

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
18 November 2004 (18.11.2004)

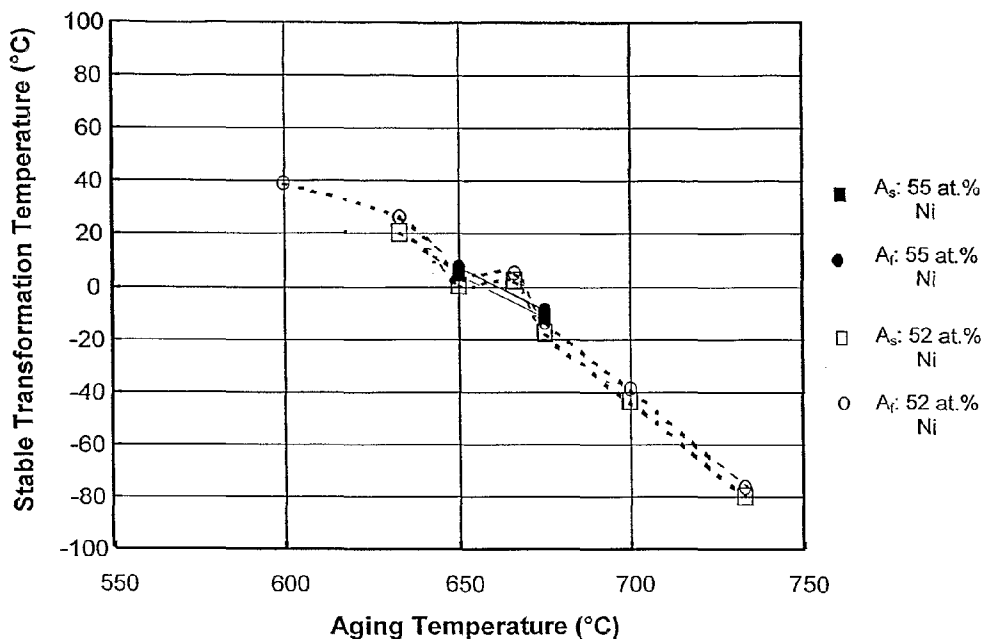
PCT

(10) International Publication Number
WO 2004/099456 A1

- (51) International Patent Classification⁷: **C22C 14/00**, 19/00
- (21) International Application Number: PCT/US2004/010758
- (22) International Filing Date: 7 April 2004 (07.04.2004)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data: 10/427,783 1 May 2003 (01.05.2003) US
- (71) Applicant (for all designated States except US): **ATI PROPERTIES, INC.** [US/US]; 1600 NE Old Salem Road, Post Office Box: 460, Albany, OR 97321 (US).
- (72) Inventor; and
- (75) Inventor/Applicant (for US only): **WOJCIK, Craig** [US/US]; 1124 35th Avenue N.W., Salem, OR 97304 (US).
- (74) Agent: **VICCARO, Patrick, J.**; Allegheny Technologies Incorporated, 1000 Six PPG Place, Pittsburgh, PA 15222-5479 (US).
- (81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
- (84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

[Continued on next page]

(54) Title: METHODS OF PROCESSING NICKEL-TITANIUM SHAPE MEMORY ALLOYS



(57) Abstract: Embodiments of the present invention provide methods of processing nickel-titanium alloys including from greater than 50 up to 55 atomic percent nickel to provide a desired austenite transformation temperature and/or austenite transformation temperature range. In one embodiment, the method comprises selecting a desired austenite transformation temperature, and thermally processing the nickel-titanium alloy to adjust an amount of nickel in solid solution in a TiNi phase of the alloy such that a stable austenite transformation temperature is reached, wherein the stable austenite transformation temperature is essentially equal to the desired austenite transformation temperature.

WO 2004/099456 A1

**Published:**

- *with international search report*
- *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments*

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.