What is claimed is:

1. A water-reactive Al composite material comprising an Al raw material selected from the group consisting of 2NAl to 5NAl each containing Cu as an impurity of Al in an amount of not higher than 40 ppm; and at least one metal selected from the group consisting of In and Bi, in amounts ranging from 2 to 5% by mass and 0.7 to 1.4% by mass, respectively, on the basis of the mass of Al.

2. The water-reactive Al composite material as set forth in claim 1, wherein it further comprises Si, including the Si as an impurity of the Al raw material, in a total amount ranging from 0.04 to 0.6% by mass for the Al-In system or 0.25 to 0.7% by mass for the Al-Bi system.

3. A method for the production of a water-reactive Al film comprising the steps of melting a material which is prepared by incorporating, into an Al raw material selected from the group consisting of 2NAl to 5NAl whose contaminant Cu content is not higher than 40 ppm, at least one metal selected from the group consisting of In and Bi, in amounts ranging from 2 to 5% by mass and 0.7 to 1.4% by mass, respectively, on the basis of the mass of the Al raw material, 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 then solidifying the sprayed molten material through quenching to thus form a film.

4. The method for the production of a water-reactive Al film as set forth in claim 3, wherein the material further comprises, on the basis of the mass of the Al raw material, Si including the Si as an impurity of the Al raw material in a total amount ranging from 0.04 to 0.6% by mass for the Al-In system or 0.25 to 0.7% by mass for the Al-Bi system.

5. A water-reactive Al film consisting essentially of the

water-reactive Al composite material as set forth in claim 1 or 2.

6. 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 2 or a water-reactive Al film prepared according to the method as set forth in claim 3 or 4.

7. The constituent member for a film-forming chamber as set forth in claim 6, wherein the constituent member is an adhesion-preventive plate, a shutter or a mask.

CLAIMS

1. A water-reactive Al composite material for thermal spraying comprising an Al raw material selected from the group consisting of 2NAl to 5NAl each containing Cu as an impurity of Al in an amount of not higher than 40 ppm;

at least one metal selected from the group consisting of In and Bi, in amounts ranging from 2 to 5% by mass and 0.7 to 1.4% by mass, respectively, on the basis of the mass of Al; and

further Si, including the Si as an impurity of the Al raw material, in a total amount ranging from 0.04 to 0.6% by mass for the Al-In system or 0.25 to 0.7% by mass for the Al-Bi system.

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

melting a material which is prepared by incorporating, into an Al raw material selected from the group consisting of 2NAl to 5NAl whose contaminant Cu content is not higher than 40 ppm, at least one metal selected from the group consisting of In and Bi, in amounts ranging from 2 to 5% by mass and 0.7 to 1.4% by mass, respectively, and further Si including the Si as an impurity of the Al raw material in a total amount ranging from 0.04 to 0.6% by mass for the Al-In system or 0.25 to 0.7% by mass for the Al-Bi system, on the basis of the mass of the Al raw material, 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 then

solidifying the sprayed molten material through quenching to thus form a film.

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.