

# RESEARCH AND DEVELOPMENT

The Kuraray Group's strategic research and development has the objectives of developing its speciality chemicals business in the strategic markets of environment and energy, IT-related materials, and medical and health care, on the strength of original technology. This involves both creating and fostering new businesses, and strengthening and expanding core businesses.

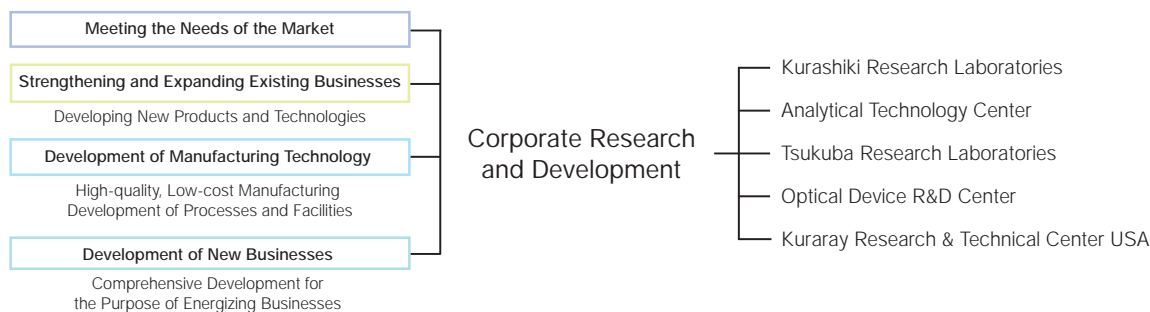
## Reforms of research and development organizations and the acceleration of commercialization

The Kuraray Group's research and development organizations consist of corporate research (the New Business Development Division, etc.), divisional research and development (the in-house companies, business divisions, and Group member companies), and manufacturing technology development (the Technology Division, etc.), and are

staffed by over 800 researchers and engineers. Of the total, 30% of the Group's R&D staff is employed in corporate research, the in-house companies account for 50%, and the Technology Division is 20%.

In corporate research, we sought to speed the process of new business creation by merging the Corporate Strategy and Planning Division and the Research and Development Division to form the New Business Development Division in April 2005. A "selection and concentration" approach in new business development projects will increase the speed of commercialization and the identification of new business opportunities.

In addition, the Project Promotion Department was established with a mandate to speed the commercialization of products emerging from strategic research themes. As commercialization proceeds, the Project Promotion



Department forms working groups for each project to develop components that are further downstream toward finished products. The Department's main focus is on such themes as components for displays, batteries and power sources, electronics materials, and nanodevices, all of which support the acceleration of product commercialization. Of the corporate research and development resources, about half is allocated to the Project Promotion Department's themes.

## Pursuing efficiency through matrix management

Corporate research has greater cross-boundary functionality than divisional research and development, and therefore employs matrix management. This structure maintains close liaisons with the various organizations involved in the development of manufacturing technology, as well as the research and development departments of the in-house companies and Group member firms. For instance, the Analytical Technology Center, as the Kuraray Group's



KURASHIKI RESEARCH LABORATORIES/  
ANALYTICAL TECHNOLOGY CENTER  
(OKAYAMA PREFECTURE)



TSUKUBA RESEARCH LABORATORIES/  
OPTICAL DEVICE R&D CENTER  
(IBARAKI PREFECTURE)



KURARAY RESEARCH & TECHNICAL CENTER USA  
(PASADENA, TEXAS)

R&D HIGHLIGHTS IN FISCAL 2004

New businesses in growth domains	Components for displays	<ul style="list-style-type: none"> <li>• Display components using high-precision processing technology; components for backlighting devices                             <ul style="list-style-type: none"> <li>&gt; <i>MIRABRIGHT</i>, a new liquid crystal backlighting device component marketed</li> </ul> </li> <li>• Development of new technology that will enable production of revolutionary new backlighting-device components                             <ul style="list-style-type: none"> <li>&gt; Underway at the Optical Device R&amp;D Center in Tsukuba</li> </ul> </li> </ul>
	New biotechnology and medical products	<ul style="list-style-type: none"> <li>• Development of nanodevices and microdevices with applications in biotechnology and medicine, using ultra-high-precision processing technology                             <ul style="list-style-type: none"> <li>&gt; A number of products are now with customers for evaluation</li> </ul> </li> </ul>
New businesses in core business fields	Next-generation engineering plastics	<ul style="list-style-type: none"> <li>• <i>GENESTAR</i> <ul style="list-style-type: none"> <li>&gt; Developing basic manufacturing-process technology using new catalysts, in a drive to expand this business on a global scale</li> </ul> </li> </ul>
	New high-performance materials	<ul style="list-style-type: none"> <li>• World's first acrylic thermoplastic elastomer developed                             <ul style="list-style-type: none"> <li>&gt; Mass-production technology established, full-scale marketing now underway</li> </ul> </li> <li>• High-performance barrier material using nanotechnology                             <ul style="list-style-type: none"> <li>&gt; Development of basic technology completed, customer evaluation underway at pilot plant</li> </ul> </li> </ul>

analysis center, supports the resolution of issues arising in the development of manufacturing technology at the in-house companies, business divisions, and Group member firms, using diagnosis and analysis technology. This center serves the entire Group, including its overseas components, concentrating on urgent and important issues. Its special analysis function has been successful in a number of cases.

**Revamping our employee patent compensation system for creating, safeguarding, and using intellectual property**

Kuraray established an employee patent compensation and incentive award system in 1963 to strengthen its foundation for discovery and creativity, and has improved this system over the years. Under amendments implemented in April 2005, a patent is no longer considered as a single factor, but rather, all the products using that patent are considered to be a unit. Instead of the products concerned being evalu-

ated on the basis of net sales and profit as before, the fundamental importance of a patent is based on (1) whether it is a basic patent, (2) whether it gives us a competitive advantage, (3) whether it protects Kuraray's business, and (4) the international breadth of the patent's coverage. Patents that make a clear contribution to the Company's earnings are evaluated highly.

The revision to Article 35 of the Japanese Patent Law that came into effect in April 2005 imposes three duties on Kuraray:

- 1) Disclosure of standards for calculating compensation (Kuraray had already made such disclosure).
- 2) Consultation with employees prior to establishing procedures for compensation.
- 3) Establishment of a method for protesting the amount of compensation.

Consultations with employees were completed in July 2005. Regarding procedures for protesting amounts of compensation it is anticipated that the heads of the New

Business Development Division, Technology Division, Corporate Controlling Department, Personnel Department, Office of CSR, and Intellectual Property Center will form a Patent Compensation Board to handle such matters.

R&D EXPENSES (MILLIONS OF YEN)

