CLAIMS

1. An incinerator supply amount detection system for detecting an amount of solid fuel supplied to a combustion chamber of an incinerator, comprising:

an imaging device configured to capture an image of a front surface facing the combustion chamber of the solid fuel before the solid fuel deposited in a feeder part of the incinerator falls into the combustion chamber; and

a detection device configured to detect the amount of the solid fuel supplied to the combustion chamber, based on the image captured by the imaging device,

wherein the image includes a first luminance that is luminance of the image at a first timing and a second luminance that is luminance of the image at a second timing later than the first timing, the second luminance being lower than the first luminance, and

wherein the detection device is configured to detect the amount of the solid fuel supplied to the combustion chamber, based on a value of difference between the first luminance and the second luminance.

2. The incinerator supply amount detection system according to claim 1,

wherein the detection device includes:

a dividing unit for dividing the captured image of the front surface of the solid fuel into a plurality of divided images; and

a count unit for counting the number of divided images in which the value of difference between the first luminance and the second luminance exceeds a preset threshold among the plurality of divided images, and

wherein the detection device is configured to detect that the amount of the solid fuel supplied to the combustion chamber is excessive if the count number counted by the count unit exceeds a preset number.

3. The incinerator supply amount detection system according to claim 1 or 2, further

comprising a pushing device having a pushing arm configured to reciprocate within the feeder part,

wherein the detection device is configured to detect the amount of the solid fuel supplied to the combustion chamber, based on a moving direction of the pushing arm.

4. The incinerator supply amount detection system according to any one of claims 1 ~~or 2~~ to 3,

wherein the imaging device includes an infrared camera.

5. The incinerator supply amount detection system according to any one of claims 1 ~~or 2~~ to 4,

wherein the imaging device includes a visible light camera and a filter device that limits transmission wavelengths incident on the visible light camera to a predetermined wavelength range.

6. The incinerator supply amount detection system according to any one of claims 1 ~~or 2~~ to 5, further comprising:

a flame position detection device configured to detect a flame position of the solid fuel combusted in the combustion chamber; and

a supply amount determination device configured to determine the degree of excess of the amount of the solid fuel supplied to the combustion chamber, based on a change in the flame position of the solid fuel detected by the flame position detection device if the amount of the solid fuel supplied to the combustion chamber detected by the detection device is excessive.

7. The incinerator supply amount detection system according to claim 6, further comprising a protruding length detection device configured to detect a protruding length of the solid fuel protruding from an inlet of the combustion chamber toward the combustion chamber,

wherein the supply amount determination device is configured to determine the degree of

excess of the amount of the solid fuel supplied to the combustion chamber, in consideration of a change in the protruding length of the solid fuel detected by the protruding length detection

device.

8. The incinerator supply amount detection system according to claim 6 or 7, further comprising a height detection device configured to detect a height of the solid fuel deposited on a floor surface of the combustion chamber,

wherein the supply amount determination device is configured to determine the degree of excess of the amount of the solid fuel supplied to the combustion chamber, in consideration of a change in the height of the solid fuel detected by the height detection device.

9. An incinerator operation control system, comprising:

the incinerator supply amount detection system according to any one of claims 1 ~~or 2~~ to 8; and

an operation control device configured to stop supply of the solid fuel to the combustion chamber if the amount of the solid fuel supplied to the combustion chamber detected by the detection device is excessive.

10. The incinerator operation control system according to claim 9, further comprising a secondary air supply device for supplying a secondary air above the combustion chamber,

wherein the operation control system is configured to increase an amount of the secondary air supplied from the secondary air supply device to the combustion chamber if the amount of the solid fuel supplied to the combustion chamber detected by the detection device is excessive.

11. An incinerator supply amount detection method for detecting an amount of solid fuel supplied to a combustion chamber of an incinerator, comprising:

an imaging step of capturing an image of the solid fuel before the solid fuel deposited in a feeder part of the incinerator falls into the combustion chamber; and

a detection step of detecting the amount of the solid fuel supplied to the combustion chamber, based on the image captured in the imaging step;~~.~~

~~12. The incinerator supply amount detection method according to claim 11, further comprising:~~

a flame position detection step of detecting a flame position of the solid fuel combusted in the combustion chamber; and

a determination step of determining the degree of excess of the amount of the solid fuel supplied to the combustion chamber, based on a change in the flame position of the solid fuel detected in the flame position detection step if the amount of the solid fuel supplied to the combustion chamber detected in the detection step is excessive.

1~~3~~2. An incinerator operation control method, comprising:

the incinerator supply amount detection method according to claim 11~~ or 12~~; and

a stop step of stopping supply of the solid fuel to the combustion chamber if the amount of the solid fuel supplied to the combustion chamber detected in the detection step is excessive.