

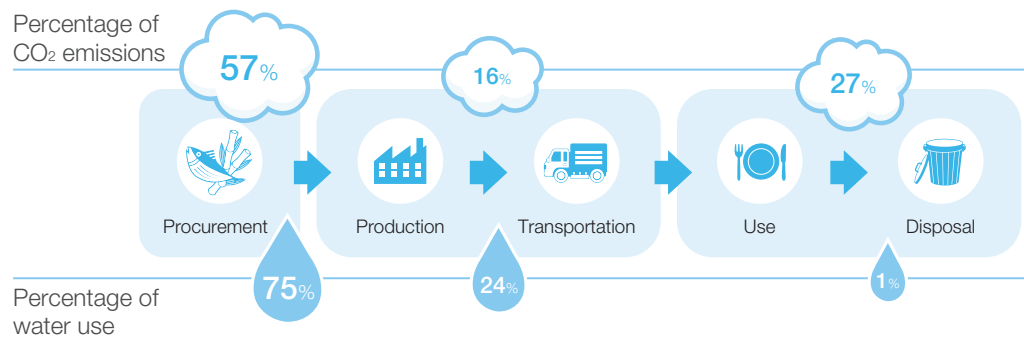
Reduction of greenhouse gas emissions in the value chain

Performance

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► Environmental Data

From a lifecycle perspective, raw material procurement represents the most significant portion of the Ajinomoto Group's environmental impact.



The percentage of CO₂ emissions are based on CO₂ emissions of fiscal 2018 input and output balance shown in the Environmental Data. The percentage of water use is calculated by Trucost based on primary raw materials, amount used in production, and transportation and storage scenarios.

Medium and Long-term Environmental Targets and Results

The Ajinomoto Group aims to reduce the greenhouse gas emission volume vs. emission intensity by 50% from fiscal 2005, the base year, and achieve 50% renewable energy use ratio by fiscal 2030. To achieve these targets, the Group set annual targets for fiscal 2018 to 2020 as shown below. Greenhouse gas emission volume vs. emission intensity was reduced by 33% in fiscal 2018 compared to the baseline year of fiscal 2005, falling short by three percentage points of the original target and a two-point decline from a year prior. The main factors were the interruption of lysine production in Brazil and an increase in greenhouse gas emissions due to the full-scale operation of coal boilers in Indonesia.

Renewable energy use reached 24% in fiscal 2018, surpassing the previous year and meeting the target.

Target and result for greenhouse gas emission reduction

	FY2018		FY2019 Target	FY2020 Target	FY2030 Target
	Target	Result			
Reduction rate of greenhouse gas emission volume vs. emission intensity (vs. FY2005)	36%	33%	37%	38%	50%
Renewable energy use ratio	24%	24%	26%	28%	50%

Reduction of greenhouse gas emissions

	FY2005 (Base year)	FY2014	FY2015	FY2016	FY2017	FY2018
Greenhouse gas emission (kilo tons) ^[1]	2,357	2,211	2,234	2,330	2,299	2,310
Greenhouse gas emission volume vs. emission intensity (per ton of product)	1.31	0.94	0.88	0.88	0.86	0.88
Reduction rate	—	28%	33%	33%	35%	33%
Reference value: Total amount of production (kilo tons)	1,800	2,347	2,532	2,657	2,684	2,627

[1] Calculated based on internal CO₂ emission factors for environmental management purposes.

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Impact Reduction through On-site Ammonia Production

The Ajinomoto Group uses purchased ammonia in amino acid fermentation processes. Currently, this ammonia is manufactured at large-scale, high-pressure plants and then shipped to factories that need it, a system that necessitates large quantities of energy.

To address this issue, in 2017 Ajinomoto Co., Inc., in partnership with Professor Hideo Hosono at Tokyo Institute of Technology, etc. established Tsubame BHB Co., Ltd. and is working toward practical application of an innovative ammonia production technology. Using a new catalyst invented by Prof. Hosono's team, the Company aims to build an on-site, volume-flexible production model and pursue commercialization in years 2021 to 2022.

Management of Fluorocarbons

The Ajinomoto Group aims to completely switch from using fluorocarbons (HCFCs^[1], HFCs) as refrigerants in newly purchased chillers and such to using natural refrigerants or refrigerants with low GWP (Global Warming Potential) of less than 150 by fiscal 2025 and minimize ownership of HFCs by fiscal 2030. To achieve these targets, in fiscal 2018 the Group revised its fluorocarbon reduction long-term target, better clarifying applicable facilities and deadlines for new installations or replacements.

The Group's seven frozen food factories in Japan have converted 24 units to natural refrigerants as of the end of fiscal 2018 and plan to switch the remaining six units to non-fluorocarbon equipment by the end of fiscal 2020.

[1] Hydrochlorofluorocarbons. Manufacture of HCFCs, which are ozone-depleting substances, will be phased out in developed countries by 2020 and in developing countries by 2030.

Number of freezers using fluorocarbons (frozen food factories in Japan)

