Products for Reduced Environmental Impact

At the TEL Group, we have endeavored to satisfy our customers around the world by offering services and products such as semiconductor and LCD production equipment and electronic components. Moreover, as stated in our Principles of Environmental Preservation, we will continuously endeavor in unison with customers to reduce TEL Group products' environmental burden. Specifically, every plant will undertake to develop environmentally benign products, setting product-specific targets for energy and resource conservation, reduction of chemical usage, and other such matters.

■ Examples of Key Initiatives

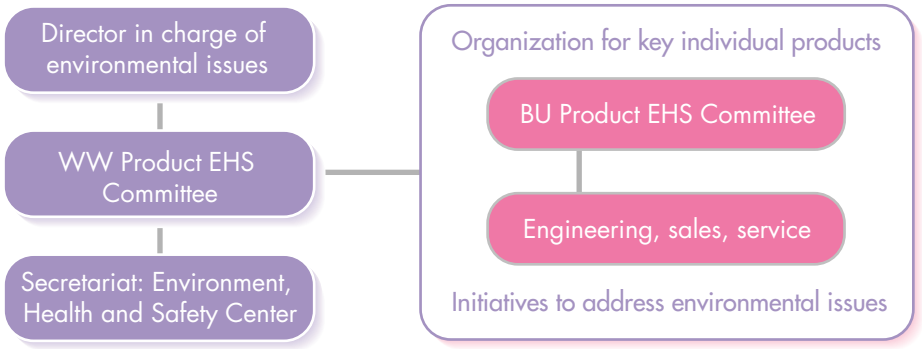
Business Unit	Description of Initiative
Etch systems (ES) Yamanashi Plant	• Reduction of power consumption
LCD systems (LCD) Yamanashi Plant	• Reduction of power consumption
LCD systems (LCD) Ozu Plant	• Reduction of chemical usage
Cleaning systems (CS) Saga Plant	• Reduction of chemical solution usage • Reduction of IPA usage • Reduction of pure water usage • Reduction of power consumption
Clean track (CT) Kumamoto Plant	• Reduction of chemical solution usage • Reduction of power consumption
Diffusion systems (DS) Sagami Plant Tohoku Plant	• Reduction of equipment's footprint • Reduction of vinyl chloride resin cable usage • Establishment of procedural guidelines for equipment disposal • Reduction of power consumption

■ Measures for Reduction of Environmental Impact in Physical Distribution

For the packaging used to ship our products, we are investigating new reusable materials. Additionally, we reuse some of the packaging materials we use now. For cushioning, we use and reuse an environmentally benign, biodegradable material. At the Kumamoto Plant, we are studying the feasibility of packing parts in containers to reduce the packaging materials used to ship them. We have even made some prototype containers. Henceforth, we will test the containers repeatedly and make improvements in preparation for their use.

■ Organization for Rectification of Products' Environmental Problems

Common issues related to rectification of environmental problems involving the semiconductor or LCD production equipment manufactured and sold by the TEL Group are reviewed and decided upon by the WW Product EHS Committee chaired by the director in charge of environmental issues. For product-specific environmental problems, the concerned design/production, sales, and/or service department conducts activities to rectify the problem under the direction of the applicable BU Product EHS Committee.



WW : World Wide
BU : Business Unit

■ Targets for Reduction of Product-related Emissions and Consumption

In product development, one of our aims is reduce products' environmental impacts such as gas emissions and power consumption. Toward this end, we have set targets for the 2002 models of our semiconductor production equipment for 200 mm and 300 mm wafers based on the 1997 models of our equipment for 200 mm wafers, as shown in the table below.

Product EHS Roadmap

Wafer Size	1997 Standard 200 mm	2002 Target 200 mm	2002 Target 300 mm
HAP emissions	1	0.4	0.5
VOC emissions	1	0.4	0.5
PFC emissions	1	0.4	0.5
Power consumption	1	0.8	1
Water consumption	1	0.8	1
Gas consumption	1	0.8	1

*Targets for 300 mm oxidation/diffusion, LP, CVD equipment are set at 1.5 times the standard data.

- HAP: Hazardous Air Pollutants
- VOC: Volatile Organic Compounds
- PFC: Per-Fluoro Compounds

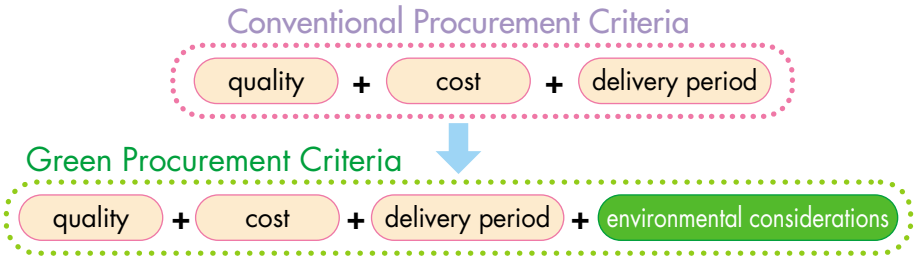
Fiscal Year 2000 Action Plan for Reducing Products' Environmental Impact

The table below shows the TEL Group's fiscal year 2000 action plan for developing environmentally benign products based on the Product EHS Roadmap.

Issue	FY2000 Action Plan	
Global warming prevention	Reduction of power consumption	Adequately reduce power consumption in fiscal year 2000 as one step toward achieving the Product EHS Roadmap's targets for 2002.
	Reduction of PFC emissions	Adequately reduce PFC in fiscal year 2000 as one step toward achieving the Product EHS Roadmap's targets for 2002.
Air pollution prevention, Safeguards against acid rain	Reduction of VOC emissions	Adequately reduce VOC in fiscal year 2000 as one step toward achieving the Product EHS Roadmap's targets for 2002.
	Reduction of HAP emissions	Adequately reduce HAP in fiscal year 2000 as one step toward achieving the Product EHS Roadmap's targets for 2002.
Prevention of ozone layer depletion	Restriction of use of ozone-depleting substances	Promote disuse of HCFC substances
Reduction of consumption of depletable resources	Promotion of recycling /reuse (dismantlement, labeling of materials, disposal)	Set targets for every product and commence action to achieve them. Determine feasibility of incorporating information into work procedures and manuals related to dismantlement and disposal.
	Prolongation of life span of equipment /parts	For every product, set targets for prolonging the life of equipment/parts and commence action to achieve them.
Purchased products	Adoption of "green" procurement	Form a green procurement organization, establish green procurement standards, begin asking suppliers to cooperate.
	Lead-use restrictions	Share information regarding substitutes for lead solder. Ascertain extent of lead usage in purchased products.
Life-cycle assessment (LCA)	Introduction of LCA	Establish the capability to continually assess and reduce products' environmental burden throughout their life cycle. For every product, select one or more issues from the above (including global warming prevention) and commence LCA.

Preparation for Implementation of Green Procurement

"Green procurement" means procuring parts based on environmental considerations in addition to the conventional procurement criteria of quality, cost, and delivery period.



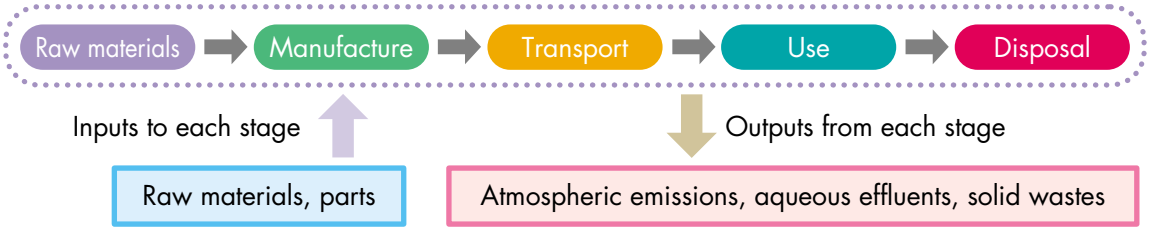
TEL Group companies have obtained ISO14001 certification and implemented green purchase of office supplies, packaging materials, and other goods. We will also proceed to implement green procurement of parts used in our products. We will ask suppliers to cooperate with green procurement and will offer our customers products with a reduced environmental impact. In addition to conducting environmentally benign business activities, we will propagate this approach to our suppliers and collaborators, thereby contributing to activities to preserve the global environment.

■ LCA Initiative

LCA (Life Cycle Assessment) is a technique for quantitatively assessing a product's environmental impacts during the course of its life from the raw material stage through manufacture, transport, use, and disposal. To make products with relatively minor environmental impacts, it is necessary to analyze and assess environmental impacts and to rectify on a priority basis problems that have major environmental impacts. In terms of the assessment method, there are many potential impacts to be considered, as shown in the table below. On the global level, global warming is regarded as a major environmental issue. For global warming, we assess environmental impacts in terms of CO_2 emissions. Many types of business activities contribute to global warming by generating CO_2. For instance, using electricity results in CO_2 emissions from power plants that burn oil. Driving a vehicle emits CO_2 as a product of gasoline combustion. Steel making emits CO_2 when coke is burned. Aluminum refining uses a lot of electric power, resulting in CO_2 emissions.

When we use LCA to assess global warming, we assess CO_2 emissions during a product's life cycle by adding up total CO_2 emissions throughout its life cycle. On the basis of the assessment results, we review the life-cycle stages with a lot of CO_2 emissions and investigate a broad range of corrective action such as substitution, design improvement, and process improvement. Through such a process of comprehensively reducing CO_2 emissions, we develop products that impose the smallest possible impact on the environment.

Stages of the Product Life Cycle



Environmental Issues Commonly Addressed in Environmental Impact Assessments

Environmental Impact	Global Environment	Regional Environment	Local Environment
Atmospheric	• Global warming • Ozone-layer depletion	• Acid rain	• Air pollution • Photochemical smog
Water quality	• Marine pollution • Discharge of noxious substances	• Eutrophication of lakes and wetlands • River pollution	• Ground water contamination
Soil	• Loss of rain forests • Desertification	———	• Soil contamination • Agrochemical contamination
Other	• Consumption of depletable resources • Impacts on ecosystems	———	• Impacts on human health