What is claimed is:

1. A sodium borohydride-containing composition for generation of hydrogen, comprising sodium borohydride and a filler, wherein the filler is a substance having a chemical stability and a water solubility of less than 10g per 100g of water under an alkaline or neutral condition at a temperature of 130°C to 140°C, where the chemical stability is an absence of decomposition of the substance and an absence of chemical reaction with the sodium borohydride or water, and wherein the filler has a bulk volume of 0.02~16 times a bulk volume of the sodium borohydride, a mass ratio between the filler and the sodium borohydride being no greater than 2:1, the filler having a bulk density of less than 16, the filler having a mean particle size smaller than a mean particle size of the sodium borohydride, and wherein the alkaline condition is an alkalinity resulting from moisture-caused hydrolysis of the sodium borohydride or a reaction product $NaBO_2$ thereof, and wherein the chemical reaction does not include simple hydration and the decomposition does not include simple dehydration.

2. The sodium borohydride-containing composition according to claim 1, wherein the mass ratio of the filler to the sodium borohydride is no greater than 0.5:1.

3. The sodium borohydride-containing composition according to claim 1, wherein the filler is a substance having a bulk density of less than 0.5.

4. The sodium borohydride-containing composition according to claim 3, wherein the filler is a substance having a bulk density of less than 0.1 or the filler is magnesium hydroxide.

5. The sodium borohydride-containing composition according to claim 3 or 4, wherein the filler is a foamed plastic pellet.

6. The sodium borohydride-containing composition according to claim 1, wherein the sodium borohydride has a mean particle size of no less than 0.1 mm and no greater than 2 mm.

7. The sodium borohydride-containing composition according to claim 6, wherein the sodium borohydride has a mean particle size of no less than 0.2 mm and no greater than 1 mm.

8. The sodium borohydride-containing composition according to claim 1, wherein the bulk volume of the filler is 0.2~8 times the bulk volume of the sodium borohydride, and/or the mean particle size of the filler is smaller than 0.5 times the mean particle size of the sodium borohydride.

9. The sodium borohydride-containing composition according to claim 8, wherein the bulk volume of the filler is 2~4 times the bulk volume of the sodium borohydride.

10. A method for generation of hydrogen, comprising the step of subjecting the sodium borohydride-containing composition according to any one of claims 1~9, to a temperature in a range of 110~160°C and bringing the sodium borohydride-containing composition in contact with water vapor.

11. The method according to claim 10, wherein the temperature is in a range of 120~150°C.

12. The method according to claim 10 or 11, wherein the temperature is in a range of 110~160°C and gradually declines.

13. A reactor for generation of hydrogen, wherein the reactor is filled with the sodium borohydride-containing composition according to any one of claims 1~9 and provided with a fluid inlet and a fluid outlet.

14. An apparatus for generation of hydrogen, comprising the reactor according to claim 13, a liquid container and a heater, wherein the liquid container and the reactor are directly or indirectly connected together in a fixed or detachable manner.

15. The apparatus according to claim 14, wherein the liquid container contains water, and/or the liquid container is tubular, and/or the heater is arranged in proximity to the reactor or disposed in the reactor.

CLAIMS

1. A sodium borohydride-containing composition for generation of hydrogen, comprising sodium borohydride and a filler, wherein the filler is a substance having a chemical stability and a water solubility of less than 10g per 100g of water under an alkaline or neutral condition at a temperature of 130°C to 140°C, where the chemical stability is an absence of decomposition of the substance and an absence of chemical reaction with the sodium borohydride or water, and wherein the filler has a bulk volume of 0.02~16 times a bulk volume of the sodium borohydride, a mass ratio between the filler and the sodium borohydride being no greater than 2:1, the filler having a bulk density of less than 16, the filler having a mean particle size smaller than a mean particle size of the sodium borohydride, and wherein the alkaline condition is an alkalinity resulting from moisture-caused hydrolysis of the sodium borohydride or a reaction product $NaBO_2$ thereof, and wherein the chemical reaction does not include simple hydration and the decomposition does not include simple dehydration.

2. The sodium borohydride-containing composition according to claim 1, wherein the mass ratio of the filler to the sodium borohydride is no greater than 0.5:1.

3. The sodium borohydride-containing composition according to claim 1, wherein the filler is a substance having a bulk density of less than 0.5.

4. The sodium borohydride-containing composition according to claim 3, wherein the filler is a substance having a bulk density of less than 0.1.

5. The sodium borohydride-containing composition according to claim 3, wherein the filler is magnesium hydroxide.

6. The sodium borohydride-containing composition according to claim 3 or 4, wherein the filler is a foamed plastic pellet.

7. The sodium borohydride-containing composition according to claim 1, wherein the sodium borohydride has a mean particle size of no less than 0.1 mm and no greater than 2 mm.

8. The sodium borohydride-containing composition according to claim 7, wherein the sodium borohydride has a mean particle size of no less than 0.2 mm and no greater than 1 mm.

9. The sodium borohydride-containing composition according to claim 1, wherein the bulk volume of the filler is 0.2~8 times the bulk volume of the sodium borohydride, and/or the mean particle size of the filler is smaller than 0.5 times the mean particle size of the sodium borohydride.

10. The sodium borohydride-containing composition according to claim 9, wherein the bulk volume of the filler is 2~4 times the bulk volume of the sodium borohydride.

11. A method for generation of hydrogen, comprising the step of subjecting the sodium borohydride-containing composition according to any one of claims 1~10, to a temperature in a range of 110~160°C and bringing the sodium borohydride-containing composition in contact with water vapor.

12. The method according to claim 11, wherein the temperature is in a range of 120~150°C.

13. The method according to claim 11, wherein the temperature is in a range of 110~160°C and gradually declines.

14. A reactor for generation of hydrogen, wherein the reactor is filled with the sodium borohydride-containing composition according to any one of claims 1~10 and provided with a fluid inlet and a fluid outlet.

15. An apparatus for generation of hydrogen, comprising the reactor according to claim 14, a liquid container and a heater, wherein the liquid container and the reactor are directly or indirectly connected together in a fixed or detachable manner.

16. The apparatus according to claim 15, wherein the liquid container contains water, and/or the liquid container is tubular, and/or the heater is arranged in proximity to the reactor or disposed in the reactor.