CLAIMS

1. A silver-based cylindrical target consisting of silver or a single-phase silver alloy in which an additive component is solid-soluted, wherein

a ratio A/B is 0.8-1.2, A being a diameter of crystal grains in a direction along a central axis of a cylinder in a cross section including the central axis of the cylinder; and B being a diameter of crystal grains in a direction perpendicular to the central axis,

an oxygen content is 100 ppm or less, and

a content of non-metallic inclusions is 20 ppm or less.

2. The silver-based cylindrical target according to Claim 1, wherein an average grain size of the crystal grains is 30 μm or more and 400 μm or less, and a dispersion of the grain size of the crystal grains is 20% or less of the average grain size.

3. The silver-based cylindrical target according to Claim 1, wherein the silver-based cylindrical target consists of the silver alloy, and the additive component is at least one selected from a group consisting of Mg, Al, Zn, Ga, Pd, In, Sn, Sb, and Au.

4. A method of producing a silver-based cylindrical target comprising the steps of:

performing a hot extrusion process in which a silver ingot or an ingot solid-soluting an additive component is subjected to extrusion work into a cylindrical shape in a condition where an extrusion ratio is 4 or more and 15 or less and a material temperature immediately after extrusion is 500°C or higher and 800°C or lower; and

cooling a cylindrical body obtained after the step of performing a hot extrusion process to a temperature of 200°C or lower within 10 minutes after extrusion.

5. A method of producing a silver-based cylindrical target comprising the steps of:

performing a hot extrusion process in which a silver ingot or an ingot solid-soluting an additive component is subjected to extrusion work into a cylindrical shape in a condition where an extrusion ratio is 4 or more and 15 or less and a material temperature immediately after extrusion is 500°C or higher and 800°C or lower;

performing a cold drawing process in which a cylindrical body obtained after the step of performing a hot extrusion process is subjected to drawing work in a reduction ratio of 20% or more; and

performing a heat treatment process in which the cylindrical body obtained after the step of performing a cold drawing process is kept at a temperature of 450°C or higher and 650°C or lower.

CLAIMS

1. A silver-based cylindrical target consisting of silver or a single-phase silver alloy in which an additive component is solid-soluted, wherein

a ratio A/B is 0.8-1.2, A being a diameter of crystal grains in a direction along a central axis of a cylinder in a cross section including the central axis of the cylinder; and B being a diameter of crystal grains in a direction perpendicular to the central axis,

an oxygen content is 100 ppm or less, and

a content of non-metallic inclusions is 20 ppm or less.

2. The silver-based cylindrical target according to Claim 1, wherein an average grain size of the crystal grains is 30 μm or more and 400 μm or less, and a dispersion of the grain size of the crystal grains is 20% or less of the average grain size.

3. The silver-based cylindrical target according to Claim 1, wherein the silver-based cylindrical target consists of the silver alloy, and the additive component is at least one selected from a group consisting of Mg, Al, Zn, Ga, Pd, In, Sn, Sb, and Au.

4. A method of producing a silver-based cylindrical target made of silver or a single phase silver alloy, in which an additive component is solid-soluted in silver, comprising the steps of:

casting an ingot from a melt obtained by melting silver or silver including the additive component in a graphite crucible in vacuum atmosphere, inert gas atmosphere, or air atmosphere, a surface of the melt being blown by an inert gas or covered by a carbon-based solid sealing part in a case where melting is performed in air atmosphere;

performing a hot extrusion process in which the ingot is subjected to extrusion work

into a cylindrical shape in a condition where an extrusion ratio is 4 or more and 15 or less and a material temperature immediately after extrusion is 500°C or higher and 800°C or lower; and

cooling a cylindrical body obtained after the step of performing a hot extrusion process to a temperature of 200°C or lower within 10 minutes after extrusion.

5. A method of producing a silver-based cylindrical target made of silver or a single phase silver alloy, in which an additive component is solid-soluted in silver, comprising the steps of:

casting an ingot from a melt obtained by melting silver or silver including the additive component in a graphite crucible in vacuum atmosphere, inert gas atmosphere, or air atmosphere, a surface of the melt being blown by an inert gas or covered by a carbon-based solid sealing part in a case where melting is performed in air atmosphere;

performing a hot extrusion process in which the ingot is subjected to extrusion work into a cylindrical shape in a condition where an extrusion ratio is 4 or more and 15 or less and a material temperature immediately after extrusion is 500°C or higher and 800°C or lower;

performing a cold drawing process in which a cylindrical body obtained after the step of performing a hot extrusion process is subjected to drawing work in a reduction ratio of 20% or more; and

performing a heat treatment process in which the cylindrical body obtained after the step of performing a cold drawing process is kept at a temperature of 450°C or higher and 650°C or lower.