



RoHS 2 Compliance Specification

Addendum to HP General Specification for the Environment (GSE), Section 3

Revision and Date	Revision B 30-September-2009
Disclaimer	To be used only as requested by HP
Reference	HP General Specification for the Environment (GSE), Rev M
GSE URL	http://www.hp.com/hpinfo/globalcitizenship/environment/pdf/gse.pdf
GSE Control Drawing Number	HX-00011-01
GSE Revision and Date	Revision M, 07-Aug-2009

1.0 Purpose & Scope: This specification establishes HP's requirements to comply with the European Union's Directive 2002/95/EC, Restrictions of Hazardous Substances ("*RoHS Directive*"). This specification is an addendum to Hewlett-Packard Company's (HP's) [General Specification for the Environment \(GSE\)](#), Standard 011-1 – Restricted Materials, Section 3, "General Product Content Restrictions," and as provided in Section 4, "Supplier Verification." This addendum addresses revisions to the EU RoHS legislation, herein referred to as "RoHS 2." This addendum forms part of the GSE until the contents of this addendum are incorporated into the GSE. Suppliers must be in compliance with HP's GSE, including the requirements set forth in this addendum.

1.5 Statement of Compliance: HP will request the supplier to sign a letter verifying compliance with RoHS 2 for materials, parts, and products that are affected by changes to the RoHS legislation.

2.0 Specification Overview: Under the framework provided by the EU RoHS Directive 2002/95/EC, the European Union is well into the process of narrowing or eliminating many of the current RoHS exemptions, and is defining new material restrictions. These changes may alter or eliminate the use of materials currently used by HP suppliers. This specification describes HP's new requirements for compliance with the EU's updated directive.

This specification is broken down into two main areas:
Sections 3.0 to 3.2 – RoHS 2 Exemption Restrictions and Section 4.0 New Material Restrictions.

This specification does not supplant or supersede any more restrictive limits for the substances below that are specified in the body of the GSE for specific applications. These more restrictive limits continue to apply.

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Section 3.0. RoHS 2 Exemption Restrictions

Section 3.1. Immediately Effective RoHS 2 Exemption Use Restrictions

This section lists RoHS exemption retirements that take place immediately. Refer to HP's [General Specification for the Environment \(GSE\)](#), Standard 011-1 – Restricted Materials, Section 3, for a full list of current exemptions to RoHS-restricted materials.

Suppliers of parts, components and products must not use the following RoHS exemption effective immediately.

- Exemption 22. Lead as impurity in RIG (rare earth iron garnet) Faraday rotators used for fiber optic communication systems

Section 3.2. Future Requirements

This section lists future HP requirements based on anticipated RoHS exemptions changes, restrictions, and retirements. The timing for these changes will be confirmed and specified by appropriate HP product design specifications and requirements.

3.2.1 Mercury (Hg) limits in fluorescent lamps are being changed. This section lists new HP requirements for mercury limits effective no later than 31 December 2010.

- 1 Mercury in single capped (compact) fluorescent lamps not exceeding (per burner):
 - 1(a) For general lighting purposes < 50 Watts: 3.5 mg
 - 1(b) For general lighting purposes ≥ 50 Watts and < 150 Watts: 5 mg
 - 1(c) For general lighting purposes >150 Watts: 15 mg
 - 1(d) For general lighting purposes with circular or square structural shape and tube diameter ≤17 mm: 7 mg
 - 1(e) For special purposes: 5 mg
- 2(a) Mercury in double-capped linear fluorescent lamps for general lighting purposes not exceeding:
 - 2(a)(1) Tri-band phosphor with normal lifetime < 9 mm (e.g. T2): 4 mg
 - 2(a)(2) Tri-band phosphor with normal lifetime > 9 mm and ≤ 17 mm (e.g. T5): 3 mg
 - 2(a)(3) Tri-band phosphor with normal lifetime > 17 mm and ≤ 28 mm (e.g. T8): 3.5 mg
 - 2(a)(4) Tri-band phosphor with normal lifetime > 28 mm (e.g. T12): 3.5 mg
 - 2(a)(5) Tri-band phosphor with long lifetime: 5 mg
- 2(b) Mercury in other fluorescent lamps not exceeding:
 - 2(b)(1) Halophosphates all shapes: 8 mg
 - 2(b)(2) Non-linear tri-band phosphor lamps > 17 mm (e.g. T9): 15 mg
 - 2(b)(3) Lamps for other general lighting and special purposes (e.g. induction lamps): 15 mg

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- 3 Mercury in cold cathode fluorescent lamps and external electrode fluorescent lamps (CCFL and EEFL) not exceeding (per lamp):
 - 3(a) Short length (not over 500 mm): 3.5 mg per lamp
 - 3(b) Medium length (over 500 mm and not over 1500 mm): 5 mg per lamp
 - 3(c) Long length (over 1500 mm): 13 mg
- 4(a) Mercury in other low pressure discharge lamps not exceeding 15 mg
- 4(b)-I Mercury in High Pressure Sodium (vapour) lamps for general lighting purposes not exceeding (per burner) in lamps with improved colour rendering index > 60:
 - 4(b)-I (a) $P \leq 155$ W: 30 mg
 - 4(b)-I (b) $155 < P \leq 405$ W: 40 mg
 - 4(b)-I(c) $P > 405$ W: 40 mg
 Mercury in other High Pressure Sodium (vapour) lamps for general lighting purposes not exceeding (per burner):
 - 4(a)-I(d) $P \leq 155$ W: 25 mg
 - 4(a)-I(e) $155 < P \leq 405$ W : 30 mg
 - 4(a)-I(f) $P > 405$ W: 40 mg
- 4(b)-II Mercury in High Pressure Mercury (vapour) lamps except for general lighting (HMPV)
- 4(b)-III Mercury in metal halide lamps (MH)
- 4(c) Mercury in other discharge lamps for special purposes not specifically mentioned in this specification

3.2.2 Exemptions Expiring 31 December 2010

- 8(c). Cadmium in platings.
- 11(a). Lead used in C-press compliant pin connector systems.
- 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.
- 23. Lead in finishes of fine pitch components other than connectors with a pitch of 0.65 mm and less.

3.2.3 Exemptions Expiring 31 December 2011

- 20. Lead oxide in glass used for bonding front and rear substrates of flat fluorescent lamps used for Liquid Crystal Displays (LCD).

3.2.4 Exemptions Expiring 30 June 2012

- 7(c)(III): Lead in dielectric ceramic in capacitors for a voltage of less than 125 V AC or 250 V DC.
- 8(a). Cadmium and its compounds in one shot pellet type thermal cut-offs.

3.2.5 Exemptions Expiring 30 June 2014

- 1. Mercury in single capped fluorescent lamps (no mercury allowed)
- 2(a). Mercury in double-capped linear fluorescent lamps for general lighting purposes (no mercury allowed)

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- 2(b). Mercury in other fluorescent lamps (no mercury allowed)
- 3. Mercury (Hg) in cold cathode fluorescent lamps and external electrode fluorescent lamps (CCFL and EEFL) (no mercury allowed)
- 4. Mercury in other High Pressure Sodium (vapour) lamps for general lighting purposes
- 4(a). Mercury in other low pressure discharge lamps (no mercury allowed)
- 4(b). Mercury in High Pressure Sodium (vapour) lamps for general lighting purposes in lamps with improved colour rendering index > 60 (no mercury allowed)
- 4(b)-II Mercury in High Pressure Mercury (vapour) lamps except for general lighting (HMPV)
- 4(b)-III Mercury in metal halide lamps (MH)
- 4(c) Mercury in other discharge lamps for special purposes not specifically mentioned in this specification
- 5. Lead in the glass of fluorescent tubes not exceeding 0.2% by weight
- 6. Lead in steel, aluminum, and copper alloys
 - 6a Lead as an alloying element in steel for machining purposes and in galvanized steel containing up to 0.35% lead by weight.
 - 6b Lead as an alloying element in aluminum containing up to 0.4% lead by weight.
 - 6c. Lead in copper alloys containing up to 4% lead by weight.
- 7(a). Lead in high melting temperature type solders (i.e. lead-based alloys containing 85% by weight or more lead).
- 7(b). Lead in solders for servers, storage and storage array systems, network infrastructure equipment for switching, signalling, transmission as well as network management for telecommunications.
- 7(c) 1,2: Electronic components with lead in a glass or ceramic matrix compound
 - 7(c)-I Electrical and electronic components other than dielectric ceramic in capacitors, containing lead in a glass or ceramic matrix compound, (e.g. piezoelectronic devices)
 - 7(c)-II Lead in dielectric ceramic in capacitors for a voltage of 125 V AC or 250 V DC or higher
- 8(b). Cadmium and its compounds in electrical contacts.
- 9(b). Lead in bearing shells and bushes for refrigerant-containing compressors for heating, ventilation, air conditioning and refrigeration (HVACR) applications
- 11(b). Lead used in compliant pin connector systems other than C-press connector systems.
- 13(a). Lead in white glasses used for optical applications.
- 13(b). Cadmium and lead in filter glasses.
- 15. Lead in solders to complete a viable electrical connection between semiconductor die and carrier within integrated circuit flip chip packages.

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Section 4.0. New Material Restrictions:

The following materials are restricted for use in HP products. Their use is prohibited at levels above 0.1% in any homogeneous material. The legal compliance date for removal of these materials per the EU’s RoHS legislation is expected to be 1 January 2012.

Ask your HP contact(s) for the date(s) HP will eliminate use of these materials, which may be earlier than the legal compliance date.

- HBCDD – Hexabromocyclododecane, CAS# 25637-99-4, 3194-55-6.
- DEHP – Bis (2-ethylhexyl) phthalate, CAS# 117-81-7
- BBP – Butyl benzyl phthalate, CAS# 85-68-7
- DBP – Dibutylphthalate, CAS# 84-74-2

5.0 Verification of Compliance: Requirements for supplier verification of compliance are provided in HP’s [Standard 011-1 General Specification for the Environment – Restricted Materials](#), Section 4, “Supplier Verification.” Please refer to this section of the GSE for HP requirements on analytical testing and test methodologies.

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