

CSR
REPORT **2014**
CORPORATE SOCIAL RESPONSIBILITY
Environmental Data

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Environmental Data

Period Covered by This Report

2013 Fiscal Year ended March 31, 2014

*From January 1, 2013 to December 31, 2013 for overseas affiliated companies

Scope of This Report

Covers ADEKA and the major domestic and overseas companies in the ADEKA Group.

Domestic affiliated companies		Overseas affiliated companies	
● ADEKA CHEMICAL SUPPLY CORP.	● ADEKA LOGISTICS CORP.	● AMFINE CHEMICAL CORP.	● ADEKA (SHANGHAI) CO., LTD.
● ADEKA CLEAN AID CORP.	● YONGO CO., LTD.	● ADEKA (SINGAPORE) PTE.LTD.	● ADEKA FINE CHEMICAL (CHANGSHU) CO., LTD.
● ADEKA FINE FOODS CORP.	● ADEKA LIFE-CREATE CORP.	● ADEKA KOREA CORP.	● ADEKA FINE CHEMICAL (THAILAND) CO., LTD.
● ADEKA ENGINEERING & CONSTRUCTION CORP.	● UEHARA FOODS INDUSTRY CO., LTD.	● ADEKA FINE CHEMICAL TAIWAN CORP.	● ADEKA FOODS (CHANGSHU) CO., LTD.
● OXIRANE CHEMICAL CORP.	● TOKYO ENVIRONMENTAL MEASUREMENT CENTER CO., LTD.	● ADEKA PALMAROLE SAS	● ADEKA AL GHURAIR ADDITIVES LLC
● ADEKA FOODS SALES CORP.			

In this Environmental Data, "ADEKA Group" and "the Group" refer to the entire ADEKA Group, while "ADEKA" and "the Company" refer to ADEKA Corporation.

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Basic Environmental Policy

1. Strive to conserve resources and energy, recycle resources, and reduce the generation of waste, in order to prevent environmental pollution.
2. Comply with domestic and foreign laws and regulations related to the environment, and at the same time strive to strengthen voluntary management and achieve further environmental conservation.
3. Be aware that corporate activities are dependent upon the blessings produced through biodiversity, and seek to protect biodiversity.
4. Take a proactive stance in procuring raw materials that impose a low burden on the environment, and contribute to the realization of a recycling-oriented society.
5. Disclose the results of environmental conservation activities to society.
6. Communicate with stakeholders and provide support to society and local communities in environmental conservation activities.

*In order to raise awareness of environmental issues and respond to societal needs towards environmental conservation, we have revised the basic guidelines we formulated in 2006.

Environmental Initiatives System

Under the policy set by Environmental Protection Division headed by an operating officer, each business office formulates an execution plan and makes efforts for continuous improvement of environmental management activities by implementing PDCA cycle.



Environmental Action Goals, Plans

ADEKA has established quantitative targets for important items related to environmental conservation, and we conduct our business activities toward achieving these targets.

In fiscal 2013, we revised our medium- to long-term targets to correspond with greenhouse gas reduction targets announced by the government. As the Company has already achieved the target of reducing greenhouse gases by 3.8% by 2020, against fiscal 2005 figures, we will continue with the single-year target of an annual reduction rate of 1% for CO₂ emissions in our production divisions.

Scope of quantitative assessment: ADEKA Corporation

Category	Scope	Medium- and Long-term Goals	FY2013 Goals	Performance in FY2013	Future Tasks
Promote energy conservation	Production division	Reduce energy intensity ^{*1} by 20% by FY2020, compared with FY1990 levels	Reduce energy intensity by 1% or more year on year	<ul style="list-style-type: none"> ● Achieved energy intensity of 0.1928 kiloliters per tonne (Reduced energy intensity by 2.9% compared with FY1990 levels. 3.9% reduction from previous year) 	<ul style="list-style-type: none"> ● Strengthen management toward reduction of fixed energy with a focus on electricity and steam
Reduction of Greenhouse Gas Emissions	Production division	Reduce CO ₂ emissions by 3.8% by FY2020, compared with FY2005 levels	Reduce CO ₂ emissions by 1% or more year on year	<ul style="list-style-type: none"> ● Generated 145,219 tonnes of CO₂ emissions (Reduced CO₂ emissions by 18.3% compared with FY2005 levels. 3.6% increase from previous year) 	<ul style="list-style-type: none"> ● Change fuels, for example, from heavy oil to city gas ● Discover new highly efficient equipment/energy-saving equipment, etc. ● Conserving energy through improvements in production technology
Reduce industrial waste generated	All ADEKA Offices	Achieve landfill disposal volume of zero by fiscal 2020	Reduce industrial waste output by 1% or more year on year	<ul style="list-style-type: none"> ● Generated 39,144 tonnes of industrial waste (1.3% reduction from previous year) ● Recycling rate : 43% (5 points down from previous fiscal year) ● Landfill disposal volume : 21.4t (17.1% decrease from previous year) 	<ul style="list-style-type: none"> ● Curb generation of waste through improvement in production technology ● Curb the generation of long-term stock-in-hand and surplus products through production planning and sales planning ● Explore channels to convert things into valuable resources, and recycle waste
		Increase recycling rate ^{*2} for externally processed waste to 100% by FY2020	Continue to achieve zero emissions ^{*3} of landfill waste, and make efforts for complete elimination of landfill waste ^{*4}	<ul style="list-style-type: none"> ● Achieved zero emissions 	
Reduce Environmental Pollutant Emissions	Production division and R&D division	Reduce emission of PRTR ^{*5} substances by 20% compared with FY2010 level by FY2020	Strive to reduce emissions of PRTR substances, while managing them	<ul style="list-style-type: none"> ● Air emissions: 6.4 tonnes (31% fall from previous fiscal year) 	<ul style="list-style-type: none"> ● Enhance management for reducing emissions of PRTR substances
				<ul style="list-style-type: none"> ● Emissions into public water: 3.0 tonnes (84% fall from previous fiscal year) 	
				<ul style="list-style-type: none"> ● PRTR transferred amount: 146 tonnes (14% fall from previous fiscal year) 	
Promote green purchasing	All ADEKA Offices	Improve green purchasing rate by 80% or more for stationery and non-stationery items by fiscal 2020		<ul style="list-style-type: none"> ● Stationery items: 69% (Same as the previous fiscal year) ● Non-stationery items: 47% (7 points down from previous fiscal year) 	<ul style="list-style-type: none"> ● Promote green purchasing while striking a balance with cost
Management systems	Head Office and Soma Plant	Develop IMS ^{*6} and BCMS	Acquire ISO 22301:2012 accreditation	<ul style="list-style-type: none"> ● Acquired ISO 22301:2012 certification in December 2013 	<ul style="list-style-type: none"> ● Understand customer's needs and continuously improve management systems ● Review and revision of BCP at each plant
	Production division		Keep up continuous improvements in BCM and BCP	<ul style="list-style-type: none"> ● Review and revision of BCP at each plant 	

*1 An objective indicator for production efficiency. Refers to the energy needed to produce a unit quantity of products (crude oil equivalent).

*2 Defined as the percentage of industrial waste of all industrial waste that is treated by external contractors, which is effectively utilized through means such as recycling and reuse, resource recovery, and heat recovery (as defined by ADEKA Corporation).

*3 Defined as landfill waste that amounts to less than 0.5% of the volume of industrial waste output (as defined by ADEKA Corporation).

*4 Defined as landfill waste that amounts to less than 0.1% of the volume of industrial waste output (as defined by ADEKA Corporation).

*5 A system in which the Japanese government, together with business operators and other bodies, obtains, computes, and publishes data on the sources and amounts of toxic chemical substances released in the environment, and amounts externally transferred in waste.

*6 Comprehensive management system

*7 Business continuity management system

Environmental Accounting

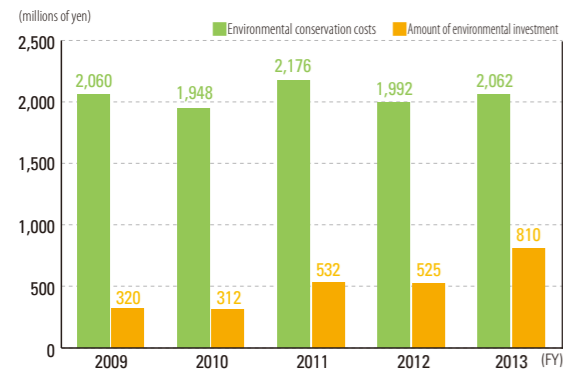
ADEKA Group calculates and verifies costs required for environmental conservation and its effect in order to facilitate environmental management.

Survey target: ADEKA Corporation (production and R&D divisions), ADEKA Fine Foods Corp., Oxirane Chemical Corp., UEHARA FOODS INDUSTRY CO., LTD.

Environmental Conservation Costs

Category		Description of Main Initiatives	Cost of Environmental Initiatives	Amount of Investment
1. Business area cost		All environmental conservation activities aimed at limiting environmental impact	1,833	751
	(1) Pollution prevention costs	Prevention of air, water, and soil pollution, and of noise, stench, and land subsidence	1,081	475
	(2) Global environmental conservation costs	Preventing global warming (conserving energy), preventing damage to the ozone layer	317	180
	Resource recycling costs	Reducing and recycling resources, and minimizing the generation of waste material	435	96
2. Upstream/downstream cost		Green procurement, reducing the environmental burden imposed by containers and packaging, collecting and re-commercializing products	14	0.7
3. Administration cost		Environmental ISO, disclosure of environmental information, environmental impact monitoring, greening	94	45
4. R&D cost		R&D expenses for environmental conservation	112	13
5. Social activity cost		Greening and beautification of areas outside the offices and plants, donating and supporting environmental conservation organizations	6	0.2
6. Environmental remediation cost		Purification efforts to improve water quality and remove soil pollution, restoration of nature	3	0
Total			2,062	810

Cost of Environmental Initiatives and Amount Invested



Economic Effects with Environmental Conservation Measures

Details of effects	(millions of yen)
Income earned by recycling, profits from the sale of valuable resources, etc.	152
Reduction in costs through introducing resources from the environment into business activities	259
Reduction in the burden imposed by business activities on the environment and costs related to the generation of waste material	54
Reduction in costs related to dealing with environmental damage	0
Reduction in distribution cost and other costs	14
Total	478

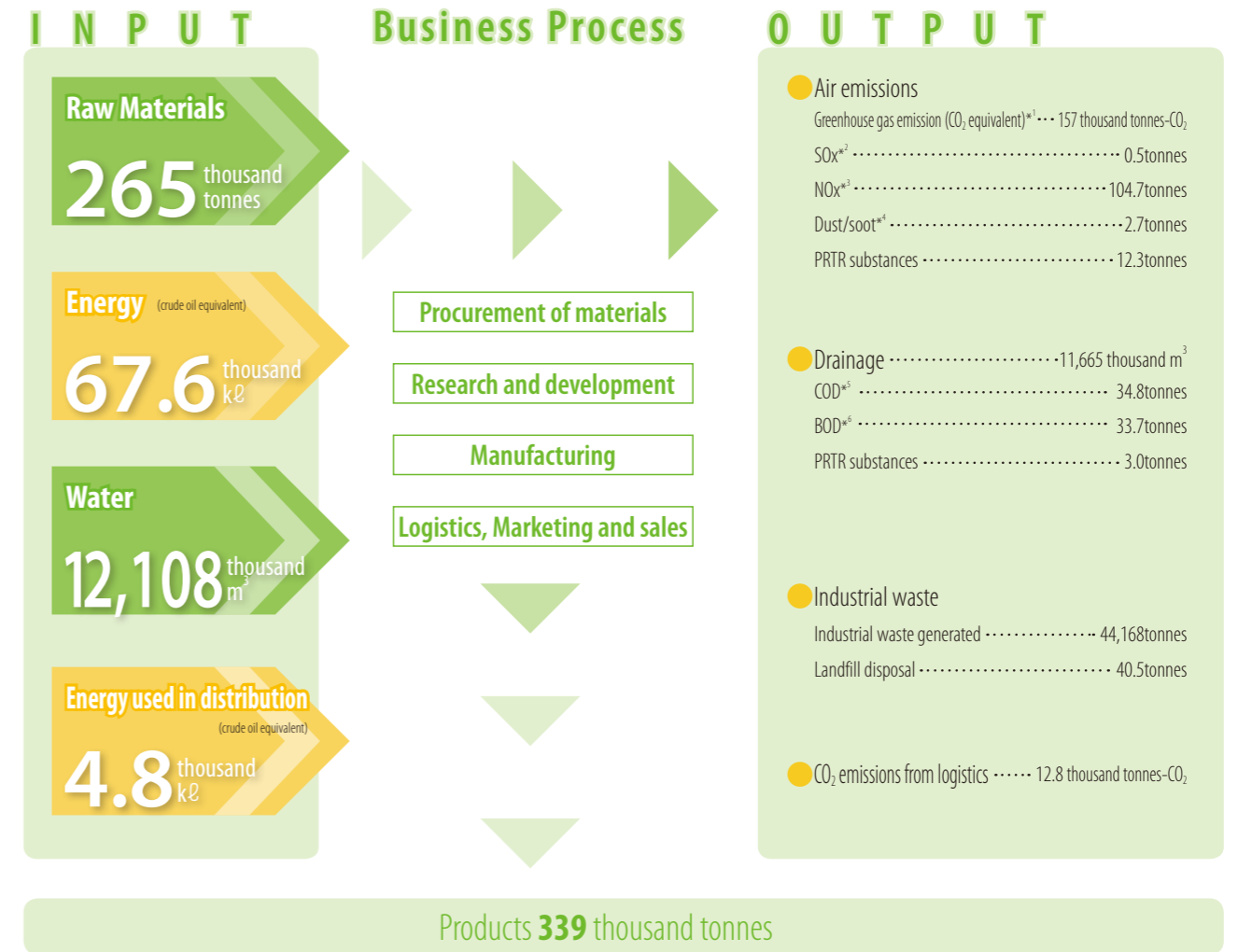
Environmental conservation effect

Environmental Performance Indicators	
Quantity of specific managed substances input	7,901t
Circulation and usage of used products, containers, and packaging	778t
Quantity of containers and packaging used	6,264t
Quantity of products transported	131,615thousandt • km

Material Flow

The ADEKA Group has put in place initiatives to reduce and recycle the volume of waste material generated through our production processes.

Survey target: ADEKA Corporation and the main 11 domestic affiliated companies



*1 Total emissions arising from energy sources, non-energy sources, and processes

*2 Sulfur oxides emitted during the use of sulfur-containing fuels

*3 Nitrogen oxide emitted during combustion in boilers and incinerators at plants

*4 Particulate matter emitted from combustion of fuels and other matter

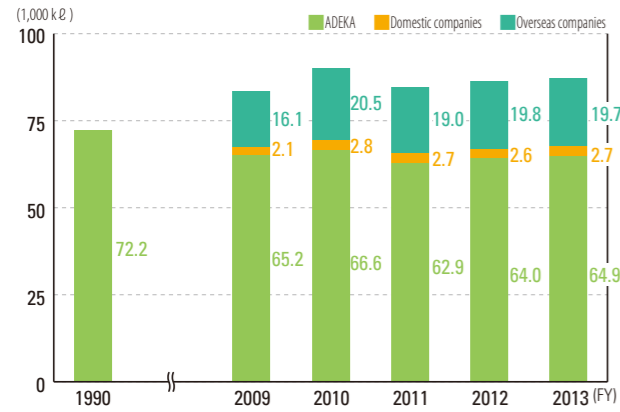
*5 The amount of oxygen that is consumed during the oxidation of organic compounds

*6 The amount of oxygen that is needed by biological organisms to mineralize or gasify organic pollutants in a body of water or plant wastewater

Prevention of Global Warming

With the aim of realizing a sustainable society through our business activities, ADEKA Group promotes energy conservation by improving processes, implements plans that include the conversion from the use of heavy oil to city gas, and reduces the consumption of various forms of energy that are used in our production activities.

Energy Consumption by Crude Oil Equivalent

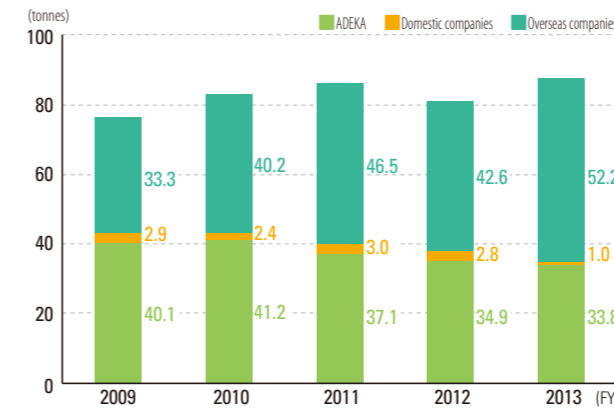


CO₂ Emissions

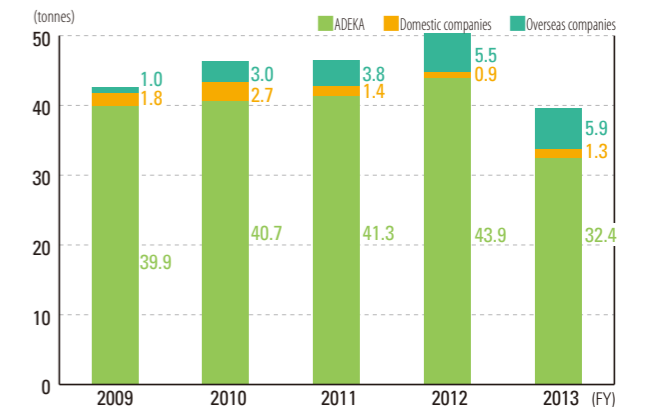


*We have revised figures for ADEKA Corporation from fiscal 2009 to fiscal 2012.

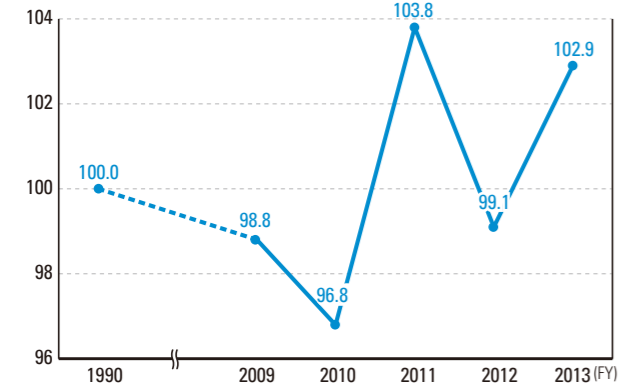
Chemical Oxygen Demand emissions



Biological Oxygen Demand emissions

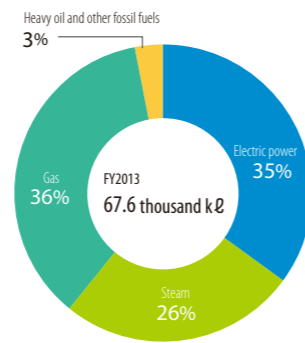


Energy Intensity Index from Manufacturing(ADEKA Corporation :production divisions)



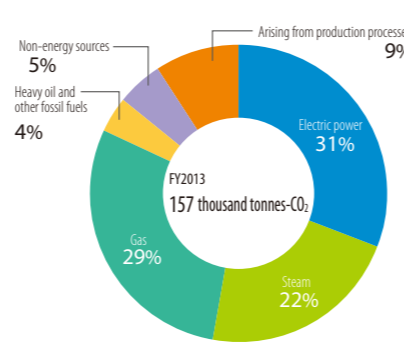
Breakdown of energy consumption

*Excluding overseas group companies



Breakdown of greenhouse gas emissions

*Excluding overseas group companies



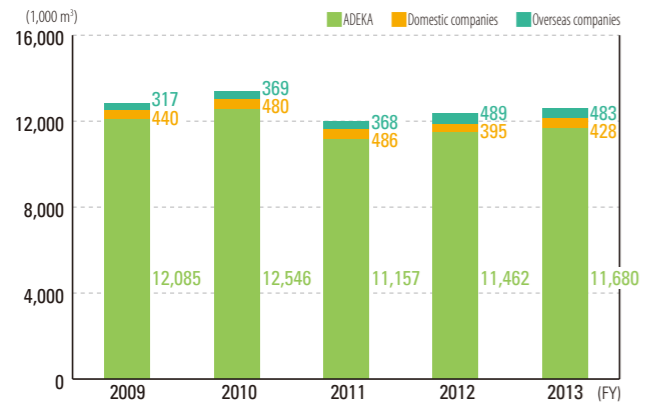
Air Pollution Prevention

As part of environmental conservation measures put in place by our production and R&D divisions, the ADEKA Group strives constantly to prevent air pollution, and is committed to efforts to minimize the emission of SO_x, NO_x, dust and soot into the air.

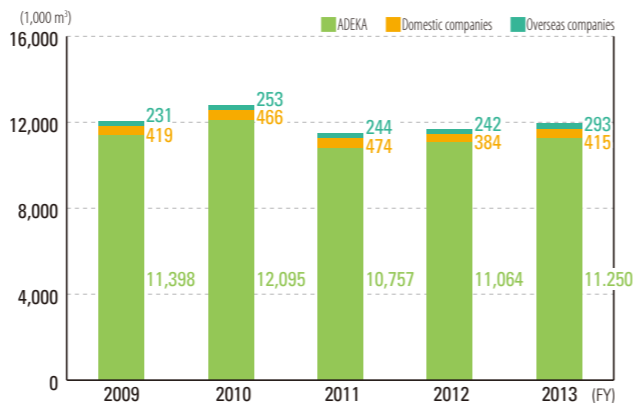
Prevention of Water Pollution

The ADEKA Group collects, recycles, and reuses wastewater from production processes, with the aims of preventing water pollution and the conservation of water resources, which are vital for a recycling-based society. The Group is also committed to reducing the environmental effects of wastewater, in accordance with various laws and regulations.

Usage of Water

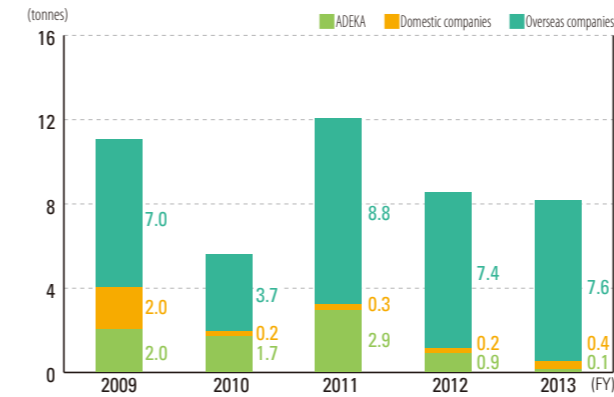


Waste Water Discharge

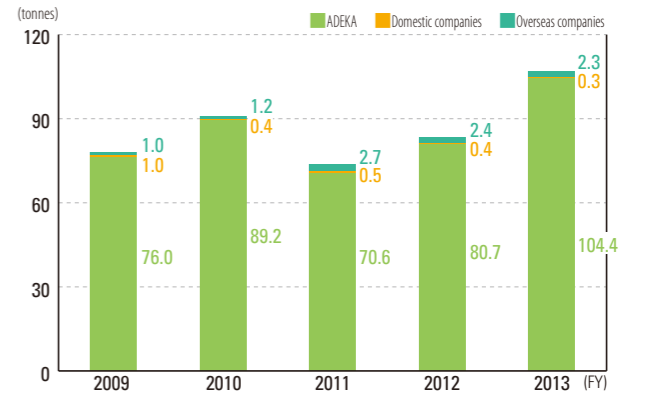


*We have revised figures for ADEKA Corporation from fiscal 2009 to fiscal 2012.

SO_xemissions



NO_x emissions



Soot/Dust emissions



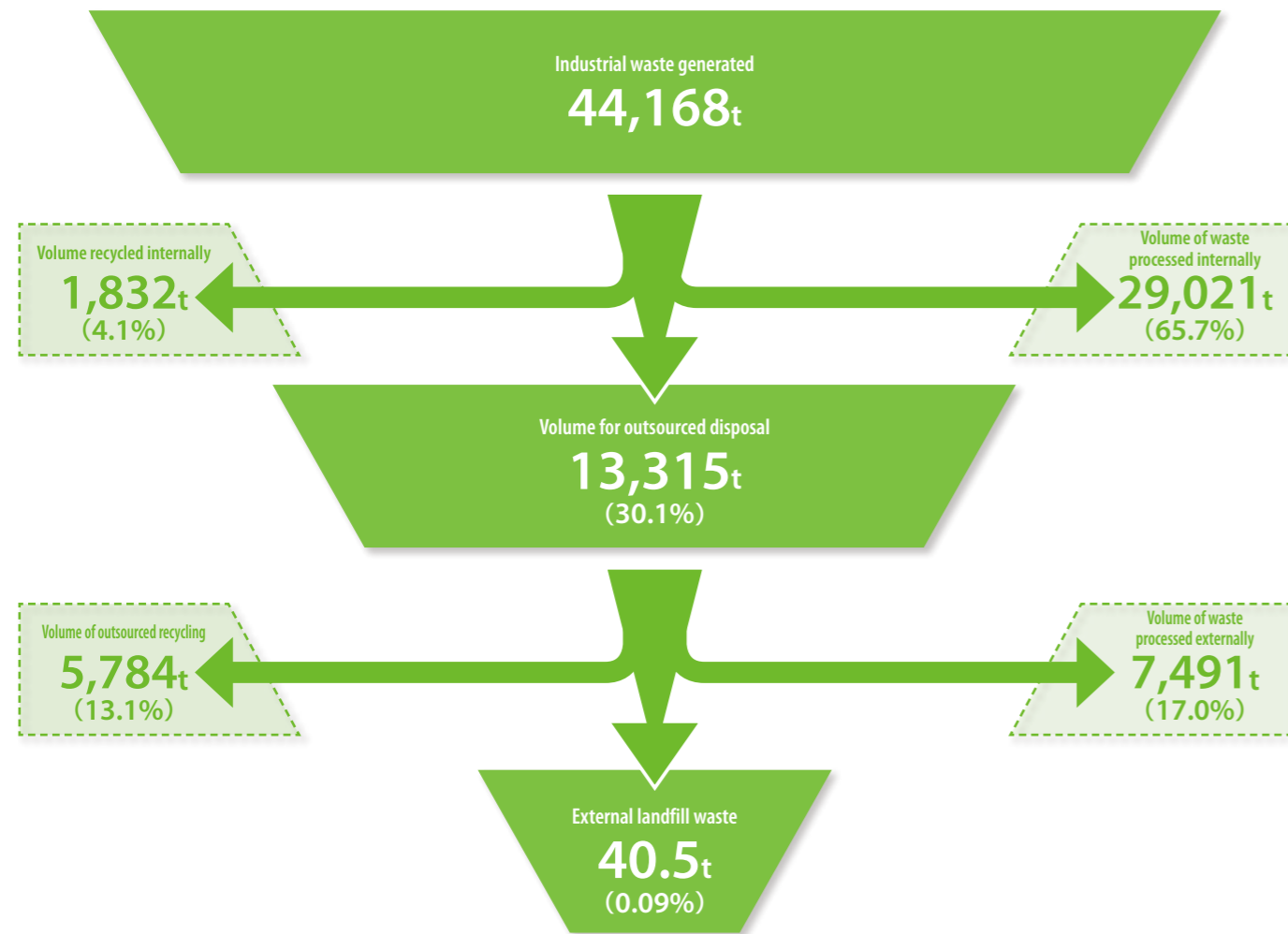
Reducing Industrial Waste

The ADEKA Group has put in place the 3R system that involves reducing, reusing, and recycling industrial waste, and is promoting the efficient use of resources.

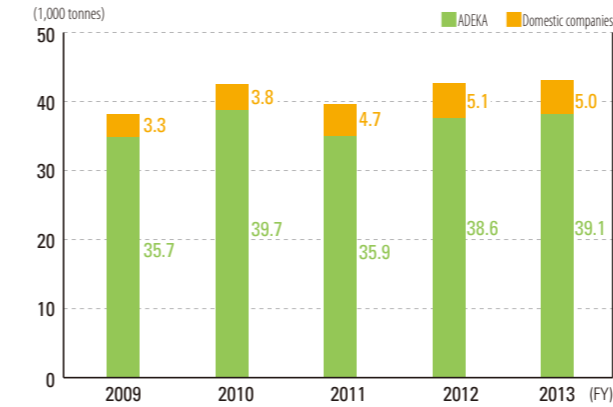
Zero emission is defined as less than 0.1% of landfill disposal as a percentage of industrial waste generated. We have achieved zero emission for six consecutive years since fiscal 2007.

Survey target: ADEKA Corporation and the main 11 domestic affiliated companies

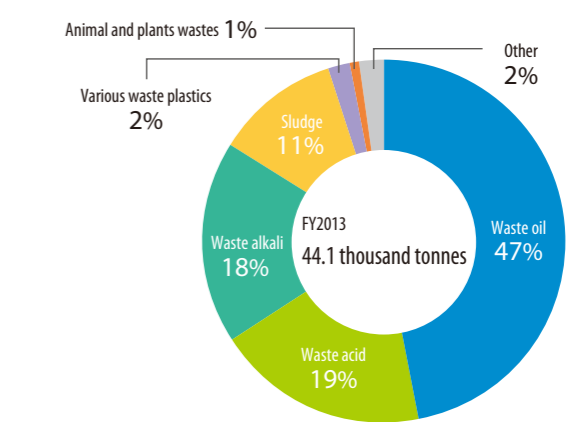
The entire flow of recycling and disposal of waste



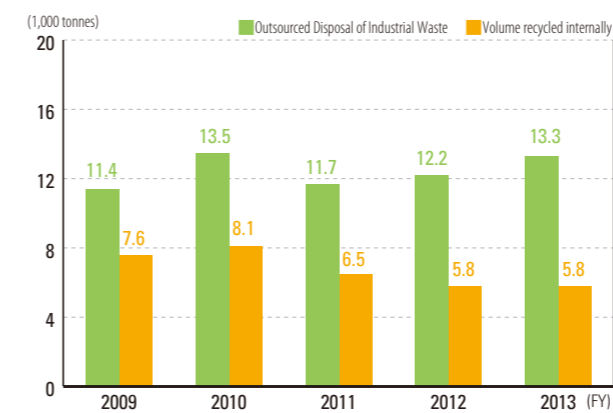
Industrial waste generated



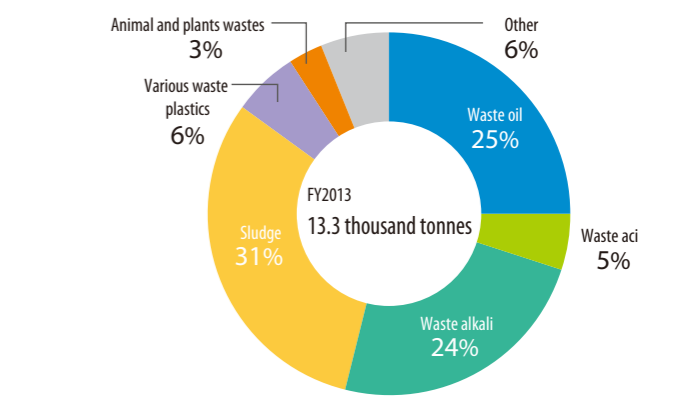
Breakdown of industrial waste



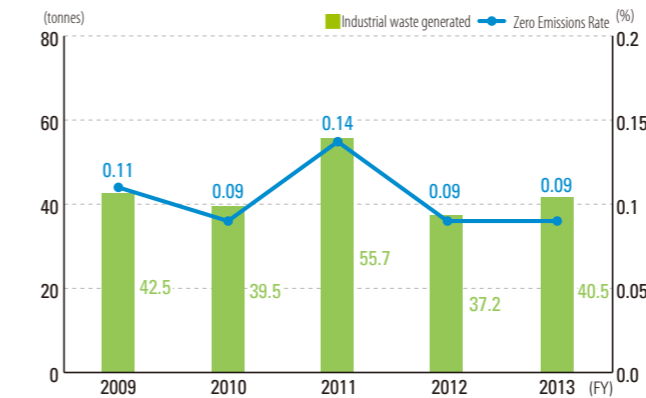
Zero Emissions Rate for Landfill Disposal of Industrial Waste



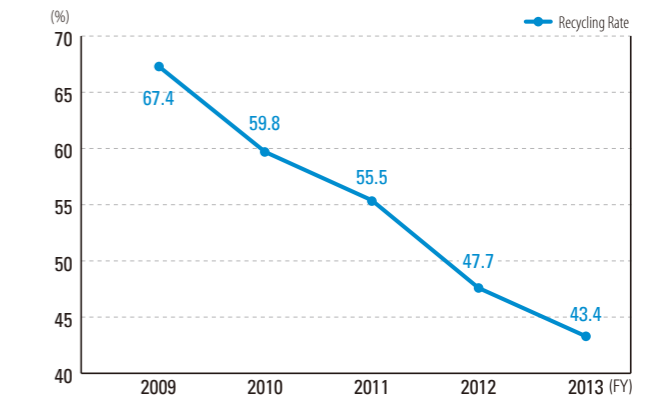
Recycling Rate



Outsourced Disposal of Industrial Waste



Breakdown of the total volume of waste treated by external contractors



Reducing Emissions of Chemical Substances

ADEKA Group began conducting studies on PRTR in fiscal 1997. We strive to ensure appropriate management by carrying out quantitative assessments of the quantity of target chemical substances used as well as the quantity generated through our production processes.

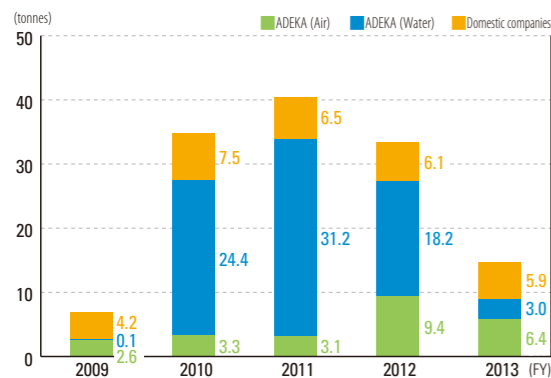
With the revision of the law for PRTR, the number of target substances in the fiscal 2011 report was 462. For fiscal 2013, we will report on 77 of these 462 substances.

Survey target: ADEKA Corporation (production and research divisions), Oxirane Chemical Corp.

Substance	Discharge				Transfer	
	Air	Public Waters	Soil	Landfill Waste	Sewage	External Transfer
1-Allyloxy-2,3-epoxypropane	0.0	0.0	0.0	0.0	0.0	0.1
4,4'-Isopropylidenediphenol	0.0	0.0	0.0	0.0	0.0	0.6
Ethylbenzene	0.0	0.0	0.0	0.0	0.1	13.1
Epichlorohydrin	0.1	0.0	0.0	0.0	0.0	0.0
Ferric chloride	0.0	0.0	0.0	0.0	0.0	6.0
Xylene	0.1	0.0	0.0	0.0	0.1	9.7
Chlorobenzene	0.2	0.0	0.0	0.0	0.0	9.3
Chloroform	0.0	0.0	0.0	0.0	0.0	1.0
Chloromethane	0.2	0.0	0.0	0.0	0.0	0.0
1,2-Dichloroethane	1.0	0.0	0.0	0.0	0.0	41.0
Dichloromethane	0.2	0.0	0.0	0.0	0.0	9.7
Butylated hydroxytoluene	0.0	0.0	0.0	0.0	0.0	0.5
N,N-dimethylformamide	0.0	0.0	0.0	0.0	0.0	0.3
Decyl alcohol	0.1	0.0	0.0	0.0	0.0	0.0
Water-soluble copper salt (with the exception of complex salt)	0.0	0.0	0.0	0.0	0.0	2.0
Triethylamine	0.0	0.2	0.0	0.0	0.0	7.2
Toluene	5.3	0.0	0.0	0.0	0.0	26.0
Carbon disulfide	0.6	0.0	0.0	0.0	0.0	0.0
Nonylphenol	0.0	0.0	0.0	0.0	0.0	0.1
Pyridine	0.0	0.0	0.0	0.0	0.0	0.9
Bis(2-ethylhexyl)phthalate	0.0	0.0	0.0	0.0	0.0	0.2
N-hexane	4.0	0.0	0.0	0.0	0.0	12.5
Water-soluble salts of peroxodisulfuric acid	0.0	2.8	0.0	0.0	0.0	0.0
Boron compounds	0.0	0.0	0.0	0.0	0.1	0.2
Poly (oxyethylene) alkyl ether (limited to substances with alkyl group carbon atoms from 12 up to 15 and their mixtures)	0.0	0.0	0.0	0.0	0.0	0.2
Methyl methacrylate	0.0	0.0	0.0	0.0	0.0	4.0
Methylenebis (1,4-cyclohexylene) diisocyanate	0.0	0.0	0.0	0.0	0.0	0.1
Molybdenum and its compounds	0.1	0.0	0.0	0.0	0.0	1.5
TRIS(2-ETHYLHEXYL)	0.2	0.0	0.0	0.0	0.0	13.0
Sub-total (t)	12.1	3.0	0.0	0.0	0.2	159.2
Other substances (48 types) (t)	0.2	0.0	0.0	0.0	0.0	0.5
Total (t)	12.3	3.0	0.0	0.0	0.2	159.7
Dioxins *	0.59	5.2 × 10 ⁻⁵	0.0	0.0	0.0	0.0

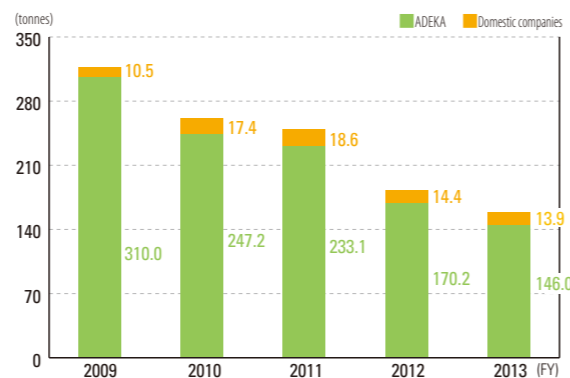
*Dioxins: Unit: mg-TEQ

Discharge of PRTR Substances



*There are no emissions into the waters of domestic Group companies.

Transfer of PRTR Substances



Acquisition of Management System Certification

ISO 14001 (Environmental Management Systems)

- Mie Plant (December 1996)
- Kashima Plant (March 1998)
- Fuji Plant (April 2000)
- Chiba Plant (May 2000)
- Soma Plant (September 2000)
- Akashi Plant (March 2001)
- OXIRANE CHEMICAL CORP. (March 2001)
- TOKYO ENVIRONMENTAL MEASUREMENT CENTER CO., LTD. (February 2003)
- ADEKA KOREA CORP. (January 2006)
- ADEKA FINE CHEMICAL TAIWAN CORP. (February 2007)
- ADEKA FINE CHEMICAL (CHANGSHU) CO., LTD. (July 2007)
- AMFINE CHEMICAL CORP. (September 2007)
- ADEKA FOODS (CHANGSHU) CO., LTD. (August 2009)

OHSAS 18001 (Occupational Health and Safety Management Systems)

- Mie Plant (September 2001)
- Soma Plant (November 2002)
- Kashima Plant (November 2002)
- Akashi Plant (March 2003)
- Chiba Plant (October 2003)
- Fuji Plant (December 2003)
- ADEKA FINE CHEMICAL TAIWAN CORP. (June 2007)
- ADEKA FOODS (CHANGSHU) CO., LTD. (August 2009)

ISO 22000 (Certification for Food Safety)

- ADEKA FOODS (CHANGSHU) CO., LTD. (January 1998)
- Akashi Plant (April 2008)
- ADEKA FINE FOODS CORP. (March 2010)

FSSC 22000 (Certification for Food Safety)

- Kashima Plant—West (November 2011)

HACCP (Hazard Analysis Critical Control Point) implementation

- ADEKA FINE FOODS CORP. (January 1998)
- Kashima Plant (March 2002)
- Akashi Plant (March 2004)

ISO 22301 (Business Continuity Management System)

- ADEKA FINE CHEMICAL TAIWAN CORP. (January 2013)
- Head Office and Soma Plant (January 2014)

ISO 19001 (Quality Management Systems)

- Mie Plant (June 1993)
- Kashima Plant (April 1996)
- Fuji Plant (January 1997)
- Chiba Plant (July 1997)
- OXIRANE CHEMICAL CORP. (October 1997)
- Soma Plant (August 1998)
- ADEKA CLEAN AID CORP. (October 1999)
- ADEKA ENGINEERING & CONSTRUCTION CORP. (March 2002)
- KUKDO CHEMICAL (KUNSHAN) CO., LTD. (March 2004)
- AMFINE CHEMICAL CORP. (October 2004)
- ADEKA KOREA CORP. (October 2004)
- ADEKA FINE CHEMICAL (SHANGHAI) CO., LTD. (May 2005)
- TOKYO ENVIRONMENTAL MEASUREMENT CENTER CO., LTD. (August 2005)
- ADEKA FINE CHEMICAL (CHANGSHU) CO., LTD. (October 2005)
- UEHARA FOODS INDUSTRY CO., LTD. (November 2005)
- ADEKA (SINGAPORE) PTE.LTD. (April 2006)
- FELDA OIL PRODUCTS SDN BHD (June 2006)
- ADEKA FINE CHEMICAL TAIWAN CORP. (July 2006)
- ADEKA FINE CHEMICAL (THAILAND) CO., LTD. (December 2006)

IMS (Integrated Management System)

- Soma Plant (August 2004)
- Kashima Plant (November 2008)
- Fuji Plant (December 2009)
- Chiba Plant (July 2011)

TPM (Received Total Productive Maintenance)

- Chiba Plant: 1994 Excellence Award
- Kashima Plant and Mie Plant: 1995 Excellence Award
- OXIRANE CHEMICAL CORP.: 1995 Excellence Award
- Akashi Plant: 2004 Excellence Award
- Kashima Plant: 2007 Excellence Award
—Special Award for TPM Achievement
- Fuji Plant: Award for TPM Excellence, Category A (2010)

ISO 14064-1

(Standard concerning calculation, reporting, and verification of emissions and reduced amount of greenhouse gases)

- ADEKA FINE CHEMICAL TAIWAN CORP. (March 6, 2011)