Lenovo's Low Halogen Transition Plans and Progress

Overview

As part of Lenovo's overall commitment to minimize the environmental impact of its products and operations, Lenovo takes a precautionary approach to materials selection and use. Lenovo recognizes concerns about the potential environmental impact of halogenated materials if incorrectly handled at the end of life, specifically polyvinyl chloride (PVC) and brominated flame retardants (BFRs). Lenovo is committed to a well-reasoned approach to phasing out the use of halogenated materials in its products where technically and economically feasible, without sacrificing the safety, quality, or performance of its products.

As support of this commitment, Lenovo has worked extensively with its supply chain to evaluate and bring to market low halogen alternatives for previously halogenated materials and parts. This paper documents as an example of this effort the work of Lenovo's ThinkPad notebook business unit in driving this effort through their supply chain.

Background

Lenovo supports the International Electronics Manufacturing Initiative (iNEMI) definition of low halogen as defined in their position statement on the Definition of "Low-Halogen" Electronics (see http://thor.inemi.org/webdownload/projects/ese/HFR-Free/Low-Halogen_Def.pdf). This position paper states that in order to be low halogen, printed board s and substrate laminates must not contain more than 1500 ppm of total halogens with a maximum chlorine of 900 ppm and maximum bromine of 900 ppm, and plastic within other components must contain less than 1000 ppm of bromine (if the source is from BFRs) and less than 1000 ppm of chlorine (if the chlorine source is from chlorinated flame retardants, PVC, or PVC copolymers).

Lenovo had initially set an aggressive goal to phase out the use of these substance by the end of 2009. When it became apparent that the supply chain was not yet able to meet this goal while meeting Lenovo's other requirements, Lenovo revised its goal to phase out of these substances in 2011. As of early 2011, Lenovo is seeing marked progress in our supply chain and continues to push for the 2011 goal. However, Lenovo recognizes that there may be challenges to the supply of low halogen commodities for certain applications (replacement parts, power related parts, etc.) and product families, such as consumer products with very quick development cycles. Lenovo continues to make efforts to drive our supply chain towards low halogen and will revise and update targets as needed.

Lenovo's Approach

In support of Lenovo's phase out goal, Lenovo is taking a two pronged approach to tackle the phase out of these materials at both a commodity level across all products, as well as at the product level by introducing low halogen products in several product families.

At the commodity level, Lenovo has worked with our suppliers to identify and qualify low halogen parts that meet Lenovo's safety, quality, performance and other requirements. When low halogen parts are identified that meet Lenovo requirements, Lenovo's global procurement organization and product development teams work in tandem to ensure the availability and use of these parts across applicable product lines. In many instances, Lenovo starts with a pilot program using parts with new low halogen materials in specific products so we can track the performance of the parts and materials prior to rolling out their use across our entire portfolio. If Lenovo engineers determine that these parts perform as

well as their halogenated peers, the parts can then be rolled out to other product lines. Throughout this process, Lenovo Procurement continues to work with suppliers to ensure suppliers understand our direction and are working to provide low halogen alternatives in future releases.

Beginning in 2010, many models of Lenovo ThinkPad notebooks contained hard disk drives, optical disk drives, solid state drives, LCD screens, memory, CPUs, chipsets, and several communications cards that met the iNEMI definition of low halogen. In addition, all plastic enclosures and most components and connectors also met this definition of low halogen (with the exception of printed board laminates). In addition, across all product lines, Lenovo had already at that time completely phased-out the use of PVC and BFRs in all mechanical plastic parts such as product covers, housings, bezels, etc.

At the product level, Lenovo has challenged our product teams to identify mainstream products that can be released as low halogen. In support of this challenge, Lenovo introduced its first low halogen product, the ThinkVision L2440x Wide monitor, in October of 2008, and followed this product with the ThinkVision L2251x Wide monitor released in November 2009. Both of these products were available globally. In late 2010, Lenovo introduced the low halogen M90p desktop. In 2011, all ThinkPad notebooks will be released with low halogen PCBs. In addition, all ThinkPad classic notebooks (the T420s, X1, T520, W520, T420, X220, and X220t) will be fully low halogen[1]. Lenovo engineers are also working on low halogen consumer offerings, including a low halogen notebook and desktop offering.

Critical support from Lenovo's Global Procurement Teams

In dealing with its suppliers with regards to the use of low halogen parts and commodities, Lenovo continued to be faced with hurdle of implementation without impact to product costs. Most suppliers projected that the industry would not be at cost parity until early 2012. The projected cost premiums for parts and commodities that had not converted is about 5 to 10% until 2012. The biggest cause of this premium is initial lower production yield of various parts. Another challenge was that Lenovo was perceived as been a leader in driving the implementation of low halogen products and many of the production processes to achieve low halogen were being done for the first time with many of our suppliers and in turn, their suppliers.

The first step in Lenovo's renewed efforts in dealing with the task to enable the Lenovo supply chain to move towards low halogen took place in June of 2010. In June of 2010 we completed the revision of all of our "Requests for Quotation" (RFQs) and added specifications that required the commodities to be low halogen within our future systems.

The next step which was even more challenging was for Lenovo to implement the low halogen criteria on several products that were already in the development phase. This step required time and energy in negotiations with many suppliers. Also, Lenovo had to be careful to not impact the development schedules that had already been set.

The effort was successful due to the dedicated actions of the Lenovo global commodity managers in their negotiation activities. Within Lenovo Procurement, the ThinkPad transition to low halogen is driven centrally by the ThinkPad Procurement team lead. Executive help was sought at times when there appeared to be an impasse or a critical risk decision had to be made.

Lenovo is continuing to work with its supply chain to drive its low halogen transition across all commodities and product families. In April of 2010, Lenovo held supplier environmental training sessions with a focus on low halogen transition requirements in Beijing, Shanghai, and Shenzhen,

China. Over 400 representatives of suppliers to Lenovo's ThinkPad, ThinkCentre, IdeaPad, IdeaCentre and ThinkStation business units attended the training sessions.

Challenges and Next Steps

Lenovo plans to continue to work with our suppliers towards the goal of phasing out of the use of BFRs and PVC, recognizing that many technical and supply related challenges still exist. Lenovo recognizes that the phase-out of these materials is dependent on the availability of suitable alternatives that meet Lenovo's technological, quality, environmental, health, and safety requirements. Due to the shorter development cycle associated with consumer products, it is likely that Lenovo will roll out low halogen versions of many commercial products initially and then extend these efforts to its consumer based products.

Some of the challenges Lenovo faces going forward are as follows: continuing to increase yields and reduce any cost impacts of low halogen parts; continuing to educate the technical community, marketing, and the suppliers about the potential negative environmental effects of halogen products; moving towards low halogen commodities and parts in the power related areas.

Biography

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[1]Excludes Power components (adapters, batteries, etc.), FingerPrint sensor, color sensor (W series only), one connector and one internal cable (T420 only). If supply shortages or interruptions occur for low halogen parts (such as is occurring on a few components due to the March 2011 Japan earth quake), Lenovo reserves the right to substitute in non-low halogen parts as needed to maintain production.