

Q1: Is AMD committed to reducing lead in its products?

A1: Yes. AMD is committed to developing products that optimize energy use, save money and help protect the environment. AMD has been striving to reduce the lead content of its PC processor and chipset products and to transition to lead-free for several years. Also, AMD actively supports a number of key consortia among industry, universities, and trade associations to expedite the development of lead-free technology.

Q2: Why is lead being restricted?

A2: Lead in semiconductor products has come under increased environmental scrutiny because there is a growing number of electronic products that contain lead and require disposal into the environment.

Q3: What specific restrictions are there on using lead?

A3: A variety of jurisdictions around the globe have proposed regulations that would restrict the use of lead, or impose additional requirements when lead is used in products. For example, the European Union has established the Restriction of Hazardous Substances (RoHS) directive. Similar regulation is under development in China with the same deadline.

Q4: What does the RoHS directive require?

A4: RoHS pertains to electrical and electronic equipment and requires that, except for specifically-approved technical applications, product "put on the market" from July 1, 2006 onwards shall not contain the following substances: Lead, Mercury, Cadmium, Hexavalent Chromium, Polybrominated biphenyls (PBBs) or Polybrominated diphenyl ethers (PBDEs).

Q5: Where can I find information on the chemicals contained in AMD products?

A5: The chemical content information for AMD microprocessor and chipset packaging is posted in Material Declarations Sheets that can be found at http://www.amd.com/us-en/Processors/TechnicalResources/0,,30_182_1850_8809,00.html

Q6: Do AMD processors and chipsets for PCs contain any of the other restricted substances in the RoHS legislation?

A6: No, AMD processors and chipsets for PCs do not contain any of the other RoHS-restricted substances (cadmium, mercury, hexavalent chromium, PBBs or PBDEs) above the restricted levels.¹

Q7: Does lead need to be phased out of the processor products AMD sells, the products used in its manufacturing processes, or both?

A7: The European Union directive applies to a defined list of electronic equipment, including AMD chipsets and CPUs. The RoHS restrictions on lead apply to AMD products with some limited exclusions. Large-scale stationary industrial tools used in our manufacturing processes are not affected by the RoHS legislation.

Q8: What microprocessor products is lead used in?

A8: Lead is currently used in most AMD microprocessors and chipsets for PCs. Small amounts of lead are contained in their packaging components, including fine-pitch ball grid array (BGA/FBGA) solder balls and solder pastes. AMD has developed lead-free product alternatives for most of these applications, and continues to investigate methods to further reduce the use of lead in future AMD products.

¹ *Based on the RoHS Technical Adaptation Committee's March 16, 2005 approval of a draft Commission Decision to amend the Annex to the RoHS Directive. The final publication of the decision is pending the European Parliament's review.

Q8: When does AMD plan to have RoHS-compliant processor products available for sale?

A8: AMD now has some RoHS-compliant products for sale, including the AMD-8111, AMD-8151™ and AMD-8131™ chipsets. AMD plans to offer RoHS-compliant PC processors by July 2005, including the AMD Opteron™, AMD Athlon™ 64, AMD Athlon 64 FX, AMD Turion™ 64 and AMD Sempron™ families of products.

Q9: What alternative packaging materials is AMD exploring? What's considered state of the art? Are these alternative materials readily available?

A9: AMD is aggressively pursuing lead-free alternatives and will implement them as soon as they are proven technically feasible and reliable.

Q10: Will lead-free requirements impact the performance or reliability of AMD processors?

A10: AMD engineers have developed effective technical solutions to reduce lead content and ensure RoHS compliance without sacrificing other product features. There is no change to functional, electrical or performance specifications. Quality and reliability standards for RoHS compliant products are expected to be identical compared to current packages.

Q11: What changes will your partners and customers have to implement to use RoHS-compliant PC processors and chipsets?

A11: For PC microprocessors there will be no change necessary. For products in packages that are soldered to motherboards, customers will have to use solder pastes, fluxes and reflow temperature profiles compatible with lead-free solder balls.

Q12: Does AMD support industry groups who are pursuing development of lead-free technology and standards?

A12: Yes. AMD actively supports a number of key initiatives to expedite the development of lead-free technology. These include efforts by Electronic Industries Alliance, JEDEC, SIA (Semiconductor Industry Association), AeA (American Electronics Association) and EIA (Electronic Industries Alliance), and ANSI.

Q13: How do I contact AMD if I have additional lead-free questions?

A13: Please contact your AMD sales representative.