

## 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 house mark in addition to Zeon's R&D Building No. 10, the highest-standing building in Yako. The Kawasaki Plant is situated on the south side of the R&D center.

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 more than 56 years 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.



Aerial view of the Kawasaki Plant

#### CSR Efforts at the Kawasaki Plant

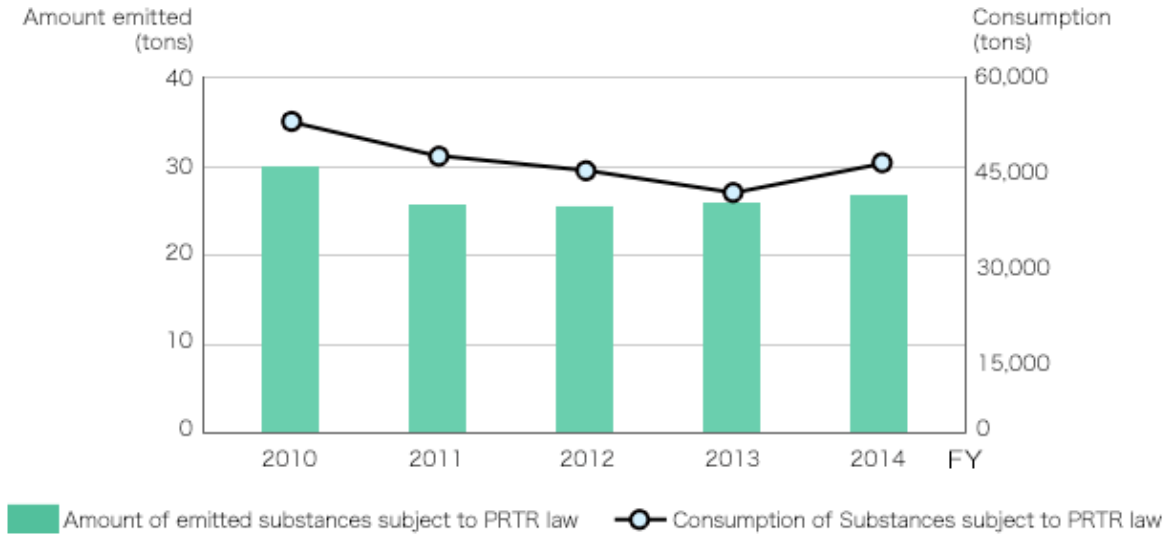
The Kawasaki Plant values its interactions with the local community. Along with Kawasaki City and other local companies in Yako, nearby Tonomachi and Chidori, we also participate in regular joint cleaning activities for the Tonomachi-Yako Route, which is a main road that acts as an artery for the area. In addition, during summer evening festivals we invite people from nearby neighborhood associations and companies to enjoy local cooking of regional group members' proud. We will continue to harmonize with local communities through a variety of such activities,

#### 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 2014 were 2.6 tons and 11 tons, respectively. We will continue to improve our technologies so that someday we can achieve zero emissions.

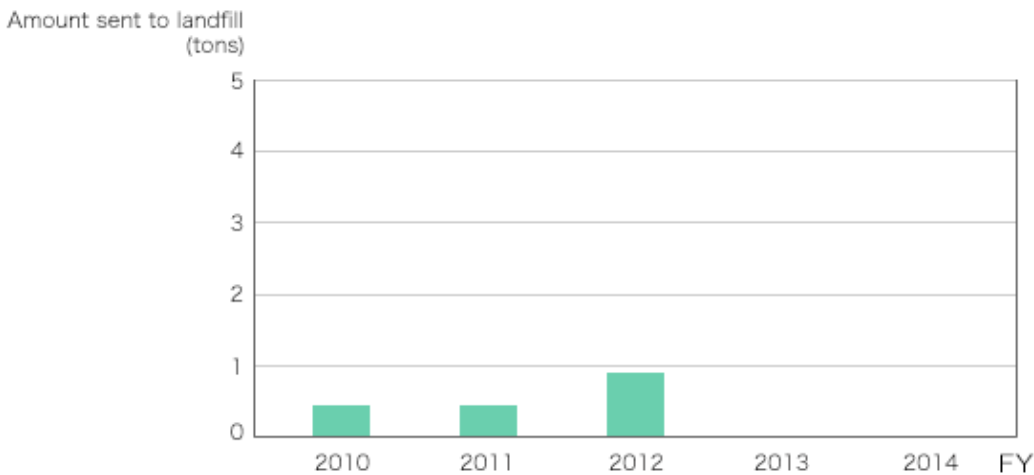
**Substances subject to PRTR law**



**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 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 2015, we will continue to reduce industrial waste through separation and recycling and by reducing waste.

**Amount of Waste to Landfill**

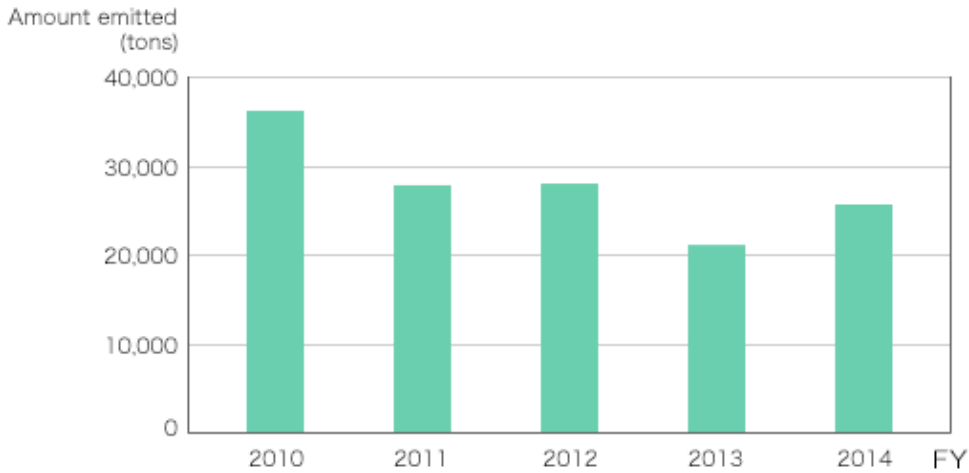


**3. Reducing air and water pollution**

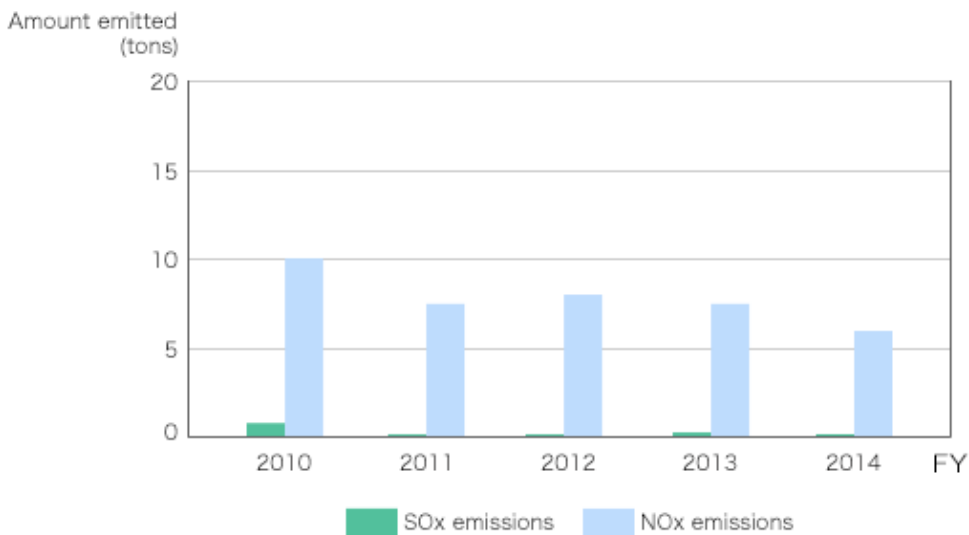
By discontinuing the use of our incinerator, we have greatly reduced our output of nitrogen oxides (NOx), carbon monoxide (CO), soot, and other atmospheric emissions from our operations.

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.

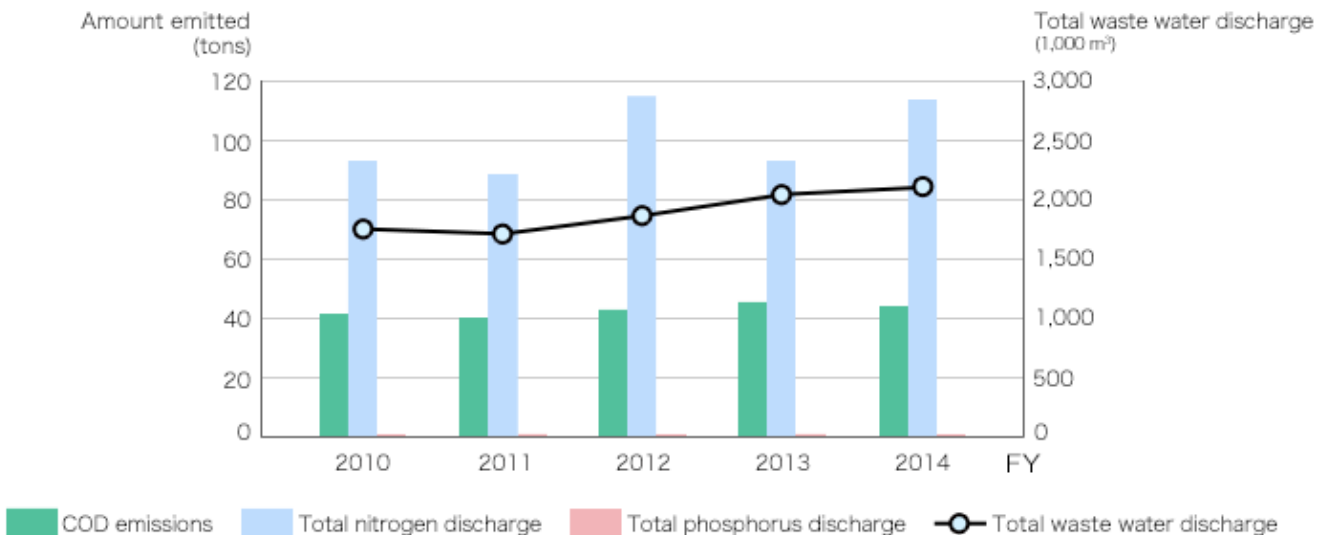
**CO<sub>2</sub> emissions**



**SOx and NOx emissions**



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



#### 4. Saving resources and energy

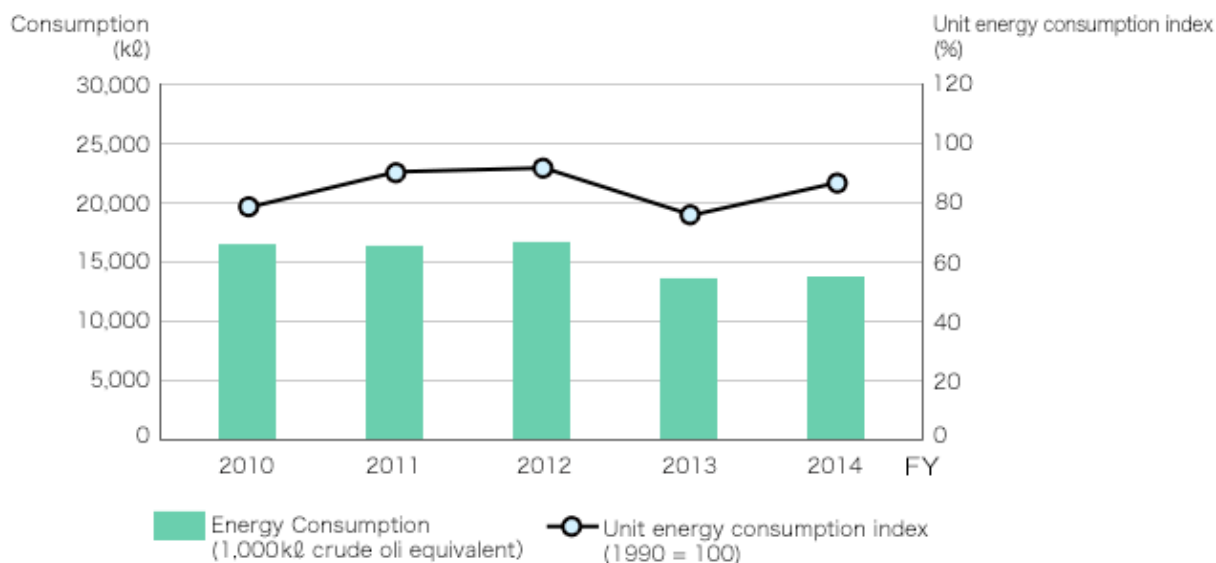
In fiscal 2014, we launched operation of our newly installed Co-generation\* system (CGS) units No. 5 and No. 6. The launch of these two units resulted in a surplus of power, which enabled us to make an even greater social contribution than before by stably supplying the energy externally.

With units No. 5 and No. 6, we are able to conserve energy and resources due to the use of a cutting-edge gas engine system that achieves a high level of thermal efficiency and low NOx emissions.

\* Co-generation

A new type of energy supply system that uses waste heat from internal combustion engines, external combustion engines, 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		FY2010	FY2011	FY2012	FY2013	FY2014
Toxic substances	Butadiene consumption (tons)	26,613	23,054	22,841	20,372	23,534
	Butadiene emissions (tons)	4.8	2.6	2.7	2.4	2.6
	Acrylonitrile consumption (tons)	12,034	10,670	10,872	9,653	11,405
	Acrylonitrile emissions (tons)	15	12	13	11	11
Substances subject to PRTR law	Consumption (tons)	51,781	46,186	44,709	40,203	45,847
	Amount emitted (tons)	30	26	25.6	26.1	26.8
Industrial waste	Amount generated (before volume reduction) (tons)	44,132	47,718	50,878	48,039	52,900
	Amount generated (after volume reduction) (tons)	5,315	5,383	5,037	4,024	4,401
	Amount sent to landfill (tons)	0.4	0.4	0.9	0.0	0.0
Atmospheric emissions	CO <sub>2</sub> emissions (tons)	36,478	27,609	27,968	20,917	25,778
	SO <sub>x</sub> emissions (tons)	0.7	0.1	0.1	0.2	0.1
	NO <sub>x</sub> emissions (tons)	10	7.6	8.0	7.4	5.7
	Soot emissions (tons)	0.8	0.6	0.8	0.8	0.6
Water resources (Industrial water + Ground water + Waterworks) consumption (1,000 m <sup>3</sup> )		2,575	2,963	3,313	3,092	3,657
Waste water	Total waste water discharge (1,000 m <sup>3</sup> )	1,836	1,793	1,904	2,031	2,185
	COD emissions (tons)	41	40	42	45	44
	Total phosphorus discharge (tons)	0.1	0.2	0.2	0.3	0.2
	Total nitrogen discharge (tons)	93	89	115	93	115
Energy	Total consumption (crude oil equivalent, kℓ)	16,239	16,220	16,552	14,406	14,700
	Unit consumption index (1990 = 100)	78%	90%	91%	75%	84%
Production of PDR equivalent (tons)		94,340	81,790	82,757	73,834	85,441

## 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 55 years of operations, the Kawasaki Plant has supplied its customers with oil-resistant and heat-resistant synthetic rubber, used in key automotive components and more, and synthetic latex, which has various uses, including 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 in order to further advance these efforts and work to enhance our capacity in processes that are critical to product quality. In other words, we will modify our production equipment and revise manufacturing conditions to reduce and ensure control over variations in production. Through these efforts we will create systems with which anyone, at any time, following a standardized method can reliably 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.



Sachio Hayashi, Kawasaki Plant Manager

## Living Together with the Local Community

### Becoming a plant that is open and transparent

We are doing our best to help the public better understand our operations by extending plant tours to technical college students in the Tohoku and Hokkaido regions and to nearby neighborhood associations, while also introducing our products and our environmental and safety activities. In addition, we continue active participation in events held locally.

