CITATION LIST

PATENT DOCUMENT

[0006]

Patent Document 1: Japanese Unexamined Patent Application, Publication No. 10−165752

SUMMARY

[0007]

In the method for estimating the minimum required amount of the acid gas treatment agent and adding the acid gas treatment agent as typified by the treatment method described in Patent Document 1, it is theoretically possible to stably perform the acid gas treatment without excessive addition of the acid gas treatment agent. However, at the actual treatment site, an operator of the exhaust gas treatment system adds an excess amount of acid gas treatment agent to the estimated minimum required amount of acid gas treatment agent on the basis of his or her experience in order to prevent the acid gas from being unable to be sufficiently treated due to a measurement delay of measuring equipment (a delay caused by a sampling point of an analyzer being located at a later stage than a chemical injection point) or the like, which is the premise of a rapid property change of the acid gas and control.

[0008]

Therefore, in such a method, it has still been impossible to sufficiently reduce the excess amount of the acid gas treatment agent, and there has still been room for improvement for sufficiently treating the acid gas and further reducing the treatment cost and environment

impact caused by the addition of the excess acid gas treatment agent used in the treatment.

[0009]

The present disclosure has been made in view of the above circumstances, and it is an object of the present disclosure to provide, on the premise of an exhaust gas treatment system treating acid gas contained in exhaust gas generated by an incineration process of waste with an acid gas treatment agent, an exhaust gas treatment system capable of sufficiently treating the acid gas and further reducing the treatment cost and environment impact caused by addition of an excess acid gas treatment agent used in the treatment.

[0010]

For achieving the above object, the present inventors have carried out intensive research. As a result, it has been found that in an exhaust gas treatment system including: an exhaust gas treatment unit that treats acid gas contained in exhaust gas; a treatment agent supply unit that supplies an acid gas treatment agent to the exhaust gas treatment unit; a post-treatment exhaust gas analysis unit that measures a post-treatment acid gas concentration (C1), the post-treatment acid gas concentration (C1) being a concentration of the acid gas contained in the exhaust gas after the treatment by the exhaust gas treatment unit; and a treatment agent addition management unit that calculates an addition amount of the acid gas treatment agent with which the post-treatment acid gas concentration (C1) measured by the post-treatment exhaust gas analysis unit is always equal to or less than a predetermined managed

concentration (C2) and instructs the treatment agent supply unit to supply the acid gas treatment agent in the calculated addition amount to the exhaust gas treatment unit, the exhaust gas treatment system further includes: an incineration object supply amount measurement unit that is located upstream of the exhaust gas treatment unit and measures a supply amount of an incineration object; a treatment agent supply amount measurement unit that measures a supply amount of the acid gas treatment agent supplied from the treatment agent supply unit; and a server unit that gathers and analyzes information data from at least the post-treatment exhaust gas analysis unit, the treatment agent supply amount measurement unit, and the incineration object supply amount measurement unit and determines whether the post-treatment acid gas concentration is proper in relation to the managed concentration (C2) from a result of the analysis, and hence it is determined whether the addition amount of the acid gas treatment agent is proper in relation to the managed concentration (C2), whereby the acid gas can be sufficiently treated, and the treatment cost and environment impact caused by addition of an excess acid gas treatment agent used in the treatment can further be reduced, thus leading to the completion of the present disclosure. Specifically, the present disclosure provides the following:
[0011]

(1) In a first aspect, an exhaust gas treatment system including: an exhaust gas treatment unit that treats acid gas contained in exhaust gas; a treatment agent supply unit that supplies an acid gas treatment agent to the exhaust gas treatment unit; a post-treatment exhaust gas analysis unit that measures a post-treatment acid gas concentration (C1), the

post-treatment acid gas concentration (C1) being a concentration of the acid

(6) The exhaust gas treatment system according to (5) above, in which the treatment agent addition management unit further has a function of notifying a person in charge of the exhaust gas treatment system or a person concerned such as a treatment agent supplier of the excessive-addition cost over a certain period.

[0017]

(7) The exhaust gas treatment system according to any one of (1) to (6) above, in which the server unit further has a function of collecting information data on the post-treatment acid gas concentration (C1) and the managed concentration (C2), recording the information data over time, and notifying a person in charge of the exhaust gas treatment system or a person concerned such as a treatment agent supplier of the information data.

[0018]

(8) In a second aspect, an exhaust gas treatment method including the steps of: treating, by an exhaust gas treatment unit, acid gas contained in exhaust gas; supplying, by a treatment agent supply unit, an acid gas treatment agent to the exhaust gas treatment unit; measuring, by a post-treatment exhaust gas analysis unit, a post-treatment acid gas concentration (C1), the post-treatment acid gas concentration (C1) being a concentration of the acid gas contained in the exhaust gas after the treatment by the exhaust gas treatment unit; and calculating, by a treatment agent addition management unit, an addition amount of the acid gas treatment agent with which the post-treatment acid gas concentration (C1) measured by the post-treatment exhaust gas analysis unit is always equal to or less than a predetermined managed

concentration (C2) and instructing the treatment agent supply unit to supply the acid gas

treatment agent in the calculated addition amount to the exhaust gas treatment unit, the exhaust gas treatment method further including the steps of: measuring a supply amount of an incineration object by an incineration object supply amount measurement unit located upstream of the exhaust gas treatment unit; measuring, by a treatment agent supply amount measurement unit, a supply amount of the acid gas treatment agent supplied from the treatment agent supply unit; and gathering and analyzing, by a server unit, information data from at least the post-treatment exhaust gas analysis unit, the treatment agent supply amount measurement unit, and the incineration object supply amount measurement unit and determining whether the post-treatment acid gas concentration (C1) is proper in relation to the managed concentration (C2) from a result of the analysis.

[0019]

(9) The exhaust gas treatment method according to (8) above, further including a step of calculating an excessive-addition cost of the acid gas treatment agent on the basis of an average deviation concentration range (C2 − C1) of the post-treatment acid gas concentration (C1) from the managed concentration (C2), and reducing the addition amount of the acid gas treatment agent such that the average deviation concentration range (C2 − C1) becomes a positive value and narrow only when the excessive-addition cost exceeds a threshold.

[0020]

According to the present disclosure, in an exhaust gas treatment system including: an exhaust gas treatment unit that treats acid gas contained in exhaust gas; a treatment agent supply unit that supplies to the exhaust gas treatment unit; a post-treatment exhaust gas analysis unit that measures a post-treatment acid gas concentration (C1), the post-treatment acid gas concentration (C1) being a concentration of the acid gas contained in the exhaust gas after the treatment by the exhaust gas treatment unit; and a treatment agent addition management unit that calculates an addition amount of the acid gas treatment agent with which the post-treatment acid gas concentration (C1) measured by the post-treatment exhaust gas analysis unit is always equal to or less than a predetermined managed concentration (C2) and instructs the treatment agent supply unit to supply the acid gas treatment agent in the calculated addition amount to the exhaust gas treatment unit, the exhaust gas treatment system further includes: an incineration object supply amount measurement unit that is located upstream of the exhaust gas treatment unit and measures a supply amount of an incineration object; a treatment agent supply amount measurement unit that measures a supply amount of the acid gas treatment agent supplied from at least the treatment agent supply unit; and a server unit that gathers and analyzes information data from the post-treatment exhaust gas analysis unit, the treatment agent supply amount measurement unit, and the incineration object supply amount measurement unit and determines whether the post-treatment acid gas concentration (C1) is proper in relation to the managed concentration (C2) from a result of the analysis, and hence it is determined whether the addition amount of the acid gas treatment agent is proper in relation to the managed concentration (C2), whereby it is