

Title (en)
Oil additive concentrates and lubricants of enhanced performance capabilities

Title (de)
Ölzusatzkonzentrate und Schmieröle mit erhöhten Leistungsfähigkeiten

Title (fr)
Concentrés d'additifs pour huile et lubrifiants à facultés de performance augmentées

Publication
EP 0531000 B1 19970205 (EN)

Application
EP 92307448 A 19920814

Priority
• US 74793991 A 19910821
• US 74794291 A 19910821
• US 74795691 A 19910821
• US 74801991 A 19910821

Abstract (en)
[origin: EP0531000A1] Additive concentrates and lubricant compositions containing a combination of additives which result in enhanced performance particularly as regards extreme pressure and antiwear performance. The combination of additives so utilized comprise a-1) at least one oil-soluble additive composition formed by heating concurrently or in any sequence at least one ashless dispersant which contains basic nitrogen and/or at least one hydroxyl group with (i) at least one inorganic phosphorus acid or anhydride, or at least one partial or total sulfur analog thereof, or any combination of the foregoing, and (ii) at least one boron compound; such that a liquid composition is formed; or a-2) at least one oil-soluble boron-free additive composition formed by heating (i) at least one boron-free oil-soluble ashless dispersant containing basic nitrogen and/or at least one hydroxyl group, with (ii) at least one inorganic phosphorus acid such that a liquid boron-free phosphorus-containing composition is formed; or a-3) one or more oil-soluble additive compositions formed by heating concurrently or in any sequence at least one ashless dispersant which contains basic nitrogen and/or at least one hydroxyl group with (i) at least one water-hydrolyzable organic phosphorus compound and water; and (ii) at least one boron compound; such that a liquid phosphorus- and boron-containing composition is formed; or a-4) one or more oil-soluble boron-free additive compositions formed by heating concurrently or in any sequence (i) at least one boron-free oil-soluble ashless dispersant which contains basic nitrogen and/or at least one hydroxyl group, with (ii) at least one water-hydrolyzable organic phosphorus compound and water; such that a liquid boron-free phosphorus-containing composition is formed; and b) at least one oil-soluble metal-free sulfur-containing antiwear and/or extreme pressure agent having a sulfur content of at least 20% by weight; components a-1), a-2), a-3) or a-4) and b) being proportioned such that the mass ratio (wt:wt) of sulfur in component b) to phosphorus in component a-1), a-2), a-3) or a-4) is in the range of 8:1 to 30:1. n

IPC 1-7
C10M 141/08; **C10M 141/10**; **C10M 161/00**; **C10M 163/00**; **C10M 167/00**

IPC 8 full level
C10M 159/12 (2006.01); **C10M 141/08** (2006.01); **C10M 141/10** (2006.01); **C10M 163/00** (2006.01); **C10M 165/00** (2006.01); **C10M 177/00** (2006.01); **C10N 30/04** (2006.01); **C10N 30/06** (2006.01); **C10N 40/04** (2006.01); **C10N 60/14** (2006.01)

CPC (source: EP)
C10M 129/95 (2013.01); **C10M 133/52** (2013.01); **C10M 133/56** (2013.01); **C10M 133/58** (2013.01); **C10M 135/02** (2013.01); **C10M 135/22** (2013.01); **C10M 137/08** (2013.01); **C10M 137/10** (2013.01); **C10M 141/08** (2013.01); **C10M 141/10** (2013.01); **C10M 149/02** (2013.01); **C10M 159/16** (2013.01); **C10M 163/00** (2013.01); **C10M 165/00** (2013.01); **C10M 177/00** (2013.01); **C10M 2201/087** (2013.01); **C10M 2203/10** (2013.01); **C10M 2203/102** (2013.01); **C10M 2203/108** (2013.01); **C10M 2207/026** (2013.01); **C10M 2207/125** (2013.01); **C10M 2207/129** (2013.01); **C10M 2207/287** (2013.01); **C10M 2207/289** (2013.01); **C10M 2207/34** (2013.01); **C10M 2209/084** (2013.01); **C10M 2209/104** (2013.01); **C10M 2209/107** (2013.01); **C10M 2215/04** (2013.01); **C10M 2215/042** (2013.01); **C10M 2215/044** (2013.01); **C10M 2215/22** (2013.01); **C10M 2215/221** (2013.01); **C10M 2215/225** (2013.01); **C10M 2215/226** (2013.01); **C10M 2215/24** (2013.01); **C10M 2215/26** (2013.01); **C10M 2215/28** (2013.01); **C10M 2215/30** (2013.01); **C10M 2217/02** (2013.01); **C10M 2217/023** (2013.01); **C10M 2217/042** (2013.01); **C10M 2217/043** (2013.01); **C10M 2217/046** (2013.01); **C10M 2217/06** (2013.01); **C10M 2219/02** (2013.01); **C10M 2219/022** (2013.01); **C10M 2219/024** (2013.01); **C10M 2219/06** (2013.01); **C10M 2219/062** (2013.01); **C10M 2219/082** (2013.01); **C10M 2219/083** (2013.01); **C10M 2219/10** (2013.01); **C10M 2219/102** (2013.01); **C10M 2219/104** (2013.01); **C10M 2219/106** (2013.01); **C10M 2221/041** (2013.01); **C10M 2223/04** (2013.01); **C10M 2223/042** (2013.01); **C10M 2223/043** (2013.01); **C10M 2223/045** (2013.01); **C10M 2223/047** (2013.01); **C10M 2227/061** (2013.01); **C10N 2040/02** (2013.01); **C10N 2040/04** (2013.01); **C10N 2040/042** (2020.05); **C10N 2040/044** (2020.05); **C10N 2040/046** (2020.05); **C10N 2040/06** (2013.01); **C10N 2040/22** (2013.01); **C10N 2040/25** (2013.01); **C10N 2040/251** (2020.05); **C10N 2040/255** (2020.05); **C10N 2040/28** (2013.01); **C10N 2070/02** (2020.05)

Cited by
EP1142983A1; CN107502433A; GB2301113A; EP0744456A3; US5468403A; US5527478A; US2014162918A1; US9347016B2; US2018119051A1; US11124732B2; US5763372A; AU725264B2; CN1075109C; EP0848052A3; US6352962B1; US6844300B2; US10428293B2; US7803332B2; US8034754B2; US7531486B2; US6797678B2; WO03076557A1; WO2016137882A1; WO2016137880A1; US7648948B2; EP0807676A2; US7902132B2; US8389449B2; US8536102B2; EP1490460A1

Designated contracting state (EPC)
BE DE ES FR GB IT

DOCDB simple family (publication)
EP 0531000 A1 19930310; **EP 0531000 B1 19970205**; AU 2111492 A 19930225; AU 657150 B2 19950302; CA 2076140 A1 19930222; CA 2076140 C 20020226; DE 69217299 D1 19970320; JP H05263090 A 19931012

DOCDB simple family (application)
EP 92307448 A 19920814; AU 2111492 A 19920819; CA 2076140 A 19920811; DE 69217299 T 19920814; JP 24256192 A 19920820