

## Backgrounder

### Epson initiatives throughout the product life cycle

Epson is committed to reducing the environmental impact of its products at all stages of the life cycle including design, parts and materials procurement, manufacturing, product transport, use, and collection and recycling. Instead of only focussing its efforts on certain steps of the lifecycle, Epson's goal is to reduce the impact of the combined lifecycle stages. By implementing measures at each phase of its products' lifecycle, Epson aims to ensure the maximum reduction in environmental impact.

Epson started researching the area of life cycle assessments in 2000 and moved onto full scale efforts in 2003. Its LCA activities began with meeting the standards of the JEMAI "EcoLeaf" labelling system, which identifies products whose life-cycle environmental impact, has been assessed quantitatively. Epson now has more than 100 products carrying EcoLeaf labels.

The company has developed a Life Cycle Inventory Analysis method, based on quantitative data, which shows the environmental impact of its device products. As part of this, it has adapted the database of the basic units of chemical agents and substances used in device manufacturing processes so that it can derive data on their environmental impact. This method has allowed Epson to ascertain degrees of environmental impact rather than relying on a general picture, based on volumes.

Epson is aware that the environmental load throughout the product life cycle is mostly determined at the planning and design stage. This is why, since 1998, it has provided incentives to employees to encourage the invention of environmental friendly products and processes and eco-related patents for inventions that effectively and specifically address environmental problems and reduce environmental impact. Its energy saving design policy sets energy-conservation goals for each product to reduce the power consumed during use. Epson also saves resources by making products smaller and lighter and setting goals for recyclable rates, which is the ratio of total product weight calculated as recyclable based on a product's design drawings. It has created a database of substances that are prohibited and substances that need to be controlled, which is used to ensure safety in all processes, from design and procurement to mass production.

With regard to procurement, Epson has maintained a green purchasing rate of 100% since 2004. Its Green Purchasing Standard for Production Materials requires that prior to purchasing materials, vendors must sign an agreement stating that they will create and maintain a reliable system that ensures that banned substances are not included in its products and establish a proper waste disposal programme. They are also required to provide information on the elimination of prohibited and controlled chemical substances. Epson checks its own internal systems and surveys its suppliers, in addition to collecting chemical substance data from suppliers, to ensure that no comingling of harmful substances takes place. It is working toward compliance with all substance regulations, with the goal of shipping products that meet a single, global Epson standard.

Epson is also working to minimize the use and production of green house gases in its manufacturing processes. In 2000 it developed the "Epson Method", a simple and accurate way to calculate PFC (perfluorocarbon) emissions, so that they could be determined and sharply reduced. It grants a free license to other companies to use the technology under prescribed conditions. It is also reducing CO<sub>2</sub> emissions by applying its core inkjet technology in the production of equipment. This consumes less energy and uses far lower volumes of materials than conventional techniques. Epson is providing this system to others, which allows it to contribute to the reduction of CO<sub>2</sub> on a broader scale.

The company is also working to achieve Zero Emissions in its manufacturing process. It achieved level one, the 100% recycling of all waste generated from business activities, in all its manufacturing companies by end FY 2003. All sites are currently working toward attaining level 2, the aim of which is to reduce natural resource inputs through reusing factory waste on-site as an ingredient in the manufacturing process.

In FY 2005, Epson built and implemented an original chemical substance data management system called "E-Chem" which is in use in all manufacturing sites round the world. Epson is actively working to reduce emissions of chemical substances by implementing measures that include identifying and using substitutes, reducing use, and introducing combustion abatement systems.

Epson is also working to reduce the environmental impact of product delivery. It has moved from using dedicated charter trucks, which only carry a specific product, to more efficient mixed cargo trucks. It has also reviewed its transport routes and switched from truck to train transport wherever possible. In 2005, Epson updated its method of calculating transport volume to one which combines cargo weight and distance to come up with a volume in tons per kilometer. This is then multiplied by the basic unit of CO<sub>2</sub> to calculate the environmental impact for each mode of transport. It plans on using direct measurements and sampling to improve the accuracy of the calculations so they can be linked with its environmental management system and automatically tabulated.

Epson has been designing its products so that they reduce environmental burden, for the consumer, without sacrificing performance. It provides environmental information on its products through various media, including catalogs and the Epson website, so that customers can make an informed decision based, not only on features and design, but also on environmental considerations.

The company is also taking responsibility for the collection and recycling of its products after use. It collects end-of-life Epson brand computers from individual consumers and corporations and recycles materials from them. In October 1999, it became one of the first companies in Japan to voluntarily collect and recycle used information equipment (printers, scanners, projectors, POS systems, etc.) from corporations. Epson has also put systems into place that facilitate the easy return and subsequent recycling of used toner and ink cartridges.

As a result of these efforts Epson received the "Minister of the Environment Award" at the ninth Ozone Layer Protection/Global Warming Prevention Awards which recognizes companies and groups that have quietly researched and reduced ozone-depleting substances. It was also awarded the Chairman's Award at the third LCA Japan Forum Awards which recognises outstanding efforts in the area of life-cycle assessment.

**For Further Information see:**

**Seiko Epson Corporation:**

[http://www.epson.co.jp/e/company/company\\_index.htm](http://www.epson.co.jp/e/company/company_index.htm)

**Corporate Profile:**

<http://www.epson.co.jp/e/company/pdf/epson2008.pdf>

**Sustainability Report:**

[http://www.epson.co.jp/e/community/sr/2007/pdf/2007\\_en\\_sr.pdf](http://www.epson.co.jp/e/community/sr/2007/pdf/2007_en_sr.pdf)

**Life Cycle Assessment:**

[http://www.epson.co.jp/e/newsroom/envi\\_news/0703csr.pdf](http://www.epson.co.jp/e/newsroom/envi_news/0703csr.pdf)