

## Worksites

### Kawasaki Plant

#### Introduction to the Kawasaki Plant

The Kawasaki Plant is located in Yako in southeastern Kawasaki City, Kanagawa Prefecture. If you take the Keihin Kyuko Daishi Line and get off at Kojimashinden Station, the last stop on the line, you will also notice the very conspicuous ZEON logo in addition to ZEON's R&D Building No. 10, the highest-standing building in Yako. The Kawasaki Plant is situated next-door to the R&D center.



Aerial view of the Kawasaki Plant

While the name Yako (literally “night light”) seems to suggest the bright lights and torches of the Keihin Industrial Zone, this interpretation is in fact incorrect. The true origin of the word relates to the construction of the Kawasaki Daishi temple, and comes from a phrase meaning “ocean emitting a strange light at night.” Kawasaki Daishi is said to have originated at a time when, long ago, a fisherman, heeding the instruction of a Buddhist monk who appeared in his dream, cast his net where light was shining and pulled out a small statue of Kobo-Daishi, the founder of the Shingon school of Buddhism. The Kawasaki Plant was built here in 1959 and, for over half a century since, has built mutual relationships of trust with the local residents. For example, its neighborhood clean-ups, summer festivals, and discussions with local residents at neighborhood association meetings have helped the Kawasaki Plant to quietly blend in and function as an intimate and integral part of the local community.

#### CSR Efforts at the Kawasaki Plant

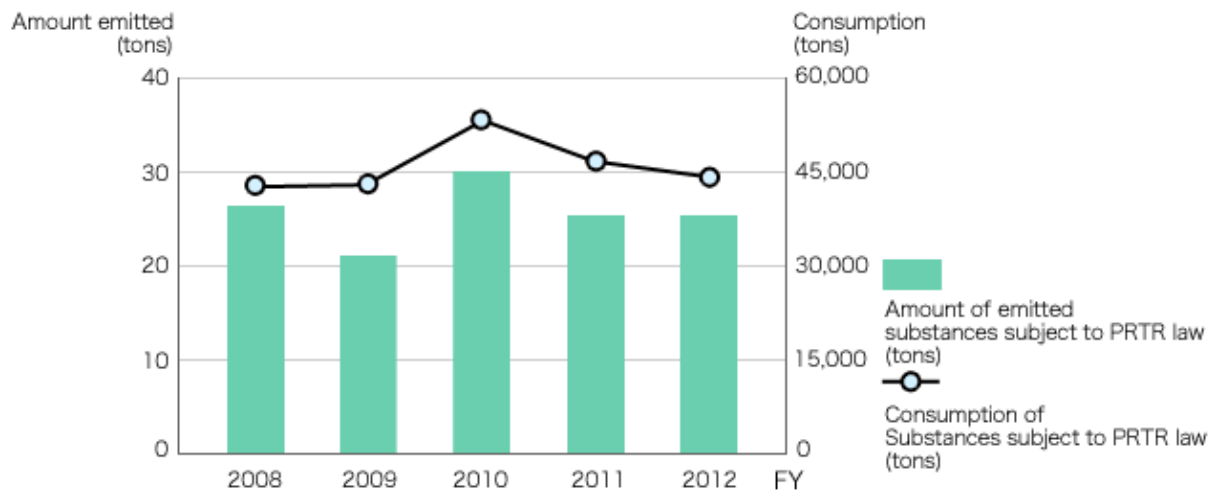
The Kawasaki Plant makes various efforts to increase interaction between itself and local residents as part of its stated mission to be an open and transparent manufacturing operation. The first step in achieving that goal is for every employee at the plant to maintain a clean and proper public image. For that purpose, the Kawasaki Plant Group Leader Committee instructs employees on practicing basic social manners, such as not reading one's cell phone while walking, not jaywalking, and not smoking while walking down the street.

#### Environmental and Safety Activities

##### 1. Reducing toxic chemical emissions

The Kawasaki Plant is working to reduce emissions of butadiene and acrylonitrile, the main materials in our products, by installing recovery equipment. Stabilizing operations and improving the operational rate of recovery systems has allowed us to increase the amount of acrylonitrile we process. As a result, atmospheric emissions of butadiene and acrylonitrile in fiscal 2012 were 2.7 tons and 13 tons, respectively. We will continue to improve our technologies so that someday we can achieve zero emissions.

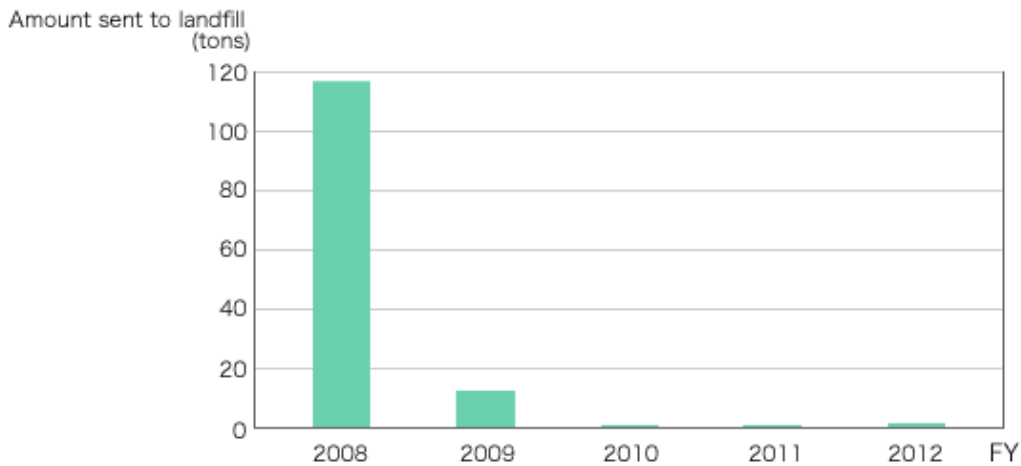
### Substances subject to PRTR law



### 2. Reducing industrial waste

We have maintained efforts throughout the plant to reduce the volume of plant-generated industrial waste by separating it for collection and reusing or recycling it (including heat recovery). The volume of waste sent to landfills in fiscal 2013 was 0.4 tons, again less than 1 ton as in the previous year, as a result of our diligence in reducing waste and introducing facilities to improve and stabilize waste treatment. In fiscal 2013, we will continue to reduce industrial waste through separation and recycling and by reducing waste.

### Amount of Waste to Landfill

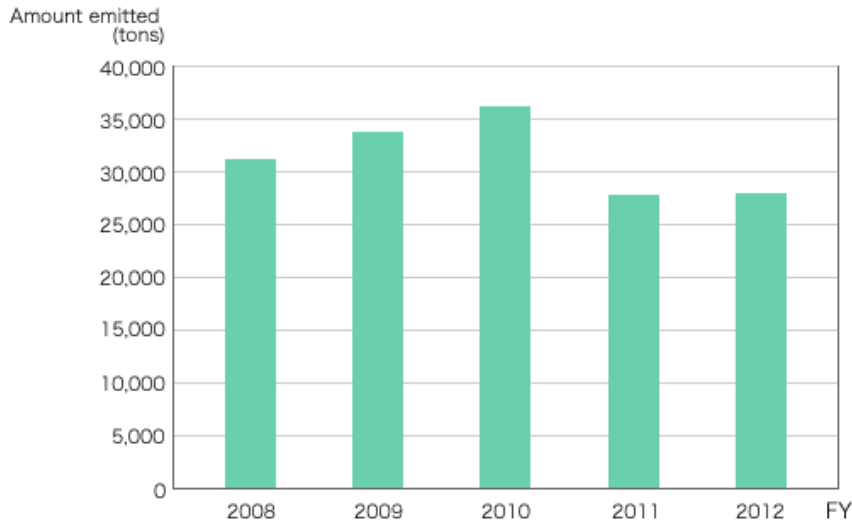


### 3. Reducing air and water pollution

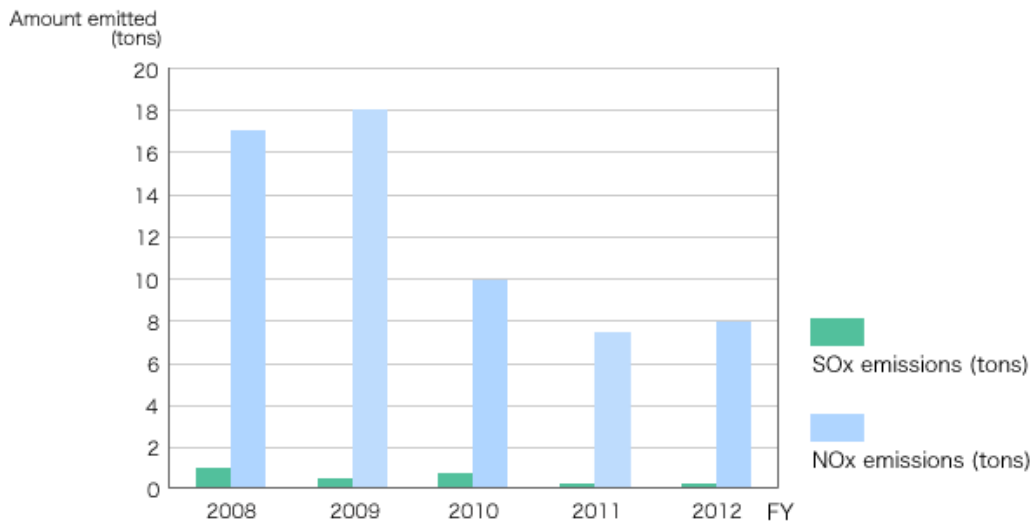
By carefully managing the waste we put in our incinerator we are making steady progress in the reduction of nitrogen oxides (NOx), carbon monoxide (CO), soot, and other atmospheric emissions from our operations.

We are also decreasing our environmental impact on water quality by reducing nitrogenous compounds in waste liquid and improving removal rates by ensuring that our treatment facilities are operating efficiently. We are determined to improve our technologies to bring about less total nitrogen discharge and better removal rates.

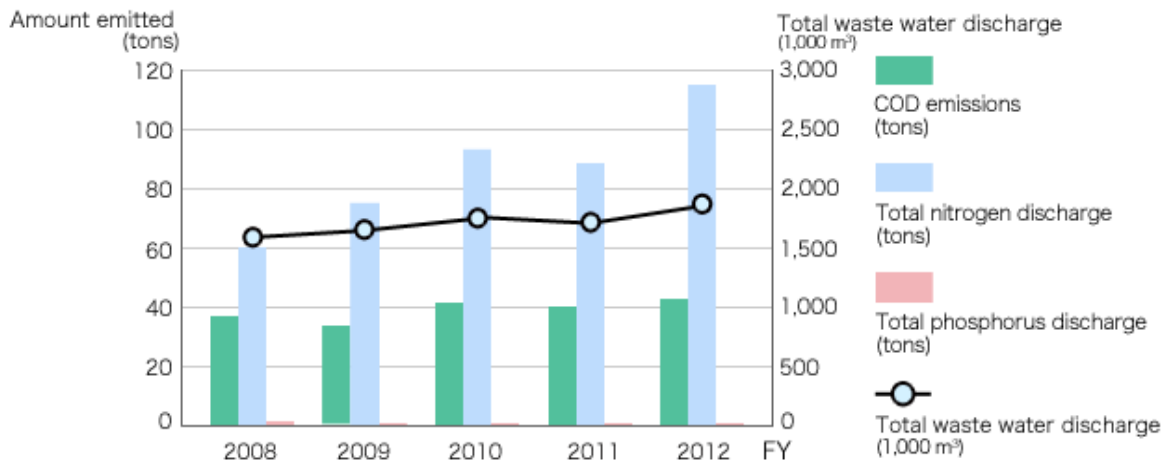
### CO<sub>2</sub> emissions



### SO<sub>x</sub> and NO<sub>x</sub> emissions



### Overall wastewater, COD, total nitrogen (TN) and total phosphorus (TP) discharge



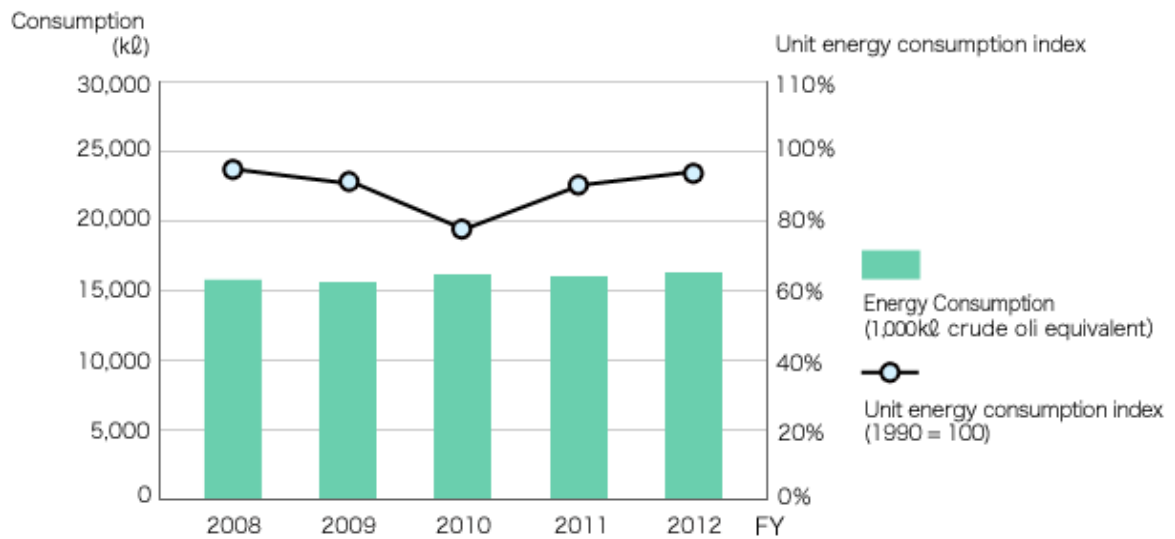
#### 4. Saving resources and energy

Continuing from the previous year, in fiscal 2012 we worked to improve technologies to make our Co-generation\* systems work more efficiently. Responding to power restrictions in Japan, we also reduced peak power consumption by adjusting the production timing for products requiring higher energy use and revising our annual production. To enforce energy conservation measures on a daily basis, we sent employees to patrol our facilities and make sure thermostats were kept at 28°C and lights not in use were turned off, among other inspections. Everyone at the factory was especially vigilant during the more energy-intensive summer months.

\* Co-generation

A new type of energy supply system that uses waste heat from internal combustion engines, external combustion engine, and other sources to extract power, heat, and refrigeration while improving overall energy efficiency.

#### Total amount of energy and Unit energy consumption index



## 5. Environmental Data

Kawasaki Plant		FY2008	FY2009	FY2010	FY2011	FY2012
Toxic substances	Butadiene consumption (tons)	21,902	21,758	26,613	23,054	22,841
	Butadiene emissions (tons)	3.1	2.3	4.8	2.6	2.7
	Acrylonitrile consumption (tons)	9,576	9,556	12,034	10,670	10,872
	Acrylonitrile emissions (tons)	14	12	15	12	13
Substances subject to PRTR law	Consumption (tons)	44,085	44,101	51,781	46,186	44,709
	Amount emitted (tons)	27	21	30	26	26
Industrial waste	Amount generated (before volume reduction) (tons)	34,500	30,163	44,132	47,718	50,878
	Amount generated (after volume reduction) (tons)	4,641	3,136	5,315	5,383	5,037
	Amount sent to landfill (tons)	118	13	0.4	0.4	0.9
Atmospheric emissions	CO <sub>2</sub> emissions (tons)	31,030	33,900	36,478	27,609	27,674
	SO <sub>x</sub> emissions (tons)	1.0	0.6	0.7	0.1	0.1
	NO <sub>x</sub> emissions (tons)	17	18	10	7.6	8.0
Water resources (Industrial water + Ground water + Waterworks) consumption (1,000 m <sup>3</sup> )		2,618	2,719	2,575	2,963	3,313
Waste water	Total waste water discharge (1,000 m <sup>3</sup> )	1,598	1,602	1,836	1,793	1,904
	COD emissions (tons)	37	35	41	40	42
	Total phosphorus discharge (tons)	0.8	0.2	0.1	0.2	0.2
	Total nitrogen discharge (tons)	60	74	93	89	115
Energy	Total consumption (crude oil equivalent, kL)	15,829	15,167	16,239	16,220	16,539
	Unit consumption index (1990 = 100)	97%	92%	78%	90%	91%
Production of PDR equivalent (tons)		73,587	74,803	94,340	81,790	82,757

### Quality Assurance Initiatives

In line with ZEON's Mid-Term Management Plan, SZ-20, including the Enterprise Blueprint for 2020: "ZEON creates the future today through the power of chemistry," the Kawasaki Plant strives to produce the world's highest-quality products and supply a steady stream of those products to customers.

Quality as stated here includes cost, quantity, delivery period, and reliability. Consistently providing the high quality that our customers require is both the mission and raison d'être of the Kawasaki Plant, which takes satisfaction in being harmoniously integrated in urban surroundings. We also believe that our employees' pride in producing the best products in the world can be a driving force for further quality improvements.

### VOICE Toward Higher Quality and More Stable Production

In its over 50 years of operations, the Kawasaki Plant has supplied its customers with oil-resistant synthetic rubber, used in key automotive components, and synthetic latex, used in coated papers, nonwoven fabrics, and rubber gloves. We see the stable production of high-quality products as an important requirement for delivering these products to our customers for many decades to come.

At the Kawasaki Plant, we are embarking on measures to further advance these efforts and work to enhance our capacity in processes that are critical to product quality. In other words, we will reduce variations and aim for quality right in the middle of our standards. To this end,



Toshiaki Saya, Kawasaki Plant Manager

we will identify factors that lead to changes in attributes critical to quality and modify our production equipment and revise manufacturing conditions to ensure that those factors are controlled. Through these efforts we will create systems with which anyone following a standardized method can easily produce products with consistent quality. To reduce quality variations between product lots, we will improve management of raw material quality and seek to build flexible production systems where seasonal and other variations have no impact on quality.

### Living Together with the Local Community

#### Becoming a plant that is open and transparent

To stay open and transparent as a manufacturing operation, the Kawasaki Plant invites schools, companies, business associations, and other groups to visit and take a tour. Recently, overseas visitors have come from China, Taiwan, and Thailand. By providing information about our products and our environmental and safety activities through these visits, we are doing our best to help the public better understand our operations.

