

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**  
**BEFORE THE PATENT TRIAL AND APPEAL BOARD**

**RIMFROST AS**  
**Petitioner**

**v.**

**AKER BIOMARINE ANTARCTIC AS**  
**Patent Owner**

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**CASE IPR: IPR2018-01178 and CASE IPR: IPR2018-01179**

**U.S. Patent No. 9,375,453 B2**

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**Declaration of Dr. Nils Hoem in Support of Patent Owner's Response  
and Motion to Amend**

TABLE OF CONTENTS

<b>I.</b>	<b>Introduction.....</b>	<b>4</b>
A.	Qualifications .....	5
B.	Legal Standards .....	15
<b>II.</b>	<b>RESPONSE TO GROUNDS FOR INSTITUTION IN IPR.....</b>	<b>21</b>
A.	‘453 Patent Claims and Basis for IPR.....	21
B.	Claim Construction .....	26
C.	Analysis .....	30
1.	Introduction .....	30
2.	Prior Art Cited in Institution Decision.....	35
a.	Breivik II (Ex. 1037). .....	35
b.	Catchpole (Ex. 1009). .....	38
c.	Bottino II (Ex. 1038). .....	47
d.	Sampalis I (Ex. 1012). .....	49
e.	Sampalis II (Ex. 1013).....	51
f.	Fricke 1984 (Ex. 1010).....	51
g.	Randolf (Ex. 1011) .....	53
3.	Obviousness Analysis .....	55
a.	Claims 1-61 are not obvious because there is no reasonable expectation of success and motivation to combine the references to arrive at the claimed methods for production of a defined krill oil.....	55
b.	Claims 1-61 are not obvious because a POSITA would not formulate for oral consumption or encapsulate krill oil with the claimed levels of ether phospholipids.....	65
c.	Claims 23 to 29 and claims 55 to 61 are not obvious because the combined references do not teach the claim element of at least about 5% ether phospholipids.....	69
<b>III.</b>	<b>SUPPORT FOR MOTION TO AMEND.....</b>	<b>72</b>

A.	SUPPORT IN THE ORIGINAL DISCLSoure FOR THE CONDITIONAL PROPOSED AMENDED CLAIMS.....	73
1.	Substitute Independent Claims 62 and 75.....	74
2.	Dependent Claims 63-74 and 76-84 .....	79
3.	Claim Construction .....	80
4.	Patentability of the proposed substitute claims over the prior art.....	81
a.	Art at Issue in This Proceeding .....	81
b.	The Material Prior Art at Issue During Prosecution .....	92
IV.	<b>Conclusion</b> .....	<b>93</b>

**I. Introduction**

I, Dr. Nils Hoem, state as follows:

1. I have been asked by counsel for Petitioner Aker BioMarine AS to provide an expert declaration in this action. I am currently employed by Aker BioMarine AS.

2. I have reviewed U.S. Patent 9,375,453 (hereinafter '453 patent; Ex. 1001) and the claims contained therein. It is my understanding that the '453 patent contains claims to methods of making krill oil by extraction of a denatured *Euphausia superba* krill material with a polar solvent and then formulating the extracted krill oil for oral consumption, for example, by encapsulation. The extracted krill oil that is formulated for oral consumption comprises greater than about 3%, 4% or 5% ether phospholipids w/w of said krill oil; from about 27% to 50% non-ether phospholipids w/w of said krill oil so that the amount of total phospholipids in the composition is from about 30% to 60% w/w of said krill oil; from about 20% to 50% triglycerides w/w of said krill oil, and astaxanthin esters in amount of greater than about 100 mg/kg of said krill oil. Additional claim limitations are directed to other lipid components of the krill oil.

3. I have been asked to provide analysis and expert opinions on the following: whether the combination of references cited in this proceeding render claims of the '453 patent obvious.

4. In connection with providing my opinions, I have further been asked to provide an overview of the technology of the '453 Patent and state of the art that existing before the '453 patent was filed.

**A. Qualifications**

5. I am a licensed pharmacist with master and doctorate degrees in pharmacology. I was Associate Professor at Oslo University from 1989-2002 and European Director of Pharmacokinetics, Statistics and Data-Management at MDS Pharma Services, Hamburg Germany from 2004 to 2007. I am now Chief Scientist at Aker BioMarine. My educational background comprises skills in general, organic, analytic and biological chemistry in combination with his work at Aker BioMarine during the last 10 years have provided general and specialized insight into the complex composition of krill oil as well as the raw materials from which it has been extracted. In capacity of leading product development at Aker BioMarine, I have substantial theoretical and practical insight into extraction, fractionation and purification of krill oil and krill lipids. A more detailed account of my work experience, publications, and other qualifications is listed in my Curriculum Vitae, attached as Exhibit 1.

6. I am being compensated by my normal salary for Aker BioMarine AS. My compensation is not contingent on the conclusions I reach in my expert report.

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