

Iwaki Plant/Environmental Report 2006

Business Summary: Manufacturing of vehicle engines

Address: 386 Shimokawa-aza-Otsurugi, Izumi-cho, Iwaki-shi, Fukushima, Japan

Start of Operations: January 1994

Number of Employees: 650

ISO 14001 Certification: March 1999

Environmental Slogan: Creating a clean facility that is friendly to the environment, which preserves the natural environment at Iwaki and contributes towards global environment conservation efforts



General Manager
Iwaki Plant
Kenjiro Fukugami



Iwaki Plant

Major Results in FY 2005

CO₂ reduced by recalibrating the incineration temperature of the aluminum sludge pre-processing furnace

Aluminum sludge generated during industrial process is treated in the pre-processing furnace as described below.

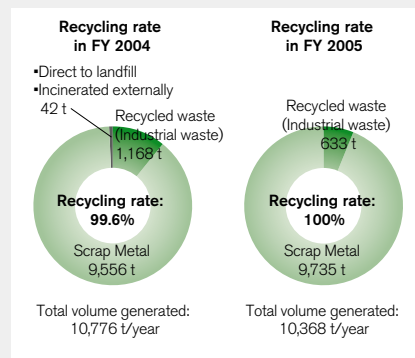
- Sludge-bearing "cutting fluid" is removed
- Aluminum is separated from other metals such as steel. By reducing the interior temperature of the pre-processing furnace from 800°C to 650°C, we have reduced kerosene consumption from 150 liters to 110 liters per ton of aluminum.



The aluminum sludge pre-processing furnace

Resource Utilization

In fiscal 2005, we began recycling the pit sludge (aluminum scraps) that the plant's aluminum casting machine generates, achieving a 100% recycling rate.



In addition, waste generation excluding metal was reduced to half by (1) changing treating cutting fluid, and (2) reducing wastewater treatment sludge with new flocculant.

Constant monitoring of rainwater discharge

As part of our efforts to prevent environment-related mishaps, we installed a UV meter and oil film detection device that continuously monitor the discharge of rainwater. This allows us to remotely observe the quality of the runoff, and in the event of a possible mishap should enable us to initiate rapid countermeasures.



The device that automatically monitors rainwater quality

FY 2005 Objectives and Results

Objective	Target	Result	Comment
Energy conservation	Reduction of CO ₂ volume Over 220 tons of CO ₂ /year	+ 234 tons of CO ₂ /year	In addition to the abovementioned aluminum sludge processing, we are controlling coolant volume flow during the machining process and using semi-drying techniques and other energy-saving measures as part of our efforts to reduce CO ₂ .
Activities to achieve 100% recycling of waste	Direct landfill 0 t/year	+ 0 t/year	In July 2005, we achieved a 100% waste recycling rate. This included thermal recovery of general waste and the processing of waste plastics.
	Externally incinerated 0 t/year	+ 0 t/year	
	Incinerated on site 0 t/year	+ 0 t/year	
Environmental education	Environmental education 2 times/year	+ 2 times/year	To achieve greater environmental awareness, we had the entire workforce take part in facility inspections and lectures during environment month and energy-saving month.
Cooperation and coexistence with local communities, local environmental protection	Implementation of "Clean Day" (beautification of area surrounding plant)	+ 7 times/year	Greening the plant and collecting litter from the public road bordering the plant.

Communication with the Community

Environmental PR signs

Based on suggestions offered by some of the many visitors to the Iwaki plant, we are seeking to create an "inspiring plant."



We are planning activities that include using signs to introduce environmental topics as well as tours to wastewater treatment facilities and demonstrations of processing techniques.



Explaining of PR signs

The Autumn Festival

The Iwaki plant's Aki Matsuri, autumn festival, is our main forum for communicating with local residents. Through wide appeals for the community to take part, we have further deepened these exchanges.

Date: October 8, 2005



A scene from the 2005 Aki Matsuri

Plant History

The No. 2 Engine plant was built to produce more sophisticated engines and contribute to the development of the community.



The No. 2 Engine plant (on left)

Jan. 1994 VQ engine production begins
Nov. 2005 Four-millionth engine produced in total
Dec. 2005 VQ engine named one of the "Ten Best Engines" by U.S. automotive consultant J. D. Power (12th consecutive year)



Trophies for "Ten Best Engines" award

Environmental Data

Air Quality (Air Pollution Control Law and ordinances)

Substance	Facility	Legal Limit	Measured Value
NOx	Absorption chiller heater	120	82
	Aluminum furnace	100	26
	Aluminum chip smelting furnace	100	29
	Multi-purpose smelting furnace	100	40
Soot and dust	Water cooling and heating generator	0.03	0.002
	Aluminum smelting furnace	0.03	0.017
	Aluminum chip smelting furnace	0.03	0.006
	Multi-purpose smelting furnace	0.03	0.006
SOx	Absorption chiller heater	4.5	ND
	Aluminum smelting furnace	4.5	0.03
	Aluminum chip smelting furnace	4.5	0.02
	Multi-purpose smelting furnace	4.5	ND
Dioxins	Aluminum chip smelting furnace	1	0.000017

Unit: NOx: ppm, Soot and dust: g/m³, SOx: K limit, Dioxins: ng-TEQ/m³N
* Measured values are the maximum measured values in FY 2005.

Wastewater Quality (Water Pollution Control Law and other ordinances)

Item	Legal Limit	Measured Value		
		Maximum	Minimum	Average
pH	5.0-9.0	7.4	6.8	7.2
COD	40*	7.5	4.4	6
SS	70*	ND	ND	ND
Oil	1*	ND	ND	ND
Phenol	1*	-	-	0.05
Copper	2*	-	-	0.1
Zinc	4*	-	-	0.1
Fluoride	10*	-	-	0.5
Soluble iron	10	-	-	0.1
Soluble manganese	10	-	-	0.1
Nickel	2*	-	-	0.03
Total Nitrogen	120	-	-	0.5
Total Phosphorus	16	-	-	0.03

Unit: mg/l (except pH)

* Measurements of items other than those listed above were below minimum quantifiable limits
* ND indicates below minimum quantifiable limits * Indicates a Fukushima prefectural ordinance

PRTR Substances

Substance number	Chemical substance	Amount handled	Unit: kg/year (Dioxins: mg-TEQ/year)						
			Air	Water	Waste	Landfilled by Nissan	Recycled	Chemically changed	Product
13	2, 2'-azobisisobutyronitrile	9	0	0	1	0	0	0	8
40	Ethyl benzene	9,175	1	0	220	0	0	8,954	0
43	Ethylene glycol	19,507	0	0	0	0	0	0	19,507
44	Ethylene glycol monoethyl ether	6	6	0	0	0	0	0	0
63	Xylene	24,724	1	0	593	0	0	24,129	0
227	Toluene	76,400	29	0	1,833	0	0	74,537	0
253	Hydrazine	5	0	0	5	0	0	0	0
299	Benzene	1,640	1	0	39	0	0	1,601	0
304	Boron and its compounds	18	0	2	4	0	0	13	0
307	Poly (oxyethylene) = alkyl ether (alkyl C = 12 -15)	2	0	0	2	0	0	0	0
309	Poly (oxyethylene) nonyl phenyl ether	44	0	2	42	0	0	0	0
311	Manganese and its compounds	5	0	0	0	0	0	0	5
179	Dioxins	0.0004	0.0004	0	0	0	0	0	0
Total		131,535	38	4	2,739	0	0	109,234	19,520

*PRTR: Pollutant Release and Transfer Register. This system calculates the extent to which the production, use, and storage of chemical substances result in the release and transfer of those substances into the environment. The PRTR Law was originally enacted in July 1999 in Japan. *According to PRTR law, raw materials that contain 0.1% or more of carcinogen and those that contain 1% or more of other substances are measured, and substances that contain carcinogens handled in quantities of over 500kg per year, or other substances of over 1 ton, are reported to the local government, but information on additional substances is included in this chart (all types of dioxins are stated). *As the figures are rounded to the first place, the sum of air, water, waste, or buried by Nissan, recycled, chemically changed, and made into products may not necessarily be the same as the sum of the amount handled or total (other than varieties of dioxin).

Major Products



VQ Engine
(Installed in the Elgrand and Fuga)



Elgrand



Fuga

Nissan Motor Co., Ltd.

[For inquiries, please contact]

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