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HEED MARTIN CORPORATION** [US/US]; 6801
Rockledge Drive, Bethesda, MD 20817 (US).

(72) Inventor; and

(75) Inventor/Applicant (for US only): **ZINN, Alfred, A.**
[US/US]; 1073 Maddux Drive, Palo Alto, CA 94303 (US).(74) Agent: **ITRI, Mark, J.**; McDermott Will & Emery LLP,
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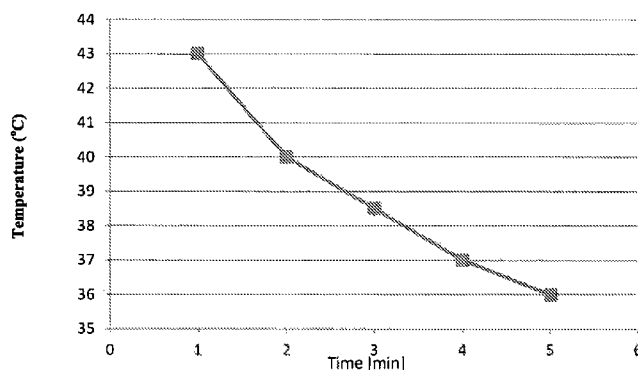


FIGURE 1

(57) **Abstract:** Processes for synthesizing metal nanoparticles, particularly copper nanoparticles, are described. The processes can involve reacting an insoluble complex of a metal salt with a reducing agent in a reaction mixture containing a primary amine first surfactant, a secondary amine second surfactant, and a diamine chelating agent third surfactant. More specifically, processes for forming copper nanoparticles can involve forming a first solution containing a copper salt, a primary amine first surfactant, a secondary amine second surfactant, and a diamine chelating agent third surfactant; allowing an insoluble complex of the copper salt to form from the first solution; combining a second solution containing a reducing agent with the insoluble complex; and forming copper nanoparticles from the insoluble complex. Such copper nanoparticles can be about 10 nm or smaller in size, more particularly about 3 nm to about 6 nm in size, and have a fusion temperature of about 200°C or lower.

