

# **Lenovo Packaging Specification 41A0612**

## **Packaging Materials, Environmental Requirements**

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## 1.0 Introduction

### 1.1 Purpose

This engineering specification defines the global environmental packaging requirements for all Lenovo products. This specification acts as a subset of Lenovo Engineering Specification 41A7731; Baseline Environmental Requirements for Lenovo Products, Materials, and Parts.

### 1.2 Compliance

Compliance with the requirements herein will be enforced as a condition of purchase per Lenovo purchase contracts, either for the supply of parts or subcomponents or for the purchase of packaging materials for the shipment and distribution of Lenovo products and integrated hardware solutions. When the requirements of this specification conflict with applicable governmental regulations or legislation the more stringent requirements shall take precedence.

### 1.3 Scope

This Lenovo Engineering specification (ES 41A0612) is a global requirement that applies to all packaging used in protecting, handling, or marketing of Lenovo products, parts and supplies including those manufactured by an Original Equipment Manufacturer (OEM), Contract Manufacturer (CM), or 3rd Party vendor.

### 1.4 Terms and Definitions

<b>Cadmium (Cd):</b>	A metallic element sometimes used in plastics manufacture.
<b>Hexavalent Chromium (Cr6)</b>	Chromates are often used as pigments for photography, and in pyrotechnics, dyes, paints, inks, and plastics. They can also be used for stainless steel production, textile dyes, wood preservation, leather tanning, and as anti-corrosion coatings. It is carcinogenic and corrosive on living tissue.
<b>Lead (Pb):</b>	A metallic element used in plastics manufacture as a heat stabilizer and in inorganic pigments for opacity. It is a cumulative toxin.
<b>Mercury (Hg):</b>	A metallic element used in inorganic pigments. It is a neurotoxin.
<b>Methyl Bromide (aka Bromomethane)</b>	A volatile gas that is used for fumigation of wooden packaging to combat pests (insects). Methyl Bromide is a concern because it is material of concern since it is an ozone depleting substance.
<b>Halogenated or Brominated Flame Retardants</b>	Polybrominated Biphenyls (PBB's) and Polybrominated Biphenyl Ethers (PBDE's). These have been used for fire retardation in plastics and therefore may find their way into reusable or durable plastic items used for packaging.

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<b>OEM / CM</b>	Original Equipment Manufacturer / Contract Manufacturer. Companies that may be involved in building Lenovo products, parts or subcomponents for Lenovo products.
<b>Package</b>	A container providing a means of marketing, protecting, or handling a product; including a unit package, an intermediate package, and a transport shipping container as defined in EU Directive 94/62/EC
<b>3rd Party Manufacturer</b>	A company that provides an auxiliary product not supplied by the primary manufacturer.
<b>Packaging Components</b>	<p>Packaging materials which can be easily separated by hand or by simple mechanical means during the waste management process.</p> <p>Examples of Packaging Components:</p> <ul style="list-style-type: none"> <li>• Inserts</li> <li>• Cushions</li> <li>• Cartons</li> <li>• Adhesive Tape and Labels adhered to cartons or other materials</li> <li>• Banding/Strapping</li> <li>• Clips</li> </ul>
<b>Packaging Subcomponents</b>	<p>They are considered to be a part of the packaging material or packaging component to which they are permanently attached.</p> <p>Examples of packaging subcomponents:</p> <ul style="list-style-type: none"> <li>• Inks printed on cartons or other packaging materials</li> <li>• Nails, screws and other hardware used in pallets and crates</li> <li>• Staples used in the Manufacturer's Joint of a Carton</li> <li>• Coatings placed on packaging materials</li> </ul>

## 2.0 Requirements

### 2.1 *Restricted Materials / Heavy Metals*

All Lenovo packaging is to be in compliance with the restricted materials defined in Lenovo specification 41A7731.

No packaging material or packaging component used for Lenovo parts or products shall contain lead (Pb), cadmium (Cd), mercury (Hg), hexavalent chromium (Cr6), or brominated flame retardants (including PBB, PBDE, TBBA, TBBPA, and HBCDD) as part of its final composition in excess of a sum concentration level of 100ppm (0.01%) by weight.

Example: If a packaging component or material is analyzed and found to have 10ppm of lead, 20ppm of Cadmium, and 80ppm of Hexavalent Chromium then this material would not be compliant since the sum concentration is 110ppm (over the 100ppm limit).

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All packaging subcomponents (as defined in section 1.5) must comply with the 100ppm limits individually. That way, no matter how many of them are used, and in any combination, it would be impossible for the overall concentration to exceed 100ppm in the final package assembly.

There shall be no intentional introduction of any of the restricted substances for the purpose of achieving a specific desired function, performance or appearance. Regardless of whether a restricted substance was intentionally used, the final composition amount is what matters.

Example: It is possible that Cr6 is used in the sheet metal manufacturing process; however, when the sheet metal is completed, it has less than 100ppm of Cr6 in its final composition. Therefore, this would be compliant.

**2.2 Wood Packaging Materials**

All wood packaging materials must comply with Lenovo Engineering Specification 41A0609; “Wooden Packaging”- Material Selection, Treatment, and Marking Requirements.

**2.3 Ozone Depleting Substances**

The use of Methyl Bromide for fumigation purposes is not allowed. Exceptions to this requirement are not permitted. In addition, all packaging materials must comply with Lenovo Engineering Specification 41A0610; Expanded Packaging Materials – Prohibited Expansion Agents.

**2.4 Polyvinyl Chloride (PVC)**

Do not use Polyvinyl Chloride (PVC) for packaging applications. While PVC is inert, its use in disposable packaging is a concern to many clients and therefore Lenovo has elected to not use PVC for packaging applications. The most common uses of PVC in packaging is flexible wraps and semi-rigid trays.

**2.5 Packaging Material Coding**

Providing the means for Lenovo customers to properly identify and recycle components is a key focus for Lenovo. It is required that all packaging materials be coded in accordance with Lenovo Engineering Specification 41A0613; Recyclable Packaging Materials- Selection and Identification.

**2.6 Registration, Evaluation, and Authorization of Chemicals (REACH)**

All packaging components supplied to Lenovo are required to comply with regulation EC1907/2006. Suppliers must pre-register or register their substances or preparations as required by the Directive. Suppliers must assess whether any packaging components or sub components supplied to Lenovo contain substances classified as “substances of very high concern” (SVHC) in a concentration of more than 0.1% w/w in the article. If this is the case, the information must be reported to Lenovo procurement.

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If the total volume of the SVHC exceeds one ton per year this information must be communicated to the European Chemicals Agency. For more information about REACH, please access the European Chemical Agency (ECHA) website: <http://echa.europa.eu>

The candidate list can be found at:

[http://echa.europa.eu/chem\\_data/candidate\\_list\\_en.asp](http://echa.europa.eu/chem_data/candidate_list_en.asp)

## 2.7 Dimethyl Fumarate (DMF)

Per EU Commission Decision 2009/251/EC; DMF (dimethylfumarate - CAS 624-49-7) must not be used in concentrations greater than 0.1mg/kg.

DMF is an anti fungal agent that may be found in some Silica Gel Packs.

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## 3.0 Supplier Responsibility

1. Suppliers of packaging materials and components, who are distributors and not manufacturers, shall ensure that their source manufacturers are in compliance with this specification.
2. Suppliers of packaging materials and components, who are manufacturers, shall ensure that their source manufacturers and materials suppliers are in compliance with this specification. Suppliers of packaging materials and components must provide Lenovo with certification documentation ensuring compliance with this specification.
3. OEM suppliers who distribute or remarket Lenovo logo products, parts or supplies must provide Lenovo with certification documentation ensuring compliance with this specification.
4. Lenovo may request compliance certifications and test data from its first tier suppliers. A web based tool will be established for this purpose and will be communicated separately. Those suppliers in turn will need to request certifications and data from their suppliers and so on as many tiers as necessary to get to the first source manufacturer of the packaging material or packaging component (see section 3.1).
5. The certification process itself is subject to change based on industry norm or convention. For instance, if standardized methods for compliance certification are adopted universally, then this method shall be adopted herein as part of this specification.
6. Blanket Commodity Certifications are allowed as per the description that follows. For instance, Supplier A makes only corrugated fibreboard materials. They have tested their process and determined that all of their corrugated materials meet the requirements of this specification. They may submit a blanket certification covering all corrugated fibreboard materials purchased by Lenovo or its OEM partners on our behalf. A separate certification for each carton part number is not required. This is a practical approach considering that there are far fewer packaging commodities than there are individual packaging components. However, at the Government and Client level, they want to know that a specific product they are purchasing from Lenovo is in compliance. Therefore, extrapolation from packaging

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commodity compliance to product compliance is presumed when every individual packaging commodity is certified by the Supplier(s) to be in compliance.

Suppliers should contact Lenovo Purchasing at the appropriate manufacturing or distribution location with any questions concerning this specification.

## 4.0 Lenovo Responsibility

Refer to Appendix A for an illustrated example

1. Packaging Procurement and/or Packaging Engineering organizations having design specification or purchasing responsibility for Lenovo / CM built products, supplies, packaging materials, and packaging components will establish audit processes to ensure and track compliance with this specification.
2. OEM Procurement: This responsibility includes the packaging for OEM products, parts and supplies because the regulations consider Lenovo to be responsible if Lenovo is the importer of record.
3. Assigned GCMs within Lenovo are responsible in all instances where Lenovo is the final importer of record, including third party goods. For instance, if Lenovo procures products from another manufacturer (3rd Party Manufacturer) to bundle with Lenovo Logo products for sale to a client, Lenovo may then be considered liable for compliance of the entire sales offering including the non-Lenovo logo'd items.

*Example 1: Lenovo sells a complete solution to a client which involves Lenovo computers as well as third party (non-Lenovo Logo) printers and software. Technically, since Lenovo brought the solution to market, Lenovo is considered to be responsible with regard to EU Directive 94/62/EC compliance for the entirety including the third party products. In this case, IGS PROCUREMENT is responsible for obtaining a certification from the supplier(s) for their respective pieces of equipment, for instance, a Lexmark printer or Microsoft Software.*

*Example 2: Several tiers down the supply chain of a packaging commodity a wood crate with permanent metal fasteners are audited for compliance purposes. As those fasteners cannot be removed by hand or by simple mechanical means they are considered part of the package, e.g. crate. In this case, some calculations would be required to determine the relative weight of the fasteners compared to the wood in order to determine compliance status.*

- *Outcome 1: Calculations determine that the overall crate is below 100ppm even though the permanent fasteners were found to be above 100ppm individually. As a consequence, the crate could be deemed legally compliant according to EU Directive 94/62/EC; however, a mitigation plan to bring the permanent fasteners into compliance with the 100ppm limit would be required to meet Lenovo requirements for individual packaging subcomponents (per Section 2.a).*

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- *Outcome 2: Calculations determined that the crate would exceed the 100ppm limit for heavy metals. In this case, the entire crate would NOT be eligible for shipment and alternative packaging would have to be put into place.*

See Figure in Appendix A for explanation of the general approach. Scope is not limited only to those commodities illustrated; it applies to any packaging component or material or packaging supply organizational structure.

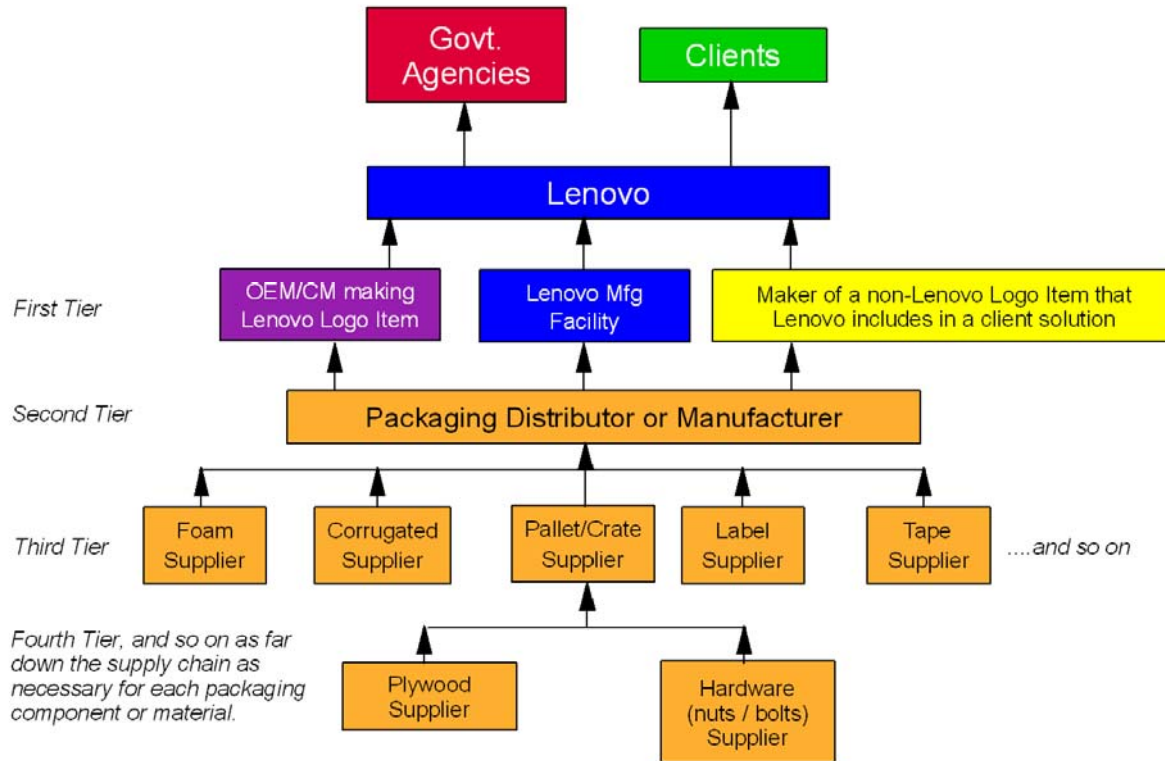
Important: At this time there are no officially sanctioned or standardized certification forms or specific testing methods established for compliance with the EU 94/62/EC Directive. Therefore, it is simply necessary to perform the testing using generally accepted industry methods and document the way it was conducted and the results. Furthermore, those documented results must be available upon request in the event of a process audit. Lenovo will require proactive affirmation of compliance status, to be recertified on an annual basis, and the scope by which that certification applies (type of material, where used, and so on). See Appendix B for example.

## **Appendix A: Compliance Reporting Structure**

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### Packaging Essential Requirements Restricted Heavy Metals Compliance Reporting Structure



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Appendix B: Certification of Compliance

Click here or visit this web page for full details

<http://www.pc.ibm.com/ww/lenovo/procurement/index.html>

**Summary of Questions:** This summary is provided for convenience. Full details are contained in the referenced Lenovo Engineering Specifications and related regulatory requirements.

**Mandatory Questions:**

- 1. Does your packaging material/design manufacturing process EXCLUDE intentionally introduced restricted toxins (Lead, Cadmium, Hexavalent Chromium, Mercury, and brominated flame retardants and have a sum concentration of these substances less than 100ppm (<0.01%) by weight? Yes (Compliant) or No (Not compliant)
- 2. Are the packaging materials/designs you manufacture for use on *nonreusable* packaging for Lenovo products recyclable? Yes (Compliant) or No (Not compliant)
- 3. Are the packaging materials/designs you manufacture for use on Lenovo products separable by hand and without special tools? Yes (Compliant) or No (Not compliant)
- 4. Are your plastic packaging materials sufficiently marked to augment separation and recycling? Yes (Compliant) or No (Not compliant)
- 5. Do the packaging materials/designs you manufacture for use on Lenovo products meet or exceed the specified (Post Consumer) recycled content per CPG Guidelines? Yes (Compliant) or No (Not compliant)
- 6. Is all wooden packaging heat treated and marked per Lenovo Spec 41A0609 (and therefore compliant with ISPM-15)? Yes (Compliant) or No (Not compliant)
- 7. Are all packaging materials compliant and registered (where applicable) with REACH EC1907/2006? Yes (Compliant) or No (Not compliant)

**Bonus Questions:** These are often required by clients and may be required in some countries.

- 8. Are the packaging materials/designs you manufacture for use on Lenovo products reusable?
- 9a. Do you offer a post-use Take Back option for your packaging materials? Yes / No
- 9b. If yes, is this available at no cost to the end customer? Yes / No
- 10. Please explain any significant source reductions that may have been implemented or use this section to explain if a noncompliance to any EPEAT criteria was justified on the basis of a significant source reduction. Example: a 90% source reduction was achieved but this resulted in the materials becoming commingled and therefore not compliant with question 3 above.

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**Appendix C: References and Related Documents**

<b>Document Number</b>	<b>Description</b>
EU Directive 94/62/EC (1994), Article 11	European Parliament and Council Directive on Packaging and Packaging Waste
EU Directive 2004/12/EC	Addendum to EU Directive 94/62/EC

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