

Title (en)

A method of reducing particulate emissions in internal combustion engines

Title (de)

Verfahren zur Verminderung der Teilchenemissionen für Brennkraftmaschinen

Title (fr)

Méthode pour réduire les émissions de particules dans les moteurs à combustion interne

Publication

**EP 1431374 A1 20040623 (EN)**

Application

**EP 03255769 A 20030916**

Priority

US 32811502 A 20021220

Abstract (en)

A method of reducing the particulate emissions in an internal combustion engine, said method comprising operating the internal combustion engine with a fuel composition comprising a major amount of hydrocarbons boiling in the gasoline or diesel range and an effective particulate emission-reducing amount of an alkylene oxide-adducted hydrocarbyl amide having from about 3 to 50 moles of alkylene oxide per mole of hydrocarbyl amide.

IPC 1-7

**C10L 1/22**; **C10L 10/02**

IPC 8 full level

**C10L 1/2387** (2006.01); **F02B 1/12** (2006.01); **C10L 1/14** (2006.01); **C10L 1/224** (2006.01); **C10L 1/238** (2006.01); **C10L 10/02** (2006.01); **F02B 23/10** (2006.01); **F02D 41/02** (2006.01); **F02D 45/00** (2006.01); **F02M 37/00** (2006.01); **C10L 1/18** (2006.01); **C10L 1/22** (2006.01); **C10L 1/24** (2006.01); **C10L 1/26** (2006.01)

CPC (source: EP US)

**C10L 1/143** (2013.01 - EP US); **C10L 1/224** (2013.01 - EP US); **C10L 1/238** (2013.01 - EP US); **C10L 10/02** (2013.01 - EP US); **C10L 1/1811** (2013.01 - EP US); **C10L 1/1832** (2013.01 - EP US); **C10L 1/188** (2013.01 - EP US); **C10L 1/198** (2013.01 - EP US); **C10L 1/1985** (2013.01 - EP US); **C10L 1/2222** (2013.01 - EP US); **C10L 1/223** (2013.01 - EP US); **C10L 1/2235** (2013.01 - EP US); **C10L 1/231** (2013.01 - EP US); **C10L 1/232** (2013.01 - EP US); **C10L 1/2383** (2013.01 - EP US); **C10L 1/2437** (2013.01 - EP US); **C10L 1/26** (2013.01 - EP US); **F02B 1/12** (2013.01 - EP US)

Citation (applicant)

- DE 3709195 A1 19880818 - BOEHMKE GUENTHER DR [DE]
- US 4297107 A 19811027 - BOEHMKE GUENTHER
- US 5458660 A 19951017 - LIN JIANG-JEN [US], et al
- WO 9816599 A1 19980423 - SHELL INT RESEARCH [NL]
- EP 0798364 A1 19971001 - ORONITE JAPAN LIMITED [JP]
- WO 0042133 A1 20000720 - INFINEUM INT LTD [GB], et al
- US 5139534 A 19920818 - TOMASSEN HENRICUS P M [NL], et al
- WO 9010051 A1 19900907 - UNION OIL CO [US]
- US 3849083 A 19741119 - DUBECK M
- US 2622018 A 19521216 - WHITE RALPH V, et al
- US 4729769 A 19880308 - SCHLICHT RAYMOND C [US], et al
- EP 0149486 A2 19850724 - ATLANTIC RICHFIELD CO [US]
- US 4518782 A 19850521 - SUNG RODNEY L [US], et al
- US 4810263 A 19890307 - ZIMMERMAN ABRAHAM A [US], et al
- US 4836829 A 19890606 - ZIMMERMAN ABRAHAM A [US], et al
- US 4409000 A 19831011 - LESUER WILLIAM M [US]
- US 4292046 A 19810929 - PIOTROWSKI ALFRED B

Citation (search report)

- [X] DE 3709195 A1 19880818 - BOEHMKE GUENTHER DR [DE]
- [X] US 4297107 A 19811027 - BOEHMKE GUENTHER
- [X] US 5458660 A 19951017 - LIN JIANG-JEN [US], et al
- [X] WO 9816599 A1 19980423 - SHELL INT RESEARCH [NL]
- [A] EP 0798364 A1 19971001 - ORONITE JAPAN LIMITED [JP]

Cited by

US7790924B2; US7744661B2

Designated contracting state (EPC)

DE FR GB NL

DOCDB simple family (publication)

**EP 1431374 A1 20040623**; **EP 1431374 B1 20130313**; CA 2440548 A1 20040620; CA 2440548 C 20120410; JP 2004204232 A 20040722; JP 5036956 B2 20120926; US 2004118036 A1 20040624

DOCDB simple family (application)

**EP 03255769 A 20030916**; CA 2440548 A 20030911; JP 2003424717 A 20031222; US 32811502 A 20021220