

Title (en)
MULTIFUNCTIONAL COOLING ADDITIVES FOR MIDDLE DISTILLATES, HAVING AN IMPROVED FLOW CAPABILITY

Title (de)
MULTIFUNKTIONELLE KÄLTEADDITIVE FÜR MITTELDESTILLATE MIT VERBESSERTER FLIESSFÄHIGKEIT

Title (fr)
ADDITIFS DE REFROIDISSEMENT AYANT UNE MEILLEURE APTITUDE À L'ÉCOULEMENT

Publication
EP 2516605 B1 20140709 (DE)

Application
EP 10800881 A 20101207

Priority
• DE 102009060389 A 20091224
• EP 2010007406 W 20101207

Abstract (en)
[origin: WO2011076337A2] The present invention relates to cooling additives for middle distillates, containing A) at least one polyester of formula (A1) wherein one of the radicals R1 to R4 represents a linear C16-C40 alkyl or alkenyl radical and the remainder of the radicals R1 to R4 represent, independently of one another, hydrogen or an alkyl radical having 1 to 3 C atoms, R5 is a C-C bond or an alkylene radical having 1 to 6 C atoms, R16 is a hydrocarbon group having 2 to 10 carbon atoms, n is an integer from 1 to 100, m is an integer from 3 to 250, p is 0 or 1, and q is 0 or 1, B) at least one copolymer of ethylene and of at least one ethylenically unsaturated ester, the copolymer having a melt viscosity, measured at 140 °C, of at most 5000 mPas, and C) at least one organic solvent.

IPC 8 full level
C10L 1/14 (2006.01); **C10L 1/16** (2006.01); **C10L 1/196** (2006.01); **C10L 1/197** (2006.01); **C10L 1/198** (2006.01); **C10L 1/22** (2006.01); **C10L 10/14** (2006.01); **C10L 10/16** (2006.01)

CPC (source: EP KR US)
C10L 1/143 (2013.01 - EP KR US); **C10L 1/1963** (2013.01 - KR); **C10L 1/1973** (2013.01 - KR); **C10L 1/1981** (2013.01 - KR); **C10L 1/1983** (2013.01 - KR); **C10L 1/1985** (2013.01 - KR); **C10L 1/224** (2013.01 - KR); **C10L 10/14** (2013.01 - EP KR US); **C10L 10/16** (2013.01 - EP KR US); **C10L 1/1608** (2013.01 - EP US); **C10L 1/1616** (2013.01 - EP US); **C10L 1/1641** (2013.01 - EP US); **C10L 1/1963** (2013.01 - EP US); **C10L 1/1973** (2013.01 - EP US); **C10L 1/1981** (2013.01 - EP US); **C10L 1/1983** (2013.01 - EP US); **C10L 1/1985** (2013.01 - EP US); **C10L 1/224** (2013.01 - EP US)

Designated contracting state (EPC)
BE DE ES FR GB NL

DOCDB simple family (publication)
WO 2011076337 A2 20110630; WO 2011076337 A3 20110901; CA 2785463 A1 20110630; CA 2785463 C 20161213; CN 102639682 A 20120815; CN 102639682 B 20140910; DE 102009060389 A1 20110630; EP 2516605 A2 20121031; EP 2516605 B1 20140709; ES 2494591 T3 20140915; JP 2013515792 A 20130509; JP 5709321 B2 20150430; KR 101650292 B1 20160823; KR 20120123261 A 20121108; RU 2012131475 A 20140127; RU 2540279 C2 20150210; US 2012304532 A1 20121206; US 9150808 B2 20151006

DOCDB simple family (application)
EP 2010007406 W 20101207; CA 2785463 A 20101207; CN 201080048115 A 20101207; DE 102009060389 A 20091224; EP 10800881 A 20101207; ES 10800881 T 20101207; JP 2012545126 A 20101207; KR 20127014289 A 20101207; RU 2012131475 A 20101207; US 201013515364 A 20101207