

# RoHS/REACH Engineering Specification



## Lenovo RoHS/REACH Engineering Specification Addendum to Lenovo Environmental Specification 41A7731

Number	41A7733
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Applicability	Lenovo brand products worldwide
Owner	Global Environmental Affairs

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### 1.0 Purpose and Scope

This Specification communicates Lenovo's requirements for Lenovo brand products and materials, parts and assemblies incorporated into Lenovo Brand products worldwide, in accordance with European Union directive for the Restriction of Hazardous Substances (RoHS) and the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) in electrical and electronic equipment, similar regulations in other markets and more stringent limits set by Lenovo.

This Specification does not apply to spare parts for the repair, or reuse, of electrical and electronic equipment put on the market before July 1, 2006, batteries or process chemicals.

### 2.0 RoHS Requirements

Lenovo brand products and materials, parts and assemblies in Lenovo brand electrical and electronic products must meet the following requirements:

1. Applicable laws and regulations;
2. Lenovo Engineering Specification [41A7731](#) Baseline Environmental Requirements for Materials, Parts and Products for Lenovo Hardware Products; and
3. This Lenovo RoHS/REACH Engineering Specification [41A7733](#).

Homogeneous materials within new Lenovo brand products and parts and assemblies for new Lenovo brand products must comply with the criteria shown in Table 1.

Non-Lenovo brand (i.e., third-party/Supplier logo) products must comply with applicable legal requirements.

Should the requirements of this Specification conflict with applicable governmental regulations or legislation the more stringent requirements shall take precedence.

### 2.2 Verification

Suppliers are expected to complete and return the [Lenovo Supplier Material Declaration](#).

At Lenovo's request, the supplier must be able to provide technical documentation in the form of internal design controls, supplier data or analytical test reports.

An authorized person, product assurance or similar must sign the declaration. Lenovo specifications are available at Lenovo's [Product Content Restrictions and Packaging Requirements](#) web page.

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<b>Table 1</b> Lenovo's Maximum Concentration Values for RoHS substances		
<b>Substance</b>	<b>Threshold Level weight % (ppm)</b>	<b>Exemptions</b>
Cadmium (Cd) and its compounds	<p>0.01% (100 ppm)</p> <p><b>EPEAT products:</b> 0.005% (50 ppm)</p> <p><b>Test Method:</b> IEC 62321: ICP-OES, ICP-MS, AAS</p>	<p>8. Cadmium and its compounds in electrical contacts and cadmium plating except for applications banned under Directive 91/338/EEC amending Directive 76/769/EEC relating to restrictions on the marketing and use of certain dangerous substances and preparations</p> <p>13b. Cadmium in optical and filter glass</p> <p>21. Lead and cadmium in printing inks for the application of enamels on borosilicate glass</p> <p>30. Cadmium alloys as electrical/mechanical solder joints to electrical conductors located directly on the voice coil in transducers used in high-powered loudspeakers with sound pressure levels of 100 dB (A) and more</p> <p>35. Cadmium in photoresistors for optocouplers applied in professional audio equipment until 31 December 2009.</p> <p>38. Cadmium and cadmium oxide in thick film pastes used on aluminium bonded beryllium oxide.</p>
Hexavalent Chromium (Cr6) and its compounds	<p><b>Metallic applications:</b> Intentionally added</p> <p><b>Non-metallic applications:</b> 0.1% (1000 ppm)</p> <p><b>EPEAT products:</b> 0.05% (500 ppm)</p> <p><b>Test Method:</b> Polymers, Electronics: IEC 62321: Alkaline Digestion / Colorimetric Method</p> <p>Metals: Spot-test procedure / boiling water extraction procedure. EPE 3060A is not an acceptable test method</p>	<p>9. Hexavalent chromium as an anti-corrosion of the carbon steel cooling system in absorption refrigerators</p>
Lead (Pb) and its compounds	<p>0.1% (1000 ppm)</p> <p><b>Paint:</b> 0.01% (100 ppm)</p> <p><b>External PVC cables, wire coatings:</b> 0.03% (300 ppm)</p> <p><b>Visual Display Units for EPEAT products:</b> 0.005% (50 ppm) by weight (not homogenous)</p> <p><b>Test Method:</b> IEC 62321: ICP-OES, ICP-MS, AAS</p>	<p>5. Lead in glass of cathode ray tubes, electronic components and fluorescent tubes</p> <p>6a. Lead as an alloying element in steel containing up to 0.35 % lead by weight</p> <p>6b. Lead as an alloying element in aluminum containing up to 0.4 % lead by weight</p> <p>6c. Lead as an alloying element in copper alloy containing up to 4% lead by weight</p> <p>7a. Lead in high melting temperature type solders (i.e., lead-based alloys containing 85 % by weight or more lead)</p> <p>7b. Lead in solders for servers, storage and storage array systems, network infrastructure equipment for switching, signaling, transmission as well as network management for telecommunications,</p> <p>7c. Lead in electronic ceramic parts (e.g., piezoelectronic devices)</p> <p>9b. Lead in lead-bronze bearing shells and bushes</p> <p>11. Lead used in compliant pin connector systems</p> <p>12. Lead as a coating material for the thermal conduction module c-ring</p>

Table 1 Lenovo's Maximum Concentration Values for RoHS substances		
Substance	Threshold Level weight % (ppm)	Exemptions
		<p>13a. Lead in optical and filter glass</p> <p>14. Lead in solders consisting of more than two elements for the connection between the pins and the package of microprocessors with a lead content of more than 80% and less than 85% by weight</p> <p>15. Lead in solders to complete a viable electrical connection between semiconductor die and carrier within integrated circuit Flip Chip packages</p> <p>16. Lead in linear incandescent lamps with silicate coated tubes</p> <p>17. Lead halide as radiant agent in High Intensity Discharge (HID) lamps used for professional reprography applications</p> <p>18. Lead as activator in the fluorescent powder (1% lead by weight or less) of discharge lamps when used as sun tanning lamps containing phosphors such as BSP (BaSi<sub>2</sub>O<sub>5</sub>:Pb) as well as when used as specialty lamps for diazo-printing reprography, lithography, insect traps, photochemical and curing processes containing phosphors such as SMS ((Sr,Ba)<sub>2</sub>MgSi<sub>2</sub>O<sub>7</sub>:Pb)</p> <p>19. Lead with PbBiSn-Hg and PbInSn-Hg in specific compositions as main amalgam and with PbSn-Hg as auxiliary amalgam in very compact Energy Saving Lamps (ESL)</p> <p>20. Lead oxide in glass used for bonding front and rear substrates of flat fluorescent lamps used for Liquid Crystal Displays (LCD)</p> <p>21. Lead and cadmium in printing inks for the application of enamels on borosilicate glass</p> <p>22. Lead as impurity in RIG (rare earth iron garnet) Faraday rotators used for fiber optic communications systems</p> <p>23. Lead in finishes of fine pitch components other than connectors with a pitch of 0.65 mm or less with NiFe lead frames and lead in finishes of fine pitch components other than connectors with a pitch of 0.65 mm or less with copper lead frames</p> <p>24. Lead in solders for the soldering to machined through hole discoidal and planar array ceramic multilayer capacitors</p> <p>25. Lead oxide in plasma display panels (PDP) and surface conduction electron emitter displays (SED) used in structural elements; notably in the front and rear glass dielectric layer, the bus electrode, the black stripe, the address electrode, the barrier ribs, the seal frit and frit ring as well as in print pastes</p> <p>26. Lead oxide in the glass envelope of Black Light Blue (BLB) lamps</p> <p>27. Lead alloys as solder for transducers used in high-powered (designated to operate for several hours at acoustic power levels of 125 dB SPL and above) loudspeakers</p> <p>29. Lead bound in crystal glass as defined in Annex I (Categories 1, 2, 3 and 4) of Council Directive 69/493/EEC</p> <p>31. Lead in soldering materials in mercury free flat fluorescent lamps (which e.g. are used for liquid crystal displays, design or industrial lighting).</p> <p>32. Lead oxide in seal frit used for making window assemblies for Argon and Krypton laser tubes</p> <p>33. Lead in solders for the soldering of thin copper wires of 100 µm diameter and less in power transformers.</p> <p>34. Lead in cermet-based trimmer potentiometer elements.</p>

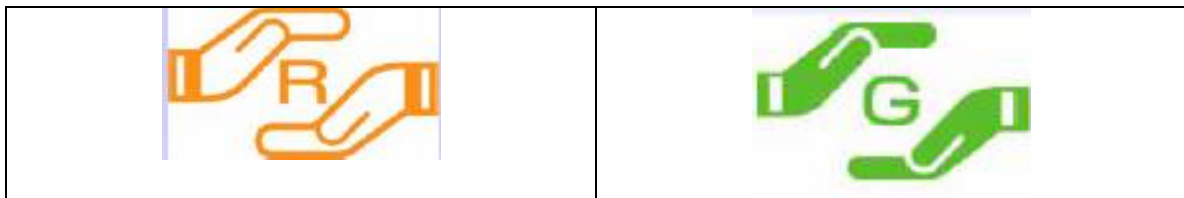
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Table 1 Lenovo's Maximum Concentration Values for RoHS substances		
Substance	Threshold Level weight % (ppm)	Exemptions
		37. Lead in the plating layer of high voltage diodes on the basis of a zinc borate glass body.
Mercury (Hg) and its compounds	Not present except in lamps  <b>Test Method:</b> IEC 62321: CV-AAS, AFS, ICP-OES, ICP-MS	1. Mercury in compact fluorescent lamps not exceeding 5 mg per lamp  2a. Mercury in straight fluorescent lamps for general purposes not exceeding halophosphate 10 mg  2b. Mercury in straight fluorescent lamps for general purposes not exceeding triphosphate with normal lifetime 5 mg  2c. Mercury in straight fluorescent lamps for general purposes not exceeding triphosphate with long lifetime 8 mg  3. Mercury in straight fluorescent lamps for special purposes  4. Mercury in other lamps not specifically mentioned in this list  36. Mercury used as a cathode sputtering inhibitor in DC plasma displays with a content up to 30 mg per display until 1 July 2010.
Polybrominated biphenyl (PBB)	Not present  <b>Test Method:</b> IEC 62321: GCMS	None
Polybrominated diphenyl ether (PBDE), including DecaBDE	Not present  <b>Test Method:</b> IEC 62321: GCMS	None

2.3 Product Marking and Information Disclosure

2.3.1 Products for Japan: must meet the requirements of Japanese Industrial Standard for The Marking the presence of the Specific Chemical Substances for electrical and electronic equipment (JIS C 0950:2005, "J-MOSS"). Product development teams must provide product conformity declarations to Lenovo's Japan Environment representative before offering product for sale in Japan.

1. Mandatory "R" mark if the product does not meet the requirements of the RoHS Directive.
2. Optional\* green "G" mark to show no such substances are contained (\*not required by Lenovo).
3. Product material declaration table in Japanese on external [Lenovo Japan Environment website](#)



2.3.2 "Korea RoHS": must meet the requirements of The Act for Resource Recycling of Electrical and Electronic Equipment and Vehicles ("Korea RoHS"). Product development teams must provide product conformity declarations to Korea's Country Manager representative before offering product for sale in Korea. Product declarations must be on the Korea ECOAS (<http://www.ecoas.or.kr/>) web page before offering product for sale in Korea.

2.3.3 Products for Turkey: must meet the requirements of Turkey's Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment (RoHS) regulation. Product development teams must provide product conformity declarations to Lenovo's Turkey Country Manager representative, annually beginning June 2009 for submission to the Turkey Ministry of Environment and Forestry.

**2.3.4 Products for People's Republic of China:** must meet requirements of "The Management Methods for Controlling Pollution by Electronic Information Products (EIP)" ("China RoHS"). English translations are available at the [AEA website](http://www.aea.gov.cn/); the official documents are in Chinese at <http://www.mii.gov.cn/>

### 1. Environmental Protection Use Period (EPUP)

Electronic end products, parts, accessories, options, Field Replacement Units (FRUs) and Customer Replaceable Units (CRUs) for "independent commercial sale" in China must be marked with one of two logos:

**Logo 1:** "e" inside circle indicates product is compliant with Maximum Concentration Value Standard SJ/T 11363-2006 **or**

**Logo 2:** Environment Protection Use Period (EPUP) in years in circle indicating product is noncompliant (exceeds) Maximum Concentration Values in Standard SJ/T 11363-2006

Exception: Parts purchased for manufacturing (internal to a product) do NOT need to be marked

EPUP Mark artwork, color, size, font specifications are provided in: Labeling Standard SJ/T 11364-2006

- EPUP mark must be on product unless the product total surface area is <math>5000\text{mm}^2</math> (or  $7.75\text{ in}^2$ ) or is of irregular shape. In this case, the EPUP mark must be included in the product documentation that accompanies the product.
- Minimum 5 mm x 5 mm EPUP mark size
- There are no marking color restrictions as long as the mark is visible (black and white is acceptable). The color green should not be used for Logo 2.
- Lenovo products use EPUP number is "10" for most PC products, monitors and options; "20" for enterprise products; "5" for batteries. Should the EPUP mark on a product differ from the EPUP mark on product documentation, the mark on the product shall take precedence.



No "China RoHS" Substances



Contains "China RoHS" Substances

In this example: "10" means EPUP period is 10 years

### 2. Substance Disclosure Table


Products that require **Logo 2** must have a Substance Disclosure Table in the product documentation that accompanies the product (software or paper-based). This includes system products, parts, FRUs, accessories and options for independent commercial sale.

- Text must be in Simplified Chinese (except for "O" and "X")
- Table must include Product Name, Part Name(s), Insert "O" or "X" for each key part. In cases where "X" is shown, Lenovo uses an EU RoHS exemption
- Minimum font size is 1.8 mm
- See the example table below. The EPUP mark in the table is interpreted as the explanation of the EPUP mark on the product surface. The Chinese text beside the mark means this. (In the case of a small part, EPUP mark and explanatory text in the table can be regarded as the EPUP information specific for the product.)

Example: Substance Disclosure Table

Lenovo 电脑元件	有毒有害物质或元素					
	铅 (Pb)	汞 (Hg)	镉 (Cd)	六价铬 (Cr(VI))	多溴联苯 (PBB)	多溴二苯醚 (PBDE)
半导体元件	○	○	○	○	○	○
散热器	X	○	○	○	○	○

O: 表示该有毒有害物质在该部件所有均质材料中的含量均在 SJ/T 11363-2006 标准规定的限量要求以下。  
X: 表示该有毒有害物质至少在该部件的某一均质材料中的含量超出 SJ/T 11363-2006 标准规定的限量要求。  
对于销往欧盟的产品, 标有“X”的项目均符合欧盟指令 2002/95/EC 豁免条款。



在中华人民共和国境内销售的电子信息产品上将印有“环保使用期”(EPU)符号。圆圈中的数字代表产品的正常环保使用年限。

**3. Date of Manufacture:** date of manufacture in YYYY-MM-DD format marked on the product or on the product's sales package

**4. Packaging Marking:** mark according [Lenovo Packaging Specification 41A0613](#)

**3.0 Substances of Very High Concern (SVHC) in Articles - Reporting Requirements**

Lenovo requires suppliers to identify if any Substances of Very High Concern (SVHC) present in an Article (Deliverable) at or above the 0.1% weight by weight (w/w) concentration and report the name and CAS number of the SVHC candidate and the quantity on the Supplier Material Declaration (IPC-1752 form) for the Deliverable. See Table 2 in this section for a list of SVHC which must be reported on the Supplier Material Declaration. The current candidate list of SVHC as published by the EU is located at: [http://echa.europa.eu/chem\\_data/authorisation\\_process/candidate\\_list\\_table\\_en.asp](http://echa.europa.eu/chem_data/authorisation_process/candidate_list_table_en.asp). This list is subject to change by the European Chemicals Agency (ECHA).

Two of the SVHC are not included on the table below. They are:

- 5-tert-butyl-2,4,6-trinitro-m-xylene (musk xylene)
- Alkanes, C10-C13, chloro (Short Chained chlorinated Paraffins)

It is unlikely that musk xylene is present in electronic hardware and the short chained chlorinated paraffins are banned in Lenovo Deliverables, see Specification 41A7731, Table 1. If these substances are present in a Deliverable please report them on the Supplier Material Declaration (IPC 1752 form). There is a section for "Other" which can be used for this purpose.

If an SVHC is present in a Deliverable at or above the reporting concentrations, the Supplier must provide a customer communication to Lenovo meeting the requirements of Article 33 of the EU REACH Regulation.

SVHC (from proposed Candidate List)	CAS Number (EC#)	Reporting Concentration	Examples of industry uses
Anthracene	120-12-7 (204-371-1)	At or above 0.1% weight by weight of the Deliverable	Scintillator for radiation detection. Radiation therapy dosimetry.
4,4'-diaminodiphenylmethane (or methylene dianiline)	101-77-9 (202-974-4)	At or above 0.1% weight by weight of the Deliverable	As intermediate for polyurethane foam and resins. Hardener for epoxy resins and adhesives.
Dibutyl phthalate (DBP)	84-74-2 (201-557-4)	At or above 0.1% weight by weight of the Deliverable	Plasticiser in plastics(e.g., polyvinyl chloride). Used in sealants, varnishes, paper coatings, inks,

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Cobalt dichloride	7646-79-9 (231-589-4)	At or above 0.1% weight by weight of the Deliverable	resins and adhesives. Cobalt plating and cobalt based pigments and drier compounds (desiccants).
Diarsenic pentaoxide	1303-28-2 (215-116-9)	At or above 0.1% weight by weight of the Deliverable	Hardener for copper, lead or gold in alloys. Used in production of dyes and glass. Wood preservative.
Diarsenic trioxide	1327-53-3 (215-481-4)	At or above 0.1% weight by weight of the Deliverable	Used to make elemental arsenic, gallium arsenide and some alloys. Used in glass industry. Wood preservative.
Sodium dichromate, dihydrate	7789-12-0; 10588-01-9 (234-190-3)	At or above 0.1% weight by weight of the Deliverable	Metal finishing, passivation and metal plating. Pigments in paints, plastics, and glass.
Bis (2-ethyl(hexyl)phthalate) (DEHP)	117-81-7 (204-211-0)	At or above 0.1% weight by weight of the Deliverable	Plasticiser in plastics(e.g., polyvinyl chloride). Used in sealants, varnishes, paper coatings, inks, resins and adhesives.
Hexabromocyclododecane (HBCDD) and all major diastereoisomers identified ( $\alpha$ - HBCDD, $\beta$ -HBCDD, $\gamma$ -HBCDD)	25637-99-4; 134237-50-6; 134237-51-7; 134237-52-8 (247-148-4; 221-695-9)	At or above 0.1% weight by weight of the Deliverable	Flame retardant in extruded and expanded polystyrene and flexible polyurethane foam.
Bis(tributyltin)oxide (TBTO)	56-35-9 (200-268-0)	At or above 0.1% weight by weight of the Deliverable	Antiseptic, antifungal agent, paint, pigment, antistaining, refrigerant, foaming agent, extinguishant.
Lead hydrogen arsenate.	7784-40-9 (232-064-2)	At or above 0.1% weight by weight of the Deliverable	Biocide for wood.
Triethyl arsenate	15606-95-8 (427-700-2)	At or above 0.1% weight by weight of the Deliverable	Biocide for wood.
Benzyl butyl phthalate (BBP)	85-68-7 (201-622-7)	At or above 0.1% weight by weight of the Deliverable	Plasticiser in plastics(e.g., polyvinyl chloride). Used in sealants, varnishes, paper coatings, inks, resins and adhesives.

EC# - found in EINECS (European INventory of Existing Commercial chemical Substances).  
 EU REACH Regulation Number 1907/2006 can be found at [http://echa.europa.eu/reach/legislation\\_en.asp](http://echa.europa.eu/reach/legislation_en.asp)  
 The EU provides guidance documents for REACH, specifically guidance documents for Substances in Articles as well as the candidate list for SVHC at [http://guidance.echa.europa.eu/guidance\\_en.htm](http://guidance.echa.europa.eu/guidance_en.htm)  
 Additional information about REACH can be found at the European Chemicals Agency web site at <http://echa.europa.eu/>

#### 4.0 Definitions

**REACH:** an acronym for the European Commission Regulation Number 1907/2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals.

**RoHS:** European Union Directive [2002/95/EC](#) restriction of the use of certain hazardous substances in new electrical and electronic equipment that became effective July 1, 2006.

#### Substance(s) of Very High Concern (SVHC)

1. Substances meeting the criteria for classification in accordance with EU Directive 67/548/EEC:

- Carcinogenic category 1 or 2
- Mutagenic category 1 or 2
- Toxic for reproduction category 1 or 2;

2. Substances which are persistent, bioaccumulative and toxic (PBT) or very persistent and very

bioaccumulative (vPvB) in accordance with the criteria set out in Annex XIII of the EU REACH Regulation;

3. Substances- such as those having endocrine disrupting properties or those having PBT properties or vPvB properties which do not fulfill the criteria of 2 above - for which there is scientific evidence of probable serious effects to human health or the environment which give rise to an equivalent level of concern to those of other substances listed in 1 or 2 and which are identified on a case-by-case basis in accordance with the procedure set out in Article 59 of REACH. This definition is from the EU REACH Regulation, Article 57.

**Article** - an object which during production is given a special shape, surface or design which determines its function to a greater degree than does its chemical composition. This definition is from EU Regulation 1907/2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH).

**Deliverable(s)**: any tangible item(s) delivered by or for a Supplier to Lenovo in accordance with a purchase contract or other agreement with Lenovo. Deliverables include, but are not limited to, components, materials, parts, and products.

**Electronic Product Environmental Assessment Tool (EPEAT)**: based upon IEEE Standard 1680 for the Assessment of Personal Computer Products (1680). Refer to: <http://www.epeat.net/>

**Intentionally added**: deliberate use in a product, material, part, assembly

**Homogenous material**: of uniform composition throughout (e.g., plastics, ceramics, glass, metals, alloys, resins, coatings, solder, flux).

**Mechanically disjointed**: Separated by mechanical actions such as unscrewing, cutting, crushing, grinding, and abrasive processes

**ppm** = parts per million = mg / kg. Mass of substance as a percentage of the homogenous material, not the weight of substance in the entire part or product unless otherwise noted. 1000 ppm = 0.1%; 100 ppm = 0.01% by weight

**Preparation**: a mixture or solution composed of two or more substances, for example paint, lubricant or ink. This definition is found in the EU Council Directive relating to restrictions on the marketing and use of certain dangerous substances and preparations and EU Regulation 1907/2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH).

**Substance**: a chemical element and its compounds in the natural state or obtained by any manufacturing process, including any additive necessary to preserve its stability and any impurity deriving from the process used, but excluding any solvent which may be separated without affecting the stability of the substance or changing its composition. This definition is found in the EU Council Directive relating to restrictions on the marketing and use of certain dangerous substances and preparations and EU Regulation 1907/2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH). Substance includes such examples as ethanol and metals. Note: metals are included here not in the form of a part or product such as a heat sink or sheet metal cover but as a metal such as aluminum or aluminum alloy. Substance goes beyond a pure chemical compound defined by a single molecular structure. The definition of the substance includes different constituents such as impurities. Also note the word "substance" is used throughout this specification, only the "Substance" with a capital letter refers to this specific definition.

**Threshold level**: Concentration limit above which the presence of a substance in a material or product must be declared

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Appendix: Guidance: RoHS summary checklist			Requirement Met	
1. General			Yes	No
<b>a. Lenovo Environmental Specifications</b> 41A7731, 417733	Requirement:	Mandatory for new Lenovo brand products, materials, parts and assemblies incorporated into Lenovo Brand products worldwide*.		
	Affected Parts:	Electronic Hardware parts / Products		
	Supplier must declare compliance by:	<a href="#">Lenovo Supplier Material Declaration</a>		
<b>b. European Union RoHS Compliance</b>	Requirement:	Mandatory for new Lenovo brand products, materials, parts and assemblies incorporated into Lenovo Brand products worldwide*.		
	Affected Parts:	New electronic Hardware products and parts. Does not apply to spare parts for equipment put on the market before July 1, 2006, batteries.		
	Supplier must declare compliance by:	<a href="#">Lenovo Supplier Material Declaration</a>		
<b>c. "China RoHS" Compliance</b>	Requirement:	Mandatory for products offered for sale in the People's Republic of China		
	Affected Parts:	Electronic hardware parts / products except batteries,		
	Supplier must declare compliance by:	1. EPuP Mark on the product/option (or on the Pubs if the product is small or of irregular shape) 2. Substance Disclosure Table inside the product box shipping into China (must be in Chinese, except "O", "X") 3. Date of manufacture in YYYY-MM-DD format on the product or on the product's sales package 4. "China RoHS" Packaging Recycle Marks		
<b>d. "J-Moss" Compliance</b>	Requirement:	Mandatory for products imported into or manufactured in Japan		
<b>e. "Turkey RoHS" Compliance</b>	Requirement:	Mandatory for products offered for sale in the Republic of Turkey		
	Affected parts:	New products, options and parts must comply with Turkey RoHS material restrictions (same as European Union RoHS material restrictions)		
	Supplier must declare compliance by:	<a href="#">Lenovo Supplier Material Declaration</a>  Keep all information and documents showing that products they sale to Lenovo meet the technical criteria mentioned in this Regulation for 5 years starting from the date the product is released to the market. Retain information in Lenovo Filenet(ECM)-Worldwide Supplier Material Declarations		
<b>f. "Korea RoHS" Compliance</b>	Requirement:	Mandatory for products for Korea. Product Declaration required on Korea website before product is offered for sale		
<b>g. EPEAT 4.1.2.1 Elimination of intentionally added Cadmium (Cd)</b>	Requirement:	Mandatory for Lenovo EPEAT products. See <a href="http://www.epeat.net/">http://www.epeat.net/</a> for more information Shall not exceed 50 ppm in homogeneous material		
	Affected Parts:	All parts except battery *1. Exceptions for recycled materials		
	Supplier must declare compliance by:	<a href="#">Lenovo Supplier Material Declaration</a>		
	RoHS exempt substances:	Include in ppm calculation		
	Remarks *1:	Computers, Workstations, Monitors. FRUs and Options are not in scope.		
<b>h. EPEAT 4.1.4.1 Lead - Required for Visual Display Units Only</b>	Requirement:	Required for Visual Display Units (VDUs) Required for EPEAT Products or when requested by Lenovo. See <a href="http://www.epeat.net/">http://www.epeat.net/</a> Shall not contain lead greater than 50 ppm by weight		
	Affected Parts:	LCD and LCD front/rear cover only		
	Supplier must declare compliance by:	<a href="#">Lenovo Supplier Material Declaration</a>		

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Appendix: Guidance: RoHS summary checklist			Requirement Met	
	RoHS exempt substance:	Can be removed from ppm calculation		
<b>i. EPEAT 4.1.5.1 Elimination of intentionally added Hexavalent Chromium (Cr6)</b>	Requirement:	Required for EPEAT Products or when requested by Lenovo. See <a href="http://www.epeat.net/">http://www.epeat.net/</a> Shall not exceed 500 ppm in homogenous materials		
	Affected Parts:	Hardware parts -- especially metals, fasteners		
	Supplier must declare compliance by:	<a href="#">Lenovo Supplier Material Declaration</a>		
	RoHS Exempt Substances	Include in ppm calculation		
<b>j. Supplier RoHS-compliance</b>	Supplier responsibility	Mandatory. Supplier maintains effective compliance process including technical documentation which demonstrates actions to verify RoHS-compliance. Upon request by Lenovo the supplier will verify compliance of materials, parts, components, and/or products to Lenovo's RoHS Specification via analytical testing or other suitable means.		
<b>k. Lenovo approved Lead (Pb)-free solder</b>	Supplier	Lenovo approved lead (Pb)-free solders: Tin-silver-copper (Sn-Ag-Cu (SAC)) solder. Other lead (Pb)-free solders must be approved by Lenovo, on a case by case basis		
<b>l. Lenovo approved Lead (Pb)-free printed circuit board finish</b>	Supplier	. Lenovo approved lead (Pb)-free Printed Circuit Boards finishes: Organic Solder Preservatives (OSP). Other materials may be approved by Lenovo, on a case by case basis		
<b>m. Whisker Mitigation</b>	Supplier	Suppliers shall implement whisker growth countermeasures. Reference: <a href="#">JEDEC Standard JESD22-A121</a> Lenovo reserves the right to request Supplier tin whisker test data		

Revision History

Version	Date	Change Description
0	Jun 2006	Initial issue
1	Nov 2006	Added EU RoHS exemptions 22-29, Revised Cd threshold from 75 to 100 ppm, Added requirement for Supplier Test Report upon request, Defined OEM-contract manufacturer responsibility for Supplier Material Declaration, Added reference to China RoHS, J-Moss, US RoHS regulations
2	Jun 2007	Updated to include systems, printers, options, visual display devices, Deleted expired RoHS exemption for Cr6, Updated Packaging Specification Reference
3	Dec 2007	Added reference to Korea RoHS Declaration, ppm calculation, exemption 9a may not be used, Added Consumer product signoff
4	Aug 2008	EC M07149H. Added Lenovo RoHS Checklist, China RoHS Supplier Letter, J-Moss marks.
5	October 2008	Cr6 threshold changed to intentionally added; corrected typo (Table 1: 0.01 corrected to 0.1 for lead), added reference to Turkey RoHS effective June 2009); added 3 new RoHS exemptions 30. Cadmium alloys as electrical/mechanical solder joints to electrical conductors located directly on the voice coil in transducers used in high-powered loudspeakers with sound pressure levels of 100 dB (A) and more. 31. Lead in soldering materials in mercury free flat fluorescent lamps (which e.g. are used for liquid crystal displays, design or industrial lighting). 32. Lead oxide in seal frit used for making window assemblies for Argon and Krypton laser tubes
6	March 2010	Added REACH information (requirements, SVHC listing, etc.); added/updated EU RoHS exemptions 33-38 (Cadmium, Lead, Mercury); updated Turkey RoHS information.