

REDUCTION OF DIOXIN EMISSION ON STARTING UP AND SHUTTING DOWN OF BATCH OPERATION
TYPE MSW INCINERATION PLANT

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At present, it is confirmed that the amount of dioxins being emitted from the MSW incineration plant during normal operation time can be restricted within some considerably low level if the following precautions are taken:

- (1) Combusting the refuse steadily under a desirable condition;
- (2) Lowering the temperature of the gas passing through the dust collectors; and
- (3) Enhancing the efficiency of the dust collectors.

In Japan, 1,500 incineration plants out of 1,900 are now operating their furnaces intermittently. In these incineration plants, of course, furnaces are started up and shut down every day. During this unsteady combustion time, large amounts of dioxin and other unburnt substance are possibly emitted to the atmosphere.

This report describes the current situation in terms of the amount of dioxin emission at the time of starting up and shutting down the furnaces and how to restrict it.

- i) Comparison of emission amount between starting up, shutting down and normal operation time.

At the ESP exit, dioxin emission were at 80ng/Nm³(TEQ) during normal operation, 340ng/Nm³(TEQ) at starting up and 120ng/Nm³(TEQ) at shutting down times, respectively. Since we did not load the ESP before the temperature reached 250°C at start-up, the amount of emission was relatively large. We presume that this can be improved by operating the ESP at low temperature.

- ii) Restricting the emission at start-up

By running an auxiliary fuel burner as soon as the furnace was started, we could shorten the time required by the furnace exit gas temperature to reach 800°C, from 70 min. to 50 min. As a result, the amount of dioxin was reduced to 130ng/Nm³(TEQ).

- iii) Restricting the emission at shut-down

After stopping to charge the refuse, the burner was started up and combustion air was supplied. While keeping the in-furnace temperature high, remaining refuse inside the furnace were burnt completely. The rate of dioxins was 115ng/Nm³(TEQ), which was almost equal to that in normal operation time. Note that this rate is less than one fifth of the emission rate in the case of hot preservation (to keep the fire alive in the furnace for easy start-up in the following day).

