

## 2 Environmental Conservation Activities



**Masazumi Konishi**  
Senior Managing Director  
Chairman, Product  
Technology Subcommittee

### Product Technology Subcommittee

The environment is the major theme for the 21st century. The Product Technology Subcommittee at Toyota Industries is committed to identifying and reducing the environmental impact of our products through technological development.

Toyota Industries must fulfill its social responsibility to provide its customers with products that are both environmentally conscious and deliver unsurpassed reliability. In addition, it is essential that we continue to grow as an enterprise in order to ensure our corporate survival. To develop and provide environmentally conscious products, we must ensure that environmental considerations are included throughout the product life cycle, which begins with the development and procurement of raw materials and parts and extends through to the use and disposal of our products. Toyota Industries continues to place a strong emphasis on measures to promote the development of environmentally conscious products, and is aggressively involved in implementing these measures in all aspects of our company.

We stand by our commitment to develop products that are valued by our customers both in terms of performance and their contribution to environmental conservation.

## Developing Environmentally Conscious Products

Toyota Industries is taking aggressive steps to develop environmentally conscious products.

Products affect the environment in various ways throughout the product life cycle, such as global warming due to energy consumption and the release of substances of concern during product disposal. The environmental impact of a product can be greatly decreased by taking appropriate measures at the product development stage. The Third Environmental Action Plan specifies that Toyota Industries will pursue the following major objectives as part of its product development and procurement efforts, namely to: (1) manage and reduce the use of substances of concern; (2) promote life cycle assessments (LCAs) of products; and (3) promote recyclable designs. The Third Environmental Action Plan also sets specific targets to be achieved by the company as it works to adopt environmentally conscious designs for its products.

Future efforts will focus on the creation of an environmental data system. Toyota Industries will also seek to enhance its product development efforts by providing its customers with environment-related product information and enhancing its system for sharing environmental information within the company.

### Guidelines for Developing Environmentally Conscious Products

Product Category	Textile machinery	Compressors	Forklift trucks	Automobiles	Engines	Electronic equipment	
Environmental Impact	<ul style="list-style-type: none"> <li>•Global warming</li> <li>•Environmental pollution from disposal</li> </ul>	<ul style="list-style-type: none"> <li>•Depletion of natural resources</li> <li>•Air pollution</li> <li>•Global warming</li> </ul>	<ul style="list-style-type: none"> <li>•Air pollution</li> <li>•Environmental pollution from disposal</li> <li>•Depletion of natural resources</li> </ul>	<ul style="list-style-type: none"> <li>•Depletion of natural resources</li> <li>•Air pollution</li> <li>•Global warming</li> <li>•Environmental pollution from disposal</li> </ul>	<ul style="list-style-type: none"> <li>•Air pollution</li> <li>•Noise pollution</li> </ul>	<ul style="list-style-type: none"> <li>•Environmental pollution from disposal</li> </ul>	
Common Challenges	Manage and reduce the use of substances of concern (green procurement)	[Green bar]					
	Promote LCA of products	[Green bar]					
	Promote recyclable designs	[Green bar]					
Challenges by Product Category	Improve fuel efficiency	[Green bar]					
	Reduce noise	[Green bar]		[Green bar]			
	Reduce exhaust gas emissions			[Green bar]			
	Develop clean-energy vehicles		[Green bar]				[Green bar]
	Prevent global warming caused by car air-conditioners		[Green bar]				

## Management and Reduction of Substances of Concern

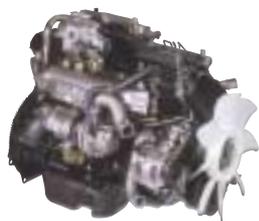
In step with efforts around the globe, Toyota Industries has set medium-range goals for managing and reducing the company's use of substances of concern.

Under the European Union's end-of-life vehicle (ELV) directive\*, the use of lead, mercury, cadmium and hexavalent chromium will be banned from all vehicles sold in Europe starting from July 2003. In response to the ELV directive, Toyota Industries' Product Technology Subcommittee has established objectives aimed at reducing the company's reliance on substances of concern in all of its business activities including its non-vehicle related businesses.

During FY 2002, Toyota Industries made changes to the design of parts that previously contained lead, cadmium or hexavalent chromium and switched to using alternative chemical substances. Toyota Industries also asked its suppliers to submit data regarding the inclusion and quantity of banned substances in materials and parts supplied to the company, and also requested that its suppliers submit plans for eventually phasing out the use of banned substances. In addition, Toyota Industries revised its in-house guidelines for substances of concern to reflect the policy of banning certain designated chemical substances.

### ■ Reduced Lead and Hexavalent Chromium in 1HD-FTE Engine

The 1HD-FTE diesel engine was co-developed with Toyota Motor Corporation and is currently manufactured by Toyota Industries. Toyota Industries has achieved a 73% reduction compared to FY 2000 in the use of lead in the 1HD-FTE engine by first eliminating lead in the crankshaft assembly during FY 2001, and later eliminating lead in the valve seat material during FY 2002. Toyota Industries has also reduced the use of hexavalent chromium by changing the design of the bolt nuts and washers used in the 1HD-FTE. The company plans to completely phase out hexavalent chromium in the 1HD-FTE engine during FY 2006.



1HD-FTE Diesel Engine

### ■ Reducing Lead and Hexavalent Chromium in Car Air-Conditioning Compressors

Toyota Industries manufactures car air-conditioning compressors that contain trace amounts of lead and hexavalent chromium in their components. The lead comes from lead additives used to improve the cutting performance of aluminum materials during forging, while hexavalent chromium is used in galvanizing and rustproofing coatings for bolts.

Toyota Industries is continuing to focus its technological development efforts at reducing substances of concern such as lead and hexavalent chromium. The company previously set a goal of identifying alternative substances so that it could completely eliminate its reliance on certain substances, which Toyota Industries successfully achieved in FY 2002.

The European Union's end of life vehicle (ELV) directive includes a ban on hexavalent chromium starting from July 2007, as well as a ban on the use of lead in free-cutting aluminum starting from July 2008. Toyota Industries Compressor Division is currently working to eliminate both lead and hexavalent chromium in its compressor products by gradually switching over to the use of alternative compressor parts in FY 2003. These changes will allow the company to reach regulatory compliance well in advance of the ELV directive's ban on lead and hexavalent chromium.



7SBU16  
Variable Displacement Compressor

## Green Procurement

Toyota Industries is working hard to ensure that its procurement of materials and parts is environmentally conscious.

Since March 2001, the company has incorporated green procurement practices as part of its corporate mandate to procure parts, raw materials and indirect materials that have a low environmental impact. In order to promote green procurement, Toyota Industries has asked its suppliers to satisfy the following prerequisites for continued procurement:

1. Establish an environmental management system (EMS).
2. Implement management of substances of concern and eliminate the use of banned substances.

During FY 2002, Toyota Industries revised its Environmentally Preferable Purchasing Guidelines and held briefing sessions on the subject of green procurement. The company also held seminars that were designed to assist its suppliers in their efforts to create environmental management systems.

### ■ Publication of Revised Environmentally Preferable Purchasing Guidelines

Toyota Industries revised its Environmentally Preferable Purchasing Guidelines in February 2003. The revisions were designed to reflect further tightening of regulatory restrictions since the original publication of the Guidelines in March 2001, including the stricter management of chemical substances required by the EU's new ELV directive. The revised Guidelines now include various forms that are used by suppliers to declare that banned substances are not used in their materials or parts.



Environmentally Preferable  
Purchasing Guidelines (2nd  
Edition)

### ■ Supplier Briefing Sessions on Green Procurement

During FY 2002, Toyota Industries held two briefing sessions on green procurement, in October 2002 and February 2003. The briefing sessions were attended by suppliers for all of Toyota Industries' business units. In addition to providing information on regulatory trends and the company's Green Procurement Guidelines, the briefing sessions provided an opportunity for Toyota Industries to ask for greater cooperative efforts from its suppliers.



Briefing Session on Green  
Procurement

\*ELV directive: The end-of-life vehicle (ELV) directive has been adopted by the European Union to reduce the environmental impact and improve recyclability during the scrapping of used vehicles.