CLAIMS

1. A method for producing an aromatic nitrile compound, the method comprising a dehydration reaction, wherein an aromatic amide compound is dehydrated,

the method having a contact step for bringing the aromatic amide compound into contact with a catalyst in a gas phase during the dehydration reaction,

wherein the catalyst includes an alkali metal and

wherein in the contact step, the temperature at which the aromatic amide compound is brought into contact with the catalyst in the gas phase is 170°C or higher but lower than 300°C.

2. The method for producing an aromatic nitrile compound according to claim 1, wherein the catalyst includes an oxide of the alkali metal.

3. The method for producing an aromatic nitrile compound according to claim 1 or 2, wherein the aromatic amide compound includes at least a heteroaryl amide compound, and wherein the aromatic nitrile compound includes at least a heteroaryl nitrile compound.

4. The method for producing an aromatic nitrile compound according to claim 3, wherein the heteroaryl amide compound includes 2-picolinamide, and wherein the heteroaryl nitrile compound includes 2-cyanopyridine.

5. The method for producing an aromatic nitrile compound according to any one of claims 1 to 4, wherein in the contact step, an inert gas and/or a solvent in a vaporized state is further brought into contact with the catalyst.

6. The method for producing an aromatic nitrile compound according to claim 5, wherein the inert gas includes at least nitrogen gas.

7. The method for producing an aromatic nitrile compound according to claim 5 or 6, wherein the boiling point of the solvent under ordinary pressure is 20°C to 300°C.

8. The method for producing an aromatic nitrile compound according to any one of claims 5 to 7, wherein the solvent is compatible with the aromatic amide compound.

9. The method for producing an aromatic nitrile compound according to any one of claims

5 to 8, wherein the solvent includes a pyridine compound and/or a ketone compound which serve as the solvent.

10. The method for producing an aromatic nitrile compound according to any one of claims 1 to 9, wherein in the contact step, the temperature at which the aromatic amide compound is brought into contact with the catalyst in the gas phase is 180°C or higher but lower than 290°C.

11. The method for producing an aromatic nitrile compound according to any one of claims 1 to 10, wherein the time for bringing the aromatic amide compound into contact with the catalyst in the gas phase is 0.001 sec or more but less than 10 sec.

12. A method for producing a carbonate ester, which has:

a first reaction step that includes: a carbonate ester production reaction in which an alcohol is reacted with carbon dioxide in the presence of an aromatic nitrile compound to produce the carbonate ester and water, and a hydration reaction in which the aromatic nitrile compound is hydrated with the produced water to produce an aromatic amide compound; and

a second reaction step in which the aromatic amide compound is separated from the reaction system of the first reaction step and then the aromatic amide compound is regenerated into an aromatic nitrile compound by means of a dehydration reaction for dehydrating the aromatic amide compound, the dehydration reaction having a contact step for bringing the aromatic amide compound into contact with a catalyst in a gas phase,

wherein at least a part of the aromatic nitrile compound regenerated in the second reaction step is used in the first reaction step.

13. The method for producing a carbonate ester according to claim 12, wherein in the second reaction step, an aromatic nitrile compound is produced from the aromatic amide compound according to the method for producing an aromatic nitrile compound according to any one of claims 2 to 11 to regenerate the aromatic nitrile compound.

14. The method for producing a carbonate ester according to claim 12 or 13, wherein a catalyst including cerium oxide is used in the carbonate ester production reaction.

15. The method for producing a carbonate ester according to any one of claims 12 to 14, wherein the alcohol includes an alcohol having 1 to 6 carbon atoms.