

Title (en)

High current density zinc organosulfonate electrogalvanizing process and composition

Title (de)

Elektrogalvanisierungsverfahren mit hoher Stromdichte auf Zinkorganophosphonatbasis sowie die zugehörige Zusammensetzung

Title (fr)

Procédé de galvanisation électrolytique à une haute densité de courant à partir d'un bain à base d'un organophosphonate de zinc et composition du bain

Publication

EP 0786539 A2 19970730 (EN)

Application

EP 97100964 A 19970122

Priority

US 59243996 A 19960126

Abstract (en)

The inventors disclose a process for reducing high current density edge buildup dendrite formation, edge burn, controlling high current density roughness, grain size, and orientation of a zinc coating obtained from an aqueous zinc acidic electrogalvanic coating bath comprising passing a high density current from a zinc anode in the bath to a metal cathode in the bath for a period of time sufficient to deposit a zinc coating on the cathode. The bath contains greater than about 5g/l of a water soluble zinc organosulfonate. A random or block polyoxyalkylene glycol homopolymer or copolymer based on 2 to about 4 carbon atom alkylene oxides. The inventors employ current densities from about 250 to about 4,000 ASF, and optionally, a sulfonated condensation product of naphthalene and formaldehyde, a boron oxide compound, and a lignin compound. The invention also comprises bath compositions.

IPC 1-7

C25D 3/22; **C25D 3/56**

IPC 8 full level

C25D 3/22 (2006.01); **C25D 3/56** (2006.01)

CPC (source: EP KR)

C25D 3/22 (2013.01 - EP KR); **C25D 3/565** (2013.01 - EP KR)

Citation (applicant)

- US 905837 A 19081208 - BROADWELL EDWARD C [US]
- US 2195409 A 19400402 - FLETT LAWRENCE H
- US 4207150 A 19800610 - CREUTZ HANS G [US], et al
- US 5039576 A 19910813 - WILSON HAROLD P [US]
- US 774049 A 19041101 - DIAMANT JULIUS
- US 2313371 A 19430309 - STACK ALVILDA L
- GB 555929 A 19430913 - NATHANIEL L LEEK
- US 4132610 A 19790102 - DOHI NOBUYASU, et al
- US 4849059 A 19890718 - DERESH LEV [US], et al
- RU 1606539 A
- US 4877497 A 19891031 - WATANABE TSUTOMU [JP], et al
- US 4515663 A 19850507 - STROM ALICE M [US], et al
- US 4512856 A 19850423 - PANECCASIO VINCENT [US]
- US 4379738 A 19830412 - KOHL PAUL A
- US 4137133 A 19790130 - ARCILESI DONALD A
- US 3960677 A 19760601 - HILDERING ROELOF, et al
- US 3957595 A 19760518 - DUBROW PAUL, et al
- US 5427677 A 19950627 - MOSHER CLAUDIA [US]
- US 4673470 A 19870616 - OBATA KEIGO [JP], et al
- US 3905878 A 19750916 - DOHI NOBUYASU, et al
- US 2187338 A 19400116 - HERBERT WERNITZ JAMES
- US 2147415 A 19390214 - TUCKER WILLIAM M
- US 2174507 A 19390926 - TINKER JOHN M, et al
- M.J. SCHICK: "Surfactant Science Series", vol. 2, 1967, MARCEL DEKKER, INC., NEW YORK, article SCHMOLKA

Cited by

EP1631969A4; AU2001291667B2; AU2016393673B2; EP1092790A3; US2021254279A1; US11773534B2; US7452486B2; US8497359B2; US6811673B2; WO0204713A3

Designated contracting state (EPC)

BE DE ES FR GB IT

DOCDB simple family (publication)

EP 0786539 A2 19970730; **EP 0786539 A3 19970820**; JP H09310192 A 19971202; KR 970059314 A 19970812

DOCDB simple family (application)

EP 97100964 A 19970122; JP 2454797 A 19970124; KR 19970002124 A 19970125