



European Union RoHS

In 2006, the European Union (E.U.) Directive on the Restriction of the use of certain Hazardous Substances (RoHS) went into effect. This important directive is designed to restrict the use of cadmium, hexavalent chromium, lead, mercury and certain halogenated flame retardants (PBBs and PBDEs) in electronic products. All Dell products sold in the E.U. on or after July 1, 2006, comply with the E.U. RoHS requirements. (As permitted by the RoHS Directive, service or upgrade parts that do not meet the restricted levels may continue to be offered to support legacy products that were sold prior to July 1, 2006.) In addition, effective July 1, 2006, Dell met the requirements of the Japan RoHS or JMOSS legislation for applicable products. As of the beginning of 2007, all Dell branded products were compliant to the E.U. RoHS requirements worldwide.

Dell understands the environmental risks associated with the substances covered by the RoHS Directive and has committed to eliminating or reducing the use of these, as well as other, environmentally sensitive substances in our products. We restrict the use of cadmium, hexavalent chromium, lead, mercury, PBBs and PBDEs in Dell branded products (in accordance with regulatory requirements). Dell has also established public goals to phase-out remaining uses of lead and other non-regulated brominated flame retardants (BFRs) and polyvinyl chloride (PVC) in our products in advance of legal requirements.

In line with this Chemical Use Policy, Dell has spent much time and effort eliminating a range of substances of concern from its products, including BFRs and PVC. Dell is committed to compliance with all applicable laws and regulations, including the upcoming material restriction requirements of the European Union RoHS recast.

Dell believes that legislation, such as the E.U. RoHS Directive, plays an important role in promoting industry-wide transition to restrict substances of concern. Dell supports including BFRs and PVC into Annex IV (banned substances) with a ban in 2015 for categories 3 and 4. Given the ongoing discussions in the EU Institutions on the RoHS recast Dell hopes that EU decision makers will support this policy by adopting appropriate changes that will prohibit the use of these substances in electrical and electronic equipment.

In general, the restriction of any substance should take into account the following key items:

- Global harmonization of the legislation content and implementation requirements
- Substance impacts assessment, including a clear understanding of the environmental impacts of alternative substances
- Clear identification of what substances are to be restricted
- Clear identification of when alternative technologies are proven and readily available
- Substances that are not used or found in final products should not be included in the restrictions
- Material application exemptions should be allowed for the use of restricted substances in applications where current substitution is not technically feasible



Dell supports including BFRs and PVC along with the four substances identified by the Commission in its December 3rd, 2008 proposal for a recast of the RoHS Directive, specifically:

- Hexabromocyclododecane (HBCDD)
- Bis (2-ethylhexyl) phthalate (DEHP)
- Butyl benzyl phthalate (BBP)
- Dibutylphthalate (DBP)

Dell's reasons for focusing on BFRs and PVC are:

- BFRs and PVC cover 99% of the uses for Bromine (Br) and Chlorine (Cl) in electronics;
- Given the high percentage usage, these substances have the highest impact;
- Restriction of these substances where technically feasible would substantially accomplish the goal to eliminate Br and Cl from electronic products

By 2004, all BFRs and PVC were restricted from the external case plastics in Dell branded products. Dell will complete the phase out of BFR and PVC in newly introduced personal computing products in 2011.

Dell believes restriction under RoHS should be feasible in accordance with the timetable referenced in the final text of the next RoHS recast in 2015 provided that some critical issues can be overcome or addressed by specific exemptions, including:

- For some specific applications technical issues still exist:
 - o Electrical performance issues above 1 GHz in Halogen-free printed circuit boards
 - o Dielectric loss
 - o Unpredictability of technical performance
 - o Safety issues in high temperatures areas
- Availability issues for environmentally-preferable alternatives
- Transition to new substances for high performance products with long life-cycles
- Ability to maintain high recycled content as substances are restricted.

Dell is taking a proactive approach to evaluating materials in its products to assess environmental, health or safety risks. Dell may restrict substances because of customer or legal requirements, or because Dell believes it is appropriate based on a precautionary approach. Dell strives to replace legally permitted materials when scientific data have established a potential health or environmental risk and lower risk, commercially viable alternatives are available. At Dell the evaluation of alternative materials is a continuous process.