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(54) **Title:** THERMO-MECHANICAL PROCESSING OF NICKEL-BASE ALLOYS

(57) **Abstract:** A thermo-mechanical treatment process is disclosed. A nickel-base alloy workpiece is heated in a first heating step to a temperature greater than the M23C6 carbide solvus temperature of the nickel-base alloy. The nickel-base alloy workpiece is worked in a first working step to a reduction in area of 20% to 70%. The nickel-base alloy workpiece is at a temperature greater than the M23C6 carbide solvus temperature when the first working step begins. The nickel-base alloy workpiece is heated in a second working step to a temperature greater than 1700 F (926 C) and less than the M23C6 carbide solvus temperature of the nickel-base alloy. The nickel-base alloy workpiece is not permitted to cool to ambient temperature between completion of the first working step and the beginning of the second heating step. The nickel-base alloy workpiece is worked to a second reduction in area of 20% to 70%. The nickel-base alloy workpiece is at a temperature greater than 1700 F (926 C) and less than the M23C6 carbide solvus temperature of the nickel-base alloy when the second working step begins.

