

Employing extensive environmental measures tailored to a plant's operations

Toyota Industries' Obu and Higashichita Plants manufacture foundry parts for car air-conditioning compressors and engines respectively. The casting processes employed by these plants involve the melting of aluminum and steel, which can consume large amounts of energy and result in significant generation of industrial waste. In response to this situation, Toyota Industries has introduced environmental measures that have significantly reduced the environmental impact of each plant.

Obu Plant

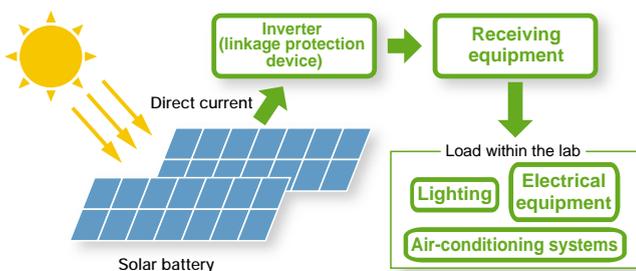
The Obu Plant was entirely reconstructed, based on the environmental design themes of energy conservation, extended life, resource conservation, nature coexistence, and continuity. The plant employs a wide range of environmental measures, including solar power generation, rooftop greening, and measures aimed at reducing industrial waste and recycling water.

■ Global Warming Measures

1 Solar Power Generation System

Solar power generation panels have been installed on the rooftops of the plant's office and security guard buildings. This system is expected to generate 76,000 kW/h per year.

□ Solar Power Generation System □



2 Rooftop Greening

Rooftop greening has been employed to reduce the heat island effect and improve the plant's insulation performance. The greening covers 4,790 m² of rooftop area.



3 Sourcing Molten Metal

By directly transporting unprocessed metal in its molten state, the plant will reduce energy otherwise consumed by melting processes. The transport of molten metal is forecasted to reduce CO₂ emissions by 5,000 tons per year. (For more information, please refer to p.28.)

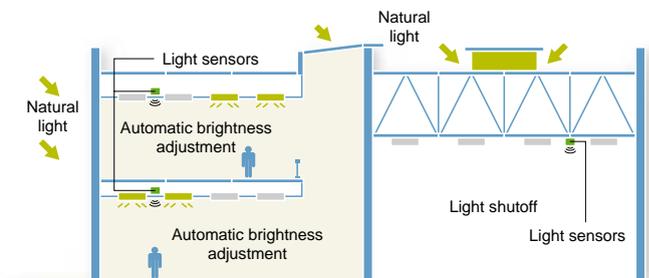


Obu Plant

4 Use of Natural Lighting

In order to reduce energy consumption from lighting, skylights have been installed to allow natural light into the plant. Sensors are used to automatically adjust the brightness of lighting equipment.

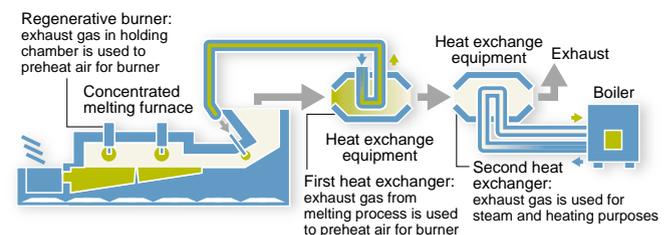
□ Skylights Provide Natural Lighting □



5 Recycling Heat Generated by Melting Processes

Heat exchange equipment will be used to recover heat generated from melting processes. The resulting energy will be used to preheat burners and to perform steam cleaning of parts. The amount of recovered energy is expected to be equivalent to 120,000 m³ (283 t-CO₂) of city gas per year.

□ Recovery of Heat Generated by Concentrated Melting Furnace □





Higashichita Plant

Higashichita Plant

The Higashichita Plant began operations in May 2001, with the stated goal of becoming the “world’s leading casting plant, friendly to the people and the earth.” The plant has implemented extensive environmental measures in order to achieve this goal.

Industrial Waste Reduction

1 Aluminum and Magnetic Separators

Aluminum separators and magnetic separators are used in the casting processes of aluminum and cast iron, in order to reduce industrial waste in the form of waste sand. By separating and recovering the sand from aluminum and iron waste, the respective materials can be recycled. This effort has significantly decreased the amount of direct landfill waste generated by the plant. (For more information on this topic, please refer to p.35.)

Energy Conservation

2 Waste Heat Recycling

Waste heat generated by cupolas—which are cast iron melting furnaces that use coke as a heat source—is reused in the blasting of casting furnaces.

3 Use of Natural Lighting

Skylights have been installed to let in natural light, so that ceiling lighting equipment can be switched off on sunny days.

Pollution Prevention

4 Desulfurization Equipment

Desulfurizers and dust collectors are used to reduce air pollutants such as sulfur oxide (SO_x) and soot.

Resource Conservation

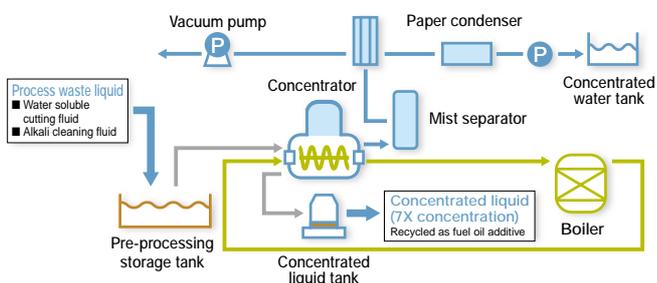
6 Waste Material Recycling

The Obu Plant successfully recycled 97% of waste materials when the former plant was scrapped. The plant was constructed with pavement blocks and ceiling materials made from crushed stone and other recycled materials.

7 Waste Liquid Concentrators

Waste liquid concentrators have been installed to condense liquids to a 7X concentration. The resulting liquid is used as a fuel oil additive.

Concentration System for Process Waste Liquid



Higashichita and Higashiura Plants Awarded for Outstanding Environmental Plant Performance

The Higashichita Plant, which manufactures piston parts for car air-conditioning compressors, was awarded the Sokeizai Industry Environmentally Friendly Factory Award by the Materials Processing Technology Center. The Higashiura Plant was awarded the IBEC Chairman’s Award for Buildings that Conserve Energy and the Environment by the Institute for Building Environment and Energy Conservation (IBEC).

