

Title (en)  
LUBRICATING OIL COMPOSITIONS

Title (de)  
SCHMIERÖLZUSAMMENSETZUNGEN

Title (fr)  
COMPOSITION D'HUILE LUBRIFIANTE

Publication  
**EP 3810735 A1 20210428 (EN)**

Application  
**EP 19759431 A 20190618**

Priority  
• US 201862688578 P 20180622  
• IB 2019055077 W 20190618

Abstract (en)  
[origin: US2019390134A1] Disclosed is a lubricating oil composition which comprises: (a) a major amount of an oil of lubricating viscosity having a kinematic viscosity at 100° C. in a range of about 2 to about 50 mm<sup>2</sup>/s, (b) an overbased metal salt of an alkyl-substituted phenate detergent, wherein the alkyl group is derived from an isomerized normal alpha olefin having from about 10 to about 40 carbon atoms per molecule and having an isomerization level (I) of the normal alpha olefin of from about 0.1 to about 0.4, (c) one or more boron-containing detergents having about 50 to about 500 ppm of boron, based on the total weight of the lubricating oil composition, and (d) one or more zinc dialkyl dithiophosphate compounds derived from a primary alcohol.

IPC 8 full level  
**C10M 169/04** (2006.01)

CPC (source: EP KR US)  
**C10M 159/18** (2013.01 - KR US); **C10M 159/22** (2013.01 - KR US); **C10M 169/045** (2013.01 - EP KR); **C10M 171/02** (2013.01 - KR US); **C10M 2207/028** (2013.01 - EP KR US); **C10M 2207/144** (2013.01 - KR US); **C10M 2207/262** (2013.01 - EP KR); **C10M 2219/046** (2013.01 - EP KR); **C10M 2223/045** (2013.01 - EP KR); **C10N 2010/04** (2013.01 - US); **C10N 2020/02** (2013.01 - EP KR); **C10N 2030/02** (2013.01 - KR US); **C10N 2030/04** (2013.01 - EP KR US); **C10N 2030/08** (2013.01 - EP KR); **C10N 2030/10** (2013.01 - EP KR); **C10N 2030/52** (2020.05 - EP KR); **C10N 2040/04** (2013.01 - KR); **C10N 2040/25** (2013.01 - KR US); **C10N 2060/14** (2013.01 - EP KR)

C-Set (source: EP)  
1. **C10M 2207/028 + C10N 2020/071**  
2. **C10M 2223/045 + C10N 2010/04 + C10N 2020/069**  
3. **C10M 2207/028 + C10N 2010/04 + C10N 2020/071**  
4. **C10M 2219/046 + C10N 2060/14**  
5. **C10M 2207/262 + C10N 2060/14**

Citation (search report)  
See references of WO 2019244019A1

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

Designated extension state (EPC)  
BA ME

DOCDB simple family (publication)  
**US 2019390134 A1 20191226**; CA 3102927 A1 20191226; CN 112292441 A 20210129; EP 3810735 A1 20210428; JP 2021527749 A 20211014; JP 7407133 B2 20231228; KR 20210022042 A 20210302; SG 11202011591T A 20201230; WO 2019244019 A1 20191226

DOCDB simple family (application)  
**US 201916443986 A 20190618**; CA 3102927 A 20190618; CN 201980040631 A 20190618; EP 19759431 A 20190618; IB 2019055077 W 20190618; JP 2020571424 A 20190618; KR 20217000864 A 20190618; SG 11202011591T A 20190618