

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

RIMFROST AS,
Petitioner,

v.

AKER BIOMARINE ANTARCTIC AS,
Patent Owner.

IPR2020-01534
Patent 10,010,567 B2

Before ERICA A. FRANKLIN, SUSAN L. C. MITCHELL, and
JON B. TORNQUIST, *Administrative Patent Judges*.

MITCHELL, *Administrative Patent Judge*.

JUDGMENT
Final Written Decision
Determining No Challenged Claims Unpatentable
35 U.S.C. § 318(a)

I. INTRODUCTION

A. Background

On November 6, 2020, Rimfrost AS (“Petitioner”) filed a Petition (Paper 2, “Pet.”) requesting an *inter partes* review of claims 1–20 of U.S. Patent No. 10,010,567 B2 (Ex. 1001, “the ’567 patent”). Aker Biomarine Antarctic AS (“Patent Owner”) did not file a Preliminary Response to the Petition. On May 20, 2021, we granted institution of an *inter partes* review of claims 1–20 of the ’567 patent on all grounds set forth in the Petition. *See* Paper 6 (“Dec.”) 2, 15.

Patent Owner filed a Response on August 12, 2021, *see* Paper 9 (“Resp.”), and Petitioner filed a Reply on November 4, 2021, *see* Paper 14 (“Reply”). Patent Owner filed its Sur-Reply on December 16, 2021. Paper 17 (“Sur-Reply”). An oral hearing was held on February 17, 2022, and a transcript of this hearing was entered into the record. Paper 24 (“Tr.”).

This is a Final Written Decision under 35 U.S.C. § 318(a) as to the patentability of the challenged claims on which we instituted trial. Based on the complete record before us, we determine as set forth below that the Petitioner has not shown by a preponderance of the evidence that claims 1–20 of the ’567 patent are unpatentable.

B. Real Parties in Interest

Petitioner identifies itself, Olympic Holding AS, Emerald Fisheries AS, Rimfrost USA, LLC, Rimfrost New Zealand Limited, and Bioriginal Food and Science Corp. as real parties in interest. Pet. 3. Based on various ownership interests, and out of “an abundance of caution,” Petitioner also

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identifies Stig Remøy, SRR Invest AS, Rimfrost Holdings AS, and Omega Protein Corporation as real parties in interest. *Id.*

Patent Owner identifies itself as a real party in interest in this proceeding. Paper 4, 1.

C. Related Proceedings

Petitioner and Patent Owner identify several related matters. Specifically, the parties identify *Aker Biomarine Antarctic AS v. Olympic Holding AS*, Case No. 1:16-CV-00035-LPS-CJB (D. Del.), which involved U.S. Patent Nos. 9,028,877 B2 (“the ’877 patent”) and 9,078,905 B2 (“the ’905 patent”). Pet. 3; Paper 4, 1. The parties further identify Investigation No. 337-TA-1019 by the United States International Trade Commission, which involved the ’877 and ’905 patents, as well as U.S. Patent No. 9,320,765 (“the ’765 patent”), U.S. Patent No. 9,375,453 (“the ’453 patent”), and U.S. Patent No. 9,072,752 (“the ’752 patent”). Pet. 3–4; Paper 4, 1–2.

The parties also identify the following Board proceedings as related matters:

- IPR2017-00745 and IPR2017-00747, which requested review of the ’905 patent (all challenged claims found unpatentable (Ex. 1103), decision affirmed on appeal (Ex. 1154));
- IPR2017-00746 and IPR2017-00748, which requested review of the ’877 patent (all challenged claims found unpatentable (Ex. 1104), decision affirmed on appeal (Ex. 1154));
- IPR2018-00295, which requested review of the ’765 patent all challenged claims found unpatentable (Ex. 1129));

- PGR2018-00033, which requested review of U.S. Patent No. 9,644,170 (institution denied because the challenged patent was not eligible for post grant review);
- IPR2018-01178 and IPR2018-01179, which requested review of the '453 patent (all challenged claims found unpatentable (Exs. 1157, 1158));
- IPR2018-01730, which requested review of the '752 patent (all challenged claims found unpatentable (Ex. 1159)); and
- IPR2020-01532 and IPR2020-01533, which requested review of U.S. Patent Nos. 9,644,169 B2 and 9,816,046 B2, respectively, and all challenged claims have been found unpatentable. *See* IPR2020-01532, Paper 33, 35 (PTAB April 6, 2022); IPR2020-01533, Paper 33, 39 (PTAB April 6, 2022). Patent Owner has sought Director Review in both of these cases. *See* IPR2020-01532, Paper 34; IPR2020-01533, Paper 34.

Pet. 4–7; Paper 4, 2–4.

D. The '567 Patent (Ex. 1001)

The '567 patent discloses extracts from Antarctic krill that include bioactive fatty acids. Ex. 1001, 1:24–25. The '567 patent explains that krill oil compositions, including compositions having up to 60% w/w phospholipid content and as much as 35% w/w EPA/DHA¹ content, were known in the art. *Id.* at 1:59–62. The '567 patent further explains that “[k]rill oil compositions have been described as being effective for

¹ According to the '567 patent, “EPA” is 5,8,11,14,17-eicosapentaenoic acid and “DHA” is 4,7,10,13,16,19-docosahexanoic acid. Ex. 1001, 9:15–19.

decreasing cholesterol, inhibiting platelet adhesion, inhibiting artery plaque formation, preventing hypertension, controlling arthritis symptoms, preventing skin cancer, enhancing transdermal transport, reducing the symptoms of premenstrual symptoms or controlling blood glucose levels in a patient.” *Id.* at 1:51–57.

According to the ’567 patent, frozen krill are typically transported from the Southern Ocean to a processing site, but lipases and phospholipases within the krill can result in the decomposition of glycerides and phospholipids during transport. *Id.* at 2:8–18, 9:64–10:13. To avoid the problem of enzymatic decomposition of krill products, the ’567 patent describes a method of thermally denaturing the lipases and phospholipases in fresh-caught krill prior to storage and processing. *Id.* at 9:64–10:13, 10:46–55. The ’567 patent reports that these denaturing steps allow for the storage of krill material “for from about 1, 2, 3, 4, 5, 6, 8, 9, 10, 11, or 12 months to about 24 to 36 months prior to processing.” *Id.* at 10:39–45.

After denaturation, the krill can be subject to extraction processes either on board the ship or at a remote location. *Id.* at 10:39–41. In one embodiment, krill oils are extracted from krill meal in two stages. *Id.* at 9:57–60. In the first stage, a neutral fraction is extracted using either neat supercritical CO₂ or such CO₂ in combination with 5% ethanol. *Id.* In the second stage, polar lipids (phospholipids) are extracted by adding at least 20% ethanol to the supercritical CO₂ extraction medium. *Id.* at 9:61–63.

The ’567 patent reports that “[k]rill oil extracted from denatured krill meal by supercritical fluid extraction even 19 months after the production of the meal contained virtually no decomposed phospholipids.” *Id.* at 11:3–6. The ’567 patent further reports that the novel krill oil

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