

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

AFTON CHEMICAL CORPORATION,
Petitioner,

v.

INFINEUM INTERNATIONAL LIMITED,
Patent Owner.

Case IPR2017-01321
Patent 8,076,274 B2

Before JON B. TORNQUIST, JEFFREY W. ABRAHAM, and
MICHELLE N. ANKENBRAND, *Administrative Patent Judges*.

TORNQUIST, *Administrative Patent Judge*.

FINAL WRITTEN DECISION
35 U.S.C. § 318(a) and 37 C.F.R. § 42.73

I. INTRODUCTION

A. Background

Afton Chemical Corporation (“Petitioner”) filed a Petition (Paper 1, “Pet.”) requesting *inter partes* review of claims 1–13 of U.S. Patent No. 8,076,274 B2 (Ex. 1001, “the ’274 patent”). Infineum International Limited (“Patent Owner”) filed a Preliminary Response to the Petition. Upon consideration of the Petition, the Preliminary Response, and the parties’ evidence, we determined that Petitioner had demonstrated a reasonable likelihood that it would prevail with respect to claims 1–13 of the ’274 patent (Paper 8, “Dec. on Inst.”). Thus, we instituted review with respect to those claims. We did not, however, institute review on all asserted grounds of unpatentability set forth in the Petition. Dec. on Inst. 5, 26.

On April 27, 2018, pursuant to the Supreme Court’s decision in *SAS Inst., Inc. v. Iancu*, 138 S. Ct. 1348, 1355 (2018), we modified the institution decision to institute review of all challenged claims *on all challenged grounds*. Paper 20, 2.

Following institution of trial, Patent Owner filed a Patent Owner Response (Paper 16, “PO Resp.”), to which Petitioner filed a Reply (Paper 23, “Pet. Reply”). Patent Owner also filed a Supplemental Response addressing the newly-instituted grounds (Paper 22), to which Petitioner filed a Reply (Paper 32).

With its Patent Owner Response, Patent Owner filed a contingent Motion to Amend (Paper 17, “MTA”), to which Petitioner filed an Opposition (Paper 24, “Opp. MTA”), Patent Owner filed a Reply (Paper 29, MTA Reply), and Petitioner filed a Sur-Reply (Paper 33, “MTA Sur-Reply”).

In support of their respective arguments, Petitioner relies on the declaration testimony of Dr. William Y. Lam (Exs. 1004 and 1050) and Mr. Jeremy Styer (Ex. 1006) and Patent Owner relies upon the declaration testimony of Dr. Jack Emert (Exs. 2025, 2035, and 2039).

An oral hearing was held on August 9, 2018, and a transcript of the oral hearing is included in the record. Paper 46 (“Tr.”).

B. Related Proceedings

Petitioner notes that a European Patent Application to which the ’274 patent claims priority is the subject of a “Third Party Observation under Article 115 EPC.” Pet. 1. The parties identify no other related proceedings. *Id.*; Paper 4, 1.

C. The ’274 Patent

The ’274 patent, titled “Lubricating Oil Composition,” is directed to a lubricating oil composition for use in diesel engines. Ex. 1001, (54), 1:6–8. The ’274 patent explains that combustion of fuel in diesel engines “leads to the formation of acidic moieties which can have detrimental effects such as corrosion of parts of the engine and its exhaust system.” *Id.* at 3:16–19. In order to neutralize these acidic moieties, lubricating oils for diesel engines “are usually formulated to have relatively high basicity (e.g. high total base number, TBN),” which is “attained by incorporating basic metal-containing detergents in the lubricating oils.” *Id.* at 3:19–25. The amount of basic metal detergent that can be used is limited, however, “because the metal of the detergent gives rise to ash materials which adversely affect the operation of engine equipment such as exhaust gas filters and exhaust gas purification catalysts.” *Id.* at 3:31–35. Magnesium-containing detergents also “tend to cause bore polishing,” i.e., the wearing of lubricant-containing grooves in

the bore wall, which limits the ability of the grooves to retain lubricant and potentially leads to increased wear and engine failure. *Id.* at 1:33–42, 3:43–48.

According to the '274 patent, the applicants discovered that by selecting an appropriate set of additives, a lubricating oil “containing relatively high concentrations of magnesium from magnesium-containing detergents can be formulated without giving rise to unacceptable levels of bore polishing or unacceptable levels of ash in diesel engines.” *Id.* at 3:51–55. This lubricating oil has the following components: (a) a lubricating oil basestock of lubricating viscosity; (b) an antioxidant component that “is selected from one or more ash-free aminic and/or sulfur-free phenolic compounds in an amount of at least 0.6 mass % and up to 3.0 mass % based on the total mass of the lubricating composition”; (c) a detergent component that “is an overbased magnesium compound having a total base number (TBN) exceeding 350 mg/g KOH”; and optionally (d) one or more metal hydrocarbyl dithiophosphate compounds in an amount of from 0.0 to 1.8 mass % and/or (e) a calcium detergent. *Id.* at 4:1–22, 9:25–27.

D. Illustrative Claims

Claim 1 is the only independent claim of the '274 patent. Claims 1 and 13 are illustrative of the challenged claims and are reproduced below:

1. A lubricating oil composition for a diesel engine, comprising the following components:
 - (a) a lubricating oil basestock of lubricating viscosity;
 - (b) an antioxidant component;
 - (c) a detergent component; and

optionally (d) one or more metal hydrocarbyl dithiophosphate compounds in an amount of from 0.0 to 1.8 mass % and/or (e) a calcium detergent compound;

wherein the antioxidant component (b) is selected from one or more ash-free aminic and/or sulfur-free phenolic compounds in an amount of at least 0.6 mass % up to 3.0 mass % based on the total mass of the composition; and

the detergent component (c) is an overbased magnesium compound having a total base number (TBN) exceeding 350 mg/g KOH selected from one or more magnesium sulfonates, magnesium salicylates, and magnesium phenates and which provide the composition with greater than 0.05 mass % Mg based on the total mass of the composition, and wherein the sulfated ash content of the composition is at least 0.6 mass % to not more than 2.0 mass % as determined by ASTM D874.

Ex. 1001, 9:20–10:3.

13. The composition of claim 1 wherein the detergent component (c) comprises salicylate detergent.

Id. at 10:34–35.

E. Instituted Grounds of Unpatentability

We instituted trial to determine whether claims 1–13 of the '274 patent are unpatentable based on the following grounds (Pet. 26; Paper 20, 2):

Reference(s)	Basis	Claim(s) Challenged
Colclough ¹	§ 102	1–11
Nicholson ² and ACEA 2004 ³	§ 103	1–12

¹ EP Patent Publication No. 0 280 579 A2, published Aug. 31, 1988 (Ex. 1007).

² EP Patent Publication No. 0 663 436 A1, published July 19, 1995 (Ex. 1009).

³ *ACEA European Oil Sequences, Service Fill Oils for Gasoline Engines, Light Duty Diesel Engines, Engines with After Treatment Devices & Heavy*

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