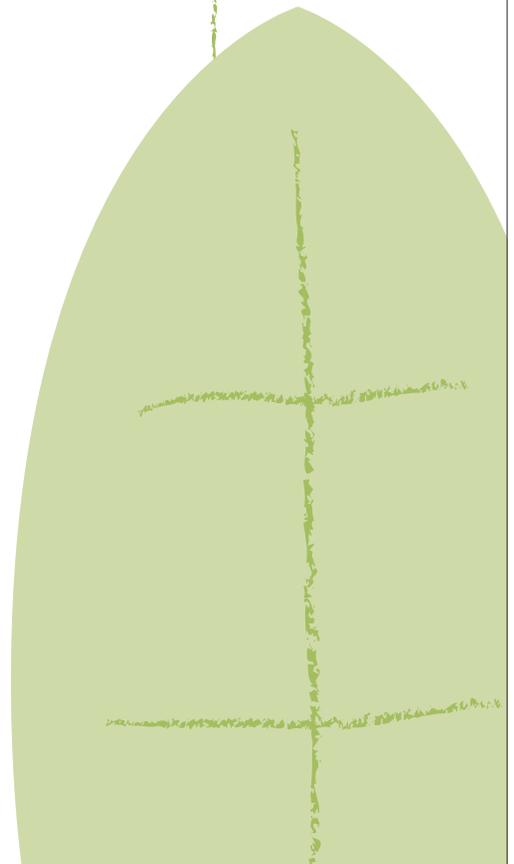
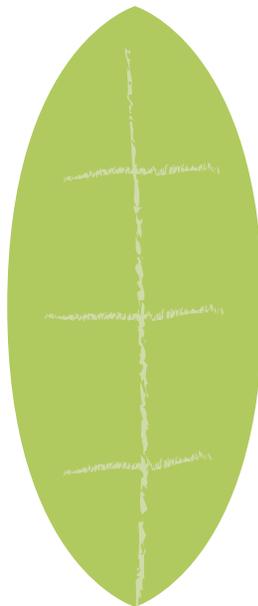
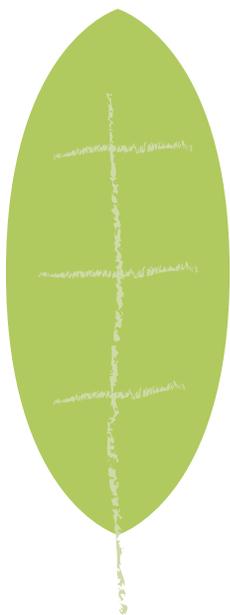
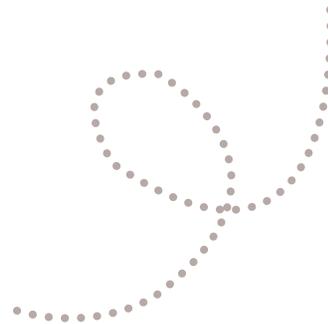


**UNITIKA  
CSR Report  
2008**



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## Message from the President

As a good corporate citizen,  
we contribute to a healthier environment  
and a more comfortable way of life.

Otofumi Onishi

Otofumi Onishi  
President

大西音文

At the Unitika Group, we are committed to a wide range of initiatives targeting enhanced enterprise value and long-term corporate growth. The basis of these initiatives is formed by development and enhancement of our business as well as by establishing a robust cooperate structure that provides us with the ability to respond to ongoing changes in the business environment. However, we are also acutely aware of how our business initiatives are intertwined with our corporate social responsibility, and we understand that it is absolutely essential for a better enterprise value to establish a relationship



of trust with our stakeholders. For the Unitika Group, this approach has always demonstrated our long-term commitment to our corporate social responsibility (CSR).

In promoting our CSR initiatives, we have also remained dedicated to defining and developing the systems required to implement and manage our essential functions, which include addressing environmental issues, ensuring legal compliance, managing product safety, and implementing internal audits and controls. In July 2008, we established our CSR Office to ensure that we pursue these important functions with greater effectiveness and oversight. Headed by the Director in charge and managed by the full-time senior management staff, this office is empowered to address a comprehensive range of CSR requirements. For example, it has pursued risk management by adopting a system that ensures rapid and effective risk assessment and response.

Among the most important of Unitika's CSR initiatives are those that address environmental challenges. This emphasis is appropriate, as the twenty-first century has been called "the era of the environment," with issues such as the potential for global warming and environmental pollution now assuming a significantly greater share of our corporate responsibility. In keeping with our Group ideal of "contributing to society by linking lifestyles and technologies," we have long made a priority of interlinking

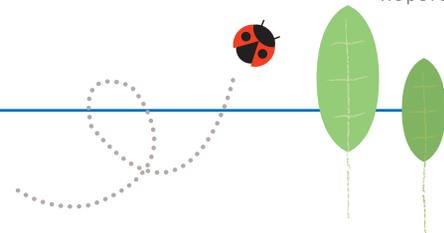
our Group's corporate initiatives while placing priority on the environment.

Our focus on the environment testifies to our basic approach of contributing to the emergence of a society committed to recycling resources. It includes a variety of efforts to reduce our environmental load, including the development of recycling technologies for processing refuse and wastewater, the development of biomass-based polylactide polymer Terramac® contributing to less emission of CO<sub>2</sub>, and the implementation of environmental assessments targeting the air, water, and soil,

all of which reflect Unitika's commitment to the environment. We are also promoting Group-wide registration for the ISO 14001 environmental management standards, of which certification encompasses six Unitika plants and other major facilities; moreover, our main plants have converted from oil to natural gas for their energy requirements. Clearly, in terms of both our business and operations, we have been focusing on the most pressing environmental issues.

Under our medium-term management plan New Progress 8 (NP-8), now in its third and final year of implementation, we have been cultivating the eco-friendly business models as reflected by our environmental plant business, our environmental materials business, and our reputation as a manufacturer of Terramac®. This testifies to our management vision as a good corporate citizen contributing to a healthier environment and a more comfortable way of life. Committed to reinforcing and promoting these efforts and building upon our past initiatives as an environmentally responsible company, we are now in an excellent position to promote additional specific goals as required by CSR.

I trust this report clarifies our commitment to the CSR initiatives the Unitika Group is pursuing as a responsible corporate citizen, and I welcome your support as we pursue these initiatives.



## Management

### Notes on FY 2008 Report

#### History of Report

This report was originally issued as the Unitika Environmental Report, a document which detailed Unitika's various environmental and social related activities. By 2006, the Report has expanded CSR coverage, reflecting the growing importance of this area and greater attention it is receiving in Japan. The CSR information includes topics such as corporate governance, internal control and other principles and systems in use by the Group. The Report is now issued annually as CSR Report.

- 2002-2005 Unitika Environmental Report
- 2006- Unitika CSR Report

#### Period Covered by Report

This report covers principally the period from April 1, 2007 through March 31, 2008, however it does address certain items, and events arisen after April 1, 2008.

#### Reference Guidelines

This report refers to the Environmental Report Guidelines (2007 edition) issued by the Ministry of the Environment.

#### What This Report Covers

This report in principle covers activities by Unitika, Ltd.'s domestic production sites and the Unitika Group companies including those overseas and Environmental Report covers the following range of items.

##### Unitika Production Sites in Japan

Uji Plant  
Okazaki Plant  
Sakoshi Plant  
Tarui Mill  
Toyohashi Office  
Tokiwa Mill  
Miyagawa Mill  
Kaizuka Office  
Central R&D Laboratories

##### Internal Group Companies

Ad'all Co., Ltd.  
Nippon Ester Co., Ltd.  
\*U-ai Electronics Corp.  
\*Unitika NP Cloth Co., Ltd.  
Unitika Environmental Technical Center Co., Ltd.  
Unitika Glass Fiber Co., Ltd.  
Unitika Plant Engineering Co., Ltd.  
Unitika Textiles Ltd.  
Unitika Fibers Ltd.  
Unitika Logistics Co., Ltd.

##### External Group Companies

\*I-Tex Co., Ltd.  
\*Osaka Dyeing Co., Ltd.  
\*Diabond Chemical Co., Ltd.  
\*Terabo Co., Ltd.  
Union Co., Ltd.  
\*Unitika Sparklite., Ltd.  
\*Unitika Spinning Co., Ltd.  
\*Unitika Berkshire Co., Ltd.

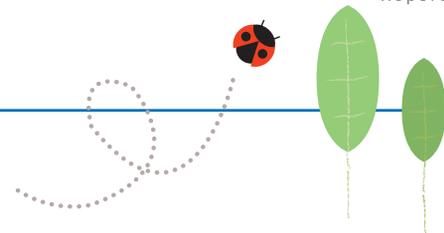
\*Of the Group companies that the report had covered until last year, Unitika Protech Sakoshi, Unitika Spunbond Products Co., Ltd. and Unitika Uji Products Co., Ltd., were merged into Unitika, Ltd. as of 1 October, 2007. Further, the nine companies listed with an asterisk (\*) were added to this report starting this year.

#### Date of Issue

This report can be accessed on Unitika's company website from 1 October 2008. In light of the potential environmental impact, no printed version is issued.

#### Next Report

October 2009



## Management

### Management Philosophy

"Contributing to society by connecting persons' living to technologies"

The Unitika group's management philosophy is to connect persons' living to technology, and aims to be "a company with a clear social presence that contributes positively to the environment and to people's living."

The Unitika Group Slogan

**UNITIKA**  
We Realize It!

There is an unimaginable number of people in the world. There is an unimaginable number of dreams and hopes.

The Unitika Group aims to unite all of these with one desire. One desire to improve the lifestyle of persons, living together in harmony within the global environment.

Unitika has the creative power to bring about this way of thinking. We also possess the technology and energy to turn these possibilities into realities. We have taken the time to unite all the companies involved in our various businesses, ensuring we are operating at full capacity through unification of our capabilities across numerous fields.

Unitika consistently strives to work together toward this goal.

The possibility of improving persons' lifestyle - We Realize It! -

We are the Unitika Group.

### Company Overview

Name: Unitika Ltd.

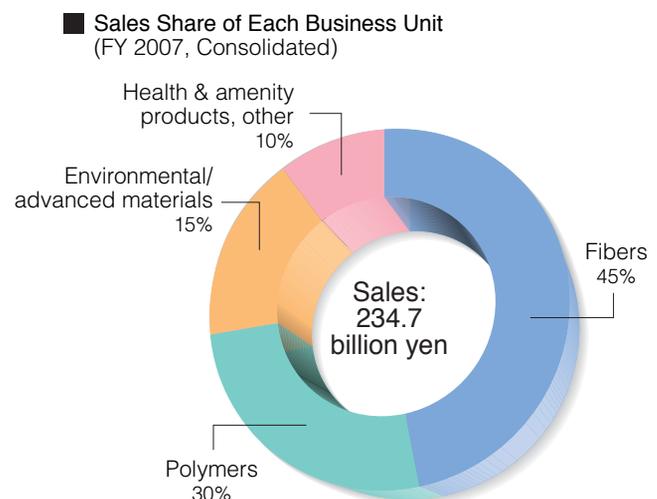
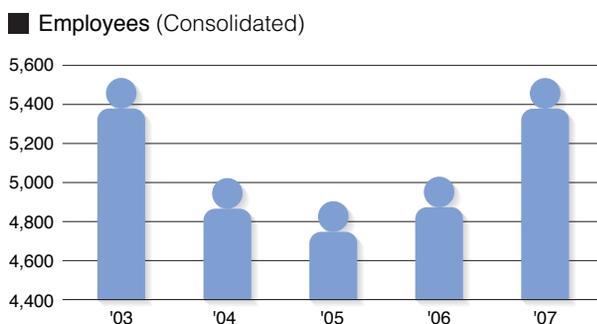
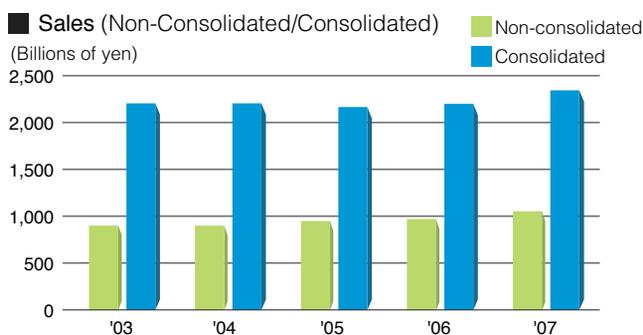
Founded: June 19, 1889

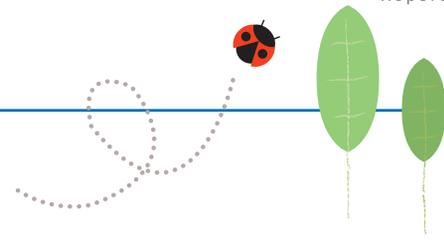
Capital: 23.8 billion yen (as at March 31, 2008)

Number of employees (consolidated): 5,531 (as at March 31, 2008)

Sales (consolidated): 234.7 billion yen (FY 2007)

Main business areas (consolidated): Polymers (films, resins, chemical products, spunbond), environmental/advanced materials (engineering, pharmaceutical products, functional materials), fibers (synthetic and natural fiber yarns, staple fibers, woven and knitted fabrics), health & amenity products, other business areas





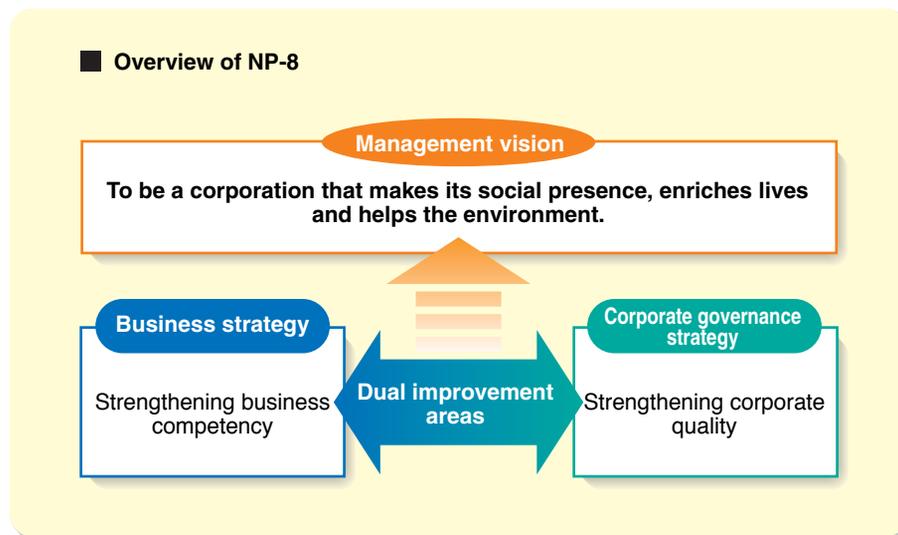
## Management

### Corporate Governance

Unitika's management vision is to be a corporation that makes its social presence enriches lives and helps the environment. To bring this vision to our business, we are implementing a new medium-term management plan called New Progress 8 (NP-8) that covers dual areas for improvement-our business strategy and our corporate governance strategy. This section describes the Group's ongoing corporate governance efforts.

#### Basic Policy for Corporate Governance

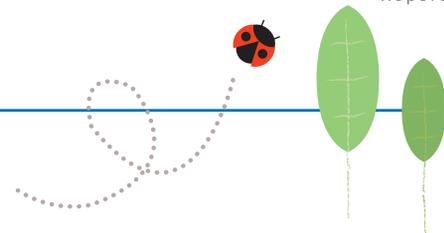
In March 2006, Unitika announced a new medium-term management plan called New Progress 8 (NP-8) to be implemented over the three-year period through FY 2008. The plan covers both business strategy and corporate governance strategy. Under the rapid decision-making, we work on the management of valuing the stake holder through strengthening compliance and risk management, and timely and accurate information disclosure. Consistent adherence to this management approach will increase Unitika's corporate value in today's increasingly globalized economy, to enable sustained growth.



#### Implementation

In 2000, Unitika adopted a management system that sets forth two separate function areas: management decision-making/supervisory functions ('governance') and business execution functions ('management'). The Board of Directors specializes in the first set of functions, aided by the Management Strategy Council, an organization that provides directors the opportunity for more in-depth discussions on policies and issues pertaining to all aspects of the Group's management. The second set of functions are implemented by the Executive Director System and a President's advisory body

known as the Business Execution Council, which speed decision-making and demarcate areas of responsibility. In 2006, in addition to setting forth a set of basic policies on internal control, we established a CSR Compliance Group. Additionally, we reviewed our administrative structures, making changes such as enabling directors to also serve as executive officers. In 2008 we set up a CSR Office, as well as a system for compliance and risk management in order to promote internal control.



## Management

### Internal Control

In April 2007, we created the Internal Control Promotion Office, and began implementing internal control for financial reporting. In July 2008, we established CSR Office by integrating all the sections related to internal controls.

#### Basic Policy

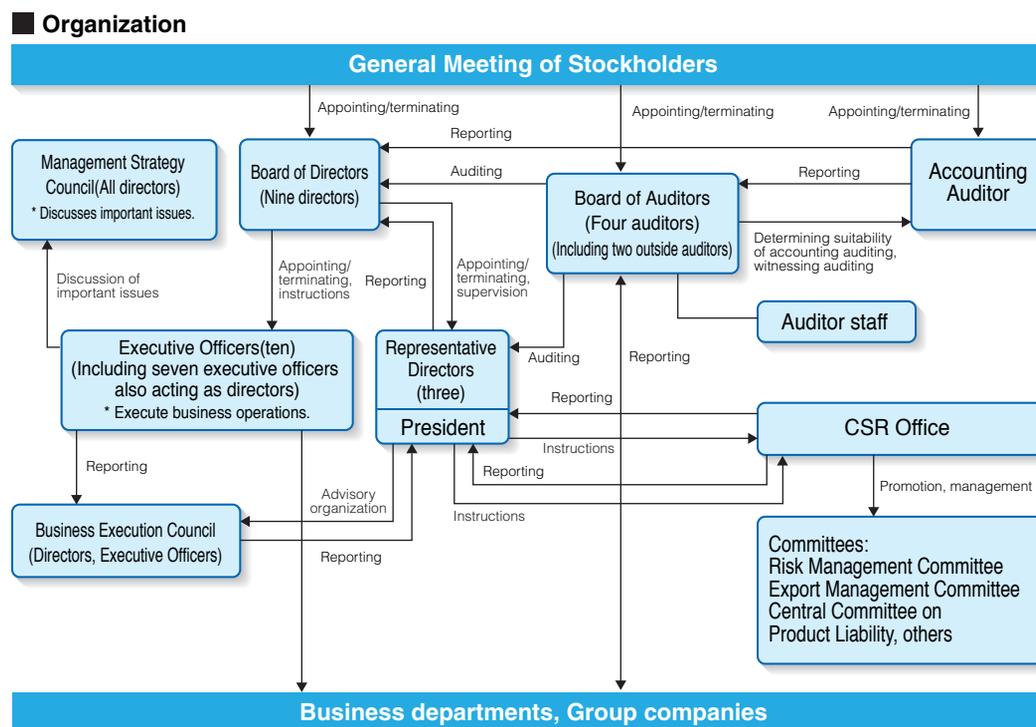
Set forth in the nine items of Unitika's Basic Policy for Internal Control.

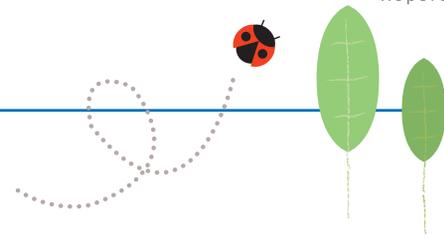
**Unitika's Basic Policy for Internal Control (Item Headings)**

1. Organization to ensure that the execution of job duties by directors and employees complies with all applicable legislation and the Articles of Incorporation
2. Items pertaining to saving/managing information on directors' execution of job duties
3. Regulations on loss hazard management; other organizational elements
4. Organization to ensure that execution of directors' job duties is performed efficiently
5. Organization to ensure suitability of operations done by corporate groups
6. Organization to secure the reliability of financial reports.
7. When auditors ask for appointment of employees to act as assistants  
Items pertaining to organization for those employees, and to their independence from directors
8. Organization used for directors and employees to report to auditors; organization for reporting to other auditors
9. Other organizational elements to ensure that auditing by auditors is performed effectively

#### Organization

The diagram below shows the organization used for corporate governance, and to ensure fair corporate activities. The basic elements correspond to Unitika's Basic Policy for Internal Control (outlined above). This organization is used to strictly enforce internal control-compliance, information saving/management, risk hedging, increasing the execution efficiency of director job duties, and ensuring the suitability of operations.





## Management

### Environment/Safety Management Organization

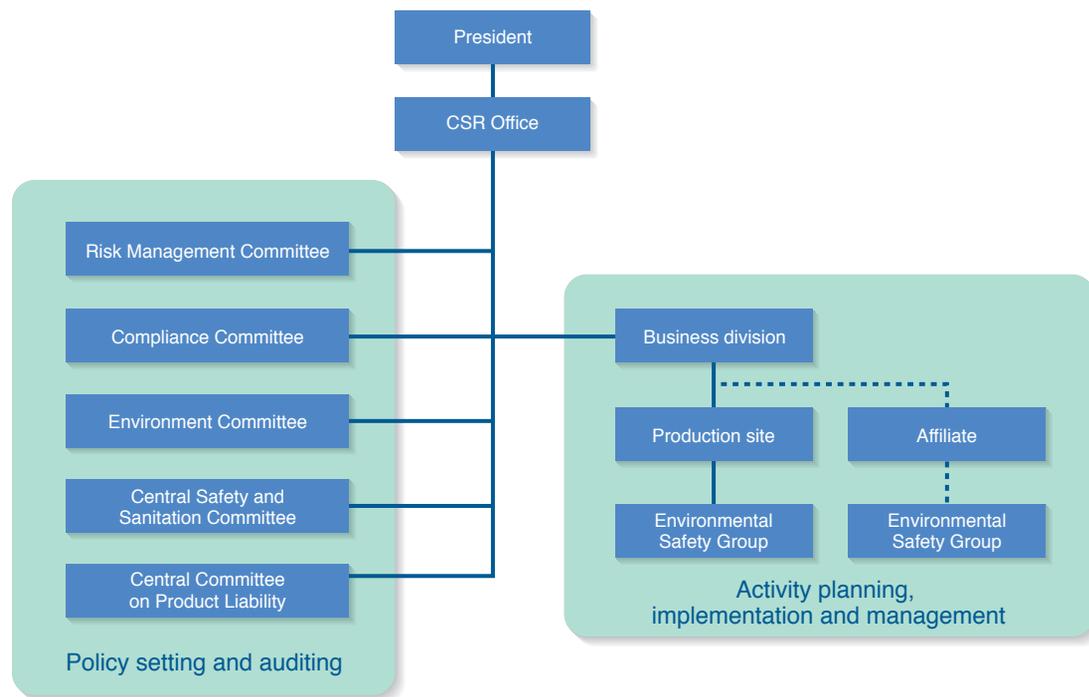
To implement CSR-driven environmental awareness and safety measures, we have established, as a management organization, the CSR office consisting of several committees and business divisions.

Unitika's original environment/safety management organization consisted of three committees and business divisions. A new committee (the Corporate Action Committee) was added in 1998. The organization was again expanded in 2006, to encompass the Compliance Committee, becoming a driver of compliance promotion. Also, in 2008 we established a Risk Management Committee with the aim of securing and reinforcing our corporate risk management structure.

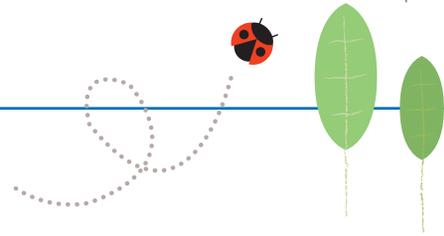
The Environment Committee, one of the original committees, meets regularly every year. It discusses and votes on major environmental issues such as basic plans for environmentally-aware management, and verification of their progress. Also, the bureau of the Environment Committee implements environmental audits of our production sites and reports on the findings of these at the environmental committee meetings.

The Central Safety and Sanitation Committee and the Environment Committee act as departments dedicated to safety and environmental measures, and have a higher level of authority in the Unitika hierarchy than the Environmental Safety Groups of Unitika production sites or affiliates. They form an organization that provides the leadership to implement effective environmental measures.

### Environmental/Safety Management Organization



## Management



### Compliance Promotion

In 1998, Unitika instituted the *Unitika Action Charter*.  
In April 2008 we reviewed the *Unitika Action Standards* that specifies the action standards in a concrete manner. These standards are distributed to all Unitika Group employees, so that they can take an action in consideration of our compliance policy, and contribute to people's living and environment as well.



#### Unitika Charter of Corporate Behavior

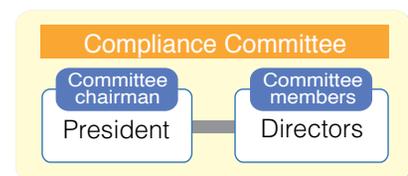
The Unitika Charter of corporate behavior is our basic policy on how best to fulfill our mission as a public-spirited corporation. It applies to all directors and employees of Unitika and Unitika Group companies.

The Unitika Charter of Corporate Behavior is a set of guidelines on how to act for the public good by complying with laws and international standards and guidelines.

1. UNITIKA, by the development and provision of socially beneficial goods and services in a safe and responsible manner, shall strive to earn the confidence of their consumers and customers.
2. UNITIKA shall promote fair, transparent, free competition and sound trade. They shall also ensure that their relationships and contacts with government agencies and political bodies are of a sound and proper nature.
3. UNITIKA shall engage in communication not only with shareholders but also with members of society at large, including active and fair disclosure of corporate information.
4. UNITIKA shall strive to respect diversity, individuality and differences of their employees, to promote safe and comfortable workplaces, and to ensure the mental and physical well-being of their employees.
5. UNITIKA shall respect the culture and customs of other nations and strive to manage their overseas activities in such a way as to promote and contribute to the development of local communities.
6. UNITIKA shall reject all contacts with organizations involved in activities in violation of the law or accepted standards of responsible social behavior.
7. As a "good corporate citizen," UNITIKA shall respect fundamental human rights and actively engage in philanthropic activities, and other activities of social benefit.

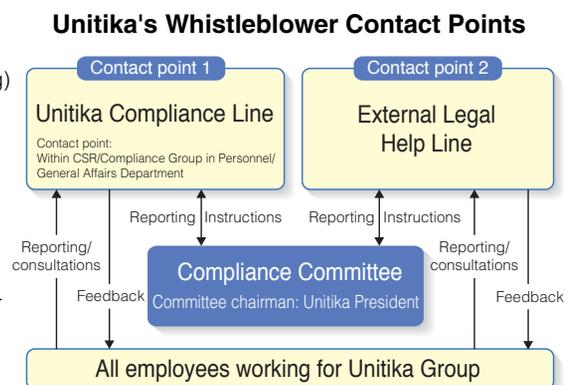
### Compliance Committee

In May 2006 Unitika renewed the Corporate Behavior Committee, which was originally established along with the *Unitika Action Charter*. New committee is called Compliance Committee staffed by the company directors and chaired by the president. It receives reports on compliance issues from each business division, department and office, then uses this information to assess potential compliance-related risks, implement preventative measures, and reinforce the company's compliance assurance systems.



### Whistleblower Contact Points

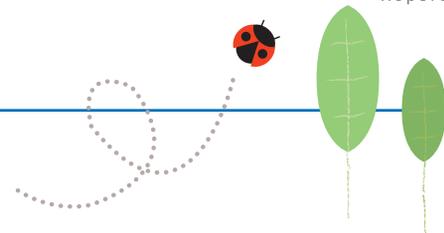
In 2006, Unitika put into effect a set of "whistleblower protection" (internal reporting) regulations, designed to allow employees to immediately report any malfeasance or illegal activities they might encounter. As part of this effort, we created two contact points for such reporting, one within the company and one outside the company. These are part of the strict measures we use to ensure thorough compliance within the company, driven mainly by the Compliance Committee. Further, as part of our training in observing compliance using tools like our company intranet, we regularly dispatch information on these contact points to our employees. Over the course of fiscal 2007 such efforts built better compliance awareness throughout the Unitika Group, and made it possible for more employees to be able to use the system.



### Compliance Training

Unitika conducts compliance training at all staffing levels, integrating it into new employees training, promoted employee training, and managers training. In 2007, along with updating the Unitika Action Standards, we began implementing compliance training with the goal of boosting employee awareness.





## Management

### Information Management

This section outlines our work on information management and security, which are becoming increasingly important issues as the growth of the Internet provides ever easier access to information.

#### Information Security

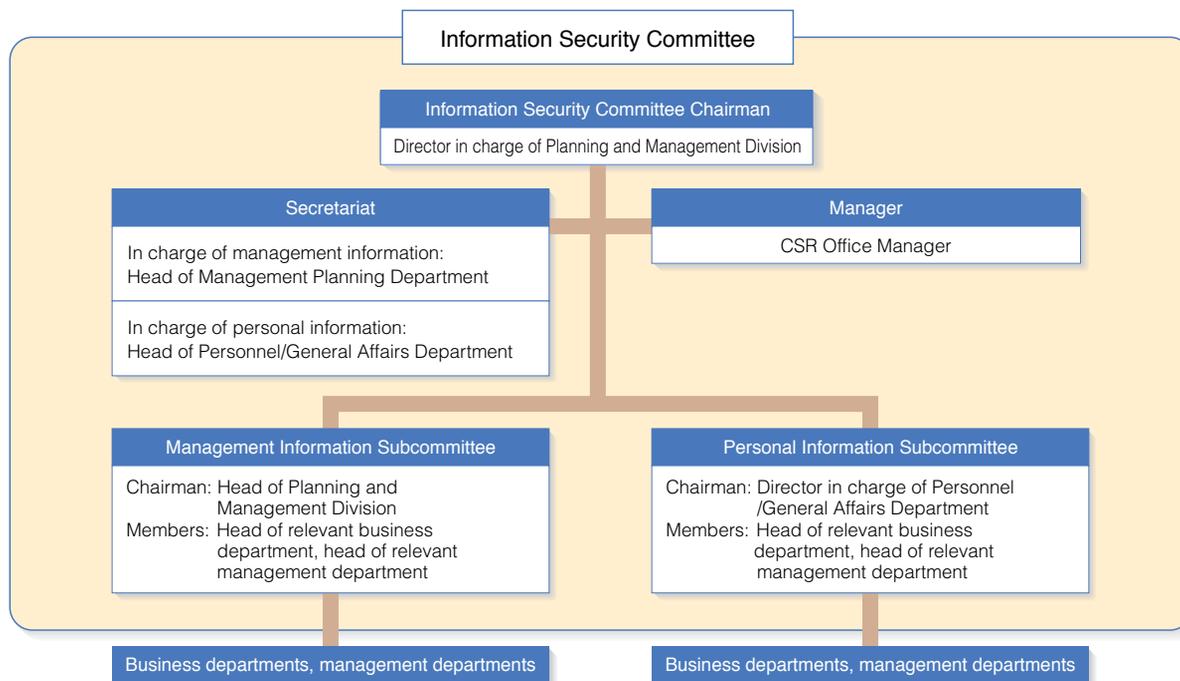
To maintain the confidentiality of information assets and prevent unauthorized use, Unitika set up the Basic Policy on Information Security in 2005. This document contains our Information Security Declaration and sets forth our steadfast approach to implementing it, while setting up a management and operation organization driven by our Information Security Committee. The Basic Policy is designed to ensure protection and effective use of the information we handle in the course of our business activities.

#### Unitika Information Security Declaration (Preamble Omitted)

1. We will take steps to ensure the security of information as set forth by our Information Security Policy.
2. We will create an information security management organization, and implement it in a systematic manner.
3. We will educate and train our directors and all employees on our Information Security Policy, working to prevent information security accidents.
4. We will work on improving our information security measures on an ongoing basis.
5. We will comply with all personal information protection laws and all relevant statutes and standards.

\* 'Information Security Policy' refers to the documentation set forth and managed by the information Security Declaration, Basic Policy on Information Security, Standards for Information Security Measures and Information Security Implementation Procedures.

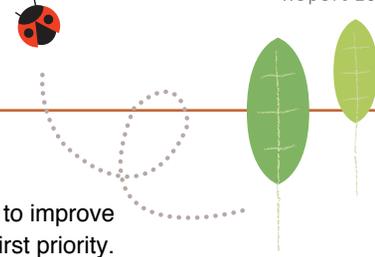
#### Organization of Information Security Committee



#### Protecting Personal Information

Unitika established its Regulations for Personal Information Protection in response to laws governing the protection of personal information. These regulations consist of thirty-three detailed provisions pertaining to the collection, use, appropriate

handling, monitoring, and discard of personal information, as well as penalties attending misuse. The proper implementation of these regulations ensured that not a single piece of personal information was leaked during the whole of 2007.



## CSR Report

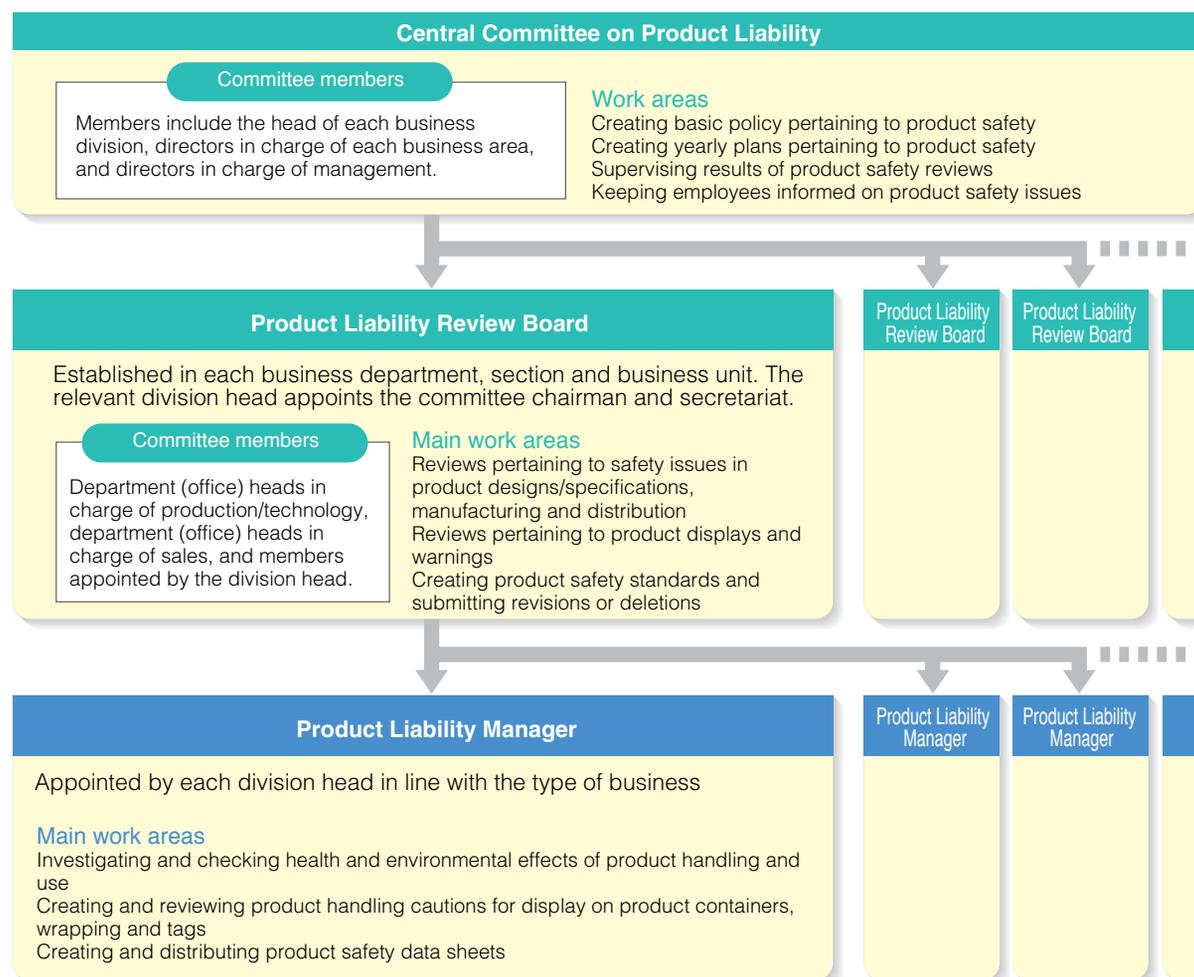
### Relationships with Clients

Through our product liability and quality assurance efforts, Unitika strives constantly to improve product safety and quality of our products maintaining customer satisfaction as our first priority.

### Ensuring Product Safety

Unitika has established product safety management regulations designed to ensure that we always offer safe products to our customers. Unitika's product safety management regulations contain detailed provisions on areas such as basic policy, responsibility areas, implementation systems, and bylaws on the implementation and application of manual procedures. Unitika

and Unitika Group companies work to ensure that product manufacturing and sales are carried out safely, in compliance with these regulations. The chart below details promotional system, headed by the Central Committee on Product Liability, for ensuring product safety.



### Product Safety Record for Fiscal 2007

No product liability-related incidences occurred.

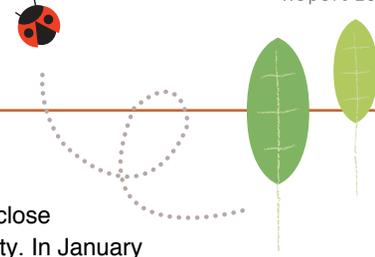
\*Information on the claims which may bring about an accident is

shared by the Central Committee on Product Liability and such information is used to prevent from repeated claims.

### Quality Assurance Activities

In order to satisfy customer's demands on our products, the Unitika Group is pursuing quality management system certification. We are constantly improving our quality assurance

activities based on ISO9001 standards for quality management systems.



## CSR Report

### Relationships with Shareholders & Investors

Based on our "stakeholder-oriented" business perspective, Unitika endeavors to disclose accurate and timely information to the stockholders and investors at every opportunity. In January 2003, we established a new Investor Relations (IR) Department, which works, as IR/Public Relation Group, in tandem with the Public Relations Department to ensure that such activities function smoothly, and to create a meaningful dialog between the company and its stockholders and investors.

### IR Activities

#### Ordinary General Stockholder Meetings

Through explanations of our latest operating conditions and dialogs with shareholders, Unitika uses ordinary general stockholder meetings as opportunities to deepen understanding of our business conditions and policies.

#### Announcements of Financial Statements & Explanatory Sessions

Unitika conducts a variety of financial data disclosure activities, including twice-yearly mid-term and full financial year accounting statements for the press, both of which are followed a week or so later by explanatory session geared toward institutional investors and analysts.

#### Institutional Investor Visits

Unitika representatives make visits to institutional investors and analysts in order to provide more specific information as needed.

#### Publications

- Financial Flashes (4 times annually, in May, August, November, and February)
- Stockholder Reports
- Corporate Guides

#### Website Development

The "To Our Shareholders & Investors..." section of the Unitika corporate website offers an array of public information of interest to stakeholders.



March 2008 Financial Explanatory Session  
(May, Keidanren Kaikan)

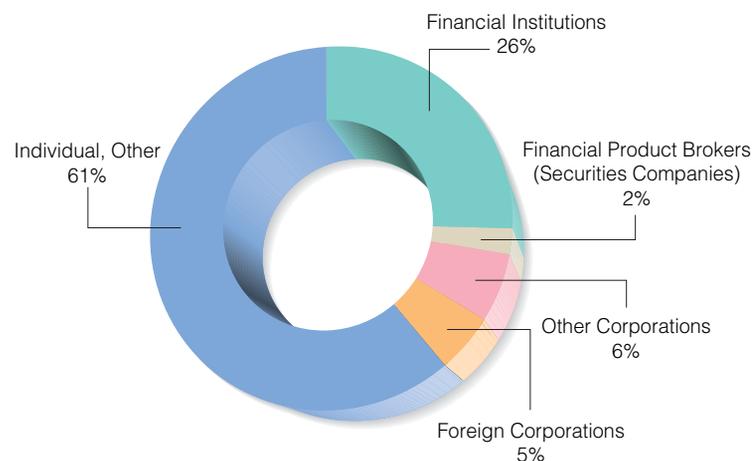
### Share Status (as of 31 March, 2008)

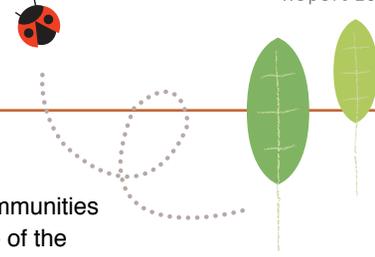
■ Total Number of Shares Issued: 475,969,000

■ Number of Shareholders: 70,589

■ Number of Unit Shareholders: 59,730

#### Distribution of Stocks





## CSR Report

### Giving Back to the Community

Through beautification efforts, disaster prevention activities conducted with local communities and volunteers, and various informational services, Unitika works on with the people of the communities to protect the environment and build a more ecologically friendly society.

### Efforts Toward Environmental Improvement

Building on the success of the Kyoto Protocol, Kyoto Prefecture has created an environmental administrative organization that includes a system called Eco Kyoto 21. The system targets businesses that protect and develop Kyoto and the environment. It certifies and registers corporations that play a leading role in environmental preservation through awareness activities, and in promoting recycling in the local community. Unitika's Uji Plant has participated in the system from its inception, and in December 2004, was certified and registered under the system's Ecostyle category for production sites and organizations carrying out highly original environmental activities.



#### Participation in Local Beautification Activities

The Uji Plant is actively involved in volunteer activities to beautify the surrounding areas. It also participates in the local "Clean Uji" beautification and cleanup campaign, and conducts cleanup activities of the Uji Plant area three times a year. Other Unitika production sites are also giving back to the community by



The Clean Uji event

beautifying their surrounding environments.

One Saturday in March 2007, about 150 people from the Okazaki Plant and surrounding community gathered for a volunteer activities to clean up the area around the facility.

As a member of the Ako City Environmental Preservation Council consisting of major corporations located in Ako City, Hyogo Prefecture, on May 30th, 2006 the Sakoshi Plant participated in a cleanup of Oshiro Street in front of Ako Castle. In March 2007, the Sakoshi Unitika Labor Union's Women's Committee sponsored a cleanup of the Chigusa River.



Cleanup around the Okazaki Plant

The Women's Committee-sponsored cleanup of the Chigusa River banks in Sakoshi

#### Helping Keep the Planet Green

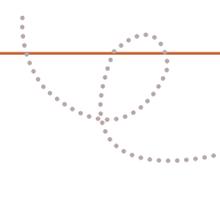
Responding to Japan's increasing focus on public-spirited volunteer projects, Unitika Labor Union established a volunteer foundation in 1992 and began a range of activities inside and outside the Company. In Japan, we have held support activities in facilities for the handicapped and conducted training meetings to expand the frontiers of volunteer activities. We have also worked to step up volunteer activities overseas, where we have sent volunteers to work camps for international exchanges, and have raised money for disaster relief.

In 2003, Unitika Labor Union celebrated its 30th year anniversary by starting a program called Midori no Plan ('Green Plan') designed to give back to the community and raise environmental consciousness. Midori no Plan volunteers created a wooded area they named Unitika no Mori ('Unitika Wood'). Three species of local trees (sawtooth oak, quercus serrata, Japanese cypress) were planted in a two-hectare area of mountain forest in Hidakagawa-cho (Wakayama Prefecture). Employees visit the area for cutting back the undergrowth and pruning several times per year. In September 2007, twenty-three employees performed this task to enable better tree growth. In June 2007 this project was recognized by Wakayama Prefecture as "an effort contributing to CO2 absorption through forestation," and is projected to absorb about 800 tons of carbon dioxide from the atmosphere over the next 100 years.

Overseas, in April 2007, one female Unitika employee was dispatched to Burkina Faso in west Africa to take a post as a member of the Japanese Overseas Cooperation Volunteers. Working for the Department of Agriculture, Forestry and Fisheries on projects to promote rural village development, she participated in activities like

tree-planting, environmental education, and offering social support to local women's collectives.





## CSR Report

### Disaster Prevention & Readiness Efforts

Unitika has created an organization well-equipped to prevent production accidents and accidents damaging surrounding areas. In addition to these basic measures, we are also active in training activities to prepare for accidents and natural disasters. To make internal standards for managing safety at production facilities, Unitika has established a set of "pre-evaluation policies" on safety hygiene and environmental effects at new facilities. All new and remodeled facilities are subject to a strict inspection to be carried out two times, once during the designing stages and later again upon completion.

Plants that use boilers and other high-pressure vessels are charged with a law to conduct yearly inspections. However voluntary self-management systems and specific conditions are fulfilled or acknowledged by presiding labor standards inspection office, and such inspections may be extended to once every two years instead of every year. Two Unitika facilities (Uji and Okazaki) have earned this acknowledgement.

The Uji Plant was officially recognized by Japan's Fire and Disaster Management Agency as an outstanding hazardous material plant, and was presented with a certificate and plaque from the Agency's director at a ceremony on June 4, 2007. The Uji Plant has chaired Uji's Hazardous Material Safety Association since its establishment in 1976. To ensure the safety of hazardous materials, it complies with Japan's Fire Law to provide maintenance and safety

management for the storage and handling of hazardous material facilities. It has created a volunteer firefighting team that carries out training on simulated disaster sites, and has taken part in various other disaster-readiness activities.

The plant is also active in community disaster-readiness activities during fire prevention campaigns and Hazardous Material Safety Week, such as planning street publicity activities and seminars, and putting up educational posters. These efforts earned the plant its recent award, giving it official recognition as a model business site for its role as an Uji-based hazardous material facility that actively contributes to ensuring the safety of the residents of the Uji and Kyoto Prefecture.

On February 29th, 2008, as part of the 2008 "Spring Fire Prevention Campaign," the Uji Plant established an initial response framework for its Polymerization section and Nylon Fiber Manufacturing Division, and about 90 people participated in joint training exercises with the Uji City Fire Department with the aim of boosting voluntary disaster consciousness and improving communication with city fire departments. These exercises used training aids including an earthquake simulator and burning house structure, which allowed many people to gain more firsthand and realistic experience with such events.



Joint firefighting training  
(Uji Plant)

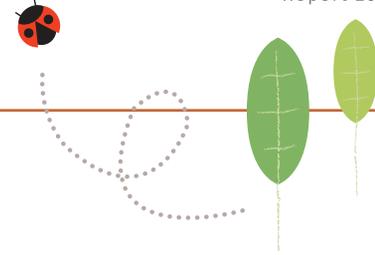


Joint firefighting training (Uji Plant)



All-factory disaster training  
(Okazaki Plant)

## CSR Report



### Promoting Regional Environmental Awareness

Unitika provides Terramac and several other environmental products and services. To publicize them to a wider audience, we take part in various events to showcase them, and work with regional environmental organizations to actively promote environmental activities.

The Kyoto Environment Festival, sponsored annually by Kyoto Prefecture, was held in 2007 on December 8th and 9th. The theme this time was "Kyoto Protocol 10th Anniversary Celebration — Escape from Global Warming! Act locally, from Kyoto to the world!". Unitika's Uji Plant was a main exhibitor this year, and introduced many of the company's environmental initiatives and efforts.



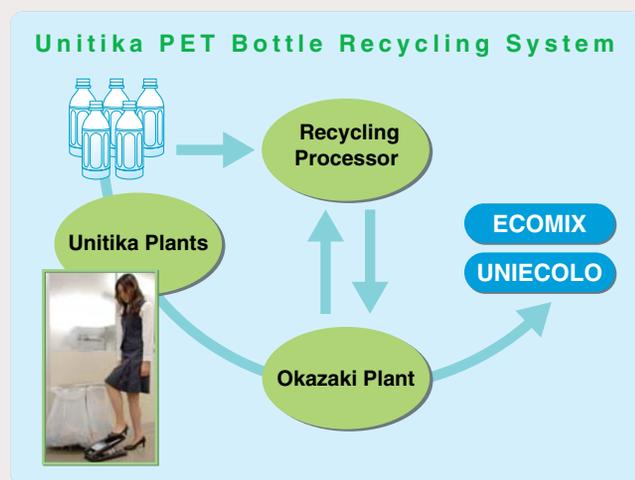
The Environment Fair is mainly organized by the "Environment Project Ako", one of the civil organizations, and is held in every autumn in collaboration with other civil groups concerned in order to increase awareness of the citizen about environmental issues. The Sakoshi Plant too, as a member of the Ako City Environmental Preservation Council, supported the "Corporate Products - Environmental Exhibit" through corporate environmental contributions and product promotions.



## Topics

### PET Bottle Recycling

Unitika manufactures and sells a variety of recycled products bearing the "ecomark," such as UniEcolo, recycled polyester fibers, and Ecomix, recycled polyester non-woven fabrics. As part of our efforts toward environmental protection, we have been developing such important products for which the demand is increasing. As a raw material for these, we organized a campaign for recovering used plastic PET bottles, which are washed and collected by employees from our various plants and their families. These are collected by our Okazaki plant and sent to a recycler to be chopped into usable plastic flakes. This recovering campaign began in Uji, Okazaki and Osaka, but now has spread to the Unitika Fibers Headquarters and our Toyohashi, Sakoshi, Tokiwa, and Tarui where employee participation awareness is on the rise.



## CSR Report

### Public Relations Activities

Terramac is a biomass material made from a polymer derived from plants such as corn. To promote and educate the public about the benefits of our biomass-based Terramac plastic material, and as part of our corporate CSR activities, Unitika participated in the "2007 Surprise! 100 Eco Choices" fair hosted by the Kyoto branch of Takashimaya department store. Unitika's waterproofing Terramac-based fabric was also used to bind a citizen's edition of the Kyoto Protocol Handbook, which compiled a variety of declarations and messages about things ordinary citizens can do to promote ecology. The exhibit booth displayed a variety of items made from Terramac, including bath towels, strawberry packaging, and strainer nets. Another highlight was a fan decorating workshop at which children enjoyed drawing their own designs on blank Japanese fans with ribs and handles made of Terramac.



Terramac Product Display



Children enjoy decorating Japanese fans made of Terramac at the 2007 Surprise! 100 Eco Choices fair

## Topics

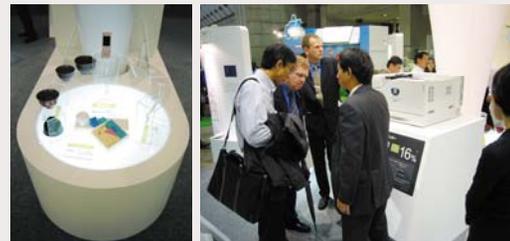
### Eco-Products 2007

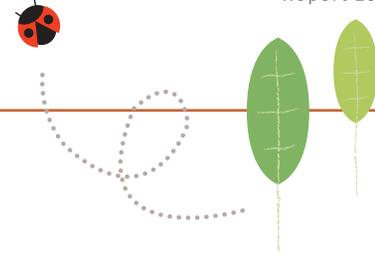
The Unitika Group Exhibits at "EcoProducts 2007"  
As in 2006, the Unitika Group exhibited once again at EcoProducts 2007.

The theme this year was "Diet CO2", and Unitika participated with close-up presentation of how its Terramac product makes it possible to reduce carbon dioxide emissions. The exhibit highlighted how Terramac, a biomass-based material, can be made into a variety of films, sheets, fibers, non-woven textiles, and resins. The booth overall showed the limitless possibilities for expanding the use of this material in the future.

The booth itself was even created from Terramac, a choice which, when the booth was dismantled and incinerated for disposal, resulted in a reduction in carbon dioxide emissions of approximately 250 kilograms compared to if it had been made of petroleum-based plastics.

Also at the 2007 exhibition, Unitika collaborated with the makers of the movie Earth, then scheduled for a January 2008 release, showing previews and other promotional materials. Along with enjoying the magnificent spectacle of life on planet Earth presented by this film, viewers also showed a keen interest in Terramac as an ecologically considerate material.





## CSR Report

### Concern for Our Employees

Unitika's personnel system is designed to encourage employee self-actualization. We provide equal employment and work opportunities, and make every effort to create accommodating workplace environments.

## Personnel System

### Personnel Appraisal System

Unitika's personnel appraisal system emphasizes employees' effort, and is designed to increase the organization's vitality. It is a results-driven system that awards greater benefits to employees who achieve greater success or tackle more difficult challenges. A biannual goal management system and annual competency evaluation system are used along with our human resources development program. They impartially evaluate how well each employee is meeting their goals, and help them set new goals to develop their abilities. Supervisors meet with each employee to discuss their evaluation results, ensuring that everyone receives proper feedback, for better transparency and communication.

### Self-Reporting System

Once a year, at the time of the annual personnel appraisal employees submit a 'Career Plan Sheet' to self-report how much

aptitude they feel they have for their position. The Career Plan Sheet covers five main areas: (1) the employee's thoughts on their current position, (2) their own medium- to long-term career plan, (3) what they want to achieve next in their career (such as whether they want to be reassigned), (4) their strengths and how they have been working on achieving their career plan, and (5) comments on their current job position (such as their concerns) and improvement suggestions in the workplace. Further, (6) we also confirm whether the employee of certain age would like to use a reemployment system.

### Rotation System

Unitika is aware of the importance of job rotation in fostering outstanding human resources. Our practice of periodic job rotation (especially for young employees) helps employees improve their abilities by giving them the opportunity to work in several departments, and helps us spot candidates to fast-track.

## Equal Opportunity

### Women Employees

Unitika's women employees are valued for their abilities and perspectives. We employ a large number of female employees and have no gender-biased employment or promotion policies. Over the past five years, 20.8% of Unitika employees have been women, including many in management positions.

### Achieving a Work/Life Balance

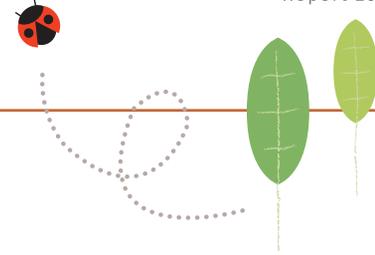
In the interest of achieving an ideal balance between work and home life, and also to address Japan's aging society issues, Unitika fosters a corporate environment that allows employees to take leave for both child-raising and elder care, and in fact, Unitika offers leave durations for these, and also for care for sick children, that are longer than those stipulated by law. Also, based on Japan's "Next-Generation Child-Raising Support

Measures Promotion Law," the company is also involved in promoting male participation in child-care.

	(Employees)	
	Taking Leave for Childcare	Employees Taking Leave for Elder Care
2003	25	2
2004	27	1
2005	17	0
2006	27	3
2007	26	0

### Reemployment System

Unitika has a senior employee system that enables employees to continue in the same job after reaching the age of 60. We welcome employees who want to continue working, and in FY 2007, our rehire rate was 61.3%.



## CSR Report

### Human Resource Development

Unitika believes that raising the ability of each employee in the organization is crucial for achieving high business goals. Human resource development is therefore an important focus for us. We approach it through two areas—our personnel system that sets forth employee work conditions and appraisal methods, and systems to encourage ability growth, such as ability development and training systems. Unitika Training Center is the

dedicated training center we have created to implement our approach. It is used for several different types of training taken by a large number of employees. To help employee self-improvement efforts, Unitika offers a job qualification assistance system, correspondence courses, and full-time study courses at universities in Japan. Many of our highly-motivated employees are eager to take advantage of these benefits.

#### Training System (Program) and Number of Students (FY 2007)

- 1 Training for individual levels (497 students)**
  1. Training for promoted employees (223 students)
  2. Young employee education (274 students)  
New employee training, basic knowledge course, manufacturing department leader development course
- 2 Specialized education (117 students)**
  1. Competency improvement training  
egal training,
  2. On-the-job development education  
Supervisor training, business leader training



### Employee Mental Health

Since Unitika feels that mental health is an increasingly important issue for employees as they move up the corporate ladder, every Unitika employee undergoes mental health training when they are promoted to a management position. We encourage managers to be aware of their managerial role and to take care of their own mental health. Managers can use the Hello Kenko

Sodan 24 Service provided by an external EAP (employee assistance program) provider through an agreement with Unitika's health insurance union. To ensure mental health consultation is readily available, we have created internal and external health consultation offices.

### Human Rights

The entire Unitika Group is an active advocate of human rights. Unitika's *Standards for Behavior* are distributed among employees with the goal of elucidating the company's policies on human rights, and the company also has in place an annual human rights education seminar attended by all managers and employees.

To comply with Japan's revised equal opportunity law, we are also working on preventing sexual harassment, and have set up sexual harassment consultation offices at each production site to raise awareness and recognition for the problem among all employees.

#### Organogram of Human Rights Education Committee



## CSR Report

### Safety & Health Activities

Unitika places top priority on the safety and health of its employees and builds such efforts into its operations at all levels. These include efforts to prevent workplace accidents and ensure

comfortable working environments, as well as a Group-wide commitment to healthcare management.

#### Unitika's Basic Policy for Safety and Health

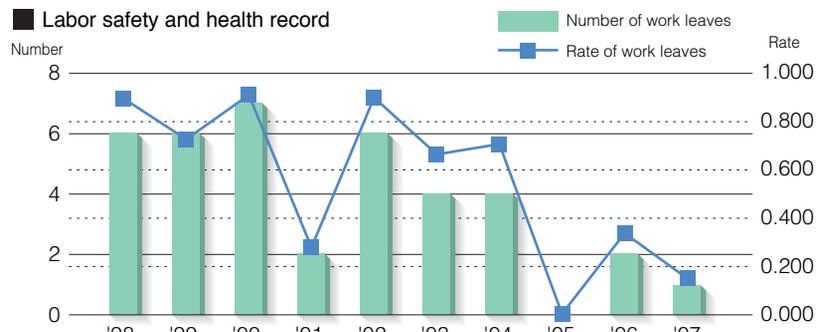
1. Ensuring safety and health is the foundation for every types of business activities.
2. Ensuring safety and health is the most important obligation of executives and managers at each level of the corporate management.
3. All employees shall take part in activities for ensuring safety and health.
4. We shall comply with all relevant labor safety and sanitation laws and workplace safety and health standards to ensure safety and health.
5. We shall implement an ongoing safety and health management system to ensure safety and health.

To raise employee safety awareness, Unitika creates medium-term (three-year) safety and health plans that we have been implementing since 1969. Since 1974 we have conducted an annual health and safety conference, attended by company directors, management staff, and health and safety officers from all Unitika production sites. As part of our midterm management plan which took effect in 2005 (the 13th program running from 2005–07), based on the principles regarding our workplace safety and health management system, we

have been working to "spiral up" our safety and health activities, and continue refining our risk assessment capabilities, with the aim of reducing potential dangers to zero. The Ministry of Health, Labor and Welfare, for the duration of 2008 through 2010, has announced its "11th Workplace Accident Prevention Plan," and along with this Unitika will plan new measures for its 14th program running 2008–10, including continuing efforts to reduce latent labor dangers and offer more comfortable workplaces.



■ Labor safety and health record



Unitika's rate of work leaves in FY 2007 was 0.172, an increase from FY 2006. We will continue making improvements to our safety and sanitation activities, aiming to keep the number of workplace and industrial accidents at zero.

### Asbestos Removal

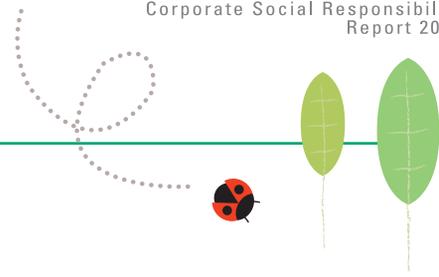
Unitika and Group companies are not involved in the manufacture or processing of asbestos, nor have been in the past. However, in 1975, some machinery used asbestos insulation. In response to today's greater concern over asbestos, we have established the Asbestos Action Committee to study actions needed for asbestos, create asbestos policies and carry out other Groupwide functions.

As a safety measure, the Committee has surveyed equipment and buildings using asbestos in production sites and Group companies. Areas that could expose employees to asbestos-laden materials or generate airborne asbestos have already been removed, sealed off or enclosed as needed.

To check employee health, we have offered health exams to any

current or former employees who handled asbestos in the past and want to check for asbestos-related health problems. As of March 2008, the current number of health problems among current and former employees is shown below. No health problems have been reported from residents of areas surrounding production sites or Group companies.

Number of certified industrial accident victims: 3 (2)\*  
 Number of victims certified under the Law Concerning the Relief of Health Damage Due to Asbestos: 3 (3)\*  
 \*Number in parentheses is number of deaths.



## Environmental Report

### Basic Environmental Policy

Unitika named 1993 an Environmental first year, when we enacted the Unitika Global Environment Charter, consisting of our pledge, basic philosophy and action guidelines. Since then, we have complied with this Charter to ensure that our corporate management methods are environmentally aware, working on a range of environmental activities.

#### Unitika Global Environment Charter

The growth and development of mankind is rapidly altering our planet's air, water and soil, threatening both the global biosphere and our own future, since both must depend on a finite ecosystem. As a corporation with more than a century of business activities contributing to the public good, we are highly aware of the demanding conditions now facing the global environment. The Charter is the declaration of our intention to focus more attention on protecting and helping the environment, making appropriate environmental action the core of our business activities.

#### Basic Philosophy

Better living through technology, driven by corporate activities that help humans and nature coexist.

#### Action Guidelines

<b>1</b>	<b>Continual awareness of the global environment</b>	The Unitika Group always considers the effects of our corporate activities on the global environment, following a rigorous set of management procedures during product manufacture to prevent harm to it.
<b>2</b>	<b>Contributing through technology development</b>	We aggressively research and develop technologies to protect and help the global environment.
<b>3</b>	<b>Using resources and energy efficiently</b>	We promote efficient use of resources and energy, and recycle limited resources.
<b>4</b>	<b>Carrying out PR and educational activities</b>	We organize a large number of PR activities that provide information on protecting and helping the global environment, and promote a wide range of educational events.
<b>5</b>	<b>Drawing on the complete range of Unitika Group competencies</b>	Following the mandates of the Charter, we draw on our complete range of competencies to protect and help the global environment.

### Medium-Term Environmental Plan

FY 2005 was the deadline we set for meeting the four numerical targets of our third Environmental Plan. While we met two of these targets-reductions in industrial waste and energy consumption-we failed to meet the targeted improvements in the loss recycling rate in production processes and in our energy unit requirement.

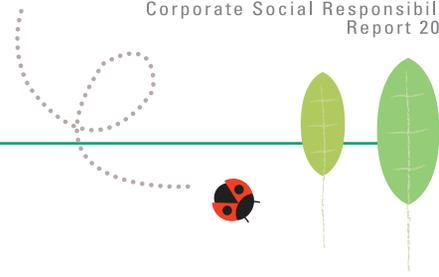
We have examined and analyzed the data from our efforts, and applied it to the fourth Medium-Term Environmental Plan we have created, which started in FY 2006. More demanding targets have been set for items that met their previous targets, and we have renewed our commitment to improve the items that didn't meet their targets. The targeted improvement in the loss recycling rate in production processes has been set higher since we have begun full operation of a new thermal recycling

program. While 2008 is the target year, according to the results of fiscal 2007, all goals aimed for are forecasted to be achieved with the only exception of the improvement of energy source unit.

#### Goals to Meet by Deadline (FY 2008)

1. Industrial waste **16% reduction** (Compared to FY 2004 level)
2. Loss recycling rate in production processes **7.0% improvement** (Compared to FY 2004 level)
3. Energy unit requirement **1% improvement per year**
4. Energy consumption quantity **10% reduction** (Compared to FY 1990 level; deadline is FY 2010.)

## Environmental Report



### History of Environmental Preservation Activities

Unitika's work on environmental management has continued uninterrupted for over 30 years, and will continue into the future.

Pollution first became a major issue in Japan in 1973. That year, Unitika created the Environmental Preservation Regulations, making a clear distinction between environmental measures and outward-directed production activities, to enable compliance with regulatory and standards values.

In 1991, we created a new companywide organization called the Environmental Preservation Committee, followed in 1993 by the Unitika Global Environment Charter. That year we began yearly environmental auditing, establishing the basic direction for our environmentally-aware management style that has continued to this day. In 1998, we created the Unitika Charter of Corporate Behavior, a document that sets forth the basic action policy needed to fulfill our Unitika Group mission as a public-spirited corporation. Its first article sets forth our responsibility for environmental and safety awareness.

The Unitika Action Standards created and implemented in April 2001 expanded on the Unitika Action Charter by setting forth specific action standards for Unitika organizations and employees to comply with in the performance of their routine business activities. The Standard of Corporate Behavior represent a clear step toward corporate activities grounded in a mindset of corporate social responsibility (CSR). They cover areas such as the environment, safety, compliance, and coexistence with the public good and stakeholders.

### Unitika's Environmental Preservation Activity History

September 1973	Created and implemented Environmental Preservation Regulations.
October 1991	Revised Environmental Preservation Regulations, established Environmental Preservation Committee.
April 1993	Created and implemented Global Environmental Charter.
May 1993	Environmental Preservation Regulations were reborn as Environmental Regulations. Established Environmental Committee, organization which meets annually.
May 1994	Started environmental audits (once per year). (Voluntary audits by each production site and internal audits by headquarters staff.)
July 1996	Created targets for first Medium-Term Environmental Plan (FY 1997 to 1999).
September 1996	Started publishing Kankyo, our in-house newsletter on environmental issues.
October 1997	Started activities aimed at becoming ISO 14001-certified at our major production sites.
January 1998	Created and implemented Unitika Action Charter.
January 1999	Unitika Chemical was awarded ISO 14001 certification (first in Group).
October 2000	Created targets for second Medium-Term Environmental Plan (FY 2000 to 2002).
April 2001	Created Unitika Action Standards.
October 2002	Published Unitika Environmental Report.
October 2002	Created targets for third Medium-Term Environmental Plan (FY 2003 to 2005).
October 2005	Created targets for fourth Medium-Term Environmental Plan (FY 2006 to 2008).

Unitika has aggressively worked on becoming certified under ISO 14001-the international standard for environmentally-aware corporate activities. All production sites due to become ISO 14001-certified had done so by May 2003. In FY 2003, we started activities to help our affiliates obtain ISO 14001, and have been conducting environmental audits of each company.

### ISO 14001-Certified Unitika Organizations

April 1999	Ad'all Co., Ltd.
November 1999	Unitika Protec Sakoshi Ltd.
November 1999	Unitika Sakoshi Plant
October 2000	U-ai Electronics Corp.
January 2001	Unitika Textiles Ltd., Tokiwa Mill
March 2001	Unitika Uji Plant
March 2001	Unitika Uji Plastic Plant
March 2001	Unitika Central Research Laboratories
March 2001	Unitika Fibers Ltd., Uji Plant
March 2001	Unitika Glass Fiber Co., Ltd., Kyoto Plant
March 2001	Unitika Environmental Technical Center Co., Ltd., Kinki Office
October 2001	Unitika Okazaki Plant
October 2001	Unitika Fibers Ltd., Okazaki Plant
October 2001	Unitika Plant Engineering Co., Ltd., Chubu Office, 2nd Business Division
October 2001	Nippon Ester Co., Ltd., Okazaki Plant
October 2001	Unitika Environmental Technical Center Co., Ltd., Chubu Office
December 2001	Unitika Tarui Mill
December 2001	Unitika Textiles Ltd., Tarui Mill
December 2001	Unitika Plant Engineering Co., Ltd., Tarui Group
December 2002	Unitika Environmental Business Division
May 2003	Unitika Textiles Ltd., Miyagawa Mill
December 2003	Unitika Glass Fiber Co., Ltd., Tarui Mill
February 2004	Diabond Chemical Co., Ltd.
September 2004	Terabo Co., Ltd.
June 2008	Union Co., Ltd.

### Topics

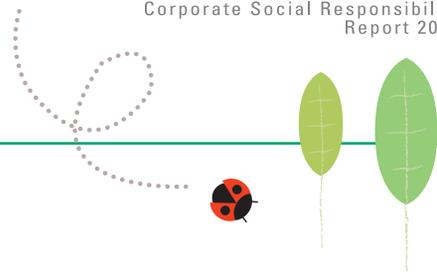
#### Evaluation of Financing for Environmental Rating

Unitika has earned the overall evaluation "a company offering particularly advanced efforts toward environmental issues," and in fiscal 2007, we received financing from the Development Bank of Japan for financing for environmental rating.

This financing was granted in recognition of our development of the polylactide-based material Terramac, which has received widespread attention as a carbon-neutral material, and also for our leading roles in turning the private sector toward lower carbon emissions and achieving dramatic reductions in CO<sub>2</sub> emissions from energy sources. As a result of a three-level environmental screening covering management overall, operations, and performance, Unitika received the highest rating.



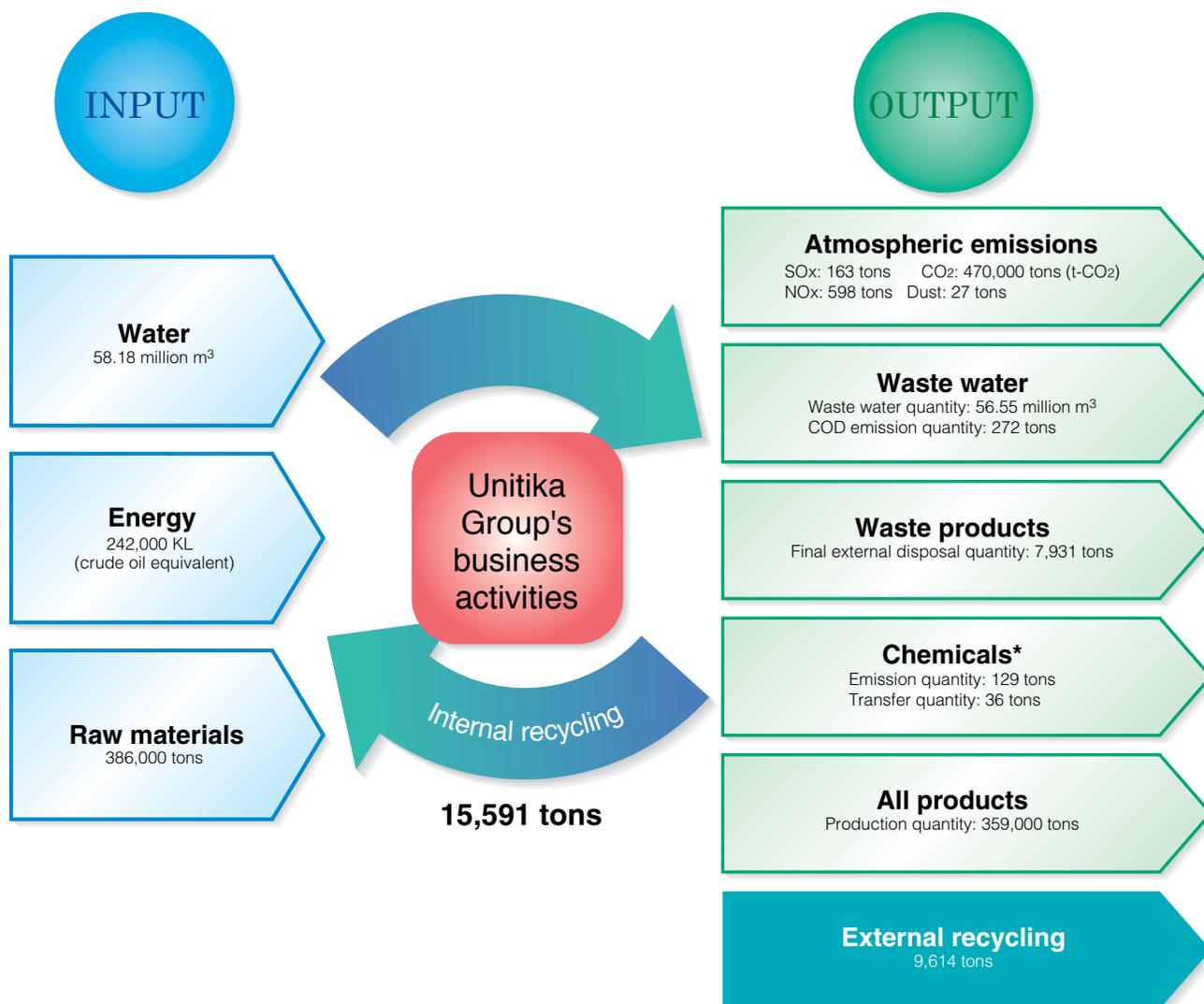
## Environmental Report



### Overview of Environmental Impact

#### Environmental Impact From Business Activities (FY 2007 Figures)

The Unitika Group is aware of the various types of environmental impact caused by our business activities, and we are working to obtain accurate data on its severity and on reducing it. The diagram below shows the Unitika Group's inputs and outputs for FY 2007. The transfer and emission quantities of each chemical regulated by the PRTR (Pollutant Release and Transfer Register) Law are shown below.



\*Chemicals requiring registration under PRTR Law

## Environmental Report

### Work on Reducing Environmental Impact

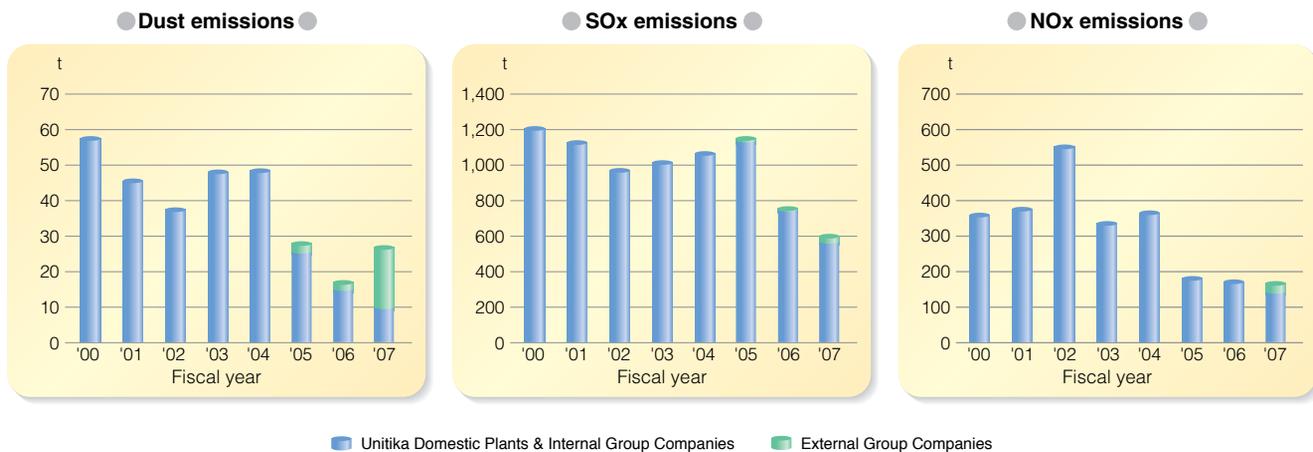
Unitika is minimizing its air and water pollution, and helping curtail global warming. Today's manufacturing industry is being called on to preserve the global environment, and we are actively working on environmental measures.

### Air Pollution

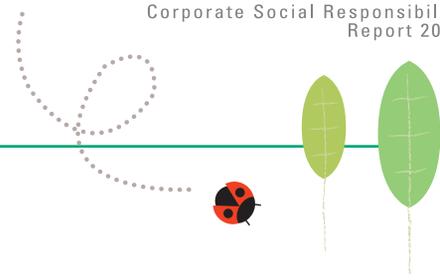
Since our 2007 Environmental Report, the Unitika Group has added nine companies, and consequently our certain score in terms of atmospheric emissions has worsened. That said, it is also true that measures like switching to a natural gas-based cogeneration system at our Okazaki plant (operational since April 2006) has resulted in a positive annual environmental influence, and the abolition of diesel power generation at our Tarui plant has helped us to minimize atmospheric emissions there. Soot and particulate matter emissions for 2007 were about 10 tons for Unitika internal group companies, a year-on-year reduction of 31%, although for the Group as a whole emissions of these amounted to 27 tons.

Emissions of nitrogen oxides (NOx) and sulphur oxides (SOx) for the Group overall were 598 tons and 163 tons, down 22% and 5%, respectively, compared to the previous year.

To continue to step up measures to prevent air pollution, we are working on meeting our emissions reduction targets. For example, we are switching from fuel oil to LNG (liquefied natural gas), increasing the use of low-sulfur fuels, increasing boiler combustion efficiency and improving operation management efficiency to eliminate waste.



## Environmental Report



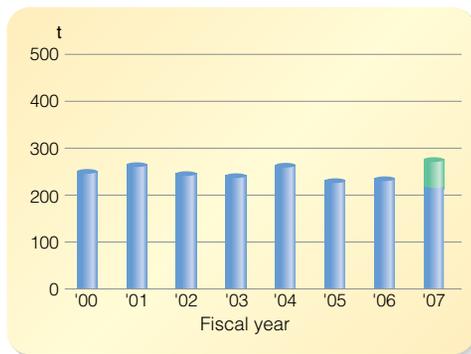
### Water Pollution

Chemical oxygen demand (COD) emission of 272 tons in fiscal 2007 represented a 16% year-on-year increase that resulted from the addition of nine companies to the Unitika Group. Similarly, total wastewater emissions also increased by 7% to a total of 56.55 million tons. Water input for 2007 was 58.18 million tons, but the majority of this was from river and groundwater supplies. Water

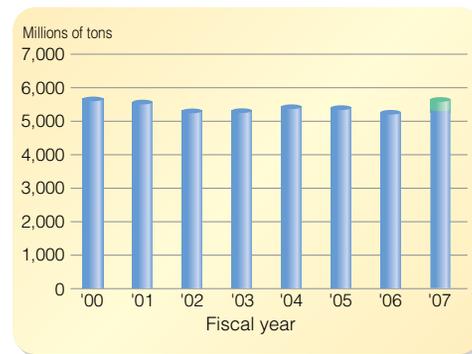
resources used were then treated and monitored for quality before being released back into rivers or the ocean.

In order to reduce COD emission independently from production volumes, we will work on developing new technologies, improving management of emissions sources, and recycling and reusing cooling water.

● COD emissions ●



● Total waste water quantity ●



■ Unitika Domestic Plants & Internal Group Companies ■ External Group Companies

### Waste Products

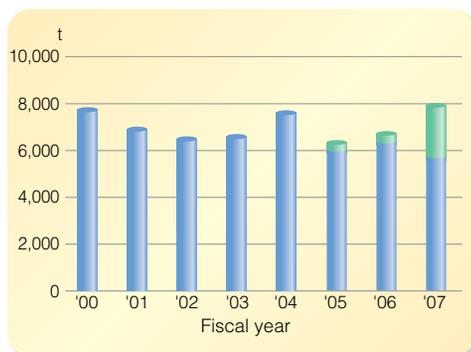
Unitika's Fourth Midterm Environmental Plan calls for a 16% reduction in waste generation between fiscal 2004 and 2008. While waste generation for fiscal 2007 was up 17% year-on-year, to 79.31 million tons, this increase can be attributed to our addition of 9 companies to the Unitika Group. An evaluation using the same standards as the previous year in fact shows a 17.7% reduction compared to 2004, a success achieved by each plant site making steady efforts on a daily basis to reduce waste generation. Our next midterm environmental plan will continue to build on these efforts, setting similarly high goals for waste reduction.

portion of plants making efforts to improve manufacturing processes to boost materials recovery and reuse rates. Comparing recycle rates using the previous standards, we in fact see an overall 7% improvement compared to 2004, which succeeds in meeting the goals of the Fourth Midterm Environmental Plan. From now on Unitika will work to improve recycling rates for the Group overall, including our eight external companies.

Recycling rates showed a worsening trend compared to the 2001 base year, but by 2004 these rates had begun to turn around, and this year improved slightly year-on-year to 93% including Unitika's eight external group companies. This was the result of a certain

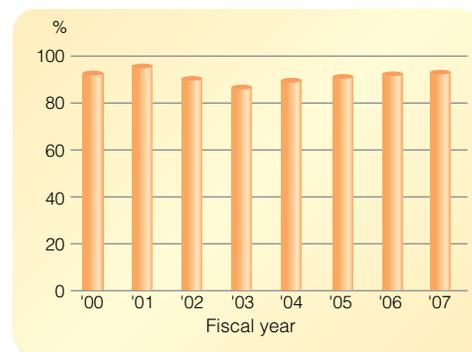
Regarding our handling of used fluorescent tubes, the presence of mercury and other substances in these fixtures has always presented difficult challenges for recycling and disposal. Starting from October 2007, however, a portion of Unitika plants have been taking advantage of Matsushita Electric Company's "Akari Anshin Service," through which Matsushita leases its fluorescent tubes and then collects the used tubes for recycling.

● Quantity of processed industrial waste products ●



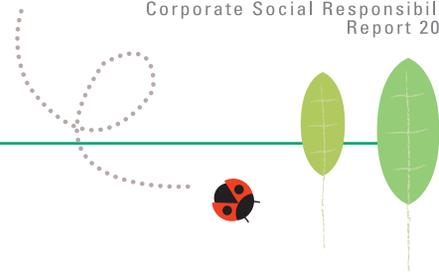
■ Unitika Domestic Plants & Internal Group Companies ■ External Group Companies

● Rate of recycling ●



■ Average Including External Group Companies

## Environmental Report



### Handling of Chemical Substances

The Unitika Group maintains a policy of quantitatively managing chemicals and substances thought to be hazardous to human health, as set forth in regulations like the Occupational Health and Safety Law and the Basic Environment Law, and at each of our plants these substances are strictly controlled.

The PRTR (Pollutant Release and Transfer Register) Law is a

system for understanding and reporting on the amounts of emissions and wastes emitted by or transported out of factories. In fiscal 2007, the Unitika Group reported on its emissions and transfer of 23 substances. Chemical substances requiring notification and the amounts Unitika reported for the main items among these are shown below.

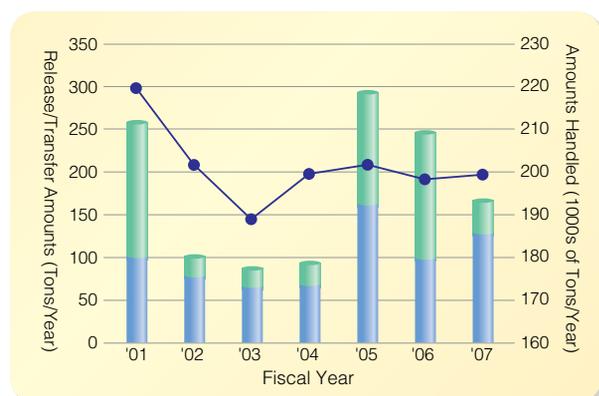
#### Number of chemicals requiring registration under PRTR Law: 23

- Acetaldehyde
- Antimony and its compounds
- Asbestos
- Bisphenol A
- Bisphenol A epoxy resin
- Ethylene oxide
- Ethylbenzene
- Ethylene glycol
- ε-caprolactam
- Xylene
- Cobalt and cobalt compounds
- 1,4-dioxane
- Dichloropentafluoropropane
- Dichloromethane(Methylene chloride)
- N, N-dimethylformamide
- Terephthalic acid
- Toluene
- Hexamethylene diamine
- 1,2,4-benzenetricarboxylic acid 1,2-anhydride
- Boron and its compounds
- Poly(oxyethylene) = alkyl ethyl
- Poly(oxyethylene) = nonylphenol ethyl
- Methyl methacrylate

#### ● Release and Transfer Amounts for PRTR Law-Regulated Substances in Fiscal 2007 ● (annual tons)

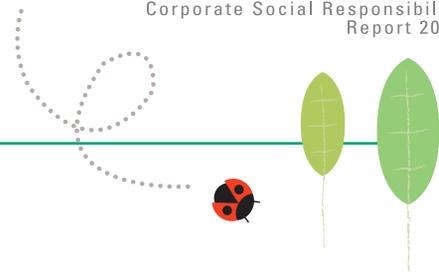
Substance	Atmosphere	Water	Total Amount of Emission	Transfer Amount
Acetaldehyde	6	2	8	-
Asbestos	-	-	-	2
Bisphenol A	-	-	-	2
ε-caprolactam	14	-	14	-
Dichloropentafluoropropane	2	-	2	-
Dichloromethane(Methylene chloride)	71	-	71	12
Terephthalic acid	-	-	-	1
Toluene	21	-	21	17
Boron and its compounds	-	8	8	-
Poly(oxyethylene) = alkyl ethyl	-	3	3	1
Other	-	2	2	1
<b>Unitika Domestic Plants &amp; Internal Group Companies Total</b>	<b>92</b>	<b>11</b>	<b>103</b>	<b>20</b>
<b>Unitika External Group Companies Total</b>	<b>22</b>	<b>4</b>	<b>26</b>	<b>16</b>

#### ● PRTR Law Amounts Handled & Emission/Transfer Amounts ●



Due to the addition of nine group companies, in 2007 chemical substance emission amounts for the Unitika Group as a whole increased by 31 tons over the previous year. However, our full implementation of a system for collecting and reusing organic solvent has resulted in a dramatic reduction in transfer amounts. We are committed to setting voluntary limits reductions in pollutant release and transfer, including investing in environmental protection facilities and improving processes to optimize our operations while at least maintaining or even reducing our environmental impact.

# Environmental Report



## Energy Saving & Global Warming

The Kyoto Protocol was adopted at COP3 (3rd Conference of the Parties) to achieve the goals of the United Nations Framework Convention on Climate Change (UNFCCC) and first year of the first 2008 to 2012 cycle of this Protocol is about to begin. Further, at the Lake Toya Summit held in July 2008 for establishing the post-Kyoto framework, the attending parties agreed to aim to reduce greenhouse gases by half their current levels by 2050. With such agreements gaining a foothold, manufacturers in particular must continuously strive to reduce their emissions of CO<sub>2</sub>, one of the most important greenhouse gases, as well as energy saving. With these waves of change spreading across the world, Unitika, too, is committed to taking accurate accounting of its own energy consumption and endeavoring to save energy and reduce CO<sub>2</sub> emissions.

Our Medium-Term Environmental Plan targets an energy consumption reduction of 10% by 2010 (compared to the FY 1990 level).

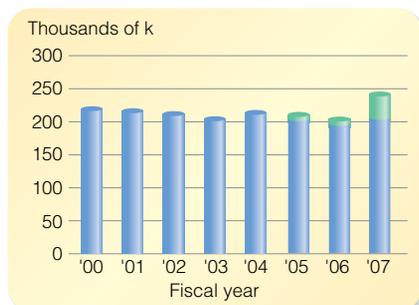
For 2007 our energy use was increased by 19% year-on-year due to the addition of nine new group companies to the Unitika Group, however this still represents an 11% reduction compared to 1990.

This success is mainly the result of steady energy-saving activities such as reducing Groupwide production volumes, process improvements, heat recovery and water reuse. And, our energy unit requirements did not change significantly in 2007 compared to the previous year. Since some products do not lend themselves to being measured by weight against energy units, the energy unit differs from the amount of energy used and statistically the items are the same as the previous year.

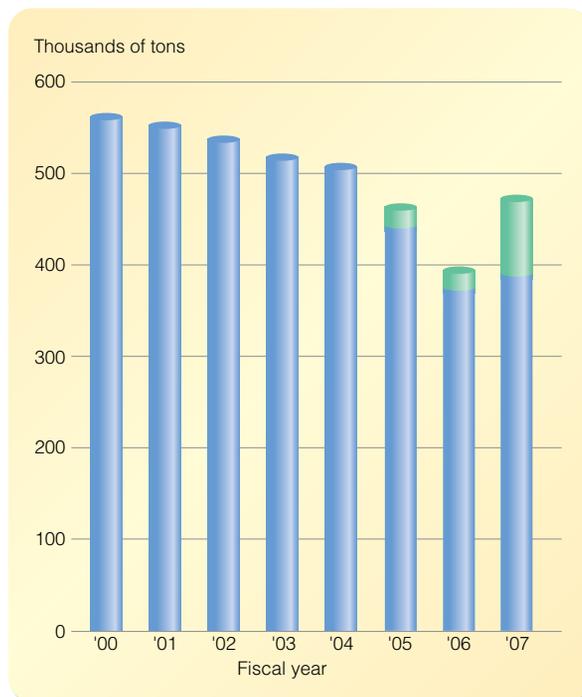
Our CO<sub>2</sub> emissions were increased by 20% year-on-year due to the addition of nine new group companies. However this still represents 39% reduction compared to 1990. In addition to dropping our energy consumption, this decrease was also contributed significantly to the installation of gas cogeneration systems in our Uji and Okazaki plants, as well as a switch from oil to natural gas at our Sakoshi plant.

We will continue to work on preventing global warming from an all-encompassing perspective, examining various indices throughout the manufacturing process.

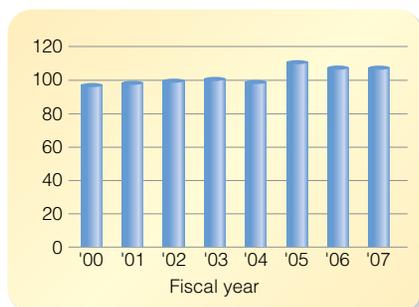
● Energy consumption quantity (crude oil equivalent)



● Changes in CO<sub>2</sub> emissions from energy generation (based on CO<sub>2</sub>)

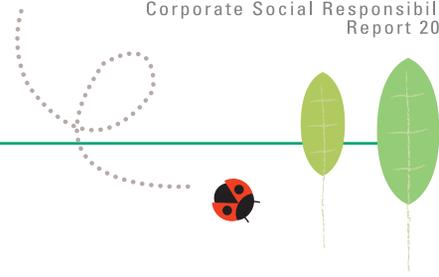


● Energy unit requirement (indexed to FY 1990 level=100)



■ Unitika Domestic Plants & Internal Group Companies ■ External Group Companies

## Environmental Report



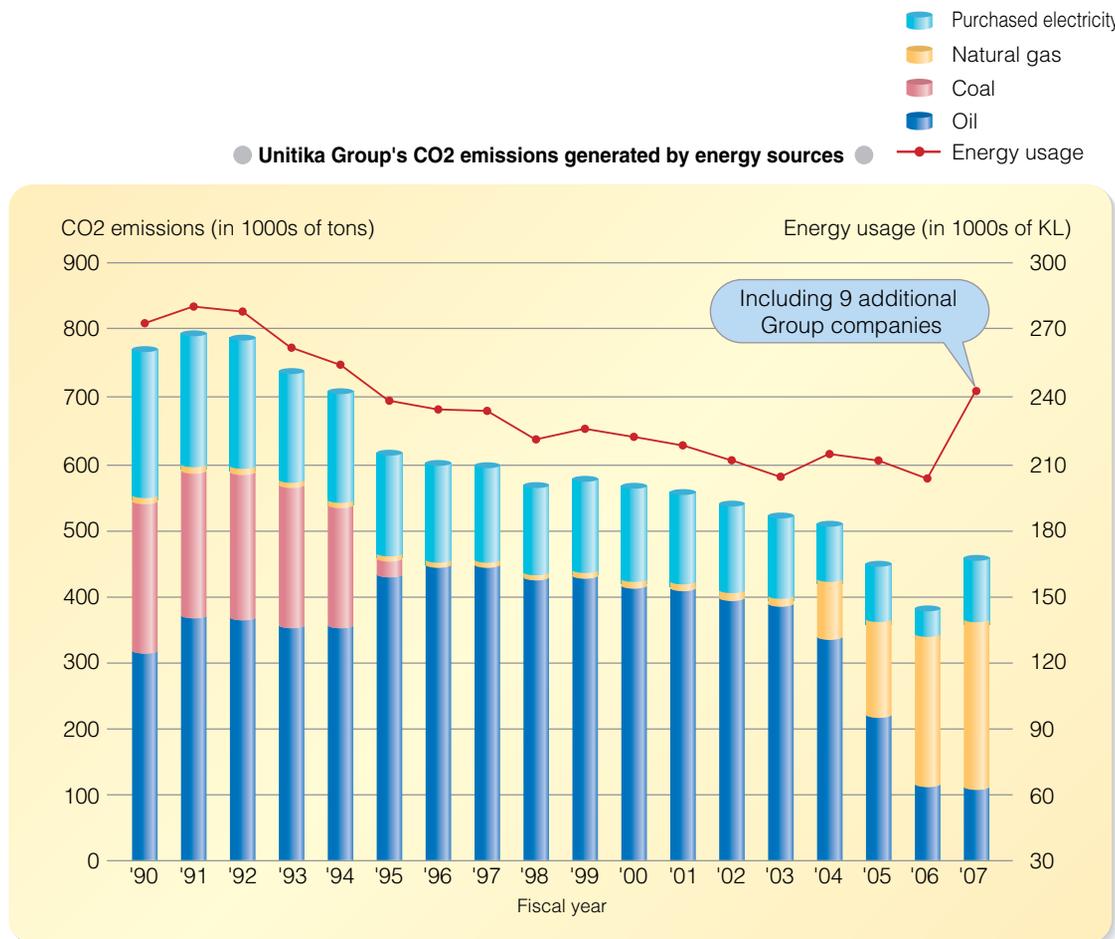
### Reducing Greenhouse Gases by Changing Energy Fuel Sources

In addition to reducing our overall energy consumption, as the Unitika Group we have also dramatically reduced our CO<sub>2</sub> output through a two step of change in energy fuel sources, first from coal to heavy oil, then from heavy oil to natural gas.

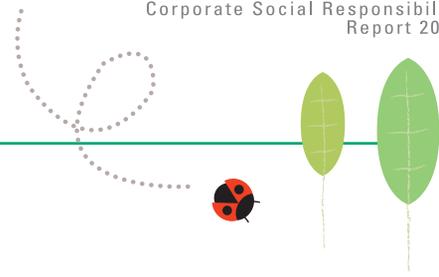
In 1990, the year now used as the standard year for greenhouse gas reduction, nearly 30% of greenhouse gas emissions have been generated by use of coal as a energy source. In 1995, however, we changed the energy source by our Uji plant's in-house power generation facility from coal to heavy oil.

Then, between 2004 and 2006, we installed natural gas

cogeneration systems at both our Uji and Okazaki plants and changed the energy source for these from oil to the much less environmentally burdensome natural gas. As a result, on a CO<sub>2</sub> generation basis, our reliance on natural gas as an energy source went from 2% in 2003 to 55% by fiscal 2007. Through this two-step changeover in energy fuel sources, assuming 1990 levels as representing 100%, by 2007 we had radically reduced our greenhouse gas generation to 61%. These efforts had the additional benefits of reducing other environmental pollutants including oxides of sulphur (SO<sub>x</sub>) and ash and other particulates.



## Environmental Report



### Logistics

To reduce the environmental impact of transportation needed for inputs of raw materials and outputs of products and waste products, Unitika implements the four logistic guidelines shown below. These guidelines have helped us make across-the-board improvements in transportation efficiency, and in reducing energy consumption and emissions gases.

- 1 We will shorten transport distances by lending, borrowing or swapping general-use products or materials of equal quality with other companies.
- 2 Within Japan, we will use container transport by sea or rail whenever possible, since these methods enable mass transport and are energy-efficient.
- 3 Forklifts used for work inside sites will be changed from engine-driven models to environmentally-friendly battery-driven models with zero emissions gases and low noise.
- 4 We will reduce transportation energy consumption by using flexible containers that can wrap larger numbers of products instead of paper bag wrapping materials, and by shaping containers for more efficient truck loading.

In line with an April 2006 revision to Japan's laws pertaining to rationalized energy consumption, we have started energy-saving initiatives for logistic.

In FY 2006, Unitika and Unitika Group companies were registered as the designated shippers for a total freight transport volume of 107,654 thousand ton-km, resulting in a CO<sub>2</sub> emissions volume of 36 thousand tons (t-CO<sub>2</sub>).

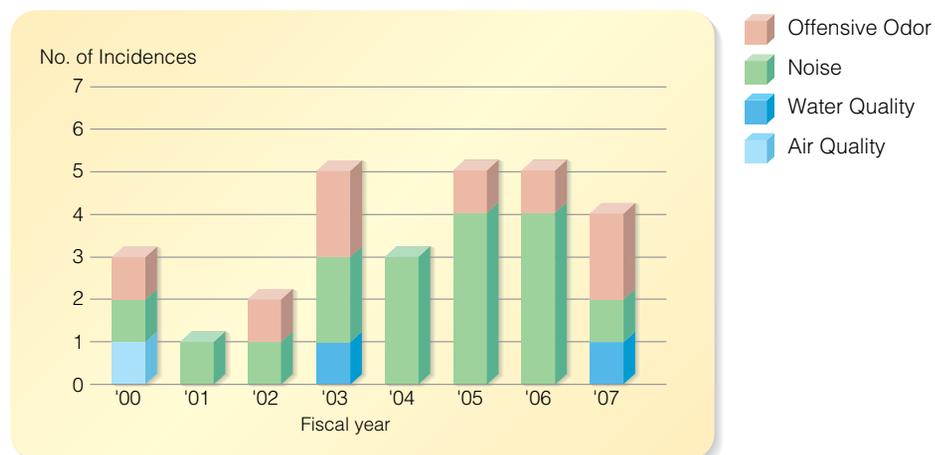
### Environmental Complaints

Based on Unitika's corporate vision of "being a company that contributes to people's lives and the environment, and that has a positive presence within society," we make utmost efforts to pursue our business and activities in ways that are considerate of the people living around us. Despite these efforts, in fiscal 2007 we still received a number of complaints regarding noise, industrial odors, and other incidences of environmental disturbance. In each case, we looked to find both causes and solutions and communicated these to those in the surrounding communities while

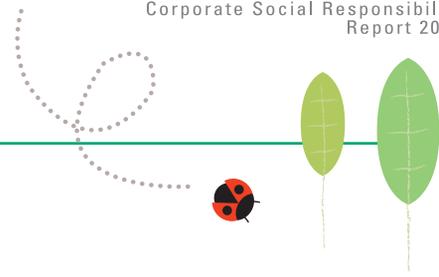
taking steps to ensure their non-recurrence. In all such situations we will do our utmost to improve so that we may contribute positively to the living environments of the people living around us.

Further, in fiscal 2007, for Unitika and the Unitika Group, there were no incidences of accident or pollution that might have led to environmental problems, nor were there any violations of environmental laws and regulations.

● Complaints from Surrounding Neighborhoods ●



## Environmental Report



### Environmental Accounting

The Unitika Group implements environmental accounting as part of our environment-conscious business activities. In conducting our environmental accounting, we follow the 2005 edition of the environmental accounting guidelines published by the Japanese Ministry of the Environment in May 2005. Unitika will continue to release clear and accurate environmental accounting data.

#### Purpose of Environmental Accounting

Environmental accounting is carried out during environmental preservation work. It is designed to make environmental preservation more efficient by quantitatively identifying and measuring the amounts of investments and expenses for environmental preservation, and to make decision-making processes in a more reasonable way.

Disclosing environmental accounting information to the public fulfills our responsibility to keep stakeholders informed, and provides us with the feedback needed to step up our work on environmental preservation.

#### Method of Tallying Environmental Accounting Data

Data provided by : Unitika Domestic production sites & Internal Group Companies and Union Co., Ltd.

Applicable period : April 1, 2007 to March 31, 2008

**C o s t s** : Investment amounts include the environmental investment on items for which the environment is not the main objective. Expense amounts include labor costs, general expenses and depreciation.

Unitika's fiscal 2007 environmental investment was 358 million yen. Most of these funds were used on items related to lightening the environmental burden and recycling chemical substances. Environmental expenses were 2.593 billion yen, mainly for waste processing (including recycling expenses), maintenance and management of equipment to prevent pollution, and product R&D for environmental preservation.

#### Environmental Preservation Costs

(Millions of yen)

Category	Capital investment	Cost	Remarks	
Business area costs	Pollution prevention costs	272	762	Pollution (water, air and noise pollution) prevention measures
	Environmental preservation costs	—	74	Energy saving, global warming prevention
	Resource recycling costs	86	1,096	Waste disposal, recycling
Upstream/downstream costs	—	146	Packaging material recycling	
Management activity costs	—	91	Environmental management system maintenance environmental education, impact monitoring	
R&D costs	—	359	Developing environmentally-friendly products	
CSR costs	—	38	Forestation improvements, beautification campaigns	
Environmental damage costs	—	27	Quantity-based tax on environmental impact of SOx emissions	
<b>Total</b>	<b>358</b>	<b>2,593</b>		

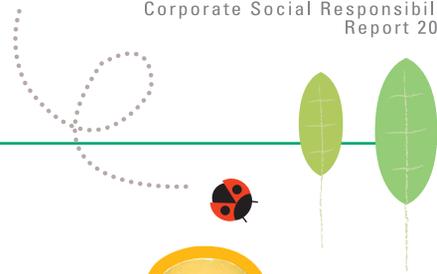
#### Economic Effects

(Millions of yen)

The table illustrates economic effects by listing items with a clear basis for calculation, that have high substantive benefits for environmental preservation. The expenses saved from Unitika's FY 2007 energy-saving and waste reduction activities, and the amount of sales generated from recycling resources have been calculated. Note that inferred benefits have not been calculated, such as savings to the public from environmental preservation efforts.

Item	Amount
Reduction in energy expenses	24
Reduction of costs associated with energy-efficient power sources and industrial waste reduction	3
Income from sale of recycled resources	243

## Environmental Report



### Unitika's Environmental Efforts



## SHIOLI'S Environmental Report

from the Unitika Okazaki Plant

Shioli Kutsuna, Unitika's charming "mascotgirl," is really interested in Unitika's environmental efforts, and here she gives us her first report on what she's found. Some of these issues are complex, but she's done some legwork for us and talked to some people in the company who can tell us what it's all about in layman's terms. Let's see what she-and they-have to say!

#### Shioli's First Interview Report

— Hi, I'm Shioli Kutsuna, and I'm here at Unitika's Okazaki Plant to find out what's going on with environmental efforts here. I don't really know what to ask yet, but I think it will go well....

**Unitika:** Don't worry, Shioli, I'm sure you'll do great! Let's get started!

— Okay then! So, first of all, this plant seems very large. How big is it, actually?

**Unitika:** It's big alright. It's about 30,000 square meters, or roughly the same area as six Nagoya Dome's.

— Wow, that's pretty big. You'd better start showing me around now, or we'll never finish by the end of my visit today.

**Unitika:** You're right, so start here, in the part of the plant where we make fibers from recycled materials.

#### Fibers Made from Recycled PET Bottles

**Unitika:** Here we make fibers with these facilities called UniEcolo, using empty PET bottles.

— Ah, I see how you've collected all the empty plastic bottles and are shredding them into flakes, right?

**Unitika:** Exactly. Then we melt the flakes and spin the molten plastic into filaments by forcing it through special tiny nozzles. Watch....

— Oh yeah, I see them! Hey, that's cool!

**Unitika:** These filaments are extremely fine, about 1/100th the width of a human hair. And even though they're so thin, we can



also shape them with different cross-sections, for example triangles, tubes, or whatever shape is needed.

— Different shapes? I never knew you could do that!

**Unitika:** Next let's go to where we bundle these filaments together and draw them into long, and strong filament yarns.

— I see, you spin the fibers to make thicker filaments strong enough to use in clothing fabric, yes?

**Unitika:** Not only for clothing, though; we also cut them to make staple fiber, which is used to make composite fabrics.

— But why would you go to the trouble of making them so nice and long, but then cut them into little pieces?

**Unitika:** This kind of reclaimed staple fiber can be used much like cotton, or spun into textiles to make uniforms and things like that.

— I see. So, exactly how many PET bottles do you turn into this kind of recycled polyester fiber here?

**Unitika:** Every day we recycle the equivalent of about 600,000 500-ml bottles. That's about 220 million a year.

— Incredible!

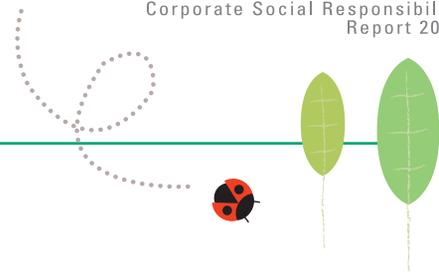
**Unitika:** Yes, and these PET bottles can be used not only for recycled polyester fiber, but also for spunbond.

— Spunbond.... What's that?

**Unitika:** Well, let me show you. Let's go to the spunbond section of the factory.



## Environmental Report



### This is how they make "spunbond" non-woven fabric! Check it out!

— So, apparently this is where they make spunbond. But what is it?

**Unitika:** Spunbond is our technical term for a non-woven fabric.

— How do you make a fabric without weaving?

**Unitika:** Good question. You see, making fabric by processing the weaving yarns takes quite a long time and effort. The spunbond process simply passes melted resin through tiny holes, forcing it into filaments, which then stick together and can be fashioned into a sheet. It's a very fast and cost effective way to make fabrics that can be used for many different purposes.

— Like what?

**Unitika:** Such fabrics are used in all sorts of ways, often in the background of our daily lives, for example in disposable diapers, hand towels, agricultural sheeting, civil engineering projects, and as industrial materials for various applications.

— And all that can come from recycled PET bottles?

**Unitika:** Yes, our spunbond material is called "Ecomix" and is made with at least 51% recycled PET bottles, sometimes more. One of Ecomix's main uses is to stabilize foundations and help solidify the earth in engineering and land reclamation projects.

— I had no idea PET bottles could be used in so many ways.

**Unitika:** At the spunbond factory headquarters, all the scraps and cuttings that are not used to make products are recycled once again, about 20 tons a month.

— So you even recycle scraps from the recycled materials!

**Unitika:** Yes. And let me tell you about another thing—a lot of these PET bottles are actually gathered from Unitika employees, who are involved in our program to collect them here at the Okazaki plant.

— So everyone in the Unitika Group is actually doing a little something for recycling and the environment. But hold on, doesn't it cost a lot of money to transport all those plastic bottles?

**Unitika:** Actually we don't have any extra trucks assigned to haul them. We use trucks that would already be traveling anyway between the various Unitika facilities, and simply load the bottles on whenever there's a little extra space.



— Ah, very clever. So even that can be considered an "eco" approach to things, not spending extra energy to transport recyclables!

### More people should use Terramac!

**Unitika:** Here we have the manufacture of one of Unitika's most representative "eco" products, "Terramac."

— As I understand it, Terramac is made from corn, and also happens to be biodegradable.

**Unitika:** You are well informed!

— I did a calendar shoot once where I wore a garment made of Terramac. That's how I found out about it and what a wonderfully environmentally excellent material it is. And this is where you make it!

**Unitika:** Yes, and here we see the raw material, chips of a substance called "polylactide."

— These come from corn?

**Unitika:** Not only corn, but other starchy plants like potatoes and sweet potatoes. We've also started researching how we might extract polylactide from other materials like raw garbage, waste wood pulp, and sludge.

— From raw garbage?! Now THAT would be true recycling!

**Unitika:** Terramac itself is actually a very good example of recycling, because eventually it decomposes into water and carbon dioxide, and the latter can become part of the life cycle of corn, which can then be made into more Terramac, and so on.

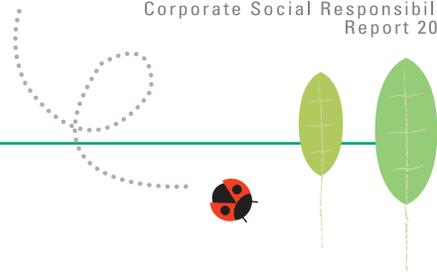
— The photosynthesis cycle. I remember learning about that in science class.

**Unitika:** Yes, the fact that the carbon dioxide generated will be breathed in by new plants means that Terramac itself is considered "carbon neutral," meaning that it does not contribute any extra CO<sub>2</sub> to the atmosphere.

— I see. So that means the replacing of crude oil-based plastics and films with Terramac would help reduce the amount of CO<sub>2</sub> released into the earth's atmosphere!



## Environmental Report



**Unitika:** That's right, polylactide-based plastics help us remarkably reduce CO2 emissions compared to conventional petroleum-based plastics.

— So that must help reduce global warming. So, how is Terramac used?

**Unitika:** Oh, in lots of things-garbage bags of various kinds, heat-resistant food containers, tea bags, towels, clothing, cell phones, office equipment, and many others.

— So might be using Terramac myself, without even knowing it! It seems like a really diverse material, this Terramac, and I hope it starts getting wider use in Japan, no, around the world!

### Getting energy from natural gas and steam

**Unitika:** Let's finish by introducing our natural gas-powered cogeneration system.

— (Looking up) This would be that? It's so big....

**Unitika:** In 2006, here at the Okazaki plant, we worked with Toho Gas Co. to install this cogeneration system.

— How does it work?

**Unitika:** We used to make electricity by burning oil as a fuel, but with cogeneration we use a combination of the city gas and the steam we generate at the factory to cover a lot of the electrical needs we have.

— Steam into energy. That sounds environmentally friendly.

**Unitika:** Yes, it eliminates the sulphur oxide emissions typical of burning fossil fuels, and by using fuel more efficiently we get about 18% better energy savings, not to mention a 26% reduction in CO2.

— That's awesome! You've really come up with some clever ways to save energy here at the Okazaki plant!

**Unitika:** Let me show you the cogeneration system control room, too.



(Shioli, in the control room, moves to touch a switch....)

**Unitika:** Hey, hey, no touching! Just looking, okay?

— Sorry. I was just so amazed that such a big machine could be controlled by this one little computer!

**Unitika:** Indeed, this is the heart of the system right here.

— I see, and I bet it's a big job keeping it in good order and running properly every day.



— Well, thank you for showing me around today. It was the first time for me to visit a factory like this, and half the time it was so exciting that I felt like I was in a scene from *Charlie and the Chocolate Factory*. Just one manufacturing process after another, I could hardly tell where I was.

**Unitika:** And I trust you got to know a little more about what we do at Unitika for the environment?

— Yes, and it puts it all into perspective seeing the raw materials and all the things made from them, even the manufacturing processes themselves and how energy is used. All together I think it does a little to help the environment. Very impressive!

**Unitika:** We do what we can, every day of the year, little by little....

— As you might know, I grew up in Australia, where environmental preservation is really ingrained in people in general. My mother is very active in such things, too. I've always known about separating the rubbish into recycling and non-recycling and that sort of thing, but from now on I'm sure I'll be a lot more active in finding ways to be more environmentally friendly-just like Unitika!



The End

## Environmental Report

### Technology and Products for Environmental Safety

Unitika offers various products and technologies using a basic approach that aims to create sustainability through resource recycling.

### Water Treatment Facilities

- Water supply facilities
- Advanced water supply treatment facilities
- Advanced sewage treatment facilities
- Agricultural community waste water treatment facilities
- Seepage water treatment facilities in final disposal sites
- Industrial waste water treatment equipment
- Sludge reduction equipment
- Water supply membrane filtration equipment
- Sewerage facilities
- Granular desphosphorizing equipment
- Fishery community waste water treatment facilities
- Waste water treatment facilities in garbage incinerators
- Sewage treatment equipment
- Sludge composting equipment

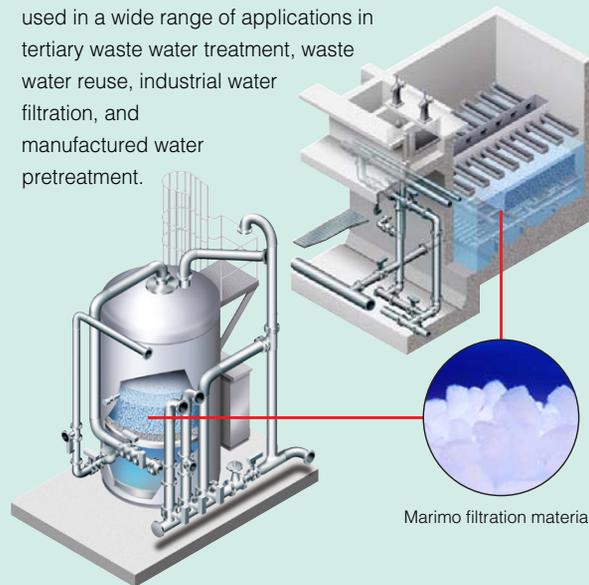
#### Improved Combined Sewerage Treatment System

Since large volumes of combined sewage flows into sewage treatment sites in a short time when it rains, the sites can't treat it fast enough, and untreated sewage is released into rivers or other waterways. To solve this problem, Unitika has developed an improved combined sewerage treatment system driven by our Marimo high-speed filtration system, enabling rapid and stable treatment over short amounts of time. It efficiently performs variable high-speed filtration on top/bottom counter-currents, providing high treatment capacity in rain or shine. It removes pollutants at a filtration rate of up to 2,000 m/day in rain, and at a standard rate of 1,000 m/day in clear weather. It is a high-performance system offering stable treatment capacity at a low cost.



#### Marimo High-Speed Filtration System

Marimo is a high-speed filtration system developed by Unitika that offers high performance and uses a special fiber as the filtration material. Marimo's high-speed function provides a filtration rate five times faster than conventional sand filtration systems. Offering a significantly higher level of treatment efficiency, it enables easy cleaning and draws on Unitika's many years of expertise as a fiber manufacturer. Marimo is used in a wide range of applications in tertiary waste water treatment, waste water reuse, industrial water filtration, and manufactured water pretreatment.



Marimo filtration material

#### Sludge Reduction Equipment

To enable the type of sustainable industrial processes that will ensure the future of mankind and our planet, Unitika has developed equipment to reduce the volume of sludge generated when treating biological materials. The equipment continuously mills the excess sludge generated in biological material treatment tanks using fine ceramic beads. When the milling has solubilized the sludge, it is fed back into the biological material treatment tank to biodegrade.



Fine ceramic beads

#### Phosnix Granular Desphosphorizing System

A system that recovers phosphorus in waste water as granules of magnesium ammonium phosphate (MAP), a substance that can be effectively used as a fertilizer.



MAP

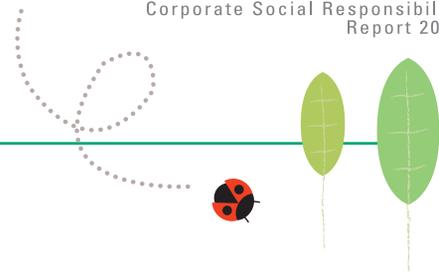
#### Biological Contact Filtration Facility

A clean water facility that uses spherical carriers of polyester fiber as the filtration material. Biological membranes form on the surface of the filtration material, and microbes such as nitrifying bacteria and iron oxidizing bacteria propagate within the filter layer. The biological purifying properties of these microbes efficiently remove ammoniacal nitrogen, iron and manganese. The facility can fit within a small footprint and has a high pure water treatment capacity.



Kita Koriyama water purification facility

## Environmental Report



### Garbage Processing Facilities

- Stoker incinerators
- Gasifying-melting furnaces
- Garbage crushing and sorting facilities
- Exhaust gas treatment equipment
- Exhaust gas treatment equipment
- Regenerative-heat deodorizing equipment
- Fluid-bed incinerators
- Incineration residue melting furnaces
- RDF (refuse-derived fuel) facilities
- Fly ash treatment equipment

#### Next-Generation Stoker Incinerator: Uniburn System 21

Unitika started constructing city garbage incineration facilities in 1971, and has now built 90 facilities. Uniburn System 21 is a next-generation city garbage incineration system that draws on these many years of experience, developed with the aid of German technology for stoker incinerators with boilers. Its low air ratio and high combustion temperature improve the heat recovery rate and enable significantly cleaner exhaust gas. These features reduce environmental impact and lower total garbage processing cost.



Yachimata City Clean Center

#### Advanced-Function Incineration Residue Melting System: Unimelt System 21

Developed as the result of our research on reducing and cleaning incineration residue, the Unimelt System can melt incinerator ash, fly ash, incombustible residue left after processing bulk garbage, or incombustible residue mixed in with combustible residue. Waste plastic that previously couldn't be reused can be melted together with other garbage, making the system effective for plastic thermal energy applications. Unimelt is a revolutionary system that enables residue to be cooled into slag after melting, for effective use as a construction material. Unimelt can also melt items processed at landfill disposal sites, enabling recycling at those sites.



Eco Slag Center at Tottori Prefecture's Greater Western Area Administrative Management Union

### Air Pollution

- Deodorizing equipment
- Soil surveys/analysis
- Pollution cleanup measures
- Dust collection equipment
- Soil pollution cleanup measures
- Pharmaceutical products, resins, filtration materials

#### Environmental Surveys, Measurement and Analysis: Unitika Environmental Technical Center Co., Ltd.

Unitika Environmental Technical Center (UETC) uses the latest equipment and technology to carry out environmental surveys, measurement and analysis, along with various investigations needed by several industries. UETC is certified by Japan's Ministry of the Environment as a qualified contractor for dioxin analysis, and has gained a reputation for solid reliability. To enable more accurate analysis, UETC can analyze trace amounts of dioxins. It is highly experienced in soil surveys (a recent area of concern in Japan), and has measures to combat soil and groundwater pollution permanently. UETC also helps protect living environments through activities such as sick building surveys; air quality, weather, noise and vibration measurements; technical support for water treatment; exhaust gas, odor and work environment measurements; and analysis of river water, waste water, drinking water, asbestos, and insulation oil trace PCBs.

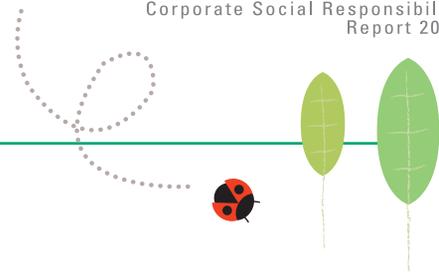


Environmental hormone analysis



Extracting a sample with a simple boring machine

## Environmental Report



### Recycled Polyester Fiber

#### Uniecolo

Demand for PET bottles has been growing year by year, and the cost of fossil fuel-based plastics is rising sharply. For that reason, used bottles have become an important resource themselves. As part of our efforts to preserve the environment, Unitika has been active in PET bottle recycling. Uniecolo was developed through our outstanding spinning technology. Offering soft hand-feeling and good bulkiness, it is an environmentally-aware fiber with the same features as conventional polyester, and designed to enable reuse of limited resources.



### New Natural Fibers

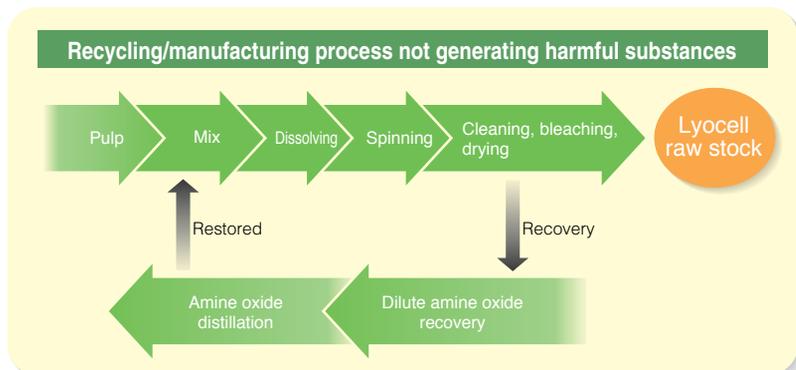
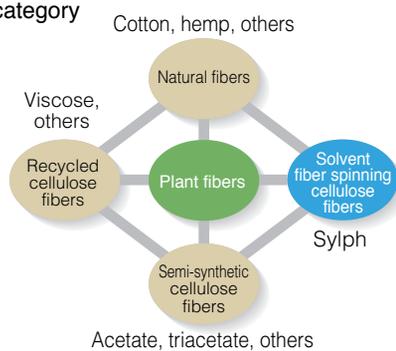
#### Sylph

Good clothing materials need to be gentle, comfortable and versatile, while enabling attractive tailoring. Materials must meet all these requirements to make novel and comfortable clothing, and Unitika's groundbreaking new material Sylph generates just such new possibilities. More than ten years after the development of lyocell fiber (the raw stock fiber), Sylph was created by using a more evolved form of the raw stock fiber and the latest advanced

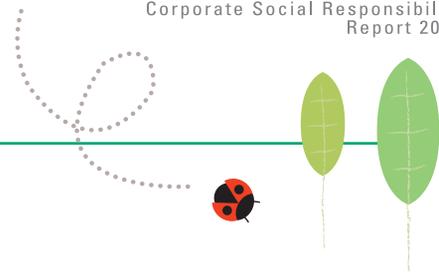
fabrication technology. Sylph offers a larger variety of high added-value materials, and raises the standard of quality for lyocell products. And since it is also extremely environmentally friendly, Sylph is setting the new standard for materials meeting 21st-century needs.



#### Fiber category



## Environmental Report

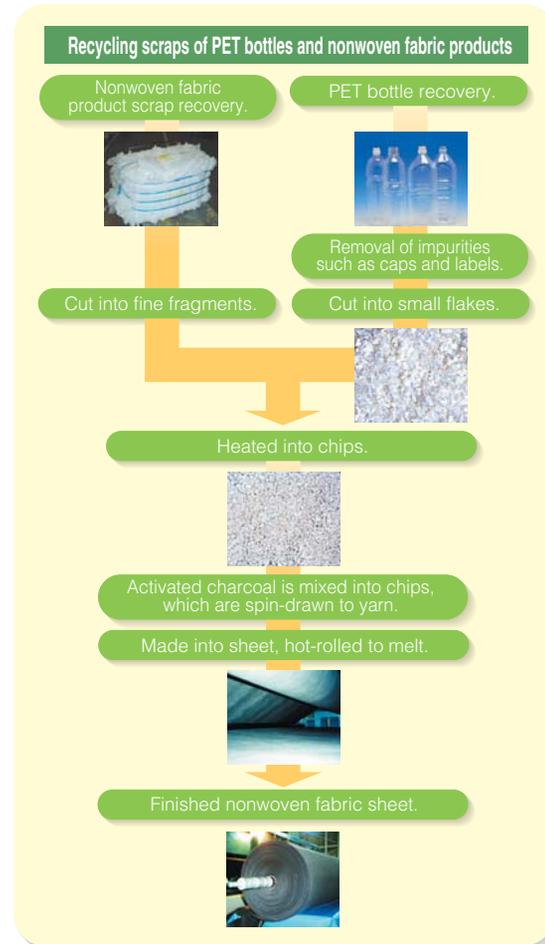


### Recycled Polyester Nonwoven Sheeting

#### Ecomix

Since recycling is an important part of our environmental preservation efforts, Unitika has developed, by its outstanding spunbond technology, a polyester filament nonwoven fabric called Ecomix, made from scraps of PET bottles or nonwoven fabric products. Ecomix has already obtained the Japan Environment Association's Eco Mark certification (No. 00105029). With outstanding water permeability and endurance, Ecomix has been approved for a wide range of public works applications, including protective mats for water barrier sheets in waste disposal sites, sheets for erosion and torrent control in banking reinforcement construction and harbors, suction-preventing sheets for riverbank protection, and plastic board drains. With its cost-effective wide sheets and highly elastic structure, Ecomix can easily handle warping and projections, and is gaining popularity as sheeting for today's needs.

エコミックス



### Anticorrosive Sheeting

#### Segurova

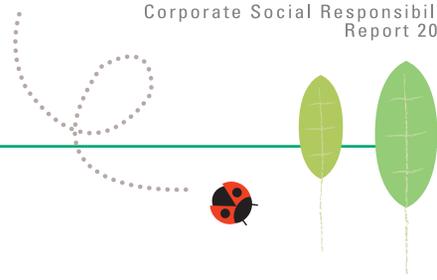
Japan's River Law was partially revised in June 1997, and in line with the new law, Unitika Fibers developed Segurova, an anticorrosive sheeting material designed with the concern to natural environments and landscapes. Manufactured using a 3-D weaving technology to ensure that gaps and thicknesses are kept constant, Segurova resists water currents, and provides high corrosion resistance. Designed for weather resistance and endurance, it is mainly comprised of black clope-dyed polyester monofilament. To give some components partial dimensional stability, they use binder fibers with a core and pod structure. The sheet top and bottom layers have a honeycomb structure for easy filling with earth or sand. Segurova can be used in embankment protection works to reinforce the corrosion resistance of herbaceous plants such as lawns or seedlings. It stops corrosion by water currents at embankment surfaces and river banks, realizing a new anticorrosion sheeting-based construction method. Segurova has

already become the first product in the industry to be awarded the Public Works Research Center's Anticorrosion Sheet Performance Evaluation Certification (certification No. 0001).

SEGUROVA



## Environmental Report

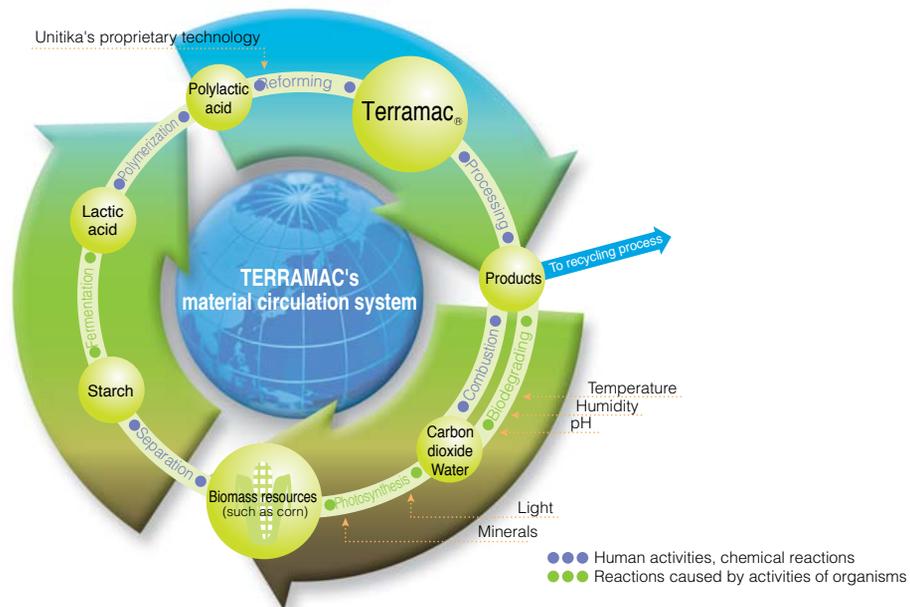


### Plant-Derived Biomass Material

#### Terramac

Terramac is a biomass material made from a polymer derived from plants such as corn. Biomass materials are organic resources derived from sustainable biological sources except for fossil resources. Terramac ultimately degrades into carbon dioxide and water, which are absorbed into plants such as corn for their growth. Then, the corn can be turned Terramac again. So Terramac is part of the world's natural 'recycling system'. Conventional plastic products are made from oil, a limited and non-renewable raw material that will run out in the not-so-distant future if we continue using it. Terramac is now an extremely promising alternative. It has a wide range of applications in clothing, plateware, cups, wrapping films, cosmetic bottles, teabags, planters, trash bags and all areas of consumer demand. Unitika has developed heat-resistant foam containers and food

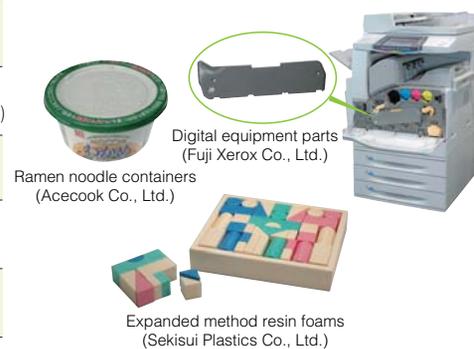
containers made of Terramac, which base ingredient is polylactic acid. These containers are the world's first polylactic acid products that can hold hot water inside and are microwave-safe. One of Terramac's applications is for use in mobile phone casings, which require demanding durability and heat resistance specifications. Recently, we have developed new heat-resistant polylactic acid resins for injection molding. These resins can be molded at lower molding die temperature in less molding time compared to our previous heat-resistant grade Terramac. We have succeeded in greatly reducing environmental impact during molding of polylactic acid by developing this new heat-resistant grade polylactic acid. Combining the natural advantages of plant material with human technology, Terramac is an attempt to be the ideal material supported by both the Earth and human beings.



Terramac is extremely safe for human health and the environment.

Biodegradability:	JIS K6953 (ISO 14855). Passes the test of beneficial and extreme biodegradability and destructibility under controlled compost conditions.
Labeling, certification standard:	Conforms to GreenPla/E Identification and Labeling System/certification standard set by Japan Bio Plastics Association (JBPA). (Has been placed on Positive List, and been certified with the GreenPla/E Mark.)
Food sanitation:	Conforms to standards and criteria set forth in Ministry of Health, Labour and Welfare Notice No. 370 (Food Sanitation Law). Certified under US FDA/FCN (Food Contact Notification) No. 178.
Bacterial resistance:	Polylactic acid is reported to have antibacterial properties. (Bokin bobai, Vol. 29, No. 3, pp. 153 to 159, 2001)
Low combustion heat:	Low combustion heat of approximately 19 kJ/g is one-half to one-third the value of oil-based plastic, so can't harm incinerators. Does not generate toxic gases (dioxins, hydrogen chloride, NOx or SOx) when incinerated.

Can be used for these applications.



Terramac products with the Ingeo™ are in compliance with the NatureWorks Brand Policy, and uses NatureWorks® biopolymers. NatureWorks, Ingeo, and the Ingeo logo are registered trademarks of NatureWorks LLC in the United States and other countries.  
www.natureworkslc.com

## Environmental Report

### Production Site Information

#### Uji Plant



Site manager:  
Taro Tokuzawa

- Location: 5 Uji-Tonouchi, Uji-shi, Kyoto, Japan 611-0021
- Site area: 311,781 m<sup>2</sup>
- ISO 14001:  
Certification No. JCQA-E-0058  
Certification No. JCQA-E-0249
- Main products: Nylon resin, nylon fiber, engineering plastics, nylon/polyester film

	Substance	Unit	Regulation value	Measured value
Air	SOx total	Nm <sup>3</sup> /hour	29.1	4.0
	NOx	ppm	199	32
	Dust	g/Nm <sup>3</sup>	0.025	< 0.001
Water	COD load	kg/day	1,131.4	425
	Suspended matter	mg/l	30	5
	Oil	mg/l	16	< 0.5
	Nitrogen	kg/day	721	230
	Phosphorus	kg/day	97	6

#### Okazaki Plant



Site manager:  
Kenichi Shimomori

- Location: 4-1 Hinokita-machi, Okazaki-shi, Aichi, Japan 444-8511
- Site area: 313,865 m<sup>2</sup>
- ISO 14001:  
Certification No. JCQA-E-0292
- Main products: Polyester resin, polyester fiber, spunbond (filament nonwoven fabric), medical equipment, environmental business

	Substance	Unit	Regulation value	Measured value
Air	SOx total	Nm <sup>3</sup> /hour	34.89	0
	NOx	ppm	100	78
	Dust	g/Nm <sup>3</sup>	0.05	< 0.001
Water	COD load	kg/day	718.7	79.3
	Suspended matter	mg/l	20	7
	Oil	mg/l	10	< 1
	Nitrogen	kg/day	385	44
	Phosphorus	kg/day	51	11

#### Toyohashi Office



Site manager:  
Hitoshi Onozuka

- Location: 101 Matsunami, Akebono-cho, Toyohashi-shi, Aichi, Japan 441-8527
- Site area: 270,804 m<sup>2</sup>
- ISO 14001:  
Certification No. UJL A16735  
Volume: 1 (U-AI Electronics Corp.)
- Main products: Nonwoven fabrics (sheeting for civil works and roofing applications), biobusiness (cauliflower mushroom: *Sparassis crispa*), Printed circuit boards

	Substance	Unit	Regulation value	Measured value
Air	SOx total	Nm <sup>3</sup> /hour	0.49	0.028
	NOx	ppm	180	83
	Dust	g/Nm <sup>3</sup>	0.3	0.003
Water	COD	mg/l	11.9	2.9
	Suspended matter	mg/l	20	6
	Oil	mg/l	5	< 1
	Nitrogen	mg/l	120	11
	Phosphorus	mg/l	15	1.2

#### Tarui Mill

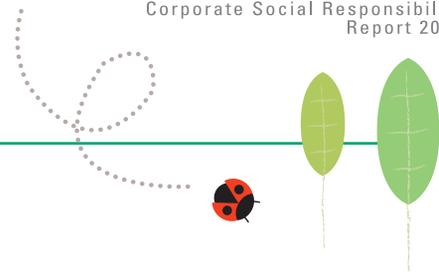


Site manager:  
Keisuke Obata

- Location: 2210 Tarui-cho, Fuwa-gun, Gifu, Japan 503-2121
- Site area: 156,224 m<sup>2</sup>
- ISO 14001:  
Certification No. JCQA-E-0323
- Main products: Cotton nonwoven fabrics, glass cloth

	Substance	Unit	Regulation value	Measured value
Air	SOx total	K value	11.5	1.1
	NOx	ppm	180	85
	Dust	g/Nm <sup>3</sup>	0.3	0.004
Water	COD load	kg/day	108.4	82.1
	Suspended matter	mg/l	50	8
	Oil	mg/l	5	1
	Nitrogen	mg/l	120	2.1
	Phosphorus	mg/l	16	0.08

## Environmental Report



### Miyagawa Mill



Site manager:  
Hitoshi Yamaguchi

- Location: 341 Honmachi, Obata-cho, Ise-shi, Mie, Japan 519-0593
- Site area: 103,404 m<sup>2</sup>
- ISO 14001: Certification No. JCQA-E-0476
- Main products: Yarn and woven fabric made from wool and wool blended materials

	Substance	Unit	Regulation value	Measured value
Air	SOx total	K value	17.5	2.0
	NOx	ppm	180	65
	Dust	g/Nm <sup>3</sup>	0.3	0.002
Water	COD load	kg/day	91.2	16.7
	Suspended matter	mg/l	30	2
	Oil	mg/l	20	2.9
	Nitrogen	mg/l	10	4.4
	Phosphorus	mg/l	1.5	0.04

### Sakoshi Plant



Site manager:  
Mitsuhiro Umino

- Location: 846 Takano, Ako-shi, Hyogo, Japan 678-0171
- Site area: 191,236 m<sup>2</sup>
- ISO 14001: Certification No. JCQA-E-0093
- Main products: Vinylon fiber (for industrial materials such as cement, rubber reinforcements, tatami thread and papermaking binders)

	Substance	Unit	Regulation value	Measured value
Air	SOx total	Nm <sup>3</sup> /hour	9.1	3.9
	NOx	ppm	170	133
	Dust	g/Nm <sup>3</sup>	0.12	0.047
Water	COD load	kg/day	348	52
	Suspended matter	mg/l	3.9	2.49
	Oil	mg/l	10	1.53
	Nitrogen	mg/l	15	0.76
	Phosphorus	mg/l	2	0.04

### Tokiwa Mill



Site manager:  
Taizou Ishida

- Location: 88 Nakahara, Souja-shi, Okayama, Japan 719-1195
- Site area: 137,551 m<sup>2</sup>
- ISO 14001: Certification No. JCQA-E-0221
- Main products: Cotton 100% yarn, Blended yarn with synthetic & cotton, Synthetic woven fabrics blended with cotton

	Substance	Unit	Regulation value	Measured value
Air	SOx total	K value	17.5	0.6
	NOx	ppm	130	67
	Dust	g/Nm <sup>3</sup>	0.3	0.002
Water	BOD	mg/l	80	2
	Suspended matter	mg/l	100	1
	Oil	mg/l	2.5	< 1
	Nitrogen	mg/l	-	-
	Phosphorus	mg/l	-	-

### Union Co., Ltd.



President:  
Yoshiki Shimizu

- Location: 10-1 Ohmine-Minami, Hirakata-shi, Osaka, Japan 573-0145
- Site area: 6,886 m<sup>2</sup>
- ISO 14001: Certification No. JCQA-E-0835
- Main products: Glass beads

	Substance	Unit	Regulation value	Measured value
Air	SOx total	Nm <sup>3</sup> /hour	-	-
	NOx	ppm	180	15.6
	Dust	g/Nm <sup>3</sup>	0.15	0.0275
Water	COD	mg/l	300	29
	Suspended matter	mg/l	300	5
	Oil	mg/l	2	< 0.5
	Nitrogen	mg/l	150	1.8
	Phosphorus	mg/l	20	0.09

Water quality refers to values for outgoing wastewater.

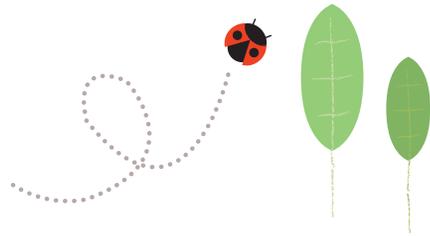
Note 1: The displayed regulation values are the most rigorous values mandated by law (Air Pollution Control Law or Water Pollution Control Law), regulations, prefectural guidance or conventions.

Note 2: Includes environmental impact from affiliates within site.

Note 3: SOx = sulfur oxides, NOx = nitrogen oxides, COD = chemical oxygen demand, BOD = biological oxygen demand

Note 4: The displayed air pollution values are the measured values for the major facilities at each site (totals are values for entire site).

Note 5: The displayed water pollution values are the highest values measured at the drain outlets at each site (load amounts are values for entire site).



Inquiries

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4-1-3 Kyutaro-cho, Chuo-ku, Osaka, Japan 541-8566

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