

Research on the circulating- moving sludge incinerator

Whole term

2001. 6~ 2003.3

(Purpose)

After the condensation of sludge, the incinerating treatment is usually used as the reduction method, and the moving bed incinerator is mainly used. `Fluidized bed incinerator` has been called the `bubble fluidized bed sludge incinerator` in the rest of this article). In spite of it, there are several various requirements such as improvement in combustion effectiveness followed by the variation of the sludge characteristics, improvement in the mixing rate of wastes and sediments in the mixed incineration, energy saving and improvement in land saving, and etc. In addition, it should be prepared to face high calorific conditions in sludge. In this situation, it is required to conduct research on seeking new technologies to improve the circulating-type fluidized bed sludge incinerator, which evolved from the bubble fluidized bed sludge incinerator, as an incinerator of the next generation.

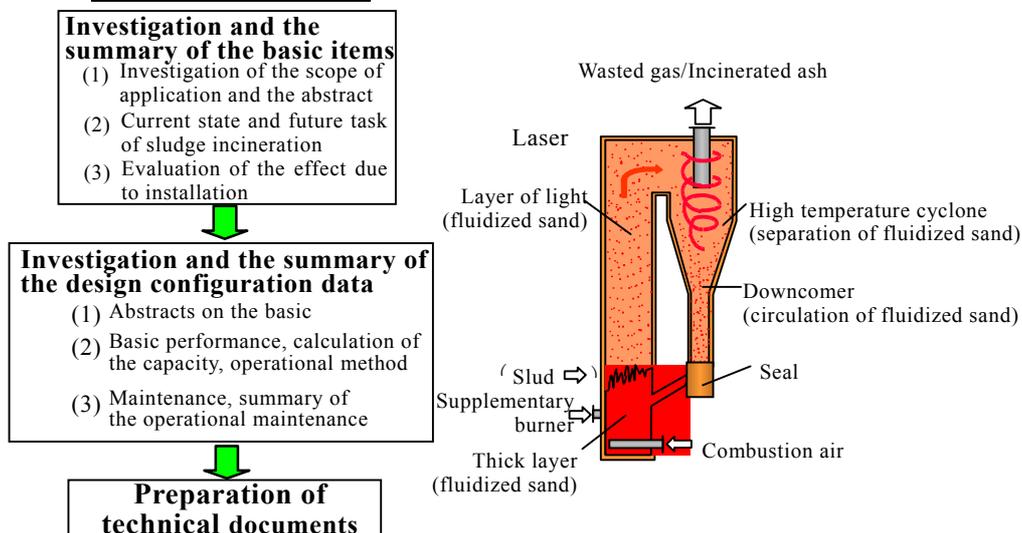
In this research, the scope of the application, effects due to the installation, cautions to be considered in the design and etc. were studied and the objective was to prepare a technical document that would present the basic principles.

(Contents)

The circulating-type fluidized bed sludge incinerator accelerates the velocity of the empty bed several times, circulates the moving material and makes high efficient combustion between gas and solid, which is superior in contact characteristics. Although the distribution of the temperature is uniform, the stability of the combustion is excellent, the facility is compacted and the dynamic power required is small; the circulation of moving materials in the equipment is very complicated. The contents of this research, which were based on the aforementioned facts, are listed below.

- 1) Investigation and the summary of the basic items
 - (1) Investigation of the scope of application and the abstract
 - (2) Current state and future task of sludge incineration
 - (3) Evaluation of the effect due to installation
- 2) Investigation and the summary of the design configuration data
 - (1) Abstracts on the basic system
 - (2) Basic performance, calculation of the capacity, operational method
 - (3) Maintenance, summary of the operational maintenance
- 3) Preparation of technical documents.

Flowchart of the research



(Results)

1) Investigation and the summary of the basic items

Based on the results of questions set on local governments (112 treatment plants) which own bubble fluidized bed incinerator, the current state and the future activities of the bubble fluidized bed were summarized. In addition, the future plan and the effect caused due the induction of the circulating-type fluidized bed incinerator were understood using a sample investigation.

2) Investigation and the summary of the design configuration data.

According to the available technology of the co-research companies, the classification of the basic system and the design configuration data were summarized. Also, calculation of the capacity, operation & maintenance, related regulations and etc. were summarized. Therefore, it can be said that all the aspects of design and maintenance of the circulating-type fluidized bed incinerator were summarized.

3) Preparation of technical documents

In addition to the results 1) and 2), technical documents which contained data on the applied samples and the current technologies of all co-research companies were prepared.

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Keywords

Sludge incineration, Fluidized incinerator, Circulating type-fluidization, Improvement in incinerating performance, Incineration mixed with wastes