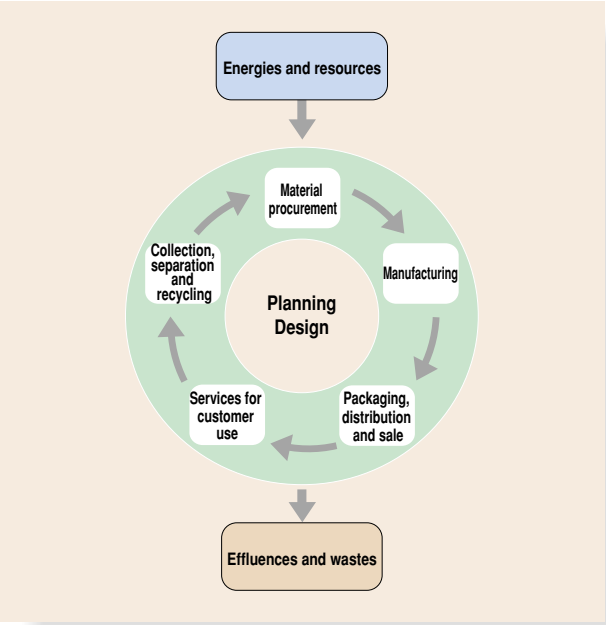
Environmental-Conscious Product

Olympus has introduced a product environmental assessment system, and is attempting to develop environmentally friendly products and to make such systems stronger. In product development, the Company evaluate the environmental impact through the whole life cycle of the product such as usage, manufacturing, distribution and services for products. The Company has been promoting (1) energy saving (2) elimination of hazardous substances and (3) better recycling efficiency etc.

Product Life Cycle and Its Environmental Impact

A product has a life cycle from procurement of materials through manufacturing, distribution, usage and service to collection and disposal. In these processes, resources and energy are consumed, and consequently, CO_2 and various chemicals and waste are discharged into the environment and thereby impact on it. The development department for each product area mainly conducts evaluation in an attempt to understand environmental impacts in the product life cycle. The development division evaluates the degree of environmental impact in each process of the product life cycle using a combination of quantitative and qualitative evaluation. The results of evaluation are tied to product design policy and the setting up of subject areas for technology development.

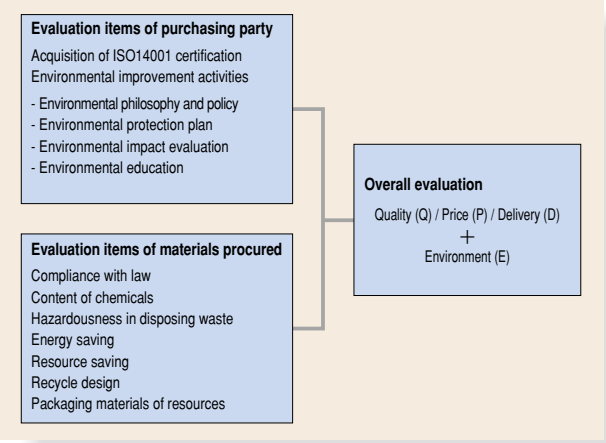


■Product Life Cycle and Environmental Impact

Procurement Based on the "Green Procurement Guidelines"

In FY2002, Olympus conducted a questionnaire with 991 of our major direct business partners, both in Japan and overseas, about the maintenance of environmental management systems such as energy saving and waste reduction, and the results of research into the content of harmful chemicals in purchased materials. We received replies from 903 companies. The Company has this year also prepared booklets in Chinese called "GREEN PROCUREMENT GUIDELINES" and "CHEMICAL USE GUIDELINES" in addition to the English version. The Company has distributed the guidelines to our business partners in local subsidiaries overseas and have requested that they make an effort to alleviate global environmental load.
In the future, Olympus will, as part of its responsibility to promote the integration of green procurement throughout the industry, review Olympus procurement standards and will attempt to create even more environmentally friendly products by enrichment of databases.

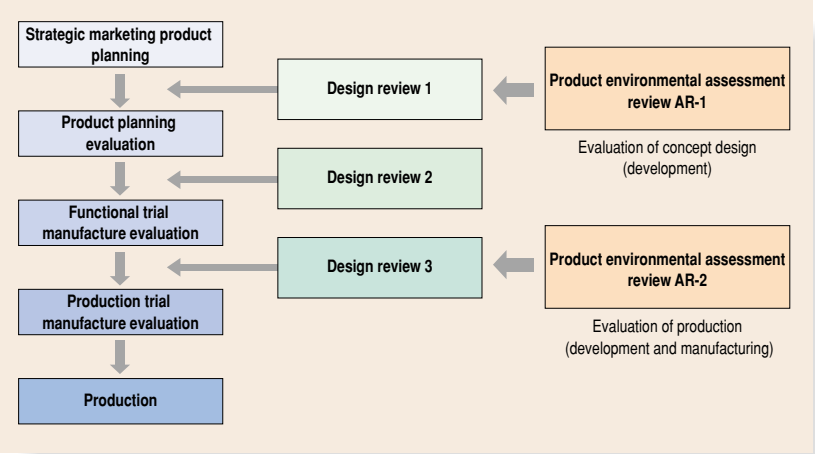
Left and Middle: "GREEN PROCUREMENT GUIDELINES,"
Right: "CHEMICAL USE GUIDELINES"



■Evaluation Points of Green Procurement

Product Environmental Assessment System

In the process of planning, design and trial manufacture of Olympus products, environmental assessment of the product is conducted at the design review stage. The evaluation is conducted from the standpoint of energy saving, electrical energy consumption, hazardous substances and recycling, with environmental friendliness as a condition. Goals for improvement of each product and conformance with regulatory systems are included in these evaluation items. We have proceeded with improvements to Life Cycle Assessment (LCA) technology to enable quantitative and general comparative evaluation with the previous products and other products.



Product Environmental Assessment Flow

Example of Product Assessment (Microscope)

In the development of the research inverted system microscope "IX71" released in January 2002, the Company sets an improvement goal of the elimination of substances to be avoided in our chemical usage guidelines, improvement in the rate of recyclability and reduction of materials. Measures were implemented and evaluation conducted at each stage of product development. Major improvements are a 26% reduction of electrical power consumption and a 20% reduction in the weight of products compared with previous equivalent products.

Product Environmental Assessment Results for Research Inverted System Microscope "IX71"

Item		Evaluation
Electrical power consumption in product use		26% less*
Rate of recyclability of materials		95%
Ensuring safety	Rate of use of lead-free glass	71%
	Rate of use of materials regulated by statute (Ni-Cd, mercury battery, bromine type flame retardant, CFC etc.)	0%
Rate of separation and disassembly capability		94%
Rate of name indication for plastic parts		89%
Possible rate for shredding/incineration		95%
Rate of mass reduction by compacting		20% less*
Amount of styrene foam used in packaging materials		76% less*

* Indicates comparison with the previous equivalent products

Research Inverted System Microscope "IX71"

Examples of Environmental-Conscious Product

More compact and lighter Olympus products have contributed to waste reduction and conservation of resources. Especially, there has been a focus on reduction of consumption of electrical energy by related products as an important condition for the environmental-conscious product. Olympus is proceeding with complete eradication or reduction of use of hazardous chemical substances by development of product design and processing technology.

Environmental Consciousness in Olympus Products

Digital Camera CAMEDIA C-220 ZOOM*

*Model for Europe. Model for north-south America is D-520 ZOOM.

Lower electrical power consumption

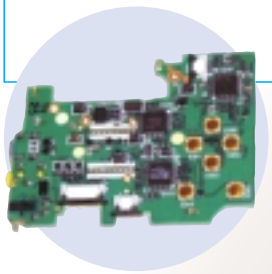
Schemes for integration of higher level of LSI and power supply sequence have enabled drive by two batteries which previously required four AA batteries and compared with previous equivalent products the number of exposures per battery has increased greatly.

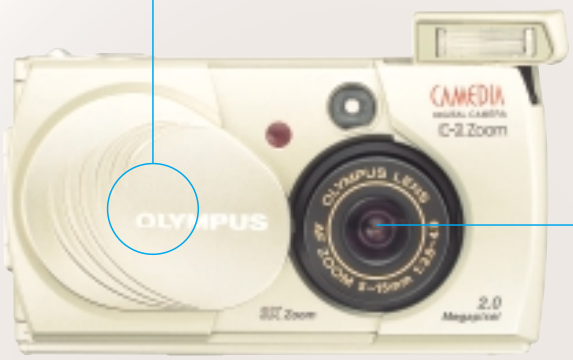
More compact optical system

Aspherical lens design and glass moulding processes have made the optical system lighter and more compact.

More lead-free glass in lenses

Lead-free glass has been adopted in all areas for optical glass such as in lenses.





Identification of plastic materials

The name of the material used is indicated on major plastic parts to simplify separation. Plastics which do not contain bromine type flame retardants are used.

Other examples of environmental consciousness

By changing buffer materials to styrene foam and presentation boxes to cardboard, volume was reduced by 30%.
Reduction of paper by placing the product instructions on CD-ROM and the use of recycled paper is promoted.

No mercury in liquid crystal back lights

The back light source of liquid crystal displays has been replaced with a white light-emitting diode (LED) which does not contain mercury as used in fluorescent tubes.

Conversion to Lead-Free Optical Glass

Olympus is addressing the issue of environmental friendliness of its camera, microscope and endoscope products by using lead-free optical glass and eliminating environmental pollution by development of lens processing technology.
More than 200 kinds of optical glass are used as the main material in optical devices. Of these, there is glass which contains lead to enhance the rate of refraction. Glass containing lead is an important material in optical design, but in cooperation with glass manufacturers the Company has been promoting conversion to lead-free glass from 1994.
In cameras, we achieved conversion to 100% lead-free glass for internal newly developed products in FY2002 cameras. The Company is attempting to change to lead-free glass to the greatest extent possible in our previous products as well as microscopes and endoscopes. Environmentally friendly olefin system plastics are used from manufacturing to waste disposal as an optical material in the lens prism of the viewfinder optical system, and lead is being eliminated.
Conversion to lead-free glass is an important issue for environmental friendliness and the Company aims to continuously develop optical design and process technology.

Digital Camera in which Lead-Free Glass has been Used.

Rate of Conversion to Lead-Free Glass of FY2002 Products (Weight)

Item	Total
Volume of lead-free glass used	107.4 tons
Conversion rate to lead-free glass	94.1%

Cleaning of Endoscopes with Low-Toxicity Antiseptic Cleaning Solution

The Company has developed a peracetic acid endoscope cleaning solution which has a lower toxicity than previous aldehyde antiseptic solutions and has an excellent antiseptic action. We have also adopted the cassette-bottle method for easy replenishing of the liquid, and the cleaning device itself has a compact design.
Such designs have made possible improvements in safety and shorter cleaning time at the site of medical treatment.

Medical Endoscopes

Endoscope Cleaner

Product Packaging and Distribution

Environmental friendliness is part of not only planning, design and manufacturing of products but the Company has also attempted reduction of the burden on the environment by product packaging and distribution. The distribution centers of the whole Olympus Group were integrated with the aim of reduction of burden on the environment from distribution.

Conceptions about Packaging and Distribution

In product packaging, Olympus is working towards conversion to packaging materials which have a high level of packaging functional quality and reliability, disposability and user-friendliness, the use of recycled materials and an established recycling infrastructure, and development of packaging design technology. In distribution also, the Company has attempted to reduce the burden on the environment in the whole area of distribution such as energy saving and more efficient energy consumption in land, air and sea transportation.
Olympus is addressing the following issues as a means to improve packaging and distribution.

- Changes to materials
  Conversion to paper (conversion to cardboard or thin plates), changes to materials in plastics, conversion to metals, conversion to plywood (conversion to wood) and changes to printing ink.
- Changes to the shape of cardboard boxes
  Conversion to thin-walled, low-layered, smaller, returnable boxes
- Consideration of recyclability
  Identification of material used for container, simplification of separation of different types of materials
- Creation of distribution systems which are considerate to the environment
  Integration of satellite warehouses, partnerships with distribution partners

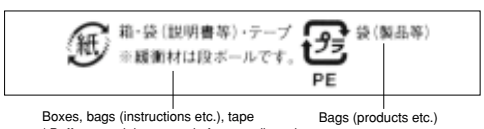
Vibration Test of Packaging

Packaging Using Cardboard of Buffer and Fixed Materials

Environmental Consciousness in Product Packaging

Under the policy, “the 3 Rs Policy (reduce, reuse and recycle), Olympus has continued with environmental consideration of its product packaging materials with the aim of a packaging design technology which would reduce packaging volume by 30% and styrene foam weight by 30% called “Slim 30.”
At the time, on the basis of the law, (1) reduce, (2) recyclable materials, and (3) single materials became the policy, there was conversion to paper for packaging materials for our cameras and recorders. In the early 1990’s styrene foam was completely eradicated, and a 30% reduction of volume was achieved.
Olympus received the Ministry of Economy, Trade and Industry Director Award for MO packaging in its conversion to cardboard product packaging of buffer and fixed materials at the Japan Packaging Competition sponsored by the Japan Printing Industry Federation in 2001.

Award Won at the Japan Packaging Competition



Boxes, bags (instructions etc.), tape
* Buffer materials are made from cardboard.
Bags (products etc.)

Material Name Indication

Improvements in Distribution Packaging

In distribution packaging, the containers for transportation of parts between Olympus (Shenzhen) Industrial Ltd., and the Japanese plants are now reusable. Reusable plastic boxes made from polypropylene can be reused more than five times. Approximately 10,000 boxes are being used each month which has enabled dramatic waste reduction.
"One-touch" cardboard has been adopted by the Olympus Logitex Co., Ltd., Tokyo Center. Little paper powder is generated and it is light and compact for storage. When assembled for use, the base is assembled in a criss-cross fashion, requiring no adhesive tapes.
The Company has also partially implemented a system of "no external packaging" for Japanese customers of endoscope products. In product transportation between production bases and the distribution center, the Company will also attempt to expand conversion to a "no external packaging" system such as gradual elimination of cardboard.

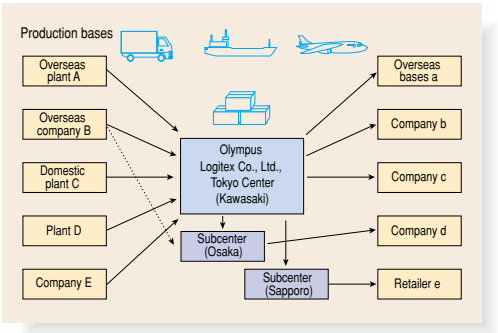
Reusable Plastic Box


Implemented Examples of no-External Packaging


One-Touch Cardboards

Operation of main distribution center

The main distribution center (Olympus Logitex Co., Ltd., Tokyo Center) located at Kawasaki city in Kanagawa Prefecture which is the integrated distribution center of 15 domestic satellite warehouses, began operation from August in 2001. This integration of distribution bases is expected to reduce road usage by approximately ten percent, and reduce the FY2001 year's 41,539 tons ¥ km to 37,393 tons ¥ km (multiplying the truck class in tons by the annual distance travelled in kilometres).



Organisational Chart for Integrated Distribution System


Olympus Logitex Co., Ltd., Tokyo Center