The Overview of Intermetallic Phases Presented in Nickel Base Superalloys afterPrecipitation Hardening

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The nickel base superalloys are progressive group of materials designed especially for application where others materials does not fit with its mechanical properties (such aluminium or copper alloys) or corrosion resistance at high temperature nor heat-temperature properties (such iron or steel). Their unique properties comes from solid solution gamma, where after precipitation hardening a various phases - γ′ (gamma prime), γ″ (gamma double prime), δ (delta), different types of carbides (MC, $M_{23}C_6$, M_6C, and M_7C_3) with various degree of coherency to matrix are presented. Article gives a brief description of such phases with its affect to mechanical properties.

Keywords: Ni-based superalloys, gamma prime phase, gamma double prime phase, delta phase, metallography evaluation, SEM observation

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