

Title (en)  
USES FOR IMPROVING THE LOW TEMPERATURE PROPERTIES OF A MIDDLE DISTILLATE FUEL

Title (de)  
VERWENDUNGEN ZUR VERBESSERUNG DER TIEFTEMPERATUREIGENSCHAFTEN EINES MITTELDESTILLATBRENNSTOFFS

Title (fr)  
UTILISATIONS PERMETTANT D'AMÉLIORER DES PROPRIÉTÉS À BASSE TEMPÉRATURE D'UN COMBUSTIBLE DE DISTILLAT MOYEN

Publication  
**EP 4234661 A3 20231011 (EN)**

Application  
**EP 23174046 A 20190701**

Priority

- GB 201810852 A 20180702
- EP 19736477 A 20190701
- GB 2019051870 W 20190701

Abstract (en)  
A method of improving the low temperature properties of a middle distillate fuel composition comprising:(a) a nitrogen-containing dispersant; and(b) one or more low temperature property enhancers which are not fumarate vinyl ester copolymers and which are selected from (x) wax antisetling additives; (y) middle distillate flow improvers and mixtures thereof;the method comprising adding to the fuel an additive (c) which is a copolymer comprising units of formula (A):and units of formula (8):wherein R is an alkyl group and each of R<sup>1</sup> and R<sup>2</sup> is an alkyl group.

IPC 8 full level  
**C10L 1/16** (2006.01); **C10L 1/14** (2006.01); **C10L 1/196** (2006.01); **C10L 1/197** (2006.01); **C10L 1/222** (2006.01); **C10L 1/224** (2006.01); **C10L 1/226** (2006.01); **C10L 1/232** (2006.01); **C10L 1/238** (2006.01); **C10L 1/2383** (2006.01); **C10L 10/04** (2006.01); **C10L 10/14** (2006.01)

CPC (source: EP GB KR US)  
**C10L 1/143** (2013.01 - EP KR US); **C10L 1/146** (2013.01 - EP KR US); **C10L 1/16** (2013.01 - GB); **C10L 1/1616** (2013.01 - KR); **C10L 1/1966** (2013.01 - GB KR US); **C10L 1/1973** (2013.01 - GB KR US); **C10L 1/2383** (2013.01 - US); **C10L 10/04** (2013.01 - EP KR); **C10L 10/14** (2013.01 - EP GB KR US); **C10L 1/1616** (2013.01 - EP); **C10L 1/1966** (2013.01 - EP); **C10L 1/1973** (2013.01 - EP); **C10L 1/2222** (2013.01 - EP); **C10L 1/224** (2013.01 - EP); **C10L 1/226** (2013.01 - EP); **C10L 1/232** (2013.01 - EP); **C10L 1/238** (2013.01 - EP); **C10L 1/2383** (2013.01 - EP); **C10L 2200/0438** (2013.01 - GB KR); **C10L 2200/0446** (2013.01 - EP KR US); **C10L 2200/0476** (2013.01 - EP KR US); **C10L 2230/14** (2013.01 - EP KR US); **C10L 2270/026** (2013.01 - EP KR US)

Citation (search report)

- [XAI] EP 2199377 A1 20100623 - INFINEUM INT LTD [GB]
- [XDAI] EP 1932899 A1 20080618 - INFINEUM INT LTD [GB]
- [XAI] US 2008141581 A1 20080619 - CAPROTTI RINALDO [GB], et al
- [XAI] US 2008141580 A1 20080619 - TACK ROBERT DRYDEN [GB]
- [XAI] WO 9503377 A1 19950202 - EXXON CHEMICAL PATENTS INC [US], et al
- [L] EP 3818133 B1 20230823 - INNOSPEC LTD [GB]

Designated contracting state (EPC)  
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR

DOCDB simple family (publication)  
**WO 2020008182 A1 20200109**; AU 2019298748 A1 20210107; BR 112020026651 A2 20210323; CA 3102929 A1 20200109; CN 112424318 A 20210226; EP 3818133 A1 20210512; EP 3818133 B1 20230823; EP 4234661 A2 20230830; EP 4234661 A3 20231011; GB 201810852 D0 20180815; GB 201909486 D0 20190814; GB 2576614 A 20200226; GB 2576614 B 20210707; HR P20231221 T1 20240119; HU E063463 T2 20240128; KR 20210027403 A 20210310; PL 3818133 T3 20240219; SG 11202012146S A 20210128; US 2021277320 A1 20210909

DOCDB simple family (application)  
**GB 2019051870 W 20190701**; AU 2019298748 A 20190701; BR 112020026651 A 20190701; CA 3102929 A 20190701; CN 201980044513 A 20190701; EP 19736477 A 20190701; EP 23174046 A 20190701; GB 201810852 A 20180702; GB 201909486 A 20190701; HR P20231221 T 20190701; HU E19736477 A 20190701; KR 20217002737 A 20190701; PL 19736477 T 20190701; SG 11202012146S A 20190701; US 201917255906 A 20190701