Developing Environmentally Conscious Products

Murata has been actively implementing measures such as reducing the use of environmentally hazardous substances contained in its products, designing more compact products, saving power, improving packaging materials, and introducing green procurement measures in order to reduce the environmental impact of its products.

Developing Environmentally Conscious Products

At Murata, we have been taking steps to reduce the environmental impact of our products. In April 1996, Murata established a program intended to reduce or eliminate environmentally hazardous substances in products. In November 1997, this program was expanded to include chemical substances used in production processes. See pages 21 and 27

We have also adopted the life cycle assessment (LCA) method to clarify the issues that should be addressed at every stage of product design in order to reduce the overall environmental impact.

Moreover, we completed preparations to integrate a product assessment system in fiscal 2001, determined concrete action details in 2002 and implemented them in 2003.

Implementation of LCA

The LCA is a method of quantitatively assessing the various environmental impacts imparted by a product throughout its life cycle, which extends from resource extraction to manufacturing, sales, use and disposal.

Murata established its first LCA Sub-Committee in 1995. Using the results of an analysis of LCA data on our typical products, we prepared clear LCA guidelines and introduced them into our R&D process in 1999.

The items considered in an LCA assessment include carbon dioxide emissions, lead content, amount of principal raw materials consumed, the product and its production equipment.

The LCA data analysis revealed not only the energy consumed directly in manufacturing, but also the energy consumed indirectly by air conditioning and the like. As a result, we recognized anew the importance of energy conservation through initiatives such as cogeneration.

Sample LCA Data Sheet (Inventory Data)

Classification	Item		Unit	Process				Measurement	Total
				Cutting	Drilling				
Input	Energy consumption								
		Electricity	kWh	0.13	12.32			5.08	76.09
			kJ	460	4434			18300	234900
		Fuel Gas	kJ	0	0			0	0
	Consumption of major raw materials								
		Material A	g	99.26	0			0	99.26
		Material B	g	0	0			0	70.43
	Consumption of raw materials containing lead								
		Solder	g	0	0			0	58.60
		Others	g	0	0			0	0
Output	Exhaust emissions								
		CO_2 (direct)	g	0	0			0	0
		CO_2 (indirect)	g	54	5150			2123	31810

Introduction of a Product Assessment System

The product assessment system is a method of assessing, at the design stage, a product's impact on the environment. As part of this system, Murata has been taking steps to reduce or eliminate the use of environmentally hazardous substances in its products and manufacturing processes since April 1996.

One particularly important theme is the "lead-free" initiative, which has been developed as a standalone project.

In fiscal 2003, our R&D division introduced the product assessment as an initial step. The features of the product assessment are as follows.

- Evaluation items are established for product assessments based on the "3R" principle (reduce, reuse and recycle). New products and design alterations to existing products are measured against these evaluation items.
- Product assessments are carried out not only on products to be delivered to customers, but also on the materials and processes developed in-company during the design stage. This system considers the environment in every stage of development.
- The dedicated division evaluates all product assessments at the same time.
- The life cycle assessment (LCA) method has been partially introduced in order to provide an approximation of the energy consumed during manufacturing.
- By establishing criteria for all evaluation items, this system can provide feedback that prevents the criteria from being eroded.

Through this approach to product assessment, we are promoting eco-friendly product development.

Product Assessment Items

Classification	Item	
Product	Reduction of environmentally hazardous substances	→ page 21
	Reduction of main raw materials	
	Compact	
	Power conservation	
	Green procurement	→ page 20
Production process	Reduction of environmentally hazardous substances	→ page 27
	Reduction of energy consumption	→ page 24
	CO_2 reduction	→ page 24
	Waste reduction	→ page 25
	Green procurement	→ page 20
Packaging	Reduction of regulated substances	→ page 21
	Promotion of reduce, reuse and recycle	→ page 23

Product Assessment Process