Title (en)

Blends of carboxylic acids, derivatives thereof and hydroxyl groups carrying polymers, and use thereof to improve the lubricating activity of oils

Title (de)

Mischungen aus Carbonsäuren, deren Derivaten und hydroxylgruppenhaltigen polymeren, sowie deren Verwendung zur Verbesserung der Schmierwirkung von Ölen

Title (fr)

Mélanges d'acides carboxyliques, leurs dérivés et de polymères portant des groupes hydroxyles, et leurs utilisations pour l'amélioration du pouvoir lubrifiant d'huiles

Publication

EP 1134274 A3 20020306 (DE)

Application

EP 01104846 A 20010228

Priority

DE 10012947 A 20000316

Abstract (en)

[origin: EP1134274A2] Lubricity additive for fuel oil contains: (A) 10-95 wt.% oil-soluble amphiphilic aliphatic or aromatic amide, (thio)carboxylic, imine and/or (thio)ether compound(s); and (B) 5-90 wt.% copolymer (weight average molecular weight 500-100000 g/mole; hydroxyl (OH) number 10-350 mg KOH/g) of olefinically unsaturated compounds including 5-80 mole-% OH compound(s) and 20-95 mole-% compound(s) with an NOTLESS 6 carbon hydrocarbon chain. Lubricity additive for fuel oil contains: (A) 10-95 wt.% oil-soluble amphiphilic aliphatic or aromatic amide or (thio)carboxylic compound(s) of formula R<1)<C(O)XR<2>)y (I) and/or imine or (thio)ether compound(s) of formula R<1>XR<2> (II); and (B) 5-90 wt.% copolymer(s) with a weight average molecular weight (Mw) of 500-100000 g/mole and hydroxyl (OH) number of 10-350 mg KOH/g, comprising units of (B.1) 5-80 mole % olefinically unsaturated compound(s) with free OH group(s), (B.2) 20-95 mole-% olefinically unsaturated compound(s) with a hydrocarbon chain containing NOTLESS 6 carbon (C) atoms and (B.3) 0-40 mole % comonomer(s) selected from (meth)acrylic acid and esters, vinyl esters and ethers and alkenes. R<1> = 1-50 C (hydroxy)alkyl, alkenyl or aryl; X = NH, NR<3>, O or S; y = 1, 2, 3 or 4; R<2> = hydrogen (H) or 2-10 C hydroxyalkyl; R<3> = N, 2-10 C hydroxyalkyl and/or 1-20 C alkyl; or XR<2> = NR<41>R<42>; R<41> = -(R<43>-NR<44>)m-R<45>; R<42> = -(R<43>-NR<44>)n-R<45>; R<43> = 2-10 C alkylene; R<44> = H, methyl, 2-10 C alkyl, R<1>-CO- or alkoxy; R<45> = H or R<1>-CO-; m, n = 0-20. Independent claims are also included for: (a) fuel oil, comprising a middle distillate containing ≤ 0.05 wt.% sulfur, and 0.001-2 wt.% of the additive; and (b) mixtures of the additive with flow enhancers, comb polymers and/or paraffin dispersants.

IPC 1-7

C10L 1/18; C10L 1/14; C10L 10/04

IPC 8 full level

C08F 110/14 (2006.01); **C08F 118/10** (2006.01); **C08F 120/16** (2006.01); **C08F 216/18** (2006.01); **C08F 222/10** (2006.01); **C08K 5/09** (2006.01); **C08K 5/20** (2006.01); **C08L 91/00** (2006.01); **C08L 101/00** (2006.01); **C08L 101/06** (2006.01); **C10L 1/14** (2006.01); **C10L 1/18** (2006.01); **C10L 1/182** (2006.01); **C10L 1/185** (2006.01); **C10L 1/188** (2006.01); **C10L 1/19** (2006.01); **C10L 1/192** (2006.01); **C10L 1/196** (2006.01); **C10L 1/197** (2006.01); **C10L 1/22** (2006.01); **C10L 1/222** (2006.01); **C10L 1/224** (2006.01); **C10L 10/04** (2006.01); **C10L 10/08** (2006.01); **C10L 10/14** (2006.01); **C10L 10/18** (2006.01)

CPC (source: EP US)

C10L 1/143 (2013.01 - EP US); **C10L 1/18** (2013.01 - EP US); **C10L 10/08** (2013.01 - EP US)

Citation (search report)

- [PX] WO 0078897 A1 20001228 - CLARIANT GMBH [DE]
- [Y] EP 0900836 A1 19990310 - CLARIANT GMBH [DE]
- [Y] EP 0688796 A1 19951227 - HOECHST AG [DE]
- [A] EP 0960908 A1 19991201 - CLARIANT GMBH [DE]
- [A] EP 0523672 A2 19930120 - HOECHST AG [DE]
- [A] WO 9927037 A1 19990603 - ROHMAX ADDITIVES GMBH [DE], et al
- [DA] EP 0807676 A2 19971119 - ETHYL PETROLEUM ADDITIVES LTD [GB]

Cited by

DE10357878B4; DE10357878C5

Designated contracting state (EPC)

AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE TR

DOCDB simple family (publication)

EP 1134274 A2 20010919; **EP 1134274 A3 20020306**; **EP 1134274 B1 20061129**; AT 346900 T 20061215; CA 2340849 A1 20010916; DE 10012947 A1 20010927; DE 50111515 D1 20070111; JP 2001294876 A 20011023; NO 20011311 D0 20010315; NO 20011311 L 20010917; US 6461393 B1 20021008

DOCDB simple family (application)

EP 01104846 A 20010228; AT 01104846 T 20010228; CA 2340849 A 20010315; DE 10012947 A 20000316; DE 50111515 T 20010228; JP 2001072138 A 20010314; NO 20011311 A 20010315; US 81130601 A 20010316