

Zeon Corporation – Tokuyama Plant

Tokuyama Plant Profile

Main Products

Butadiene monomers, synthetic rubbers, synthetic latex, polymerized toners, single-walled carbon nanotubes

Established in 1965, Tokuyama Plant is the main Zeon production plant for synthetic rubber using butadiene monomer extracted from naphtha. Approximately half of the synthetic rubbers it produces are exported from the nearby Port of Tokuyama to Europe, Asia, and other parts of the world. In 2015, Tokuyama Plant successfully mass-produced single-walled carbon nanotubes, a world first.



Environment and Safety Policy

The Tokuyama Plant has formulated the following environment and safety policy, based on being a petrochemical plant that handles high-pressure gases as well as hazardous and poisonous substances, and which is located in the Shunan Industrial Zone near residential areas and railway lines.

1. With the participation of all employees, we are committed to maintaining safe and reliable operations and to being a plant that is trusted by everyone in the local community.
2. We set targets and conduct activities in the areas of the environment, safety, and occupational health and safety; we aim to improve our various management systems on an ongoing basis, so as to enhance our environmental and safety performance.
3. We identify all sources of danger in the workplace, and by reducing and eliminating them, we aim to achieve zero occurrence of environmental and safety incidents and occupational accidents.
4. We strive to prevent environmental contamination and conserve energy, to help protect the environment.
5. We comply with environment- and safety-related laws and regulations, agreements, and internal rules and regulations; we also strive to maintain and improve our level of environmental and safety performance.
6. We strive to maintain and improve the physical and mental health of all employees, and to create a vibrant and engaging workplace.

Plant Policy by the Plant Manager

Policy

The motto of the Tokuyama Plant is “valuing smiles.” This means that it is vitally important for us to have the trust of everyone in the local community. To realize this goal, we have been implementing a policy of “safety first, no matter what,” and, striving to be a factory that is appreciated by everyone, we are continuing our efforts to become a plant characterized by stability and safety, thanks to the efforts of every employee to challenge themselves. Going forward, we will be working to become a plant that is supported by all, by remaining rooted in the local community and addressing social problems such as environmental issues.



Tokuyama Plant Manager
Tomohiro Shibuya

Safety Initiatives

Policy

Let's strive for further improvement!

Achieve “zero incidents and zero accidents” through the continued implementation of a self-directed improvement cycle.

Specific Initiatives

- Firmly establish four types of safety activities (risk awareness activities, activities relating to near-miss incidents, foolproofing activities, and risk assessment activities in relation to operations and chemical substances), develop self-directed activities, and prevent occupational accidents for everyone working at the plant.
- Prevent work environment related safety incidents by implementing continued improvement of the safety management system and by making risk identification more comprehensive.

Environmental Impact Reductions

Policy

Proceed with measures aimed at achieving our CO₂ emissions reduction target by 2030.

- (1) Promote the per-unit energy consumption improvement cycle and achieve the planned targets
- (2) Promote planning aimed at CO₂ emissions reduction

Scope of Environmental Management System

- (1) Organizational unit : Departments of the Tokuyama Plant, Zeon Corporation
 - Function : Manufacturing of synthetic rubbers, synthetic latex, film materials, and carbon nanotubes, and pilot research on synthetic rubbers and thermoplastic resins
 - Physical boundary : The entire area of the Tokuyama Plant, Zeon Corporation, 2-1 Nachi-cho, Shunan City, Yamaguchi Prefecture
- (2) Organizational activities : Business processes from raw materials procurement through to manufacturing, packaging, storage and shipping, and utility operations
 - Products and services : Synthetic rubbers, synthetic latex, film materials and carbon nanotubes, providing information to customers, and responding to complaints from customers and local residents
- (3) Authority and capacity of managing and influencing organization : Head Office divisions (including design and development), partner companies (product logistics, disposal of industrial waste, etc.), vendors (companies supplying raw materials, etc.)

Specific Initiatives

1. Reducing emissions of hazardous chemical substances

- We are striving to control emissions of PRTR substances through production process improvements and the effective operational management and monitoring of exhaust gas purification equipment.

2. Reducing industrial waste

- We are striving to maintain our record of zero waste sent to landfills by practicing the 3R's (Reduce, Reuse, and Recycle) in relation to industrial waste.

3. Conserving resources and energy

- We are working to improve our per-unit energy consumption and reduce our CO₂ emissions through day-to-day management and problem identification by the Plant's Energy Conservation Working Group and Energy Conservation Promotion Committee, and through the examination of technological counter-measures in coordination with related company-wide projects.

4. Reducing impacts on air quality and on water quality

- We are striving to reduce our NO_x, SO_x, and CO₂ emissions through stable operation of boiler equipment.
- We are striving to reduce our COD and total nitrogen emissions through effective operational management and monitoring of wastewater treatment facilities.

5. Environmental Data * "0" indicates less than 0.5 tons, and "0.0" indicates less than 0.05 tons

Tokuyama Plant		FY2016	FY2017	FY2018	FY2019	FY2020
Hazardous substances	Butadiene consumption (tons)	152,247	179,158	142,574	170,882	119,234
	Butadiene emissions (tons)	1.6	0.8	0.8	1.0	0.7
	Acrylonitrile consumption (tons)	13,476	19,060	16,654	18,769	13,934
	Acrylonitrile emissions (tons)	0.6	0.6	0.6	0.6	0.6
Substances subject to the PRTR Act	Consumption (tons)	347,496	412,431	342,547	397,462	286,779
	Emissions (tons)	2.9	3.0	1.9	2.4	2.0

Industrial waste	Amount generated before compacting (tons)	24,738	28,898	25,496	23,063	18,632
	Amount generated after compacting (tons)	5,208	4,932	5,222	4,080	3,941
	Amount sent to landfills (tons)	0.0	0.0	0.0	0.0	0.1
Atmospheric emissions	CO ₂ emissions (tons)	228,574	261,456	231,443	239,913	196,226
	SO _x emissions (tons)	603	796	689	770	579
	NO _x emissions (tons)	200	256	216	224	191
	Soot emissions (tons)	4.3	7.3	3.8	6.1	3.7
Water resource consumption (1,000 m ³) (industrial water + groundwater + waterworks)		8,703	8,705	7,852	8,063	7,854
Wastewater	Total wastewater discharge (1,000 m ³)	8,148	8,206	7,457	7,576	7,747
	COD emissions (tons)	49	52	47	61	50
	Total phosphorus discharge (tons)	0.7	0.6	0.5	0.7	0.7
	Total nitrogen discharge (tons)	25	26	22	30	24
Energy	Consumption (crude oil equivalent, kL)	93,669	105,323	93,430	103,451	86,810
	Unit consumption index (FY1990 = 100)	96%	92%	97%	94%	103%
Production equivalent (tons)		532,374	626,406	527,914	604,514	461,083

Relationship with Employees

Human Resource Development Policy

At Tokuyama Plant, we develop human resources through education programs designed to draw out, develop, and mobilize the potential of employees, based on the ideal of employees “working toward ambitious goals, always thinking things through and taking action independently, and remaining open to change.”

Specific Initiatives

- We implement employee education and training based on an education scheme that covers basic education, environmental and safety education, vocational education, quality management education, obtaining qualifications, and personal development.
- Basic education at the Monozukuri Training Center in the Mizushima Plant for employees in their first to third years of employment
- Transfer of specialized techniques and skills and developmental education
- Grade-specific education
- Support for obtaining qualifications

Relationship with the Local Community

Specific Initiatives

1. Contributing to the community through volunteering

- Beautification activities in the area surrounding the plant
- Higashikawa Cleanup Campaign
- Tree thinning in the forest that is the industrial water source, conducted jointly with other companies that use the industrial water and forest operators

2. Interactions with the local community

- Zeon Waraku Odori Dance Festival

We have held the festival since 1974 to deepen interaction with employees' families and community residents. Approximately 2,000 people participated this year.

- Participate in Responsible Care Council community dialogue events (twice/year)

We provide reports on our Responsible Care activities, including environmental improvements and safety measures, to local authorities and community representatives.

- Experimental classroom (making a super ball) (twice/year)

3. Plant tours

- Plant tours

Held in conjunction with Japan Responsible Care Council community dialogue events Leaders of residents' associations near the plant participated in the tours

- Summer vacation parent and child classroom (organized by the Chamber of Commerce and Industry)
Plant bus tours (twice/year)
- Plant tours for junior high school and senior high school students



Higashikawa Cleanup Campaign