

Title (en)
Multiple step conversion coating process

Title (de)
Mehrstufenverfahren zur Konversionsbeschichtung

Title (fr)
Procédé de couche de conversion à plusieurs étapes

Publication
EP 1550740 A1 20050706 (EN)

Application
EP 04028997 A 20041207

Priority
US 74553903 A 20031229

Abstract (en)
A process for the chemical pretreatment, before an organic coating, of composite metal structures that contain aluminum or aluminum alloy portions together with zinc or zinc alloy portions, and steel, galvanized steel and/or alloy-galvanized steel portions, such that the phosphate level and the operating temperature of the zinc phosphate solution is reduced, and the nitrite accelerator level of the solution is increased. The process of the present invention reduces the sludge produced by the process, the temperature at which the process operates, and the need for monitoring the process. Furthermore, the pretreatment process of the present invention forms a conversion layer on all exposed metal surfaces that is suitable as a corrosion-preventing paint substrate, especially before a cathodic electro-dipcoating.

IPC 1-7
C23C 22/73; **C23C 22/80**; **C23C 22/36**

IPC 8 full level
C23C 22/36 (2006.01); **C23C 22/73** (2006.01); **C23C 22/80** (2006.01)

CPC (source: EP US)
C23C 22/365 (2013.01 - EP US); **C23C 22/73** (2013.01 - EP US); **C23C 22/83** (2013.01 - EP US)

Citation (applicant)
• US 5900073 A 19990504 - SIENKOWSKI MICHAEL L [US], et al
• WO 9912661 A1 19990318 - HENKEL KGAA [DE], et al
• DE 19735314 A1 19980326 - BAYERISCHE MOTOREN WERKE AG [DE]
• WO 0132953 A1 20010510 - HENKEL CORP [US], et al
• GB 2199047 A 19880629 - NIHON PARKERIZING
• EP 0319016 B1 19940622 - HENKEL CORP [US]
• EP 0008942 B1 19830608

Citation (search report)
• [DY] WO 9912661 A1 19990318 - HENKEL KGAA [DE], et al
• [Y] WO 02066702 A1 20020829 - HENKEL CORP [US], et al
• [Y] GB 2136454 A 19840919 - PYRENE CHEMICAL SERVICES LTD
• [DY] WO 0132953 A1 20010510 - HENKEL CORP [US], et al
• [Y] DE 19705701 A1 19980820 - HENKEL KGAA [DE]
• [Y] EP 1371756 A2 20031217 - NISSAN MOTOR [JP]
• [Y] US 5584946 A 19961217 - KARMASCHEK UWE [DE], et al
• [Y] EP 1225250 A2 20020724 - NIPPON PAINT CO LTD [JP], et al
• [Y] EP 0653502 A2 19950517 - NIHON PARKERIZING [JP], et al
• [A] EP 0434358 A2 19910626 - NIPPON PAINT CO LTD [JP]
• [A] EP 0801149 A1 19971015 - NIPPON PAINT CO LTD [JP]
• [A] DE 10118552 A1 20021017 - HENKEL KGAA [DE]
• [A] US 5024707 A 19910618 - RAUSCH WERNER [DE]
• [A] US 6368426 B1 20020409 - SIENKOWSKI MICHAEL L [US], et al
• [A] GB 1498718 A 19780125 - PYRENE CHEMICAL SERVICES LTD
• [A] FR 2389683 A1 19781201 - PARKER STE CONTINENTALE [FR]

Cited by
CN104685100A; CN102959127A; KR20130112731A; US9932677B2; WO2013033372A1; WO2014037234A1; WO2012000894A1; US9550208B2; US10435806B2; US11591707B2

Designated contracting state (EPC)
AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IS IT LI LT LU MC NL PL PT RO SE SI SK TR

DOCDB simple family (publication)
EP 1550740 A1 20050706; **EP 1550740 B1 20110309**; AT E501284 T1 20110315; CA 2488199 A1 20050629; DE 602004031707 D1 20110421; ES 2360289 T3 20110602; PL 1550740 T3 20110831; US 2005145303 A1 20050707

DOCDB simple family (application)
EP 04028997 A 20041207; AT 04028997 T 20041207; CA 2488199 A 20041122; DE 602004031707 T 20041207; ES 04028997 T 20041207; PL 04028997 T 20041207; US 74553903 A 20031229