

# Environmental Data

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### Scope of the Environmental Data

This section of the report covers the environmental initiatives of the subject to the Ajinomoto Group Environmental Management as defined in the company's Environmental Regulations (fully subject to the regulations as of March 2017). These companies include Ajinomoto Co., Inc. and other group companies.

Performance statistics are for the 111 major business sites (twelve added and three eliminated) following site reorganization as well as plant dissolution and new construction, which substantially represent the environmental performance of the entire Ajinomoto Group<sup>[1]</sup> under the consolidated financial accounting system.

[1] The Ajinomoto Group refers to Ajinomoto Co., Inc. and its consolidated subsidiaries and group companies subject to financial reporting under the equity method.

# Ajinomoto Group Zero Emissions Plan (AGZEP) and Fiscal 2016 Result

## AGZEP for 2014-2016

Key targets and results of the AGZEP for 2014–2016 \* Including Ajinomoto Windsor, Inc. in fiscal 2016 and onwards.

	Item	Scope	Results			FY2016 targets to be achieved	FY2030 targets to be achieved
			FY2014	FY2015	FY2016		
Water resources	Biochemical Oxygen Demand, Total Nitrogen in wastewater	All production sites of the Group that directly discharge wastewater to public waterways	Target achieved at 27 out of 34 sites	Target achieved at 24 out of 32 sites	Target achieved at 22 out of 31 sites	BOD≤10ppm TN≤5ppm	BOD≤10ppm TN≤5ppm
	Water use per unit of production	All production sites of the Group	73% reduction	75% reduction	77% reduction	Reduce by at least 70% (compared to fiscal 2005)	Reduce by at least 80% (compared to fiscal 2005)
	Discharged water per unit of production	All production sites of the Group	75% reduction	79% reduction	80% reduction	Reduce by at least 70% (compared to fiscal 2005)	Reduce by at least 80% (compared to fiscal 2005)
CO <sub>2</sub> emissions	CO <sub>2</sub> emissions per unit of production	Entire Group (production sites + non-production sites)	28% reduction	33% reduction	33% reduction	Reduce by at least 35% (compared to fiscal 2005)	Reduce by at least 50% (compared to fiscal 2005)
	CO <sub>2</sub> emissions	All production sites in Japan	351 kt	407 kt	446 kt	≤496 kt <sup>[1]</sup> (reduce by 11% compared to fiscal 2005)	
	Renewable energy use ratio	Entire Group (production sites + non-production sites)	15%	18%	20%	≥15%	50%
3Rs of waste	Resource recovery ratio (waste + by-products)	Entire Group (production sites + non-production sites)	99.4%	99.6%	99.3%	≥99%	≥99%
	Volume of waste (based on actual reports)	Entire Group (production sites + non-production sites)	1,248 kt	1,785 kt	0,964 kt	Zero waste caused by trouble	Zero waste caused by trouble

[1] Base year (2005): 558 kt

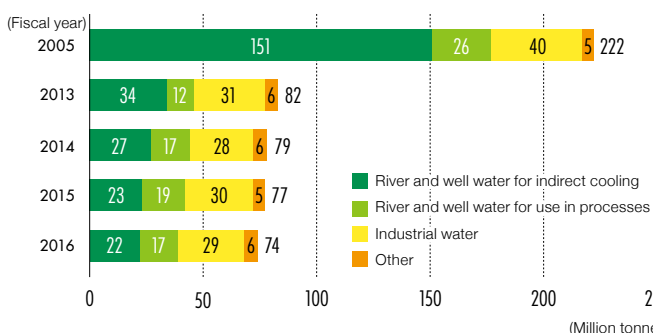
## Conservation of Water Resources : Fiscal 2016 performance overview

### Water use

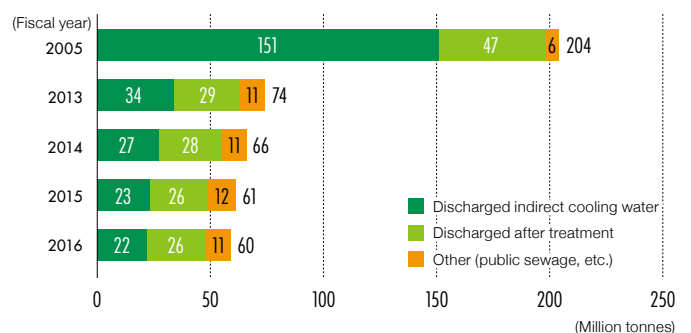
(Million tonnes)

	Base year		Results						
	FY2005	Ratio (%)	FY2012	FY2013	FY2014	FY2015	FY2016	Ratio (%)	Difference
Water use	222	100%	110	82	79	77	74	100%	-148
Japan		38%	46	34	30	32	27	36%	-57
Asia/Africa		37%	35	22	23	21	23	31%	-59
Europe		13%	14	13	11	11	12	16%	-17
North America		2%	5	5	5	5	6	8%	2
South America		8%	8	7	7	6	6	8%	-12
China		3%	1	1	1	1	1	2%	-5
Water used per unit of production (per tonne of product)	123	—	48	36	34	30	28	-	-
Reduction ratio of water use per unit of production	—	—	61%	71%	73%	75%	77%	-	-
Reference value: Production volume (10 kilotonnes)	180	—	230	226	235	253	266	-	-

### Water use



### Discharged water



## Reduction of Greenhouse Gas Emissions : Fiscal 2016 performance overview

### Total CO<sub>2</sub> emissions and CO<sub>2</sub> emissions per unit of production

(10 kilotonnes)

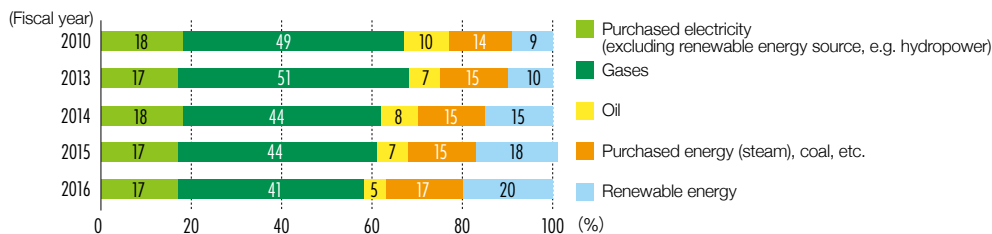
	Base year		Results						
	FY2005	Ratio (%)	FY2012	FY2013	FY2014	FY2015	FY2016	Ratio (%)	Difference
<b>Total CO<sub>2</sub> emissions</b>	236	100%	224	220	221	223	233	100%	-3
Japan	58	25%	42	39	40	45	47	20%	-11
Asia/Africa	87	37%	94	93	97	104	106	46%	19
Europe	33	14%	26	23	22	17	18	8%	-16
North America	23	10%	33	35	36	35	43	18%	20
South America	20	9%	19	19	18	14	11	5%	-9
China	14	6%	10	10	9	8	8	4%	-6
<b>CO<sub>2</sub> emissions per unit of production (per tonne of product)</b>	1.31	—	0.97	0.97	0.94	0.88	0.88	-	-
Reduction rate of CO <sub>2</sub> emissions per unit of production	—	—	26%	26%	28%	33%	33%	-	-
Reference value: Production volume	180	—	230	226	235	253	266	-	-

### Input of clean energy

	FY2012	FY2013	FY2014	FY2015	FY2016
Input of clean energy (TJ) <sup>[1]</sup>	35,669	35,342	36,356	37,362	39,105
Energy input per unit of production (per tonne of product)	15.5	15.6	15.5	14.8	14.7

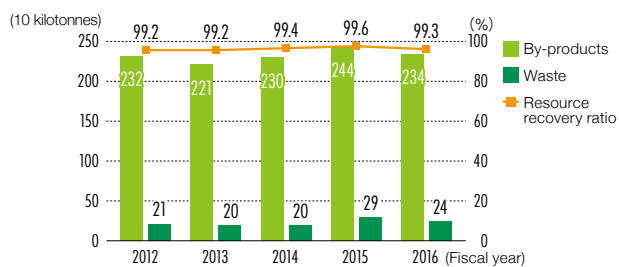
[1] TJ: terajoule, T (tera) = 10<sup>12</sup>

### Energy use at the Ajinomoto Group (thermal equivalent)

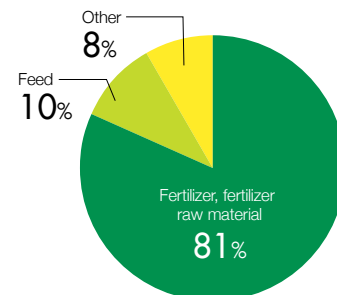


## 3Rs of Waste : Fiscal 2016 performance overview

### Volume of waste and by-products and resource recovery ratio

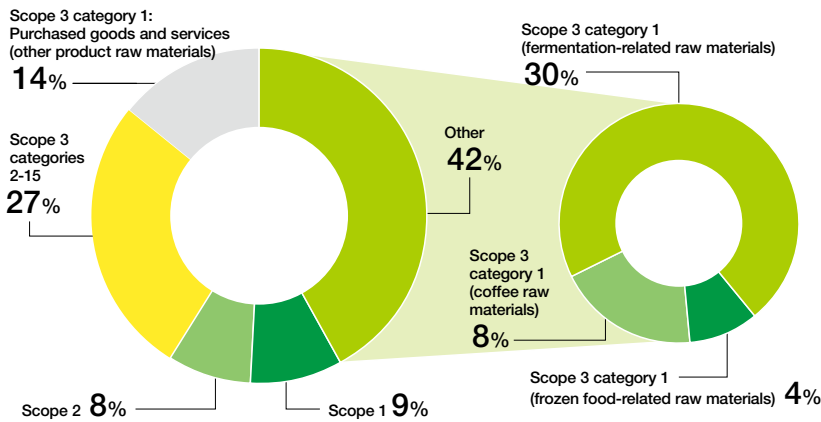


### Applications of recovered by-products (FY2016)

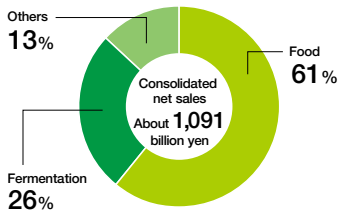


# Fiscal 2016 Input and Output Balance

## Ajinomoto Group CO<sub>2</sub> Emissions (Scope 1, 2, 3)



## Consolidated net sales (reference)



\*The Ajinomoto Group's business segments are categorized according to the characteristics of the environmental impact incurred by the various manufacturing methods, excluding cooperative ventures, such as edible oils. These categories are different from the business segments based on consolidated financial accounting. Their scope of reporting is different from the scope applied to the input and output balance.

### Scope 1

Direct greenhouse gas emissions from sources that are owned or controlled by the organization (burning fuel, industrial processes, vehicle use, etc.).

### Scope 2

Indirect emissions from the generation of purchased electricity, heat, or steam consumed by the company.

### Scope 3

Other indirect emissions (product use, disposal and transport, employee commuting and business travel, investment, etc.)

## Data calculation

### Scope of reporting :

Target 109 major business sites that have a significant overall environmental impact within the Ajinomoto Group as defined in the consolidated financial accounting system.

### Reporting period :

April 1, 2016, to March 31, 2017



### Raw materials

CO<sub>2</sub> emissions from resource extraction through manufacture of all products purchased by the Ajinomoto Group.



### Production

CO<sub>2</sub> emissions from use of fuels and electricity in Ajinomoto Group production processes.



### Transport

CO<sub>2</sub> emissions relating to the distribution of all products purchased and manufactured.



### Use

CO<sub>2</sub> emissions required to prepare cup soup, instant coffee, and frozen foods.



### Disposal

CO<sub>2</sub> emissions from the disposal of Ajinomoto Group product packaging.



## Ajinomoto Group Products Carbon Footprint

Product	Production plant	CFP values <sup>[1]</sup> (per kg of product <sup>[2]</sup> )	CFP values per serving <sup>[3]</sup>
(1) HON-DASHI	Kawasaki Plant, Ajinomoto Co., Inc.	14.08kg-CO <sub>2</sub> e	-
(2) Ajinomoto KK Consommé (Granules)	Kawasaki Plant, Knorr Foods Co., Ltd.	6.87kg-CO <sub>2</sub> e	-
(3) Knorr® Cup Soup Tsubu Tappuri Corn Cream	Kawasaki Plant, Knorr Foods Co., Ltd.	7.08kg-CO <sub>2</sub> e	-
(4) Ajinomoto KK Sihrogayu 250 g	Kawasaki Plant, Knorr Foods Co., Ltd.	0.81kg-CO <sub>2</sub> e	-
(5) Cook Do® Hoikoro	Kawasaki Plant, Ajinomoto Co., Inc.	2.95kg-CO <sub>2</sub> e	1.21 kg-CO <sub>2</sub> e per serving (approx. 700 g)
(6) Cook Do® Kyo-no Oozara Butabara Daikon	Tokai Plant, Knorr Foods Co., Ltd.	2.31kg-CO <sub>2</sub> e	2.90 kg-CO <sub>2</sub> e per serving (approx. 1 kg)
(7) Nabe Cube Toridashi Umashio	Kunneppu Plant, Hokkaido Knorr Foods Co., Ltd.	8.54kg-CO <sub>2</sub> e	-
(8) Blendy® Stick Café au Lait (coffee mixes)	AGF Suzuka, Inc.	4.85kg-CO <sub>2</sub> e	-
(9) Lemon and Basil Fried Chicken (frozen foods)	Kyushu Plant, Ajinomoto Frozen Foods Co., Inc.	5.84kg-CO <sub>2</sub> e	-
(10) Yamaki Mentsuyu (400ml and 500ml)	Daini Plant and Minakami Plant, YAMAKI Co., Ltd.	2.02kg-CO <sub>2</sub> e	-
(11) Masako® Ayam (11g)	Mojokerto Factory, PT Ajinomoto Indonesia	2.49kg-CO <sub>2</sub> e	-
(12) Aji-ngon® Pork flavor seasoning (400g)	Long Thanh Factory, Ajinomoto Vietnam Co., Ltd.	2.68kg-CO <sub>2</sub> e	-
(13) Ros Dee® Pork (75g)	Nong Khae Factory, Ajinomoto Thailand Co., Ltd.	3.15kg-CO <sub>2</sub> e	-

[1] Carbon footprint (CFP) values in the report are calculated in accordance with PCR No. PA-CG-02 from the Japan Environmental Management Association for Industry. This calculation system and the results for (1) to (9) are backed by a third-party assurance statement from the international certification organization Lloyd's Register Quality Assurance Limited, based on the ISO/TS 14067 standard.

[2] The standard defined functional unit is per 1kg of each product.

[3] CFP values of ingredients including vegetables and meat are included in this CFP value.