CLAIMS

1. (Amended) A tantalum sputtering target, wherein, on a sputtering surface of the tantalum sputtering target, an orientation rate of a (200) plane exceeds 70%, an orientation rate of a (222) plane is 9.9% or more and 30% or less.

2. (Amended) The tantalum sputtering target according to Claim 1, wherein, on a sputtering surface of the tantalum sputtering target, an orientation rate of a (200) plane is 80% or more, an orientation rate of a (222) plane is 9.9% or more and 20% or less.

~~3. A thin film for a diffusion barrier layer formed using the sputtering target according to any one of Claim 1 or Claim 2.~~

~~4. A semiconductor device that uses the thin film for a diffusion barrier layer according to Claim 3.~~

~~5~~3. (Amended) A method of producing a tantalum sputtering target, wherein a molten tantalum ingot is subject to forging and recrystallization annealing, and thereafter subject to rolling and heat treatment to form a crystal structure having, on a sputtering surface of the target, an orientation rate of a (200) plane that exceeds 70%, an orientation rate of a (222) plane that is 9.9% or more and 30% or less.

~~6~~4. (Amended) The method of producing a tantalum sputtering target according to Claim ~~5~~3, wherein a molten tantalum ingot is subject to forging and recrystallization annealing, and thereafter subject to rolling and heat treatment to form a crystal structure having, on a sputtering surface of the target, an orientation rate of a (200) plane that is 80% or more, an orientation rate of a (222) plane that is 9.9% or more and 20% or less.

~~7~~5. The method of producing a tantalum sputtering target according to anyone of Claim ~~5 or Claim 6~~ 3 or claim 4, wherein cold rolling is performed using a rolling mill roll having a rolling mill roll diameter of 500 mm or less at a rolling speed of 10 m/min or more and a reduction exceeding 80%.

~~8~~6. The method of producing a tantalum sputtering target according to anyone of Claims ~~5 to 7~~ 3 to 5, wherein heat treatment is performed at a temperature of 900°C to 1400°C.

~~9~~7. The method of producing a tantalum sputtering target according to anyone of Claims ~~5 to 8~~ 3 to 6, wherein, after rolling and heat treatment are performed, surface finishing is performed via machining or polishing.