

(19)



(11)

**EP 1 967 567 A3**

(12)

**EUROPEAN PATENT APPLICATION**

(88) Date of publication A3:  
**08.10.2008 Bulletin 2008/41**

(51) Int Cl.:  
**C10L 1/188** (2006.01) **C10L 1/14** (2006.01)  
**C10L 1/02** (2006.01)

(43) Date of publication A2:  
**10.09.2008 Bulletin 2008/37**

(21) Application number: **08151049.7**

(22) Date of filing: **04.02.2008**

(84) Designated Contracting States:  
**AT BE BG CH CY CZ DE DK EE ES FI FR GB GR  
HR HU IE IS IT LI LT LU LV MC MT NL NO PL PT  
RO SE SI SK TR**  
Designated Extension States:  
**AL BA MK RS**

(30) Priority: **01.03.2007 US 681020**  
**22.02.2007 US 891172 P**

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(54) **Methods and compositions for reducing deposits in engines combusting alcohol-containing fuels**

(57) The present disclosure provides compositions and methods for reducing deposit formation in engines combusting a fuel containing ethanol and a corrosion inhibitor. The present disclosure also provides composi-

tions and methods for reducing deposit formation in engines combusting a fuel containing ethanol, a corrosion inhibitor, and a dispersant.

**EP 1 967 567 A3**



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# EUROPEAN SEARCH REPORT

Application Number  
EP 08 15 1049

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	US 4 511 367 A (KNAPP GORDON G [US]) 16 April 1985 (1985-04-16)  * column 1, line 48 - line 56; claim 1; table 1 * * column 4, line 16 - line 62 * -----	1-8,17, 18, 21-26, 33-38	INV. C10L1/188 C10L1/14 C10L1/02
X	US 2003/196372 A1 (WOLF LESLIE R [US]) 23 October 2003 (2003-10-23)  * paragraphs [0040], [0042]; claims 1,15; example 16; tables 1,2 * -----	1-8,17, 18, 21-26, 33-38	
X	US 4 398 921 A (RIFKIN ELLIS B [US] ET AL) 16 August 1983 (1983-08-16)  * column 15, line 1 - line 60; claim 1 * -----	1-8,17, 18, 21-26, 33-38	
X	US 4 531 948 A (KNAPP GORDON G [US]) 30 July 1985 (1985-07-30)  * abstract; claim 1; table 1 * -----	1-8,17, 18, 21-26, 33-38	TECHNICAL FIELDS SEARCHED (IPC) C10L
11 <del>The present search report has been drawn up for all claims</del>			
Place of search Munich		Date of completion of the search 11 June 2008	Examiner Pöllmann, Klaus
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

EPO FORM 1503 03.82 (P04C01)



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Application Number

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#### CLAIMS INCURRING FEES

The present European patent application comprised at the time of filing claims for which payment was due.

☐ Only part of the claims have been paid within the prescribed time limit. The present European search report has been drawn up for those claims for which no payment was due and for those claims for which claims fees have been paid, namely claim(s):

☐ No claims fees have been paid within the prescribed time limit. The present European search report has been drawn up for those claims for which no payment was due.

#### LACK OF UNITY OF INVENTION

The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

see sheet B

☐ All further search fees have been paid within the fixed time limit. The present European search report has been drawn up for all claims.

☐ As all searchable claims could be searched without effort justifying an additional fee, the Search Division did not invite payment of any additional fee.

☐ Only part of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the inventions in respect of which search fees have been paid, namely claims:

☒ None of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the invention first mentioned in the claims, namely claims:

1-8, 17-18, 21-26, 33-38

☐ The present supplementary European search report has been drawn up for those parts of the European patent application which relate to the invention first mentioned in the claims (Rule 164 (1) EPC).



The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

1. claims: 1-8, 17-18,21-26, 33-38

Claims 1-8 refer to a method suitable to reduce deposits in an internal combustion engine that is operated with an alcohol-containing fuel. The method is based on adding dodecenyl succinic acid to the fuel composition. Claims 17-18 and 21-26 refer to a composition suitable to reduce deposits in an internal combustion engine that is operated with an alcohol-containing fuel comprising alcohol and dodecenyl succinic acid. Claims 33-38 refer to a corresponding fuel comprising gasoline, an alcohol and dodecenyl succinic acid.

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2. claims: 1-17,19-26,33-37,39-43

Claims 1-16 refer to a different method suitable to reduce deposits in an internal combustion engine that is operated with an alcohol-containing fuel. This alternative method is based on using a corrosion inhibitor and a dispersant. Claims 17 and 19-26 refer to the corresponding composition comprising a corrosion inhibitor and a dispersant and claims 33-37 as well as 39-43 to a corresponding fuel comprising gasoline, an alcohol, a corrosion inhibitor and a dispersant.

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3. claims: 27-29

Claims 27-29 refer to a fuel additive concentrate comprising a corrosion inhibitor, a diluent and only optionally a dispersant.

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4. claims: 30-32

Claims 30-32 refer to a fuel additive concentrate comprising an alcohol and only a dispersant.

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**ANNEX TO THE EUROPEAN SEARCH REPORT  
ON EUROPEAN PATENT APPLICATION NO.**

EP 08 15 1049

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on  
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

11-06-2008

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