CLAIMS

WHAT IS CLAIMED IS:

1. A method comprising, in order:

immersing a Ni-based superalloy component in a molten salt bath;

electrically charging the molten salt bath to at least 3 V DC;

immersing the component in water;

rinsing the component a first time in at least one of a soap and water solution and an acetone solution;

immersing the component in agitated acid pickling solution; and

rinsing the component a second time in at least one of the soap and water solution and the acetone solution.

2. The method of claim 1, wherein the agitated acid pickling solution comprises 50% HNO_3 and 50% H_3PO_4 by volume~~.~~ ; and

~~3. The method of claim 2, further comprising~~ heating the agitated acid pickling solution to at least 175°F~~.~~; or

~~4. The method of claim 1,~~ wherein the molten salt bath is a caustic alkaline solution~~.~~ ; or

~~5. The method of claim 1,~~ further comprising heating the molten salt bath to at least 900°F~~.~~; or

~~6. The method of claim 1,~~ wherein the electrically charging comprises electrically charging to between 3V and 6V DC with straight polarity~~.~~; or

~~7. The method of claim 1,~~ wherein the electrically charging comprises electrically charging to 3.5 volts DC at 1000 Amps~~.~~; or

~~8. The method of claim 1,~~ wherein the electrically charging comprises electrically charging to 4 volts DC at 1000 Amps~~.~~; or

~~9. The method of claim 1,~~ wherein the electrically charging comprises electrically charging to 5 volts DC at 1000 Amps~~.~~; or

~~10. The method of claim 1,~~ wherein the electrically charging comprises electrically charging to 6 volts DC at 1000 Amps~~.~~ ;or

~~11. The method of claim 1,~~ wherein the immersing the component in water further includes immersing the component in air agitated water~~.~~; or

~~12. The method of claim 1,~~ wherein the soap and water solution comprises an ammonia soap solution, the method further comprising applying ultrasonic energy to the soap and water solution.

~~13~~3. A method comprising, in order:

immersing a Ni-based superalloy component in a molten salt bath comprising a caustic alkaline solution;

electrically charging the molten salt bath to at least 3 V DC;

immersing the component in air-agitated water;

rinsing the component a first time in an ammonia soap and water solution;

immersing the component in agitated acid pickling solution; and

rinsing the component a second time in the ammonia soap and water solution, rinsing the component a second time in the acetone solution.

~~14~~4. The method of claim ~~13~~3, further comprising performing the electrically charging for at least 2 hours~~.~~, and

~~15. The method of claim 14, further comprising~~ heating the molten salt bath to at least 900° F before the immersing the Ni-based superalloy component~~.~~; or

~~16. The method of claim 13,~~ further comprising performing the immersing the component in air-agitated water for at least five (5) minutes.

~~17~~5. The method of claim ~~13~~3, further comprising immersing the component in the agitated acid pickling solution for at least one (1) hours.

~~18~~6. The method of claim ~~17~~5, further comprising heating the agitated acid pickling solution to at least 175° F before the immersing the component in the agitated acid pickling solution.

~~19~~7. The method of claim ~~13~~3, further comprising heating the ammonia soap and water solution to at least 160° F.

~~20~~8. The method of claim ~~19~~7, further wherein the rinsing the component the first time is performed for at least one hour, and wherein the rinsing the component the second time is performed for at least 30 minutes.

~~21~~9. The method of claim ~~13~~3, further including rinsing the component again in an ultrasonic acetone rinse for at least 30 minutes to at least 160° F.

~~22~~10. A system, comprising:

a molten salt, caustic alkaline solution (solution) and a first heating device thermally coupled to the solution, the first heating device structured to heat the solution to at least 900° F;

an electrical charging device electrically coupled to the solution, the electrical charging device structured to provide at least 3 V DC at at least 800 amps;

an ammonia soap and water solution and a second heating device thermally coupled to the ammonia soap and water solution, the second heating device structured to heat the ammonia soap and water solution to at least 160° F;

an ultrasonic device acoustically coupled to the ammonia soap and water solution;

an acid solution and a third heating device thermally coupled to the acid solution, the third heating device structured to heat the acid solution to at least 175° F;

an agitator fluidly coupled to the acid solution; and

a component positioning device structured to selectively contact a Ni-based superalloy component with the solution, the ammonia soap and water solution, and the acid solution.

~~23~~11. The system of claim ~~22~~10, wherein the Ni-based superalloy component comprises at least one of an internal chamber and an internal crevice having a scale formed therein.; or

~~24. The system of claim 23, wherein the scale comprises one of a sulfidation and an oxidation scale.~~

~~25. The system of claim 22,~~ further comprising an acetone rinse, and wherein the component positioning device is further structured to selectively contact the Ni-based superalloy component with the acetone rinse.; or

~~26. The system of claim 20,~~ wherein the acid solution comprises 50% $HN0_3$ and 50% H_3PO_4 by volume~~.~~; or

~~27. The system of claim 20,~~ wherein the acid solution comprises 50% to 80% HNO_3 and 20% to 50% H_3PO_4 by volume.