

Title (en)

Use of a sulfate and a process for the production of a steel component by forming in a machine

Title (de)

Verwendung eines Sulfats sowie Verfahren zum Herstellen eines Stahlbauteils durch Umformen in einer Umformmaschine

Title (fr)

Utilisation d'un sulfate et procede pour la production d'un élément en acier par formage dans une machine de formage

Publication

EP 2995674 B1 20200715 (DE)

Application

EP 14184415 A 20140911

Priority

EP 14184415 A 20140911

Abstract (en)

[origin: CA2958500A1] The invention relates to the use of a sulphate from the group including aluminium sulphate, ammonium sulphate, iron sulphate, magnesium sulphate, as a coating means which both permits optimum tribological conditions when forming flat steel products with a minimum lubricant requirement, and is non-hazardous in terms of the effect on the environment. Using this coating means, a steel component can be produced by forming a flat steel product in a forming machine, via the following steps: providing a flat steel product; forming a tribologically effective layer on at least one of the surfaces, contacting during the forming process, of the flat steel product or of the forming machine designed for forming, by coating using a coating means from the group including aluminium sulphate, ammonium sulphate, iron sulphate, magnesium sulphate; introducing the flat steel product into the forming tool; and forming the flat steel product introduced into the forming machine into the component.

IPC 8 full level

C10M 173/02 (2006.01); **C10M 103/06** (2006.01); **C23C 22/53** (2006.01)

CPC (source: CN EP KR US)

C10M 103/00 (2013.01 - US); **C10M 103/06** (2013.01 - CN EP KR US); **C10M 173/02** (2013.01 - CN EP KR US); **C23C 22/53** (2013.01 - EP KR US); **C10M 2201/084** (2013.01 - CN EP KR US); **C10M 2201/18** (2013.01 - CN); **C10N 2010/04** (2013.01 - CN); **C10N 2010/06** (2013.01 - CN); **C10N 2010/14** (2013.01 - CN); **C10N 2010/16** (2013.01 - CN EP KR US); **C10N 2030/06** (2013.01 - CN EP US); **C10N 2030/12** (2013.01 - US); **C10N 2040/20** (2013.01 - CN EP US); **C10N 2040/24** (2013.01 - CN EP US); **C10N 2040/242** (2020.05 - CN EP US); **C10N 2040/243** (2020.05 - CN EP US); **C10N 2040/246** (2020.05 - CN EP US); **C10N 2050/02** (2013.01 - CN EP US); **C10N 2050/08** (2013.01 - CN EP US)

Cited by

DE102018209737A1; US11078573B2; WO2021074388A1; WO2018215236A1; WO2017125131A1

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

DOCDB simple family (publication)

EP 2995674 A1 20160316; **EP 2995674 B1 20200715**; CA 2958500 A1 20160317; CA 2958500 C 20190115; CN 106687571 A 20170517; CN 106687571 B 20190913; JP 2017534700 A 20171124; JP 6694876 B2 20200520; KR 102472493 B1 20221201; KR 20170052670 A 20170512; US 10072229 B2 20180911; US 2017260471 A1 20170914; WO 2016037814 A1 20160317

DOCDB simple family (application)

EP 14184415 A 20140911; CA 2958500 A 20150819; CN 201580049081 A 20150819; EP 2015069018 W 20150819; JP 2017513483 A 20150819; KR 20177009712 A 20150819; US 201515509524 A 20150819