

Eco-Factories & Offices



Throughout the entire production process, we work to save energy and enhance facilities in an attempt to prevent global warming and reduce industrial waste.

Operations and Environmental Impact

The Toyama Technology & Manufacturing Center expends resources and energy in order to make and provide products and consequently discharges CO₂ and waste products. It monitors the inputs and outputs of such elements, and works to reduce hazardous chemical substances and increase energy efficiency.

For information on the procurement of raw materials and the reduction of environmental impacts caused by our products, see "Promoting Responsible Procurement Activities" and "Eco-Friendly, Next-Generation Products," respectively.

	Input		
Energy			
Electricity	21,857 MWh	(+15%)	
		[212,061GJ]	
Fuel oil (heavy oil, ke	rosene) 145 kL	(+23%)	
		[5,553GJ]	
Gas (city gas, LPG)	51,000 m ³	(+10%)	
		[5,398GJ]	
Raw materials			
Materials and parts	180 t	(+40%)	
Packaging materials	467 t	(+30%)	
Papers	20 t	(+32%)	
Chemical substances	i		
PRTR*1			
-specified chemical substance	ces handled 2.7 t	(+14%)	
Water			
Tap water, industrial wat	ter 156,000 m ³	(+13%)	
Tap water	10,000 m ³		
Industrial water	146,000 m ³		



Exhaust gas		
CO ₂ emissions* ²	10,077 t	(+12%)
Direct CO₂ emission		
Indirect CO ₂ emiss	sions 9,377 t	
SOx	0.0 Nm ³	(0%)
NOx	243 Nm ³	(+98%)
Waste and valuables		
Release	513 t	(+13%)
Final disposal	1 t	(0%)
Chemical substances		
Release, transfer and re	ecycling of PRTR	
-specified chemical sub	stances 0.3 t	(-42%)
Drainage		
Amount of drainage	156,000 m ³	(+13%)
Discharged to rive after purification		
BOD	0.7 t	(+32%)

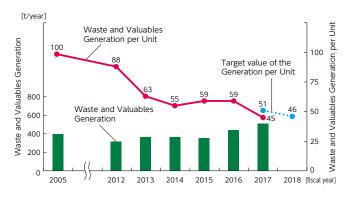
The values in parentheses show the change from fiscal 2016.

Reduction of Waste (Toyama Technology & Manufacturing Center)

The Toyama Technology & Manufacturing Center works to reduce Waste and Valuables Generation per Unit and set a goal of improving its rate to 46 (an improvement of 54% compared with fiscal 2005) in fiscal 2018.

In fiscal 2017, we endeavored to reduce the use of packaging materials and sort waste packaging materials for disposal and collection. We will educate employees on the importance of waste sorting and encourage them to do it.

We are also reducing landfill waste by recycling waste materials and will continue doing this to achieve zero emissions. ■ Improvement in the amount of Waste and Valuables Generation and that per Unit



^{*1} PRTR: Pollutant Release and Transfer Register

^{*2} CO₂ emissions: Emissions were calculated based on the 2005 emission coefficients for electric power by country published by the International Energy Agency (IEA).



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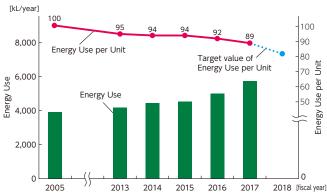
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Prevention of Global Warming and Energy Saving (Toyama Technology & Manufacturing Center)

Most of the energy consumed by the Toyama Technology & Manufacturing Center goes toward operating the evaluation equipment used for process development. We therefore work to reduce unnecessary idling to lower the environmental impact of the equipment. We set a goal of improving Energy Use per Unit to 82 in fiscal 2018 (an 18% improvement compared to fiscal 2005). In fiscal 2017, we expanded energy saving efforts and achieved the goal of improving Energy Use per Unit to 89 (an 11% improvement compared to fiscal 2005).

As efforts regarding facilities in fiscal 2017, we upgraded to high-efficiency air-conditioning equipment and switched to LED lighting. With regard to operations, in support of the national campaign against global warming promoted by the government since 2005, we implemented "Cool Biz" and "Warm Biz" campaigns and continued our participation in the "Lights Out Campaign."

■Improvement in Energy Use and that per Unit



Proper Disposal of Waste

In order to keep the product manufacturing sites even cleaner, the Toyama Technology & Manufacturing Center replaced the clean room (CR) suits and helmets with next-generation eco-friendly types. Wasted CR suits and helmets used to be recycled into refuse plastic fuel (RPF) but some residues were sent to final landfill sites. However in the replacement, the old suits and helmets were 100% recycled into materials, being collected by the manufacturers of the products under the wide-area certification system*. The Company will monitor the latest trends of recycling technologies and choose a more appropriate disposal method when outsourcing the disposal of waste.

■Outline of material recycling



* Under the wide-area certification system, manufacturers collect their products wasted from the users for recycling. Because manufacturers know much about the features and structures of their products, the collected wasted products are expected to be recycled in an advanced manner.

Participation in the "Lights Out Campaign"

The Group annually participates in the "Lights Out Campaign" organized by the Japanese Ministry of the Environment, switching off lights, such as signboard lights, across its bases in Japan on the summer solstice day as well as on the day of Tanabata, the seventh of July.

We also participated in "Earth Hour," which was held by the World Wide Fund for Nature (WWF) on March 24, 2018, turning off lights at our sites both within and outside Japan. Signboard and outside lights turned off at Kook Je Electric Korea Co., Ltd.





Before turning off

After turning off