

Title (en)

ADDITIVE FOR LUBRICATING OILS AND LUBRICATING OIL COMPOSITION

Title (de)

ZUSATZ FÜR SCHMIERÖLE UND SCHMIERÖLZUSAMMENSETZUNG

Title (fr)

ADDITIF POUR HUILES DE GRAISSAGE ET COMPOSITION D'HUILE DE GRAISSAGE

Publication

EP 2778216 A4 20150304 (EN)

Application

EP 12794008 A 20120507

Priority

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- JP 2012061681 W 20120507

Abstract (en)

[origin: US2014100147A1] A lubricant additive containing (A) a nitrogen-containing compound represented by the general formula (1) and (B) a borate ester compound represented by the general formula (2) and/or a borate ester compound represented by the general formula (3); and a lubricant oil composition containing the lubricant additive and a lubricant base oil, the lubricant additive and the lubricant oil composition containing an oiliness agent-type friction modifier that can exhibit a better friction reduction effect than that of conventional oiliness agent-type friction modifiers under a wider range of friction conditions.

IPC 8 full level

C10M 141/12 (2006.01); **C10M 107/02** (2006.01); **C10M 133/20** (2006.01); **C10M 139/00** (2006.01); **C10N 40/04** (2006.01); **C10N 40/25** (2006.01)

CPC (source: EP US)

C10M 141/12 (2013.01 - EP US); **C10M 2205/0285** (2013.01 - EP US); **C10M 2215/08** (2013.01 - EP US); **C10M 2215/102** (2013.01 - EP US); **C10M 2219/068** (2013.01 - EP US); **C10M 2223/045** (2013.01 - EP US); **C10M 2227/061** (2013.01 - EP US); **C10N 2030/06** (2013.01 - EP US); **C10N 2030/54** (2020.05 - EP US); **C10N 2040/02** (2013.01 - EP US); **C10N 2040/042** (2020.05 - EP US); **C10N 2040/045** (2020.05 - EP US); **C10N 2040/25** (2013.01 - EP US)

Citation (search report)

- [X] WO 2007005423 A2 20070111 - LUBRIZOL CORP [US], et al
- [X] US 2005250655 A1 20051110 - ADAMS PAUL E [US], et al
- [Y] US 4280916 A 19810728 - RICHARDS HARRY F, et al
- [Y] US 4629576 A 19861216 - SMALL JR VERNON R [US]
- [X] WO 8705927 A2 19871008 - LUBRIZOL CORP [US]
- [X] EP 0814148 A2 19971229 - ORONITE JAPAN LIMITED [JP]
- [X] US 2004138073 A1 20040715 - KAROL THOMAS J [US], et al
- [X] EP 0120665 A2 19841003 - BRITISH PETROLEUM CO PLC [GB]
- See references of WO 2012165106A1

Designated contracting state (EPC)

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DOCDB simple family (publication)

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DOCDB simple family (application)

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