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INTELLECTUAL PROPERTY

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The Registry of Patents
Intellectual Property Office of Singapore

Attention: Mr. John Tan Thung Keat

Our Reference : 9735SG42/KJR/KCJ/snz
Your Reference : 2012067708/131210/TMTTK/1633

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Dear Sirs,

Singapore Patent Application No. 201206770-8
Invention : Fuel Additive For Improved Performance Of Low Sulfur Diesel Fuels
Applicant : Afton Chemical Corporation

We refer to the official communication dated 10 December 2013 enclosing an adverse Written Opinion issued by Danish Patent Office on behalf of the Intellectual Property Office of Singapore.

In Box V of the Written Opinion, we note that the Examiner has acknowledged the novelty of claims 1 to 21 on file and considered claims 22 to 28 lacking novelty in view of US 2010037514 A1 (D1). The Examiner has also objected to claims 1 to 28 on file for lacking an inventive step in view of D1.

However, it also appears that the Examiner has further cited US 2010/0107479 A1 (D2) as a relevant document affecting the novelty of claims 22 to 28 and the inventive step of claims 1 to 28 as observed from Box C of the Search Report.

Hence, for the sake of completeness, our comments to the above novelty and inventive step objections in view of both D1 and D2 follow below.

Amendments

Claim 1 on file has been amended to define the amount of reaction product to be 5 to 200 mg per kilogram of fuel composition. Support for this amendment can be found on, for instance, paragraph 33 lines 25 and 26 on page 10 of the specification filed.

Claim 15 on file has been incorporated into claim 11 and deleted accordingly.

Claims 11 and 16 on file have been amended to define that the diesel fuel comprises from 5 to 200 mg per kilogram of fuel composition. Support for this amendment can be found on, for instance, paragraph 33 lines 24 to 26 on page 10 of the specification filed.

Claim 22 on file has been amended to define that the reaction product is effective in the low sulfur diesel fuel to improve the performance of the fuel injectors at a concentration of from 5 to 200 mg of reaction product per kilogram of fuel. Support for this amendment can be found on, for instance, paragraph 46 on page 15 read in conjunction with paragraph 33 lines 24 to 26 on page 10 of the specification filed.

Claims 16 to 28 and their dependencies have been renumbered accordingly.

No new matter has been added in view of the above.

Patents Form 13A and a copy of the marked up claims on replacement sheet pages 17 to 21 are filed to effect the above amendments.

Novelty of Amended Claims 1 to 27

The Examiner has objected to claims 22 to 28 on file for lacking novelty in view of D1 and D2.

D1 relates to an additive which reduces the amount of depositions and/or cleaning up dirty fuel injectors, wherein the additive includes a reaction product that contains at least one aminotriazole group. However, D1 does not disclose the essential feature where the reaction product contains less than one equivalent of an aminotriazole group per molecule of reaction product. D1 also does not disclose a diesel fuel containing 50 ppm by weight or less of sulphur.

Likewise, D2 discloses that the reaction product comprises an aminotriazole compound which means that D2's reaction product contains at least one aminotriazole group unlike the present application which essentially requires that the reaction product contains less than one equivalent of an aminotriazole group per molecule of reaction product.

Based on the above reasons, the features of amended claims 1 to 27 fulfil the novelty requirement in view of D1 and D2.

Inventive Step of Amended Claims 1 to 27

The Examiner has objected to claims 1 to 28 for lacking an inventive step in view of D1 and D2. However, the applicant respectfully disagrees for the reasons set forth below.

The present application is directed to compositions that comprise less than one equivalent of an aminotriazole group per molecule of reaction product. As demonstrated in table 2 (page 15 of specification filed), such a reaction product featured in amended claims 1 to 27 provides better power recovery in a low sulfur diesel fuel compared to those of comparative example 1 (page 13 of the present application) which contains one or more equivalent of an aminotriazole group per molecule of reaction product.

Similar to the reaction product of comparative example 1 of the present application, D1 teaches additives comprising a reaction product that contains at least one aminotriazole group (paragraph 9 of D1). Accordingly, the reaction product of amended claims 1 to 27 comprising less than one equivalent of an aminotriazole group per molecule of reaction product demonstrates improved power recovery over D1's additives. Thus, it is submitted that D1 teaches away from the present application as the aminotriazole content in D1's additives is entirely opposite from the present requirement of less than one equivalent of an aminotriazole group per molecule of reaction product.

In view of the above reasons and the improved power recovery attributed the above feature, it is submitted that the subject matter of amended claims 1 to 27 are not obvious in view of D1.

D2 is directed to additives used for enhancing antifoam performance of a fuel. D2 does not teach or suggest additives for improving power recovery in low sulfur diesel fuels. According to paragraph 29 of D2, the reaction product taught therein comprises an aminotriazole compound. This means D2 also teaches away from the present application since such a reaction product would not have contained less than one equivalent of an aminotriazole group per molecule of reaction product as

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required by the present application. Moreover, D2 only illustrates the additives' technical effect relating to antifoam performance of the aminotriazole compound.

Like D1, the reaction product of D2 is similar to the reaction product exemplified in comparative example 1 of the present application. As it has already been demonstrated that the reaction product as featured in amended claims 1 to 27 provides better power recovery over that of comparative example 1 which is similar to D2's, the applicant submits that for this unexpected advantage and the above reasons, the present application is not obvious in view of D2.

In view thereof, it is submitted that the features of amended claims 1 to 27 fulfil the inventive step requirement.

Since amended claims 1 to 27 now fulfil all patentability requirements in view of the foregoing reasons, the applicant respectfully requests for a clear Examination Report to be issued. Should the Examiner have any objections, it is requested that a further Written Opinion be issued.

Yours faithfully,

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