

Publication

**EP 0814148 A3 19980114**

Application

**EP 97116487 A 19931220**

Priority

- EP 93310287 A 19931220
- JP 35630292 A 19921221
- US 16268193 A 19931203

Abstract (en)

[origin: EP0609623A1] An engine oil composition which comprises a metal-containing detergent, zinc dithiophosphate, and a boron-containing ashless dispersant dissolved or dispersed in a base oil; characterized by further containing an antiwear agent having an aliphatic amide compound and either a dithiocarbamate compound or an ester derived from a fatty acid and boric acid.

IPC 1-7

**C10M 141/12; C10M 167/00**

IPC 8 full level

**C10M 161/00** (2006.01); **C10M 167/00** (2006.01)

CPC (source: EP)

**C10M 129/10** (2013.01); **C10M 129/54** (2013.01); **C10M 129/58** (2013.01); **C10M 129/95** (2013.01); **C10M 133/12** (2013.01);  
**C10M 133/16** (2013.01); **C10M 133/56** (2013.01); **C10M 135/10** (2013.01); **C10M 135/18** (2013.01); **C10M 135/22** (2013.01);  
**C10M 135/30** (2013.01); **C10M 137/10** (2013.01); **C10M 137/12** (2013.01); **C10M 139/00** (2013.01); **C10M 143/04** (2013.01);  
**C10M 143/12** (2013.01); **C10M 145/14** (2013.01); **C10M 149/02** (2013.01); **C10M 159/20** (2013.01); **C10M 159/22** (2013.01);  
**C10M 159/24** (2013.01); **C10M 161/00** (2013.01); **C10M 167/00** (2013.01); **C10M 2205/00** (2013.01); **C10M 2205/02** (2013.01);  
**C10M 2205/04** (2013.01); **C10M 2205/04** (2013.01); **C10M 2205/06** (2013.01); **C10M 2207/023** (2013.01); **C10M 2207/026** (2013.01);  
**C10M 2207/027** (2013.01); **C10M 2207/028** (2013.01); **C10M 2207/044** (2013.01); **C10M 2207/144** (2013.01); **C10M 2207/146** (2013.01);  
**C10M 2207/16** (2013.01); **C10M 2207/26** (2013.01); **C10M 2207/262** (2013.01); **C10M 2207/34** (2013.01); **C10M 2209/084** (2013.01);  
**C10M 2215/04** (2013.01); **C10M 2215/06** (2013.01); **C10M 2215/064** (2013.01); **C10M 2215/065** (2013.01); **C10M 2215/066** (2013.01);  
**C10M 2215/067** (2013.01); **C10M 2215/068** (2013.01); **C10M 2215/08** (2013.01); **C10M 2215/082** (2013.01); **C10M 2215/086** (2013.01);  
**C10M 2215/12** (2013.01); **C10M 2215/122** (2013.01); **C10M 2215/24** (2013.01); **C10M 2215/26** (2013.01); **C10M 2215/28** (2013.01);  
**C10M 2217/02** (2013.01); **C10M 2217/046** (2013.01); **C10M 2217/06** (2013.01); **C10M 2219/044** (2013.01); **C10M 2219/046** (2013.01);  
**C10M 2219/066** (2013.01); **C10M 2219/068** (2013.01); **C10M 2219/082** (2013.01); **C10M 2219/083** (2013.01); **C10M 2219/087** (2013.01);  
**C10M 2219/088** (2013.01); **C10M 2219/089** (2013.01); **C10M 2223/045** (2013.01); **C10M 2223/06** (2013.01); **C10M 2223/061** (2013.01);  
**C10M 2223/065** (2013.01); **C10M 2227/00** (2013.01); **C10M 2227/06** (2013.01); **C10M 2227/061** (2013.01); **C10M 2227/062** (2013.01);  
**C10M 2227/063** (2013.01); **C10M 2227/065** (2013.01); **C10M 2227/066** (2013.01); **C10N 2010/02** (2013.01); **C10N 2010/04** (2013.01);  
**C10N 2010/12** (2013.01); **C10N 2040/25** (2013.01); **C10N 2040/251** (2020.05); **C10N 2040/252** (2020.05); **C10N 2040/253** (2020.05);  
**C10N 2040/255** (2020.05); **C10N 2040/28** (2013.01); **C10N 2070/02** (2020.05)

Citation (search report)

- [DX] EP 0335701 A2 19891004 - ETHYL PETROLEUM ADDITIVES INC [US]
- [A] EP 0317354 A1 19890524 - EXXON CHEMICAL PATENTS INC [US]
- [A] EP 0280580 A2 19880831 - EXXON CHEMICAL PATENTS INC [US]
- [DA] GB 2103651 A 19830223 - CHEVRON RES [US]
- [A] US 4455243 A 19840619 - LISTON THOMAS V [US]
- [A] US 4280916 A 19810728 - RICHARDS HARRY F, et al
- [A] GB 2125431 A 19840307 - KARONITE CHEM CO LTD
- [A] WO 8804684 A1 19880630 - LUBRIZOL CORP [US]
- [A] WO 9109922 A1 19910711 - LUBRIZOL CORP [US]

Cited by

EP2778216A4; SG111138A1; EP1416035A3; EP1365010A1; US6759375B2; EP1792969A1; GB2362389A; GB2362389B; WO03064569A1;  
US7122508B2; US9365793B2; EP2010636B1

Designated contracting state (EPC)

DE FR GB

DOCDB simple family (publication)

**EP 0609623 A1 19940810; EP 0609623 B1 19990303**; DE 69323717 D1 19990408; DE 69323717 T2 19990701; DE 6932361 D1 20021107;  
DE 69332361 T2 20030213; EP 0814148 A2 19971229; EP 0814148 A3 19980114; EP 0814148 B1 20021002; SG 71666 A1 20000418

DOCDB simple family (application)

**EP 93310287 A 19931220**; DE 69323717 T 19931220; DE 69332361 T 19931220; EP 97116487 A 19931220; SG 1996007106 A 19931220