

Title (en)

Detergent-dispersant additive for lubricating oils of internal combustion engines and its preparation process

Title (de)

Detergendspergiermittelzusatz für Schmieröle für Verbrennungskraftmaschinen und Verfahren zu dessen Herstellung

Title (fr)

Additif détergent-dispersant pour huiles lubrifiantes pour moteur à combustion interne et son procédé de préparation

Publication

EP 0677572 B1 19990107 (EN)

Application

EP 95105672 A 19950413

Priority

HU 9401100 A 19940415

Abstract (en)

[origin: EP0677572A2] An additive for lubricating oils of internal combustion engines containing the imide- and/or ester and/or ester-amide, derivatives of the reaction product of an unsaturated polyisobutylene and some unsaturated reactive dicarboxylic acids and/or their anhydride comprising the reaction product of a polyisobutylene of a number average molecular weight 800 - 30 000 and an unsaturated reactive dicarboxylic acid and/or its anhydride, preferably maleic anhydride containing 1.6 - 6.0 SA - derivative per polyisobutylene chain on the average having a concentration of molecules containing more than one SA - derivative more than 25 weight percent and the polyisobutylene is grafted or reacted with an SA containing copolymer formed from a more reactive, low molecular weight comonomer of a molecular weight less than 500, containing olefinic double bond or from a mixture of such comonomers and from unsaturated reactive dicarboxylic acid and/or their anhydride, preferably maleic anhydride using the molar ratio 1.2 - 5.5 : 0.1 - 3.5 : 1 = MAH : comonomer : polyisobutylene, and in which the widening of the molecular weight distribution is less than 70 percent, referred to the starting polyisobutylene, while the SA groups of the copolymer linked to the polyisobutylene are reacted, in a 0.7 - 5.5 ratio, with compound containing at least bifunctional amine and/or hydroxyl groups. The invention disclosed the process of preparation of the additive.

IPC 1-7

C10M 159/12; **C10M 133/52**; **C10M 177/00**

IPC 8 full level

C08F 8/46 (2006.01); **C10M 129/95** (2006.01); **C10M 133/52** (2006.01); **C10M 133/56** (2006.01); **C10M 145/16** (2006.01); **C10M 149/02** (2006.01); **C10M 149/06** (2006.01); **C10M 159/12** (2006.01); **C10M 177/00** (2006.01)

CPC (source: EP)

C10M 129/95 (2013.01); **C10M 133/52** (2013.01); **C10M 133/56** (2013.01); **C10M 145/16** (2013.01); **C10M 149/02** (2013.01); **C10M 149/06** (2013.01); **C10M 177/00** (2013.01); **C10M 2209/086** (2013.01); **C10M 2215/04** (2013.01); **C10M 2215/26** (2013.01); **C10M 2217/046** (2013.01); **C10M 2217/06** (2013.01); **C10N 2040/25** (2013.01); **C10N 2040/251** (2020.05); **C10N 2040/255** (2020.05); **C10N 2040/28** (2013.01)

Citation (examination)

- US 161452 A 18750330
- US 440659 A 18901118
- GB 2102813 A 19830209 - EXXON RESEARCH ENGINEERING CO [US]
- EP 0355895 A2 19900228 - SHELL INT RESEARCH [NL]
- EP 0031236 A2 19810701 - BRITISH PETROLEUM CO PLC [GB]
- US 4036772 A 19770719 - DORER JR CASPER JOHN

Cited by

EP0789069A3; EP0733697A1; SG126708A1; EP0733696A1; EP0773234A1; US6127322A; US11193053B2; US11261369B2

Designated contracting state (EPC)

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

DOCDB simple family (publication)

EP 0677572 A2 19951018; **EP 0677572 A3 19961218**; **EP 0677572 B1 19990107**; AT E175439 T1 19990115; CZ 292648 B6 20031112; CZ 299796 A3 19970416; DE 69507068 D1 19990218; DE 69507068 T2 19990701; DK 0677572 T3 19990913; ES 2128606 T3 19990516; GR 3029741 T3 19990630; HU 214008 B 19980428; HU 9401100 D0 19940728; PL 180877 B1 20010430; PL 316793 A1 19970217; RO 119551 B1 20041230; RU 2139921 C1 19991020; SI 0677572 T1 19990630; SK 131596 A3 19970709; SK 281687 B6 20010611; UA 45337 C2 20020415; WO 9528460 A1 19951026

DOCDB simple family (application)

EP 95105672 A 19950413; AT 95105672 T 19950413; CZ 299796 A 19950413; DE 69507068 T 19950413; DK 95105672 T 19950413; ES 95105672 T 19950413; GR 990400826 T 19990319; HU 9401100 A 19940415; HU 9500008 W 19950413; PL 31679395 A 19950413; RO 9601988 A 19950413; RU 96122492 A 19950413; SI 9530234 T 19950413; SK 131596 A 19950413; UA 96114351 A 19950413