

Title (en)

Metallic material with high hardness, high wear resistance and high toughness

Title (de)

Metallischer Werkstoff mit hoher Härte, hohem Verschleisswiderstand und hoher Zähigkeit

Title (fr)

Materiau metallique présentant une dureté élevée, une resistance élevée à l' usure et une tenacité élevée

Publication

EP 1052305 B1 20060301 (DE)

Application

EP 00890146 A 20000509

Priority

AT 84299 A 19990510

Abstract (en)

[origin: EP1052305A2] Carbide-forming metallic melt solidification kinetics and matrix composition control comprises alloying with aluminum in amo dependant on the carbon and group V element contents. An alloying process, for controlling the solidification kinetics and matrix composition of carbide-forming metallic melts, comprises alloying the liquid metal with 0.3-2.6 weight % aluminum, depending on the carbon content in the range 0.6-1.7 weight and on the group V element content of up to 4.3 weight %, with the proviso that $Al = CxANxF$, where Al = the aluminum content (we %), C = the carbon content (weight %), AN = the Nb equivalent ($AN = 0.3 + 0.1 \text{ weight \% V} + \text{weight \% Nb} + 1.12 \text{ weight \% Ta}$) and F the activity range factor ($F = 0.7 \text{ to } 1.3$). An Independent claim is also included for a metallic material, especially produced b the above process, having high hardness, wear resistance and toughness and containing C, one or more group V elements, Al, optionally Si, Cr, Mo and W, balance one or more of Mn, Fe, Ni and Co and impurities, the C content being up to 1.7 weight %, th group V element content being up to 4.3 weight % and the Al content being 0.3-2.6 weight % with the proviso described above.

IPC 8 full level

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CPC (source: EP)

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