

Title (en)
Improved ashless lubricant compositions for internal combustion engines.

Title (de)
Aschefreie Schmiermittelzusammensetzungen für Brennkraftmaschinen.

Title (fr)
Compositions lubrifiantes sans cendres pour moteurs à combustion interne.

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EP 0391649 B1 19950517 (EN)

Application
EP 90303529 A 19900402

Priority
US 33286089 A 19890403

Abstract (en)
[origin: EP0391649A2] In accordance with the present invention, there are provided ashless heavy duty diesel crankcase lubricating oil compositions which comprise an oil of lubricating viscosity as the major component and (A) at least 2 wt.% of at least one high molecular weight ashless dispersant, (B) an antioxidant effective amount of at least one oil soluble antioxidant material, and (C) a corrosion inhibiting effective amount of at least one organo-sulfur azole or azoline compound, wherein the lubricating oil is characterized by a total sulfated ash (SASH) level of less than 0.01 wt.%.

IPC 1-7
C10M 141/08; C10M 141/10; C10M 141/12; C10M 161/00; C10M 163/00

IPC 8 full level
C10M 135/36 (2006.01); **C10M 137/14** (2006.01); **C10M 141/08** (2006.01); **C10M 141/10** (2006.01); **C10M 141/12** (2006.01); **C10M 167/00** (2006.01); C10N 30/04 (2006.01); C10N 30/10 (2006.01); C10N 30/12 (2006.01); C10N 40/25 (2006.01); F02B 3/06 (2006.01); F02B 75/02 (2006.01)

CPC (source: EP)
C10M 129/10 (2013.01); **C10M 129/92** (2013.01); **C10M 129/95** (2013.01); **C10M 133/04** (2013.01); **C10M 133/52** (2013.01); **C10M 133/56** (2013.01); **C10M 135/02** (2013.01); **C10M 135/36** (2013.01); **C10M 137/02** (2013.01); **C10M 137/04** (2013.01); **C10M 137/10** (2013.01); **C10M 139/00** (2013.01); **C10M 141/08** (2013.01); **C10M 141/10** (2013.01); **C10M 141/12** (2013.01); **C10M 159/16** (2013.01); **C10M 159/24** (2013.01); **C10M 167/00** (2013.01); C10M 2201/02 (2013.01); C10M 2205/00 (2013.01); C10M 2205/028 (2013.01); C10M 2207/022 (2013.01); C10M 2207/023 (2013.01); C10M 2207/024 (2013.01); C10M 2207/026 (2013.01); C10M 2207/027 (2013.01); C10M 2207/04 (2013.01); C10M 2207/123 (2013.01); C10M 2207/125 (2013.01); C10M 2207/129 (2013.01); C10M 2207/22 (2013.01); C10M 2207/281 (2013.01); C10M 2207/282 (2013.01); C10M 2207/283 (2013.01); C10M 2207/286 (2013.01); C10M 2207/287 (2013.01); C10M 2207/288 (2013.01); C10M 2207/289 (2013.01); C10M 2207/34 (2013.01); C10M 2209/086 (2013.01); C10M 2209/103 (2013.01); C10M 2209/104 (2013.01); C10M 2209/105 (2013.01); C10M 2209/106 (2013.01); C10M 2211/08 (2013.01); C10M 2215/02 (2013.01); C10M 2215/04 (2013.01); C10M 2215/042 (2013.01); C10M 2215/044 (2013.01); C10M 2215/06 (2013.01); C10M 2215/062 (2013.01); C10M 2215/064 (2013.01); C10M 2215/065 (2013.01); C10M 2215/066 (2013.01); C10M 2215/067 (2013.01); C10M 2215/08 (2013.01); C10M 2215/082 (2013.01); C10M 2215/086 (2013.01); C10M 2215/16 (2013.01); C10M 2215/22 (2013.01); C10M 2215/221 (2013.01); C10M 2215/222 (2013.01); C10M 2215/223 (2013.01); C10M 2215/225 (2013.01); C10M 2215/226 (2013.01); C10M 2215/24 (2013.01); C10M 2215/26 (2013.01); C10M 2215/28 (2013.01); C10M 2215/30 (2013.01); C10M 2217/042 (2013.01); C10M 2217/043 (2013.01); C10M 2217/046 (2013.01); C10M 2217/06 (2013.01); C10M 2219/02 (2013.01); C10M 2219/022 (2013.01); C10M 2219/024 (2013.01); C10M 2219/042 (2013.01); C10M 2219/044 (2013.01); C10M 2219/046 (2013.01); C10M 2219/084 (2013.01); C10M 2219/085 (2013.01); C10M 2219/086 (2013.01); C10M 2219/087 (2013.01); C10M 2219/089 (2013.01); C10M 2219/09 (2013.01); C10M 2219/10 (2013.01); C10M 2219/102 (2013.01); C10M 2219/104 (2013.01); C10M 2219/106 (2013.01); C10M 2219/108 (2013.01); C10M 2221/02 (2013.01); C10M 2223/02 (2013.01); C10M 2223/04 (2013.01); C10M 2223/041 (2013.01); C10M 2223/042 (2013.01); C10M 2223/045 (2013.01); C10M 2223/047 (2013.01); C10M 2223/049 (2013.01); C10M 2223/06 (2013.01); C10M 2223/061 (2013.01); C10M 2223/065 (2013.01); C10M 2223/10 (2013.01); C10M 2227/00 (2013.01); C10M 2227/02 (2013.01); C10M 2227/06 (2013.01); C10M 2227/061 (2013.01); C10M 2227/062 (2013.01); C10M 2227/063 (2013.01); C10M 2227/065 (2013.01); C10M 2227/066 (2013.01); C10N 2010/02 (2013.01); C10N 2010/04 (2013.01); C10N 2020/01 (2020.05); C10N 2040/10 (2013.01); C10N 2040/20 (2013.01); C10N 2040/22 (2013.01); C10N 2040/24 (2013.01); C10N 2040/241 (2020.05); C10N 2040/242 (2020.05); C10N 2040/243 (2020.05); C10N 2040/244 (2020.05); C10N 2040/245 (2020.05); C10N 2040/246 (2020.05); C10N 2040/247 (2020.05); C10N 2040/252 (2020.05); C10N 2040/253 (2020.05); C10N 2070/02 (2020.05); F02B 3/06 (2013.01); F02B 2075/027 (2013.01)

Cited by
CN114057916A; EP1340803A1; US5753598A; US5679280A; CN102504915A; EP2975106A4; EP1340804A1; EP0686689A3; EP1602709A4; CN104204164A; EP2829592A4; EP2546324A4; CN111434756A; US9714395B2; WO2004069966A1; US9790450B2; WO9600766A1; WO9626995A1; WO2010107882A1; WO9626996A1; US9441180B2; US10808198B2; EP2141220B1

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