Claims

[Claim 1] A combustion system comprising:

an ammonia supply source;

a cracker that is connected to the ammonia supply source and that decomposes ammonia into hydrogen and nitrogen;

a combustor that is connected to the ammonia supply source and the cracker and that combusts ammonia from the ammonia supply source and gas including hydrogen from the cracker;

a sensor that detects a combustion abnormality in the combustor; and

a controller that is communicatively connected to the sensor and that adjusts an amount of gas from the cracker to the combustor based on a detection result of the sensor,

wherein the sensor includes a pressure sensor that is provided in the combustor and that detects a combustion oscillation.

[Claim 2] The combustion system according to claim 1, wherein the sensor includes a second sensor that is provided in the combustor and that detects a movement of a flame.

[Claim 3] The combustion system according to Claim 1, wherein the sensor includes a third sensor that detects NOx in exhaust gas at a location downstream of the combustor.

[Claim 4] The combustion system according to claim 1, wherein the sensor includes a fourth sensor that detects ammonia in exhaust gas at a location downstream of the combustor.

[Claim 5] The combustion system according to claim 1, wherein the combustor includes a plurality of burners, and

the controller controls operations of the plurality of burners based on the detection result of the sensor.

[Claim 6] A combustion system comprising:

an ammonia supply source;

a cracker that is connected to the ammonia supply source and that decomposes ammonia into hydrogen and nitrogen;

a combustor that is connected to the ammonia supply source and the cracker and that combusts ammonia from the ammonia supply source and gas including hydrogen from the cracker;

a sensor that detects a combustion abnormality in the combustor; and

a controller that is communicatively connected to the sensor and that adjusts an amount of gas from the cracker to the combustor based on a detection result of the sensor

wherein the sensor includes a temperature sensor that is provided in the combustor and that detects a backfire.

[Claim 7] The combustion system according to claim 6, wherein the sensor includes a second sensor that is provided in the combustor and that detects a combustion oscillation.

[Claim 8] The combustion system according to Claim 6, wherein the sensor includes a third sensor that detects NOx in exhaust gas at a location downstream of the combustor.

[Claim 9] The combustion system according to claim 6, wherein the sensor includes a fourth sensor that detects ammonia in exhaust gas at a location downstream of the combustor.

[Claim 10] The combustion system according to claim 6, wherein the combustor includes a plurality of burners, and

the controller controls operations of the plurality of burners based on the detection result of the sensor.

[Claim 11] A combustion system comprising:

an ammonia supply source;

a cracker that is connected to the ammonia supply source and that decomposes ammonia into hydrogen and nitrogen;

a combustor that is connected to the ammonia supply source and the cracker and that combusts ammonia from the ammonia supply source and gas including hydrogen from the

cracker;

a sensor that detects a combustion abnormality in the combustor; and

a controller that is communicatively connected to the sensor and that adjusts an amount of gas from the cracker to the combustor based on a detection result of the sensor

wherein the sensor includes a NOx sensor that detects NOx in exhaust gas at a location downstream of the combustor.

[Claim 12] The combustion system according to claim 11, wherein the sensor includes a second sensor that is provided in the combustor and that detects a combustion oscillation.

[Claim 13] The combustion system according to claim 11, wherein the sensor includes a third sensor that is provided in the combustor and that detects a movement of a flame.

[Claim 14] The combustion system according to claim 11, wherein the sensor includes a fourth sensor that detects ammonia in exhaust gas at a location downstream of the combustor.

[Claim 15] The combustion system according to claim 11, wherein the combustor includes a plurality of burners, and

the controller controls operations of the plurality of burners based on the detection result of the sensor.