

Tokuyama Plant

Introduction to Tokuyama Plant

[Establishment]

1965

[Main functions and products]

- Butadiene monomer
- Synthetic rubbers
- Synthetic latex
- Polymerized toner

Most of our products are exported overseas, and we are expanding global activities as Zeon Corporation's main synthetic rubber plant.



Aerial view of the Tokuyama Plant

Plant Policy (from Plant Manager)

[Policy]

With production innovation as the pillar of factory reform, in order to realize a stable and safe plant, we cooperate with the two group companies (Zeon Yamaguchi Co., Ltd.) and (Zeon North Co., Ltd.) and operate as a plant rooted in the local community.

With the watchword "Greetings and 3Ss (seiri, seiton, and seisou, or sort, straighten, and scrub) are the Foundation of Everything We Do." we are building a bright and lively plant through participation of all employees in production innovation.

We aim to be a plant that is trusted by society by making positive efforts to contribute to social challenges with every employee cooperating with the local community.



Tokuyama Plant Manager
Sachio Hayashi

[Concrete efforts]

- Collecting bottle caps and can tabs
- Higashi River Cleanup volunteer activities

Safety Initiatives

[Policy]

Safety First! Every employee takes responsibility and acts to achieve zero accidents and disasters.

[Concrete efforts]

- We promote the four integrated safety activities (risk prediction, risk assessment, nearmiss incidents, fool-proofing) and reduce work-related risks
- We inspect past change management and prevent accidents before they occur

Efforts to Reduce Environmental Impact

[Policy]

- Promotion of environmental impact reduction activities
- Continuation of efforts for zero emissions from industrial waste
- Steady reduction of CO₂ emissions

[Concrete efforts]

1. Reducing toxic chemical emissions

We introduced exhaust gas purification facilities in fiscal 2011 and can now stably control the emissions of PRTR substances. We will continue to reduce PRTR substance emissions and aim for zero emissions*.

* Zero emissions

Creating systems with zero emissions to the natural world, or the basic idea of aiming to create such systems.

2. Reducing industrial waste

We have continuously sent zero waste to landfill since fiscal 2010.

We will aim to reduce industrial waste further following the 3Rs of Reduce, Reuse and Recycle.

3. Saving resources and energy

We created an Energy Conservation Working Group and Energy Conservation Promotion Committee at the plant, and promoted improvement by setting medium- and long-term planning for technical challenges such as equipment that uses a large amount of energy. In addition, through thorough promotion of daily management, we set the goal of achieving 90% of fiscal 1990 specific energy consumption and are making efforts by rallying the knowledge of all employees. Also, as the Energy Conservation Promotion Committee sponsored by the head office shares information on the status of initiatives in each plant, we are working day and night to continue to improve based on study from various angles, such as introducing ground-breaking technology.

4. Reducing air pollution

We started operation of a new boiler in fiscal 2014 and can now stably reduce emissions of SO_x and CO₂.

5. Reducing water pollution

We are reducing our COD and total nitrogen emissions year on year through improvement to our wastewater treatment equipment and processing methods.

We have passed environmental standards through our efforts up to now, and will make every effort to ensure stable maintenance in fiscal 2016 too.

6. Environmental Data

Tokuyama Plant		FY2011	FY2012	FY2013	FY2014	FY2015
Toxic substances	Butadiene consumption (tons)	186,784	181,275	206,710	170,327	195,538
	Butadiene emissions (tons)	1.4	1.2	0.8	1.1	0.7
	Acrylonitrile consumption (tons)	13,697	13,600	17,464	14,379	16,983
	Acrylonitrile emissions (tons)	0.6	0.6	0.6	0.7	0.6
Substances subject to PRTR law	Consumption (tons)	388,603	391,766	453,075	397,637	422,439
	Amount emitted (tons)	3.1	2.7	2.0	2.7	2.1

Industrial waste	Amount generated (before volume reduction) (tons)	18,718	16,939	19,201	24,063	23,163
	Amount generated (after volume reduction) (tons)	3,762	3,505	3,377	4,674	4,737
	Amount sent to landfill (tons)	0.0	0.0	0.0	0.0	0.0
Atmospheric emissions	CO ₂ emissions (tons)	248,294	239,609	279,750	237,362	263,215
	SO _x emissions (tons)	502	322	471	507	622
	NO _x emissions (tons)	272	243	205	179	191
	Soot emissions (tons)	7.7	5.7	3.5	2.2	10.9
	Leakage of CFCs (tons of CO ₂)	—	—	—	—	3.9
Water resources (Industrial water + Ground water + Waterworks) consumption (1,000 m ³)		9,482	8,788	8,927	8,393	8,812
Waste water	Total waste water discharge (1,000 m ³)	7,884	8,288	8,165	7,785	8,051
	COD emissions (tons)	69	58	49	42	57
	Total phosphorus discharge (tons)	0.6	0.6	0.7	0.6	0.8
	Total nitrogen discharge (tons)	27	27	28	27	28
Energy	Total consumption (crude oil equivalent, kL)	90,955	90,648	103,000	92,423	104,326
	Unit consumption index (1990 = 100)	99%	102%	99%	106%	106%
Production of PDR equivalent (tons)		498,167	487,782	573,961	477,797	531,865

Quality Assurance Efforts

[Policy]

In line with Zeon's Mid-Term Management Plan, including the Enterprise Blueprint for 2020: "Zeon makes the future today through the Power of Chemistry," the Tokuyama Plant continuously improves and innovates its production technologies to achieve a 100% yield rate* and build certifiable quality into all of its products. We aim to be a plant that consistently delivers high-quality products that satisfy our customers.

* Yield rate

The percentage of products rolling off the production line that pass quality inspections. A 100% yield rate means that no defective products were produced.

[Concrete efforts]

The most important thing when manufacturing quality to satisfy customers is to take a customer perspective. It is to always ask yourself "How would I think if I was the customer?" We always keep these words in mind when conducting quality improvement activities at the plant.

Relationship with Employees

[Aims of human resource development]

"Employees who can think through by themselves with high goals and keep improving"

[Basis of education]

“Bring out, develop and utilize each employee's ability.”

[Concrete efforts]

Operator basic education: Implement operator basic education for operators in their first three years of employment.

Living together with the local community

[Concrete efforts]

1. Zeon Waraku Odori Dance Festival

A festival organized by employees to deepen interaction with employee's families and local people through the “Waraku dance.” It began in 1974 and now attracts over 2,000 people every year.

Employees hand out *yakitori* and *oden* and at the end everybody forms a circle and dances.

In addition to continuing to place importance on contact with local residents, the Tokuyama Plant will contribute to environmental protection and social welfare activities.

2. Public relations activities

Fiscal 2015 Results

- 11th RC regional informational meeting and plant tour: Participation by the Chairman and Vice Chairman of five residents' associations adjacent to the factory.
- Summer vacation parent and child classroom (organized by the Chamber of Commerce and Industry): Experimental classroom (making a super ball), plant bus tour