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Efforts to Achieve Zero Emissions at Katori Plant

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Since Katori Plant received certification under the international environmental standard ISO14001 in 1997, the plant has promoted environmental activities including (1) energy saving, (2) waste reduction, (3) prevention of environmental pollution, and others centering on the Environmental Management Committee, Energy Saving Committee, and Waste Reduction Committee, based on the Environmental Policy. Among these efforts, we consider the “ideal form” of waste reduction activities to be as shown in Fig. 1, and grappled with Zero Emissions of all wastes generated in production activities at Katori Plant, including graphite liquid waste from HITASOL production and powder waste from NIKKALOY production, among others.

As a result, in fiscal year 2004, we achieved a recycling rate of 99.9% and landfill disposal of 3.3 ton/year, satisfying the standards for Zero Emissions specified in the Hitachi Group (recycling rate: 99% or higher and landfill disposal: 5 ton/year or less). The trend in Zero Emissions activities at Katori Plant is shown in Fig. 2. As a ripple effect of these activities, as shown in Fig. 3, sales of recycled products, reduction of waste treatment costs, etc. resulted in an economic effect of approximately ¥30 million/year in FY2005 in comparison with 1997, when these activities began. (See Fig. 3)

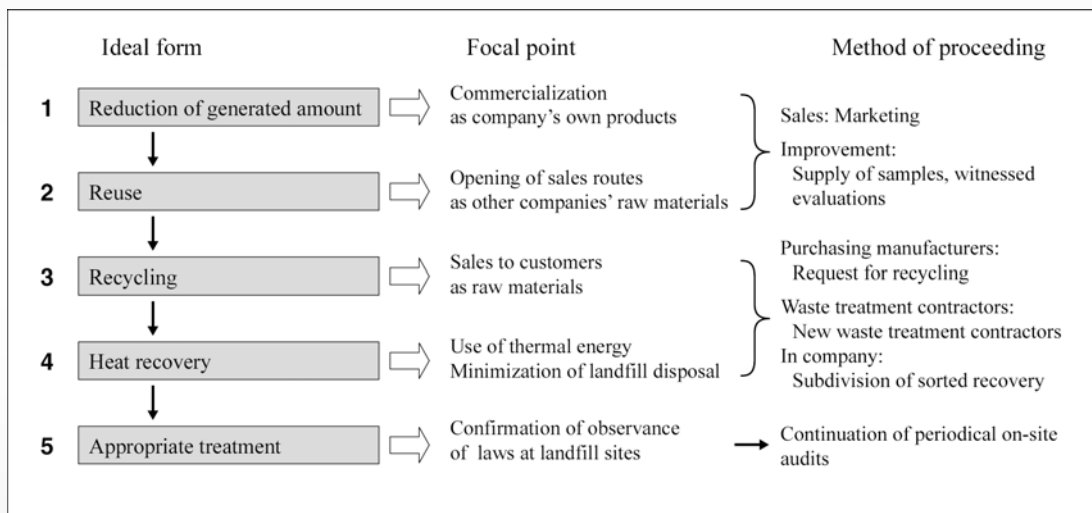
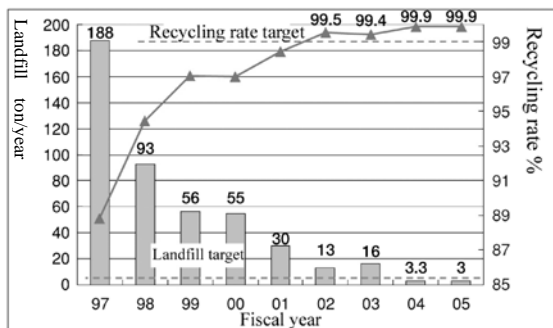


Fig. 1 Ideal form of waste reduction at Katori Plant



Achieved Zero Emissions target in 2004

Fig. 2 Trends in recycling rate and amount of landfill disposal

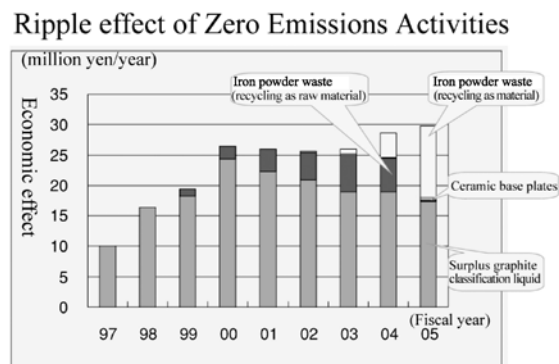


Fig. 3 Treatment cost reduction effect

The following presents main examples and their effects.

Fig. 4 and 5 show an example of the commercialization of a product using surplus graphite classification liquid,

which is generated in the production process for this company's HITASOL products.

Conventionally, all surplus graphite classification liquid was given wastewater treatment and was then disposed of as waste in the form of graphite sludge. A product using this surplus graphite classification liquid was successfully commercialized as a roofing tile material (HITASOL GA-540) without almost any treatment to the discharged liquid waste. By reducing the amount of waste generated (approximately 500 ton/year), and reducing landfill disposal (64 ton/year when activities began in 1997), this improved the total recycling rate by 5%. The unit waste treatment cost for graphite sludge which cannot be used in products was also reduced by employing a new waste treatment consignee. The ripple effect of these efforts had the effect of reducing external expenditures by a total of ¥17.7 million/year (FY2005).

Example 1 Commercialization of product using surplus graphite classification liquid

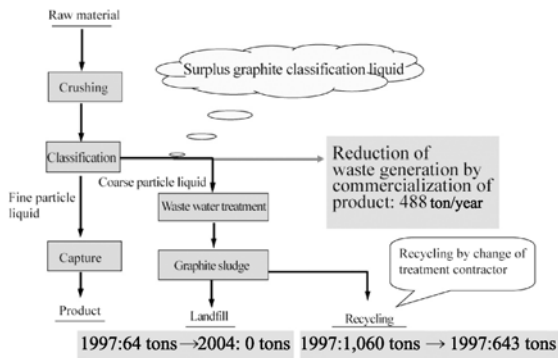


Fig. 4

Confirmation of the effect

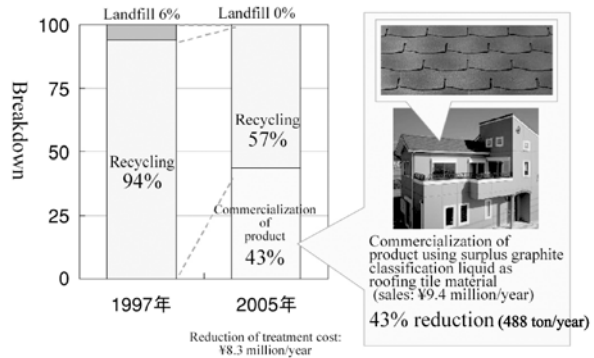


Fig. 5

Fig. 6 and 7 are examples of the effect of a changeover from handling powder waste generated in the NIKKALOY production process as a waste to sale as a raw material for other companies and recycling.

At the beginning of activities in 1997, 8 ton/year of powder waste were treated by landfill disposal. However, this material was sold and reused as an additive raw material for products of other companies. In addition, a new waste treatment contractor was employed, and powder waste was successfully sold as a material for steel reinforcing bars and other iron and steel products by improving the waste powder treatment method. As a result, landfill disposal was reduced from 8 ton/year to zero, improving the total recycling rate by 0.6%. As a ripple effect, expenditures were reduced by a total of ¥12.4 million/year (FY2005).

Example 2 Raw material use and recycling of iron powder waste

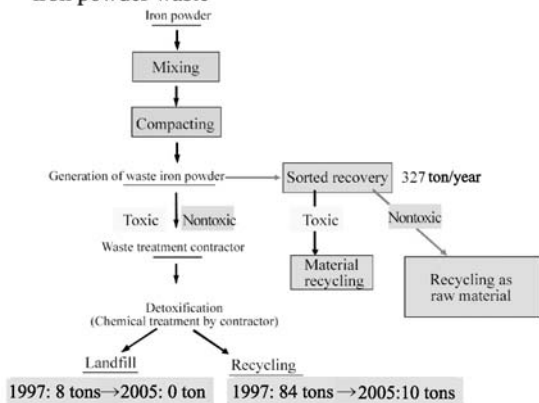


Fig. 6

Confirmation of the effect

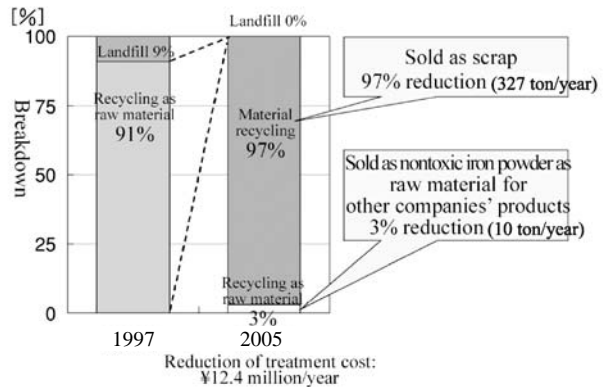


Fig. 7

In Zero Emissions Activities, in FY2005, landfill disposal was reduced to 3 tons/year by promoting activities based on the "ideal form" of waste reduction, and the foundation for achieving Zero Emissions continuously in the future was established. As a future challenge for Katori Plant, rather than studying treatment methods and recycling methods for generated wastes, all employees will promote "Reduction of waste generation (innovations to prevent production/discharge of wastes)."