

Title (en)

Meltless preparation of martensitic steel articles having thermophysically melt incompatible alloying elements

Title (de)

Schmelzfreie Herstellung von Formkörpern aus martensitischem Stahl mit thermophysisch schmelzunverträglichen Legierungselementen

Title (fr)

Fabrication sans fusion d'articles en acier martensitique avec éléments d'alliage thermophysiquement incompatibles en fusion

Publication

**EP 1582604 A2 20051005 (EN)**

Application

**EP 05251972 A 20050330**

Priority

US 81489604 A 20040331

Abstract (en)

An article of iron base metal base metal alloyed with an alloying element is prepared by mixing (44) a chemically reducible nonmetallic base-metal precursor compound (40) of the iron base metal and a chemically reducible nonmetallic alloying-element precursor compound (42) of an alloying element to form a compound mixture. The alloying element is preferably thermophysically melt incompatible with the iron base metal. The method further includes chemically reducing (48) the compound mixture to a metallic alloy, without melting the metallic alloy, and thereafter consolidating (50) the metallic alloy to produce a martensitic-composition consolidated metallic article, without melting the metallic alloy and without melting the consolidated metallic article.

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