

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 B1 20120328 (DE)

Application

EP 07011538 A 20070613

Priority

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Abstract (en)

[origin: EP1881053A2] 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).

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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