

Title (en)

Lubricating oil composition containing alkali metal borates with improved frictional properties

Title (de)

Schmierölszusammensetzung mit Alkalimetall-Boraten mit verbesserten Reibungseigenschaften

Title (fr)

Composition d'huile lubrifiante contenant des borates de métal alcalin dotée de propriétés de friction améliorées

Publication

EP 1988146 A2 20081105 (EN)

Application

EP 08251076 A 20080326

Priority

US 74243507 A 20070430

Abstract (en)

A lubricating oil composition with improved frictional and wear performance, especially when the ratio of polysulfides is controlled, wherein said composition comprises a major amount of an oil of lubricating viscosity, at least one alkali metal borate; at least one dihydrocarbyl polysulfide component comprising a mixture of sulfides and having at least 30% dihydrocarbyl tetrasulfide or higher sulfides; at least one non-acidic phosphorus component comprised of a trihydrocarbyl phosphite; at least one dihydrocarbyl dithiophosphate; and a phosphorus component comprising a dihydrocarbyl phosphite component is disclosed.

IPC 8 full level

C10M 141/12 (2006.01)

CPC (source: EP US)

C10M 141/12 (2013.01 - EP US); **C10M 2201/087** (2013.01 - EP US); **C10M 2203/1006** (2013.01 - EP US); **C10M 2205/0285** (2013.01 - EP US); **C10M 2205/173** (2013.01 - EP US); **C10M 2207/282** (2013.01 - EP US); **C10M 2219/046** (2013.01 - EP US); **C10M 2219/08** (2013.01 - EP US); **C10M 2223/043** (2013.01 - EP US); **C10M 2223/047** (2013.01 - EP US); **C10M 2223/049** (2013.01 - EP US); **C10N 2030/06** (2013.01 - EP US); **C10N 2040/04** (2013.01 - EP US); **C10N 2040/042** (2020.05 - EP US); **C10N 2040/044** (2020.05 - EP US)

Citation (applicant)

- US 4717490 A 19880105 - SALENTINE CHRISTOPHER G [US]
- US 4472288 A 19840918 - FROST JR KENNETH A [US]
- US 2006252656 A1 20061109 - ZAKARIAN JOHN A [US], et al
- US 3313727 A 19670411 - PEELER ROBERT L
- US 3819521 A 19740625 - SIMS M
- US 3853772 A 19741210 - ADAMS J
- US 3907601 A 19750923 - SCHAEFER HUGH FERDINAND
- US 3997454 A 19761214 - ADAMS JOHN HOWARD
- US 4089790 A 19780516 - ADAMS JOHN HOWARD
- US 6534450 B1 20030318 - HARRISON JAMES J [US], et al
- US 6489721 B1 20021203 - HAITKO DEBORAH ANN [US], et al
- US 6642187 B1 20031104 - SCHWIND JAMES J [GB], et al
- US 6689723 B2 20040210 - SULLIVAN WILLIAM T [US], et al
- US 5922657 A 19990713 - CAMENZIND HUGO [CH], et al
- US 4575431 A 19860311 - SALENTINE CHRISTOPHER G [US]
- US 5992657 A 19991130 - FRIEDMAN ALBERTO [US]
- US 2006289337 A1 20061228 - ROSENBAUM JOHN M [US], et al
- US 2006276355 A1 20061207 - CAREY JAMES T [US], et al
- US 2004079078 A1 20040429 - BACARDIT JUAN SIMON [ES], et al
- US 6080301 A 20000627 - BERLOWITZ PAUL J [US], et al
- US 6090989 A 20000718 - TREWELLA JEFFREY C [US], et al
- US 6165949 A 20001226 - BERLOWITZ PAUL J [US], et al
- US 613883 A 18981108
- US 2007238628 A1 20071011 - HAIRE MICHAEL J [US], et al

Cited by

CN102071089A

Designated contracting state (EPC)

DE FR GB NL

Designated extension state (EPC)

AL BA MK RS

DOCDB simple family (publication)

EP 1988146 A2 20081105; **EP 1988146 A3 20090617**; CA 2627866 A1 20081030; JP 2008274276 A 20081113; SG 147382 A1 20081128; US 2008269085 A1 20081030

DOCDB simple family (application)

EP 08251076 A 20080326; CA 2627866 A 20080401; JP 2008114307 A 20080424; SG 2008027799 A 20080410; US 74243507 A 20070430