

Title (en)  
ONE-STEP PRETREATMENT METHOD OF METALLIC SUBSTRATES AT NON-NEUTRAL PH VALUES FOR METAL COLD FORMING

Title (de)  
EINSTUFIGES VORBEHANDLUNGSVERFAHREN VON METALLISCHEN SUBSTRATEN BEI NICHTNEUTRALEN PH-WERTEN FÜR DIE METALLKALTUMFORMUNG

Title (fr)  
PROCÉDÉ DE PRÉTRAITEMENT EN UNE ÉTAPE DE SUBSTRATS MÉTALLIQUES À DES VALEURS DE PH NON NEUTRES POUR LA FORMAGE À FROID DE MÉTAL

Publication  
**EP 4314385 A1 20240207 (EN)**

Application  
**EP 22717406 A 20220401**

Priority  
• EP 21166607 A 20210401  
• EP 2022058744 W 20220401

Abstract (en)  
[origin: WO202207901A1] The present invention relates to a method of pretreatment of a metallic substrate for a subsequent metal cold forming process, said method comprising at least steps (1) and (2), namely providing at least one substrate having at least one surface at least partially made of at least one metal (step (1)), contacting the at least one surface of the substrate provided in step (1) with an aqueous lubricant composition (B) (step (2)), wherein the aqueous lubricant composition (B) comprises besides water at least constituents (b1) to (b4) and optionally (b5), namely as (b1) at least one homopolymer and/or copolymer being prepared by polymerization of at least vinyl pyrrolidone as at least one monomer, wherein (b1) has a polydispersity index (PDI) in a range of from 1.5 to 8.0, as (b2) at least one wax, as (b3) at least one defoamer, and as (b4) (i) oxalate anions and/or phosphate anions or (ii) calcium cations, chloride anions and hydroxide anions, as well as optionally Fe(III) ions as (b5), wherein (b5) is present in case at least oxalate anions are present as (b4), a pretreated metallic substrate obtainable by the inventive method, a method of cold forming of a metallic substrate and an aqueous lubricant composition (B) as defined above.

IPC 8 full level  
**C23C 22/12** (2006.01); **C10M 173/02** (2006.01); **C23C 22/10** (2006.01); **C23C 22/46** (2006.01); **C23C 22/66** (2006.01)

CPC (source: EP US)  
**B21D 37/18** (2013.01 - US); **C10M 107/04** (2013.01 - US); **C10M 107/06** (2013.01 - US); **C10M 107/34** (2013.01 - US); **C10M 107/42** (2013.01 - US); **C10M 109/00** (2013.01 - US); **C10M 111/06** (2013.01 - US); **C10M 125/24** (2013.01 - US); **C10M 129/34** (2013.01 - US); **C10M 133/08** (2013.01 - US); **C10M 133/16** (2013.01 - US); **C10M 141/06** (2013.01 - US); **C10M 155/02** (2013.01 - US); **C10M 161/00** (2013.01 - US); **C10M 173/02** (2013.01 - EP US); **C23C 22/10** (2013.01 - EP); **C23C 22/12** (2013.01 - EP); **C23C 22/46** (2013.01 - EP); **C23C 22/66** (2013.01 - EP); **C10M 2201/02** (2013.01 - US); **C10M 2201/062** (2013.01 - EP); **C10M 2201/081** (2013.01 - EP); **C10M 2201/085** (2013.01 - EP US); **C10M 2205/0225** (2013.01 - US); **C10M 2205/0245** (2013.01 - US); **C10M 2205/14** (2013.01 - EP); **C10M 2205/16** (2013.01 - EP); **C10M 2205/18** (2013.01 - EP); **C10M 2205/183** (2013.01 - US); **C10M 2207/123** (2013.01 - EP US); **C10M 2209/04** (2013.01 - EP); **C10M 2209/084** (2013.01 - EP); **C10M 2209/103** (2013.01 - EP); **C10M 2215/042** (2013.01 - EP); **C10M 2215/08** (2013.01 - EP); **C10M 2215/202** (2013.01 - EP); **C10M 2215/26** (2013.01 - US); **C10M 2215/28** (2013.01 - US); **C10M 2217/022** (2013.01 - EP); **C10M 2217/024** (2013.01 - EP); **C10M 2217/028** (2013.01 - EP); **C10M 2217/0285** (2013.01 - US); **C10M 2229/02** (2013.01 - US); **C10N 2010/02** (2013.01 - EP); **C10N 2010/04** (2013.01 - EP); **C10N 2010/06** (2013.01 - EP); **C10N 2010/16** (2013.01 - EP); **C10N 2020/04** (2013.01 - EP); **C10N 2030/06** (2013.01 - EP); **C10N 2030/12** (2013.01 - EP US); **C10N 2030/18** (2013.01 - US); **C10N 2040/24** (2013.01 - EP); **C10N 2040/243** (2020.05 - EP US); **C10N 2040/245** (2020.05 - EP US); **C10N 2040/246** (2020.05 - EP US); **C10N 2050/02** (2013.01 - EP US); **C10N 2080/00** (2013.01 - EP); **C23C 22/12** (2013.01 - US); **C23C 22/46** (2013.01 - US); **C23C 22/62** (2013.01 - US); **C23C 22/66** (2013.01 - US)

Designated contracting state (EPC)  
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR

Designated extension state (EPC)  
BA ME

Designated validation state (EPC)  
KH MA MD TN

DOCDB simple family (publication)  
**WO 202207901 A1 20221006**; BR 112023019649 A2 20231031; CA 3213974 A1 20221006; CN 117178077 A 20231205; EP 4314385 A1 20240207; MX 2023011416 A 20231017; US 2024166968 A1 20240523

DOCDB simple family (application)  
**EP 2022058744 W 20220401**; BR 112023019649 A 20220401; CA 3213974 A 20220401; CN 202280026862 A 20220401; EP 22717406 A 20220401; MX 2023011416 A 20220401; US 202218549258 A 20220401