

ZEON Corporation's R&D Center, which consists of 10 research laboratories in Kawasaki and one in Takaoka, serves as the core research and development unit of the ZEON Group (ZEON Corporation and its consolidated subsidiaries). Also, the Quality and Technology Section is shared by the Takaoka, Kawasaki, Tokuyama and Mizushima Plants. Meanwhile, Zeon Chemicals Limited Partnership Laboratory in the United States and the research group of Zeon Chemicals Europe Ltd. in the United Kingdom carry out research and development overseas.

These research units engage in research and development activities with a global perspective based on ZEON's basic R&D policy — to contribute to society by creating world-leading business through the development of unique technologies in the specific fields in which ZEON excels — in close cooperation with relevant sections.

### ■ Elastomer operations

(synthetic rubbers, latices and chemicals)

- Our research units in Japan, the United States and Europe, as world leaders in specialty synthetic rubbers including H-NBR (hydrogenated nitrile rubber), NBR (acrylonitrile butadiene rubber), ACM (acrylic rubber) and CHR (epichlorohydrin polymers), closely cooperated to develop new products, new applications and new markets. In addition, the study of appropriate compositions for various applications was promoted and relevant technical services were offered.
- For general-purpose rubbers, including SBR (styrene-butadiene rubber), BR (butadiene rubber) and IR (isoprene rubber), specialization was undertaken to develop new rubber for fuel-efficient tires and high-performance resin reforming.

- New product development was promoted for SB latices for coated paper, the major application of latices, and NBR latices for gloves. Relevant technical services were offered and efforts were made to cultivate new markets.
- Regarding Quintone petroleum resin for hot-melt adhesives and Quintac thermalplastic elastomer, new product development was carried out. Efforts were also made to cultivate new markets, and technical services for various applications were offered.



Precision Optics Laboratory Machining Building

### ■ Specialty materials

(specialty chemicals, specialty plastics, electronic materials, toners)

- We succeeded in developing a special solution for ether reaction cyclopentyl methyl ether (CPME) and began full-fledged production in November 2005. Further, in order to increase R&D efficiency for C5 chemicals, construction of a chemical laboratory building was begun in Yonezawa.
- For ZEONEX® series amorphous cycloolefin polymer, we developed, for pickup lenses, products that have high resistance to blue lasers, thereby improving performance in optical applications. New product development also made headway for other lens applications and medical equipment.
- For ZEONOR® series amorphous cycloolefin polymer, in addition to developing new applications and offering technical services, we also worked to develop new

precision optical films and diffusers.

- We succeeded in developing binders for next-generation active materials (ferric olivine) for lithium-ion rechargeable batteries.
- We proceeded with the construction of a building for machining work in our Takaoka Plant to further enhance our ability to study precision processing. The building was completed in March 2006.
- In the area of polymerized toners, in addition to work on existing monochrome toners, we continued the development of color toners as planned, aiming at commercialization. And we worked steadily to improve production technology in order to increase our production capacity in this area.



ZEONEX for blue laser pickup lens



Simulations team

## Topics

### ■ ZEON Completes Precision Optics Laboratory Machining Building in Takaoka

ZEON Corporation held a ceremony on March 31 to celebrate the completion of its Precision Optics Laboratory's machining building at the Takaoka Plant (Takaoka City, Toyama Prefecture).

The building was constructed to facilitate the improvement of the company's functions for optical design, precision mold design and processing, and in-house production of precision parts and prototype making, all of which are essential for ultraprecision forming and processing. This will increase the speed of research and development and keep relevant technologies under wraps.

Major equipment to be installed in the building includes a design simulation system for precision optical parts and ultraprecision components, machine tools for various types of ultraprecision processing and computer systems to control them, prototype forming machinery, and equipment to measure optical performance, environmental resistance and other data. The basic functions are to read the customer's design drawing, automatically produce three-dimensional images of the product, make the ultraprecision processing parts that are necessary for precision forming, and complete a prototype. These functions will be performed fully automatically. The building's computer systems were developed with the cooperation of INCS Inc.

For example, drawings of diffusion panels with patterns — functional materials to reduce power consumption of backlighting units for liquid crystal display televisions — will be read fully automatically on a product-by-product basis to enable the design optical pattern suitable for each product.

This mold-designing-and-making method will cut the time taken from mold making to prototype manufacture to one-seventh and reduce production costs to less than half. Accordingly, the company aims to contribute to the industry by shortening delivery time and cutting mold costs. At the same time, it will continue its efforts to put relevant technologies in place and strengthen the diffusion panel business.



### ■ ZEON Completes Chemicals Laboratory in Yonezawa

ZEON Corporation held on April 24 a ceremony to celebrate the completion of a chemicals laboratory building at its subsidiary ZEON Chemicals Yonezawa Co., Ltd., in Yonezawa City, Yamagata Prefecture.

This laboratory was created for two reasons. The first was to improve the company's scale-up research function in the development of new chemicals operations products, including synthetic aromas. The second reason was to increase the speed of product development through closer cooperation between the research and production sectors by locating the laboratory in Yonezawa, where the company has its production base.

The company will also return to in-house prototype production, which has been outsourced in part, in order to strengthen technologies for new product development and further increase security around them.

