

【Waste Reduction Activities】

Aisin pursues collective efforts towards the zero-waste target.

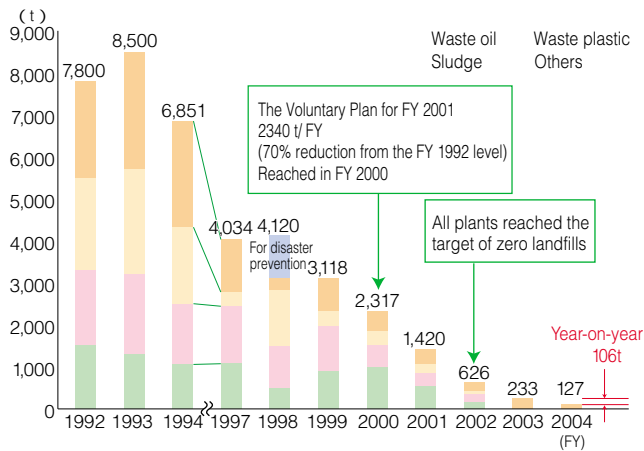
We began our waste reduction activities in FY 1993. In the Third Environmental Action Plan, we set the targets of zero-landfills by all plants by FY 2004 and a 30% reduction in incineration materials from the FY 2001 level by the end of FY 2006. As a result, we reached both targets within FY 2002 ahead of the targeted dates. Since FY 2004, we have been developing our activities for the target of Zero Waste by FY 2006. In FY 2004, nine out of eleven plants reached the zero-waste target.



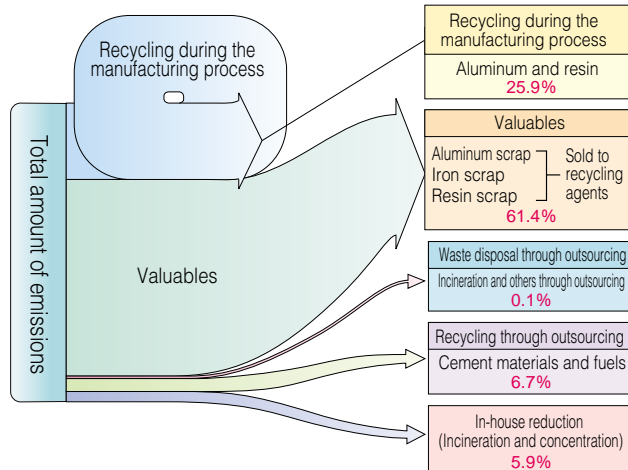
The plant that has reduced more than 95% of landfills from the FY 1998 level is referred to as a "Zero-landfills plant" (All plants reached the target in FY 2002).

The plant that reduced more than 95% of landfills and outside (intermediary) incineration of waste materials from the FY 1998 level is referred to as a "Zero-waste plant" (currently underway).

Industrial waste disposal through outsourcing



Flow of emissions for FY 2004



Thermal recycling...Waste materials are used as fuels or alternative fuels

Major Waste Reduction Methods

Reducing liquid wastes

To control the amount of oil solutions and cleaners that are discharged, we recycle them through filtration, and recover and recycle the oil by separation of oil from water. We also de-chlorinate fats and oils that have been generated, in order to reduce environmentally hazardous substances.

Extending liquids' service life by recycling

Crude oil and liquid wastes

Separation of oil from water

Thermal recycling (recycled to heavy oil through outsourcing)

Reducing environmentally hazardous substances by de-chlorination of liquid wastes

Recycling sludge

The sludge from wastewater treatment facilities and factories, which includes heavy metals, is recycled, and sludge that does not include heavy metals is reduced in volume and converted into roadbed materials.

Regular process wastewater sludge

Volume reduction in-house (incineration)

Fusion treatment through outsourcing (for roadbed materials)

Surface-treated wastewater sludge

Recovering precious metals through outsourcing (for raw materials of stainless products)

Recycling waste plastics

Waste plastics are thoroughly disassembled and separated. Single materials are crushed and pelletized, and then recycled. Composites are thermally recycled through outsourcing.

Thorough disassembly and separation

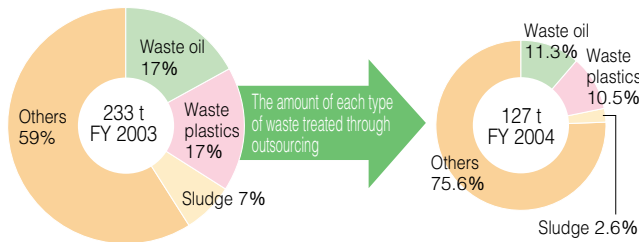
Crushed and pelletized in-house

Sold to resin makers
Material/thermal-recycled through outsourcing

Industrial Waste Reduction during FY 2004

Major waste reduction activities

- Recovering metals (zinc, copper, and nickel) from plating liquids
- Reusing liquid wastes by filtering electrochemical deburring liquids
- Material-recycling by crushing and pelletizing waste plastic



Promoting In—house Recycling

In May 2002, the Aisin Eco-center was established to expand our in-house recycling efforts. Scraps of firebrick that were produced when melting furnaces were dismantled and waste plastics, which are easy to specify, are recovered from each plant, thus our material recycling efforts are underway.



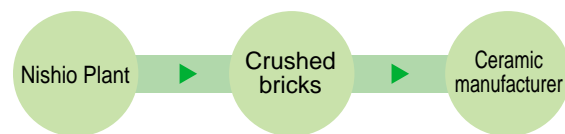
External view of the Aisin Eco-center



Brick crusher

Reusing brick scraps

Bricks have been crushed and recycled into roadbed materials. To expand the recycling application of bricks, they are now used for brick blocks, permeable bricks, and horticultural soil amendments to create rest areas in the factories and promenades around the factories.



Brick blocks

Brick blocks (25% firebricks)



Permeable bricks

Permeable bricks (100% firebricks)

Brick blocks

Characteristics

- Easy assembly
 - Lightweight
 - Good appearance and texture
- Flowerbed made of recycled



Bricks at the Handa Plant

Permeable bricks

Performance of Aisin Permeable Bricks compared to existing bricks

	Standard product	Aisin Permeable Bricks
Hydraulic conductivity	1.000 <	1.011
Bending strength	30 <	97.8
Water absorption	—	6.97



Permeable brick promenade in the new Kariya Plant

Our Efforts for Zero Emissions

Our recycling efforts focus on the target of reducing waste treatment through outsourcing (industrial waste reduction to 87 t or less by all plants by FY 2006).

Extending the life of soluble cutting oil

Soluble cutting oil has conventionally required periodic replacement. Otherwise, the oil would decompose, resulting in the deterioration of the cutting quality and the generation of malodors. We have attained drastic reductions in the frequency of replacing the oil by filtering the liquid waste and separating the oil from water in the liquid waste.



Waste oil filtration system

Effects

- Cutting frequency of liquid replacement
- Recycling floated oil

Turning packing materials (Styrofoam) into raw materials

We introduced a dissolver that can dissolve waste Styrofoam packing materials with a specific type of liquid, allowing for turning waste materials into raw materials.



Waste Styrofoam



Recovering dissolution liquid/resin pellets



Dissolver



Styrofoam



Gelled