

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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RIMFROST AS  
Petitioner,

v.

AKER BIOMARINE ANTARCTIC AS  
Patent Owner.

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Case IPR-2018-01179

U.S Patent No. 9,375,453

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**Patent Owner's Response to Petition for *Inter Partes* Review of  
U.S. Patent No. 9,375,453**

Mail Stop Patent Board  
Patent Trial and Appeal Board  
U.S. Patent and Trademark Office  
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## I. INTRODUCTION

Pursuant to 37 C.F.R. § 42.120, Patent Owner Aker BioMarine Antarctic AS (“Patent Owner” or “Aker”) Responds to the Petition for *Inter Partes* Review (“Petition”) of U.S. Patent No. 9,375,453 (“the ‘453 Patent”) filed by Rimfrost AS (“Petitioner” or “Rimfrost”). On January 14, 2019 the Patent Trial and Appeal Board instituted this *Inter Partes* review of claims 33 – 61 of the ‘453 Patent based on Rimfrost’s Petition. In Response, Patent Owner relies on the Declaration of Dr. Nils Hoem (Ex. 2001) and the additional exhibits in the Exhibit Listing *that* is filed concurrently herewith. The following grounds of alleged unpatentability are at issue:

Ground	Reference(s)	Basis	Claims Challenged
1	Breivik II, Catchpole, Bottino II and Sampalis I	35 U.S.C. § 103(a)	33-38, 40-43, 46-49, 51-52, 55-58, 60
2	Breivik II, Catchpole, Bottino II, Sampalis I and Sampalis II	35 U.S.C. § 103(a)	39
3	Breivik II, Catchpole, Bottino II, Sampalis I and Fricke	35 U.S.C. § 103(a)	44, 50, 53, 59
4	Breivik II, Catchpole, Bottino II, Sampalis I and Randolph	35 U.S.C. § 103(a)	45, 54, 61

## **II. SUMMARY OF ARGUMENT**

Petitioner fails to establish by a preponderance of the evidence that it's cited prior art renders any patented claim obvious.

First, the combined references do not provide a reasonable expectation of success for arriving at a method of producing krill oil with the defined characteristics. Claims 33-61 of the '453 patent are directed to methods of producing and encapsulating krill oils with specific content ranges for multiple components including ether phospholipids, non-ether phospholipids, triglycerides, and astaxanthin esters. As discussed in detail herein, while Catchpole does disclose a krill extract containing 4.8% ether phospholipids (Catchpole Extract 2), a POSITA would understand that Catchpole Extract 2 did not contain neutral lipids such as triglycerides. A POSITA would further understand that neutral lipids including triglycerides would need to be added to Catchpole Extract 2 to provide an oil with the claimed maximum of 60% total phospholipids and the range of from 20 to 50% triglycerides. This would dilute the ether phospholipids to 2.88%, which is below the claimed range of greater than about 3% in claims 33 to 45, and well below the greater than about 4% ether phospholipids required in claims 46 to 54 and greater than about 5% ether phospholipids required in claims 55 to 61.

Second, the lipids specified in the krill oils extracted and formulated in the claimed process differ in terms of their polarity and extractability in different

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