Claims

What is claimed is:

1. An apparatus comprising:

an oilfield tubular positionable downhole; and

a swellable metal material positioned proximate a surface of the oilfield tubular for swelling and causing a fluid seal within a flow path defined in part by the oilfield tubular in response to the swellable metal material being in contact with a water-based fluid,

wherein the swellable metal material includes an amorphous silica,

and wherein the swellable metal material is configurable to react with the amorphous silica and the water-based fluid to result in a final product that is a metal-silicate-hydrate.

2. The apparatus of claim 1, wherein the water-based fluid includes a silica-enhancing chemical used for enhancing a dissolution of the amorphous silica within the swellable metal material.

3. The apparatus of claim 1, wherein the water-based fluid further comprises additional silica.

4. The apparatus of claim 1, wherein the amorphous silica is a microsilica or a silica fume powder.

5. The apparatus of claim 1, wherein the swellable metal material comprises at least one of magnesium, aluminum, zinc, iron, calcium, or strontium.

6. An apparatus comprising:

an oilfield tubular positionable downhole;

a swellable metal material at least partially surrounding a surface of the oilfield tubular;

a silica material positioned proximate to the swellable metal material for reacting with the swellable metal material and a water-based fluid to result in a final product that is a metal-silicate-hydrate, wherein the silica material is at least partially encapsulated within a degradable coating.

7. The apparatus of claim 6, wherein the degradable coating of the silica material is dissolvable in response to contacting the water-based fluid.

8. The apparatus of claim 6, wherein the degradable coating of the silica material is dissolvable in response to exposure to a predetermined temperature.

9. The apparatus of claim 6, wherein the degradable coating of the silica material is an aliphatic polyester or a water dissolvable urethane.

10. The apparatus of claim 6, wherein the silica material is an amorphous silica.

11. The apparatus of claim 6, wherein the swellable metal material includes at least one of magnesium, aluminum, zinc, iron, calcium, or strontium.

12. A method for forming a seal in a wellbore comprising:

providing a swellable sealing element that is at least partially comprised from a swellable metal material;

providing a silica material, wherein the silica material is an amorphous silica;

exposing the swellable sealing element to a water-based fluid, wherein the swellable metal material swells in response to undergoing a chemical reaction with the water-based fluid and the silica material to form a metal-silicate-hydrate.

13. The method of claim 12, wherein the silica material is provided in the water-based fluid.

14. The method of claim 12, wherein the silica material is included within the swellable metal material.

15. The method of claim 12, wherein the silica material is a microsilica or a silica fume.

16. The method of claim 12, wherein the swellable metal material comprises at least one of magnesium, aluminum, zinc, iron, calcium, or strontium.