Claims:

1. A material removal method, comprising:

receiving a component that includes a component body and a coating on the component body, the component body comprising metallic first material, and the coating comprising second material that is different from the first material, wherein the first material comprises nickel and/or cobalt alloy, and wherein the second material comprises a byproduct of corrosion of the first material;

receiving a solution comprising nitric acid, hydrogen peroxide and one or more complexing agents, wherein the one or more complexing agents comprise ammonia; and

subjecting at least a portion of the coating to the solution in order to remove at least some of the second material from the component, the subjecting comprising pumping the solution through internal pathways within the component.

2. The method of claim 1, wherein the solution substantially does not react with the first material.

3. The method of claim 1, wherein the solution comprises between 5-40 percent by volume of the nitric acid.

4. The method of claim 1, wherein the solution comprises between 5-25 percent by volume of the hydrogen peroxide.

5. The method of claim 1, wherein the solution comprises one or more complexing agents.

6. The method of claim 5, wherein the one or more complexing agents comprises at least one of ammonia, organic amine, organic acids, inorganic acids, and/or halide.

7. The method of claim 1, wherein the second material comprises a byproduct of corrosion of the first material.

8. The method of claim 1, wherein the second material comprises scales of oxide, nitride, salt and/or sulfide.

9. The method of claim 1, wherein the first material comprises a nickel alloy.

10. The method of claim 1, wherein the first material comprises a cobalt alloy.

11. The method of claim 1, wherein the first material comprises a single crystal microstructure.

12. The method of claim 1, further comprising maintaining the solution at a temperature between 0-100 degrees Celsius during the subjecting of the at least a portion of the coating to the solution.

13. The method of claim 1, wherein the at least a portion of the coating is subjected to the solution for a time period between 30 minutes and twenty four hours.

14. The method of claim 1, wherein the at least a portion of the coating is at an internal surface of the component.

15. The method of claim 1, wherein the component comprises an airfoil of a gas turbine engine.

16. A method involving a component of a gas turbine engine, the method comprising:

receiving the component, the component including a component body and a coating on the component body, the component body comprising a nickel and/or cobalt alloy, and the coating comprising material that is a byproduct of corrosion of the component body;

receiving a solution comprising nitric acid, hydrogen peroxide and one or more complexing agents, wherein the one or more complexing agents comprise ammonia;

subjecting at least a portion of the coating to the solution in order to remove at least some of the material from the component the subjecting comprising pumping the solution through internal pathways within the component.

17. The method of claim 16, wherein the component comprises an airfoil for the turbine engine.

18. The method of claim 16, wherein

the solution comprises between 5-40 percent by volume of the nitric acid; and

the solution comprises between 5-25 percent by volume of the hydrogen peroxide.

19. The method of claim 16, further comprising:

maintaining the solution at a temperature between 0-100 degrees Celsius during the subjecting of the at least a portion of the coating to the solution;

wherein the at least a portion of the coating is subjected to the solution for a time period between 30 minutes and twenty four hours.

20. The method of claim 16, further comprising:

maintaining the solution at a temperature between 10-60 degrees Celsius during the subjecting of the at least a portion of the coating to the solution;

wherein the at least a portion of the coating is subjected to the solution for a time period between one hour and about three hours.