

Contribution to Reduction of Greenhouse Gas Emissions through Recycling

Reduction of greenhouse gas emissions through recycling as a supplier

Of all the CO₂ emissions related to waste processing in Japan, waste oil processing accounts for approximately 30%. Approximately 40% of waste oil is simply incinerated, and the carbon contained in the waste oil is emitted into the atmosphere as during incineration (based on a survey conducted by the Ministry of Environment in FY2020). Daiseki does not burn waste oil and waste solvents, but recycles them into recycled fuel using recycling technology to provide users with a new source of energy. According to the Database on Emissions Intensity for Accounting of Greenhouse Gas Emissions, etc., by Organizations Throughout the Supply Chain (Ver. 3.3), published by the Ministry of the Environment as secondary data, the emission factor for recycling waste oil is set to 0 for Scope 3, Category 5 (waste). As a result, waste generators who contract Daiseki to process waste oil can reduce their Scope 3 emissions.

Daiseki's reduction of greenhouse gas emissions in waste oil processing

Currently, some waste is incinerated, which emits a significant amount of CO₂ during disposal and is landfilled as incineration ash. Daiseki is contributing to the realization of a carbon neutrality and circular economy by recycling waste into resources through the use of recycling technology and reducing the amount of waste that is incinerated without other treatments.

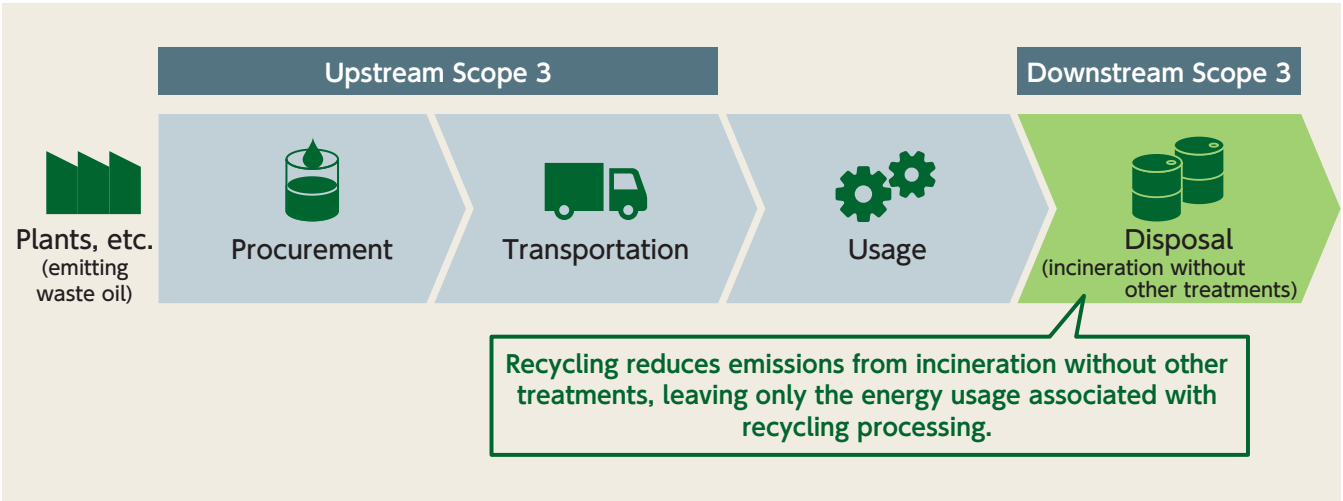
The concept of avoided emissions is presented as an expression of such contribution to the decarbonization of society. In March 2023, the GX League drew up its Basic Guidelines for Disclosure and Evaluation of Climate-related Opportunities, which include a summary of the concept of avoided emissions. Based on these basic guidelines, Daiseki calculates the CO₂ avoided emissions of recycling technologies in order to visualize the impact of its business operations.

In evaluating the avoided emissions, Daiseki set the baseline as the amount of greenhouse gas emissions from incineration without other treatments of waste oil and compared it to the emissions during waste oil processing in FY2024 (primary data), resulting in a 98% reduction in waste oil processing and a 97% reduction in waste solvent processing. See next page for details.

Consideration of adverse effects of recycling

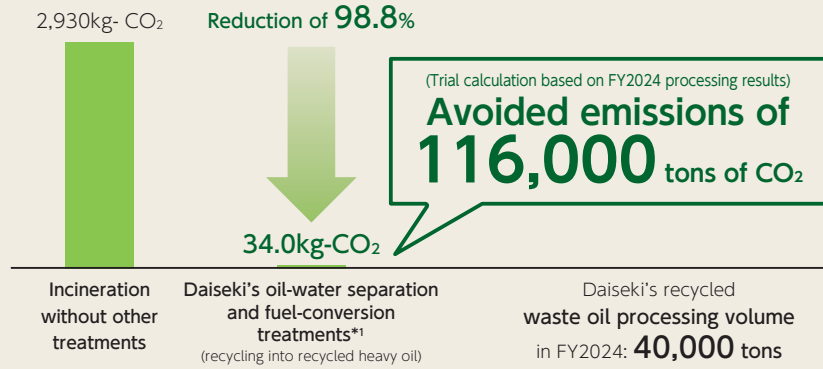
Daiseki has evaluated other impacts associated with recycling into recycled fuel. Although recycling reduces the amount of CO₂ emitted at the time of disposal, greenhouse gases are still emitted when the recycled fuel is used. However, because recycled fuels do not have significantly higher emissions during use than fossil fuels, they are not identified as a significant adverse impact. Daiseki will continue to evaluate environmental impacts from multiple perspectives.

Image of the supply chain related to industrial waste processing

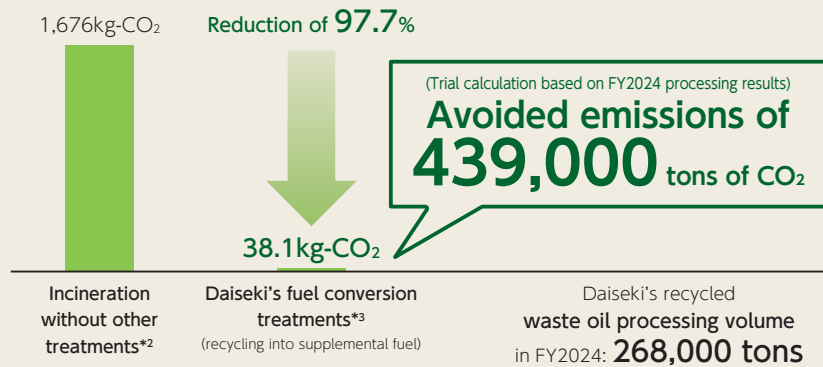


The avoided emissions for recycling waste oil calculated is a theoretical value based on the the Company's processing performance in FY2024 compared to the emissions from incineration without other treatments by customers. The amount of emissions from incineration without other treatments are based on the carbon content in the waste oil, calculated to be 2,930 kg-CO₂, according to the emission factors cited in the Ministry of the Environment's Greenhouse Gas Emission Calculation and Reporting Manual. Meanwhile, for waste solvents, Daiseki calculates the carbon-derived CO₂ from fuel-processed waste solvents based on the above emission factors and calculates the emissions if they were incinerated without other treatments. Based on performance in FY2024, the avoided emissions from oil-water separation and fuel processing of waste oil and fuel processing of waste solvents amounted to 555,000 tons of CO₂.

Comparison when treating one ton of waste oil



Comparison when treating one ton of waste solvent



Avoided emissions of 555,000 tons of CO₂

(Equivalent to the annual CO₂ emissions of 210,000 households*4)

Target by FY2025: Avoided emissions of 680,000 tons of CO₂*5

(Equivalent to the annual CO₂ emissions of 260,000 households*4)

*1 Calculated by totaling 1-3 below (from Daiseki FY2024 processing results)

1. CO₂ generated through fuel consumption by boilers used for oil-water separation
2. CO₂ calculated according to the amount of electricity used for neutralization, biological treatment, and other processes
3. CO₂ equivalents of the CH₄ and N₂O generated by wastewater treatment

*2 CO₂ emissions from incineration without other treatments are calculated by multiplying the waste oil emission factor by the waste solvent ratio, assuming that the 268,000 tons of waste solvent received for recycling in FY2024 was a mixture of 145,000 tons of components close to waste oil and 123,000 tons of water. These figures fluctuate every year depending on the ratio of components in the material received

*3 CO₂ calculated according to the amount of electricity used for fuel-conversion treatments, based on Daiseki's FY2024 processing results

*4 In FY2023, annual CO₂ emissions per household were 2.59 tons of CO₂ (according to the FY2023 Survey on Actual CO₂ Emissions in the Household Sector)

*5 In the mid-term management plan for FY2022, it was expected that Daiseki's nonconsolidated net sales for FY2025 will be 120.55% compared to FY2022. The target was set based on an assumption that the effect of reduction of CO₂ emission is proportionate to the net sales