

Title (en)

Additives for improving the cold properties of fuel oils

Title (de)

Additive zur Verbesserung der Kälteeigenschaften von Brennstoffölen

Title (fr)

Additif destiné à l'amélioration des propriétés à froid d'huiles combustibles

Publication

EP 1881053 A2 20080123 (DE)

Application

EP 07011538 A 20070613

Priority

DE 102006033150 A 20060718

Abstract (en)

Additive mixture (I) comprises at least a terpolymer (a) of ethylene, propene and at least an ethylenically unsaturated ester, containing 6-12 mol.% of at least an ethylenically unsaturated ester with 1-3C-alkyl residue derived structural units, 0.5-4 of propene derived methyl group/100-aliphatic carbon-atoms and less than 8 carbon atoms based on methyl group/100-methyl group; and 0.5-20 parts by weight of at least further cold additives (b) for mineral oil such as copolymer of ethylene and ethylenically unsaturated compound, and/or comb polymer. Additive mixture (I) comprises at least a terpolymer (a) of ethylene, propene and at least an ethylenically unsaturated ester, containing 6-12 mol.% of at least an ethylenically unsaturated ester with 1-3C-alkyl residue derived structural units, 0.5-4 of propene derived methyl group/100-aliphatic carbon-atoms and less than 8 carbon atoms based on methyl group/100-methyl group; and 0.5-20 parts by weight of at least further cold additives (b) such as copolymer of ethylene and ethylenically unsaturated compound, whose content is at least 2 mol.% greater than the content of ethylenically unsaturated ester of (a), and/or comb polymer. Independent claims are included for: (1) a preparation of (a) comprising adding a mixture of ethylene, propene and at least a vinyl ester under increased pressure and temperature in the presence of a radical forming initiator, and where the molecular weight of (a) is adjusted by a moderator; (2) a method of improving the fluidity of fuel oil comprising adding (I) to the fuel oil; (3) a composition comprising at least (I) and at least an oil soluble polar nitrogen compound, at least an alkyl phenol-aldehyde resin, olefin polymer or at least a polyoxyalkylene compound; and (4) a fuel oil composition comprising a distillate means and at least (I).

Abstract (de)

Gegenstand der Erfindung sind Additivmischungen, enthaltend A) mindestens ein Terpolymer aus Ethylen, Propen und mindestens einem ethylenisch ungesättigten Ester, welches i) 6,0 bis 12,0 mol-% von mindestens einem ethylenisch ungesättigten Ester mit einem C 1 - bis C 3 - Alkylrest abgeleitete Struktureinheiten enthält, ii) 0,5 bis 4,0 vom Propen abgeleitete Methylgruppen pro 100 aliphatische C-Atome enthält, iii) weniger als 8,0 von Kettenenden stammende Methylgruppen pro 100 CH₂-Gruppen aufweist und B) 0,5 bis 20 Gewichtsteile bezogen auf A) mindestens einer weiteren, als Kälteadditiv für Mineralöle wirksamen, Komponente ausgewählt aus B1) Copolymere aus Ethylen und ethylenisch ungesättigten Verbindungen, deren Gehalt an ethylenisch ungesättigten Verbindungen mindestens 2 mol-% höher ist als der Gehalt des unter A) definierten Terpolymers an ethylenisch ungesättigten Estern, B2) Kammpolymeren, und B3) Mischungen aus B1) und B2) sowie deren Verwendung als Kälteadditiv für Mitteldestillate.

IPC 8 full level

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CPC (source: EP KR US)

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Cited by

US2017233670A1; US11174445B2; WO2016020144A1; WO2022023636A1; FR3113063A1; EP3177699B1

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