

# **White Paper**

## **RoHS Exemptions**

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## RoHS Exemptions

### Lead in Solders and Finishes

1. Lead in high melting temperature type solders (i.e. lead-based alloys containing 85% by weight or more lead).
2. Lead in solders for servers, storage and storage array systems, network infrastructure equipment for switching, signaling, transmission as well as network management for telecommunications.
3. Lead used in compliant pin connector systems.
4. 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.
5. Lead in solders to complete a viable electrical connection between semiconductor die and carrier within integrated circuit Flip Chip packages.
6. 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.
7. Lead in solders for the soldering to machined through hole discoidal and planar array ceramic multilayer capacitors.
8. 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.

### Lead in Glass

9. Lead in glass of cathode ray tubes, electronic components and fluorescent tubes.
10. Lead oxide in the glass envelope of Black Light Blue (BLB) lamps.
11. Lead bound in crystal glass as defined in Annex I (Categories 1, 2, 3 and 4) of Council Directive 69/493/EEC.
12. Lead oxide in glass used for bonding front and rear substrates of flat fluorescent lamps used for Liquid Crystal Displays (LCD).
13. Lead and cadmium in optical and filter glass.
14. 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.

### Lead (Misc.)

15. Lead as an alloying element in steel containing up to 0.35% lead by weight, aluminum containing up to 0.4% lead by weight and as a copper alloy containing up to 4% lead by weight.
16. Lead in electronic ceramic parts (e.g. piezoelectronic devices)
17. Lead in linear incandescent lamps with silicate coated tubes.
18. Lead halide as radiant agent in High Intensity Discharge (HID) lamps used for professional reprography applications.
19. 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 ( $\text{BaSi}_2\text{O}_5:\text{Pb}$ ) as well as when used as specialty lamps for diazo-printing reprography, lithography, insect traps, photochemical and curing processes containing phosphors such as SMS ( $(\text{Sr},\text{Ba})_2\text{MgSi}_2\text{O}_7:\text{Pb}$ ).
20. Lead with  $\text{PbBiSn-Hg}$  and  $\text{PbInSn-Hg}$  in specific compositions as main amalgam and with  $\text{PbSn-Hg}$  as auxiliary amalgam in very compact Energy Saving Lamps (ESL).
21. Lead in lead-bronze bearing shells and bushes
22. Lead as a coating material for the thermal conduction module c-ring.
23. Lead and cadmium in printing inks for the application of enamels on borosilicate glass.

### **Mercury**

- 24. Mercury in compact fluorescent lamps not exceeding 5 mg per lamp.
- 25. Mercury in straight fluorescent lamps for general purposes not exceeding:
- 26. Mercury in straight fluorescent lamps for special purposes.
- 27. Mercury in other lamps not specifically mentioned in this Annex.

### **Cadmium**

- 28. Lead and cadmium in printing inks for the application of enamels on borosilicate glass.
- 29. Lead and cadmium in optical and filter glass.
- 30. Cadmium and its compounds in electrical contacts and cadmium plating except for applications banned under Directive 91/338/EEC [1] amending Directive 76/769/EEC [2] relating to restrictions on the marketing and use of certain dangerous substances and preparations.

### **PBDE**

- 31. DecaBDE in polymeric applications

### **Hexavalent Chromium**

- 32. Hexavalent chromium as an anti-corrosion of the carbon steel cooling system in absorption refrigerators.
- 33. Hexavalent chromium in corrosive preventive coatings of unpainted metal sheetings and fasteners used for corrosion protection and Electromagnetic Interference Shielding in equipment falling under category three of Directive 2002/96/EC (IT and telecommunications equipment). Exemption granted until 1 July 2007.

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