

Title (en)

Compositions and processes for improved preparation of metals for cold forming.

Title (de)

Zusammensetzungen und Verfahren zur Herstellung von Metallen zur Kaltverformung.

Title (fr)

Compositions et procédé pour la préparation de métaux destinés au travail à froid.

Publication

**EP 0398201 A1 19901122 (EN)**

Application

**EP 90108988 A 19900512**

Priority

US 35398389 A 19890518

Abstract (en)

Reactive lubrication of phosphated metal surfaces is improved by using a combination of (A) a complexing agent for the divalent metal cations that are displaced from the phosphated layer into the lubricating solution and (B) organic molecules having at least one ether or hydroxyl oxygen for each eight carbon atoms, along with the conventional soluble soap, in the solution used for reactive lubrication. Most preferably, EDTA or its salts are used as the complexing agent and polyethylene glycol as component (B), with the concentration of EDTA being adjusted as needed during the process to keep the concentration of total titratable metals in the lubricating solution below 0.05 % by weight, and the amount of polyethylene glycol being adjusted as needed to maintain the optimum viscosity of the lubricating solution and optimum ratios of reactive to unreacted lube coating weights and of reacted lube coating weight to conversion coating loss.

IPC 1-7

**C23C 22/12**; **C23C 22/28**

IPC 8 full level

**C10M 173/02** (2006.01); **C23C 22/83** (2006.01); **C10N 40/24** (2006.01); **C10N 50/02** (2006.01); **C10N 80/00** (2006.01)

CPC (source: EP)

**C10M 129/08** (2013.01); **C10M 129/40** (2013.01); **C10M 133/04** (2013.01); **C10M 133/08** (2013.01); **C10M 145/28** (2013.01); **C10M 145/30** (2013.01); **C10M 145/34** (2013.01); **C10M 173/02** (2013.01); **C23C 22/83** (2013.01); **C10M 2201/02** (2013.01); **C10M 2207/022** (2013.01); **C10M 2207/023** (2013.01); **C10M 2207/125** (2013.01); **C10M 2207/126** (2013.01); **C10M 2207/129** (2013.01); **C10M 2209/104** (2013.01); **C10M 2209/105** (2013.01); **C10M 2209/107** (2013.01); **C10M 2215/02** (2013.01); **C10M 2215/042** (2013.01); **C10N 2040/24** (2013.01); **C10N 2040/241** (2020.05); **C10N 2040/242** (2020.05); **C10N 2040/243** (2020.05); **C10N 2040/244** (2020.05); **C10N 2040/245** (2020.05); **C10N 2040/246** (2020.05); **C10N 2040/247** (2020.05); **C10N 2050/01** (2020.05); **C10N 2050/10** (2013.01); **C10N 2070/00** (2013.01)

Citation (search report)

- [X] EP 0291891 A1 19881123 - NIHON PARKERIZING [JP]
- [X] US 4728373 A 19880301 - NAKAGAWA HIROYOSHI [JP], et al
- [X] US 4780153 A 19881025 - GUHDE DONALD J [US], et al
- [A] US 4688411 A 19870825 - HAGITA HYOJI [JP], et al
- [AD] US 4199381 A 19800422 - NITTEL KLAUS-DIETER [DE], et al

Cited by

US6852678B2; US6858568B2

Designated contracting state (EPC)

AT BE DE DK ES FR GB IT NL SE

DOCDB simple family (publication)

**EP 0398201 A1 19901122**; AU 5507390 A 19901122; AU 624710 B2 19920618; BR 9002320 A 19910806; CA 2017014 A1 19901118; CN 1047331 A 19901128; JP H02305897 A 19901219; ZA 903494 B 19910227

DOCDB simple family (application)

**EP 90108988 A 19900512**; AU 5507390 A 19900516; BR 9002320 A 19900517; CA 2017014 A 19900517; CN 90103585 A 19900518; JP 12810090 A 19900517; ZA 903494 A 19900508