accession No. 21808 CAS No. CBI (NA)
4-(Substituted naphthalenyl)azo diphenyl azo-substituted carbopolycycle azo benzene-sulfonic acid, sodium salt	Accession No. 24921 CAS No. CBI (NA)
4-(Substituted phenyl)azo biphenyl azo-substituted carbopolycycloazo benzene-sulfonic acid, sodium salt	Accession No. 26256 CAS No. CBI (NA)
4-(Substituted phenyl)azo biphenyl azo—substituted carbopolycycle azo benzene-sulfonic acid, sodium salt	Accession No. 26267 CAS No. CBI (NA)
Phenylazoamino-hydroxynaphthalenylazobiphenylazo substituted benzene sodium sulfonate	Accession No. 26701 CAS No. CBI (NA)
[1,1'-Biphenyl]-4,4'-diamine	92-87-5
[1,1'-Biphenyl]-4,4'-diamine, dihydrochloride	531-85-1
1-Naphthalenesulfonic acid, 3,3'-[[1,1'-biphenyl]-4,4'-diylbis(azo)]bis[4-amino-, disodium salt (C.I. Direct Red 28)	573-58-0
2,7-Naphthalenedisulfonic acid, 4-amino-3-[[4'-[(2,4-diaminophenyl) azo][1,1'-biphenyl]-4-yl]azo]-5-hydroxy-6-(phenylazo)-, disodium salt (C.I. Direct Black 38)	1937-37-7
1-Naphthalenesulfonic acid, 8,8'-[[1,1'-biphenyl]-4,4'-diylbis(azo)]bis[7-hydroxy-, disodium salt (C.I. Direct Red 44)	2302-97-8

Table 3: Benzidine-based Substances

Name	CAS* Numbers
2,7-Naphthalenedisulfonic acid, 5-amino-3-[[4'-[(7-amino-1-hydroxy-3-sulfo-2-naphthalenyl)azo][1,1'-biphenyl]-4-yl]azo]-4-hydroxy-, trisodium salt (C.I. Direct Blue 2)	2429-73-4
Benzoic acid, 5-[[4'-[(1-amino-4-sulfo-2-naphthalenyl)azo][1,1'-biphenyl]-4-yl]azo]-2-hydroxy-, disodium salt (C.I. Direct Orange 8)	2429-79-0
Benzoic acid, 5-[[4'-[[2,6-diamino-3-[[8-hydroxy-3,6-disulfo-7-[(4-sulfo-1-naphthalenyl)azo]-2-naphthalenyl]azo]-5-methylphenyl]azo][1,1'-biphenyl]-4-yl]azo]-2-hydroxy-, tetrasodium salt (C.I. Direct Brown 31)	2429-81-4
Benzoic acid, 5-[[4'-[(7-amino-1-hydroxy-3-sulfo-2-naphthalenyl)azo][1,1'-biphenyl]-4-yl]azo]-2-hydroxy-, disodium salt (C.I. Direct Brown 2)	2429-82-5
2,7-Naphthalenedisulfonic acid, 4-amino-3-[[4'-[(2,4-diamino-5-methylphenyl)azo][1,1'-biphenyl]-4-yl]azo]-5-hydroxy-6-(phenylazo)-, disodium salt (Direct Black 4)	2429-83-6
Benzoic acid, 5-[[4'-[(2-amino-8-hydroxy-6-sulfo-1-naphthalenyl)azo][1,1'-biphenyl]-4-yl]azo]-2-hydroxy-, disodium salt (C.I. Direct Red 1)	2429-84-7
Benzoic acid, 5-[[4'-[[2,6-diamino-3-methyl-5-[(4-sulfo)phenyl]azo]phenyl]azo][1,1'-biphenyl]-4-yl]azo]-2-hydroxy-, disodium salt (C.I. Direct Brown 1:2)	2586-58-5
2,7-Naphthalenedisulfonic acid, 3,3'-[[1,1'-biphenyl]-4,4'-diylbis(azo)]bis[5-amino-4-hydroxy-, tetrasodium salt (C.I. Direct Blue 6)	2602-46-2
Benzoic acid, 5-[[4'-[[2,4-dihydroxy-3-[(4-sulfo)phenyl]azo]phenyl]azo][1,1'-biphenyl]-4-yl]azo]-2-hydroxy-, disodium salt (C.I. Direct Brown 6)	2893-80-3
1,3-Naphthalenedisulfonic acid, 8-[[4'-[(4-ethoxyphenyl)azo][1,1'-biphenyl]-4-yl]azo]-7-hydroxy-, disodium salt (C.I. Direct Red 37)	3530-19-6
1,3-Naphthalenedisulfonic acid, 7-hydroxy-8-[[4'-[[4-[(4-methylphenyl) sulfonyl]oxy]phenyl]azo][1,1'-biphenyl]-4-yl]azo]-, disodium salt (C.I. Acid Red 85)	3567-65-5
2,7-Naphthalenedisulfonic acid, 4-amino-5-hydroxy-3-[[4'-[(4-hydroxyphenyl)azo][1,1'-biphenyl]-4-yl]azo]-6-(phenylazo)-, disodium salt (C.I. Direct Green 1)	3626-28-6

Table 3: Benzidine-based Substances

Name	CAS* Numbers
Benzoic acid, 5-[[4'-[[2,4-diamino-5-[(4-sulfo)phenyl]azo]phenyl]azo][1,1'-biphenyl]-4-yl]azo]-2-hydroxy-, disodium salt (C.I. Direct Brown 1)	3811-71-0
2,7-Naphthalenedisulfonic acid, 4-amino-5-hydroxy-6-[[4'-[(4-hydroxyphenyl)azo][1,1'-biphenyl]-4-yl]azo]-3-[(4-nitrophenyl)azo]-, disodium salt (C.I. Direct Green 6)	4335-09-5
2,7-Naphthalenedisulfonic acid, 4-amino-5-hydroxy-3-[[4'-[[4-hydroxy-2-[(2-methylphenyl)amino]phenyl]azo][1,1'-biphenyl]-4-yl]azo]-6-[(4-sulfo)phenyl]azo]-, trisodium salt (C.I. Acid Black 94)	6358-80-1
Benzoic acid, 5-[[4'-[[4-[(4-amino-7-sulfo-1-naphthalenyl)azo]-6-sulfo-1-naphthalenyl]azo][1,1'-biphenyl]-4-yl]azo]-2-hydroxy-, trisodium salt (C.I. Direct Brown 27)	6360-29-8
Benzoic acid, 5-[[4'-[[2,6-diamino-3-methyl-5-[(4-sulfo)phenyl]azo]phenyl]azo][1,1'-biphenyl]-4-yl]azo]-2-hydroxy-3-methyl-, disodium salt (C.I. Direct Brown 154)	6360-54-9
Benzoic acid, 3,3'-[(3,7-disulfo-1,5-naphthalenediyl)bis[azo(6-hydroxy-3,1-phenylene)azo[6(or7)-sulfo-4,1-naphthalenediyl]azo][1,1'-biphenyl]-4,4'-diylazo]]bis[6-hydroxy-, hexasodium salt (C.I. Direct Brown 74)	8014-91-3
Cuprate(2-), [5-[[4'-[[2,6-dihydroxy-3-[(2-hydroxy-5-sulfo)phenyl]azo]phenyl]azo][1,1'-biphenyl]-4-yl]azo]-2-hydroxybenzoato(4-)-, disodium salt (C.I. Direct Brown 95)	16071-86-6



Table 4: Isocyanates

Name	CAS* Numbers
4,4'-Diphenylmethane diisocyanate	101-68-8, 25686-28-6, 26447-40-5
2,2'-Diphenylmethane diisocyanate	2536-05-2
2,4-Toluene diisocyanate	584-84-9, 1321-38-6, 26006-20-2, 26471-62-5
1,6-Hexamethylene diisocyanate	822-06-0, 11142-52-2
2,4'-Diphenylmethane diisocyanate	5873-54-1, 39420-98-9
Isophorone diisocyanate (IPDI)	4098-71-9
2,6-Toluene diisocyanate	91-08-7, 9019-85-6
1,5-Naphthalene diisocyanate	3173-72-6
o-dianisidine diisocyanate	91-93-0
HDI biuret (Hexamethylene diisocyanate biuret)	4035-89-6
HDI isocyanurate (hexamethylene diisocyanate isocyanurate)	3779-63-3
Oligomeric isocyanates	Various
Other isocyanates	Various



Table 5: Organostannic (organotin) compounds

Name	CAS* Numbers
Dibutyltin oxide (TBTO)	818-08-6
Dibutyltin diacetate	1067-33-0
Dibutyltin dilaurate	77-58-7
Dibutyltin maleate	78-04-6
Other dibutyltin compounds	–
Diocetyl tin oxide	870-08-6
Diocetyl tin dilaurate	3648-18-8
Other dioctyltin compounds	–
Bis(tri-n-butyltin) oxide	56-35-9
Triphenyltin N,N'-dimethyldithiocarbamate	1803-12-9
Triphenyltin fluoride	379-52-2
Triphenyltin acetate	900-95-8
Triphenyltin chloride	639-58-7
Triphenyltin hydroxide	76-87-9
Triphenyltin fatty acid ((9-11) salt)	18380-71-7, 18380-72-8, 47672-31-1; 94850-90-5
Triphenyltin chloroacetate	7094-94-2
Tributyltin methacrylate	2155-70-6
Bis(tributyltin) fumarate	6454-35-9
Tributyltin fluoride	1983-10-4
Bis(tributyltin) 2,3-dibromosuccinate	31732-71-5
Tributyltin acetate	56-36-0
Tributyltin laurate	3090-36-6
Bis(tributyltin) phthalate	4782-29-0
Copolymer of alkyl acrylate, methyl methacrylate and tributyltin methacrylate (alkyl; C=8)	67772-01-4
Tributyltin sulfamate	6517-25-5
Bis(tributyltin) maleate	14275-57-1
Tributyltin chloride	1461-22-9



Table 5: Organostannic (organotin) compounds

Name	CAS* Numbers
Mixture of tributyltin cyclopentanecarboxylate and its analogs (tributyltin naphthenate)	85409-17-2
Mixture of tributyltin 1,2,3,4,4a, 4b, 5,6,10,10a-decahydro-7-isopropyl-1, 4a-dimethyl-1-phenanthlenecarboxylate and its analogs (tributyltin rosin salt)	26239-64-5
Other tributyltins and triphenyltins	Chemical class, no CAS number assigned



Table 6: PBBs and PBDEs

Name	CAS* Numbers
Bromobiphenyl	2052-07-5, 2113-57-7, 92-66-0
Bromobiphenyl Ether	101-55-3
Decabromobiphenyl	13654-09-6
Decabromobiphenyl Ether	1163-19-5
Dibromobiphenyl	92-86-4
Dibromobiphenyl Ether	2050-47-7
Heptabromobiphenyl	35194-78-6
Heptabromobiphenyl Ether	68928-80-3
Hexabromobiphenyl	59080-40-9, 36355-01-8, 67774-32-7
Hexabromobiphenyl Ether	36483-60-0
Nonabromobiphenyl	27753-52-2
Nonabromobiphenyl Ether	63936-56-1
Octabromobiphenyl	61288-13-9
Octabromobiphenyl Ether	32536-52-0
Pentabromobiphenyl	56307-79-0
Pentabromobiphenyl Ether	32534-81-9
Polybrominated Biphenyl	59536-65-1
Polybromobiphenyl(s), Polybromodiphenyl(s)	Chemical class, no CAS number assigned
Polybrominated Biphenyl Ether(s), Polybrominated Biphenyl Oxide(s)	Chemical class, no CAS number assigned
Tetrabromobiphenyl	40088-45-7
Tetrabromobiphenyl Ether	40088-47-9
Tribromobiphenyl	51202-79-0
Tribromobiphenyl Ether	49690-94-0





Table 7: PFHxS, PFHxS Salts, and PFHxS-related compounds

Name	CAS* Numbers
Perfluorohexanesulfonic acid	355-46-4
Potassium perfluorohexanesulfonate	3871-99-6
Sodium perfluorohexanesulfonate	82382-12-5
Ammonium perfluorohexane-1-sulphonate	68259-08-5
Bis(2-hydroxyethyl)ammonium perfluorohexanesulfonate	70225-16-0
Lithium perfluorohexanesulfonate	55120-77-9
Perfluorohexanesulfonamide	41997-13-1
Sulfonium, [4-[(2-methyl-1-oxo-2-propenyl)oxy]phenyl]diphenyl-, salt with 1,1,2,2,3,3,4,4,5,5,6,6,6-tridecafluoro-1-hexanesulfonic acid (1:1), polymer with 2-ethyltricyclo[3.3.1.1 <sup>3,7</sup> ]dec-2-yl 2-methyl-2-propenoate, 3-hydroxytricyclo[3.3.1.1 <sup>3,7</sup> ]dec-1-yl 2-methyl-2-propenoate and tetrahydro-2-oxo-3-furanyl 2-methyl-2-propenoate	911027-69-5
C <sub>6</sub> F <sub>13</sub> O <sub>2</sub> SX (X=OH, metal salt, halide, amide, and other derivatives including polymers)	Various
Compounds that contain C <sub>6</sub> F <sub>13</sub> SO <sub>2</sub> , C <sub>6</sub> F <sub>13</sub> SO <sub>3</sub> or C <sub>6</sub> F <sub>13</sub> SO <sub>2</sub> N moieties	Various



Table 8: PFOS and PFOS salts

Name	CAS* Numbers
PFOS	1763-23-1
PFOS Ion	45298-90-6
PFOS Potassium Salt	2795-39-3
PFOS Lithium Salt	29457-72-5
PFOS Tetraethylammonium Salt	56773-42-3
PFOS Triphenylsulfonium Salt	144089-15-6
PFOS Sodium Salt	4021-47-0
PFOS Ammonium Salt	29081-56-9
PFOS Amide	754-91-6
Perfluorooctanesulfonyl fluoride	307-35-7
Bis(2-hydroxyethyl)ammonium perfluorooctanesulfonate	70225-14-8
N-Decyl-N,N-dimethyl-1-decanaminium perfluorooctanesulfonate	251099-16-8
N-Ethylperfluorooctanesulfonamide	4151-50-2
Heptadecafluoro-N-methyloctanesulphonamide	31506-32-8
N-EtFOSE N-ethyl perfluorooctane sulfonamidoethanol	1691-99-2
N-Methylperfluorooctanesulfonamidoethanol	24448-09-7
C <sub>8</sub> F <sub>17</sub> SO <sub>2</sub> X (X=OH, metal salt, halide, amide, and other derivatives including polymers)	Various
Compounds that contain C <sub>8</sub> F <sub>17</sub> SO <sub>2</sub> , C <sub>8</sub> F <sub>17</sub> SO <sub>3</sub> or C <sub>8</sub> F <sub>17</sub> SO <sub>2</sub> N moieties	Various



Table 9: PFOA, PFOA Salts, and PFOA-related compounds

Name <sup>26</sup>	CAS* Numbers
PFOA	335-67-1
PFOA Ammonium Salt	3825-26-1
PFOA Sodium Salt	335-95-5
PFOA Potassium Salt	2395-00-8
PFOA Silver Salt	335-93-3
PFOA Chromium Salt	68141-02-6
Perfluorooctanoyl fluoride	335-66-0
Methyl PFOA	376-27-2
Ethyl PFOA	3108-24-5
Ethanaminium Salt	98241-25-9
Fluorotelomer Alcohol	678-39-7
Fluorotelomer Phosphate Diester	678-41-1
Fluorotelomer Acrylate	27905-45-9
Perfluorinated Iodide	507-63-1

Table 10: PFCA, PFCA Salts, and PFCA-related compounds

Name	CAS* Numbers
Tricosafuorododecanoic acid	307-55-1
Perfluorononan-1-oic acid	375-95-1
Pentacosafuorotridecanoic acid	72629-94-8
Nonadecafluorodecanoic acid	335-76-2
Heptacosafuorotetradecanoic acid	376-06-7
Henicosafuoroundecanoic acid	2058-94-8

<sup>26</sup> This is a non-exhaustive list of substances belonging to the scope of the restriction. See cited regulations for structural definitions of compounds covered.



Table 11: Polycyclic Aromatic Hydrocarbons (PAHs)

Name	CAS* Numbers
Benz[a]anthracene (BaA)	56-55-3
Benzo[b]fluoranthene (BbFA)	205-99-2
Benzo[j]fluoranthene (BjFA)	205-82-3
Benzo[k]fluoranthene (BkFA)	207-08-9
Benzo[a]pyrene (BaP)	50-32-8
Benzo[e]pyrene (BeP)	192-97-2
Chrysene (CHR)	218-01-9
Dibenz[a,h]anthracene (DBAha)	53-70-3

Table 12: Radioactive Substances (Radioactive Isotopes)

Name	CAS* Numbers
Uranium-238	7440-61-1
Radon	10043-92-2
Americium-241	14596-10-2
Thorium-232	7440-29-1
Cesium-137	10045-97-3
Strontium-90	10098-97-2

Table 13: REACH Annex XVII Phthalates

Name	CAS* Numbers
Di-(2-ethylhexyl) phthalate (DEHP)	117-81-7
Dibutyl phthalate (DBP)	84-74-2
Butyl benzyl phthalate (BBP)	85-68-7
Diisobutyl phthalate (DIBP)	84-69-5



Table 14: Other PCB Congeners and Mixtures

Name	CAS* Numbers
Polychlorinated biphenyl (PCB)	1336-36-3
2-Chlorobiphenyl	2051-60-7
3-Chlorobiphenyl	2051-61-8
4-Chlorobiphenyl	2051-62-9
2,2'-Dichlorobiphenyl	13029-08-8
2,3-Dichlorobiphenyl	16605-91-7
2,3'-Dichlorobiphenyl	25569-80-6
2,4-Dichlorobiphenyl	33284-50-3
2,4'-Dichlorobiphenyl	34883-43-7
2,5-Dichlorobiphenyl	34883-39-1
2,6-Dichlorobiphenyl	33146-45-1
3,3'-Dichlorobiphenyl	2050-67-1
3,4-Dichlorobiphenyl	2974-92-7
3,4'-Dichlorobiphenyl	2974-90-5
3,5-Dichlorobiphenyl	34883-41-5
4,4'-Dichlorobiphenyl	2050-68-2
2,2',3-Trichlorobiphenyl	38444-78-9
2,2',4-Trichlorobiphenyl	37680-66-3
2,2',5-Trichlorobiphenyl	37680-65-2
2,2',6-Trichlorobiphenyl	38444-73-4
2,3,3'-Trichlorobiphenyl	38444-84-7
2,3,4-Trichlorobiphenyl	55702-46-0
2,3,4'-Trichlorobiphenyl	38444-85-8
2,3,5-Trichlorobiphenyl	55720-44-0
2,3,6-Trichlorobiphenyl	55702-45-9
2,3',4-Trichlorobiphenyl	55712-37-3
2,3',5-Trichlorobiphenyl	38444-81-4
2,3',6-Trichlorobiphenyl	38444-76-7
2,4,4'-Trichlorobiphenyl	7012-37-5
2,4,5-Trichlorobiphenyl	15862-07-4



Table 14: Other PCB Congeners and Mixtures

Name	CAS* Numbers
2,4,6-Trichlorobiphenyl	35693-92-6
2,4',5-Trichlorobiphenyl	16606-02-3
2,4',6-Trichlorobiphenyl	38444-77-8
2,3',4'-Trichlorobiphenyl	38444-86-9
2,3',5'-Trichlorobiphenyl	37680-68-5
3,3',4-Trichlorobiphenyl	37680-69-6
3,3',5-Trichlorobiphenyl	38444-87-0
3,4,4'-Trichlorobiphenyl	38444-90-5
3,4,5-Trichlorobiphenyl	53555-66-1
3,4',5-Trichlorobiphenyl	38444-88-1

## 9 References

Each of the following standards forms a part of [HP's GSE](#) and is incorporated herein by reference:

[HP Standard 011-00 General Specification for the Environment—Overview \(HX-00011-00\)](#)

[HP Standard 011-01 General Specification for the Environment—Substances and Materials Requirements, All Products \(HX-00011-01\)](#)

HP Standard 011-01A GSE—Substances and Materials, Future Requirements (HX-00011-01A)

HP Standard 011-01B GSE—Substances and Materials, Business-Specified Requirements (HX-00011-01B)

[HP Standard 011-02 GSE—Packaging Requirements \(HX-00011-02\)](#)

[HP Standard 011-06 GSE—Manufacturing Substances Requirements \(HX-00011-06\)](#)

HP Standard 011-11 GSE—Product requirements for EEE (HX-00011-11)

HP Standard 011-12 GSE—Requirements for Batteries and Battery Containing Products (HX-00011-12)

HP Standard 011-13 GSE—Requirements for Soft Goods and Other Non-EEE (furniture, wooden products, clothing, etc.) (HX-00011-13)

HP Standard 011-14 GSE—Requirements for Chemicals and Formulated Products (HX-00011-14)

HP Standard 011-15 GSE—Requirements for Print Media (HX-00011-15)

HP Standard 014-02 Supplier Requirements for Safe and Legal Products

HP Standard 025-01 Supplemental Environmental Specification—Commodity and Component (HX-00025-01)



For more information about HP materials program, see our [Materials & Chemical Management Policy](#), [Materials Strategy](#), [Green Chemistry Timeline](#), and the [HP General Specification for the Environment page](#).

EX-EN876-00, HP Active Verification Material Testing Specification (External version EX-EN876-00, is on the [HP Supplier Portal](#); registration required)

[EU RoHS Directive 2011/65/EU](#)

[Commission Delegated Directive \(EU\) 2015/863](#)

[BIS RoHS Regulations Government Guidance Notes](#)

[EU RoHS Directive legislation \(European Union website\)](#)

[Connecticut Mercury Reduction and Education Act](#)

[Louisiana Mercury Risk Reduction Act](#)

[IMERC State Mercury-Added Product Ban & Phase-out Guidance](#)

[Leather Working Group \(LWG\)](#)

EN 1811:2011 European Standard specifying a reference test method for release of nickel from products intended to come into direct and prolonged contact with skin which was approved by the European Committee for Standardization

Testing and Validation of Polycyclic Aromatic Hydrocarbons (PAH) in the course of GS-Mark Certification, ZEK 01-08

IEC 62321 standards where applicable – Determination of Certain Substances in Electrotechnical Products, available through <http://www.iec.ch>

[5951-1741-1, Plastic Part Marking Algorithm Standard](#)

ISO 11469, which includes ISO 1043, part 1-4

[GB 30981-2020 Limit of harmful substances of industrial protective coatings](#)

[GB 33372-2020 Limit of volatile organic compounds content in adhesives](#)

[GB 38508-2020 Limit of volatile organic compounds content in cleaning agents](#)

[GB 38507-2020 Limit of volatile organic compounds content in printing inks](#)



## 10 Revision History

[Prior revision history](#)

Revision, Date, Change Number	Brief Description of change
S2, 23-Feb-15	<ul style="list-style-type: none"> <li>• Added GSE Standard 011-06 GSE – Manufacturing Process Substances Requirements.</li> <li>• Added Polychlorinated biphenyls (PCBs) to Table 1 for listing in 011-01 document.</li> <li>• Added Polychlorinated biphenyls (PCBs) to Table 2 for “All products” and remove PCBs from Table 3.</li> <li>• Added Antimony trioxide to Table 1 for listing in 011-01A document.</li> <li>• Added “Chlorine compounds in the form of polyvinyl chloride...” (080715-88) and “Bromine compounds” (090807-37) to Table 1 for listing in 011-01A and removal from 011-01B document.</li> <li>• Added “MCCP” (Identification number: 130604-94) to Table 1 for listing in 011-01A and removal from 011-01B document.</li> <li>• Added “GSE Standard 011-06 Manufacturing Process Substances Requirements, Table 1” to footnote 8.</li> <li>• Added Benzidine-based substances to Table 1 and Table 2.</li> <li>• Added Table 14 – Benzidine-based substances.</li> </ul>
T, 1-Jun-15	<ul style="list-style-type: none"> <li>• Updated Section 3 to include “This includes non-EE and batteries.”</li> <li>• Added to Table 1 in exemptions RoHS exemption 39a and 39b to “Cadmium and its compounds” (ID #: 980408-84).</li> <li>• Added to Table 1 in exemptions RoHS exemption 13b to “Lead and its compounds” (ID #: 061020-12).</li> <li>• Removed from Table 1 RoHS exemption 4d from exemption list “Mercury and its compounds” (ID #: 980408-14).</li> <li>• Removed from Table 1 (ID #: 061020-81), RoHS exemption 4d has expired on 13-Apr-2015.</li> <li>• Removed from Table 1 (ID #: 130604-16) “See HP-011-01A for exemption expiration” and added “(expires 1-Jan-2016)”.</li> <li>• Added HBCDD (ID #: 120621-60) to Table 1 from GSE 011-01A document due to effective date 1-Aug-2015 and included exemption – “Recycled material in all products: 1000 ppm.”</li> <li>• Added DIBP to Table 2 from GSE 011-01A document with effective date 1-Jul-15.</li> <li>• Added PAH to Table 1 from GSE 011-01A document with effective date 1-Aug-15.</li> </ul>





Revision, Date, Change Number	Brief Description of change
	<ul style="list-style-type: none"> <li>• Change two-digit years to four-digit years (e.g., 1-Jul-16 changed to 1-Jul-2016).</li> <li>• Removed Table 1 and added to HP Standard 011-0 document.</li> <li>• Removed “All products manufactured before 14-Mar-15” from BNST exemptions.</li> <li>• Update to Azo colorants (remove “and aromatic amines”; add “and Azodyes”); added clarification under substance identifier and threshold limit/criteria.</li> <li>• Updated Red Phosphorus scope and added exemptions.</li> <li>• Updated Short chain chlorinated paraffins (SCCPs) to HP Restrictions.</li> <li>• Added "2-benzotriazol-2-yl-4,6-di-tert-butylphenol (UV-320)" to existing GSE restriction of a similar name "Phenol,2 (2H benzotriazole-2-yl) 4,6 bis(1,1-dimethylethyl), CAS#: 3846-71-7" and added additional reference “EU Regulation (EC) 1907/2006, Annex XVII (EU REACH)”.</li> <li>• Added to PVC in Substance Identifier “&amp; 9002-86-2” and References “EPEAT and Korean eco-label KOECO.”</li> <li>• Added in Table 3 “including coin cell” under mercury and its compounds for batteries with inclusion of reference for Taiwan Battery Regulation (ID Number: 080715-63).</li> <li>• Added in Table 3 Mercury and its compounds (new ID #: 150601-06) at 5ppm with Canada Products Containing Mercury Regulations &amp; EU Battery Directive 2013/56/EU as references.</li> <li>• Removed in Table 3 “coin cell batteries” under mercury and compounds for batteries (ID Number: 140615-61).</li> <li>• Added in Table 3 “Taiwan Battery Regulation” reference (ID # 080715-36).</li> <li>• Added to Table 4 with Azodyes approved test methods.</li> <li>• Added “Malaysia” to Section 8 for the list of countries.</li> <li>• Renamed Table 6 to Aromatic Amines.</li> <li>• Added Table 14 Polycyclic Aromatic Hydrocarbons (PAHs).</li> <li>• Removed Benzo[g,h,i]perylene (CAS#: 191 24 2) from PAH Table 14.</li> <li>• Removed exemption – “Mist suppressants for nondecorative hard chromium (VI) plating (in closed loop systems)” and added “Canada Regulation SOR/2008-178” under references in Table 1 for PFOS (ID #: 070905-36) and in Table 2 for PFOS (ID #: 070905-82 and 070905-13).</li> </ul>
01-Aug-2015	<ul style="list-style-type: none"> <li>• Cloned the standards for HPI.</li> </ul>



Revision, Date, Change Number	Brief Description of change
U, 21-Jul-2016	<ul style="list-style-type: none"> <li>• Added paper sourcing requirements.</li> <li>• added restrictions for BPA, DINP, CFR in case plastics.</li> <li>• add Hg restrictions related to Canada and US states.</li> <li>• remove PFOA exemption for adhesive foil or tape.</li> <li>• removed polychlorinated naphthalene limiter.</li> <li>• updated conflict minerals dates.</li> <li>• remove FGHG Canada Eco-Logo requirement.</li> <li>• editorial changes</li> </ul>
V, 3-Jul-2017	<ul style="list-style-type: none"> <li>• modified scope to reflect new GSE structure.</li> <li>• removed requirements that were not applicable to all products.</li> <li>• added substance disclosure requirements.</li> <li>• added Section 7 “Other Environmental Requirements...”</li> <li>• added DC FR law requirements; moved Phenylmercury requirement from HX-00011-01A; added diglyme requirement.</li> <li>• Removed spare parts exemption from 160701-87 (Canada Hg requirements).</li> <li>• Clarified scope of 160701-98 (US State Hg requirement).</li> <li>• Modified Conflict Mineral requirement dates.</li> </ul>
W, 26-Jul-2018	<ul style="list-style-type: none"> <li>• Added Appendix for HPPK supply chain reference only.</li> <li>• Expanded alternatives assessments section.</li> <li>• Clarified references are normative.</li> <li>• Updated Conflict Minerals section.</li> <li>• Adjusted materials requirements: <ul style="list-style-type: none"> <li>○ transferred requirements from HX-00011-01A that come into force during document’s revision lifecycle.</li> <li>○ Removed BNST requirement, added DMAC requirement.</li> <li>○ Adjusted PCB, SCCP, and Nickel requirement</li> </ul> </li> <li>• Editorial changes</li> </ul>
X	<ul style="list-style-type: none"> <li>• Per standard versioning best practices, there is no version X.</li> </ul>



Revision, Date, Change Number	Brief Description of change
Y, 13-Sep-2019	<ul style="list-style-type: none"> <li>• Updated EU POPs Directive reference.</li> <li>• Adjusted materials requirements: <ul style="list-style-type: none"> <li>○ Added REACH phthalate requirement.</li> <li>○ Added non-EEE exemption for PBDEs and phthalates.</li> <li>○ transferred requirements from HX-00011-01A that come into force during document's revision lifecycle.</li> <li>○ added PFOA related compounds to PFOA table.</li> </ul> </li> <li>• Added MDA and MOCA requirements.</li> <li>• Updated EU POPs reference.</li> <li>• removed date references from cited standards.</li> <li>• clarified screening testing is allowed.</li> <li>• Editorial Changes</li> </ul>
Z	<ul style="list-style-type: none"> <li>• Per standard versioning best practices, there is no version Z.</li> </ul>
AA, 29-Jul-2020	<ul style="list-style-type: none"> <li>• Added Phthalates test method to Approved Test Methods and IEC Global Standard Testing Methodologies.</li> <li>• Added TSCA PBT substance requirements to the Pan-HP mandatory restrictions for all products.</li> <li>• Added Leather, hides, and other animal-based product sourcing requirements section.</li> <li>• Added Table for polychlorinated biphenyl CAS numbers.</li> <li>• Updated References and Identification Numbers for PFOA and its salts; PFOA-related compounds in Pan-HP Mandatory Restrictions for All Products table.</li> <li>• Updated RoHS Exemptions and assumptions.</li> <li>• Added Responsible Mineral Sourcing section.</li> <li>• Added biocides general requirements.</li> <li>• Added US and China Biocide requirements.</li> </ul>
AB, 22-Jul-2021	<ul style="list-style-type: none"> <li>• Updated Scope section.</li> <li>• Added exemption to PFOA limit in PTFE micropowders.</li> <li>• Added exposure limits for phthalates (DEHP, DIDP, and DnHP) for wearable components in contact with skin.</li> <li>• Added Japan's mercury requirements that are more stringent for switches, relays, CCFLs and EEFLs.</li> </ul>



Revision, Date, Change Number	Brief Description of change
AC, 26-Jul-2022	<ul style="list-style-type: none"> <li>• Editorial changes</li> <li>• Added requirement for isocyanates in polyurethane materials in wearable EEE devices.</li> <li>• Updated restriction threshold limit criteria for PFOA and its salts; PFOA-related compounds.</li> <li>• Added restriction for Entry 68 of REACH - 9 to 14 carbon PFAS.</li> <li>• Added restriction for PFHpA.</li> <li>• Added restriction for mercury and its compounds in LEDs.</li> <li>• Added restriction for Perfluorohexanoic acid (PFHxS) and related substances.</li> <li>• Added section addressing products that may be considered toys or children's products.</li> </ul>
AC.1, 22-Nov-2022	<ul style="list-style-type: none"> <li>• Added UV-328 restriction.</li> </ul>
AD, 28-Jul-2023	<ul style="list-style-type: none"> <li>• Editorial changes</li> <li>• Added CEPN reference.</li> <li>• Added restriction for Hexachlorobutadiene.</li> <li>• Moved restrictions from HP GSE 01A to HP GSE 01.</li> <li>• Updated threshold restriction for PFHxS.</li> <li>• Added non-EEE TSCA PBT Rule restriction.</li> <li>• Added section bio feedstock requirements.</li> <li>• Removed Appendix A: HP-PK Supply Chain Substance Information.</li> <li>• Removed RoHS exemption 13(b)III and 5(b).</li> </ul>
AE, 23-Jul-2024	<ul style="list-style-type: none"> <li>• Added more SCCPs to restriction re: Vietnam POPs</li> <li>• Added restriction 111822-63 from HX-00011-01A</li> <li>• Updated section Responsible Minerals Sourcing</li> <li>• Added PFAS Reporting Guidance from HX-00011-01A</li> <li>• Updated section Additional Substance-Related Requirements to include full material disclosure requirements</li> <li>• Added six substances to PFOS and PFOS salts table</li> <li>• Updated 67/548/EEC Dangerous Substance Directive repealed by Regulation (EC) No 1272/2008</li> <li>• Update to restriction Dechlorane Plus</li> <li>• Removed and archived revision history prior to 2015</li> </ul>



# HP Standard 011-02 General Specification for the Environment— Packaging Requirements

<b>Document Identifier</b>	HX-00011-02
<b>Revision and Date</b>	AE, 23-Jul-2024
<b>Last Revalidation Date</b>	23-Jul-2024
<b>Abstract</b>	This standard defines HP's global environmental requirements for all packaging used for selling or shipping HP brand products.
<b>Applicability</b>	All HP design centers, HP manufacturing facilities, and HP's suppliers, including third-party packaging service providers, of HP brand products must comply with HP's General Specification for the Environment (GSE). Non-HP brand products must comply with applicable legal requirements.
<b>Status</b>	Approved

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## 1 Purpose

HP's General Specification for the Environment (GSE) is a series of standards that includes this standard (HP Standard 011-02) and the standards that are listed in the References section of this standard. The referenced standards shall be considered normative references and are required for application of this standard. This standard defines HP's global environmental requirements for all packaging used for selling or shipping HP brand products.

## 2 Scope

The requirements specified in this standard apply to all HP brand products. "HP brand products" in this standard are defined to be products branded by the HP brand, HP-owned brands, and HP brand-licensed products, including parts, materials, components, and packaging incorporated into such products. Non-HP brand products are products sold, leased, and marketed by HP, but that do not meet the definition of HP brand products. Non-HP brand products must meet or exceed the applicable legal requirements in each country in which these third-party products will be sold, leased, or marketed.



This standard is specific to materials that are considered packaging used for selling or shipping HP brand products. Typically, this includes materials that market, identify, and/or protect the product, but are not part of the product during normal use. Packaging inks, adhesives, coatings, and other substances incorporated into packaging are also in scope of this standard.

This standard, HP Standard 011-02 General Specification for the Environment (GSE)—Packaging Requirements, is a component of HP's General Specification for the Environment (GSE). The GSE consists of the following standards:

- [HP Standard 011-00 GSE—Overview \(HX-00011-00\)](#)

Requirements that apply to all products:

- [HP Standard 011-01 GSE—Substances and Materials, All Products \(HX-00011-01\)](#)
- HP Standard 011-01A GSE—Substances and Materials, Future Requirements (HX-00011-01A)\*
- HP Standard 011-01B GSE—Substances and Materials, Business-Specified Requirements (HX-00011-01B)\*
- [HP Standard 011-02 GSE—Packaging Requirements \(HX-00011-02\) \(the current document\)](#)
- [HP Standard 011-06 GSE—Manufacturing Process Substances Requirements \(HX-00011-06\)](#)

Requirements that apply to specific types of products

- HP Standard 011-11 GSE—Product requirements, EEE (HX-00011-11)
- HP Standard 011-12 GSE—Requirements for Batteries and Battery Containing Products (HX-00011-12)
- HP Standard 011-13 GSE—Requirements for Soft Goods and Other Non-EEE (furniture, wooden products, clothing, etc.) (HX-00011-13)
- HP Standard 011-14 GSE—Requirements for Chemicals and Formulated Products (HX-00011-14)
- HP Standard 011-15 GSE—Requirements for Print Media (HX-00011-15)
- HP Standard 025-01 Supplemental Environmental Specification—Commodity and Component (HX-00025-01)\*



\*The restrictions in HP Standard 011-01A apply globally on the future effective date provided unless an HP business requires an earlier effective date. The restrictions in HP Standard 011-01B are applicable only when and as specified by an HP business. HP Standard 025-01 is applicable to parts and components in scope of the standard.

### 3 General Packaging Requirements

The restrictions specified in this section apply to all packaging used for selling or shipping HP brand products.

#### 3.1 Restricted Substances and Materials

Materials and substances otherwise restricted by the GSE (including in HP Standards [011-01](#), 011-01A, and 011-01B) must not be used in HP packaging. Further restrictions applicable to packaging are found in Table 1.

**Table 1: Restricted Substances and Materials**

Substances	Restriction <sup>1</sup>
Chlorofluorocarbons (CFCs) and hydrochlorofluorocarbons (HCFCs), ozone depleting substances, and fluorinated greenhouse gasses	CFCs, HCFCs, ozone depleting substances, and fluorinated greenhouse gasses listed in the GSE (including in HP Standards 011-01, 011-06, and 011-13) shall not be used in or for the manufacturing of plastic foam packaging materials (for example, as a foam blowing agent).
Methyl bromide	Methyl bromide sterilization shall not be used on wood packaging.
Carbon Disulfide	Carbon disulfide shall not be used in the treatment of wood packaging materials.

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<sup>1</sup> The threshold limit is the maximum concentration value allowed, reported as ppm by weight in homogenous material, unless otherwise specified. "Not intentionally added" means that the substance is not used in a product; it is only incidentally present if it occurs at all.





Table 1: Restricted Substances and Materials

Substances	Restriction <sup>1</sup>
Heavy metals	Packaging materials and inks used to print on packaging shall not contain intentionally added lead, mercury, cadmium, or hexavalent chromium. The sum concentration of incidentally present <sup>2</sup> lead, mercury, cadmium, and hexavalent chromium shall not be greater than 0.01% (100 ppm) by weight.
Polyvinyl Chloride (PVC) and Polyvinylidene Chloride (PVDC)	Packaging materials and inks used to print on packaging shall not contain intentionally added PVC or PVDC. This restriction does not apply to protective tape covers with a surface area equal to or less than 15 square centimeters (2.35 square inches) or weighing less than 1 g (0.035 oz.).
Chlorine	Elemental chlorine shall not be used as a bleaching agent to bleach virgin or recovered content fiber used in paper-based and fiber-based packaging, including in-box documentation.
Phthalates	All phthalates that are esters of phthalic acid and contain two carbon chains located in the ortho position including, but not limited to, DEHP, BBP, DBP, and DIBP shall not be used in packaging individually or in any combination in concentrations greater than 0.01% (100 ppm) by weight in any homogeneous material.  See HP Standard 011-01B for a list of phthalates and additional phthalate restrictions.

<sup>2</sup> Incidentally present means occurring as unavoidable impurities or unintentional trace contaminants; such incidentally present material is not intentionally added.



Table 1: Restricted Substances and Materials

Substances	Restriction <sup>1</sup>
Cobalt dichloride	Packaging materials and inks used to print on packaging shall not contain intentionally added cobalt dichloride (typically used in silica gel desiccants and humidity indicators).
Expanded polystyrene	The use of expanded polystyrene is prohibited.
Expanded polyethylene	The use of expanded polyethylene is prohibited.
Polybrominated Diphenyl Ethers (PBDEs)	In addition to the requirements for all products related to PBDEs in HX-00011-01, PBDEs shall not be intentionally added in HP packaging materials. If incidentally present <sup>2</sup> , PBDEs shall not be present above 500 ppm.
Mineral Oil Aromatic Hydrocarbons (MOAH)	In ink on packaging and in-box paper, the sum of MOAH compounds with: <ul style="list-style-type: none"> <li>- 3-7 aromatic rings shall be at most 1 ppm; and</li> <li>- 1-7 aromatic rings shall be at most 1000 ppm.</li> </ul>
Mineral Oil Saturated Hydrocarbons (MOSH)	In ink on packaging and in-box paper, the sum of incidentally present MOSH shall be at most 1000 ppm.
Oxo-biodegradable plastic	Oxo-biodegradable plastics <sup>3</sup> shall not be used in HP product packaging.

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<sup>3</sup> Oxo-biodegradable plastics are defined as polymers such as PE (polyethylene), PP (polypropylene), and PS (polystyrene) containing extra ingredients (metal salts) and tested according to ASTM D6954 or BS8472 or AFNOR Accord T51-808 to degrade and biodegrade in the open environment from oxidation.



Table 1: Restricted Substances and Materials

Substances	Restriction <sup>1</sup>
Fluorinated compounds	Per- and polyfluoroalkyl substances (PFAS) <sup>4</sup> shall not be intentionally added to packaging or packaging components. Total fluorine present in any packaging components shall not exceed 100 ppm by weight.

## 3.2 Packaging Material Requirements

### 3.2.1 Recyclable Materials

All materials used in the packaging systems must be recyclable<sup>5</sup>, except where approved by HP. HP recommends choosing materials in which recycling systems are readily available. All uses of expanded polystyrene and expanded polyethylene are prohibited.

### 3.2.2 Plastic Packaging

Suppliers should aim to reduce plastic packaging components whenever possible. HP's preference is for fiber-based alternatives due to their higher amounts of recycled content and higher recycling rates worldwide.

### 3.2.3 Separable Packing Materials

Packaging components weighing greater than 25 g shall be separable from other packaging components made of dissimilar materials without the use of tools once the product is removed. An example of a method that is not acceptable includes using permanent glue or adhesives to attach foam cushions to corrugated fiberboard.

Plastics shall be separable from each other based on their marked resin identification code. Exceptions include:

- Plastic bags (or wrap) affixed with paper labels that meet either of the following criteria:
  - Combined weight of single bag (or wrap) and label is < 25 g
  - Surface area of label is < 50 cm<sup>2</sup>
- Pallets or pallet assemblies
- Tape, glue, or staples used to construct or close a container

<sup>4</sup> PFAS are defined as substances containing at least one fully fluorinated carbon atom

<sup>5</sup> As defined by the Federal Trade Commission (FTC)



### 3.2.4 Multi-layer packaging

Use of multi-layered plastic packaging<sup>6</sup> is not allowed in HP product packaging unless the packaging is integral to the functionality of the product and there exists no readily available alternatives. If this is the case, technical design documents must be on hand to justify necessity and lack of viable alternatives.

### 3.2.5 Sustainable Fiber Sourcing

All HP brand paper, fiber-based or paper-based product packaging<sup>7</sup>, and wood<sup>8</sup> used in HP products must be derived from certified or recycled sources. These materials must meet one of the following criteria:

- 1) Chain-of-custody certified and carry the certification label.
- 2) Chain-of-custody certified from the source at least through the converter. This material must be accompanied by the appropriate documentation, for example, invoice or bill of lading, with certification information noted as applicable per a certification standard.
- 3) Made of recycled content, which is to be verified by an independent third party in accordance with the applicable industry standards.

FSC-certified fiber is preferred. PEFC certification or relevant national certification schemes that comply with our [Sustainable Paper and Wood Policy](#) can be used in regions where they are recognized to not accept forest conversion, are endorsed by competent independent stakeholders, and ensure a reliable guarantee of responsible sources.

HP partners and suppliers shall maintain documentation and report annually the total annual tonnage of certified and recycled content per certification scheme.

### 3.2.6 Wood, Paper, and Other Plant-based Packaging Sourcing Requirements

Packaging must not contain any wood, paper, or plant-based material that was illegally sourced from its country of origin. Examples of illegally sourced materials include, but are not limited to, wood or wild plant materials stolen from parks, reserves, or other protected areas; materials harvested without permission or contrary to applicable harvesting regulations; materials for which the applicable royalties, taxes, or fees were not paid; and materials exported in violation of log or other export bans.

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<sup>6</sup> Multi-layered plastic packaging is defined as any material used for packaging and having at least one layer of plastic as the main ingredient in combination with one or more layers of materials such as paper, paper board, other plastic polymers, metalized layers, or aluminum foil, either in the form of a laminate or co-extruded structure.

<sup>7</sup> The requirement for all fiber-based and paper-based product packaging to be derived from certified and recycled sources applies to the box that comes with the product and all paper (including packaging and materials) inside the box.

<sup>8</sup> Wood was added to the commitment in 2019 due to wood now being used in some HP products.



To meet the due diligence requirements of wood and plant-derived product regulations, suppliers must: 1) Commit to using only legally-sourced wood and plant materials for products and materials supplied to HP; 2) Determine the country of origin and genus and species of wood and plant-derived materials; and 3) Maintain and make available records that verify the legal origin of plant materials, as set forth in the Supplier Verification section of [HP Standard 011-00](#). The worldwide requirements in this paragraph address the requirements of the following regulations: [U.S. Lacey Act](#) Amendments of 2008 (codified at 16 U.S.C. §§ 3371-3378) effective 22-May-2008; the [EU Timber regulation](#) (Regulation (EU) No 995/2010) effective 20-Oct-10; and the [Australian Illegal Logging Prohibition Act](#) (No. 166, 2012) effective 29-Nov-12.

### 3.2.7 Recycled Content

HP requires that suppliers ensure that the recycled content of all fiber-, wood-, and paper-based packaging stock supplied to HP for a single packaging component or part has a minimum average of 35% recycled content over the life of an HP product. For example, if a corrugated cardboard box is supplied for a certain notebook, the average recycled content of all corrugated cardboard boxes supplied to HP for that product shall be a minimum of 35%.

The following shall be excluded from the calculation of total recycled fiber-based packaging:

- Labels with surface area less than 50 cm<sup>2</sup>
- Tape, glue, or staples used to construct or close a wood-based fiber container
- Pallets or pallet assemblies

When specifying recycled content in fiber-, wood-, and paper-based packaging, HP prefers the uses of post-consumer recycled content. It is understood that recycled content may vary from batch to batch for fiber-, wood-, and paper-based packaging. Recycled content is to be certified or verified by an independent third-party in accordance with the applicable industry standards.

**Table 2. Fiber-based Packaging Recycled Content Thresholds**

Category	Total recovered fiber content: pre- and post-consumer (% by weight)
Paperboard	80%
Corrugated fiberboard	35%
Solid fiberboard	40%
Spiral wound tubes	90%



Where plastic packaging is needed and where HP has expressed approval of plastic use, suppliers should aim to utilize high amounts of recycled content in the following materials.

**Table 3. Plastic-based Packaging Recycled Content Thresholds**

Category	Total pre- and post-consumer recycled content (% by weight)
Rigid Plastic Packaging Containers <sup>9</sup> (RPPCs)	25% post-consumer (see below for alternative criteria)
Plastic packaging	20% (30% by 2028)
Polyethylene terephthalate (PET)	25%

#### 3.2.7.1 RPPC recycled content criteria alternatives:

If an RPPC meets one of the following requirements, it is also compliant:

- Refillable or reusable at least 5 times for same or similar purpose
- Source reduced 10% package to product weight ratio versus similar and/or older packaging
- The RPPC must be recycled at a 45% recycling rate (demonstrated by industry to enforcement agency)

#### 3.2.8 Bio feedstock requirements

Packaging that contains bio feedstocks used to make plastic polymers, bio polymers, or any other bio-based material added to packaging shall be subject to the requirements of this section.

Bio feedstocks sourcing criteria:

- 1) Bio feedstocks from waste products (second generation) or non-traditional organisms (third generation, such as algae) are preferable to virgin bio feedstocks.
- 2) If virgin bio feedstocks are used, then the feedstocks must be credibly certified to ensure they are legal, renewable, and sustainably grown without impacting regional food security, land use practices, or critical ecosystems.
- 3) Life Cycle Assessment (LCA) compliant with ISO 14044:2006 must be performed that shows the bio-based material is less impactful than what it's replacing.
- 4) Must be in compliance with the substance restrictions in section 3.1 of HX-00011-02

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<sup>9</sup> An RPPC is defined as a container that is entirely made of plastic, has a relatively inflexible shape or form, is capable of at least one closure (including closure during the manufacturing process), and has a minimum capacity or volume of eight ounces up to a maximum of five gallons. Containers are exempted if they include any type of electronic parts or are manufactured for use in the shipment of hazardous materials and are prohibited from being manufactured with used material by federal packaging material specifications and testing standards.



HP partners and suppliers shall maintain credible chain of custody certifications from farm/forest/waste process to final product to ensure the above requirements are met. HP has a preference for the following certifications as recommended by the Bioplastic Feedstock Alliance:

- Bonsucro Production Standard – Sugarcane
- Forest Stewardship Council – Wood & Tree-based Products
- Roundtable on Sustainable Palm Oil (RSPO) – Palm Oil
- Roundtable on Responsible Soy (RTRS) – Soy
- Roundtable on Sustainable Biomaterials – Other Feedstocks

ISCC certification is acceptable if the feedstock is evaluated to ensure it meets HP's criteria or the bio feedstock is derived from waste materials (bio-circular).

Bio feedstocks end-of-life criteria:

- 1) HP prefers all bio-based packaging to be fully biodegradable, meeting the TÜV marine, water, and soil biodegradability certifications (or equivalent standards). Compostable materials that meet the TÜV OK Home Compost certification (or equivalent standards) may be accepted if fully biodegradable materials don't meet HP's quality or performance requirements. We do not accept bio-based packaging materials that only meet industrial composting standards. All requirements of these certifications or standards must be met including, but not limited to:
  - Must be biodegradable within the time periods specified.
  - Must not break down into microplastics.
  - Must not contain restricted substances.
- 2) HP prefers for all bio-based packaging to be completely derived from bio feedstocks and to not contain petroleum-derived materials. Bio content shall be verified through the TÜV OK biobased certification (or equivalent standards).

Documentation shall be provided to HP upon request that verifies that the materials meet the above requirements.

### 3.3 Primary/Secondary Packaging

When possible, products should be shipped in their primary sales packaging<sup>10</sup> to avoid excessive packaging material use. There are some exceptions:

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<sup>10</sup> Primary sales packaging is defined as packaging that is included in a sales unit to the final user or consumer at the point of purchase.



- If the original primary packaging would not survive the prescribed distribution channel, then secondary packaging, or overpacking, is allowed in the form of boxes or cartons used to protect products in their primary package during transportation and distribution. If used, the volume of the secondary packaging must be less than or no more than two times the volume of the primary package of the item or items.
- An exemption may also be granted to allow secondary packaging when the primary package graphics may pose a risk of theft. The exemption must be SKU specific and must be documented and approved by the approving packaging authority. Copies of this documentation must be held by the approver and the requester, as set forth in the Supplier Verification section of [HP Standard 011-00](#). The secondary packaging size restriction identified above continues to apply.
- Items suitable for shipment in an envelope or padded envelope and which do not require a box for protection against shipping damage should not be packed in a box and must use an envelope.

### 3.4 Country-Specific Packaging Regulations

#### 3.4.1 India

Under the Plastic Waste Management Rules, 2016, plastic packaging used as part of the primary sales packaging<sup>10</sup> in India shall be at least 50 µm in thickness. Exemptions include where the plastic sheet is essential to the functionality of the product or where the increased thickness of the plastic sheet impairs the functionality of the product.

#### 3.4.2 Korea

Korea requires a certification for recyclability of all types of plastic packaging including films and sheets (e.g., plastic bags), foam (e.g., expanded polystyrene foam), and other synthetic resin packaging material (e.g., containers and trays). All HP products that use plastic packaging are in scope of this requirement.

The certification shall be completed before first import of product that uses each type of plastic packaging listed in Table 4. Certification requires submission of either evaluation report issued by accredited test labs in Korea or manufacturer's self-evaluation result with supporting documents including MSDS or material test report.

HP businesses and suppliers who plan to use a new type of plastic packaging must check if the packaging is covered by existing certification and complete certification if it is confirmed as not covered by existing certifications which is listed in Table 4.





**Table 4. Korea Packaging Recyclability Evaluation Criteria**

Type of Material	Example	Easy to Recycle	Normal to Recycle	Difficult to Recycle (If meets any of the following)
Foam Type	EPS, EPE, EPP, etc.	White color and single material Note: Black color for EPE and EPP is accepted if recycled content is used.	<ul style="list-style-type: none"> <li>Black color EPE and EPP if recycled content is used</li> <li>Multiple materials that are manually separable</li> </ul>	<ul style="list-style-type: none"> <li>Other than white color</li> <li>Multiple materials that are not manually separable</li> </ul>
Film/Sheet Type	LDPE/HDPE bag, film, bubble wrap, etc.	Any material not evaluated as either Normal to Recycle or Difficult to Recycle	<ul style="list-style-type: none"> <li>Composite with resin materials</li> <li>Biodegradable plastics</li> <li>Have a label that is separatable but no consumer instruction to remove label appropriately</li> </ul>	<ul style="list-style-type: none"> <li>Packaging material with label made of non-plastic that is not easily separable manually (example: PE bag with paper label)</li> <li>PVC and PVDC material</li> </ul>
Container, Tray, and Other Type	Tray, blister, clamshell, etc.	Any material not evaluated as either Normal to Recycle or Difficult to Recycle	<ul style="list-style-type: none"> <li>Composite with resin materials</li> <li>Biodegradable plastics</li> </ul>	<ul style="list-style-type: none"> <li>Packaging material with label made of different material that is not manually separable</li> <li>PVC and PVDC material</li> </ul>

Plastic packaging material that is certified as “Difficult to Recycle” shall have a marking indicating such. See Section 4.3.2 of HP Standard 011-02 for more details on this marking requirement.

**Table 5: Korea Packaging Recyclability Certification Status (as of Oct 2023)**

Packaging Type	Evaluation Criteria	Certification Result
Film, sheet, bag	<ul style="list-style-type: none"> <li>Packaging material made of mix with plastic and non-plastic material (e.g., black carbon bag); or</li> <li>Packaging material with paper (or other than the same material as body) label that is not easily removable manually</li> </ul>	Difficult to Recycle

Film, sheet, bag	<ul style="list-style-type: none"> <li>• Packaging material with no paper label including packaging material with plastic label</li> </ul>	Easy to recycle
Container, tray, bottle	<ul style="list-style-type: none"> <li>• Packaging material with paper sticker that is not easily removable manually (e.g., ink bottle)</li> </ul>	Difficult to Recycle
Container, tray, bottle	<ul style="list-style-type: none"> <li>• Single material PP, PS, PET without paper sticker</li> </ul>	Easy to Recycle
Foam	<ul style="list-style-type: none"> <li>• Single material EPS, EPE, EPP in white color; or</li> <li>• Single material EPE, EPP in black color with recycled content</li> </ul>	Easy to Recycle <small>(Note: Black EPE and EPP are Normal to Recycle)</small>
Foam	<ul style="list-style-type: none"> <li>• Packaging material made of mix with multiple plastic or non-plastic material; or</li> <li>• Packaging material in non-white color except black color for EPE and EPP (e.g., pink EPE foam)</li> </ul>	Difficult to Recycle

Korea restricts excessive packaging. The rule applies to the following accessory products that are sold separately: mouse, earphone, headset, blue tooth speaker, and cable (such as USB cable). Products that weigh greater than 300 grams are excluded from the scope of the requirement. Products in scope must meet both requirements below:

1. Must not have more than two layers of packaging.
2. Empty space in the packaging box must be no bigger than 35% of the whole packaging box volume.

Example:



**Figure 1**

This mouse product is wrapped in a PE bag and packaging in a paper box. Thus, it meets the first requirement.

Dimension of the paper box is 165 x 100 x 55 mm. or volume of 907.5 cm<sup>3</sup>. Total volume of product including mouse body, code, and manual is 640 cm<sup>3</sup>, thus the amount of empty space in the packaging box is 29.5%:

$$(907.5-640) / 907.5 = 29.5\%$$



So, the product meets the 2<sup>nd</sup> requirement.

Note that the Korean regulation allows allowances in calculating volume of packaging and product. Refer to the [Korean regulation](#) or your HP contact for more details on measurement and calculation.

### 3.4.3 China

China has requirements to limit the Volatile Organic Compounds (VOCs) and restrict hazardous substances for materials in scope (e.g., coatings, adhesives, etc.) that are manufactured in or imported into China or applied to packaging in China. Printing ink, coatings, adhesives, and cleaning agents applied to packaging in China must meet the requirements in the following standards:

- GB 30981-2020 Limit of harmful substances of industrial protective coatings - Implementation date December 2020
- GB 33372-2020 Limit of volatile organic compounds content in adhesives - Implementation date December 2020
- GB 38508-2020 Limit of volatile organic compounds content in cleaning agents – Implementation date December 2020
- GB 38507-2020 Limit of volatile organic compounds content in printing inks – Implementation date April 2021

For more details regarding the requirements, see [HP Standard 011-06 Manufacturing Process Substance Requirements](#).

### 3.4.4 Brazil

Brazil requires a declaration for wooden packaging exported, imported, transshipped, and in transit cargos (passage) through Brazil. The declaration requires the following information:

1. Is there wooden package? YES or NO
2. What kind of wooden package?
  - a. Wooden Package Material: Treated and Certificated (treated material and/or fumigated with certification)
  - b. Wooden Package Material: Processed (processed material)
  - c. Wooden Package Material: Not treated and Not Certificated (not treated material and/or fumigated with certification)

### 3.4.5 France

The France Mineral Oil law bans mineral oils in inks used to print on packaging and in-box paper materials at the following mass concentrations:



- The sum of MOAH (Mineral Oil Aromatic Hydrocarbon) compounds with 3-7 aromatic rings at greater than 1 ppm and the sum of MOAH compounds with 1-7 aromatic rings at greater than 1000 ppm.
- The sum of MOSH (Mineral Oil Saturated Hydrocarbon) at greater than 1000 ppm.

#### 4 Packaging Labeling Requirements

The labeling requirements specified in this section apply to all packaging used for selling or shipping HP brand products. Additional product labeling requirements that may affect packaging can be found in the HP Standard 011-11 and HP Standard 011-12.

Table 6 summarizes the packaging labels applicable to HP products. More information can be found about each label in the corresponding section.

Table 6. Packaging Label Summary






Name	Intent	Label Example
<a href="#">General Material Code</a>	Identification of material types for in scope packaging	
<a href="#">Japan</a>	Sorting label for paper and plastic packaging	
<a href="#">Korea</a>	Identification of plastic material types for in scope packaging	
<a href="#">Taiwan</a>	Identification of containers that can be recycled	



Table 6. Packaging Label Summary

Name	Intent	Label Example
<p><a href="#">France Triman and Spain Sorting instruction</a></p>	<p>To assist customers on how to dispose of their packaging and product at end-of-life</p>	
<p><a href="#">India</a></p>	<p>Identifies thickness of plastic packaging</p>	<p>For products produced in India –</p> <p>HP Inc                      EPR Registration No: BO-16-000-07-AAACC9862F-22                      (Under India Plastic Packaging Waste Mgmt Rules, 2016, as amended)                      Plastic packaging thickness: XX mm (note that this can be written as an exact number or a range)</p> <p>For products imported to India –</p> <p>HP Inc                      Importer EPR Registration No: IM-31-000-01-AAACC9862F-23                      (Under India Plastic Packaging Waste Mgmt Rules, 2016, as amended)                      Plastic packaging thickness: XX mm (note that this can be written as an exact number or a range)</p>

Table 6. Packaging Label Summary

Name	Intent	Label Example
<a href="#">Italy</a>	To assist customers on how to dispose of their packaging at end-of-life	

#### 4.1 General Material Coding

The following coding requirements are required on in scope materials. There may be additional marking requirements for country specific labelling (See Section 4.3 for details)

##### 4.1.1 In Scope Materials

Where the materials listed in Table 7 are used in packaging, the applicable coding is required to be embossed or marked on all packaging components.

##### 4.1.2 Out of Scope Materials

- Packaging with the largest surface being less than 25 cm<sup>2</sup>
- Packaging with a volume capacity of less than 125cm<sup>3</sup>
- Plastic protective and stretch wrapping
- Packaging pieces such that the shape or surface makes marking problematic
- Tape
- Labels
- Small plastic bags and bubble bags 128 mm (5 in) by 178 mm (7 in) or smaller, not printed with other information
- Paper-based and fiber-based packaging components, such as corner boards, corrugated inserts, slipsheets, and so forth that are not marked in any way with other information

##### 4.1.3 Label Examples, Requirements, and Implementation Guidance

The following requirements must be met:

- The Code must be printed, molded, or embossed on the packaging and must be durable, clear, and legible, including when the packaging is opened. The abbreviations must appear in capital letters.



- The symbol, not including the lettering, must be between 1.27 cm (0.5 in) and 2.54 cm (1.0 in) in height. Smaller symbols are permitted when the part size does not allow the above minimum sizes requirements to be met.
- The Code must be placed in an inconspicuous location on the packaging component, such as the bottom or the back.
- The term “recyclable” or other environmental claims must not be placed in proximity to the Code.

For composite packaging (defined as packaging made of different materials which cannot be separated manually and none of which exceeds a share of 95 percent by weight), the material codes are listed in Table 7 and the abbreviation is “C/” plus the abbreviation for the predominant material. For example, the material code “90” and abbreviation “C/PET” is the appropriate marking for a composite that is predominantly Polyethylene Terephthalate (PET) with a layer of aluminum.

Note that the material abbreviation “Other” (material code “7”) should only be used when the material in question is made from a polymer chemistry not described by codes 1-6. However, material code “7” should not be used for a single plastic sheet containing two or more layers of different plastic polymers.

For a single plastic sheet containing at least two layers of different plastic polymers, the appropriate material code is that of the predominate plastic polymer, as listed in Table 7. Likewise, the applicable material abbreviation is that of the predominate plastic polymer (as listed in Table 7) followed by “+” to indicate additional plastic types. For example, the material code “4” and the abbreviation “LDPE+” would be used for a plastic sheet made of predominately Low Density Polyethylene (LDPE) with small amounts of other plastic polymers, such as nylon or PET.

**Table 7. Packaging Material Identifications Codes and Abbreviations**

Material	Abbreviation	Number
Plastics		
Polyethylene Terephthalate	PET	1
High Density Polyethylene	HDPE	2
Low Density Polyethylene	LDPE	4
Polypropylene	PP	5



Table 7. Packaging Material Identifications Codes and Abbreviations

Material	Abbreviation	Number
Polystyrene	PS	6
Other resins	OTHER	7
Paper		
Corrugated fiberboard	PAP	20
Noncorrugated fiberboard	PAP	21
Paper	PAP	22
Metals		
Steel	FE	40
Aluminum	ALU	41
Wood		
Wood	FOR	50
Cork	FOR	51
Fabrics		
Cotton	TEX	60
Jute	TEX	61
Glass		
Glass clear	GL	70
Glass green	GL	71
Glass brown	GL	72
Composite Packaging		
Paper and cardboard/miscellaneous metals	C/XXX	80
Paper and cardboard/plastic		81



Table 7. Packaging Material Identifications Codes and Abbreviations

Material	Abbreviation	Number
Paper and cardboard/aluminum		82
Paper and cardboard/tinplate		83
Paper/cardboard/plastic/aluminum		84
Paper and cardboard/plastic/aluminum/tinplate		85
Plastic/aluminum		90
Plastic/tinplate		91
Plastic/miscellaneous metals		92
Glass/plastic		95
Glass/aluminum		96
Glass/tinplate		97
Glass/miscellaneous metals		98

#### 4.2 Pallet Treating and Marking

Except when designated by HP for domestic use solely within the country of origin, or where the shipping entity has specifically determined that the country of destination will accept untreated pallets, all packaging and pallets made of wood must be treated and marked in accordance with the provisions of the International Standard for Phytosanitary Measures (ISPM) #15: *Guidelines for Regulating Wood Packaging Material in International Trade*.

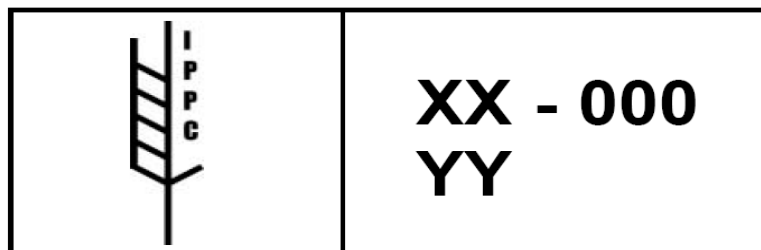


Figure 2

The mark must include the following:

- IPPC symbol



- ISO two-letter country code followed by a unique number assigned by the National Plant Protection Organization (NPPO) to the producer of the wood packaging material, who is responsible for ensuring appropriate wood is used and properly marked
- The IPPC abbreviation for Heat Treatment (HT)

**Note:** Methyl bromide (MB) fumigation is not allowed as stated in Section 3.1

### 4.3 Country-Specific Labeling

The following countries have specific labeling requirements that must be met, in addition to the requirements identified in other sections of this document. Suppliers are required to comply with all applicable labeling laws whether they are expressly included in this standard.

#### 4.3.1 Japan

##### 4.3.1.1 In scope materials

[Material identification marks](#) are mandatory on paper and plastic containers and packaging of products. Marks are mandatory on packaging of products intended for household use and for packaging of products intended for both household and business customers.

##### 4.3.1.2 Out of Scope materials

The following (1-5) are out of scope of this marking requirement:

1. Packaging made of corrugated cardboard
2. Packaging that is meant for transportation only (e.g., from factory to distributors) and not to be discarded by an end user of the product (e.g., master carton)
3. Bands and tapes that cover one half or less of the surface area
4. Packaging which does not become unnecessary when removed from the contents or which are a part of the merchandise (e.g., CD sleeve)
5. Envelopes containing letters and direct mail because letters and direct mail are NOT considered as product under this law. However, packaging used to package products documentation (e.g., user guides, manuals) is in scope.

The following (1-3) are exempt from this marking requirement:

1. Any packaging that has no existing printing, embossing, or labelling
2. Packaging that is too small (less than 50 cm<sup>2</sup>)
3. When marking is impossible due to the material, shape, or for other unavoidable reasons.

In the case of a packaging system that consists of multiple separable components that are to be discarded almost at the same time by an end user (such as outer box, cushion, bag, keyboard sheet), if it is impossible to directly put a mark on any of the components for any of above reasons, there's no obligation to put a mark. However, if marking is possible on one of these



components, the collective marking must be applied (See the later paragraph how to do the collective marking).

If there is an inseparable packaging component made of composite material, the mark of the heaviest material must be used.

#### 4.3.1.3 Label Examples, Requirements, and Implementation Guidance

The mark design is shown in the Table 8.

**Table 8: Japanese Paper and Plastic Mark Design**

Packaging Material	Examples	Obligation for Applying Marking	Marking Details	Label Size
Plastics	EPS Foam, LDPE/HDPE Films, PP Blister Pack, etc.	Required for all Plastics Packaging		6 mm or more (printed) 8 mm or more embossed
Paper	Paperboard, Spiral Wood Tubes, Molded Fiber /Pulp Cushion, etc.	Require for all Paper Packaging except corrugated cardboard		

The color, line width, slit, frame, and decoration of individual mark can be freely selected if they are clearly legible and easily identifiable.

There are two ways to apply the marks (see Figure 3). The supplier or BU is required to do just one of them. There is no penalty of doing both, as long as they are implemented properly.

1. Direct marking:
  - a. This is the clear preference from HP's standpoint. Directly put the marks on each packaging component in scope such as a cushion and a bag respectively. In this case, only put the marks without any text.
  - b. If it cannot be 100% guaranteed that all suppliers have done the direct marking on each component in scope inside of the box, it is recommended to supplement it with the collective marking.
2. Collective marking:



- a. Alternatively, if the packaging system consists of multiple separable components that are to be discarded almost at the same time by an end user of the product, marks may be collectively put on the surface of one of the components (e.g., outer box, but not limited to it).
- b. In this case, the names of components in scope shall be indicated in Japanese near the respective marks such as under or next to the marks in a clearly legible and easily identifiable font. Font size must be 2.108 mm or larger for printed or labelled marking and 2.811mm or larger for embossed marking.
- c. If the supplier or BU chooses to do collective marking, they cannot include marking for items that will not be present in the box, to avoid confusions to customers.

As a reference, Table 9 has examples of typical Japanese texts that can be used for collective marking. Note: There is no mandatory list of texts that must be used.

Table 9. Material translation into Japanese

Japanese texts	Translation
緩衝材	Cushion
袋	Bag
箱	Box
シート	Keyboard cover (sheet)
フィルム	Film
パウチ	Pouch

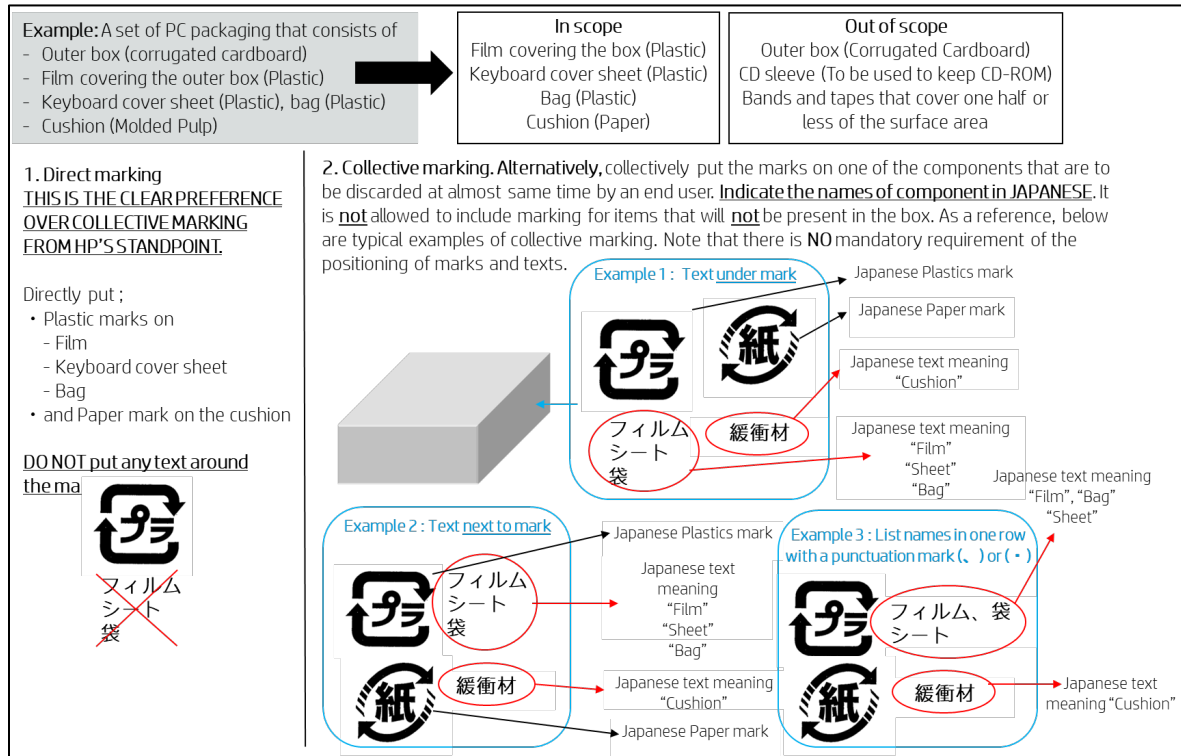


Figure 3. Japan recycling mark examples

### 4.3.2 Korea

Korea requires material identification marks for all types of plastic packaging. The Korean logo may be displayed along with the General Material Coding described in Section 4.1.

#### 4.3.2.1 In scope materials

All HP products are in scope of this requirement. However, the regulation strictly applies ONLY to the packaging material in scope, and the logo must NOT be applied on materials not in scope of the regulation such as paper box and molded pulp. (See Table 10)

#### 4.3.2.2 Out of Scope materials

- Packaging materials whose surface is less than 50 cm<sup>2</sup> (7.75 in<sup>2</sup>).
- Plastic sheets and film with a surface area less than 100 cm<sup>2</sup> (15.5 in<sup>2</sup>). Plastic bags are included in the scope of plastic sheet and film. Example for bags: A 6 cm wide x 10 cm tall bag that uses 120 cm<sup>2</sup> plastic film, exceeding the 100 cm<sup>2</sup> limit, must be marked unless otherwise exempt.



- Packaging components with a volume less than 30 milliliters (1.01 fl. oz.) or a capacity less than 30 grams (1.06 oz.) measured by weighing the amount of water that the container can hold.
- Packaging material on which it is technically difficult to print, engrave, or label due to elements or structural properties.
- Plastic film or sheet packaging materials with a thickness less than 20 microns ( $\mu\text{m}$ ).
- Plastic bags, plastic sheet, and plastic film packaging materials that do not have any printing, engraving, embossing, or labeling.
- Packaging which is not discharged by end user but collected and discharged by manufacturer (for example, packaging of service parts which is collected by customer service engineer).

#### 4.3.2.3 Label Examples, Requirements, and Implementation Guidance

The design consists of the triangular recycling symbol, text inside the symbol, and text below the symbol. Text inside the symbol is the material type name and it must be written in Korean. The text below the symbol is the material composition name and it should be written in English. For more details on the text, refer to the Table 10.

**Table 10. Korean Packaging Label Text**

Korean Text Inside Symbol (Material type name)	Translation	Color of the symbol (optional)	Text below the symbol (Material composition name)
비닐류	Film and plastic sheets	Purple	HDPE, LDPE, PET, PP, PS, PVC, OTHER <sup>11</sup>
플라스틱	Plastics*	Blue	

\*Applied to all forms of plastic packaging material except film sheet types or transparent PET, including foam cushion, tray, and bottle cap.

Design details:

- The official artwork file is publicly available to download.

<sup>11</sup> "OTHER" as material composition name is used for plastics other than HDPE, LDPE, PP, PS, PVC, or plastics that consist of more than two plastic compositions, or plastics with other material (for example, metal) coated or attached.



- The triangular recycling symbol (excluding the “material name” text below it) must be larger than 8 mm in width and length.
- The Material type name inside the symbol must be written in Korean. The Material composition name below the symbol must be written in English.
- The extension of each side of the symbol is a regular triangle, whose inside angle is 60° and outside angle at the bended part of the arrow’s end is 120°.
- Given that the width of the symbol line is “A”, the height of the inside text is: 2.4A if the length of the inside text is 2 in Korean character (PET, can, paper, glass), 2.35A if the length of the inside text is three (film and sheet type plastic, paper pack), and 2.2A if the length of the inside text is four (plastic). And the space between the symbol and material composition text is 0.6A.
- The color of the symbol must be distinct from other colors used on the packaging, to make the symbol clearly visible (this is not applicable to engraved or embossed labels). The mark can be printed in a single color. If the mark is printed in multiple colors, it is recommended to use the designated color for the symbol according to the material type name (see the note that follows), which is listed in Table 10. Examples of the marks using the designated color are illustrated in Figure 4.
- The label is to be located on the front or side flank or around the barcode of the component, unless it is impossible, in which case the mark could be located on the bottom or lid of the package.
- NOTE: The color for material type is defined in another Ministry directive providing guideline on design of separate discharge container for recyclable material. The intention of the recommendation on the color use is to match the colors of the container and the symbol.
- Any plastic packaging certified as “Difficult to Recycle” by the Korean government must have an additional marking for this certification result. See Section 3.4.2 for more details on the Korea Recyclability Certification for Packaging Material.
- Figure 5 shows an example of a marking for film/sheet type packaging made of HDPE that may have a paper label and would therefore be certified as “Difficult to Recycle”. The additional marking for this certification result is a Korean text meaning “difficult to recycle”, which must be placed right above or below Korea Separate Discharge Mark. Font height must be same as plastic material name (e.g., HDPE).

### Film and Plastic Sheet



### Plastics (Foam, container, tray, etc.)



Figure 4. Korea Packaging Label Examples.

Below Korea Separate Discharge Mark

Above Korea Separate Discharge Mark

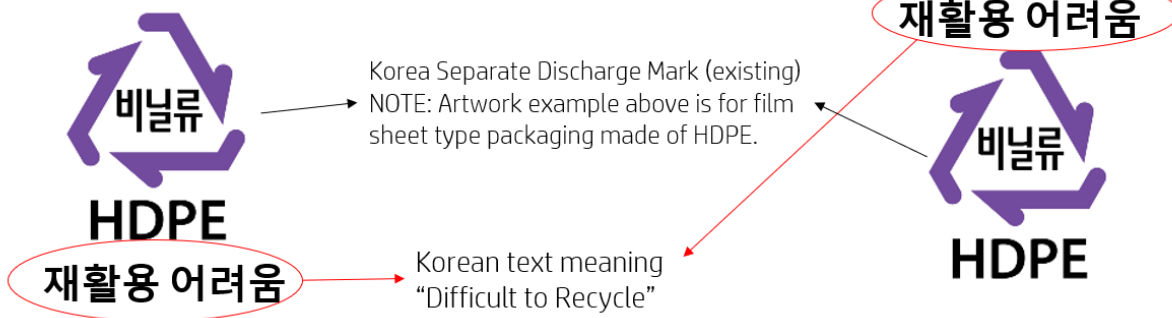


Figure 5. "Difficult to Recycle" Korea Packaging Label Example

### 4.3.3 Taiwan

#### 4.3.3.1 In scope materials

Taiwan requires the use of a four-arrow symbol on all containers that are subject to recycling under the Taiwan Waste Act. This applies to both household and business uses.



Containers are defined as “packaging used to hold materials not in the form of bag, film, cloth, or foil.” Containers refer to packaging made mainly with the purpose of being filled, and that are mainly filled with articles that are not packed in bags, plastic wrap, cloth, foil, etc. The in-scope containers include those used for cleaning agents, coloring agents, pigments, dyes, ink, lubricating oils, lubrication agents, paper tissues, wet wipes, desiccants, etc.

Packaging materials that require this symbol are:

- Aluminum
- Steel (refers to steel sheet)
- Glass
- Paper that is waxed, laminated/coated with plastic, or laminated with aluminum (does not include corrugated or fiber board containers)
- Aluminum Foil Pack (such as Tetra Pak®, paper/aluminum foil/plastic composite)
- Plastics: PET, EPS (for disposable dishware), PS, PVC, PE, PP, or other plastics
- Plant fiber (applies to disposable dishware, does not include corrugated or fiber board containers)

#### 4.3.3.2 Out of Scope materials

Out of scope are containers with a volume of over 17 liters (4.5 gallons) and packaging such as corrugated or fiber board containers, or cushioning materials.

#### 4.3.3.3 Label Examples, Requirements, and Implementation Guidance

The four-arrow symbol must be marked on all in scope containers and packaging sold on the Taiwan market either on the container itself, the inner or outer wrapping, or on the packaging label. The manufacturer must label the packaging correctly and pay the corresponding fees.



Figure 6

#### 4.3.4 France

The France Triman label is made up of two parts: the sorting information and the WEEE and battery information.

#### 4.3.4.1 In scope materials

- Sorting information label: all products and HP-branded media that could end up being used in a household.
- WEEE and battery label: any product that is associated with a device that contains electronic components or batteries. This means that products without a battery or electronic components could be in scope if associated with a device that does contain electronic components or batteries.

#### 4.3.4.2 Out of Scope materials

- Sorting information label: products that are intended for industrial or commercial use.
- WEEE and battery label: products that do not contain electronic components or batteries and are not associated with devices that contain electronic components or batteries

#### 4.3.4.3 Label Examples, Requirements, and Implementation Guidance

Below is an example of the Triman sorting information label:



Figure 7

- The label can be in monochrome.
- The sorting information label must be on the product packaging box in an unobscured location.
- “FR” must be included in the label artwork for products that be ship to countries other than France.
- HP has chosen to implement the sorting information label without wording, although wording can be added to identify packaging components listed on the label.
- The pictograms reflect what packaging is shipped with the product. All product packaging must be captured as a pictogram on the label. The only exception is when there are more than three packaging elements, in which case a shortened version can be used:

Note that by using the shortened version on the product’s packaging, the full version of the label, with all packaging and documentation component pictograms listed, must be implemented into the product’s in-box user documentation.

Below is an example of the WEEE and battery label:



Figure 8

- This label can be in monochrome.
- “FR” must be included in the label artwork if the product is shipped to countries other than France.
- Note that the sentence “cet appareil se recycle” is dependent on the product and should reflect the properties of the product. For example:
  - This device is recyclable → Cet appareil se recycle.
  - This device, its accessories, and cords are recyclable → Cet appareil, ses accessoires et cordons se recyclent.
  - This device, its accessories, cords, and battery are recyclable → Cet appareil, ses accessoires, cordons et batterie se recyclent.
  - This device, its accessories, cords, and battery (type AAA batteries) are recyclable → Cet appareil, ses accessoires, cordons et piles se recyclent.
- The sentence “retournez vos cartouches gratuitement en vous connectant sur hp.com/go/recycle” should only be used for print hardware and supplies.
- The WEEE and battery label can be on the product packaging or in-box user documentation.

#### 4.3.5 India

##### 4.3.5.1 In scope materials

- All plastic packaging
- Primary, secondary, and tertiary packaging

##### 4.3.5.2 Multi-layer packaging Out of Scope materials

- Non-plastic packaging



- Labels and tapes

#### 4.3.5.3 Label examples, Requirements, and Implementation Guidance

- Label must include:
  - Brand name (“HP Inc”)
  - “EPR Registration No: BO-16-000-07-AAACC9862F-22” for products produced in India or “Importer EPR Registration No: IM-31-000-01-AAACC9862F-23” for products imported to India
  - “Under India Plastic Packaging Waste Mgmt Rules, 2016, as amended”
  - Plastic packaging thickness in millimeters
- Label must be on all plastic packaging.
- Arial font size 12

#### 4.3.6 Italy

##### 4.3.6.1 In scope materials

- HP products that could end up in a household

##### 4.3.6.2 Out of Scope Materials

- HP commercial (non-household) products
- Products with existing URLs on packaging referring customers to HP’s sustainability or recycling pages

##### 4.3.6.3 Label examples, Requirements, and Implementation Guidance

- Label must be on the outermost packaging (e.g., product marketing box) or in-box materials.
- QR code must be at least 15 mm x 15 mm.

#### 4.3.7 Spain

##### 4.3.7.1 In scope materials

- HP products that could end up in a household

##### 4.3.7.2 Out of Scope Materials

- HP commercial (non-household) products

##### 4.3.7.3 Label examples, Requirements, and Implementation Guidance

- Marking must be on the packaging or on the label.

- There is no specific format or symbol to be used. Below is an example of leveraging the Triman sorting information label by adding an ES tab:



## 5 References

Each of the following standards forms a part of [HP's GSE](#) and is incorporated herein by reference:

[HP Standard 011-00 General Specification for the Environment—Overview \(HX-00011-00\)](#)

[HP Standard 011-01 General Specification for the Environment—Substances and Materials Requirements, All Products \(HX-00011-01\)](#)

HP Standard 011-01A GSE—Substances and Materials, Future Requirements (HX-00011-01A)

HP Standard 011-01B GSE—Substances and Materials, Business-Specified Requirements (HX-00011-01B)

[HP Standard 011-02 GSE—Packaging Requirements \(HX-00011-02\)](#)

[HP Standard 011-06 GSE—Manufacturing Substances Requirements \(HX-00011-06\)](#)

HP Standard 011-11 GSE—Product requirements for EEE (HX-00011-11)

HP Standard 011-12 GSE—Requirements for Batteries and Battery Containing Products (HX-00011-12)

HP Standard 011-13 GSE—Requirements for Soft Goods and Other Non-EEE (furniture, wooden products, clothing, etc.) (HX-00011-13)

HP Standard 011-14 GSE—Requirements for Chemicals and Formulated Products (HX-00011-14)

HP Standard 011-15 GSE—Requirements for Print Media (HX-00011-15)

HP Standard 014-02 Supplier Requirements for Safe and Legal Products

HP Standard 025-01 Supplemental Environmental Specification—Commodity and Component (HX-00025-01)

[HP's Sustainable Paper and Wood Policy](#)



[2008 United States Lacey Act amendments \(codified at 16 U.S.C. §§ 3371-3378\)](#)

[EU Timber Regulation \(EU\) No 995/2010](#)

[Australian Government's Illegal Logging Prohibition Act 2012](#)

[JIS 6899-1 \(ISO 1043-1\), Plastics - Symbols and Abbreviated Terms - Part1: Basic Polymers and Their Special Characteristics](#)

[ASTM D7611 – Standard Practice for Coding Plastic Manufactured Articles for Resin Identification<sup>12</sup>](#)

[European Directive 94/62/EC on Packaging and Packaging Waste of 20 December 1994](#)

[German Packaging Ordinance - The Ordinance on the Avoidance and Recovery of Packaging Wastes](#)

[Containers and Packaging Recycling Law](#) (Japan Ministry of Trade, Economy, and Industry)

Korean Presidential Enforcement Decree of Dec. 18, 2002, the *Guideline of the Separate Discharge Mark System* of December 2002 (Ministry of Environment Notification No. 2002-195), and its amendment of December 17, 2003 (Ministry of Environment Notification No. 2003-213) and of Jan. 26, 2004 (Ministry of Environment Notification No. 2004-9) and of Sept 27 2010 and of August 29, 2019 ([Ministry of Environment Public Notice No.2019-645, 646](#))

[Korean Electric Appliances and Consumer Product Safety Control Act](#)

International Standard for Phytosanitary Measures (ISPM) #15: *Guidelines for Regulating Wood Packaging Material in International Trade*

[Taiwan Waste Act](#)

[France Triman Requirements](#)

India Plastic Waste Management Rules, 2016;

[China Volatile Organic Compound \(VOC\) and Hazardous Substances limits:](#)

- [GB 30981-2020 Limit of harmful substances of industrial protective coatings](#)
- [GB 33372-2020 Limit of volatile organic compounds content in adhesives](#)
- [GB 38508-2020 Limit of volatile organic compounds content in cleaning agents](#)
- [GB 38507-2020 Limit of volatile organic compounds content in printing inks](#)

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<sup>12</sup> The ASTM D7611 Standard was revised to change the symbol to a solid triangle; however, the applicable laws have not been updated to reflect this change.



[Japan METI Material Identification Mark Brochure](#)

## 6 Revision History

[Prior revision history](#)

Revision, Date, Change Number	Brief Description of change
T, 01-Jun-15	Revised 4.2.2 Korean Logo. Added 4.2.4 France Triman Logo. Added 4.4.5 Europe Green Dot. Added Appendix A Use of Green Dot symbol in Europe.
U, 21-Jul-16	Revised 3.1.2 Heavy Metals in Packaging. Added 3.1.6 Expanded Polystyrene. Added 3.3 Recycled Content in Plastic-based Packaging. Revised 3.4 Recycled and Certified Fiber Content in Paper-based Packaging. Revised 4.2.3 Taiwan. Revised 4.2.5 Europe Green Dot. Added 4.3.2 Brazil Pallet Declaration. Removed Appendix A Use of Green Dot Symbol in Europe.
V, 3-Jul-2017	Added 3.1.6 Cobalt Dichloride. Revised 3.2 Recyclable Materials. Revised 3.4 Recycled and Certified Fiber Content in Paper-based Packaging. Revised 3.5 Wood, Paper, and other Plant-based Packaging Requirements. Added 3.5.1 Australian Illegal Logging Prohibition Act Import Declaration. Added 3.7 Country-Specific Packaging Requirements. Added 3.7.1 India. Revised 4.1 General Material Coding.



Revision, Date, Change Number	Brief Description of change
W, 26-Jul  -2018	<p>Added oxo-biodegradable plastics restriction.</p> <p>Clarified in-box documentation is part of packaging.</p> <p>Editorial changes</p>
X	Per standard versioning best practices, there is no version X.
Y, 13-Sep-2019	<p>Clarified Heavy Metals in Packaging Materials requirement to include incidentally present substances.</p> <p>Modified phthalates requirement to align with REACH Annex XVII.</p> <p>Added PBDE requirement.</p> <p>Clarified Zero Deforestation requirements.</p> <p>Added definition of “incidentally present.”</p> <p>Editorial changes</p>
Z	Per standard versioning best practices, there is no version Z.
AA, 29-Jul-2020	<p>Bold line on 35% min recycled content for fiber-based packaging.</p> <p>Restructured Recycled and Certified Fiber based Packaging section.</p> <p>Added aspirational language of paper over plastic.</p> <p>Added aspirational language for recycled content in EPE.</p> <p>Added sentence to Japan recycling logo.</p> <p>Added Japan Recycling Logo.</p> <p>Clarified language on secondary packaging restrictions.</p> <p>Added China VOC requirement.</p> <p>Updated Korea packaging requirements with latest amendment.</p>





Revision, Date, Change Number	Brief Description of change
AB, 28-Jul-2021	<p>Document owner changed.</p> <p>Updated Scope section.</p> <p>Added Perfluorinated Compound restrictions.</p> <p>Updated section for Korea Recyclability Certification for Packaging Material.</p> <p>Updated section for Japan's labeling requirements for material identification marks for paper and plastic containers.</p> <p>Updated section for Korea's packaging identification and labeling requirements.</p>
AC, 8-Jul-2022	<p>Reorganized structure of document.</p> <p>Added France Mineral Oil Restriction.</p> <p>Updated French Triman requirement.</p> <p>Added carbon disulfide requirement.</p> <p>Added Korea Excessive Packaging and Recycle Mark requirements.</p> <p>Editorial changes</p>
AC.1, 15-Aug-2022	<p>Updated section for Japan's labeling requirements.</p>
AD, 28-Jul-2023	<p>Editorial changes</p> <p>Added plastic packaging and PET to Table 3.</p> <p>Added section bio feedstock requirements.</p> <p>Added Italy QR code label requirement.</p> <p>Added India packaging label requirement.</p> <p>Updated section 4.1.2.</p> <p>Remove section Europe Green Dot.</p>



Revision, Date, Change Number	Brief Description of change
AE, 23-Jul-2024	<p>Added PVDC in packaging restriction.</p> <p>Updated Korea packaging section.</p> <p>Updated Spain packaging – included in Triman.</p> <p>Updated to India plastic packaging label requirement</p> <p>PFAS - added definition</p> <p>Restricted expanded polystyrene and expanded polyethylene</p> <p>Updated packaging material identification codes re: California SB 343.</p> <p>PFAS - deleted "Any incidental presence of PFAS shall be at levels not detectable"</p> <p>Removed and archived revision history prior to 2015</p>



# HP Standard 011-06 General Specification for the Environment— Manufacturing Process Substances Requirements

Document Identifier	HX-00011-06
Revision and Date	K, 23-Jul-2024
Last Revalidation Date	23-Jul-2024
Abstract	This Standard defines HP's global environmental requirements for restricting certain substances in the manufacturing of HP brand products.
Applicability	All HP design centers, HP manufacturing facilities, and HP's suppliers of HP brand products must comply with HP's General Specification for the Environment (GSE). Non-HP brand products must comply with applicable legal requirements.
Status	Approved

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## 1 Purpose

This standard defines HP's global environmental requirements for restricting certain substances used in the manufacturing processes to produce HP brand products, including parts, components, and materials that are incorporated into HP brand products.

## 2 Scope

The requirements specified in this standard apply to all manufacturing processes used to produce HP brand products and the manufacturing processes for all parts, components, and materials incorporated into HP brand products. These requirements are in addition to those set forth in HP Standards 011-01 and 011-01A. "HP brand products" in this standard are defined to be products branded by the HP brand, HP-owned brands, and HP brand-licensed products, including parts, materials, components, and packaging incorporated into such products. Non-HP brand products are products sold, leased, and marketed by HP, but that do not meet the definition of HP brand products. Manufacturing processes for non-HP brand products and all parts, components, and materials incorporated into non-HP brand products, must meet or exceed the applicable legal requirements in each country in which these third-party products are manufactured.

This standard, HP Standard 011-06 General Specification for the Environment—Manufacturing Process Substances Requirements, is a component of HP's General Specification for the Environment (GSE). The GSE consists of the following standards:

- [HP Standard 011-00 GSE—Overview \(HX-00011-00\)](#)

Requirements that apply to all products:

- [HP Standard 011-01 GSE—Substances and Materials, All Products \(HX-00011-01\)](#)
- HP Standard 011-01A GSE—Substances and Materials, Future Requirements (HX-00011-01A)\*
- HP Standard 011-01B GSE—Substances and Materials, Business-Specified Requirements (HX-00011-01B)\*
- [HP Standard 011-02 GSE—Packaging Requirements \(HX-00011-02\)](#)
- [HP Standard 011-06 GSE—Manufacturing Process Substances Requirements \(HX-00011-06\)](#) (the current document)

Requirements that apply to specific types of products:

- HP Standard 011-11 GSE—Product requirements, EEE (HX-00011-11)
- HP Standard 011-12 GSE—Requirements for Batteries and Battery Containing Products (HX-00011-12)
- HP Standard 011-13 GSE—Requirements for Soft Goods and Other Non-EEE (furniture, wooden products, clothing, etc.) (HX-00011-13)
- HP Standard 011-14 GSE—Requirements for Chemicals and Formulated Products (HX-00011-14)
- HP Standard 011-15 GSE—Requirements for Print Media (HX-00011-15)
- HP Standard 025-01 Supplemental Environmental Specification—Commodity and Component (HX-00025-01)\*

\*The restrictions in HP Standard 011-01A apply globally on the future effective date provided unless an HP business requires an earlier effective date. The restrictions in HP Standard 011-01B are applicable only



when and as specified by an HP business. HP Standard 025-01 is applicable to parts and components in scope of the standard.

### 3 Manufacturing Process Substances Requirements

As outlined in the [HP Supplier Code of Conduct](#), suppliers shall identify, evaluate, and control occupational health and safety hazards through a prioritized process of hazard elimination, engineering controls, and/or administrative controls. When hazards cannot be adequately controlled by such means, worker health is to be protected by appropriate personal protective equipment programs.

In addition to the code of conduct requirements, the use of certain substances in the manufacturing of HP brand products is restricted due to international agreements, regulatory restrictions, voluntary initiatives, and concerns over human health or environmental risks. These restrictions are supplementary to any applicable national, state, or local environmental or workplace safety restrictions. Worker exposure to the listed and other hazardous substances must not exceed occupational exposure limits and chemical formulations must comply with all applicable legal restrictions, including any subsequent restrictions that establish stricter limits.

When replacing substances, alternatives must have a lower potential impact to human health and the environment and meet HP Business performance and cost criteria. The [BizNGO materials selection principles](#) constitute an overarching chemical management approach that should be used to establish the governing principles and constraints when performing a chemical alternatives assessment. . There are many tools available to perform an alternatives assessment. The Organisation for Economic Cooperation and Development (OECD) has a “[toolbox](#)” that is designed to help organizations choose an appropriate method of alternatives assessment. Non-chemical alternatives should be considered first, such as mechanical polishing instead of using a solvent. The following sources will help to identify potential alternatives:

- The [TCO Certified Accepted Substance List](#) includes cleaning chemicals.
- [Chemical Data Commons](#), [chemsec Marketplace](#), [EPA's Safer Chemicals Ingredients List](#), [SUBSPORT](#), [Green Chemistry and Commerce Council](#), and [Interstate Chemicals Clearinghouse](#).
- Literature search of the chemical of concern and any possible alternatives by using [Scifinder](#), [Google scholar](#), patents, academic research, government reports, technical reports, marketing literature, and industry magazines.
- The [Clean Electronics Production Network](#) includes links to several resources to find [safer alternatives](#) to manufacturing process chemicals.
- Ask chemical companies / formulators about available alternatives. Chemical companies that focus on finding alternatives to hazardous chemicals may be helpful.

The HP PCA Spot Cleaner Standard lists acceptable alternatives for removing contaminants and/or other residues from small areas of Printed Circuit Assemblies (PCAs) and lists some additional spot cleaner restrictions due to reliability reasons.

HP will periodically request substance disclosure information for manufacturing process substances used to produce HP products and parts, components, and materials incorporated into HP products. Suppliers are expected to understand what substances are used to produce the products, parts, components, and materials that they sell to HP. Suppliers must respond with the requested information by the stated due date.



Table 1: Pan-HP Mandatory Restrictions for All Manufacturing Process Substances					
Substances <sup>1</sup>	Substance Identifier	Threshold Limit / Criteria <sup>2</sup>	Exemptions	References <sup>3</sup>	Identification Number <sup>4</sup>
Methanol	CAS#: 67-56-1	Do not use as a cleaner, degreaser, or mold release agent; 1000 ppm if incidentally present		CEPN Priority Chemical	230728-96
N-Methyl-Pyrrolidone	CAS#: 872-50-4	Do not use as a cleaner, degreaser, or mold release agent; 1000 ppm if incidentally present	Photoresist stripping	CEPN Priority Chemical	230728-45
Benzene	CAS#: 71-43-2	Do not use		HP Restriction PCA Spot Cleaner Standard	150309-02
Toluene	CAS#: 108-88-3	Do not use as a cleaner, degreaser, or mold release agent.  For other applications, exposure must be limited to <20ppm 8-hour TWA	Solvent in paints and inks	HP Restriction PCA Spot Cleaner Standard  ACGIH	150309-03

<sup>1</sup> Substance identifiers listed may not represent a complete list of substances where the restricted chemical may be found. For example, n-hexane may be found in many different petroleum distillation products (such as light naphtha). HP manufacturing entities and suppliers are expected to communicate with their chemical suppliers to ensure that the listed substances are not present in chemical formulations above the established limits.

<sup>2</sup> Threshold Limit/Criteria values are in some cases substantially higher than limits on restricted substances in finished products set forth in other sections of the GSE. This is because substances in finished products are usually found in smaller concentrations than in the chemical formulations used to produce them.

<sup>3</sup> This column provides background on the source of the restriction. The reference list is not exhaustive, and more than the listed reference may apply. The cited reference is as amended.

<sup>4</sup> Identification number (GSE ID) is a unique identifier that can be used to reference the specific requirement. A unique requirement consists of Substance, Scope, Criteria, and Exemptions. Any differences in these criteria will result in a new GSE ID.



Table 1: Pan-HP Mandatory Restrictions for All Manufacturing Process Substances					
Substances <sup>1</sup>	Substance Identifier	Threshold Limit / Criteria <sup>2</sup>	Exemptions	References <sup>3</sup>	Identification Number <sup>4</sup>
N-hexane	CAS#: 110-54-3	Do not use If incidentally present <sup>5</sup> exposure must be limited to <20 ppm 8-hour TWA		HP Restriction; PCA Spot Cleaner Standard; EU Directive 2006/15/EC; Bulgaria D.V.8/2004, as amended 2012	150309-04
Hexane, branched and linear	CAS#: 92112-69-1	Do not use If incidentally present <sup>5</sup> exposure must be limited to <20 ppm 8-hour TWA		HP Restriction  EU Directive 2006/15/EC; Bulgaria D.V.8/2004, as amended 2012	150309-05
Cyclohexane	CAS#: 110-82-7	Do not use as a cleaner, degreaser, or mold release agent; 1000 ppm if incidentally present. If incidentally present <sup>5</sup> exposure must be limited to <100 ppm 8-hour TWA		HP Restriction  ACGIH	160701-01
1,1-Dichloroethylene	CAS#: 75-35-4	Do not use	Polymer formation where the residual amount of monomer is below 100 ppm	HP Restriction	150309-10

<sup>5</sup> Incidentally present means occurring as unavoidable impurities or unintentional trace contaminants; such incidentally present material is not intentionally added.



Table 1: Pan-HP Mandatory Restrictions for All Manufacturing Process Substances					
Substances <sup>1</sup>	Substance Identifier	Threshold Limit / Criteria <sup>2</sup>	Exemptions	References <sup>3</sup>	Identification Number <sup>4</sup>
Pentachloroethane	CAS#: 76-01-7	Do not use		HP Restriction	150309-11
Methylene chloride	CAS#: 75-09-2	Do not use		HP Restriction	150309-12
Tetrachloromethane (carbon tetrachloride)	CAS#: 56-23-5	Do not use		HP Restriction	150309-13
1,1,1,2-Tetrachloroethane	CAS#: 630-20-6	Do not use		HP Restriction	150309-14
1,1,2,2-Tetrachloroethane	CAS#: 79-34-5	Do not use		HP Restriction	150309-15
Tetrachloroethylene <sup>6</sup>	CAS#: 127-18-4	Do not use		HP Restriction	150309-16
Trichloromethane (chloroform)	CAS#: 67-66-3	Do not use		HP Restriction	150309-17
1,1,2-Trichloroethane	CAS#: 79-00-5	Do not use		HP Restriction	150309-18
Trichloroethylene <sup>6</sup>	CAS#: 79-01-6	Do not use		HP Restriction	150309-19

<sup>6</sup> Tetrachloroethylene and trichloroethylene are also restricted for use in cleaning agents and adhesives under the Japan Chemical Substance Control Law (CSCL, "Kashinho"), Law No. 117 of 1973





Table 1: Pan-HP Mandatory Restrictions for All Manufacturing Process Substances					
Substances <sup>1</sup>	Substance Identifier	Threshold Limit / Criteria <sup>2</sup>	Exemptions	References <sup>3</sup>	Identification Number <sup>4</sup>
1,1,1-Trichloroethane (TCA)	CAS#: 71-55-6	Do not use		HP Restriction	150309-20
Bis (chloromethyl) ether	CAS#: 542-88-1	Do not use		HP Restriction	150309-21
Pentachlorophenol	CAS#: 87-86-5	Do not use		HP Restriction	150309-22
Polychlorinated Phenols and their salts	Chemical class, no CAS# assigned	Do not use		HP Restriction	150309-23
Vinyl chloride (monomer)	CAS#: 75-01-4	Do not use	Polymer formation where the residual amount of monomer is below 10 ppm	HP Restriction	150309-24
1-Bromopropane (n-propylbromide)	CAS#: 106-94-5	Do not use		HP Restriction	160701-55
Alkylphenols & Alkylphenol Ethoxylates	<a href="#">Refer to REACH Annex XVII</a>	No intentional use; 1000 ppm if incidentally present <sup>5</sup>		HP Restriction; EU Regulation (EC) 1907/2006, Annex XVII (EU REACH)	160701-22



Table 1: Pan-HP Mandatory Restrictions for All Manufacturing Process Substances					
Substances <sup>1</sup>	Substance Identifier	Threshold Limit / Criteria <sup>2</sup>	Exemptions	References <sup>3</sup>	Identification Number <sup>4</sup>
Ozone Depleting Substances (ODS)	Refer to Annexes A, B, C, E of Montreal Protocol	Do not use in manufacturing processes	Refrigeration units used in manufacturing facilities or in data center facilities	Montreal Protocol	980408-15
Fluorinated greenhouse gases, hydrofluorocarbons, and perfluorocarbons <sup>7</sup>	See Table 12 of HX-00011-13	Do not use		Regulation (EU) 2024/573	090807-36
2-Methoxyethanol (ethylene glycol monomethyl ether)	CAS#: 109-86-4	Do not use		HP Restriction	170703-84
2-Methoxyethyl acetate (ethylene glycol monomethyl ether acetate)	CAS#: 110-49-6	Do not use		HP Restriction	170703-08
2-Ethoxyethyl acetate (ethylene glycol monoethyl ether acetate)	CAS#: 111-15-9	Do not use		HP Restriction	170703-79
Diethylene glycol dimethyl ether (diglyme)	CAS#: 111-96-6	Do not use		HP Restriction	170703-33

<sup>7</sup> See HP Standard 011-13 for details of the scope of restriction.



Table 1: Pan-HP Mandatory Restrictions for All Manufacturing Process Substances

Substances <sup>1</sup>	Substance Identifier	Threshold Limit / Criteria <sup>2</sup>	Exemptions	References <sup>3</sup>	Identification Number <sup>4</sup>
2-Ethoxyethanol (ethylene glycol monoethyl ether)	CAS#: 110-80-5	Do not use		HP Restriction	170703-22



### 3.1 TCO Process Chemical Management Requirements

Suppliers manufacturing TCO certified products must meet the TCO requirements for chemical management including process chemical data collection and only using chemicals on the [TCO Certified Accepted Substance List](#). For the detailed requirements, see the HP Standard 033-00 HP Requirements for Suppliers Manufacturing TCO Certified Personal System Products.

### 3.2 EPEAT Process Chemical Management Requirements

Final assembly suppliers manufacturing EPEAT registered products should meet the EPEAT Module 3 standard: Reduction of Chemicals of Concern Criteria for process chemical management including process chemical data collection. Cleaning solvents used to clean components, PCBA and products should be prioritized as process chemical of concern. At least 15 final assembly suppliers should be selected to submit process chemical data, which will be reviewed and recorded.

## 4 China Volatile Organic Compound (VOC) Limits

China has requirements to limit the Volatile Organic Compounds (VOCs) and restrict hazardous substances for materials in scope (e.g., coatings) that are manufactured in or imported into China, or applied to parts, products, or packaging in China. Printing ink, coatings, adhesives, and cleaning agents applied to HP's products, parts, or packaging in China must meet the requirements in the following standards:

- GB 30981-2020 Limit of harmful substances of industrial protective coatings - Implementation date December 2020
- GB 33372-2020 Limit of volatile organic compounds content in adhesives - Implementation date December 2020
- GB 38508-2020 Limit of volatile organic compounds content in cleaning agents – Implementation date December 2020
- GB 38507-2020 Limit of volatile organic compounds content in printing inks – Implementation date April 2021

These requirements are in addition to those set forth in Table 1. Listed in the standards are many product categories or application fields that are not applicable to HP's products or packaging, so those are not included in this document.

The standards listed above also include testing and labeling requirements for the materials (e.g., coatings) in scope. Please refer to the standards for more details.

### 4.1 Coating requirements

The Chinese standard GB 30981-2020 specifies the product classifications, permissible limits of VOCs and hazardous substances, test methods, inspection rules, and labeling requirements for industrial protective coatings. This standard applies to a variety of industrial protective coatings used for protecting the surface of metal, plastics, etc. that are manufactured in or imported into China, or applied to parts, products, or packaging in China.

Volatile organic compound content is defined as the mass of the volatile organic compounds present in a coating, as determined under specified conditions. The limits of VOC content in various industrial protective coatings other than special functional coatings are to comply with the requirements of Table 2 through Table 5. The limits of the content of harmful substances other than VOCs in various industrial protective coatings shall comply with the requirements of Table 6.



Exemptions include:

- Certain special functional coatings are exempted including insulating coatings, anti-fingerprint coatings for touch screens and optical plastic sheets, polytetrafluoroethylene coatings which are sintered at a high temperature above 150 ° C (chemical resistant, wear resistant, lubricated, non-stick, and other functions), fluorosilicone coating for elastomers, electroplating silver effect paints (radiation curing type), marking paints, protective coating for electronic components (which are used to prevent acid mist, dust and moisture or for other special functions), etc.
- Products with an operating voltage of more than 1500V for DC or 1000V for AC
- Equipment involving the production, transmission, and distribution of electric energy

Table 2. VOC Content in Water-based Coatings			
Product Category		Main Product Types	Limit (g/L)
Coatings for electrical and electronic products		Primer	≤420
		Paint	≤420
		Varnish	≤420
Package Coating	Non-stick coating	Primer	≤480
		Floating coat	≤350
	Other	Finishing coat	≤300
		Roll coating (sheet)	≤480
		Spray coating	≤400

Table 3. VOC Content in Solvent-based Coatings			
Product Category		Main Product Types	Limit (g/L)
Coatings for electrical and electronic products		Primer	≤600
		Paint	≤700
		Varnish	≤650
Package Coating	Non-stick coating	--	≤420
		Other	Roll coating (coiled material)
			Roll coating (sheet)
			Spray coating



Table 4. VOC Content in Solvent-free Coatings		
Item		Limit (g/L)
VOC content		≤100

Table 5. VOC Content in Radiation Curable Coatings		
Product Category	Application Method	Limit (g/L)
Water-based coatings	Spray coating	≤400
	Other	≤150
Non-water-based coatings	Spray coating	≤550
	Other	≤200

Table 6. Requirements for Content of Other Hazardous Substances in Coatings	
Items	Limits
Benzene content a (for solvent-based coatings and non-water-based radiation-curing coatings only) /%	≤0.3%
Total content of toluene and xylene (including ethylbenzene) (for solvent-based coatings and non-water-based radiation-curing coatings only) /%	≤35%
Total halogenated hydrocarbons content (for solvent-based coatings and non-water-based radiation-curing coatings only) /% (limited to dichloromethane, chloroform, carbon tetrachloride, 1,1-dichloroethane, 1,2-dichloroethane, 1,1,1-trichloroethane, 1,1,2-trichloroethane, 1,2-dichloropropane, 1,2,3-trichloropropane, trichloroethylene, tetrachloroethylene)	≤1%
Total polycyclic aromatic hydrocarbons total (limited to solvent-based coatings and non-water-based radiation-curing coatings) / (mg/kg) (limited to naphthalene, anthracene)	≤500 mg/kg
Methanol content (for inorganic coatings only) /%	≤1%



Table 6. Requirements for Content of Other Hazardous Substances in Coatings	
Items	Limits
Total content of glycol ether and ether ester (for water-based coatings, solvent-based coatings, and radiation curable coatings only)/% (limited to ethylene glycol methyl ether, ethylene glycol methyl ether acetate, ethylene glycol ether, ethylene glycol ethyl ether acetate, ethylene glycol dimethyl ether, ethylene glycol diethyl ether, diethylene glycol dimethyl ether, triethylene glycol dimethyl ether)	≤1%
Heavy metal content (for paints, coating powder, alkyd varnish only)/ (mg/kg):	
Lead (Pb)	≤1000 mg/kg
Cadmium (Cd)	≤100 mg/kg
Hexavalent chromium (Cr6+)	≤1000 mg/kg
Mercury (Hg)	≤1000 mg/kg

#### 4.2 Adhesive requirements

The Chinese standard GB 33372-2020 specifies the application fields, permissible limits of VOCs, test methods, inspection rules, and labeling requirements for adhesives that are manufactured in or imported into China, or applied to parts, products, or packaging in China.

Exemptions include:

- the adhesives used as intermediates or not entering the circulation field to be used as raw materials for production;
- the adhesives for testing or evaluation in any research and development, quality;
- assurance or analysis laboratory;
- urea formaldehyde, phenol formaldehyde and melamine formaldehyde adhesives;
- special functional surface treating agents for material bonding;

The content of single volatile organic compound in adhesive such as benzene series (benzene, methylbenzene, and xylene), halogenated hydrocarbon (dichloromethane, 1,2-dichloroethane, 1,1,1-trichloroethane and 1,1,2-trichloroethane), toluene diisocyanate and free formaldehyde, shall meet the requirements of GB 30982 or GB 19340.

Volatile organic compounds are defined as the mass of volatile organic compounds contained in adhesive per unit volume or mass measured under specified conditions. The limits of VOC content in adhesives are to comply with the requirements of Table 7, Table 8, and Table 9. For this standard the term “Assembly industry” means assembling any parts or products together, including electrical and electronic products.



Table 7. VOC Content in Solvent-based adhesives					
Application Field	Limit (g/L) ≤				
	Chloroprene rubber	Styrene-butadiene-styrene segmented copolymer rubber	Polyurethanes	Acrylics	Others
Assembly Industry	600	550	250	510	250
Packaging	600	500	400	510	500
Soft goods (e.g., luggage)	600	500	400	--	400
Others	600	500	250	510	250

Table 8. VOC Content in Water-based Adhesives							
Application Field	Limit (g/L) ≤						
	Polyvinyl acetates	Polyvinyl alcohols	Rubber	Polyurethanes	Vinyl acetate-ethylene copolymer emulsions	Acrylics	Others
Assembly Industry	100	--	100	50	50	50	50
Packaging	50	--	50	50	50	50	50
Soft goods (e.g., luggage)	50	--	150	50	50	100	50
Others	50	50	50	50	50	50	50

Table 9. VOC Content in Bulk Adhesives									
Application Field	Limit (g/kg) ≤								
	Silicones	MS <sup>8</sup>	Polyurethanes	Polysulfides	Acrylics	Epoxy resins	α-cyanoacrylic acids	Thermoplastics <sup>9</sup>	Others
Assembly Industry	100	100	50	50	200	100	20	50	50
Packaging	100	50	50	--	--	--	--	50	50

<sup>8</sup> MS refers to the adhesive with silane modified polymer as the main material.

<sup>9</sup> Thermoplastics refer to thermoplastic polyolefin or thermoplastic rubber.





Table 9. VOC Content in Bulk Adhesives									
Application Field	Limit (g/kg) ≤								
	Silicones	MS <sup>8</sup>	Polyurethanes	Polysulfides	Acrylics	Epoxy resins	α-cyanoacrylic acids	Thermoplastics <sup>9</sup>	Others
Fiber processing and paper conversion	--	50	50	--	--	--	--	50	50
Soft goods (e.g., luggage)	--	50	50	--	--	--	20	50	50
Others	100	50	50	50	200	50	20	50	50

### 4.3 Cleaning agents

The Chinese standard GB 38508-2020 specifies the permissible limits of VOCs and hazardous substances, test methods, inspection rules, and labeling requirements for cleaning agents. This standard is applicable to cleaning agents that are manufactured in or imported into China or used in industrial production and service activities in China.

Exemptions include:

- cleaning agents used in semiconductor (including integrated circuits) manufacturing;

Volatile organic compounds are defined as organic compounds that will undergo atmospheric photochemical reaction at standard atmospheric pressure of 101.3 kPa and initial boiling point less than or equal to 250°C, or those determined according to relevant regulations. VOC content and specific volatile organic compounds content in cleaning agents shall meet the requirements in Table 10. Water-based cleaning agent meeting the requirements of Table 10 and semi-water-based cleaning agent meeting the requirements of Table 11 may be classified as low-VOC-content cleaning agents.

Table 10. Requirements for limits of VOC content and specific volatile organic compounds content in cleaning agents			
Item	Limits		
	Water-based cleaning agent	Semi-water-based cleaning agent	Organic solvent cleaning agent
VOC content/(g/L) ≤	50	300	900
Sum of dichloromethane, trichloromethane, trichloroethylene and tetrachloroethylene/% ≤	0.5	2	20



Table 10. Requirements for limits of VOC content and specific volatile organic compounds content in cleaning agents			
Item	Limits		
Formaldehyde /(g/kg) ≤	0.5	0.5	--
Sum of benzene, toluene, ethylbenzene, and xylene/% ≤	0.5	1	2

Table 11. Requirements for limits of low-VOC content in semi-water-based cleaning agent	
Item	Limits
VOC content/(g/L) ≤	100
Sum of dichloromethane, trichloromethane, trichloroethylene and tetrachloroethylene/% ≤	0.5
Formaldehyde /(g/kg)	0.5
Sum of benzene, toluene, ethylbenzene, and xylene/% ≤	0.5

#### 4.4 Printing Ink

The Chinese standard GB 38507-2020 specifies the permissible limits of VOCs and hazardous substances, test methods, inspection rules, and labeling requirements for printing ink. The standard includes requirements for a variety of inks for products, parts, and packaging. These requirements apply to screen printing on parts and products, to printing on packaging, and to printing on documentation.

The requirements are also listed in HX-00011-14 for HP's chemicals and formulated products.

Exemptions include:

- additives and diluents used to adjust the printing performance of ink, nor to cleaning agents for printing ink or other products used for printing.

Volatile organic compounds are defined as organic compounds of which the initial boiling point is lower than or equal to 250°C under the standard pressure of 101.3kPa. The limits of volatile organic compounds in printing ink shall meet the requirements of Table 12.

Table 12: Limits of volatile organic compounds in printing ink			
Ink Type			VOC Limit (%)
Solvent-based ink	Gravure ink		≤75
	Flexographic ink		≤75



Table 12: Limits of volatile organic compounds in printing ink			
Ink Type			VOC Limit (%)
	Ink-jet ink		≤95
	Screen ink		≤75
<b>Water-based ink</b>	Gravure ink	Absorbent printed material	≤15
		Non-absorbent printed material	≤30
	Flexographic ink	Absorbent printed material	≤5
		Non-absorbent printed material	≤25
	Ink-jet ink		≤30
	Screen ink		≤30
<b>Offset ink</b>	Sheet-fed offset ink		≤3
	Cold-set web-fed ink		≤3
	Heat-set web-fed ink		≤10
<b>Energy curing ink</b>	Offset ink		≤2
	Flexographic ink		≤5
	Screen ink		≤5
	Ink-jet ink		≤10
	Gravure ink		≤10
<b>Intaglio ink</b>			≤20

The solvents listed in Table 13 shall not be intentionally added to ink products in the production process.

Table 13: List of prohibited solvents in printing ink	
Name	CAS #
Halohydrocarbons	Various
Ethyl benzene	100-41-4
Propylene oxide	75-56-9
Styrene	100-42-5
Benzene	71-43-2
Isopropyl nitrite	541-42-4



Name	CAS #
Butyl nitrite	544-16-1
2-Ethoxyethanol	110-80-5
Ethyl glycol acetate	111-15-9
2-Methoxyethanol	109-86-4
2-Methoxyethyl acetate	110-49-6
2-Nitropropane	79-46-9
N-Methyl-2-pyrrolidone	872-50-4
Triethylene Glycol Dimethyl Ether	112-49-2
1,2-Dimethoxyethane	110-71-4
Ethylene Glycol Diethyl	629-14-1
Toluene	108-88-3
Xylene	1330-20-7

## 5 References

CAS# = Chemical Abstract Service Number

Each of the following standards forms a part of [HP's GSE](#) and is incorporated herein by reference:

[HP Standard 011-00 General Specification for the Environment—Overview \(HX-00011-00\)](#)

[HP Standard 011-01 General Specification for the Environment—Substances and Materials Requirements, All Products \(HX-00011-01\)](#)

HP Standard 011-01A GSE—Substances and Materials, Future Requirements (HX-00011-01A)

HP Standard 011-01B GSE—Substances and Materials, Business-Specified Requirements (HX-00011-01B)

[HP Standard 011-02 GSE—Packaging Requirements \(HX-00011-02\)](#)

[HP Standard 011-06 GSE—Manufacturing Substances Requirements \(HX-00011-06\)](#)

HP Standard 011-11 GSE—Product requirements for EEE (HX-00011-11)

HP Standard 011-12 GSE—Requirements for Batteries and Battery Containing Products (HX-00011-12)

HP Standard 011-13 GSE—Requirements for Soft Goods and Other Non-EEE (furniture, wooden products, clothing, etc.) (HX-00011-13)

HP Standard 011-14 GSE—Requirements for Chemicals and Formulated Products (HX-00011-14)



HP Standard 011-15 GSE—Requirements for Print Media (HX-00011-15)

HP Standard 014-02 Supplier Requirements for Safe and Legal Products

HP Standard 025-01 Supplemental Environmental Specification—Commodity and Component (HX-00025-01)

[HP Supplier Code of Conduct](#)

[National Institute for Occupational Safety and Health \(NIOSH\)](#)

[American Conference of Governmental Industrial Hygienists \(ACGIH\)](#)

[Interstate Chemicals Clearinghouse \(IC2\) Alternatives Assessment Guide](#)

[BizNGO Alternatives Assessment Working Group](#)

[EPA DfE Screen for Solvents in Cleaning Products](#)

HP PCA Spot Cleaner Standard

HP-00033-00, HP Requirements for Suppliers Manufacturing TCO Certified Personal System Products (External version HX-00033-00, is on the HP Supplier Portal; registration required)

[GB 30981-2020 Limit of harmful substances of industrial protective coatings](#)

[GB 33372-2020 Limit of volatile organic compounds content in adhesives](#)

[GB 38508-2020 Limit of volatile organic compounds content in cleaning agents](#)

[GB 38507-2020 Limit of volatile organic compounds content in printing inks](#)

## 6 Revision History

### [Revision History](#)

Revision, Date, Change Number	Brief Description of change
A, 27-Feb-2015	Initial creation of the document.
B, 21-Jul-2016	Added 1-Bromopropane (n-propylbromide), Cyclohexane, and Alkylphenols & Alkylphenol Ethoxylates restrictions to Table 1.  Removed “Substance Group” and “Examples of Use” from Table 1 to align with GSE 011-01.
C, 3-Jul-2017	Changed criteria from “not used” to “do not used” to clarify criteria.  Added select ethylene glycol ether substances.
D, 26-Jul-2018	Editorial changes  Added mold release agent to disallowed uses for some substances.  Expanded alternatives assessments section.  Clarified references are normative.



Revision, Date, Change Number	Brief Description of change
E, 13-Sep-2019	Editorial changes Clarified definition of incidentally present.
F, 29-Jul-2020	Added China VOC requirements.
G, 14-Jun-2021	Updated Scope section. Added a reference to the <a href="#">Clean Electronics Production Network</a> resources for alternatives to manufacturing process chemicals. Added the TCO process chemical management requirements. Changed the threshold for cyclohexane. Added a reference to REACH Annex XVII and changed the threshold for Alkylphenols & Alkylphenol Ethoxylates.
H, 26-Jul-2022	Editorial changes Changes to TCO process chemical requirements section.
I	Per standard versioning best practices, there is no revision I.
J, 28-Jul-2023	Updated threshold limit of methanol restriction. Added restriction of N-Methyl-Pyrrolidone.
K, 23-Jul-2024	Added EPEAT Process Chemical requirements