CLAIMS

1. A magnetic recording medium, comprising a substrate, a grain diameter control layer, a first seed layer, a second seed layer, and a magnetic recording layer containing an ordered alloy disposed in this order, wherein the second seed layer is composed of crystal grains having TiN as a main component, and a grain boundary material having at least one or more selected from the group consisting of a metal oxide and carbon as a main component wherein the grain boundary material is formed from carbon.

2. A magnetic recording medium, comprising a substrate, a grain diameter control layer, a first seed layer, a second seed layer, and a magnetic recording layer containing an ordered alloy disposed in this order, wherein the second seed layer is composed of crystal grains having TiN as a main component, and a grain boundary material having at least one or more selected from the group consisting of a metal oxide and carbon as a main component further comprising a non-magnetic intermediate layer between the grain diameter control layer and the first seed layer, wherein the non-magnetic intermediate layer has a granular structure containing Pt crystal grains, or Pt crystal grains and at least one selected from the group consisting of oxides, carbon, carbides and nitrides, surrounding the Pt crystal grain.

3. The magnetic recording medium according to claim 2, wherein, when the grain boundary material is a metal oxide and, ΔG_{500} is defined as a standard Gibbs energy of formation at 500°C, the grain boundary material is selected from materials such that ΔG_{500} of a nitride that is formed through a reaction between a metal element in the metal oxide and nitrogen is higher than ΔG_{500} of TiN.

4. The magnetic recording medium according to claim 2, wherein, when the grain boundary material is a metal oxide and, ΔG_{500} is defined as a standard Gibbs energy of formation at 500°C, the grain boundary material is selected from materials such that ΔG_{500} of an oxide that is formed through a reaction between a metal element in the metal oxide and oxygen is lower than ΔG_{500} of TiO_2.

5. The magnetic recording medium according to claim 2, wherein the grain boundary material is at least one or more selected from the group consisting of Al_2O_3, MgO, CaO, Sc_2O_3, SrO and Y_2O_3.

6. The magnetic recording medium according to claims 1 or 2, wherein the grain boundary material is in 5 volume % or more and less than 50 volume % of the total amount of crystal grains having TiN as the main component and the grain boundary material.

7. The magnetic recording medium according to claims 1 or 2, wherein the second seed layer has a granular structure composed of crystal grains having TiN as the main component and the grain boundary material surrounding a circumference of the crystal grain having TiN as the main component.

8. The magnetic recording medium according to claims 1 or 2, wherein the magnetic recording layer contains at least one first element selected from the group consisting of Fe and Co, and at least one second element selected from the group consisting of Pt, Pd, Au, Ir, Ru and Rh.

9. The magnetic recording medium according to claims 1 or 2, wherein the first seed layer includes a lower first seed layer and an upper first seed layer in this order.

10. The magnetic recording medium according to claims 1 or 2, wherein the grain diameter control layer has a granular structure containing Ru crystal grains and at least one selected from the group consisting of oxides, carbides and nitrides surrounding the Ru crystal grains.

11. The magnetic recording medium according to claims 1 or 2, further comprising an orientation control layer formed from Ru or a Ru alloy between the substrate and the grain diameter control layer.