

Title (en)  
LUBRICATING OIL COMPOSITION FOR INTERNAL COMBUSTION ENGINE

Title (de)  
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Title (fr)  
COMPOSITION D'HUILE DE LUBRIFICATION POUR MOTEUR THERMIQUE

Publication  
**EP 1439217 A4 20090902 (EN)**

Application  
**EP 02770233 A 20021015**

Priority  

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- JP 2002086145 A 20020326
- JP 2002086146 A 20020326
- JP 2002086147 A 20020326

Abstract (en)  
[origin: EP1439217A1] A lubricating oil composition for internal combustion engine, comprising a lubricating base oil; (A) a triphosphate represented by formula (1) below in an amount of 0.01 to 0.2 percent by mass in terms of phosphorus; (B) succinimide and/or derivative thereof in an amount of 0.01 to 0.3 percent by mass in terms of nitrogen; (C) an alkali metal or alkaline earth metal detergent in an amount of 0.05 to 1 percent by mass in terms of metal; and (D) a phenol-based and/or amine-based anti-oxidants in an amount of 0.01 to 3 percent by mass:  $O = P(OR_{<1>})_3$  wherein the groups of  $R_{<1>}$  are each independently a hydrocarbon group having 1 to 30 carbon atoms and are the same or different from each other. The lubricating oil composition is excellent in anti-wear properties, base number retaining properties, high temperature detergency, and low friction characteristics.

IPC 8 full level  
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CPC (source: EP US)  
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Citation (search report)  

- [X] EP 0889112 A1 19990107 - TONEN CORP [JP], et al
- [X] US 5726133 A 19980310 - BLAHEY ALAN G [CA], et al
- [A] GB 2146657 A 19850424 - BANK OF AMERICA
- See references of WO 03033629A1

Cited by  
EP1829952A4; EP2944682A4; EP2154231A4; GB2444131A; GB2444131B; US8709988B2; US9909083B2; WO2006068203A1; US8071518B2; US8481467B2; EP2675876B1; EP2141220B1

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