What is claimed is:

1. A water-reactive Al composite material comprising 4NAl or 5NAl and added In in an amount ranging from 2 to 5% by mass on the basis of the mass of Al, wherein In is uniformly dispersed in Al crystalline grains.

2. A method for the production of a water-reactive Al film comprising the steps of melting a material prepared by adding In to 4NAl or 5NAl in an amount ranging from 2 to 5% by mass on the basis of the mass of Al such that the resulting material has a uniform composition; thermally spraying the molten material on the surface of a base material; and solidifying the sprayed molten material through quenching to thus form a thermally sprayed Al film in which In is uniformly dispersed in Al crystalline grains.

3. A water-reactive Al film consisting essentially of the water-reactive Al composite material as set forth in claim 1.

4. A constituent member for a film-forming chamber of a film-forming apparatus characterized in that it is provided thereon with a water-reactive Al film consisting essentially of a water-reactive Al composite material as set forth in claim 1 or a water-reactive Al film prepared according to the method as set forth in claim 2.

5. The constituent member for a film-forming chamber as set forth in claim 4, wherein the constituent member is an adhesion preventive plate, a shutter or a mask.

CLAIMS

1. A water-reactive Al composite material for thermal spaying which is used to produce a thermally sprayed Al film, comprising 4NAl or 5NAl and added In in an amount ranging from 2 to 5% by mass on the basis of the mass of Al, in which In is uniformly dispersed in Al crystalline grains,

wherein even after a base material covered with the thermally sprayed Al film which is produced by melting the composite material in such a manner that the resulting molten material has a uniform composition, thermally spraying the resulting molten material on the surface of the base material and solidifying the sprayed molten composite material through quenching, in which In is uniformly dispersed in Al crystalline grains, is subjected to an influence of a thermal hysteresis experienced in a film-forming process implemented within a film-forming apparatus in which an upper limit of a thermal hysteresis temperature is on an order of 300 to 350°C, reaction current density, as determined by immersing the base material covered with the Al film in warm water maintained at a temperature ranging from 40 to 130°C and dissolving the Al film in water, is not less than 50 mA/cm^2.

2. A method for the production of a thermally sprayed water-reactive Al film comprising the steps of

melting a material prepared by adding In to 4NAl or 5NAl in an amount ranging from 2 to 5% by mass on the basis of the mass of Al in such a manner that the resulting molten material has a uniform composition;

thermally spraying the molten material on the surface of a base material; and

solidifying the sprayed molten material through quenching to thus form a thermally sprayed Al film in which In is uniformly dispersed in Al crystalline grains,

wherein even after the base material covered with the thermally sprayed Al film is subjected to an influence of a thermal hysteresis experienced in a film-forming process implemented within a film-forming apparatus in which an upper limit of a thermal hysteresis temperature is on an order of 300 to 350°C, reaction current density, as determined by immersing the base material covered with the Al film in warm water maintained at a temperature ranging from 40 to 130°C and dissolving the Al film in water, is not less than 50 mA/cm^2.

3. A thermally sprayed water-reactive Al film consisting essentially of the water-reactive Al composite material for thermal spraying as set forth in claim 1.

4. A constituent member for a film-forming chamber of a film-forming apparatus characterized in that it is provided thereon with a thermally sprayed water-reactive Al film consisting essentially of a water-reactive Al composite material for thermal spraying as set forth in claim 1 or a thermally sprayed water-reactive Al film prepared according to the method as set forth in claim 2.

5. The constituent member for a film-forming chamber as set forth in claim 4, wherein the constituent member is an adhesion-preventive plate, a shutter or a mask.