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## Cisco Environmental Packaging Specification Version C0

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## Purpose

As a global supplier of electronic equipment, Cisco is responsible for the management of packaging used with our products. Global environmental regulations and Cisco's interest in reducing the impact of the packaging used to protect and transport our products prescribe Cisco's requirements for packaging. This document sets forth environmental compliance requirements for all packaging used with product shipments to Cisco customers. These requirements affect the material selection, design, labeling and other aspects of packaging.

This document is based on existing packaging regulatory requirements and is subject to revision as new packaging regulations emerge. The latest version can be found by searching for EDCS-886022. In the case of new regulations or changes to existing regulations which are not reflected in this document, the regulations take precedence until such time as the regulation is addressed in this document.

## Scope

This document applies globally to **all product packaging that is used to ship Cisco products (including those of acquired companies) to Cisco customers** including, but not limited to packaging that is:

- designed internally by Cisco
- designed outside of Cisco
- supplied by OEM/ODM/JDM partners and re-used in Cisco customer shipments
- supplied by component suppliers and re-used in Cisco customer shipments
- supplied by EMS partners for use in Cisco customer shipments
- supplied by logistics partners for use in Cisco customer shipments
- supplied by our service partners for Cisco service depot customer shipments
- supplied by our reverse logistics partners for Cisco customer shipments
- supplied by our Demo Depot for Cisco customer shipments
- supplied by our remarketing partners for Cisco re-marketed customer shipments supplied by our reverse logistics partners for Cisco customer shipments

For the purpose of this document packaging is defined as "all material of any nature to be used for the containment, protection, handling, delivery and presentation of goods. "Goods" means all tangible deliverables including digital media (disks) and papers. Packaging includes primary, secondary, and tertiary packaging (see definitions). All Cisco suppliers impacted by this document must have management systems in place to ensure policy compliance for themselves and their suppliers as is necessary.

Packaging components and ancillary elements integrated into packaging shall also be considered to be part of the packaging into which they are integrated. Ancillary elements hung directly on, or attached to, a product and which perform a packaging function shall be considered to be packaging unless they are an integral part of the product and all elements are intended to be consumed or disposed of together.

## Policy Statement

### Policy 1. Material Content Requirements

Packaging material must meet the following material content requirements.

- 1.1 **Heavy metals:** Cadmium, lead, mercury, and hexavalent chromium must not be intentionally added to any packaging material. The combined concentration of these four heavy metals must not exceed 100 ppm in any packaging component. For compliance methodology for testing and/or calculating heavy metal content, see CEN Report 13695-1.
- 1.2 **Ozone Depleting Substances:** Class I and Class II Ozone Depleting Substances are prohibited in all packaging materials.
- 1.3 **REACH Substances:** Supplied packaging must adhere to applicable substance restrictions identified in REACH's Annex XVII. In addition, on request Cisco may require a declaration of REACH Candidate List Substances of Very High Concern (SVHCs).
- 1.4 **Polyvinyl chloride (PVC):** PVC should not be used in packaging components when alternatives are available. Tamper evident labels and protective tape covers are examples of applications in which viable alternatives may not yet exist, so PVC may be used in these applications.
- 1.5 **Cobalt Dichloride and Dimethylfumarate (DMF):** Cobalt dichloride or DMF in desiccants is prohibited.
- 1.6 **Wood:** Packaging materials must not contain any illegally sourced wood material. Illegally sourced wood material includes but is not limited to wood products made from illegally harvested lumber, materials stolen from parks or other protected areas, and wood material exported in violation of export bans. Biocides or chemical treatments, such as creosote impregnation or arsenic and mercury compounds, are prohibited.
- 1.7 **Rigid Plastic Packaging Containers (RPPCs):** An RPPC is a plastic packaging container that is: made entirely of plastic (except for incidental portions of the packaging), has a relatively inflexible shape or form, has a minimum capacity or volume of eight (8) ounces up to a maximum capacity or volume of five (5) gallons, is capable of at least one closure (including closure during the manufacturing process), and holds a product that is sold or offered for sale in California (see <http://www.calrecycle.ca.gov/plastics/rppc/> for further details on RPPC definition). Packaging meeting this definition must comply with California's RPPC regulation, either by using 25% post-consumer recycled content or through other compliance options specified. *Cisco packaging should avoid use of RPPCs. Contact Cisco ([pkginquiry@external.cisco.com](mailto:pkginquiry@external.cisco.com)) if product packaging meets California's definition of RPPC.*

## Policy 2. Packaging Design Requirements

Packaging must meet the design requirements below. These requirements shall be applied during the packaging design and development stage.

**2.1 Environmental Design (Source Reduction):** For all packaging components, packaging designers must:

- 1) Ensure minimum adequate packaging used: make packaging as small and light as possible without compromising safety or acceptability of the product.
- 2) Determine limiting factor: the reason why the packaging cannot be made any smaller or lighter.
- 3) Document limiting factor in Packaging Collection Form (PCF). Select ONE and document the most appropriate of the following:
  - (a) Product protection
  - (b) Product presentation and marketing
  - (c) Safety
  - (d) Packaging manufacturing process
  - (e) Legislation

See CEN 13428 for more information on Source Reduction.

**2.2 Recovery Requirements:** All packaging components must meet the criteria of one of three recovery methods: Material Recovery (by recycling), Energy Recovery (by incineration), or Organic Recovery (by composting) as described in CEN 13427, CEN 13430, CEN 13431, and CEN 13432. Cisco packaging should meet the requirements for Material Recovery or Organic Recovery, with the exception mentioned in section 2.2.2.

**2.2.1 Material Recovery:** If the recovery method is Material Recovery (recycling), the packaging designer must ensure the packaging meets the requirements of CEN 13430, including:

- Determine that an available infrastructure for recycling the packaging component exists in most or all countries worldwide
- Ensure the functional unit is recyclable as follows:
  - Determine if the packaging, as a functional unit, meets the recovery standards – labels or other parts that cannot be removed from the functional unit should not create problems in the collection, sorting, or recycling of the unit;
  - Ensure the packaging allows for effective emptying so that the package can be recycled; and
  - Ensure the design enables packaging components made of different materials to be easily separated to ensure compatibility with recycling systems.

**2.2.2 Energy Recovery:** If the recovery method chosen is Energy Recovery (incineration), the packaging designer must ensure the packaging meets the requirements of CEN 13431, including:

- Determine the minimum net calorific value, a measure of the energy released on combustion of packaging components, using the assessment method outlined; and
- Ensure the minimum net calorific value exceeds 5 MJ/kg for the packaging component. In general, the net calorific value for packaging components composed of more than 50% organic content (wood, cardboard, paper, plastics) is expected to exceed 5 MJ/kg and thus qualify for energy recovery. Other packaging components may qualify depending on the outcome of calculations.

This recovery method should only be used when alternatives are unavailable, for example electrostatic discharge (ESD) bags.

**2.2.3 Organic Recovery:** If the recovery method chosen is Organic Recovery (composting), the packaging designer must ensure the packaging meets the requirements of CEN 13432, including:

- Characterization: identification of packaging constituents and materials, determination of the presence of hazardous substances such as heavy metals, determination of the packaging content used for testing;
- Biodegradability: laboratory tests must show each packaging component to be biodegradable per the levels specified;
- Disintegration: biological treatment process testing must show each packaging component to disintegrate per the criteria specified;
- Compost quality: biological treatment process testing must show each packaging component does not negatively affect the quality of resulting compost;

- Recognizability: packaging components must be recognizable by the end user as compostable; and
- Meet documentation requirements

2.3 **Wood Packaging:** Wood packaging must meet the following requirements.

2.3.1 Non-manufactured wood packaging must be treated in accordance with ISPM-15. Requirements of the ISPM-15 standard include heat treatment and use of debarked wood. See <https://www.ippc.int/ispm15/> for more information.

2.3.2 Manufactured wood packaging is exempt from ISPM-15.

### Policy 3. Supplier Documentation Requirements

All suppliers whose deliverables to Cisco include packaging materials, irrespective of its original source or delivery context, must provide the following documentation to Cisco:

- 3.1 Certify compliance to Cisco's Environmental Packaging Specification using Cisco's click-to-acknowledge process.
- 3.2 Complete Cisco's Packaging Collection Form (PCF) for all product packaging components that have a Cisco part number (CPN) **and** are used in Cisco customer shipments.
- 3.3 On request, provide appropriate documentation (such as test reports) verifying compliance with the heavy metals restrictions (see section 1.1).
- 3.4 On request, provide appropriate documentation verifying that all packaging components supplied to Cisco meet one of the Recovery methods (see section 2.2).
- 3.5 On request, provide appropriate documentation verifying that non-manufactured wood packaging components comply with ISPM-15 (see section 2.3).
- 3.6 On request, provide a declaration of REACH's Candidate List Substances of Very High Concern (SVHCs) (see section 1.3).

## Policy 4. Cisco Documentation Requirements

Cisco must meet the following documentation requirements:

- 4.1 Ensure suppliers of any deliverables to Cisco that include packaging certify compliance to Cisco's Environmental Packaging Specification using Cisco's click-to-acknowledge process.
- 4.2 Ensure suppliers complete Cisco's Packaging Collection Form (PCF) for all packaging components delivered to Cisco, and/or complete PCF as needed.
- 4.3 Retain data collected in PCFs for a minimum of 5 years in the ISO Tool Database or equivalent after the product or packaging system is last sold.



## Policy 5. Marking/Labeling

Suppliers who provide packaging materials to Cisco have the obligation of marking and/or labeling package components as defined in this section.

### 5.1 Society of Plastics Industry (SPI) Symbol and Codes for Packaging

For rigid plastic packaging containers with volume > 8 oz, the SPI symbol must be embossed or molded into the base of the container, and should be between 0.5-1.0 inches in size (not including the letter code underneath the symbol) depending on the size of the container. The meaning of the numbers and abbreviations used in the SPI Codes are as follows:

- 1 -- polyethylene terephthalate (PETE)
- 2 -- high density polyethylene (HDPE)
- 3 -- polyvinyl chloride (PVC)
- 4 -- low density polyethylene (LDPE)
- 5 -- polypropylene (PP)
- 6 -- polystyrene (PS)
- 7 -- Others (OTHER)

The image below is for illustration only. Use the appropriate number and code for the plastic type. Details and artwork for SPI Codes can be found at The Plastics Industry Trade Association website here:

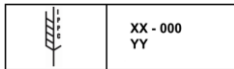
<http://www.plasticsindustry.org/AboutPlastics/content.cfm?ItemNumber=823&navItemNumber=1125>



PETE

### 5.2 Wood Packaging Marking

Non-Manufactured Wood Packaging must be marked in accordance to ISPM-15. Recycled, remanufactured, or repaired wood packaging material should be re-certified and remarked. All components of such material should be re-subjected to an approved treatment. The image below is for illustration only. Details on marking including legibility requirements can be found at <https://www.ippc.int/ispm15/>



### 5.3 Korea "Separate Discharge" Mark for Packaging

The Korean separate discharge marks are required for certain types of plastic packaging as described below. Use the appropriate mark for the type of plastic used. Please ensure the updated mark (effective July 1, 2012) is used.

This mark applies to plastic packaging (as described below) for power adapters and power supplies, cables/cords, set-top boxes, audio-video equipment and video phones. Many Cisco products do not fall into these categories. If supplier is unsure whether this mark applies to a packaging component, please consult Cisco at [pkginquiry@external.cisco.com](mailto:pkginquiry@external.cisco.com).

This marking requirement applies to cushioning materials made of synthetic (plastic) resin, such as foam buffers, and plastic sheet or film used as packaging for the types of electronic products listed above. Exceptions to the requirement include any one of the following:

- Buffers with surface area less than 50 cm<sup>2</sup>;
- Plastic film with surface area less than 100 cm<sup>2</sup>, or thickness less than 20 μm;
- Packaging component capacity less than 30 ml or 30 g;
- Packaging material on which it is technically difficult to print the mark or to attach a label; or
- Packaging material on which no other label or mark appears.

The mark should be at least 8 mm by 8 mm. Details regarding marking specifications can be found at [www.epr.or.kr](http://www.epr.or.kr). The image below is for illustration only. Use the correct marking for the packaging material and defer to official artwork provided by the Korean government via the website [www.epr.or.kr](http://www.epr.or.kr).



#### 5.4 China Packaging Recycling Mark

External packaging and secondary packaging components must be marked with the appropriate recycling marks per the National Standard of the People's Republic of China (GB 18455-2010) and per Cisco's corporate artwork specification. For paper packaging, including cardboard, consult GB 18455-2010 and Cisco's packaging artwork specification 56-3296-XX. The image below is for illustration only.



## Policy 6. Environmental Packaging Claims

“Environmental claims” are words and/or symbols that indicate packaging is made of recycled content or can be recycled. Examples of environmental claims include the word “recyclable,” the phrase “made with X% recycled content,” and display of the Mobius loop (chasing arrows in a triangle, as shown below). The US Federal Trade Commission and similar government bodies in other countries have rules regarding environmental claims. Broadly, the use of such claims must be substantiated and must not be deceptive. Therefore, environmental claims should not be used without careful consideration. Prior to use of an environmental claim on packaging, consult [pkginquiry@external.cisco.com](mailto:pkginquiry@external.cisco.com).



## Policy Compliance

### Compliance Measurement

Compliance with this document is required. Compliance to this specification is verified through various methods, including but not limited to supplier acceptance of this document via Cisco’s click-to-acknowledge process, information collected through Cisco’s Packaging Collection Form, and internal verification.

### Exceptions

Any exception to this policy must be approved by Cisco via [pkginquiry@external.cisco.com](mailto:pkginquiry@external.cisco.com).

Any records of exceptions should be archived according to the Cisco Records Management Process, [http://wwwin.cisco.com/process/bes/iso/record\\_mgmt.shtml](http://wwwin.cisco.com/process/bes/iso/record_mgmt.shtml).

### Non-Compliance

Deviations or non-compliance with this process, including attempts to circumvent the stated process by bypassing or knowingly manipulating the process, system, or data is not permitted and constitutes a violation of Cisco policy and may result in either internal and/or externally-appropriate disciplinary action.

## Related Policies, Processes and Supporting Documents

### Documents and Specifications:

- **Cisco Controlled Substances Specification**, EDCS 661823
- **Cisco Protective Packaging Materials Workmanship Specification**, 95-6048-01 (or latest revision)
- **OEM/ODM/JDM Packaging Specification**, EDCS-188266
- **Design for Distribution Specification**, EDCS-357309
- **ISO Packaging Collection Form**, EDCS-1422964
- **EU Directive on Packaging and Packaging Waste**, 94/62/EC, as amended by 2004/12/EC, 2005/20/EC, and 2013/2/EU
- **CEN Standards:** The European Union’s (EU) Directive on Packaging and Packaging Waste (94/62/EC, as

amended by 2004/12/EC, 2005/20/EC, and 2013/2/EU) calls for the establishment of standards to be used to implement the “Essential Requirements” (ERs) for packaging sold in the EU. The European Committee for Standardization (CEN) has approved harmonized standards that address the ERs. This means that packaging found to comply with the standards in one EU country is treated as compliant with the ERs throughout the EU. Refer to the latest revision of CEN standards. The CEN packaging standards are:

- **CEN 13427:** Packaging - Requirements for the use of European Standards in the field of packaging and packaging waste
- **CEN 13428:** Packaging- Requirements specific to manufacturing and composition-Prevention by source reduction
- **CEN 13429:** Packaging - Reuse
- **CEN 13430:** Packaging - Requirements for packaging recoverable by material recycling
- **CEN 13431:** Packaging - Requirements for packaging recoverable in the form of energy recovery, including specification of minimum inferior calorific value
- **CEN 13432:** Packaging - Requirements for packaging recoverable through composting and biodegradation - Test scheme and evaluation criteria for the final acceptance of packaging
- **CR 13695-1:** Packaging – Requirements for measuring and verifying the four heavy metals and other dangerous substances present in packaging, and their release into the environment – Part 1
- **CR 13695-2:** Packaging – Requirements for measuring and verifying the four heavy metals and other dangerous substances present in packaging, and their release into the environment – Part 2
- **EU Ozone Depleting Substances Regulation, EC 1005/2009**
- **EU Registration, Evaluation, Authorization and Restriction of Chemicals (REACH),** Regulation <http://echa.europa.eu/web/guest/regulations/reach/legislation> and official SVHC Candidate List which is updated periodically <http://echa.europa.eu/web/guest/regulations/reach/candidate-list-substances-in-articles>
- **International Standard for Phytosanitary Measures (ISPM) 15:** Regulation of Wood Packaging Material in International Trade <https://www.ippc.int/isp15/>
- **Plastics: Symbols and abbreviated terms – Part 1:** Basic polymers and their special characteristics, ISO 1043-1
- **China Packaging Recycling Marking,** National Standard of the People’s Republic of China, GB 18455-2010
- **Taiwan Waste Disposal Act** as amended to date
- **California’s Rigid Plastic Packaging Container (RPPC) law** <http://www.calrecycle.ca.gov/plastics/rppc/>
- **US Federal Trade Commission (FTC) “Green Guides”:** Guides for the Use of Environmental Marketing Claims <http://www.ftc.gov/enforcement/rules/rulemaking-regulatory-reform-proceedings/guides-use-environmental-marketing-claims>
- **Korea: Act on the Promotion of Saving and Recycling of Resources** as amended to date
- **Korea: Presidential Enforcement Decree of the Act on the Promotion of Saving and Recycling of Resources** as amended to date
- **Korea: Electric Appliances Safety Control Act**
- **Korean Ministry of Environment Decree #No. 2010-139**
- **Japan: Promotion of Effective Utilization of Resources** and related Ordinances

## Definitions

*The following terms and definitions are used in this document:*

**Constituent:** The smallest part from which packaging or its components are made and which cannot be separated by hand or by using simple physical means. [CR 13695-2].

**Critical Area:** Any functional criterion that limits the potential for source reduction of packaging. For example, a reduction in a critical area, such as the weight and/or volume of the package, would affect the integrity of the package or the safety or acceptance of the packed product for the consumer.

**EDCS:** Cisco's Electronic Document Control System, which is the official repository for this and other Cisco policy documents.

**Essential Requirements (ER):** Essential Requirements, with respect to packaging, is a subset of packaging requirements identified in the EU Packaging Directive (94/62/EC and its amendments to date). Considerations include Source Reduction and recoverability, among others, as listed in this document.

**European Union (EU):** The European Union (EU) is an economic and political union of 28 member states in Europe.

**Functional Unit:** According to the EU Essential Requirements (ERs), a number of components can be brought together to form a functional unit of packaging. A functional unit is a single packaging component or group of packaging components which can be recycled, composted, or incinerated without any additional separation. For example, a poly bag with a paper label is a functional unit; it would be placed in the same material recycling stream (which in this example would be plastics). The ERs mandate that functional units be evaluated for reuse and meet the standards for recovery.

**Manufactured Wood Packaging (MWP):** Wood-based products processed using wood glue, heat and compression, including, but not limited to plywood, veneer, fiberboard, particle board, oriented strand board and wafer board. Typical types of manufactured wood packaging include pallets, crates and boxes.

**Non-manufactured Wood Packaging (NMWP):** Raw form of wood, derived directly from the tree, which has undergone only primary alterations, i.e., debarking, sawing, shaping, etc. NMWP includes: packing cases, crates, drums, pallets, box pallets or other load boards, pallet collars, skids, dunnage, spacers, and bearers.

**Packaging Collection Form (PCF):** A spreadsheet used to collect data on each packaging component supplied to Cisco.

**Primary Packaging (or sales packaging):** Packaging conceived to constitute a sales unit to the final user or consumer at the point of purchase.

**Secondary Packaging (or grouped packaging):** Packaging used to group a certain number of sales units. Grouped packaging can be sold as such or as an intermediary distribution packaging. Secondary packaging can be removed from the product without affecting its characteristics.

**Tertiary Packaging (or transport packaging):** Packaging used to facilitate handling and transport of a number of sales units or grouped packages in order to prevent handling and transport damage. Transport packaging does not include road, rail, ship and air containers.

**Postconsumer Recycled Material:** Materials that have served their intended use and have been diverted from the waste stream for reuse or recycling. Postconsumer recycled material does not include materials and by-products generated from, and commonly reused within, an original manufacturing and fabrication process.

**REACH:** Regulation (EC) No 1907/2006 concerning the Registration, Evaluation, Authorization and Restriction of Chemicals (REACH), December 18, 2006 (and its amendments)

**Rigid Plastic Packaging Container (RPPC):** A plastic packaging container that is: made entirely of plastic (except for incidental portions of the packaging), has a relatively inflexible shape or form, has a minimum capacity or volume of eight (8) ounces up to a maximum capacity or volume of five (5) gallons, is capable of at least one closure (including closure during the manufacturing process), and holds a product that is sold or offered for sale in California.

## Approvals

Organization	Name
Manager, Packaging Engineering	Toni Tam
Director, Global Manufacturing Operations	Jack Allen
Director, Quality Assurance, Corp. Compliance	Tony Youssef
Director, Environmental Affairs	Joe Johnson
Director, Sustainability, Risk & Compliance, SCO	Kathleen Shaver
Director, Global Supply Management, SCO	Hon Man Cheung
Director, Global Service Delivery Excellence	Syd Garrett
Director, Remarketing	Scott Ravel
Director, Global Manufacturing Operations, SCO	Kim Hyland
Director, Acquisitions Integration, SCO	Steve Nunamaker
Director, Component Quality & Technology, SCO	Nan Wang
Director, Central Product Ops, SCO	Greg Twiss
Director, CDBU Packaging Engineering	Mike Woods
Manager, CABU Product Ops Manager	Carl Woodward

The record of approval is located at the following link: [EDCS-886022](https://www.cisco.com/c/en/us/td/docs/whitepapers/2017/07/20170701-edcs-886022.html)

## Revision History

Date	Name	Modifications Made
A0	Mary Shefelveland & Pat Lewis	Initial Release; E101895
B0	Pat Lewis & Corrine Holmes	Removed 95 level in favor of EDCS tracking number; Appendix 2 Start dates moved.
C0	Kelly Stumbaugh, Eric Wenger, Scott Gemmett, Kris Spriano	Reformatted and reworded for current Cisco product portfolio, latest regulatory nomenclature, actual design and material selection practices, and supplier ease of use  Introduced "Click to Acknowledge" process, packaging collection form (PCF) terminology and clarification of PCF documentation requirements  Provided further clarification around scope and resulting impacted suppliers