CLAIMS

1. A waste gas treatment apparatus having a dust collector for dust removal treatment of a mercury-containing waste gas that is discharged from a furnace, and an activated carbon supply device that injects activated carbon into a waste gas flow path conducting the waste gas from the furnace to the dust collector,

the waste gas treatment apparatus comprising a downstream side mercury concentration meter that measures the concentration of mercury in the waste gas on the downstream side of the dust collector, and a controller that controls the activated carbon supply rate of the activated carbon supply device,

the controller maintaining the activated carbon supply rate at a value equal to or greater than a predetermined minimum value, while controlling the activated carbon supply rate such that, on the basis of the mercury concentration measurement that is given by the downstream side mercury concentration meter, the concentration of mercury in the waste gas on the downstream side of the dust collector is held at a value equal to or smaller than a set value.

2. A waste gas treatment apparatus having a dust collector for dust removal treatment of a mercury-containing waste gas that is discharged from a furnace, and an activated carbon supply device that injects activated carbon into a waste gas flow path conducting the waste gas from the furnace to the dust collector,

the waste gas treatment apparatus comprising an upstream side mercury concentration meter that measures the concentration of mercury in the waste gas on the downstream side of the furnace and on the upstream side of the dust collector, and a controller that controls the activated carbon supply rate of the activated carbon supply device,

the controller maintaining the activated carbon supply rate at a value equal to or greater than a predetermined minimum value, while controlling the activated carbon supply rate such

that, on the basis of the mercury concentration measurement that is given by the upstream side mercury concentration meter, the concentration of mercury in the waste gas on the downstream side of the dust collector is held at a value equal to or smaller than a set value.

3. A waste gas treatment apparatus having a dust collector for dust removal treatment of a mercury-containing waste gas that is discharged from a furnace, and an activated carbon supply device that injects activated carbon into a waste gas flow path conducting the waste gas from the furnace to the dust collector,

the waste gas treatment apparatus comprising an upstream side mercury concentration meter that measures the concentration of mercury in the waste gas on the downstream side of the furnace and on the upstream side of the dust collector, a downstream side mercury concentration meter that measures the concentration of mercury in the waste gas on the downstream side of the dust collector, and a controller that controls the activated carbon supply rate of the activated carbon supply device,

the controller maintaining the activated carbon supply rate at a value equal to or greater than a predetermined minimum value, while controlling the activated carbon supply rate such that, on the basis of the mercury concentration measurement that is given by the upstream side mercury concentration meter, and the mercury concentration measurement that is given by the downstream side mercury concentration meter, the concentration of mercury in the waste gas on the downstream side of the dust collector is held at a value equal to or smaller than a set value.

4. The waste gas treatment apparatus according to any one of Claims 1 to 3, wherein, upon a mercury concentration measurement that is given by the upstream side mercury concentration meter or the downstream side mercury concentration meter being equal to or greater than a predetermined mercury concentration, the controller controls the activated carbon supply rate so as for it to be kept at a

predetermined maximum value.

5. The waste gas treatment apparatus according to Claim 1, wherein, upon a value of the ratio of a mercury concentration measurement in the waste gas on the downstream side of the dust collector that is given by the downstream side mercury concentration meter to a set value of the concentration of mercury in the waste gas on the downstream side of the dust collector being equal to or greater than a predetermined value of the ratio, the controller controls the activated carbon supply rate so as for it to be kept at a predetermined maximum value, specifying the predetermined value of the ratio in the range of 0.4 to 0.8.

6. The waste gas treatment apparatus according to Claim 2, wherein, upon a value of the ratio of a mercury concentration measurement on the upstream side of the dust collector that is given by the upstream side mercury concentration meter to a set value of the concentration of mercury in the waste gas on the downstream side of the dust collector being equal to or greater than a predetermined value of the ratio, the controller controls the activated carbon supply rate so as for it to be kept at a predetermined maximum value, specifying the predetermined value of the ratio in the range of 20 to 200.

7. The waste gas treatment apparatus according to Claim 3, wherein, upon a value of the downstream side mercury concentration ratio of a mercury concentration measurement in the waste gas on the downstream side of the dust collector that is given by the downstream side mercury concentration meter to a set value of the concentration of mercury in the waste gas on the downstream side of the dust collector being equal to or greater than a predetermined value of the ratio, or upon a value of the upstream side mercury concentration ratio of a mercury concentration measurement on the upstream side of the dust collector that is given by the upstream side mercury concentration meter to a set value of the concentration of mercury in the waste gas on the downstream side of the dust collector being equal to or greater than a predetermined value

of the ratio, the controller controls the activated carbon supply rate so as for it to be kept at a predetermined maximum value, specifying the predetermined value of the downstream side mercury concentration ratio in the range of 0.4 to 0.8, while specifying the predetermined value of the upstream side mercury concentration ratio in the range of 20 to 200.

8. The waste gas treatment apparatus according to any one of Claims 1 to 7, wherein the controller controls the activated carbon supply rate, setting the predetermined minimum value of the activated carbon supply rate, which is defined as a weight of the activated carbon injected per hour per unit flow rate of the waste gas under treatment, at 10 to 200 mg/Nm^3.

9. The waste gas treatment apparatus according to any one of Claims 4 to 7, wherein the controller controls the activated carbon supply rate, setting the predetermined maximum value of the activated carbon supply rate, which is defined as a weight of the activated carbon injected per hour per unit flow rate of the waste gas under treatment, at 300 to 1000 mg/Nm^3.

10. The waste gas treatment apparatus according to Claim 9, wherein the controller controls the activated carbon supply rate, setting the predetermined minimum value of the activated carbon supply rate, which is defined as a weight of the activated carbon injected per hour per unit flow rate of the waste gas under treatment, at 10 to 200 mg/Nm^3.

11. The waste gas treatment apparatus according to any one of Claims 1 to 3, wherein the controller controls the activated carbon supply rate such that, in the range of the measurement of the concentration of mercury in the waste gas from zero or a value smaller than the measurable limit minimum value to a first predetermined mercury concentration, activated carbon is supplied at a predetermined minimum value of activated carbon supply rate, and after the measurement of the mercury concentration has reached the first predetermined mercury concentration, the activated carbon supply rate is linearly increased from the predetermined minimum value in accordance with an increase in the concentration of mercury in the waste

gas, and upon the measurement of the mercury concentration having reached a second predetermined mercury concentration, the activated carbon supply rate is set at a predetermined maximum value of supply rate, then, after the activated carbon supply rate having been increased to the predetermined maximum value, the activated carbon supply rate is constantly kept at the predetermined maximum value for an increase in the concentration of mercury in the waste gas.

12. The waste gas treatment apparatus according to any one of Claims 1 to 3, wherein the controller controls the activated carbon supply rate such that, in the range of the measurement of the concentration of mercury in the waste gas from zero or a value smaller than the measurable limit minimum value to a first predetermined mercury concentration, activated carbon is supplied at a predetermined minimum value of activated carbon supply rate that provides a first activated carbon supply rate, and after the measurement of the mercury concentration has reached the first predetermined mercury concentration, the activated carbon supply rate is increased in a step-like manner to a second supply rate, thereafter, for an increase in the concentration of mercury in the waste gas, the activated carbon supply rate is constantly kept at the second supply rate, then, upon the measurement of the mercury concentration having reached the second predetermined mercury concentration, the activated carbon supply rate is increased to a third predetermined activated carbon supply rate, thereafter, in this way, constantly keeping the activated carbon supply rate and then increasing it in a stepwise manner for an increase in the concentration of mercury in the waste gas is repeated, then, after the activated carbon supply rate having been increased to a predetermined maximum value, the activated carbon supply rate is constantly kept at the predetermined maximum value for an increase in the concentration of mercury in the waste gas.

13. A waste gas treating method that uses a dust collector to perform dust removal treatment of a mercury-containing waste gas that is discharged from a furnace, and that injects

activated carbon from an activated carbon supply device into a waste gas flow path conducting the waste gas from the furnace to the dust collector,

the waste gas treating method comprising a measurement step of measuring the concentration of mercury in the waste gas on the downstream side of the dust collector using a downstream side mercury concentration meter, and a control step of controlling the activated carbon supply rate of the activated carbon supply device with a controller,

in the control step, the controller maintaining the activated carbon supply rate at a value equal to or greater than a predetermined minimum value, while controlling the activated carbon supply rate such that, on the basis of the mercury concentration measurement that is given by the downstream side mercury concentration meter, the concentration of mercury in the waste gas on the downstream side of the dust collector is held at a value equal to or smaller than a set value.

14. A waste gas treating method that uses a dust collector to perform dust removal treatment of a mercury-containing waste gas that is discharged from a furnace, and that injects activated carbon from an activated carbon supply device into a waste gas flow path conducting the waste gas from the furnace to the dust collector,

the waste gas treating method comprising a measurement step of measuring the concentration of mercury in the waste gas on the downstream side of the furnace and on the upstream side of the dust collector using an upstream side mercury concentration meter, and a control step of controlling the activated carbon supply rate of the activated carbon supply device with a controller,

in the control step, the controller maintaining the activated carbon supply rate at a value equal to or greater than a predetermined minimum value, while controlling the activated carbon supply rate such that, on the basis of the mercury concentration measurement that is given by the upstream side mercury concentration meter, the concentration of mercury in

the waste gas on the downstream side of the dust collector is held at a value equal to or smaller than a set value.

15. A waste gas treating method that uses a dust collector to perform dust removal treatment of a mercury-containing waste gas that is discharged from a furnace, and that injects activated carbon from an activated carbon supply device into a waste gas flow path conducting the waste gas from the furnace to the dust collector,

the waste gas treating method comprising a measurement step of measuring the concentration of mercury in the waste gas on the downstream side of the furnace and on the upstream side of the dust collector using an upstream side mercury concentration meter, and measuring the concentration of mercury in the waste gas on the downstream side of the dust collector using a downstream side mercury concentration meter, and a control step of controlling the activated carbon supply rate of the activated carbon supply device with a controller,

in the control step, the controller maintaining the activated carbon supply rate at a value equal to or greater than a predetermined minimum value, while controlling the activated carbon supply rate such that, on the basis of the mercury concentration measurement that is given by the upstream side mercury concentration meter and the mercury concentration measurement that is given by the downstream side mercury concentration meter, the concentration of mercury in the waste gas on the downstream side of the dust collector is held at a value equal to or smaller than a set value.

16. The waste gas treating method according to any one of Claims 13 to 15, wherein, upon a mercury concentration measurement that is given by the upstream side mercury concentration meter or the downstream side mercury concentration meter being equal to or greater than a predetermined mercury concentration, the controller controls the activated carbon supply rate so as for it to be kept at a predetermined maximum value.

17. The waste gas treating method according to Claim 13,

wherein, upon a value of the ratio of a mercury concentration measurement in the waste gas on the downstream side of the dust collector that is given by the downstream side mercury concentration meter to a set value of the concentration of mercury in the waste gas on the downstream side of the dust collector being equal to or greater than a predetermined value of the ratio, the controller controls the activated carbon supply rate so as for it to be kept at a predetermined maximum value, specifying the predetermined value of the ratio in the range of 0.4 to 0.8.

18. The waste gas treating method according to Claim 14, wherein, upon a value of the ratio of a mercury concentration measurement on the upstream side of the dust collector that is given by the upstream side mercury concentration meter to a set value of the concentration of mercury in the waste gas on the downstream side of the dust collector being equal to or greater than a predetermined value of the ratio, the controller controls the activated carbon supply rate so as for it to be kept at a predetermined maximum value, specifying the predetermined value of the ratio in the range of 20 to 200.

19. The waste gas treating method according to Claim 15, wherein, upon a value of the downstream side mercury concentration ratio of a mercury concentration measurement in the waste gas on the downstream side of the dust collector that is given by the downstream side mercury concentration meter to a set value of the concentration of mercury in the waste gas on the downstream side of the dust collector being equal to or greater than a predetermined value of the ratio, or upon a value of the upstream side mercury concentration ratio of a mercury concentration measurement on the upstream side of the dust collector that is given by the upstream side mercury concentration meter to a set value of the concentration of mercury in the waste gas on the downstream side of the dust collector being equal to or greater than a predetermined value of the ratio, the controller controls the activated carbon supply rate so as for it to be kept at a predetermined maximum

value, specifying the predetermined value of the downstream side mercury concentration ratio in the range of 0.4 to 0.8, while specifying the predetermined value of the upstream side mercury concentration ratio in the range of 20 to 200.

20. The waste gas treating method according to any one of Claims 13 to 19, wherein the controller controls the activated carbon supply rate, setting the predetermined minimum value of the activated carbon supply rate, which is defined as a weight of the activated carbon injected per hour per unit flow rate of the waste gas under treatment, at 10 to 200 mg/Nm^3.

21. The waste gas treating method according to any one of Claims 16 to 20, wherein the controller controls the activated carbon supply rate, setting the predetermined maximum value of the activated carbon supply rate, which is defined as a weight of the activated carbon injected per hour per unit flow rate of the waste gas under treatment, at 300 to 1000 mg/Nm^3.

22. The waste gas treating method according to Claim 21, wherein the controller controls the activated carbon supply rate, setting the predetermined minimum value of the activated carbon supply rate, which is defined as a weight of the activated carbon injected per hour per unit flow rate of the waste gas under treatment, at 10 to 200 mg/Nm^3.

23. The waste gas treating method according to any one of Claims 13 to 15, wherein the controller controls the activated carbon supply rate such that, in the range of the measurement of the concentration of mercury in the waste gas from zero or a value smaller than the measurable limit minimum value to a first predetermined mercury concentration, activated carbon is supplied at a predetermined minimum value of activated carbon supply rate, and after the measurement of the mercury concentration has reached the first predetermined mercury concentration, the activated carbon supply rate is linearly increased from the predetermined minimum value in accordance with an increase in the concentration of mercury in the waste gas, and upon the measurement of the mercury concentration having reached a second predetermined mercury concentration,

the activated carbon supply rate is set at a predetermined maximum value of supply rate, then, after the activated carbon supply rate having been increased to the predetermined maximum value, the activated carbon supply rate is constantly kept at the predetermined maximum value for an increase in the concentration of mercury in the waste gas.

24. The waste gas treating method according to any one of Claims 13 to 15, wherein the controller controls the activated carbon supply rate such that, in the range of the measurement of the concentration of mercury in the waste gas from zero or a value smaller than the measurable limit minimum value to a first predetermined mercury concentration, activated carbon is supplied at a predetermined minimum value of activated carbon supply rate that provides a first activated carbon supply rate, and after the measurement of the mercury concentration has reached the first predetermined mercury concentration, the activated carbon supply rate is increased in a step-like manner to a second supply rate, thereafter, for an increase in the concentration of mercury in the waste gas, the activated carbon supply rate is constantly kept at the second supply rate, then, upon the measurement of the mercury concentration having reached the second predetermined mercury concentration, the activated carbon supply rate is increased to a third predetermined activated carbon supply rate, thereafter, in this way, constantly keeping the activated carbon supply rate and then increasing it in a stepwise manner for an increase in the concentration of mercury in the waste gas is repeated, then, after the activated carbon supply rate having been increased to a predetermined maximum value, the activated carbon supply rate is constantly kept at the predetermined maximum value for an increase in the concentration of mercury in the waste gas.