

## A Partnership Dedicated to Japanese Culture



The Mitsubishi Corporation Japanese Galleries tell a rich and fascinating story about the evolution of Japanese culture

In January 2008, The British Museum and Mitsubishi Corporation (MC) announced a 10 year partnership that sees Mitsubishi Corporation sponsoring the permanent galleries dedicated to Japanese culture in the Museum.

The Mitsubishi Corporation Japanese Galleries, as the galleries are now known, features objects from the Museum's extensive Japanese collection, the most comprehensive in Europe. It includes art objects, antiquities, and ethnographic and historical items dating from ancient prehistory to the present day. Through specially chosen items, the exhibit depicts a chronological story highlighting the continuities of Japanese culture over the centuries, up to the most recent history. Star objects include an impressive Samurai lord's clock, enigmatic *haniwa* tomb figures, medieval Buddhist statues, Samurai armor and swords, beautifully crafted contemporary ceramics, and even modern manga. These objects help to show visitors about the unfolding of Japan's past.

On Wednesday, February 27, an event to launch the start of this new partnership was held in the galleries. MC's Senior Corporate Adviser and former President and Chairman Mr. Minoru Makihara was present to give a speech on behalf of the company, and nearly 300 distinguished guests from the worlds of business, politics, academia and entertainment gathered together to commemorate the partnership and to appreciate the fine exhibits on display. The event was a true celebration of Anglo-Japanese relations and underlines the long-standing affection and mutual appreciation that exists between Japan and the UK.

MC supports a diverse range of environmental, developmental and cultural projects worldwide and this partnership with the Museum represents a cornerstone of its commitment around the world.

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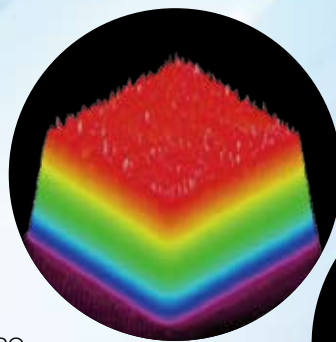
## A Bright New Step in Cutting-edge Laser Technology

**Mitsubishi Cable Industries** has established a solid reputation as a manufacturer and seller of optical fibers for laser oscillators and other laser-related optical products. These optical fibers, also called laser guides, are specially treated with rare-earth elements and used to amplify the initial energy source to a high-energy state before the beam is produced.

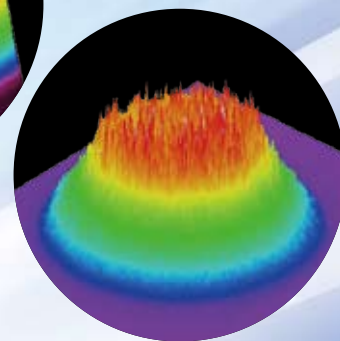
The company has now developed a new type of laser guide, the Diaguide® SQ Series, that allows the beam to be shaped according to its purpose. Until now, laser guides have produced lasers that are most intense at the center, with energy density gradually decreasing toward the edges. However, Diaguide® SQ can shape the beam into a so-called "top hat" pattern, meaning that the beam is as intense at the outer edges as it is in the center. Top hat beams are often used for industrial purposes, for instance when drilling holes or cutting.

Not only can the Diaguide® SQ Series produce top hat beam patterns without the need for complex optics, it can also dramatically reduce processing times, since it eliminates the need for overlapping beam spots during processing.

In January, the new laser guide drew much interest at the Photonics West 2008 industry fair in the U.S. With samples now shipping, Mitsubishi Cable Industries will continue to expand its range of fiber sizes. ♦



A "top hat" laser beam is equally strong everywhere



A conventional laser beam is strongest in the center

## A Natural Match

Fires and kilns are a natural match. So, when Millea Holdings, Inc. announced in December 2007 that it would acquire Kiln, Ltd., a major insurance group active in Lloyd's of London, through its subsidiary **Tokio Marine & Nichido Fire Insurance**, it is only fitting that the move was warmly anticipated by all sides.

Millea Holdings is actively expanding its international business with the aim of becoming a global top-tier insurer. Over the last few years, the company has focused on entering growing markets such as Brazil, India, China and other Asian countries through strategic options including M&A. In addition, it has steadily expanded its insurance and reinsurance operations in Bermuda and London.

The acquisition of Kiln through Tokio Marine & Nichido Fire Insurance, which was completed in March 2008, will significantly boost the company's international operations.

While expanding the scale of business and profits globally, Millea Holdings also gains a position in the Lloyd's market, one of the most prominent insurance markets in the world. Kiln, a global insurance group, is one of Lloyd's largest managing agents in terms of underwriting capacity.

Finally, Kiln's competitive advantages—strong underwriting discipline and expertise, skilled employees and a strong brand—are a powerful addition to Millea Holdings' high credit rating, underwriting capacity and global network. The result is a strong platform for international commercial insurance and reinsurance operations. ♦



(Left) Mr. Edward Creasy, Group Chief Executive Officer, Kiln Ltd.  
(Right) Mr. Shuzo Sumi, President, Tokio Marine & Nichido Fire Insurance

## Pressing Ahead with Printing Technology

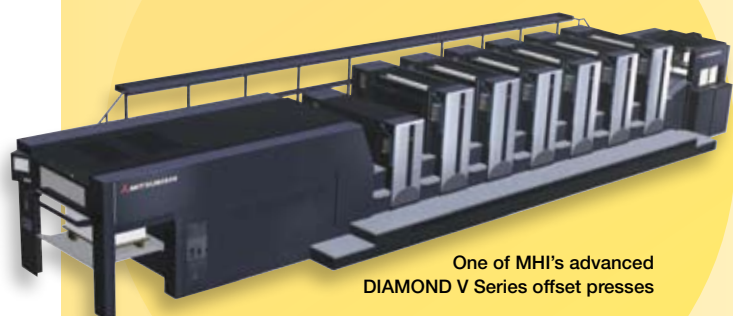
The printing industry, always hungry for enhanced quality, certainly got its fill this year at drupa 2008, the world's largest international graphic art exhibition for this industry. At the show, held May 29–June 11 in Düsseldorf, Germany, **Mitsubishi Heavy Industries** (MHI) unveiled three new models for its DIAMOND V Series of sheet-fed offset presses.

The DIAMOND V Series builds on MHI's acclaimed DIAMOND Series, and is the first revamp in seven years. The release last fall of the first model V press, DIAMOND V3000, a straight printing offset press for sheet sizes up to 1050 x 750 mm, caused a stir in the industry.

The new models shown at drupa 2008 have all been designed to minimize maintenance time, warm-up time and waste caused by printing imperfections. The DIAMOND V3000LX is made for high-quality printing over a wide paper thickness range, while the DIAMOND V3000R is a

convertible perfecting press for both single-side and double-side printing. Finally, DIAMOND V3000TP is a dedicated one-pass perfecting press that applies MHI's proprietary technologies for full printing on both sides without tumbling the sheet.

All three also accommodate SimulChanger, the industry's first fully automatic plate changing system that enables all printing plates to be removed and mounted simultaneously in less than 75 seconds. The presses also accommodate the optional DIAMOND Color Navigator system, which greatly facilitates color adjustment—a task that normally requires a high degree of skill. ♦



One of MHI's advanced DIAMOND V Series offset presses

## LED There Be Light

It seems that the days of the halogen lamp, commonly used for product illumination in retail stores and other indoor spotlight applications, are numbered. As concerns over global warming grow, highly energy-efficient lighting fixtures based on LEDs (Light Emitting Diodes) are becoming increasingly widespread.

Entering this increasingly crowded market, **Mitsubishi Electric** recently introduced its AKARI-LEDs Spotlight Series of in-store LED-based lighting fixtures. The six models in the new series, which are so far only available in Japan, are exceptionally energy-efficient. While the spotlight intensity and focus is fully equivalent to that of halogen lamps, power consumption is only 11 W, less than a third of the electricity used by standard halogen lamps. Also, the service life is over ten times longer—some 40,000 hours for a single light. This performance translates into annual CO<sub>2</sub> emissions of around 12.5 kg/m<sup>3</sup>, equivalent to 32% of the emissions of a 35 W halogen lamp and 22% of the emissions of a 50 W halogen lamp.

But, it doesn't stop there—the new lights look good too. The six models, which are available in different combinations of light color and beam angles to meet a variety of in-store presentation requirements, come in a stylish thin-body design that won the prestigious Good Design Award in 2007. ♦



The AKARI-LEDs Spotlight Series is both highly energy-efficient and stylish

## Two of the World's Most Sustainable Corporations

For the second year straight, **NYK** and **Mitsubishi Heavy Industries** (MHI) have been ranked among the Global 100 Most Sustainable Corporations in the world. The Global 100, launched in 2005, is an annual research and ratings project conducted jointly by Innovest Strategic Value Advisors Inc. and Corporate Knights Inc. The chosen 100 companies, which come from a variety of industries, are announced each year at the World Economic Forum in Davos, Switzerland.

Innovest Strategic Value Advisors Inc. specializes in analyzing correlations between a company's shareholder value and "non-traditional," or non-financial, corporate risk drivers. These include environmental and social issues, as well as matters related to maintaining effective and ethical corporate governance. The company picks the top 100 on the grounds that they surpass their industry peers in their ability to understand and manage such non-financial corporate matters.

This year, out of about 1,800 candidate companies, the top 100 were from 17 countries, and NYK and MHI were among 13 companies selected from Japan.

For more information on the Global 100, see <http://www.global100.org>. ♦



The prestigious Global 100 mark

## Mitsubishi Corporation in Food Hygiene Consulting Alliance

In February 2008, BML Food Science Solutions, Inc. (BFS), a joint venture established by BML Inc. and Mitsubishi Corporation, announced a business alliance with CCIC Shanghai Co., Ltd. The new alliance aims at expanding BFS' food hygiene consulting business in China with high-value services. The two partners have agreed to work together to provide and enhance risk management support services in the food sector amid growing public concern about the food safety of exported Chinese food products. CCIC aims to offer services to foreign companies, especially Japanese-affiliated firms, moving into China, using food inspection and hygiene consulting know-how developed by BFS in Japan.

## NEWS Flashes

### Mitsubishi Rayon Subsidiary Provides Technology for New Singapore Wastewater Treatment Project

Mitsubishi Rayon Engineering Co., Ltd. (MRE), a subsidiary of Mitsubishi Rayon, and Nitto Denko Corporation (Nitto) have signed a basic agreement with Singapore's national water agency, the Public Utilities Board (PUB), regarding joint development of wastewater reclamation technologies.

MRE and Nitto will provide PUB with their membrane bioreactor technology for treating activated sludge, as well as reverse osmosis technology. Provided via Kathyd Technology LLC, a water treatment technology firm established by MRE and Nitto in the U.S. in June 2007, these technologies will be used in a planned large-scale water reclamation facility in Singapore. The two companies will also work with PUB to develop cost-effective technologies for the maintenance, operation and administration of these membrane separation systems.

## AMPAC Convenes in New York

On April 11, 2008, the American Mitsubishi Public Affairs Committee (AMPAC) convened in New York for its first biannual meeting for this year. The meeting was hosted by Tokio Marine Management, Inc., which manages the operations of the U.S. branch of Tokio Marine & Nichido Fire Insurance and its affiliated U.S. insurance companies.

In addition to status reports detailing continued good performances from a number of member companies, CSR topics featured prominently on the agenda as many member companies are now actively engaged in environmental initiatives.



This time, the AMPAC members convened at the Nippon Club in New York



## Innovative Energy Dazzles at Solar Power Business Event

At any given time, an astounding amount of solar energy, some 175 billion gigawatts, hits the Earth. Although some is reflected back into space and some absorbed by the atmosphere, the amount of energy reaching the surface is vastly beyond human needs.

As concern over global warming and rising oil prices mounts, the race is on to find ways of harnessing this clean energy source cheaply and efficiently. Although solar, or photovoltaic (PV), power generation cannot yet replace fossil fuels, the technology is rapidly advancing. Every year, important steps are being taken to lower unit production costs and raise conversion efficiency and output.

The 1st International Photovoltaic Power Generation Expo (PV EXPO 2008), organized by Reed Exhibitions Japan Ltd. and held February 27–29, 2008 at the Tokyo Big Sight exhibition center, showcased the very latest technologies in this booming field. The sold-out event, in which 301 exhibitors from 17 countries and regions shared 11,520 m<sup>2</sup> of floor space, attracted over 27,000 industry professionals from all over the world.

Among the exhibitors were **Mitsubishi Heavy Industries (MHI)**, **Mitsubishi Materials** and **Mitsubishi Cable Industries**. MHI showed two new high-performance photovoltaic modules: one amorphous silicon thin-film module with a power output 10% above that of standard crystalline silicon types; and one micromorph tandem-type module with 11% conversion efficiency.

Mitsubishi Materials, meanwhile, demonstrated a range of advanced materials capable of raising the performance of photovoltaic modules, for instance by improving the conductivity of connecting nodes and controlling power surges. Mitsubishi Cable Industries showcased a wide variety of components related to photovoltaic production, including seal products for solar cell manufacturing machinery.

PV EXPO 2008, Japan's first major business event focused on the photovoltaic industry, was combined with conference sessions featuring plenty of networking opportunities and speeches by key industry figures. Nearly 4,000 people attended these sessions.

After the sensational debut of the 2008 event, Reed Exhibitions Japan Ltd. is now organizing the 2nd International Photovoltaic Power Generation Expo (PV EXPO 2009), to be held February 25–27, 2009 in Tokyo Big Sight's West Halls 1 and 2, where 1.5 times more exhibition space will be available. With more than 160 companies left on the waiting list for PV EXPO 2008, the 2009 exhibition will gather up to 400 exhibitors from around the world for another dazzling display of innovative energy.



A high-performance amorphous silicon thin-film PV module



New slot die for manufacturing thin-film panels

Mitsubishi Materials owns 14,513 hectares of forest in Japan, most of it on the northern island of Hokkaido



## Stepping Up Forest Protection

At a time of growing international efforts to combat global warming, **Mitsubishi Materials** is implementing a wide-ranging management plan for its corporate forest holdings. Under this plan, launched in April 2005, the company is using its extensive forest properties as a CO<sub>2</sub> sink, and stepping up its land, water and biodiversity conservation activities.

Mitsubishi Materials has managed forest since the 19th century, when it used forests around its facilities for mine timber and charcoal fuel. Today, the company owns some 14,513 hectares, making it one of Japan's largest forest owners. About 51% of this property, which is mostly located on Japan's northern island of Hokkaido, consists of tree plantations.



The tree planting in Kagawa Prefecture was attended by 1,400 people

Mitsubishi Materials has actively worked with local communities to promote environmental rehabilitation. Initiatives here include a large-scale tree-planting festival at the company's smelter in Kagawa Prefecture in March 2006, where some 1,400 people gathered to plant a total of 20,000 saplings from 39 indigenous species.

Under the forest management plan, Mitsubishi Materials is now stepping up such initiatives. To devise more effective conservation measures, the company has drawn from research by Professor Akira Miyawaki, Professor Emeritus at Yokohama National University and a leading authority on plant ecology whom the company invited in January 2006 to study the impact of smoke and other effects of smelting on surrounding forests.



## Netting Reader Opinions of Corporate Environmental Reports

The Internet is a rapid and cost-effective means to conduct surveys. An Internet research service named "goo Research" combines the resources of NTT Resonant, operator of the popular Japanese goo web portal, with the research planning and consulting capabilities of the **Mitsubishi Research Institute**, one of Japan's leading think tanks.

In February 2008, goo Research released a milestone reader survey of environmental and social reports, known as sustainability reports or corporate social responsibility (CSR) reports. The findings are summarized here:

1. 45.8% of respondents are aware of or have read CSR reports, while almost one-half were unaware that such reports existed.
2. At 45.5%, the most common problem was that it was not easy to compare companies' CSR reports. Also, compared with a survey held in 2000, the percentage of respondents complaining about too-technical terminology in the reports rose by 21.2%.
3. The primary environmental problem for general consumers was global warming, at 81.6%. This high percentage resulted from frequent news coverage of environmental issues, as well as news about this year's G8 summit at Japan's Toya Lake. Compared with the 2005 survey, the percentage among single women below 30 rose by 17.5%. The younger generation is clearly increasingly concerned about global warming.



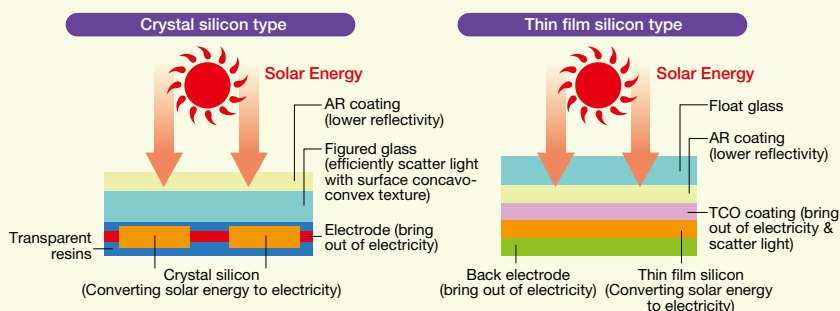
## Investing in the Sunny Future of Solar Power

The world market for solar, or photovoltaic, power is growing at a phenomenal rate. Between 2004 and 2007, worldwide annual photovoltaic power generation grew more than threefold to approximately 3.5 GW, and it is expected to grow by about 40% annually. In response, **Asahi Glass** will now invest ¥13 billion (US\$127.4 million) in enhancing its glass production for photovoltaic modules.

At present, crystal silicon solar cells are most common. In these, the silicon is protected by special cover glass that reduces sunlight reflections through etched-in bas-relief patterns. Asahi Glass will build a new furnace for such cover glass in Suzhou, China, adding to production facilities in the U.S., Belgium and the Philippines. The new furnace, capable of producing 240 tons/day, or 7 million m<sup>2</sup>/year, will start mass production in mid-2009. The company will also expand its capacity in the growing area of thin-film solar cells, which are coated with a transparent conductive oxide (TCO) that conducts electricity.

Asahi Glass manufactures TCO glass substrates in the U.S. and Thailand, and applies coatings in the U.S. and Japan (at the Aichi Plant, Aichi Prefecture). Now, it will substantially expand its TCO coating line at the Aichi plant, as well as launch TCO substrate production in Europe. The new coating line will start in late 2008 and have a capacity of 6 million m<sup>2</sup>/year.

Under its medium-term plan JIKKO-2010, Asahi Glass aims to raise the sales of its solar cell glass business to ¥60 billion by fiscal 2010, up from ¥12 billion in fiscal 2007.



The mechanisms of conventional crystal silicon solar cells and thin-film solar cells



## Less Swirl, More Twirl

Under the dual pressures of global warming and rising raw material prices, the need to boost the fuel efficiency of merchant ships has become greater than ever.

Changing and slimming the shape of the hull only works to a certain extent, as there is a limitation as to how high cargo can be stacked. Instead, more substantial fuel savings can be achieved by eliminating the efficiency-reducing swirls occurring just ahead of the propeller, and thereby improve the flow of the water.



Attaching the MT-FAST pre-swirl stator improves a ship's fuel economy

An affiliate company of the **NYK** Group, Monohakobi Technology Institute, has now, together with Tsuneishi Holdings Corporation, developed such a fuel-saving device, called MT-FAST (patent pending). Experiments have shown that the device, a so-called pre-swirl stator that is attached just ahead of the propeller, can reduce fuel usage by about 4%. Importantly, MT-FAST is not only for new ships, it can also be retroactively fitted to existing ones.

With the patent pending, the NYK Group plans to fit the first MT-FAST to a wood-chip carrier that will start operating from June. After that, NYK will fit the fuel-saving appendage to other NYK and NYK Group bulk carriers. By analyzing and recording the fuel-saving effects of the appendage during actual sea voyages, NYK will work toward further improvements of the device.



## Recognized for Corporate Caring in Hong Kong

To encourage a spirit of social service among the general public in cooperation with the business community and the social welfare sector, the Hong Kong Council of Social Service, an umbrella organization of over 300 non-governmental organizations (NGOs), launched the Caring Company scheme in 2002.

The Tokio Marine and Fire Insurance Co. (HK) Ltd. (TMF (HK)), a member of the Millea Group and operating arm of **Tokio Marine & Nichido Fire Insurance**, was awarded Caring Company status for the years 2007/2008.

The selection process is quite rigorous, involving initial screening by the Caring Company Steering Committee, followed by direct interviews and finally a second



TMF (HK) management celebrate the awards with staff from charity organizations

screening by an adjudication panel consisting of high-caliber leaders.

Qualifying companies are required to meet at least two out of six key criteria, which include encouraging social contribution by employees, a friendly working environment and environmental and ecological protection activities. TMFHK was approved in four of the six.

Awarded companies and organizations are entitled to use the Caring Company logo on name cards, stationery, corporate publications and other materials. The use of this logo helps to build an image of good corporate citizenship in the minds of customers, employees and the general public.



## Are You OK? Yes, Thank You For Asking!

“Are you OK?”—the most natural question in the world, and yet one that we do not ask strangers very often in the rat race of life.

In October 2007, the *Daijobu* Campaign, a program of educational events about crime prevention and disaster preparedness, was launched throughout Japan to change this. The campaign's name—meaning “Are you OK?”—reflects its aim of contributing to an increasingly conscious society; one that is becoming

more and more aware of keeping its children safe from crime, accidents and natural disasters.

Administered by the *Daijobu* Campaign Organizing Committee, it is sponsored by the Japan Crime Prevention Association and other organizations, and supported by central and regional authorities. **Mitsubishi Corporation, Mitsubishi Heavy Industries, Tokio Marine & Nichido Fire Insurance, Bank of Tokyo-Mitsubishi UFJ and Meiji Yasuda Life Insurance** are also sponsoring the campaign.

In recent years, experts and specialists have seen a need to educate the public about crime prevention and disaster preparedness in partnership with local communities. Not only are crime statistics for assaults and bodily harm against children on the rise; in Japan, knowing how to reduce the impact of natural disasters, such as earthquakes, is also extremely important.

By March 2008, a number of cities, including Tokyo, Kobe and Nagoya, had held *Daijobu* events. One of the biggest was *Daijobu* Week, held in Tokyo's Shibuya district in early March, where a wide range of fun, yet educational activities concluded with a grand finale—a concert by bands from the National Police Agency, the Japan Coast Guard and the Tokyo Fire Department. The *Daijobu* Campaign will run throughout 2008.



*Daijobu* campaign participants learning how to use a fire extinguisher



## Helping All Children Find Their True Place in Society

The Mitsubishi Electric America Foundation (MEAF) is a small foundation with a big mission. Since its establishment in 1991 by **Mitsubishi Electric** and Mitsubishi Electric US, MEAF has worked to make “Changes for the Better” for the one-out-of-five Americans of student age who have physical, mental, or learning disabilities.

To date, the Foundation has contributed more than US\$9 million to help young people with disabilities become fully included in society.

In February 2008, MEAF announced US\$1,117,000 in new grants.

Six new national

MEAF helps youth with disabilities to participate fully in community life

projects will receive US\$879,000 while continuing multiyear projects will receive US\$90,000. In addition, MEAF will provide US\$148,000 to match employee-directed grants benefiting company communities and individual donations to charity.

“MEAF's Inclusion Initiative has opened up opportunities for youth with disabilities in community programs,” says Rayna Aylward, executive director of the Foundation. “Equally important, it is changing attitudes among people without disabilities. The leadership of national organizations, such as the Boys and Girls Clubs, have begun to embrace the value of inclusion—helping to demonstrate that youth with disabilities can and should be fully included in society. These new grants are designed to keep the momentum going.”



# A Material for the 21st Century

>> MITSUBISHI PLASTICS, INC.

Carbon fibers, each far thinner than a human hair, are truly wonders of technology. Due to their strength, durability and unique thermal properties, they are highly promising for use in a wide variety of industrial fields.

With its extensive experience of carbon chemistry, Mitsubishi Chemical has established itself as a leading global manufacturer of carbon fibers. Mr. Akira Nakagoshi, who managed the Carbon Fiber Technical Group at Mitsubishi Chemical Functional Products, Inc. prior to the company's integration into Mitsubishi Plastics in April 2008, talks to the *Monitor* about these achievements.

Akira Nakagoshi, Senior Manager,  
Carbon Fiber Department, Carbon Fiber Technical Group, Industrial Materials Division



## Q Please give an overview of your company's experience of carbon fiber development.

Carbon fiber was an innovative technology for Mitsubishi Chemical Functional Products, and is now also an area of innovation for Mitsubishi Plastics following the integration this spring. The achievements in this area reflect seven decades of carbon chemistry experience. Our carbon fiber business began with the development of derivatives from coal tar produced during the manufacture of coke.

A strand of carbon fiber is a collection of black fibers 10 times thinner than human hairs. PAN-based carbon fibers are made from synthetic acrylic fibers, and pitch-based carbon fibers from petroleum or coal. Japanese companies now have a 70% share of the world markets for both types. Our DIALEAD® range of products were the first carbon fibers in the world to be developed from coal tar pitch. Compared with PAN-based carbon fibers, which are used in aircraft parts and other applications that require material strength at a standard degree of stiffness, DIALEAD® carbon fibers offer other advantages, including not only a high degree of stiffness but also thermal conductivity and zero thermal expansion. The last property, which means that the material does not at all expand as temperatures increase, is particularly valuable.

## Q What challenges did Mitsubishi Chemical Functional Products face during the development and introduction of DIALEAD®?

Commercial production of DIALEAD® started in 1987, but it was not until the mid-1990s that it began to be used in industrial applications, for instance rollers and beams. DIALEAD® printing rollers have gained an excellent reputation because of their rigidity, which allows them to rotate at a very high speed, and because of their lightness, which makes them easier to maintain. They are also highly regarded as high-performance film rollers capable of preventing wrinkling.

Mitsubishi Chemical Functional Products came close to abandoning this business segment. However, between 1993 and 1995, we found a new path to success in the European market. Europe is a major center for aircraft manufacturing, and there are many companies involved in the molding and processing of composite materials. We spent 140–150 days each year explaining the properties of carbon fiber. A key characteristic of pitch-based carbon fiber is its ability to resist excessive flexing. The first company to take advantage of this was a manufacturer of fishing rods. A French satellite manufacturer was delighted to find that our carbon fiber had a zero thermal expansion ratio. We learned that our products could be used in ways that we had never imagined.

## Q What are some of the uses for DIALEAD® today?

As pitch-based carbon fiber does not expand as temperatures increase, it was used in the construction of the ALMA radio telescope facility in the Chilean highlands. At this high-precision facility, researchers study the universe by combining the signals received by an array of 80 antennae, a process called interferometry.

However, if even one antenna was out of alignment due to temperature variations, this array could not produce images. After

studying the thermal expansion properties of various materials, the designers eventually selected our carbon fibers.

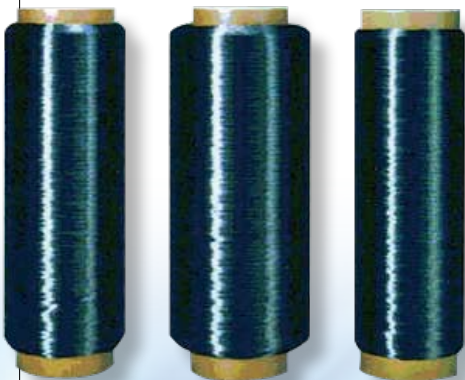
Pitch-based carbon fibers also have excellent vibration-damping properties and are ideal for vibration-sensitive products, such as components for industrial robots in LCD TV factories. The hands of the robots used to carry glass substrates must be able to fully damp vibrations quickly. Here, DIALEAD® is helping to reduce processing times.

DIALEAD® is also used as a reinforcing material in the construction industry. When applied to just 8% of a cross-sectional area, strength is doubled. It was used on the London Underground to strengthen over 400 cast-iron pillars, which had cracked due to rusting during the 120 years since their construction.

## Q What is the future for carbon fiber?

This is an area of huge potential. Carbon fiber is expected to play a leading role in the reduction of greenhouse gases, as it improves energy efficiency by reducing the weight of vehicles and other machinery. Also, because it can be used to strengthen existing structures, it reduces the need for new resources.

Carbon fiber is also playing a role in Europe's expanding wind power generation industry as the material for wind turbine blades. Some of the larger turbines have rotor diameters exceeding 100 meters. The world's largest, currently under construction in Germany, has a rotor diameter of 127 meters and will be able to generate over 6 MW of electricity. When generating capacities reach the 10 MW level, blade diameters will need to reach some 180 meters, and it will be necessary to find solutions for the problems of vibration and distortion. Over the next 10 years, I believe we will see many carbon fiber products contributing to the solution of environmental problems.



DIALEAD® carbon fibers offer many important technological advantages

## Celebrating Two Stars' Tragic Romance

To a visitor from abroad it soon becomes obvious that a Japan without summer festivals would be like Holland without tulips. Festivals are an inseparable part of the national experience, and not to be missed.

One of the oldest and most widely respected festivals is *Tanabata*. It is so old, that Japanese cannot pin down the exact origin of its name, but all agree the festival is based on a very old Chinese tale of star-crossed lovers. A princess named Orihime lived beside the River of Heaven (the Milky Way) and wove cloth for her father, the king of the heavens, Tentei. Moved by his daughter's loneliness, Tentei arranged for her to meet a cowherd named Hikoboshi. The two fell in love and wed, but soon neglected their work. An angry Tentei banished the lovers to opposite sides of the river. Once a year, they may come together across a bridge of magpies for one night. Legend says that if it rains, the birds cannot fly and the lovers must remain apart for another year.

To mark this night, on July 7 (or sometimes on August 7), the Japanese will stick a freshly cut bamboo frond in their garden and decorate it with colorful streamers and other decorations—almost like a summer Christmas tree. Then they hang strips of paper containing their wishes on the bamboo's feathery branches. Later, the bamboo and its decorations are burned or set afloat on a river to carry the wishes to the two most famous stars in Japan.

### Mitsubishi Corporation Cairo Liaison Office

#### Ms. Safaa Saleh

Deputy Manager, Machinery Department, Food Business

## Egypt — the Gift of the Nile

● Located in Africa's northeast corner and a hub of world trade since ancient times, Egypt was described by the historian Herodotus as the "gift of the Nile." This rings as true today as it has through seventy centuries. The River Nile, the world's longest river at approximately 6,650 km, is a vital source of irrigation, making the surrounding land rich and fertile. Along the Nile flows a storied past, deep with the wonders of a lost civilization.

● A discussion on Egypt must include the Pyramids, one of the world's seven wonders. The Pyramids are still a matter of debate; no one is sure how the Egyptians managed the complex organization of labor and the physical movement of the large stone blocks. But, they are certainly impressive!

Awe-inspiring monuments of ancient Egypt; the Sphinx and the Great Pyramid of Giza



● Just as the ancient Egyptians displayed flair and originality in building the

Pyramids, Egyptians today are advancing greatly in a number of fields. Several Egyptians have won the Nobel Prize, such as former President Anwar Sadat (Peace, 1978), Naguib Mahfouz (Literature, 1988) and Professor Ahmed Zewail (Chemistry, 1999).

● Mitsubishi Corporation's (MC) Cairo Liaison Office is involved in many different fields, with rolling stock at the core. In 1987, Cairo became the first Middle Eastern city to introduce a subway, bringing the inhabitants of one of the world's most congested cities a welcome relief.

● MC has supplied Light Rail Vehicles (LRVs) to Egyptian customers since the mid-60s, and began in 1993 to supply cars for the new subway. Since then, MC has supplied the Cairo Metro with 460 cars, which serve more than 2 million passengers daily in a very comfortable and environment-friendly fashion. In addition, our Machinery Department promotes overseas aid projects to supply farming equipment. Welcomed by Egyptian farmers, this has helped develop the country's agriculture.

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