Title (en)

Copolymers based on olefins and ethylenically unsaturated carboxylic acid esters as cloud point depressants for fuels and lubricants

Title (de)

Copolymere auf Basis von Olefinen und Estern von ethylenisch ungesättigten Carbonsäuren zur Erniedrigung des CP-Werts von Brennstoffölen und Schmierstoffen

Title (fr)

Copolymères à base d'oléfines et d'esters d'acides carboxylique

Publication

EP 1746147 A1 20070124 (DE)

Application

EP 06117661 A 20060721

Priority

- EP 05015991 A 20050722
- EP 06117661 A 20060721

Abstract (en)

New copolymer (I) is derived from monomers comprising M1, M2, optionally M3 and optionally M4, where M1 is a mono- or diester of (substituted) maleic or fumaric acid, M2 and M3 are different 2-50 carbon olefins and M4 is (substituted) maleic anhydride. New copolymer (I) is derived from monomers comprising M1, M2, optionally M3 and optionally M4, where M1 is a mono- or diester of (substituted) maleic or fumaric acid of formula (M1), M2 and M3 are different 2-50 carbon olefins and M4 is (substituted) maleic anhydride of formula (M4), provided that, if not less than 20 mole-% of M1 in (I) is monoester, i.e. R5> = H in not less than 20 mole-% of M1 in (I), then the M1:M4 molar ratio in (I) is (20-1):1: [Structures (M1), line 31, and (M2), line 51, page 19 and structures (M2) line 1, and (M4), line 21, claim 1, page 20] R1>, R2>H or 1-4 C hydrocarbyl in one case and -COOR5> in the other; R3>, R4>H or 1-4 C hydrocarbyl in one case and -COOR6> in the other; R5>H or 1-40 C hydrocarbyl; R6>1-40 C hydrocarbyl; R7>, R8>H or 1-4 C hydrocarbyl; R9>, R1>3>H or 1-48 C hydrocarbyl; R1>0>, R1>1>, R1>2>, R1>4>, R1>5>, R1>6>H or 1-4 C hydrocarbyl . Independent claims are included for the following: (1) use of a copolymer (I) as cloud point depressant (CPD) for fuel oils and lubricants; (2) fuel oil composition containing a major weight fraction of middle distillate fuel boiling in the 120-500[deg]C range and a minor fraction of copolymer(s) (I); (3) lubricant composition containing a major weight fraction of a conventional lubricant and a minor fraction of (I); (4) additive package containing (I) in combination with other conventional lubricant or fuel oil additive(s).

IPC 8 full level

C10L 1/18 (2006.01); **C08F 8/14** (2006.01); **C10L 1/14** (2006.01); **C10M 145/16** (2006.01)

CPC (source: EP)

C10L 1/143 (2013.01); **C10L 1/146** (2013.01); **C10L 1/1966** (2013.01); **C10M 145/16** (2013.01); C10L 1/1641 (2013.01); C10M 2205/028 (2013.01); C10M 2209/06 (2013.01); C10M 2209/086 (2013.01); C10N 2020/011 (2020.05); C10N 2020/02 (2013.01); C10N 2070/02 (2020.05)

Citation (applicant)

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