

Title (en)  
GALVANIZING OF REACTIVE STEELS

Title (de)  
FEUERVERZINKEN VON REAKTIONSFÄHIGEM STAHL

Title (fr)  
GALVANISATION DES ACIERS REACTIFS

Publication  
**EP 0996763 B1 20040407 (EN)**

Application  
**EP 98922555 A 19980522**

Priority  
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Abstract (en)  
[origin: WO9855664A1] An alloy and a process for the galvanizing of steels containing silicon by an immersion galvanization process, the alloy comprising a zinc alloy of commercial purity having, by weight, aluminum in the amount of at least 0.001 %, tin in the amount of about 0.5 % to about 2 %, and one of vanadium in the amount of at least 0.02 %, preferably 0.05 % to 0.12 %, titanium in the amount of at least 0.03 %, preferably 0.06 % to 0.1 %, or vanadium with titanium in the amount of at least 0.02 % of vanadium and at least 0.01 % of titanium, for at least 0.03 %, preferably 0.05 % to 0.15, of vanadium and titanium collectively, the balance zinc containing up to 1.3 wt.% lead. This alloy can enhance zinc-nickel alloy baths containing a normal operating range of 0.05 % to 0.08 % nickel to a maximum of 0.1 % nickel. An embodiment of the alloy composition for zinc-nickel alloy baths may contain vanadium with nickel in the amount of at least 0.02 % vanadium and at least 0.02 % nickel to a maximum of 0.15 % vanadium and nickel collectively. Titanium may be added in an amount of at least 0.01 % titanium to a maximum of 0.2 % vanadium, nickel and titanium. A further embodiment of the alloy composition for use in a zinc alloy bath is comprised of aluminum in the amount of at least 0.001 %, tin in the amount of about 0.5 % to about 2 %, vanadium in the amount of 0.02 % to 0.12 %, bismuth in the amount of 0.05 % to 0.5 %, preferably 0.05 % to 0.1 %, and the balance zinc. The process is suitable for galvanizing a wide range of steels including reactive steels. The maximum silicon level controlled varies from 0.5 % to 1 % depending on the combination and amounts of tin, vanadium and titanium in the alloy.

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