



# AKEBONO REPORT 2017

DATA BOOK

# CSR Promotion Status (fiscal 2016)

■ Explanatory note: A: 5.0 points, B: from 4.9 to 3.5 points, C: from 3.4 to 2.1 points, D: 2.0 points and below

Points represent result of self-evaluation on a scale of 1.0 to 5.0 points that was implemented in reference to the "CSR Check Sheet (revised version as of April 2010)" formulated by JAPIA.

Category	Initiatives	Responsible Organization	Numerical targets (if applicable)	Structure for Promotion, Action taken and Degree of Attainment	Self-evaluation
1. Safety and quality	1-1. Understanding customer needs, providing products that benefit society	Sales Division and Quality Assurance Division		<ul style="list-style-type: none"> <li>Establish and implement a system for checking on market needs and development goals at commencement of basic development</li> <li>Establish and implement a system for checking on customer needs at the start of application development</li> <li>Process inquiries and estimation requests in accordance with prescribed workflows and pass them on to the relevant sections through in-house computer networks</li> <li>Acquire customers' latest requirements and organize and implement systems to reflect them in relevant in-house departments</li> <li>Analyze collected market information and pass it on to the relevant sections in accordance with prescribed workflows</li> </ul>	B
	1-2. Providing information on products in an appropriate manner	Sales Division, Quality Assurance Division, and Production sites		<ul style="list-style-type: none"> <li>Provide appropriate information on R&amp;D phase technologies in accordance with prescribed workflows</li> <li>Provide information on product composition in a systematic manner in accordance with customer and legal requirements and such automotive industry standards as the International Material Data System</li> <li>Collect information on product failures and share such information in a systematic manner</li> </ul>	
	1-3. Ensuring product safety	R&D Division, Quality Assurance Division, and Production sites		<ul style="list-style-type: none"> <li>Verify the safety of pre-productions pursuant to the prescribed operation procedures</li> <li>Establish and implement a system to check the impact on products due to usage conditions and environment, and to verify failure mode using FMEA (failure mode and effects analysis) and FTA (fault tree analysis) to determine its usefulness prior to supplying them to customers</li> <li>Examine and verify conformity to legal and safety requirements as well as market and customer needs in a systematic manner at the R&amp;D phase</li> <li>Quality risk items requiring compliance with legal and safety requirements are identified and are closely controlled</li> <li>Develop and implement a global defect information network to achieve rapid dispersal of information to bases worldwide</li> </ul>	
	1-4. Ensuring product quality	Quality Assurance Division	Conduct in-house management system audits (once per year for every site)	<ul style="list-style-type: none"> <li>Establish and apply quality management systems within an organizational structure designed to assist quality management activities</li> <li>Quality management activities are constantly pursued using the PDCA method, with policies and targets being formulated for each fiscal year</li> <li>Integrate product development processes and Advanced Part Quality Planning (APQP) at locations worldwide</li> <li>Created and implemented a system for manufacturing facility development and global production to ensure quality management</li> <li>Currently working to strengthen the quality management system to meet customers' needs and requirements</li> </ul>	
2. Human rights and working environment	2-1. Abolishment of discrimination (ensuring equal employment opportunity)	HR Department		<ul style="list-style-type: none"> <li>Wage structure and personnel evaluation system are set forth irrespective of gender</li> <li>Gender is eliminated from items verified at the examination for wage raise and promotion</li> </ul>	B
	2-2. Respect for human rights (prevention of harassment)	HR Department, Compliance Committee	Activities aimed at raising associates' awareness of compliance (twice a year)	<ul style="list-style-type: none"> <li>Conduct "compliance proficiency tests" aimed at raising associates' awareness of compliance across the board (twice)</li> <li>Internal consultation service has been established and announced companywide</li> <li>Whistle blowers are protected under the prescribed in-house rules</li> </ul>	
	2-3. Abolishment of child labor	HR Department		<ul style="list-style-type: none"> <li>The Company demands newly recruited associates to submit documents to identify their age under the rules of employment</li> </ul>	
	2-4. Abolishment of enforced labor	HR Department		<ul style="list-style-type: none"> <li>Although the Company may check associates' passport for proof of identity, the submission of a passport is not required</li> </ul>	
	2-5. Appropriate wages	HR Department	Confirmation of minimum wage set forth by local governments (once a year)	<ul style="list-style-type: none"> <li>The Company is comparing its wage levels and minimum wage set forth by each prefecture, ensuring that it is complying with the law (implemented utilizing a wage database system)</li> </ul>	
	2-6. Working hours	HR Department	Managerial training themed on labor time management (once a year)	<ul style="list-style-type: none"> <li>In accordance with an agreement with the labor union, notification of overtime work exceeding prescribed baseline hours must be submitted and permission gained in advance</li> <li>Attendance management system is utilized to verify whether working situations are complying with the Labor Standard Law</li> <li>Conduct regular training on labor/working hours management</li> </ul>	
	2-7. Communication and consultation with associates	HR Department		<ul style="list-style-type: none"> <li>Frequency of labor-management consultations as well as matters to consult with is set forth in labor agreement</li> </ul>	
	2-8. Safety and health of the working environment	Central Safety and Environment Committee	Reduce occupational accidents (50% year on year) to zero per year	<ul style="list-style-type: none"> <li>Annual activity plans for facility safety countermeasures and sanitary control at workplaces are formulated and implemented by the Central Safety Environment Committee</li> <li>FRESH Center and Health Management Office formulate annual activity plans for health management and manage their implementation</li> <li>Implemented standardized safety manuals for global locations based the manual used in Japan</li> </ul>	
	2-9. Human resources nurturing	HR Department	Conducting Education Programs for associates tailored to their rank and job roles (once a year)	<ul style="list-style-type: none"> <li>Established Ai-Village global training center as a facility to nurture globally capable human resources</li> <li>Prepared a guidebook that summarizes the content of in-house educational programs and distributed it to all associates while providing them with opportunities to participate in such programs</li> <li>Held global management training programs for managers from Akebono Group locations worldwide in response to globalization (twice a year)</li> <li>Education programs for associates tailored to their rank and job roles are implemented (Conducted rank-specific training: new recruit training conducted once in spring and once in autumn. Conducted one training for second year, third year, and seventh year training and newly appointed team leaders, one for newly appointed assistant managers, one for newly appointed senior staff, and one for new managers)</li> </ul>	

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Category	Initiatives	Responsible Organization	Numerical targets (if applicable)	Structure for Promotion, Action taken and Degree of Attainment	Self-evaluation
3. Environment	3-1. Environmental management	Global Environment Committee, etc.	<ul style="list-style-type: none"> <li>• Renewal of the ISO14001 certifications</li> <li>• Environmental education</li> </ul>	<ul style="list-style-type: none"> <li>• Renewed the ISO14001 certifications at seven locations including Sanyo Manufacturing and ABE (U.S.A.)</li> <li>• Began providing online educational programs as a part of enhancement of environmental education</li> <li>• Continued tree-planting activities in consideration of vegetation</li> </ul>	B
	3-2. Reduction of greenhouse gas emissions	Global Environment Committee and others (CO <sub>2</sub> Emission Reduction Project)	Improve CO <sub>2</sub> intensity 1% or greater every year until 2020 (in reference to JAPIA target value)	<ul style="list-style-type: none"> <li>• In fiscal 2016, CO<sub>2</sub> emissions (Japan) per unit of operating profit declined 20% year on year through the introduction of next-generation friction material production facilities and the application of heat-insulating coatings to the rooftops of plant buildings</li> </ul>	
		Global Environment Committee, etc.	Improvement of transportation efficiency, increase in energy usage efficiency	<ul style="list-style-type: none"> <li>• CO<sub>2</sub> emissions per transported weight and distance declined 0.6% year on year through the introduction of a system for the real-time management of truck operations and other measures</li> </ul>	
	3-3. Resource saving, waste reduction, and reducing environmental impact	Global Environment Committee, etc.	<ul style="list-style-type: none"> <li>• Maintenance of zero-emissions status (no direct landfill of waste and no incineration without energy recovery)</li> <li>• Promote the reduction and proper disposal of waste</li> <li>• Continued environmental impact reduction activities</li> </ul>	<ul style="list-style-type: none"> <li>• Zero-emissions (no direct landfill, no incineration without energy recovery) accomplished in fiscal 2016 again through efforts such as recycling of foundry sand into cement raw material</li> <li>• Reduced the emission of waste cutting fluid accompanying machining processes by using filtration and centrifuge equipment to recycle such fluid</li> </ul>	
3-4. Chemical substance management	Global Environment Committee, etc. Environment Department	Response to regulations on copper used in friction materials set forth by states of California and Washington, the United States (After January 1, 2021, materials for new automobile containing 5wt% of copper or more are going to be prohibited / After January 1, 2025, materials for new automobile containing 0.5wt% of copper or more are going to be prohibited)	<ul style="list-style-type: none"> <li>• The Company initiated the mass-production of copper-free friction materials for front and rear brakes in 2014 while working to improve the performance of such materials</li> <li>• Chemical substances designated by PRTR laws contained in newly developed friction materials are checked and tracked</li> </ul>		
4. Compliance	4-1. Compliance with laws and regulations	Compliance Committee	<ul style="list-style-type: none"> <li>• Compliance Committee meetings (six times per year)</li> <li>• Compliance understanding tests (once a year)</li> <li>• Workplace discussion (once a year)</li> </ul>	<ul style="list-style-type: none"> <li>• Compliance Committee meetings are held six times a year and relevant issues and initiatives are discussed</li> <li>• Conducted "compliance proficiency test" to reinforce associates' knowledge of compliance (once)</li> <li>• Held a workplace discussion as part of a month dedicated to strengthening compliance (once)</li> </ul>	B
	4-2. Compliance with competition laws	Compliance Committee		<ul style="list-style-type: none"> <li>• Established guidelines on prevention of cartels and bid rigging</li> <li>• The Company raised awareness by sharing data on the latest cases of cartel violations through intranet</li> <li>• Conducted training on cartels and the "Act Against Delay in Payment, etc., to Subcontractors" and promoted awareness raising activities</li> </ul>	
	4-3. Corruption prevention	Compliance Committee		<ul style="list-style-type: none"> <li>• Created bribery prevention guidelines and raised awareness of them in Japan and overseas</li> </ul>	
	4-4. Control and protection of secret information	Compliance Committee	Audit and review of trade secret management on an annual basis	<ul style="list-style-type: none"> <li>• Conducted regular audit and review of the status of trade secret management (once)</li> </ul>	
	4-5. Control of export transactions	Compliance Committee	Holding training (once a year)	<ul style="list-style-type: none"> <li>• Export transactions are managed and overseen by structures set forth in the in-house regulations and processed with prescribed operation flow provided by the regulations</li> <li>• The Company submitted the "Export Control Regulations for National Security" to the Ministry of Economy, Trade and Industry, and is registered as an exporter</li> <li>• Regular training session was held to raise associates' awareness of compliance (once a year)</li> </ul>	
	4-6. Intellectual property protection	Legal & Intellectual Property Department		<ul style="list-style-type: none"> <li>• Patent guarantee (non infringement of other companies' patents): patent guarantee for products is conducted in Japan at process review stages 2 and 4 using patent examination sheets (The same system is used in the U.S.A. and Europe)</li> <li>• Development Patent Committee: Continued efforts to evaluate and register newly obtained published patents of other companies for each working group meeting during development (Check other companies' trends and stay aware of other companies' patents)</li> </ul>	
5. Information disclosure	5-1. Information disclosure to stakeholders	Corporate Communications Office	The issuance of the AKEBONO REPORT (once a year, both in Japanese and English)	<ul style="list-style-type: none"> <li>• Information is appropriately disclosed to stakeholders, giving sufficient consideration to the content and the timing</li> <li>• Matters such as financial conditions, performance and business activities are disclosed through such media as TD net and EDINET pursuant to the rules of information disclosure set forth by such media</li> <li>• Update the Company's websites as needed to improve visibility and to ensure that the latest information is disclosed</li> <li>• The Company issues "AKEBONO REPORT," which integrates the corporate brochure, CSR report and annual report for the convenience of stakeholders</li> </ul>	B

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Category	Initiatives	Responsible Organization	Numerical targets (if applicable)	Structure for Promotion, Action taken and Degree of Attainment	Self-evaluation
6. Risk management	6-1. Companywide risk management structure	Risk Management Committee, Risk Evaluation Committee	Companywide identification and monitoring of critical risks	<ul style="list-style-type: none"> <li>Conducted annual reviews on Companywide critical issues and appoint responsible person and organization to each issue, having them monitor and evaluate progress on response plans with respect to nine selected themes</li> <li>Established risk management structures at each major overseas location and monitor and evaluate progress on risk response plans at each location</li> <li>The status of risk management activities and their risk management policies are reported annually to the Board of Directors after being discussed by the Risk Management Committee</li> </ul>	B
	6-2. Enhance Business Continuity Management (BCM)	BCM Countermeasure Subcommittee (a special subcommittee operating under the Risk Evaluation Committee)	<ul style="list-style-type: none"> <li>Formulate business continuity plans (BCPs) for production line for each mainstay product</li> <li>Conduct annual disaster drills aimed at practicing collaboration between locations (once a year)</li> </ul>	<ul style="list-style-type: none"> <li>Continued to improve the quality of first emergency response through the update of response plans, the implementation of earthquake drills and the preparation of disaster response manuals</li> <li>The BCM Countermeasure Subcommittee, a cross organizational team launched in April 2013, has developed comprehensive Business Continuity Plans (BCPs) aimed at restoring capacity to produce priority items and ensuring business continuity if a mega earthquake were to strike the Company's facilities in Japan. The team also formulated structural reinforcement plans for the facilities at each location to ensure greater earthquake resistance and undertook the analysis of and devising of countermeasure against risks associated with supply chains and information systems while considering the possibility of designating substitute facilities to offset the depletion of production capabilities due to disaster. Issues have been significantly clarified through these activities and the subcommittee will continue to upgrade countermeasures</li> <li>In addition to natural disasters, the Company's operations could also be interrupted by factors such as country risks, cyber-attacks, and pandemics. The Company will expand its BCM initiatives to cover these risks as well</li> </ul>	
7. Social contribution	7-1. Contribution to local communities	General Affairs Department	<ul style="list-style-type: none"> <li>Meeting with local residents for the exchange of opinions (once a year or more)</li> <li>Summer festivals (once a year)</li> <li>Voluntary cleanup activities at the local areas (twice a year)</li> </ul>	<ul style="list-style-type: none"> <li>Regularly held meetings with local residents for the exchange of opinions (three meetings were held in total at three locations in fiscal 2016, attended by 72 people in total)</li> <li>Welcomed elementary and junior high school students to plant tours while hosting "Open House Events" for families of associates wishing to see worksites (such events were held on 25 occasions on a Groupwide basis during fiscal 2016, with 1,139 attendees in total)</li> <li>Continued to hold summer festivals (held at four locations in fiscal 2016 with a total of 5,048 people participating)</li> <li>Local voluntary cleanup activities are regularly undertaken by associates (12 times in total at all locations in fiscal 2016 with a total of 409 associates participating)</li> <li>Local greenery development activities are regularly undertaken (such activities were held four times in fiscal 2016 with 31 associates participating in total)</li> </ul>	C
8. CSR promotion structure	8-1. Structure for developing CSR activities inside the Group	Corporate Branding Office		<ul style="list-style-type: none"> <li>CSR activities are led by the Corporate Brand Management team under the recognition of "CSR is indispensable for corporate brand management and an essential for continuing our business operations"</li> <li>Each relevant section and committee sets targets and evaluates achievements on a separate basis. The Company recognizes that those initiatives must be integrated and promoted on a Groupwide basis in the future</li> </ul>	B
	8-2. Structure for developing CSR activities involving suppliers	Purchasing Division		<ul style="list-style-type: none"> <li>Worked to nurture more favorable partnerships with suppliers globally by strictly complying with relevant laws and regulations and the principles of fairness and equity in conducting business transactions</li> <li>Revised the Green Purchasing Guidelines in February 2012 to step up green procurement efforts</li> <li>Launched tracking surveys to watch for "conflict minerals" entering supply chains in 2013, and took steps to further strengthen parts and material procurement that gives due consideration to the global environment and human rights protection</li> <li>In January 2014 Akebono launched the "Supplier Whistleblower Hotline" on its corporate website and set up systems to pick up and improve on issues in its business dealings</li> </ul>	

## Environmental Targets for Fiscal 2016 and Results Achieved

R&D	<b>Initiatives</b>	Promotion of products containing no substances of concern (SOCs)	<b>Medium- and long-term Targets</b>	Complete the conversion to lead-free sintered material by 2020 (for local and bullet trains)
	<b>Targets for Fiscal 2016</b>		<b>Results Achieved in Fiscal 2016</b>	
	<ul style="list-style-type: none"> <li>Further promote a changeover to the lead-free sintered material for applicable categories of rolling stock</li> <li>Develop lead-free sintered materials that suit for other categories of rolling stock</li> </ul>		<ul style="list-style-type: none"> <li>Lead-free rate is 61% as of fiscal 2016 (55% the previous fiscal year)</li> <li>Completed the development of a lead-free sintered material (not applicable to certain categories of rolling stock)</li> <li>Promoted a changeover from conventional sintered materials to the lead-free sintered material for applicable categories of rolling stock</li> </ul>	
		<b>Plans for Fiscal 2017 and After</b>		
		<ul style="list-style-type: none"> <li>Further promote a changeover to the lead-free sintered material for applicable categories of rolling stock</li> <li>Develop lead-free sintered materials that suit for other categories of rolling stock</li> </ul>		

Production	<b>Initiatives</b>	Reduction of total CO <sub>2</sub> emissions at production plants in Japan	<b>Medium- and long-term Targets</b>	Reduction of CO <sub>2</sub> emissions intensity more than 1% on an annual average by 2020
		Continue and improve ISO14001-related activities		Continue to enhance environmental activities
		Promotion of zero-emission activities at production sites: eliminate direct landfill disposal		Maintain zero emissions
	<b>Targets for Fiscal 2016</b>		<b>Results Achieved in Fiscal 2016</b>	
<ul style="list-style-type: none"> <li>Reduction of CO<sub>2</sub> emissions intensity more than 1%</li> </ul>		<ul style="list-style-type: none"> <li>20% reduction in CO<sub>2</sub> emissions intensity in Japan by operating income in fiscal 2016 on a year on year achieved by introduction of next-generation friction materials manufacturing equipment and application of thermal barrier coatings to factory roofs</li> </ul>		
<ul style="list-style-type: none"> <li>Firmly root ISO14001 in operations and steadily renew certifications</li> </ul>		<ul style="list-style-type: none"> <li>Renewed the ISO14001 certifications at seven sites, including Sanyo Manufacturing</li> </ul>		
<ul style="list-style-type: none"> <li>Maintain zero emissions; generate no direct landfill disposal</li> </ul>		<ul style="list-style-type: none"> <li>Maintained zero emissions; generate no direct landfill disposal</li> </ul>		
		<b>Plans for Fiscal 2017 and After</b>		
		<ul style="list-style-type: none"> <li>Collect information globally on CO<sub>2</sub> reducing measures and energy-saving technologies</li> <li>Continue to firmly root ISO14001 in operations and steadily renew certifications</li> <li>Continue to maintain zero emissions; generate no direct landfill disposal</li> </ul>		

Environmental Education	<b>Initiatives</b>	Environmental training center	<b>Medium- and long-term Targets</b>	Nurture human resources to disseminate environmental preservation methods to locations nationwide through training programs implemented at Environmental training center
	<b>Targets for Fiscal 2016</b>		<b>Results Achieved in Fiscal 2016</b>	
	<ul style="list-style-type: none"> <li>Get feedback from the trainees and reflect it in the program</li> </ul>		<ul style="list-style-type: none"> <li>Held lectures on chemical substance management by external instructors</li> <li>Started introducing the online education program implemented at ABCT (United States) to Japan</li> </ul>	
		<b>Plans for Fiscal 2017 and After</b>		
		<ul style="list-style-type: none"> <li>Get feedback from the trainees and reflect it in the program</li> </ul>		

Refer to the following for performance data for each principal company.  
 Akebono Environmental Data by Principal Company in Japan(PDF download 1,065 KB, 5 pages)

## Environmental Targets for Fiscal 2016 and Results Achieved

Logistics	<b>Initiatives</b>	Response to revised Energy Conservation Law (energy saving obligation of cargo owners)	<b>Medium- and long-term Targets</b>	Reduce unit energy consumption by 1% (five-year average)
	<b>Targets for Fiscal 2016</b>		<b>Results Achieved in Fiscal 2016</b>	
	<ul style="list-style-type: none"> <li>Improve transport efficiency and increase energy usage efficiency</li> </ul>		<ul style="list-style-type: none"> <li>Reduced CO<sub>2</sub> emissions per transport weight and distance from logistics by 0.6% on a year-on-year basis</li> <li>Implemented eco-friendly driving activities and seminars</li> <li>Introduced the real-time management system of truck operations</li> </ul>	
		<b>Plans for Fiscal 2017 and After</b>		
		<ul style="list-style-type: none"> <li>Continue efforts to reduce unit energy consumption by 1% or more in five-year average</li> </ul>		

Purchasing	<b>Initiatives</b>	Promotion of green purchasing	<b>Medium- and long-term Targets</b>	Establish structure that ensures purchasing activities in line with the Green Purchasing Guidelines
	<b>Targets for Fiscal 2016</b>		<b>Results Achieved in Fiscal 2016</b>	
	<ul style="list-style-type: none"> <li>Revise supplier quality management (SQM) standard manuals</li> </ul>		<ul style="list-style-type: none"> <li>Conducted research in tandem with suppliers into the alternate materials that use fewer environmental impact substances and require lower energy input with the aim of making concrete proposals for new material development</li> <li>Carried out the following revisions to SQM standard manuals to ensure the greater understanding of suppliers with regard to the Company's approach to environmental impact substance reduction (Enhanced GADSL<sup>*1</sup> explanations and provided clearer descriptions of procedures for the handling of environmental impact substances)</li> </ul>	
		<b>Plans for Fiscal 2017 and After</b>		
		<ul style="list-style-type: none"> <li>Encourage suppliers to upgrade their environmental management systems</li> <li>Continue supply chain survey using IMDS<sup>*2</sup></li> </ul>		

Production Engineering	<b>Initiatives</b>	Promotion of resource-saving design	<b>Medium- and long-term Targets</b>	Develop manufacturing facilities that are reusable, achieving a greater yield ratio, energy saving, and eco-friendly operations with the aim of realizing environmentally friendly manufacturing
	<b>Targets for Fiscal 2016</b>		<b>Results Achieved in Fiscal 2016</b>	
	<ul style="list-style-type: none"> <li>Further enhance energy-saving and resource-saving technologies</li> </ul>		<ul style="list-style-type: none"> <li>Changed factory dust collection method from large-scale centralized collector to small, individual collectors that can operate in to match the operational status of each factory line</li> </ul>	
		<b>Plans for Fiscal 2017 and After</b>		
		<ul style="list-style-type: none"> <li>Further enhance energy-saving and resource-saving technologies</li> </ul>		

\*1 Global Automotive Declarable Substance List

\*2 International Material Data System used by automobile industry to report data on materials

## Environmental Data by Location (main domestic Group members)

Akebono Brake Yamagata Manufacturing Co., Ltd. Production item: Disc brake pads

Acquired the ISO14001 certification in March 2000

◆ Air (Air Pollution Control Law and Prefectural ordinances)	Substances	Unit	Standard	FY2015		FY2016	
			Regulatory Limit	Maximum Emissions	Average Emissions	Maximum Emissions	Average Emissions
	Dust and soot	g/m <sup>3</sup> N	0.1	0.044	0.032	0.032	0.026
	NOx	ppm	950	790	760	760	755
	SOx	m <sup>3</sup> N/h	7.91	—	0.7	—	0.7

◆ Water (Water Pollution Control Law and Prefectural ordinances)	Substances	Unit	Average Daily Emissions during Operative Period	Average Daily Emissions	Maximum Emissions	Average Emissions	Maximum Emissions	Average Emissions
	pH	—	5.8~8.6	—	7.5	7.1	7.3	7.0
	BOD	mg/l	25	20	11.9	2.9	6.8	3.8
	Suspended solids	mg/l	60	50	5.5	3.8	4.2	3.0
	Oil (n-hexane extract)	mg/l	5	—	2.2	1.5	4.5	2.0
	Colon bacilli	Number/cm <sup>3</sup>	—	3,000	—	—	—	1,700
	Ammonia, ammonium compound, nitrite and nitrates	mg/l	100	—	7.6	6.0	10	5.5

### ◆ Emission Volume of PRTR Designated Chemical Substances

Unit: kg/Year

Name of Substance	Amount Handled		Amount Emitted				Amount Transported				Amount Removed through Proper Removal Methods		Amount Consumed (Attached to Products)	
			Atmosphere		Rivers		Landfill		Recycled		FY2015	FY2016	FY2015	FY2016
	FY2015	FY2016	FY2015	FY2016	FY2015	FY2016	FY2015	FY2016	FY2015	FY2016	FY2015	FY2016	FY2015	FY2016
Antimony and its compounds	25,200	24,300	0	0	0	0	0	0	3,000	2,900	0	0	22,200	21,400
Xylene	6,700	7,900	300	500	0	0	0	0	0	0	6,400	7,400	0	0
Chromium and Trivalent chromium compounds	7,200	8,900	0	0	0	0	0	0	900	1,100	0	0	6,300	7,800
Hexamethylene tetramine	56,800	57,400	0	0	0	0	0	0	6,800	6,900	50,000	50,500	0	0
Triethylamine	1,400	1,400	0	0	0	0	0	0	0	0	1,400	1,400	0	0
Toluene	2,900	3,700	2,900	3,700	0	0	0	0	0	0	0	0	0	0
Phenol	21,200	13,500	0	0	0	0	0	0	2,500	1,600	18,700	11,900	0	0
Manganese and its compounds	7,300	8,600	0	0	0	0	0	0	900	1,000	0	0	6,400	7,600
Molybdenum and its compounds	3,600	42,000	0	0	0	0	0	0	400	500	0	0	3,200	3,700
Total	132,300	129,900	3,200	4,200	0	0	0	0	14,500	14,000	76,500	71,200	38,100	40,500



## Environmental Data by Location (main domestic Group members)

Akebono Brake Fukushima Manufacturing Co., Ltd. Production item: Brake linings

Acquired the ISO14001 certification in March 2000

◆ Air (Air Pollution Control Law and Prefectural ordinances)	Substances	Unit	Standard		FY2015		FY2016	
			Regulatory Limit		Maximum Emissions	Average Emissions	Maximum Emissions	Average Emissions
	Dust and soot	g/m <sup>3</sup> N	—		0.012	0.009	0.008	0.008
	NOx	ppm	—		43	43	50	39
	SOx	m <sup>3</sup> N/h	0.87		0.006	0.0047	0.005	0.0043

  

◆ Water (Water Pollution Control Law and Prefectural ordinances)	Substances	Unit	Average Daily Emissions during Operative Period	Average Daily Emissions	FY2015		FY2016	
					Maximum Emissions	Average Emissions	Maximum Emissions	Average Emissions
	pH	—	5.8~8.6	—	7.4	7.0	7.4	7.2
	BOD	mg/l	40	—	2.3	1.6	2.4	1.6
	Suspended solids	mg/l	70	—	22	11.3	19	11
	Oil (n-hexane extract)	mg/l	10	—	less than 1.0	less than 1.0	less than 1.0	less than 1.0
	Colon bacilli	Number/cm <sup>3</sup>	—	3,000	Not detected	Not detected	Not detected	Not detected

### ◆ Emission Volume of PRTR Designated Chemical Substances

Unit: kg/Year

Name of Substance	Amount Handled		Amount Emitted				Amount Transported				Amount Removed through Proper Removal Methods		Amount Consumed (Attached to Products)	
			Atmosphere		Rivers		Landfill		Recycled					
	FY2015	FY2016	FY2015	FY2016	FY2015	FY2016	FY2015	FY2016	FY2015	FY2016	FY2015	FY2016	FY2015	FY2016
Antimony and its compounds	48,000	48,200	0	0	0	0	0	0	7,700	7,200	0	0	40,300	41,000
Chromium and Trivalent chromium compounds	18,900	19,000	0	0	0	0	0	0	3,000	2,900	0	0	15,900	16,100
Hexamethylene tetramine	49,300	51,500	0	0	0	0	0	0	3,600	4,000	45,700	47,500	0	0
Toluene	4,000	3,800	4,000	3,800	0	0	0	0	0	0	0	0	0	0
Phenol	16,200	14,600	0	0	0	0	0	0	1,200	1,100	15,000	13,500	0	0
Molybdenum and its compounds	3,300	3,100	0	0	0	0	0	0	500	400	0	0	2,800	2,700
Boron compounds	1,900	1,800	0	0	0	0	0	0	300	300	0	0	1,600	1,500
Other	9,900	9,100	0	0	0	0	0	0	1,200	1,200	0	0	8,700	7,900
Total	151,500	151,100	4,000	3,800	0	0	0	0	17,500	17,100	60,700	61,000	69,300	69,200

Figures presented above exclude substances for which the annual handling volume is less than 1 ton. However, nickel compounds and other substances designated as Class I specified compounds are included, if their annual handling volume amounts to 500 kg or more.



## Environmental Data by Location (main domestic Group members)

Akebono Brake Iwatsuki Manufacturing Co., Ltd. Production items: Disc brakes, drum brakes, shoe assemblies and plate assemblies

Acquired the ISO14001 certification in March 2002

◆Air (Air Pollution Control Law and Prefectural ordinances)	Substances	Unit	Standard	FY2015		FY2016	
			Regulatory Limit	Maximum Emissions	Average Emissions	Maximum Emissions	Average Emissions
	Dust and soot	g/m <sup>3</sup> N	0.3	Not applicable, since heavy oil-fed boilers have been abolished.		Not applicable, since heavy oil-fed boilers have been abolished.	
	NOx	ppm	180				
	SOx	m <sup>3</sup> N/h	0.95				

◆Water (Water Pollution Control Law and Prefectural ordinances)	Substances	Unit	Average Daily Emissions during Operative Period	Average Daily Emissions	Maximum Emissions	Average Emissions	Maximum Emissions	Average Emissions
	pH	—	5.8~8.6	—	7.6	7.1	7.3	7.2
	BOD	mg/l	25	20	25	14.3	24	15
	COD	mg/l	—	—	27	12.6	28	15.2
	Suspended solids	mg/l	60	50	7.5	4.0	12	5.8
	Oil (n-hexane extract)	mg/l	5	—	Not detected	Not detected	Not detected	Not detected
	Total nitrogen	mg/l	120	60	51	31.6	58	40
	Total phosphorus	mg/l	16	—	0.9	0.3	1.5	0.4
	Colon bacilli	Number/cm <sup>3</sup>	—	3,000	2,500	324	730	218
	Total chromium	mg/l	2	—	Not detected	Not detected	Not detected	Not detected
	Fluorine	mg/l	8	—	Not detected	Not detected	Not detected	Not detected
	Zinc	mg/l	2	—	0.7	0.4	0.9	0.4

### ◆ Emission Volume of PRTR Designated Chemical Substances

Unit: kg/Year

Name of Substance	Amount Handled		Amount Emitted				Amount Transported				Amount Removed through Proper Removal Methods		Amount Consumed (Attached to Products)	
			Atmosphere		Rivers		Landfill		Recycled					
	FY2015	FY2016	FY2015	FY2016	FY2015	FY2016	FY2015	FY2016	FY2015	FY2016	FY2015	FY2016	FY2015	FY2016
Nickel compounds	10,300	10,800	0	0	0	0	0	0	7,100	5,900	0	0	3,200	4,900
Total	10,300	10,800	0	0	0	0	0	0	7,100	5,900	0	0	3,200	4,900

Figures presented above exclude substances for which the annual handling volume is less than 1 ton. However, nickel compounds and other substances designated as Class I specified compounds are included, if their annual handling volume amounts to 500 kg or more.

In step with the enactment of the Sixth Total Emission Control Standards, regulatory limits for emissions at the Hanyu facilities (total nitrogen and total phosphorus) and Iwatsuki facilities (COD, total nitrogen and total phosphorus) were revised.

Accordingly, regulatory limits presented above are as of fiscal 2009.

## Environmental Data by Location (main domestic Group members)

Akebono Brake Industry Co., Ltd. Headquarters (Hanyu-City, Saitama Prefecture)

Acquired the ISO14001 certification in March 2003

◆Air (Air Pollution Control Law and Prefectural ordinances)	Substances	Unit	Standard		FY2015		FY2016	
			Regulatory Limit		Maximum Emissions	Average Emissions	Maximum Emissions	Average Emissions
	Dust and soot	g/m <sup>3</sup> N	0.05		less than 0.001	less than 0.001	less than 0.001	less than 0.001
	NOx	ppm	600		199	195	195	192
	SOx	m <sup>3</sup> N/h	0.63		—	—	—	—

  

◆Water (Water Pollution Control Law and Prefectural ordinances)	Substances	Unit	Average Daily Emissions during Operative Period	Average Daily Emissions	FY2015		FY2016	
					Maximum Emissions	Average Emissions	Maximum Emissions	Average Emissions
	pH	—	5.8~8.6	—	8.0	7.7	8.1	7.8
	BOD	mg/l	25	20	1.2	1.2	0.5	0.5
	COD	kg/day	7.4	Subject to total emission control	※	※	※	※
	Suspended solids	mg/l	60	50	Not detected	Not detected	Not detected	Not detected
	Oil (n-hexane extract)	mg/l	5	—	Not detected	Not detected	Not detected	Not detected
	Total nitrogen	kg/day	8.3	Subject to total emission control	※	※	※	※
	Total phosphorus	kg/day	1.23	Subject to total emission control	※	※	※	※
	Colon bacilli	Number/cm <sup>3</sup>	—	3,000	※	※	※	※
	Fluorine	mg/l	8	—	Not detected	Not detected	Not detected	Not detected
	Ammonia, ammonium compound, nitrite and nitrates	mg/l	100	—	—	—	—	—

\* Because effluent outlets were switched from rivers to sewage lines, the measurement of substances subject to total emission control and colon bacilli was discontinued in fiscal 2014.

Akebono Brake Industry Co., Ltd. Tatebayashi Foundry Production item: Casting parts for brakes

Acquired the ISO14001 certification in March 2010

◆Air (Air Pollution Control Law and Prefectural ordinances)	Substances	Unit	Standard		FY2015		FY2016	
			Regulatory Limit		Maximum Emissions	Average Emissions	Maximum Emissions	Average Emissions
	Dust and soot	g/m <sup>3</sup> N	0.2		—	less than 0.00098	—	less than 0.0009

  

◆Water (Water Pollution Control Law and Prefectural ordinances) Effluent from combined sewage treatment tanks are subject to annual measurements.	Substances	Unit	Average Daily Emissions during Operative Period	Average Daily Emissions	FY2015		FY2016	
					Maximum Emissions	Average Emissions	Maximum Emissions	Average Emissions
	pH	—	5.8~8.6	—	—	6.7	—	7.2
	BOD	mg/l	25	20	—	less than 5	—	less than 9

## Environmental Data by Location (main domestic Group members)

**Akebono Brake Sanyo Manufacturing Co., Ltd. Kibi Daiichi Plant** Production items: Drum brakes, shoe assemblies and plate assemblies

Acquired the ISO14001 certification in May 2001

**Akebono Brake Sanyo Manufacturing Co., Ltd. Kibi Daiini Plant** Production items: Wheel cylinders

Acquired the ISO14001 certification in March 2003

◆Air (Air Pollution Control Law and Prefectural ordinances)	Substances	Unit	Standard		FY2015		FY2016	
			Regulatory Limit		Maximum Emissions	Average Emissions	Maximum Emissions	Average Emissions
	Dust and soot	g/m <sup>3</sup> N	—		—		—	
	NOx	ppm	—		—		—	
	SOx	m <sup>3</sup> N/h	—					

  

◆Water (Water Pollution Control Law and Prefectural ordinances)	Substances	Unit	Average Daily Emissions during Operative Period	Average Daily Emissions	FY2015		FY2016	
					Maximum Emissions	Average Emissions	Maximum Emissions	Average Emissions
	pH	—	6.0~8.0	—	7.9	7.7	7.8	7.6
	BOD	mg/l	15	6	1.2	0.45	1.4	0.5
	COD	mg/l	15.0	8	3.7	2.8	7.9	3.5
	Suspended solids	mg/l	30	10	1.0	0.33	3.0	0.8
	Oil (n-hexane extract)	mg/l	5	—	2.0	0.17	0	0
	Total nitrogen	mg/l	120	60	1.7	0.97	1.5	0.88
	Total phosphorus	mg/l	2	2	0.1	0.06	0.16	0.07
	Colon bacilli	Number/cm <sup>3</sup>	—	1,000	0	0	0	0

### ◆ Emission Volume of PRTR Designated Chemical Substances

Unit: kg/Year

Name of Substance	Amount Handled		Amount Emitted				Amount Transported				Amount Removed through Proper Removal Methods		Amount Consumed (Attached to Products)	
			Atmosphere		Rivers		Landfill		Recycled					
	FY2015	FY2016	FY2015	FY2016	FY2015	FY2016	FY2015	FY2016	FY2015	FY2016	FY2015	FY2016	FY2015	FY2016
Chlorobenzene	2,100	2,090	2,100	2,090	0	0	0	0	0	0	0	0	0	0
Toluene	2,100	1,860	2,100	1,860	0	0	0	0	0	0	0	0	0	0
Total	4,200	3,950	4,200	3,950	0	0	0	0	0	0	0	0	0	0

Due to repair work underway at the joint wastewater treatment facilities of the industrial complex, effluent is currently being treated at provisional treatment facilities. Because of this, Akebono Brake Sanyo Manufacturing Co., Ltd.'s facilities have been temporary exempted from complying with regulatory standards stipulated by a pollution prevention agreement with Soja City. Instead, standards set forth in the Water Pollution Control Law (oil = 5mg/l; total nitrogen = 120mg/l) are being applied until the completion of repairs.