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(54) Title: HARD GOLD ALLOY WITH ZIRCONIUM, TITANIUM AND MAGNESIUM FOR JEWELRY MANUFACTURE

(57) Abstract: A high purity gold alloy alloyed with a combination of metals or at least two metals out of zirconium, Titanium and Magnesium for jewellery manufacture and containing 75-99.5% of Gold, 0.01-1.5% of Zirconium, 0.01-1.5% of Magnesium, 0.01-1.5% of Titanium, 0-24.98% of Copper, and 0-24.98% of Zinc and 0-24.98% of Silver by weight. Gold-Zirconium, Magnesium, Titanium Gold alloy has 75-260 Vickers hardness and specific gravity 14-19 g/cc. It has more than 1.25-2 times high springiness at applied load/pressure and is compatible in terms of the color retention properties thereof by human eye, when compared with the conventional gold alloys. The 3-metal combination (Zr+Ti+Mg) Gold alloy has RICH YELLOW colour, while out of the 2-metal combinations, (Zr+Ti) Gold alloy has a WHITISH YELLOW colour, (Zr+Mg) Gold alloy has a GREENISH YELLOW colour and (Mg+Ti) Gold alloy has a "PALE YELLOW" colour. Gold alloy shows lower wear during polishing. Gold alloy includes 18-24 Caratage suitable for jewellery manufacture due to its lower specific gravity and cost-effectiveness.