CLAIMS

1. An austenite stainless steel member comprising:

a base material made of austenite stainless steel; and

a passivation layer formed on a surface of the base material made of austenite stainless steel,

wherein the passivation layer has a thickness of 2 nm to 20 nm, a concentration of chromium atoms in an outermost surface of the passivation layer is 0.1 atomic% to 1.0 atomic%, and a concentration of silicon atoms in the outermost surface of the passivation layer is 2 atomic% to 10 atomic%.

2. The austenite stainless steel member according to claim 1 which is for use in a part to be in contact with a semiconductor treatment liquid.

3. The austenite stainless steel member according to claim 1 or 2, wherein the passivation layer has a thickness of 3 nm to 20 nm.

4. An apparatus having a part to be in contact with a semiconductor treatment liquid, wherein the part comprises the austenite stainless steel member according to any one of claims 1 to 3.

5. The apparatus according to claim 4, which is a reaction tank, distillation column, stirrer, transport pipe, or storage

tank for use in a semiconductor treatment liquid producing process.

6. A container having a part to be in contact with a semiconductor treatment liquid, wherein the part comprises the austenite stainless steel member according to any one of claims 1 to 3.

7. A method of producing a semiconductor treatment liquid, the method comprising:

using the apparatus according to claim 5 in producing a semiconductor treatment liquid.

8. A method of storing a semiconductor treatment liquid, the method comprising:

storing the semiconductor treatment liquid in a container comprising the austenite stainless steel member according to any one of claims 1 to 3.

9. A method of producing the austenite stainless steel member according to any one of claims 1 to 3, the method comprising:

forming the passivation layer by electropolishing, rinsing with inorganic acid, and heating,

wherein the heating is performed at a temperature of 300°C to 450°C in an oxidizing atmosphere.