CLAIMS

1. A sputtering target, the sputtering target having a molybdenum content of 99.999% by mass or more, a relative density of 98% or more, an average crystal grain diameter of 45 μm or less, and a radiation dose of 0.03 cph/cm^2 or less,

wherein the average crystal grain diameter is measured by a method comprising: observing a target surface with an optical microscope; drawing straight lines on a resulting structure photograph until number of particles is $N \geq 200$; and calculating L/N from the number of particles present on the straight lines ($N \geq 200$) and a total length (L) of the straight lines, and

wherein the method of measuring the average crystal grain diameter is in accordance with a cutting method defined in JIS G 0551.

2. The sputtering tareget according to claim 1, wherein the radiation dose is 0.02 cph/cm^2 or less.

3. The sputtering target according to claim 1 or 2, wherein the relative density is 99% or more.

4. A method for producing the sputtering target according to any one of claims 1 to 3, the method comprising the steps of:

preparing molybdenum powder;

subjecting the molybdenum powder to hot pressing by applying a load to the molybdenum powder at a temperature of 1350 °C to 1500 °C; and

subjecting a formed compact obtained by the hot pressing to hot isostatic pressing at a temperature of 1300 °C to 1850 °C.

5. The method according to claim 4, wherein the load applied to the molybdenum powder is from 200 kg/cm^2 to 300 kg/cm^2 in the step of subjecting the molybdenum powder to the hot pressing.

6. The method according to claim 4 or 5, wherein the hot pressing is carried out for 60 minutes to 300 minutes.

7. The method according to any one of claims 4 to 6, wherein a load applied to the formed compact is from 1300 kg/cm^2 to 2000 kg/cm^2 in the step of subjecting the formed compact to the hot isostatic pressing.

8. The method according to any one of claims 4 to 7, wherein the hot isostatic pressing is carried out for 60 minutes to 300 minutes.

9. The method according to any one of claims 4 to 8, wherein the step of preparing the molybdenum powder comprises preparing molybdenum powder having a purity of 5N or more and an average grain diameter of from 1 μm to 5 μm.