Dell's Position on Brominated Flame Retardants (BFRs)
Flame-retarded plastics are currently occasionally needed to meet strict fire safety codes for electronic equipment. Certain halogenated compounds (of which brominated flame retardants, or BFRs, are a subset) are used as flame retardants. However, concerns have arisen that these materials may pose risks to health or the environment.

In line with the Precautionary Principle and with consideration for *Chemicals for Priority Action* identified by the Convention for the Protection of the Marine Environment of the NE Atlantic (OSPAR), Dell is striving to eliminate the use of all brominated flame retardant chemicals in our products, worldwide.

Brominated flame retardants are covered in Dell's banned and restricted material program. We currently avoid the use of BFRs by using plastics that can be flame retarded with non-halogenated compounds and by using design strategies that reduce the need to use flame retarded plastics at all. If alternatives are not yet viable, Dell works with its industry partners to promote new industry standards and the development of reliable, environmentally sound, and economically scalable technical solutions.

Dell's Commitment
Through industry partnerships, Dell is actively working to help establish supply chain capability and capacity of viable alternative materials needed to realize our goal to eliminate all remaining uses of brominated flame retardants in our new products, including TBBPA in circuit boards, by 2009, as acceptable alternatives are identified that will not compromise product performance and will lower product health and environmental impacts. Dell will continue to strive to meet our public goals to eliminate the use of environmentally sensitive materials in our products, as well as continue to evaluate the viability of halogen-free flame retardant alternatives.

Halogen Reduction Timeline
Since 2002, four years ahead of the EU RoHS Directive, Dell has prohibited the use of all polybrominated biphenyls (PBB) and polybrominated diphenyl (PBDE) ethers, including DecaBDE, in our products, worldwide. In new products, Dell also prohibits the use of polyvinyl chloride (PVC) and all halogenated flame retardants including tetrabromobisphenol-A (TBBPA) and hexabromocyclododecane (HBCD) in all plastic mechanical parts.

1996 Shipped first Blue Angel certified PCs and Displays (prohibiting all PBBs, PBDEs and short-chain paraffins)

1998 Shipped first TCO certified PCs and Displays (prohibiting all PBBs, PBDEs and short-chain paraffins)

2002 Prohibited the use of all PBBs, PBDEs (including Deca-BDE) in all Dell products

2002 Prohibited the use of PVC in all mechanical parts >25g

2002 Public Goal set: Eliminate all halogenated flame retardants in desktop, notebook, and server chassis plastic parts by year-end 2004.

2002: Lead HDPUG industry consortia project to explore the health and safety impacts of Halogen-free circuit board laminate materials.

2003: Eliminated all halogenated flame retardants in desktop, notebook and server chassis plastic parts weighing more than 25 grams.

2004: Eliminated all halogenated flame retardants in all desktop, notebook and server chassis plastic parts (regardless of size).

2004: Shipped first Blue Angel certified printers: Halogen-free chassis plastic parts (except high-temp fuser assembly on laser printers).

2005: Funded research to compile and review scientific studies assessing the environmental and health effects of TBBPA-free electronics at end of life.

2005: Public Goal set: By 2006, reduce the amount of bromine shipped in Dell displays by 30% (compared with 2004 levels) by shifting from CRT to LCD

2005: Public Goal set: By FY08 avoid the use of 33,000 tons of bromine in Display products by shifting from CRT to LCD technologies.

2006: Commence iNEMI program to develop further understanding of technical and practical aspects of Halogen-free circuit board materials. Results to be published in early 2008.

2009: Target date for the elimination of all BFRs in Dell products. The phase out plan will be reviewed annually.