

# Zeon Corporation – Takaoka Plant

## Takaoka Plant Profile

### Main Products

Specialty synthetic rubbers, semiconductor-related products

Established in 1956, Takaoka Plant is a leading Zeon Group plant producing specialty synthetic rubbers and semiconductor-related products. The affiliated companies Optes Inc. and Zeon Medical Inc. are also located on the Takaoka Plant grounds. The Takaoka Plant has an R&D focus, with the Precision Optics Laboratory, Production Technology Laboratory, and Medical Research Institute operating within it. This enables greater integration between research and manufacturing to shorten the product development timeline.



Aerial view of Takaoka Plant

## Plant Policy by the Plant Manager

To handle production for new business in Zeon's future, Takaoka Plant aims to achieve visualization of stability, safety, and technology, build a cost-focused flexible production system, and transform into an R&D-focused plant resilient to change. The Takaoka Plant will carry out the following activities in FY 2018, with a strategy that emphasizes engaging in dialog in regard to "How can we achieve our goals?", pooling our collective wisdom, and working to realize the production management indicators specified for the second year of implementation of Phase III of the SZ-20 medium-term management plan.



Takaoka Plant Manager  
Koichi Asano

Implementing compliance thoroughly and building on the foundation provided by production innovations, we aim to achieve the following goals.

1. Realize safe, secure production through the implementation of the industrial safety, environmental and quality management systems, so as to achieve the goal of "zero incidents, zero accidents, and zero pollution."
2. Make effective use of visualization and ZΣ activities to realize cost savings and production technology enhancement, to become a production base for both existing and new businesses.
3. Implement work style reform to achieve the goal of enabling every employee to achieve personal growth, and to realize the vision of creating a workplace in which all employees can participate to the best of their ability.

## Safety Initiatives

### Safety Policy

#### 1. We are committed to reducing the incidence of safety incidents and safety irregularities to zero.

There is a risk that the high-pressure gases and hazardous substances handled at our plant could cause a serious accident if handled incorrectly. In regard to accident prevention, we are focusing on strengthening employee awareness and developing measures to ensure safety.

**2. We undertake safety management activities with an awareness of our plant's characteristics.**

Our plant is located near residential areas, so the impact of an accident or irregularity would not be confined to our plant and our customers; it could also cause serious harm to local residents. We aim to eliminate safety incidents and irregularities, create a workplace in which employees can work with peace of mind, and be an enterprise that is trusted by the local community, to ensure that local people can go about their daily lives with a sense of security.

**3. We comply with safety-related laws and regulations, agreements, and rules and regulations that we have established ourselves.**

Besides complying with safety-related laws and regulations, we also comply with agreements that Zeon Corporation and our plant have entered into, and with internal rules and regulations.

**4. We implement an ongoing cycle of improvements.**

Taking "Safety First" as the foundation, we undertake ongoing development and improvement of our technologies and management techniques. To this end, we set safety management targets which we adjust on an annual basis, and we are constantly striving to achieve an even higher level of safety.

Besides revising and improving our safety management activities, we periodically revise and improve our safety management system and enhance its content.

## Environmental Impact Reductions

### Environmental Policy

**1. We are committed to reducing the incidence of environmental incidents and environmental irregularities to zero.**

There is a risk that the high-pressure gases and hazardous substances handled at our plant could cause serious environmental pollution if handled incorrectly. In regard to the prevention of accidents and environmental pollution, we are focusing on strengthening the awareness of all employees and implementing related measures.

In addition, we are working towards the goal of achieving zero emissions, to help protect the environment not only on a local scale, but on the global scale as well.

**2. We undertake environmental improvement activities based on an awareness of our plant's special characteristics**

Our plant is located near residential areas, and relies on the Oyabe River for discharging industrial wastewater, so the impact of an accident or irregularity would not be confined to our plant and our customers; it could also cause serious harm to local residents. We aim to eliminate environmental incidents and irregularities, create a workplace in which employees can work with peace of mind, and be an enterprise that is trusted by the local community, to ensure that local people can go about their daily lives with a sense of security.

**3. We comply with safety-related laws and regulations, with agreements that Zeon Corporation and our plant have entered into, and with internal rules and regulations.**

Besides complying with environment-related laws and regulations, we also comply with agreements that Zeon Corporation and our plant have entered into, and with internal rules and regulations.

#### **4. We implement environmental improvements on an ongoing basis**

We develop and improve economically viable technologies and management techniques on an ongoing basis.

To this end, we set environmental management targets which we adjust on an annual basis, and we are constantly striving to achieve an even higher level of environmental protection.

We also periodically revise and improve our environmental management system and enhance its content.

#### **Scope of the Environmental Management System**

(1) Organizational unit: Departments of the Takaoka Plant, Zeon Corporation

Function: Manufacturing of and pilot research on synthetic rubbers, and manufacturing of electronic materials

Physical boundary: The entire area of the Takaoka Plant, Zeon Corporation, located at 630 Ogino, Takaoka City, Toyama Prefecture, Japan

In addition, although the buildings and grounds of Zeon Takaoka Group affiliated companies and laboratories are out of scope, support is provided for environmental aspects

(2) Organizational activities: Business processes from raw materials procurement through to manufacturing, packaging, storage and shipping

Products and services: Synthetic rubbers, synthetic latex, and electronic materials; providing information to customers, and responding to complaints from customers and the local community

(3) Authority and capacity of managing and influencing organizations: Head Office divisions (including design and development), partner companies (product logistics, disposal of industrial waste, etc.), and suppliers (companies supplying raw materials, etc.)

#### **Specific Initiatives**

##### **1. Reducing emissions of hazardous chemical substances**

·With a target of zero emissions, Takaoka Plant has installed new equipment to recover organic solvents and is reducing emissions of organic chemical substances in phases.

##### **2. Reducing industrial waste**

·We study ways to recycle 100% of resources recovered from new facilities and maintain a record of zero tons of industrial waste sent to landfills for disposal.

##### **3. Reducing impacts on air and water quality**

·We are substantially reducing our CO<sub>2</sub> emissions by operating high-efficiency boilers that use liquefied natural gas as fuel.

##### **4. Conserving resources and energy**

·We are conserving energy by operating high-efficiency boilers.

·We avoid using electricity at peak times to reduce peak energy demand.

## 5. Environmental Data

\* "0" indicates less than 0.5 tons, and "0.0" indicates less than 0.05 tons

Takaoka Plant		FY 2013	FY 2014	FY 2015	FY 2016	FY 2017
Substances subject to the PRTR Act	Consumption (tons)	16	21	17	22	44
	Emissions (tons)	0.0	0.0	0.0	0.0	0.0
Industrial waste	Amount generated before compacting (tons)	12,494	8,794	7,309	6,751	8,046
	Amount generated after compacting (tons)	1,056	437	363	336	400
	Amount sent to landfills (tons)	0.0	0.0	0.0	0.0	0.0
Atmospheric emissions	CO <sub>2</sub> emissions (tons)	22,546	20,825	20,964	20,654	21,167
	SO <sub>x</sub> emissions (tons)	3.2	0.0	0.0	0.0	0.0
	NO <sub>x</sub> emissions (tons)	13	1.7	2.5	0.2	0.3
	Soot emissions (tons)	0	0.0	0.0	0.0	0.0
Water resource consumption (1,000 m <sup>3</sup> ) (industrial water + groundwater + waterworks)		3,732	3,848	3,804	4,079	4,086
Wastewater	Total wastewater discharge (1,000 m <sup>3</sup> )	4,890	3,322	3,213	3,428	3,605
	COD emissions (tons)	18.9	12.7	12.6	16.1	15.9
	Total phosphorus discharge (tons)	0.8	0.3	0.3	0.3	0.3
	Total nitrogen discharge (tons)	20	14	14	15	12
Energy	Consumption (crude oil equivalent, kL)	8,986	8,290	9,380	9,605	9,473
	Unit consumption index (FY 1990 = 100)	104%	92%	102%	116%	81%
Production equivalent (tons)		53,945	56,609	54,616	52,844	57,863

## Relationship with Employees

### Policy

At the Takaoka Plant, we conduct human resource development with the aim of drawing out, developing, and mobilizing the potential of every employee.

### Specific Initiatives

We established the Takaoka Plant education scheme, which covers basic education, environmental and safety education, vocational education, and quality management education.

- Operator education: Education at the Monozukuri Training Center at Mizushima Plant for employees in their first to third years of employment
- Knowledge of plant operations: Operational skills education mainly through on-the-job training, practical education using emergency response drills and drills simulating abnormalities, and chemical engineering education using CAI to learn scientific principles

## Relationship with the Local Community

### Specific Initiatives

#### 1. Contributing to the community through volunteering

- Beautification activities in the area surrounding the plant
- Himi coastal cleanup
- Fushikikokubu coastal cleanup



Coastal cleanup

#### 2. Interactions with the local community

- We hold the Zeon Takaoka Group Summer Festival for local residents, employees, and their families to meet and interact
- We participate in local events, including the Futagami Manshou Kai industry–academia–government association, the Takaoka Manyo Festival in Takaoka City, and the Toyama Marathon in Toyama Prefecture



Zeon Takaoka Group Summer Festival

#### 3. Plant tours

We give plant tours to introduce the plant's production activities and initiatives.

- Plant tours for community residents and groups
- Plant tours for schools
- Plant tours for other companies
- Plant tours for employees' families



Plant tours