Claims

1. A gas turbine system, comprising:

an ammonia tank;

a combustor connected to the ammonia tank;

an exhaust flow passage connected to the combustor;

a turbine provided in the exhaust flow passage;

a cracked-gas reservoir connected to the combustor; and

an ammonia cracking catalyst, which is arranged on a downstream side of the turbine in the exhaust flow passage, and is connected to the ammonia tank and the cracked-gas reservoir;

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

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,

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

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

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 first heat exchanger provided in the flow passage that connects the ammonia cracking catalyst and the cracked-gas reservoir to each other, and

wherein the flow passage that connects the ammonia tank and the ammonia cracking catalyst to each other passes through the first heat exchanger.

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

wherein a second heat exchanger is provided on a downstream side of the ammonia cracking catalyst in the exhaust flow passage, and

wherein the flow passage that connects the ammonia tank and the ammonia cracking catalyst to each other passes through the second heat exchanger.