

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 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 55 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 function as an intimate and integral part of the local community.



Aerial view of the Kawasaki Plant

CSR Efforts at the Kawasaki Plant

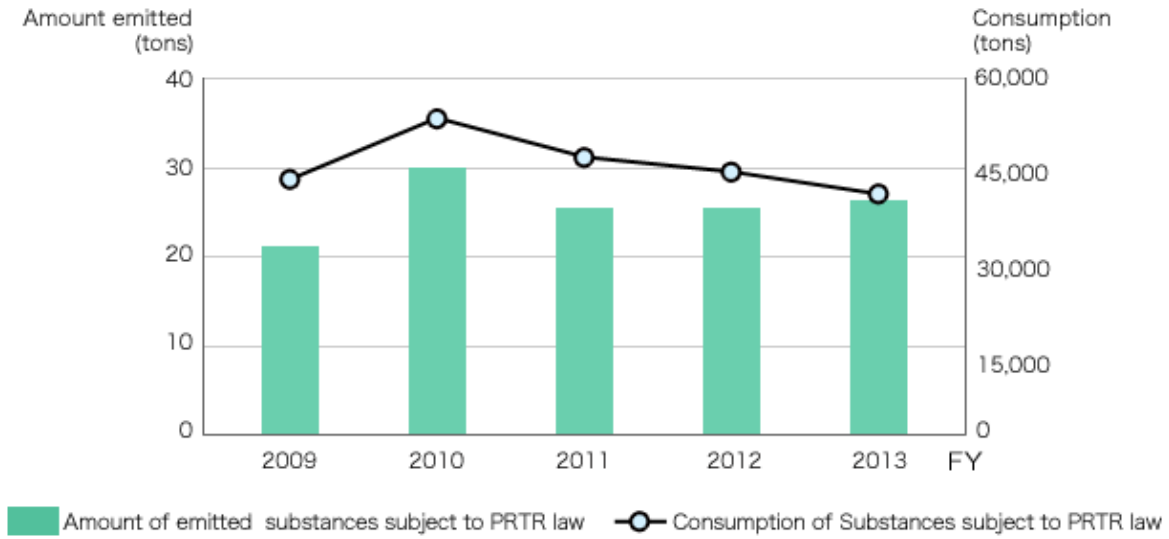
The Kawasaki Plant makes various efforts to increase interaction between itself and local residents as it aims to be a civically engaged plant. One such activity is that we publish information on The Information Center for Energy and Environment Education "Facility tours guide" website, and we always take requests for plant tours. 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. We will continue to plan to harmonize with local communities through 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 2013 were 2.4 tons and 11 tons, respectively. We will continue to improve our technologies so that someday we can achieve zero emissions.

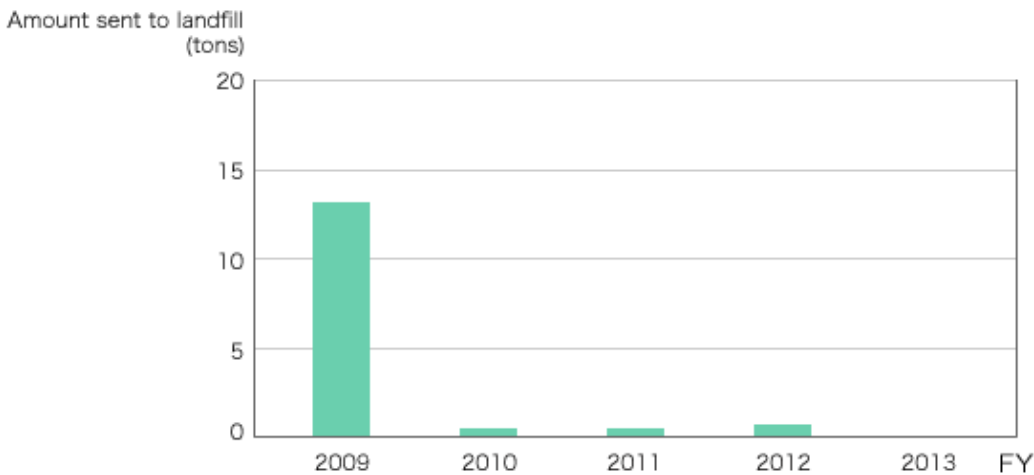
Substances subject to PRTR law



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 2014, 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

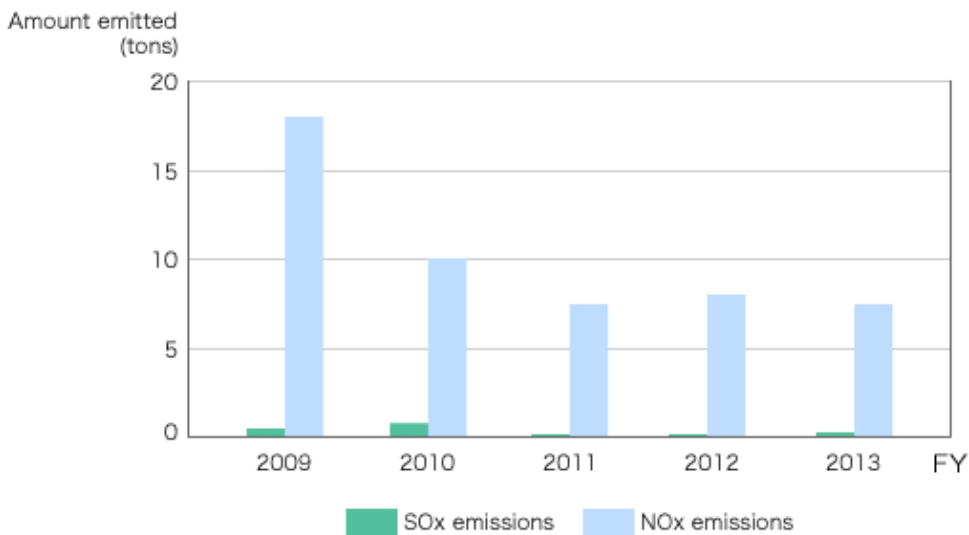
By carefully managing the waste we put in our incinerator we are making steady progress in the reduction of nitrogen oxides (NOx), carbon monoxide (CO), soot, and other atmospheric emissions from our operations.

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.

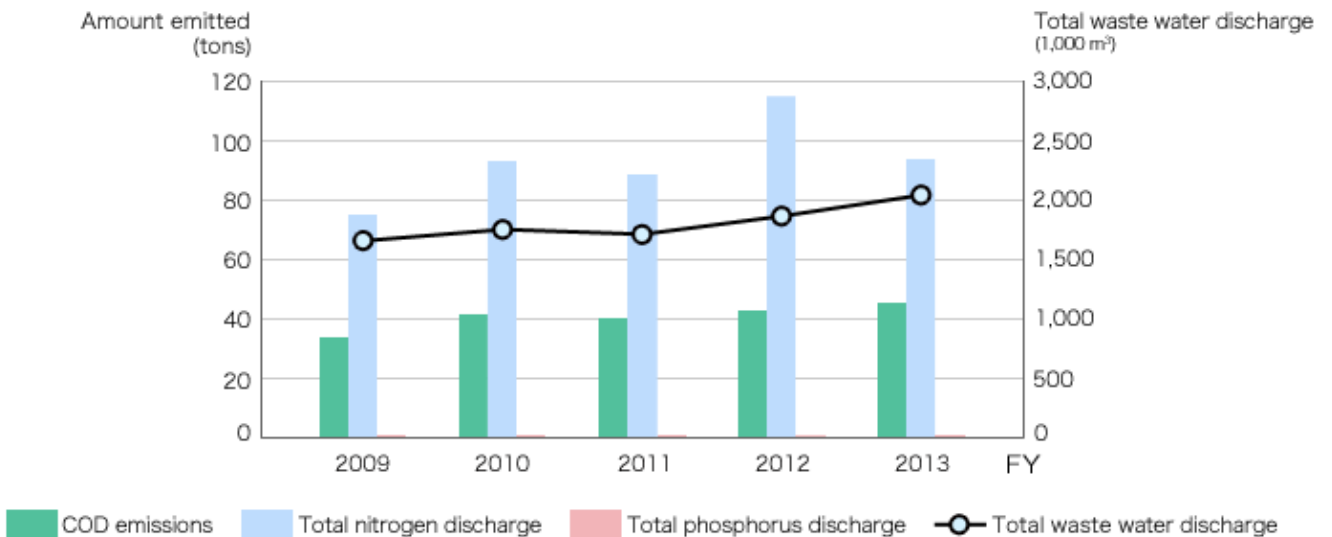
CO₂ emissions



SOx and NOx emissions



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



4. Saving resources and energy

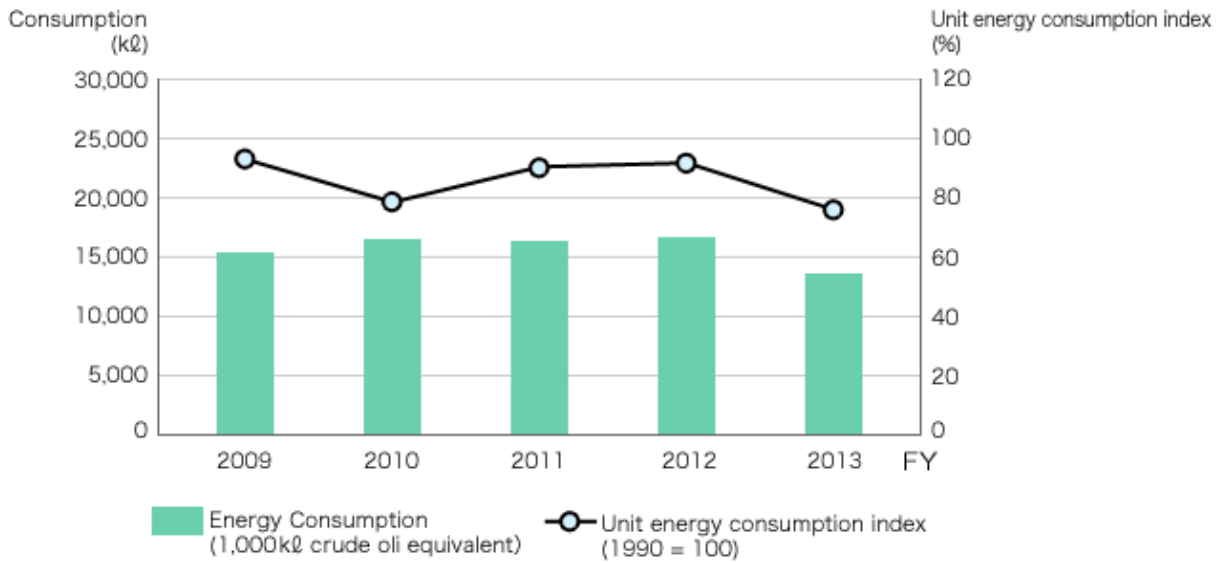
In fiscal 2013, Co-generation* (CGS) units No.5 and No.6 were newly installed and unit No.2 was removed to due its deteriorated condition. The installation of two units resulted in a surplus of power, which enabled us to make an even greater social contribution than before by stably supplying the energy externally.

Units 5 and 6 are also expected 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 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 | | FY2009 | FY2010 | FY2011 | FY2012 | FY2013 |
|---|---|--------|--------|--------|--------|--------|
| Toxic substances | Butadiene consumption (tons) | 21,758 | 26,613 | 23,054 | 22,841 | 20,372 |
| | Butadiene emissions (tons) | 2.3 | 4.8 | 2.6 | 2.7 | 2.4 |
| | Acrylonitrile consumption (tons) | 9,556 | 12,034 | 10,670 | 10,872 | 9,653 |
| | Acrylonitrile emissions (tons) | 12 | 15 | 12 | 13 | 11 |
| Substances subject to PRTR law | Consumption (tons) | 44,101 | 51,781 | 46,186 | 44,709 | 40,203 |
| | Amount emitted (tons) | 21 | 30 | 26 | 25.6 | 26.1 |
| Industrial waste | Amount generated (before volume reduction) (tons) | 30,163 | 44,132 | 47,718 | 50,878 | 48,039 |
| | Amount generated (after volume reduction) (tons) | 3,136 | 5,315 | 5,383 | 5,037 | 4,024 |
| | Amount sent to landfill (tons) | 13 | 0.4 | 0.4 | 0.9 | 0.0 |
| Atmospheric emissions | CO ₂ emissions (tons) | 33,900 | 36,478 | 27,609 | 27,968 | 20,917 |
| | SO _x emissions (tons) | 0.6 | 0.7 | 0.1 | 0.1 | 0.2 |
| | NO _x emissions (tons) | 18 | 10 | 7.6 | 8.0 | 7.4 |
| | Soot emissions (tons) | | 0.8 | 0.6 | 0.8 | 0.8 |
| Water resources (Industrial water + Ground water + Waterworks) consumption (1,000 m³) | | 2,719 | 2,575 | 2,963 | 3,313 | 3,092 |
| Waste water | Total waste water discharge (1,000 m ³) | 1,602 | 1,836 | 1,793 | 1,904 | 2,031 |
| | COD emissions (tons) | 35 | 41 | 40 | 42 | 45 |
| | Total phosphorus discharge (tons) | 0.2 | 0.1 | 0.2 | 0.2 | 0.3 |
| | Total nitrogen discharge (tons) | 74 | 93 | 89 | 115 | 93 |
| Energy | Total consumption (crude oil equivalent, kL) | 15,167 | 16,239 | 16,220 | 16,552 | 13,581 |
| | Unit consumption index (1990 = 100) | 92% | 78% | 90% | 91% | 75% |
| Production of PDR equivalent (tons) | | 74,803 | 94,340 | 81,790 | 82,757 | 73,834 |

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 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 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, 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.



Toshiaki Saya, Kawasaki Plant Manager
(as of April 2014)

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 introducing our products and our environmental and safety activities, we are doing our best to help the public better understand our operations.

