

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

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