# Intellectual Property Report 2006 April 1, 2005~March 31, 2006



Toray Industries, Inc. celebrated the 80th anniversary of its foundation in April 2006. On the occasion of this corporate milestone, Toray Group drafted "AP-Innovation TORAY 21" as a long-term corporate vision targeting sustainable development and rapid advancement for the entire Toray Group.

The Group also drew up Project "Innovation TORAY 2010 (IT-2010)," a mid-term business strategies, in order to aid in reaching the specific targets of this vision.

Within "AP-Innovation TORAY 21," the corporate slogan, "Innovation by Chemistry," is adopted to advance "innovation and creation" throughout all Toray business activities. The Group will aim to be a global top company of advanced materials by pursuing technological innovation with the use of the Group's core technologies and their integration.

"IT-2010" cites five key management issues:"Innovation of business structure," "Innovation of technologies," "Innovation of competitiveness," "Innovation of business-awareness" and "CSR innovation." Through these reforms, the Group goes for further growth toward "new Toray Group," dynamically evolving into a solid corporate structure with high profits.

Now setting its sights on sustainable development and a new leap to growth, Toray Group emphasizes the strengthening of intellectual property as a critical management issue. Toward that end, by making the strategies in businesses, research and development and intellectual property work together, Toray Group strengthens corporate value through strategic applications and use of patent rights, achievement of intellectual property value through early-stage commercialization of new products and technologies, and enhancement of brand potential.

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# 1 Core Technologies

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Since its very inception as a corporate entity, Toray Group has firmly subscribed to the conviction that "research and technical development provide the key to building the Toray of tomorrow." Toray has constantly positioned the strengthening of basic research and fundamental technologies as critical management issues, channeling its energies into research and development and has created new technologies and expanded the field of the technologies.

From our foundation in 1926, rayon production served as the start of our business advance into the three major synthetic fibers of nylon, polyester and acrylic, as well as high-performance films, engineering plastics, carbon fiber composite materials, IT-related products, highperformance membranes, pharmaceuticals and medical products ranging from basic materials to processed products. Organic synthetic chemistry, polymer science, and biotechnology, now integrated with nanotechnology, cultivated through Toray's expansion of business fields have been positioned as the core technologies of Toray Group. The Group has utilized the core technologies for challenging further "Innovation" in order to create a new value.



# **Toray Technologies and Major Product Lines**

# 2 Business Models

The long-term corporate vision "AP-Innovation TORAY 21" predicts changes in the business environment over the next 10 years, and foresees actualized and diversified social needs such as the "advancement of highly information-based society," "advent of advanced transformation in accordance with higher industrial development" "greater health and longevity and advances in life science" and " global environment issues including decrease of water resources." To cope with these envisioned challenges, four growing business fields have been established as the pivotal domains to be targeted by Toray Group - (1) Information, Telecommunications and Electronics; (2) Automobiles and Aircraft; (3) Life Science; and (4) Environment, Water-related and Energy.

Within these four growing business fields, Toray Group utilizes its core technologies and the ability to integrate them for the pursuit of technical innovation and through the development of advanced materials the Group continues to supply customer solutions in striving to become a "Global Top Company of Advanced Materials"

# Four Growing Business Fields Targeted by Toray Group



# R&D Segments

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In Toray Group, the research and development activities are segmented by specific business units -Fibers and Textiles, Plastics (films and plastic resins), Chemicals, IT-related Products, Carbon Fiber Composite Materials, Life Science (pharmaceuticals and medical products) and the Environment (water treatment).

Since 1985, Toray has deployed and operated a research and technology development system that Technology Center works as a core which takes charge of devising company-wide strategies and key projects for research and technology development. In the Fibers & Textiles, Plastics & Chemicals and Carbon Fiber Composite Materials, the Division, Manufacturing Division and Technology Center get together in an organizational matrix structure that also allows them to function independently and at the same time to organically link up with each other. In the IT-related Products, Water Treatment and Life Science, the organizational system in force acts to integrate production and sales with the goals of flexible business operations, rapid customer responses and more streamlined technology development.

## Basic Strategies by Business Category

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Toray Group divides its business operations into the three categories of the Foundation Businesses, Strategically Expanding Businesses and Strategically Developing Businesses, with basic tactics clarified for each category.

Advanced for Fibers & Textiles and Plastics and Chemicals, positioned in the Foundation Businesses, are ① expansion of global business; ② pioneering of new product and commercial transactions as a New Value Creator; and ③ promoting of downstream and processing business development to establish a stable earnings foundation. Through the expansion of advanced materials within these Foundation Businesses, meanwhile, we strive to pursue the business advances.

IT-related Products and Carbon Fiber Composite Materials, targeted as Strategically Expanding Businesses, are projected to chart major growth over the years to come. The goal in these areas is to strengthen the responses to growing markets such as information and telecommunications, aircraft, and automobiles, using the prioritized introduction of management resources to achieve dynamic expansion as businesses that drive earnings.

Positioned as Strategically Developing Businesses, meanwhile, are the Life Science including pharmaceuticals & medical products and bio-tools, as well as the Environment centered on the water treatment. In the quest to transform these businesses into the next pillar of earnings expansion from midway, or the year of 2010, through the long-term corporate vision "AP-Innovation TORAY 21," the prioritized allocation of management resources is complemented with a policy of strategic development and expansion encompassing corporate M&A and business alliances.



# R&D and Commercialization Promotion Scheme

While Toray research and development is carried out in close alignment with business strategies, to accelerate the R&D process, research themes judged to have the greatest impact on future business are selected from the many available themes as "APEX 40" top priority themes and then targeted for pivotal allocation of management resources. With regard to new major themes that have advanced from the R&D stage to the technology development stage, dedicated leaders are assigned to coordinate all divisions, from research and technology through production and sales, from the initial stages of development. Under this format, "Advanced Materials Projects" are established with the goal of achieving early product launches in no more than two years, striving to speedily link the achievements of research and technology to the successful commercialization of specific themes.

ld Map	New Materials Innova	tion	Nano -innovat	ion	Process Innovation
oundation usinesses ibers & extiles lastics & hemicals	Innovative flame-retardant mat (Ex: revolutionary flame-retarda Non-pa (Ex: hij New transparent heat-resistan	erials N nt fibers) (I etrochemical- r ghly flame-reta t plastics N	lext-generation en Ex: Nano-alloys) naterial products Irdant PLA) Nano-materials (Ex	gineering plastics .: CNT)	Melt spinning cellulose fibers Innovative film manufacturing processing (Ex: nano-layer films)
trategically xpanding usinesses -related roducts arbon Fiber omposite laterials	New Materials Innova Displa (Ex: O Semiconductor related mate (Ex: new CMP polishing pads Next generation composite r	tion y materials/d rganic EL lum rials li ) naterials H	Nano-innovati evices inant materials, op nnovative coating High-performance p	on otical films) materials prepegs	Process Innovation Innovative film forming Next-generation circuit forming (Ex: high-density flexible circuit boards) Innovative composite materials forming (Ex: automobile structure materials)
	New Materials Innovation	Nano-inr	novation	Bio-innovation	Process Innovation
fe Science hvironment / hergy	(new efficacy, new dosage form) New drugs (Ex: curative drug for urinary incontienc Energy-relat (Ex: materia Water treatu (Ex: high bo	e) led materials ls for fuel cel ment separat ron rejection	(Ex: DDS, cance Bio-tool (Ex: DN. Is) ion membranes membranes)	r immunotherapy) A chip)	Innovative bio-processes
	Photoelectric conversion materials (Ev. organic semiconductors)	Nano-fabric	ation	Genomic analysis, drug discovery	Innovative polymerization process
Basic Research	Commorcialization for Now	Major Thon	000		

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# Research and Development Investment Strategies

Toray Group R&D spending in FY 2005 was ¥39.7 billion, equal to 4.3% of net sales (excluding sales by trading subsidiaries).

In the "IT-2010" mid-term business strategies, a plan is outlined to implement aggregate R&D spending of ¥240 billion over the five-year period from FY 2006 through FY 2010. Under this plan, some 80% of that total is strategically allocated for the research and development of Advanced Materials, created from Toray's "Core Technologies" and the integration of such core technologies.

Of Toray R&D personnel, approximately two-thirds of the 3,000-person is to be assigned to work into Advanced Materials.

Ratio of R&D expenditures excluding the sales by following trading subsidiaries.

Japanese

Toray International, Inc., Chori Co., Ltd., Ichimura Sangyo Co., Ltd., Marusa Co., Ltd., Toray Ireeve Corp. Overseas

TOMAC (U.S.A.), TEL (UK), TCH/THK (China), others





# **Overview of R&D Segment and Intellectual Property**

Toray Group channels keen energies into efforts to obtain patents in all of its R&D segments, with the key focus on advanced materials. This is particularly true of the Strategically Expanding and Developing Businesses positioned as drives for expanding mid- and long-term earnings, with vigorous patent applications made both in Japan and overseas.

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Toray has conventionally concentrated its patent applications and pursuit of claims for patent rights in synthetic fibers, high-performance films, and engineering plastics in the Foundation Businesses, with these efforts generating high market share and profitability. At present, efforts are being more strongly channeled into applications and rights claims for important patents in IT-related Products, Carbon Fiber Composite Materials, and Life Science in Strategically Expanding and Developing Businesses projected to serve as drives for expanding mid- and long-term earnings from here on. This strategy is considered instrumental in supporting these business fields over the years to come.

Meanwhile, as a prioritization measure targeting the move toward selection and concentration, Toray has designated "Rank-A Projects" as top-priority themes in the administration of patents. Under this approach, leaders and supervising executives are deployed, with additional support provided through regularly scheduled follow-ups by technical division executives.

The following three "Rank-A Project" categories are currently in force.

① "Rank-A Patent Rights Projects," with the objective of establishing patent networks for new technologies and related peripheral technologies through application and pursuit of claims for patent rights.

(2) "Rank-A Defense Projects," targeting early clarification of the relations with patents rights held by other companies for key research and technology development, and prompt determination of countermeasures for patents of other companies determined to have a major impact on Toray 's business.

③ "Rank-A Rights Utilization Projects," structured to fight infringement of Toray patents by other companies through claims for the legitimacy of Toray rights, efforts to curb such infringement by other companies and the obtaining of rightful compensation for execution of Toray patents by other companies, in making strong contributions to Toray business.

These Rank-A Projects have been selectively established for a large number of themes pertaining to advanced materials and other priority fields of Toray endeavor. Toray Group rises to the challenge of creating innovative new materials and technologies, determined to become a top global ranked business group at the leading-edge industry on the strength of advanced materials.

As evidence of this commitment, Toray has worked with polymer science, organic synthetic chemistry and biotechnology as its core technologies, introducing new products lines that have emerged as Foundation Businesses for synthetic fibers, high-performance films and engineering plastics. We have likewise extended product lines that have forged new businesses in carbon fiber composite materials, IT-related materials, printing materials, water treatment and medical treatment high-performance membranes, fine chemicals, pharmaceuticals and veterinary medicines.

Toray now adds nanotechnology to its pursuit of polymer science, organic synthetic chemistry and biotechnology to create integrated technologies and pursue technological innovation. The achievements include environmentally friendly new materials, innovative materials used to create new displays, circuits and semiconductor technology, advanced materials for bio-tools, innovative pharmaceuticals and medical products. These materials are mobilized to supply solutions in the four major growing business fields of "Information, Telecommunications, and Electronics," "Automobiles and Aircraft," "Life Science" and "Environment, Water-related and Energy," and provide a driving force in the Group's growth.

# Fibers & Textiles

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Toray has built a solid position in the field of fibers & textiles, supplying the products from yarns and staples of three major synthetic fibers, nylon, polyester, and acrylic, to textiles for a wide range of applications from apparel to industrial.

Recent results include polytrimethyleneteraphthalate (PTT) fiber, which excels in soft stretch qualities through the use of Toray 's original composite spinning technologies. This environmertally friendly material was realized through a partnership with Du Pont of the United States, motivated by the need to mobilize bioconscious methods to produce raw materials. Toray has also teamed up with the U.S.-based NatureWorks to develop polylactic acid (PLA) fiber, a non-petrochemical fiber created from corn, for such commercial use as car mats. We are likewise carrying our pursuit of fiber technology to new frontiers with the development of "Nano-fiber" – a fiber with 1/1,000th the thickness of human hair. Another example is "Nano-matrix" – a fiber processing technology mobilized to generate functional material coatings comprised of nanoscale molecular assemblies on each monofilament used to form the fabric (woven and knitted types). In a joint project with the Independent Corporation RIKEN (Institute of Physical and Chemical Research), meanwhile, fullerene has been utilized to successfully develop technology forging dramatic improvements in the performance and durability of photocatalytic coating agents.

# 2 Plastics and Films

In films, Toray was the first in Japan to commercialize biaxially oriented polyester film, which together with biaxially oriented polypropylene film has been leading the world in the high-performance and high-function film field. We are also the global pioneer in the development and commercialization of biaxially oriented polyphenylene sulfide and aramid films. To date, Toray has utilized its original thickness control of these films, special stretching technology, surface forming technology backed by film laminating methods, coating, cleaning, static electricity control and nano-alloy technology. These optimal functions have been added to various industrial applications such as flat panel displays, packaging applications for retort foods, and magnetic materials applications for computer memory backups.

As more recent successes, Toray has developed a nanostructure control technology (nano-alloy technology) that disperses a number of different polymers through several nanometer orders, creating films that dramatically improve polyester film thermal resistance and the thermal shrinkage ratio. Another achievement is a high-performance biaxially oriented polyester film, showing excellence in durability, tear resistance and transparency produced through a new film formation technology in which several different polymers are laminated with high (nano) precision at a molecular order thickness of several nanometers. Toray has also used its original coating technology for the successful

development of next-generation process film instilled with unparalleled antistatic capacity.

In plastic resins, based on advances in polymerization and molecular designs, polymeralloy composites, molding processing and other element technology, Toray has achieved sophisticated performance and function in ABS (acrylonitorile-butadiene-styrene) resin and nylon, polybutylene-terephthate, polyphenylene sulfide, liquid-crystalline polyester and other engineering plastics. This is paving the way to the use of these plastics in information and telecommunications devices, and automobile parts.

In more recent years, Toray has exercised highly advanced control over the dispersiveness in the different material particles in polymers, thereby developing injection molding use plastic materials with the world's highest heat conductivity. Besides this, we have used our polylactic acid (PLA) nanoalloy and halogen-free flame retardant technologies to develop the world's first large-size plastic chassis for notebook PC sourced from plant-based materials and engineered for low environmental stress.

# 3 Chemicals

In chemicals, Toray advances its basic materials business rooted in photosynthesis, organic synthesis and air oxidation; the high-performance chemical materials business based on organic and inorganic synthesis technologies; and the veterinary medicine based on application of silkworm use know-how through biotechnology. Of late, Toray has been authorized to produce and sell Inter-Dog\*, the world's first canine interferon formulation, and has embarked on mass production of that pharmaceutical.

In the new advanced materials, Toray is promoting business expansion through development of high-function products like carbon nano-tubes.

#### IT-related Products

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In IT-related products, Toray mobilizes element technologies such as polymer design of heatresistance properties and photo-functionality, organic synthetic, particle dispersion, thin-film forming and photo-lithography to pursue development of semiconductor butter coating, insulation film and optical device, flexible printed circuit materials, high-k insulator materials, ceramic substrate materials, color filters for liquid-crystal displays, plasma display back panel forming technology and low-polymer organic electroluminescent (EL) light-emitting materials. Recent successes include development of halogenfree chemical mechanical polishing (CMP) pads excelling in planarization and the world's highest density film circuit for IC bonding applications.

In tandem with our materials development, Toray also supports the electronics and information industry by advancing high-function product development of manufacturing and testing equipments for semiconductors, flat-panel displays and other applications.

Finally, gearing up for the supply of organic electronics such as flexible displays and organic solar cells, which are anticipated to emerge as a major market, Toray is well on its way to meeting the challenges of advancing research in organic semiconductors, flexible sheet materials and other related components.

#### 5 Carbon Fiber Composite Materials

Within this field, Toray supplies carbon fibers, intermediate materials such as fabrics and prepregs of carbon fibers, and carbon fiber composites utilizing molding technologies to the applications in the aerospace, sports, civil engineering, automobile, electronic information machinery and energy.

For aircraft, the Boeing Company has used carbon fiber since 1982, with the solid performance factors and the competitive cost and high-strength technologies earning stellar marks over the years. In 2004, Toray signed a contract with Boeing for the exclusive supply of the carbon fiber composite material prepreg for use in the primary structures including the wings and fuselage of the B787 nextgeneration medium-size passenger jet. Among uses in IT-related products, 3D structure molding technology using carbon fiber laminates is acclaimed for generating lightweight and highly rigid PC chassis. In the automotive industry, Toray succeeded in establishing the world's first highspeed molding technology that enabled mass production of vehicle bodies.

# 6 Life Science

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In pharmaceuticals, Toray has furnished pharmaceutical products like the natural interferon- $\beta$  preparation Feron\* based on biotechnology, the world's first oral prostacyclin derivative preparation Dorner\* based on synthesis technology. In medical products, our product line includes the Filtryzer\* and Toraysulfone\* artificial kidneys with polymer biocompatibility and separation function, and Toraymyxin\*, the extra-corporeal blood purification column. These unique product groups are earning high admiration for their quality and performance.

Among recent achievements, Toray has developed highly-sensitive DNA chips backed by the integration of nanotechnology and biotechnology, and protein analysis chips capable of detecting diseased protein from trace infinitesimal blood samples, by advancing research into gene and proteome analysis and biotools in New Frontiers Research Laboratories. Toray has also teamed up with the Tokyo Metropolitan Institute for Neuroscience contained in the Tokyo Metropolitan Organization for Medical Research to achieve for the first successful culture of the hepatitis C virus (HCV), embarking on development of a vaccine by utilizing the technologies.

#### Environment (Water Treatment)

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In water treatment, Toray targets scientific and technological solutions to water environment problems. To respond to today's highly diversified water treatment needs, programs are being advanced to further deepen and evolve our technologies with the focus on the outstanding polymeric separation technology perfected by Toray Group. Our own polymer processing technologies have been used to achieve innovative selective separation membranes for use in seawater desalination, ultra-pure, water production, water purification and sewage treatment, making important and direct contributions to technological solutions for today's water and environmental problems.

Toray is also advancing the development of high-efficiency, low-cost water treatment systems using these high-performance membranes and incorporate the latest breakthroughs in biotechnology. Recent results include the use of Toray's original molecular design technology to develop high boron rejection reverse osmosis membranes for seawater desalination with pore diameters controlled at sub-nanometer precision.



# R&D and Intellectual Property Organization

Toray since 1985 has maintained a research and technology development system focused on Technology Center, which it mobilizes to draft company-wide strategies and key projects for the research and technology development. In the

Fibers & Textiles, Plastics & Chemicals and Carbon Fiber Composite Materials, the current organization allows the Division, Manufacturing Division and Technology Center to maintain their independence, while also integrating them to cooperate with each other. For the Water Treatment, IT-related Products, and Life Science, we have established an organizational structure that integrates production and sales for highly flexible business management, prompt customer responses and speeding-up of technology development.

Each laboratory and technology department conduct R&D keyed to its own business operations. But they also advance approaches that cut across divisional borders to address the lateral evolution of collaborative research and element technology, probing solutions for emergency problems and taking other pertinent actions. To speed up the process from development through commercialization, "Advanced Materials Projects" are established in the New Projects Development Division. This scheme can clarify which business units should become, the recipients of the



outcomes of research and technology development, with dedicated project leaders stepping in to determine the term of the project. The research, technology, production and sales become fully integrated to advance the work required to complete and commercialize the plans.

#### 2 R&D Cooperation and Partnerships

Based on the belief that effective future research and technology development means moving away from its own principle of independence, Toray uses strategic outside partnerships to advance optimum technology mixes. True to this conviction, we are advancing energetic collaboration with outside sources through 150 partnerships and participation in 35 national projects (as of March 2006). For example, development of technology for high-speed molding of carbon fiber composite materials, the key to mass production of automobile bodies and other products, is being advanced jointly with Nissan Motor Co., Ltd. on consignment from the New Energy and Industrial Technology Development Organization. The world's first successful culturing of the hepatitis C virus, meanwhile, was carried out in tandem with the Tokyo Metropolitan Institute for Neuroscience within the Tokyo Metropolitan Organization for Medical Research.

Guidlines on Ownership and Management of Intellectual Property, Management of Business Classified Information, Preventing Technology Leakage, Brand and Licensing Strategies (including implementation of guidelines)

#### **1** Patent Acquisition and Management

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For the acquisition and management of patents, Toray subscribes to its *Patent Management Regulations* and *Patent Management Standards*. These rules are permanently accessible on our intranet. Trademarks are handled in a similar manner, with the *Trademark Management Regulations, Trade Name, Corporate Symbol and Brand Management Regulations* and *Trademark Management Standards* established and disclosed company-wide.

For patents, "patent committees," established at each R & D segment, discuss details and complete all required procedures. Participating in these committees are representatives of the Intellectual Property Department and Toray Intellectual Property Center, as well as members of the research, technology and business (sales) departments in each division. In this way, an integrated approach is adopted for the management of intellectual property, research and technology development and business strategies. These committees provide a particularly useful format for making key policy decisions to determine what themes to target with what applications, for which applications to issue requests for examinations, and what patent rights to maintain or release. Discussions likewise extend to defense of company-owned patents, utilization of patent rights and other key concerns.

For invention incentives, Toray has long maintained a bonus system for awarding employee ingenuity. This system includes fixed-sum compensation at the time of patent application and registration (including overseas patents in both cases), and performance awards keyed to the profits or license fees accrued by Toray based on use. However, in order to effectively address the revised Patent Law and the latest trends in court rulings, these internal rules were revamped with the focus on assessment procedures and removal of the compensation ceiling, and enacted on April 1, 2005. These revisions have raised the awards for inventions from the previous levels, setting the stage for outstanding ideas expected to raise Toray competitive strength over the years to come.

### 2 Management of Business Classified Information and Preventing Technology Leakage

For business classified information and technical information, Toray has established *Business Classified Information Management Standards* for document-format information and *Electronic Information Security Standards* for electronic data. Thorough worksite information management is exercised for both categories. Regular internal audits enforce management business classified information and prevention of technology leakage.

# 3 Brand Strategy

As the "Innovation of business-awareness" is defined in the mid-term business strategies of "IT-2010," the "Corporate Brand Strengthening Project" is advanced with the Executive Vice President as overall leader.

This project exercises strict control over all intellectual properties that symbolize Toray Group corporate activities, in striving to advance effective corporate brand strategies. These properties include the company name of "Toray Industries, Inc." which also comprises the corporate brand expressing the reasons for the company's existence and originality, the corporate symbol **'TORAY'** the three written versions of "Toray"

used as trademarks, the corporate domain names "toray.co.jp" and "toray.com."

Toray strives to receive accurate social evaluation marks of the Toray corporate image to raise the sum total of corporate brand value, thereby enhancing employee engagement and customer loyalty, and bolstering the ability to obtain outstanding personnel. Toward that end, we pursue the following three concrete themes.

- Raise employee brand awareness and engagement.
- ② Strengthen appeal for the external corporate brand and company image.
- ③ Clarify corporate brand targets and coordinate business domain brands and product brands.

The **'TORAY'** corporate symbol denoting the drive and spirit of Toray Group is an expression of the stance of dialogue and communication both inside and outside the company, together with the aspiration to excel as a distinctive presence within

the society. This is a registered trademark for the primary businesses of Toray Group in over 150 countries around the world for which we have established exclusive use rights. Rigid defensive measures are adopted to deal with unauthorized use by third parties.

Likewise, in the mission to forge broad-based understanding of the goals of Toray Group in preserving the global environment and contributing to the creation of a recycling-oriented society, we have also established **ecodream** as a brand encompassing all of our business activities, products and services linked to the environment and recycling. Toray, which also targets the status of a "global top company of advanced materials," has registered **TORE** as a brand expressing the promise of high quality and grade in fibers & textiles advance materials. This brand is being vigorously utilized and deployed in Japan and China.

Toray Group has established some 1,200 patented product brands (amounting to approx. 8,000 trademark rights). As this achievement suggests, product brand strategy is promoted as a critical theme for strengthening the business foundation in the Toray corporate endeavors.

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# Contribution of Licensing-related Activities to Businesses

Toray Group actively promotes the acquisition and use of intellectual property rights as one means of distinguishing its products and technologies, and forging a competitive edge on the marketplace. At the same time, cross licensing is also considered an important strategy in maintaining the continuity and expanding the sphere of our business. To improve overall business profitability, licensing operations are energetically advanced not only for rights that are not exercised within the Group, but also for those that we do have in force internally.

As previously noted, although the generating of income through licensing is not considered to be the optimum approach for doing business, it also bears mention that the patent fee account has been a highly profitable arm of our corporate operations for many years.

# Contribution of Patents to Businesses

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Domestic Patent Acquisitions (Total for Toray Industries, Inc. and Toray Engineering Co., Ltd. at end March 2006)

Toray Group takes an aggressive approach to obtaining business patents with high potential for use in developing advanced materials, and will firmly support this stance from here on as well. In recent years we have engineered a particularly pronounced shift to stress quality over quantity, which translates into greater stress on improving the caliber of our products. This has resulted in a more stringent focus on cost awareness and operational efficiency when studying whether or not apply for or request assessment of patents, as well as when rendering judgments on whether to retain or release existing patent rights.

At the end of March 2006, the number of Toray patents held in Japan was 3,048, with 1,240 (41%) of these currently licensed, 1,155 (38%) scheduled to be licensed in the future and 653 (21%) comprising patents for defense and other applications. The following chart breaks down these patents by specific R&D segment.

#### Number of Japanese Patent Acquisitions as of March 2006





#### 3 Japanese Patent Applications

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During FY Mar/06, the number of applications for Japanese patents filed by Toray Industries, Inc. and Toray Engineering Co., Ltd. was 1,802, with the following chart breaking down these applications by R&D segment. The relatively high number of applications for these patents compared to those held in Japan, and particularly in ITrelated Products, Carbon Fiber Composite Materials and Life Science, is a reflection of the Toray Group policy to actively seek out new patents in businesses positioned as Strategically Expanding and Developing Businesses. Besides this, Toray subsidiaries filed applications for 164 patents, which brings the grand total of applications for Toray Group in FY Mar/06 to 1,966.

# Number of Japanese Patent Applications in FY Mar/06



R&D Segment	Fibers & Textiles	Films	Plastics	Chemicals	IT-related Products	Carbon Fiber Composite Materials	Life Science	Water Treatment	Others	Total
Number of Japanese Patent Applications	331	312	209	65	324	206	134	60	161	1,802

#### 4 Invention Award Track Record (FY Mar/06)

#### Awards Received in FY Mar/06 Regional Invention Commendations

Award Name	Region	Winning Invention	R&D Segment
Nagoya City Mayor's Prize	Chubu	High-adhesion polyphenylene sulfide plastic composite	Plastics
Invention Incentive Prize	Chubu	Papermaking canvas use polyester monofilament*1	Fibers & Textiles
Japan Institute of Invention and Innovation Chairman's Incentive Prize	Kinki	Heat-sensitive copy use polyester film	Films
Invention Incentive Prize	Kinki	Cold sensation reducing quick-dry swimwear materials and swimwear	Fibers & Textiles
Invention Incentive Prize	Shikoku	Flat carbon fiber formed reinforced carbon textiles, production methods and machinery	Carbon Fiber Composite Materials

\*1: This patent held jointly with Toray Monofilament Co., Ltd.

# Policies for Intellectual Property Portfolio

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As noted in Part 3 of this Report, Toray Group manages its intellectual property portfolio with a close eye on the future profitability and technical innovation of each technology and product. "Rank-A Projects" are established for themes assigned particularly high importance, with invention activities promoted on a prioritized basis. This stance encompasses the formation of patent networks through the creation of patent maps, including a solid grasp of the technologies and patents of other companies and the subsequent strategies to establish and exercise effective patent rights.

# Information on Risk Response

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As defensive-oriented intellectual property activities, Toray regularly monitors the patents of its competitors in each technology. Toray policy likewise requires mandatory confirmation of competitors' patents before any new product is released on the market, and judgments of whether patents are infringed. If obstacles are identified, the next step is to draft and execute countermeasures to remove those obstructions.

At the present time, there are no intellectual property related lawsuits in the courts judged capable of exerting a serious impact on the business interests of Toray Group.

# Note

The plans, prospects and strategies referred to in this report are merely assumptions based on currently available information. They are likely to change if and when the operational environment of our company changes, a technical innovation takes place or the conditions surrounding intellectual properties alter.

\* is a registered trademark of Toray Industries, Inc. and Toray Group. Date of Issue: December, 2006 Contact us at: Toray Industries, Inc. Investor Relations Department

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