Claims

[Claim 1]

A refuse combustion system comprising:

a refuse combustion furnace;

a refuse supply unit configured to supply refuse to the refuse combustion furnace;

a refuse waste water pit configured to store refuse waste water separated from the refuse in the refuse supply unit;

a moisture meter configured to measure a moisture content of the refuse in the refuse supply unit;

a spraying device configured to spray the refuse waste water stored in the refuse waste water pit on the refuse; and

a controller configured to control the spraying device according to the moisture content of the refuse measured by the moisture meter,

wherein

the refuse supply unit includes

a refuse pit configured to store the refuse,

a refuse hopper configured to be fed with the refuse to be supplied to the refuse combustion furnace, and

a feeding device that is provided below a discharge port of the refuse pit and that is configured to feed the refuse discharged from the discharge port into a feed port of the refuse hopper utilizing weight of the refuse,

wherein

the refuse waste water pit stores the refuse waste water at a vertical position between the discharge port and the feed port and includes a drain port configured to drain the refuse waste water, and

the spraying device is provided at an underside of the drain port and is configured to spray the refuse waste water on the refuse in the refuse hopper utilizing weight of the refuse waste water.

[Claim 2]

A refuse combustion system comprising;

a refuse combustion furnace;

a refuse supply unit configured to supply refuse to the refuse combustion furnace;

a refuse waste water pit configured to store refuse waste water separated from the refuse in the refuse supply unit;

a moisture meter configured to measure a moisture content of the refuse in the refuse supply unit;

a spraying device configured to spray the refuse waste water stored in the refuse waste water pit on the refuse; and

a controller configured to control the spraying device according to the moisture content of the refuse measured by the moisture meter,

wherein

the refuse supply unit includes

a refuse pit configured to store the refuse,

a refuse hopper configured to be fed with the refuse to be supplied to the refuse combustion furnace, and

a feeding device that is provided below a discharge port of the refuse pit and that is configured to feed the refuse discharged from the discharge port into a feed port of the refuse hopper utilizing weight of the refuse,

wherein

the moisture meter includes

a first moisture meter configured to measure the moisture content of the refuse in the refuse hopper, and

a second moisture meter configured to measure the moisture content of the refuse in the refuse pit, and

the controller is configured to control the feeding device to feed the refuse stored in the refuse pit into the feed port of the refuse hopper when

the moisture content of the refuse measured by the first moisture meter is below a lower threshold value,

the moisture content of the refuse measured by the second moisture meter is above a prescribed threshold value greater than or equal to the lower threshold value, and

an amount of the refuse waste water stored in the refuse waste water pit is less than or equal to a predetermined amount.

[Claim 3]

The refuse combustion system according to claim 1 or 2, wherein the controller is configured to control the spraying device so that, when the moisture content of the refuse measured by the moisture meter is below a lower threshold value, the moisture content becomes greater than or equal to the lower threshold value.

[Claim 4]

The refuse combustion system according to claim 3, wherein the controller is configured to increase a stoker speed of the refuse combustion furnace when the moisture content of the refuse measured by the moisture meter is above an upper threshold value.

[Claim 5]

The refuse combustion system according to claim 1 or 2, wherein

the moisture meter includes a first moisture meter configured to measure a moisture content of the refuse in the refuse hopper.

[Claim 6]

The refuse combustion system according to claim 5, wherein the spraying device is configured to spray the refuse waste water on the refuse in the refuse hopper.

[Claim 7]

The refuse combustion system according to claim 6, wherein

the moisture meter includes a second moisture meter configured to measure the moisture content of the refuse in the refuse pit.

[Claim 8]

The refuse combustion system according to claim 1 or 2, wherein

the spraying device is configured to spray the refuse waste water on the refuse in the refuse hopper, and

the refuse waste water pit is configured to recover the refuse waste water separated from each of the refuse in the refuse pit and the refuse in the refuse hopper.

[Claim 9]

A refuse combustion power generation system comprising:

the refuse combustion system according to claim 1 or 2;

a waste heat boiler configured to use combustion gas generated in the refuse combustion furnace as a heat source;

a turbine configured to rotate with steam from the waste heat boiler as a drive source; and

a generator configured to generate power by rotation of the turbine.

[Claim 10]

The refuse combustion power generation system according to claim 9, wherein

the controller includes

a model creation unit configured to create a learning model that has learned a relationship between the moisture content of the refuse measured by the moisture meter and at least one process value of the refuse combustion power generation system, and

a threshold value determination unit configured to determine such an upper threshold value and a lower threshold value for the moisture content that causes the at least one process value to fall within a target range based on the learning model created by the model creation unit.

[Claim 11]

A method for treating refuse waste water in a refuse combustion system including a refuse combustion furnace, a refuse supply unit that supplies refuse to the refuse combustion furnace, and a refuse waste water pit for storing refuse waste water separated from the refuse in the refuse supply unit, the method comprising:

measuring a moisture content of the refuse in the refuse supply unit; and

spraying the refuse waste water stored in the refuse waste water pit on the refuse according to the moisture content of the refuse measured in the measuring step,

wherein the refuse supply unit includes a refuse pit configured to store the refuse, a refuse hopper configured to be fed with the refuse to be supplied to the refuse combustion furnace, and a feeding device that is provided below a discharge port of the refuse pit and that is configured to feed the refuse discharged from the discharge port into a feed port of the refuse hopper utilizing weight of the refuse,

the refuse waste water pit stores the refuse waste water at a vertical position between the discharge port and the feed port and includes a drain port configured to drain the refuse waste water, and

the spraying step includes spraying the refuse waste water on the refuse in the refuse hopper utilizing weight of the refuse waste water by a spraying device provided at an underside of the drain port.

[Claim 12]

A method for treating refuse waste water in a refuse combustion system including a refuse combustion furnace, a refuse supply unit that supplies refuse to the refuse combustion furnace, and a refuse waste water pit for storing refuse waste water separated from the refuse in the refuse supply unit, the method comprising:

measuring a moisture content of the refuse in the refuse supply unit; and

spraying the refuse waste water stored in the refuse waste water pit on the refuse according to the moisture content of the refuse measured in the measuring step,

wherein the refuse supply unit includes a refuse pit configured to store the refuse, a refuse hopper configured to be fed with the refuse to be supplied to the refuse combustion furnace, and a feeding device that is provided below a discharge port of the refuse pit and that is configured to feed the refuse discharged from the discharge port into a feed port of the refuse hopper utilizing weight of the refuse,

the measuring step includes a first measuring step of measuring a moisture content of the refuse in the refuse hopper and a second measuring step of measuring the moisture content of the refuse in the refuse pit, and

the method further comprises controlling the feeding device to feed the refuse stored in the refuse pit into the feed port of the refuse hopper when the moisture content of the refuse measured in the first measuring step is below a lower threshold value, the moisture content of the refuse measured in the second measuring step is above a prescribed threshold value greater than or equal to the lower threshold value, and an amount of the refuse waste water stored in the refuse waste water pit is less than or equal to a predetermined amount.