

Title (en)  
Lubricating oil providing enhanced piston cleanliness

Title (de)  
Schmieröl zur Verbesserung der Kolbensauberkeit

Title (fr)  
Huile de lubrification destinée à améliorer la propreté de piston

Publication  
**EP 1942177 A3 20100623 (EN)**

Application  
**EP 07254942 A 20071219**

Priority  
US 61301506 A 20061219

Abstract (en)  
[origin: EP1942177A2] Provided are formulations, methods of making, and methods of using one or more reaction products of polyisobutylenes and monounsaturated acylating agents of the present invention in a low sulfur, low sulfated ash, and low phosphorus lubricant to enhance piston cleanliness in internal combustion engines.

IPC 8 full level  
**C10M 163/00** (2006.01); **C10M 167/00** (2006.01); **C10N 10/02** (2006.01); **C10N 10/12** (2006.01); **C10N 20/04** (2006.01); **C10N 30/04** (2006.01); **C10N 40/25** (2006.01)

CPC (source: EP US)  
**C10M 163/00** (2013.01 - EP US); **C10M 167/00** (2013.01 - EP US); **C10M 2205/022** (2013.01 - EP US); **C10M 2207/028** (2013.01 - EP US); **C10M 2207/129** (2013.01 - EP US); **C10M 2207/26** (2013.01 - EP US); **C10M 2207/262** (2013.01 - EP US); **C10M 2209/084** (2013.01 - EP US); **C10M 2215/064** (2013.01 - EP US); **C10M 2215/086** (2013.01 - EP US); **C10M 2215/28** (2013.01 - EP US); **C10M 2219/046** (2013.01 - EP US); **C10M 2219/089** (2013.01 - EP US); **C10M 2223/045** (2013.01 - EP US); **C10M 2227/061** (2013.01 - EP US); **C10M 2227/09** (2013.01 - EP US); **C10M 2229/02** (2013.01 - EP US); **C10N 2030/04** (2013.01 - EP US); **C10N 2030/42** (2020.05 - EP US); **C10N 2030/43** (2020.05 - EP US); **C10N 2030/45** (2020.05 - EP US); **C10N 2040/25** (2013.01 - EP US); **C10N 2040/252** (2020.05 - EP US); **C10N 2040/253** (2020.05 - EP US); **C10N 2040/255** (2020.05 - EP US)

Citation (search report)  
• [X] EP 1632552 A1 20060308 - INFINEUM INT LTD [GB]  
• [X] EP 1479752 A2 20041124 - CHEVRON ORONITE CO [US], et al  
• [A] US 4502970 A 19850305 - SCHETELICH ALAN A [US], et al  
• [A] EP 1512737 A1 20050309 - INFINEUM INT LTD [GB]

Cited by  
CN106893629A; US9909082B2; WO2013122898A3

Designated contracting state (EPC)  
AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IS IT LI LT LU LV MC MT NL PL PT RO SE SI SK TR

Designated extension state (EPC)  
AL BA HR MK RS

DOCDB simple family (publication)  
**EP 1942177 A2 20080709; EP 1942177 A3 20100623;** CA 2615339 A1 20080619; CA 2615339 C 20160322; JP 2008202028 A 20080904; JP 5390092 B2 20140115; SG 144100 A1 20080729; US 2008146473 A1 20080619

DOCDB simple family (application)  
**EP 07254942 A 20071219;** CA 2615339 A 20071218; JP 2007326438 A 20071218; SG 2007188535 A 20071218; US 61301506 A 20061219