

Title (en)
LUBRICANTS WITH CALCIUM-CONTAINING DETERGENT AND THEIR USE FOR IMPROVING LOW SPEED PRE-IGNITION

Title (de)
SCHMIERMITTEL MIT CALCIUMHALTIGEM REINIGUNGSMITTEL UND DEREN VERWENDUNG ZUR VERBESSERUNG DER VORZÜNDUNG MIT NIEDRIGER GESCHWINDIGKEIT

Title (fr)
LUBRIFIANTS À BASE D'UN DÉTERGENT CONTENANT DU CALCIUM ET LEUR UTILISATION POUR AMÉLIORER UN PRÉ-ALLUMAGE À BASSE VITESSE

Publication
EP 3322781 B1 20191218 (EN)

Application
EP 16741792 A 20160714

Priority

- US 201562193297 P 20150716
- US 201615047934 A 20160219
- US 201615147317 A 20160505
- US 2016042220 W 20160714

Abstract (en)
[origin: CA2991769A1] A lubricating oil composition and method of operating a boosted internal combustion engine. The lubricating oil composition includes greater than 50 wt.% of a base oil, an overbased detergent having a TBN greater than 225 mg KOH/g and a low-based/neutral detergent having a TBN up to 175 mg KOH/g. A total amount of calcium from the overbased and low-based/neutral detergent is greater than 1100 ppm to less than 2400 ppm by weight based on a total weight of the lubricating oil composition. The lubricating oil composition and method may be effective to reduce low-speed pre-ignition events in a boosted internal combustion engine lubricated with the lubricating oil composition relative to commercially available lubricating oil compositions.

IPC 8 full level
C10M 159/20 (2006.01); **C10M 159/24** (2006.01)

CPC (source: EP KR RU US)
C10M 129/26 (2013.01 - RU); **C10M 135/10** (2013.01 - KR US); **C10M 159/20** (2013.01 - EP RU); **C10M 159/24** (2013.01 - EP KR RU); **C10M 169/04** (2013.01 - RU); **C10M 2203/1025** (2013.01 - EP KR); **C10M 2205/0285** (2013.01 - EP KR); **C10M 2207/027** (2013.01 - EP KR); **C10M 2207/028** (2013.01 - EP KR); **C10M 2215/28** (2013.01 - EP KR); **C10M 2219/04** (2013.01 - KR); **C10M 2219/042** (2013.01 - US); **C10M 2219/044** (2013.01 - EP); **C10M 2219/046** (2013.01 - EP); **C10M 2227/066** (2013.01 - EP KR); **C10N 2010/04** (2013.01 - EP); **C10N 2010/12** (2013.01 - EP KR); **C10N 2030/00** (2013.01 - EP); **C10N 2030/08** (2013.01 - EP); **C10N 2030/10** (2013.01 - EP); **C10N 2040/25** (2013.01 - EP US); **C10N 2040/255** (2020.05 - EP KR)

C-Set (source: EP)

1. **C10M 2207/028 + C10N 2010/02**
2. **C10M 2219/046 + C10N 2010/04**
3. **C10M 2219/044 + C10N 2010/04**
4. **C10M 2207/028 + C10N 2010/04**
5. **C10M 2207/027 + C10N 2010/04**
6. **C10M 2203/1025 + C10N 2020/02**
7. **C10M 2215/28 + C10N 2060/14**

Citation (examination)

- WO 2015042340 A1 20150326 - LUBRIZOL CORP [US]
- KAZUO TAKEUCHI ET AL: "Investigation of Engine Oil Effect on Abnormal Combustion in Turbocharged Direct Injection - Spark Ignition Engines", SAE INTERNATIONAL JOURNAL OF FUELS AND LUBRICANTS, vol. 5, no. 3, 30 January 2012 (2012-01-30), pages 1017 - 1024, XP055203823, ISSN: 1946-3960, DOI: 10.4271/2012-01-1615

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)
BR 112018000353 A2 20180911; BR 112018000353 B1 20220118; CA 2991769 A1 20170119; CA 2991769 C 20200707; CN 107922873 A 20180417; CN 107922873 B 20210827; EP 3322781 A1 20180523; EP 3322781 B1 20191218; JP 2018520240 A 20180726; JP 6708831 B2 20200610; KR 102103653 B1 20200422; KR 20180048596 A 20180510; MX 2018000152 A 20180323; MX 371195 B 20200122; RU 2018104014 A 20190802; RU 2018104014 A3 20191223; RU 2720202 C2 20200427

DOCDB simple family (application)
BR 112018000353 A 20160714; CA 2991769 A 20160714; CN 201680039372 A 20160714; EP 16741792 A 20160714; JP 2017567100 A 20160714; KR 20187003363 A 20160714; MX 2018000152 A 20160714; RU 2018104014 A 20160714