Efforts for

Environmental Conservation

The Nitto Denko Group is committed to environment-conscious manufacturing.
As part of its measures to achieve this, Nitto Denko Corporation's Onomichi Plant is using solar power and recycling wastewater to transform itself into the most advanced environment-friendly plant.

Making the World's Largest Optical Film Plant More Environment-Friendly

Onomichi Plant's Challenge in Energy Saving and the Effective Use of Water Resources

Introducing a Regenerative Thermal Oxidizer and a Cogeneration System

The Onomichi Plant specializes in manufacturing polarizing film for LCD and is the world's largest plant of its kind. The construction of the plant was started in December 1994 in anticipation of a substantial increase in demand for LCD panels. The plant started operations in April 1996 as Nitto Denko Corporation's seventh domestic plant.

In fiscal 2003, the Onomichi Plant launched full-scale measures to become an environment-friendly plant. As its first step in drastically reducing its use of energy, the plant replaced its direct combustion oxidizer used in treating organic solvents with a regenerative thermal oxidizer. The former oxidizer consumed a large amount of supplementary fuel, but the latter has high heat exchange efficiency and consumes less fuel. As a result, the plant was able to reduce the amount of energy required to operate its oxidizer. This replacement, however, led to a different problem: an insufficient amount of energy to air-condition the clean room. Before the replacement, heat generated from the oxidizer was utilized as energy to air-condition the clean room. To deal with this problem, a highly efficient turbo freezer was introduced to the clean room, and precooling coils were added to the air-conditioner so that it could be operated, maintained, and managed using less energy. In addition, a cogeneration system was introduced, and energy demand and supply were both reduced to substantially improve the energy productivity of the plant.

Through these measures, the plant improved energy efficiency

Onomichi Plant

Solar power generation system

by approximately 25% in fiscal 2005 compared with the fiscal 2003 level. On an annual basis, this is equivalent to an 8,700 metric ton reduction in CO_2.

Also, following the introduction of the new equipment, the Onomichi Plant started replacing liquid petroleum gas (LPG), traditionally used as fuel, with liquid natural gas (LNG), which emits less CO_2 from combustion. The plant plans to complete the changeover by the end of fiscal 2010.

Introducing the Largest Solar Power Generation System in the Chugoku and Shikoku Regions and a Rainwater Recycling System

In fiscal 2005, the Onomichi Plant decided to introduce a large solar power generation system and a rainwater recycling system.

The solar power generation system will be the largest in operation in the Chugoku and Shikoku regions when it goes online in July 2006 under a joint research project with the New Energy and Industrial Technology Development Organization (NEDO). The roofs of the plant's soon-to-be-constructed development and distribution centers (3,200 square meters in total) will be covered with 1,860 solar panels. These solar panels will provide enough electricity to meet the lighting and air-conditioning requirements of the plant's indirect departments throughout the year.

Also, in 2006, the plant will install a reservoir with a holding capacity of 1,300 metric tons in the basement of its distribution center to effectively use rainwater. The plant treats wastewater from its production process by using reverse osmosis membranes developed by Nitto Denko Corporation and reuses the treated water for industrial purposes. With the installation of the reservoir, the plant will be able to effectively use rainwater and reduce its annual water consumption, which now stands at 650,000 metric tons, by 50,000 metric tons.

The LCD market is expected to further expand in the future, and accordingly, the Onomichi Plant will increase its optical film production. Under these circumstances, the plant will invest in not only environmental facilities but also production facilities while significantly revising its manufacturing conditions to improve its production efficiency. The plant intends to implement efficient and effective improvement measures to produce equal or more value, using smaller amounts of energy and resources than it did in the past.

By making the aforementioned investments, the Onomichi Plant started to transform itself into the most advanced environment-friendly plant. The plant will lead Group companies as a model for next-generation factories and accelerate measures to further reduce its environmental impact.

Water recycling system