Claims

1. A gas turbine system, comprising:

an ammonia tank;

a combustor including a combustion chamber, which is connected to the ammonia tank;

an intake flow passage connected to the combustor;

a compressor provided in the intake flow passage;

a cracked-gas reservoir connected to the combustor; and

an ammonia cracking catalyst arranged in a bleed flow passage connected to the compressor, between the compressor and the combustor in the intake flow passage, or in a space in the combustor, which brings the combustion chamber and the intake flow passage into communication with each other, the ammonia cracking catalyst being connected to the ammonia tank and the cracked-gas reservoir ,

wherein during an operation of the gas turbine system, the gas turbine system determines whether or not a temperature of the ammonia cracking catalyst has become equal to or higher than a reference temperature, and controls so that ammonia is supplied from the ammonia tank to the ammonia cracking catalyst when it is determined that the temperature of the ammonia cracking catalyst has become equal to or higher than the reference temperature, and

wherein during an operation of the gas turbine system, the gas turbine system controls the supply amount of ammonia from the ammonia tank to the ammonia cracking catalyst so that pressure in the cracked-gas reservoir becomes equal to a reference pressure, does not stop the gas turbine system and continues supply of ammonia from the ammonia tank to the ammonia cracking catalyst when the pressure in the cracked-gas reservoir is lower than the reference pressure, and stops the gas turbine system when the pressure in the cracked-gas has become equal to or higher than the reference pressure, and

wherein at the time of activation of the gas turbine system, the gas turbine system controls so that supply of ammonia from the ammonia tank to the combustor

is started after supply of a cracked gas from the cracked-gas reservoir to the combustor is started.

2. The gas turbine system according to claim 1, wherein a cooling device is provided in a flow passage that connects the ammonia cracking catalyst and the cracked-gas reservoir to each other.

3. The gas turbine system according to claim 2,

wherein the cooling device is a heat exchanger provided in a flow passage that connects the ammonia cracking catalyst and the cracked-gas reservoir, and

wherein a flow passage that connects the ammonia tank and the ammonia cracking catalyst passes through the heat exchanger.

4. The gas turbine system according to any one of claims 1 to 3,

wherein a first flow rate control valve is provided in a flow passage that connects the ammonia tank and the ammonia cracking catalyst, and

wherein the gas turbine system comprises a controller configured to control the first flow rate control valve so that ammonia is supplied from the ammonia tank to the ammonia cracking catalyst during an operation of the gas turbine system.

5. The gas turbine system according to claim 4,

wherein a second flow rate control valve is provided in a flow passage that connects the cracked-gas reservoir and the combustor,

wherein a third flow rate control valve is provided in a flow passage that connects the ammonia tank and the combustor, and

wherein the controller controls the second flow rate control valve and the third flow rate control valve so that supply of the ammonia from the ammonia tank to the combustor is started after supply of a cracked gas from the cracked-gas reservoir to the combustor is started at the time of activation of the gas turbine system.