C. During the reaction, residual reactive but as yet unreacted water has a molar ratio of less than 1 but greater than 0 with respect to the metal aluminum added initially;

Wherein, the type of alkaline substance and metal aluminum is described in any one of claim 1~4.

6. The method of claim 5, wherein metal aluminum is mainly used for producing hydrogen; wherein:

A. Water is added into said composition from any one of claim 1~4;

B. During the reaction, residual reactive but as yet unreacted water has a molar ratio of less than 1 but greater than 0 with respect to the metal aluminum added initially.

7. The method of claim 5 or 6, wherein during the reaction, residual reactive but as yet unreacted water has a molar ratio of less than 0.5 with respect to the metal aluminum added initially.

8. The method of claim 5 or 6, wherein in said collection of reactants formed by placing alkaline substance and metal aluminum together, said alkaline substance and said metal aluminum are placed in a common fluid channel; Respect to the fluid flow direction, the alkaline substance is placed in the upper reaches, the metal aluminum is placed in the lower reaches.

~~9. A reactor, wherein it comprises said composition from any one of claim 1~4.~~

10. The reactor of claim 9, wherein said reactor further comprises a flexible material, which is placed in the reactor together with the composition.

11. The reactor of claim 10, wherein said composition is cylindrically surrounded by said flexible material;

And/or, said flexible material is foamed polypropylene plastic.

~~12. The reactor of claim 9, wherein the alkaline substance and the metal~~

aluminum in said composition are placed in a common fluid channel; Respect to the fluid flow direction, the alkaline substance is placed in the upper reaches, the metal aluminum is placed in the lower reaches; Wherein, the reactor comprises 2 solid vessels joining each other, the 2 solid vessels comprise the alkaline substance and metal aluminum of said composition respectively; Respect to the fluid flow direction, the solid vessel comprising alkaline substance is placed in the upper reaches, the solid vessel comprising metal aluminum is placed in the lower reaches;

And/or, said reactor is equipped with a dismountable connector, which can be used to join the matching connector from other device;

And/or, said reactor is equipped with a fluid inlet, which can accept fluid to flow into the reactor.

13. A reaction device for the preparation of hydrogen, wherein comprises said reactor from any one of claim 9~12, and a liquid vessel; the reactor and the liquid vessel connect each other, the liquid vessel contains water.

14. The reaction device of claim 13, wherein said reactor and said liquid vessel are connected through a liquid pump.