

E Initiatives to Reduce Environmental Impact- 2

Initiatives in Purchasing



Akebono is working to reduce its environmental and social impact with the cooperation of its suppliers.

Green Purchasing

Akebono introduced its Green Purchasing Guideline in 2005, revising it in 2011. Under the guideline we are considering the environment and CSR from the purchasing stage by working together with suppliers to procure materials, components, and secondary materials that have a low environmental impact. We are also encouraging our suppliers to improve their environmental management performance by recommending activities to acquire external accreditation such as ISO 14001. Going forward, our next challenge is to promote these practices at overseas bases as well.

Green Purchasing

Green purchasing refers to the preferential selection and acquisition of products that cause less negative environmental impact. The scope of products covers materials, secondary materials, office supplies and equipment used in the course of manufacturing. Manufacture of "Green Products" requires the practice of green purchasing.

Ranking and Management of Environmental Impact Substances under Green Purchasing Guidelines

Targeted chemical substances are categorized into three ranks and controlled as follows:

Rank	Chemical substances	Examples of control measures
Usage prohibited	Substances that are strictly banned from use and production by law and regulation	Prohibit use/draw up plans for abolishment if there is substance in use
Usage restricted	Substances which are projected to come under legal regulation and substances for which emission regulations are set under existing laws	Conduct research on alternative materials or reduction methods and draw up reduction plan
Proper management of usage information required	Substances listed in GADSL that is, substances requiring declaration of usage amount	Ensure proper management of usage information and work toward reduction of usage

Response to Substances of Very High Concern

In cooperation with our suppliers, Akebono performs testing of purchased products to determine if they contain substances of very high concern (SVHC*) or banned substances. The tests are performed on the individual product level and their results are communicated back to the suppliers. We are also promoting labeling of purchased items in line with laws and regulations.

Substances of Very High Concern

A substance may (but not necessarily must) be designated as SVHC if it meets one or more of the following criteria: it is carcinogenic, mutagenic or toxic for reproduction, and in addition is either persistent, bioaccumulative and toxic, or very persistent and very bioaccumulative. Such substances are identified as having probability of causing serious adverse effects to human health or the environment.

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Initiatives in Production



Akebono is reducing the environmental impact of its production sites and lowering the power consumption of its production facilities

Introduction of Wastewater Treatment and Air Purification Systems

Akebono has introduced wastewater treatment and air purification systems and is carrying out environment-friendly production activities.

Iwatsuki Manufacturing upgraded its wastewater treatment system and cleared wastewater standards by a wide margin in fiscal 2017. In fiscal 2018, Akebono plans to introduce a system in Guangzhou, China that reduces total wastewater volume and expects it to meet the standard for heavy metal content in wastewater.

In China, where air pollution is a growing problem, industrial zones in each area apply voluntary standards. In Suzhou, we established a new air cleaning system that uses an electrostatic precipitator and low temperature plasma treatment* and applied voluntary standards that exceed those of the law and regulations. This air cleaning system also helps to deodorize the air.



View of the Suzhou air purification system



Partial view of the Suzhou air purification system

* **Low temperature plasma treatment:** Low temperature plasma is air that has around 1% plasmarized (separated into positive ions and electrons) so that it contains plasma ions at room temperature (a few degrees Celsius) and is able to dissolve organic matter.

Developing Young Engineers to Design Environmentally Considerate Facilities

Akebono is looking to develop engineers who will design the facilities of the future by conducting a program for "building a miniature production line for brake manufacturing processes that can be operated by a single motor." Under the program, a team of young engineers who are within the first five years of their assignment to the production engineering division undertake "miniature line building" concurrently with their ordinary work, undertaking all steps from planning and design to production.

This initiative has been carried out since fiscal 2010. In fiscal 2017, six junior associates produced a miniature manufacturing facility for high performance calipers. The original facility was installed in Hanyu and is the manufacturing facility for producing aluminum opposed type disc brakes for European manufacturers.

Building miniature production lines involves considering the operability of each process as well as the timing coordination over the entire line and so forth. This resulted in various innovations such as reducing the weight of moving parts. Looking ahead, we will develop engineers who will take a birds-eye-view of the entire line and apply their own skills to designing energy-saving, high efficiency facilities.



Miniature line for the high performance caliper manufacturing facility produced in fiscal 2017 and production team members

Associates in charge of truck operation management use the data to give timely instructions to each driver so that they can avoid crowded routes and helps to ensure that drivers are taking breaks as needed. In these ways, Akebono is ensuring safe and environment-friendly truck operations. In addition, the system also enables objective determination and ranking of drivers' eco-driving by recording data about idling time and sudden acceleration and braking. Through measures such as these, the system can be used to increase motivation for eco-driving and safe driving. Akebono will continue working to save energy and rationalize its distribution operations, ensuring safety while protecting the environment.

Through various efficiency improvement activities, Akebono is helping to improve associate productivity, and lower transportation costs by reducing energy resources.



Alocs Corporation's control screen that gives driving instructions based on real-time truck position and traffic information

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Initiatives in Logistics



Akebono promotes energy saving and rationalization in its distribution operations through the truck operation dynamic management system.

Initiatives in Eco-Friendly Driving

The Akebono Group member Alocs Corporation (a logistics solution company) is employing a truck operation dynamic management system. The system utilizes data on individual vehicles gleaned from onboard sensors, such as engine speed, driving speed, acceleration rate and location. This data is automatically transmitted to the headquarters.



Truck from Alocs Corporation headquarters

Received Honorable Mention for the Cogeneration Grand Prize

In February 2018, at the Cogeneration Grand Prize 2017 sponsored by the Cogeneration Foundation (Advanced Cogeneration and Energy Utilization Center Japan), Akebono received an Honorable Mention (in the Industry Category) for "Improving efficiency and reducing greenhouse gas emissions through cogeneration systems".

Since the introduction of cogeneration in 2011, Akebono has been building systems to reduce CO₂ emissions by improving overall efficiency with the goal of daily capacity utilization, cutting electric power supply to the outside during peak hours, contributing to the electric power business by combining the introduction of advanced equipment that utilizes waste heat with renewable energy, as well as consistently raising gas engine power generation

efficiency and improving waste heat utilization efficiency.

Akebono also received the Excellence Award at the Cogeneration Grand Prize 2013, this time receiving its second award. To fulfill its corporate social responsibility, Akebono views global environmental problems as one of its most important management challenges and is working more comprehensively on environmental conservation activities from a global perspective.

