

PATENT OWNER ORAL PRE

UNITED STATES PATENT AND TRADEMARK

BEFORE THE PATENT TRIAL AND APPEAL

RIMFROST AS,
Petitioner,

v.

AKER BIOMARINE ANTARCTIC AS,
Patent Owner.

IPR2020-01532 (Patent 9,644,169 B2)

IPR2020-01533 (Patent 9,816,046 B2)

INSTITUTED GROUNDS

US PAT NO 9,644,169 ('169 Patent)

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Ground	References	Basis	Claims Challenged
1	Breivik II, Catchpole, Budziński, Fricke, Randolph	35 U.S.C. §103(a)	1-5, 7-15, 17-20
2	Breivik II, Catchpole, Budziński, Fricke, Randolph, Sampalis I	35 U.S.C. §103(a)	6, 16

Ground	References
1	Breivik I, Budziński, Bottino
2	Breivik I, Budziński, Bottino
3	Breivik I, Budziński, Bottino, Sa

All Grounds reply on Breivik I

CLAIMS – ‘169 Patent

1. A method of production of krill oil comprising:

- a) providing krill;
- b) treating said krill to denature lipases and phospholipases in said krill;
- c) storing said denatured krill product for a storage period of from 1 to 24 months; and
- d) after said storage period, extracting oil from said denatured krill product

oil with from about 3% to about 15% ether phospholipids w/w of said krill oil and an amount of about 100 mg/kg of said krill oil.

4. The method of claim 1, wherein said denatured krill product is a krill meal.

12. A method of production of krill oil comprising:

- a) obtaining a denatured krill product produced by treating freshly harvested krill to denature lipases and phospholipases in said krill and that has been stored from 1 to 24 months; and
- b) extracting oil from said denatured krill product that has been stored with a solvent to provide a krill oil with from about 3% to about 15% ether phospholipids w/w of said krill oil and an amount of greater than about 100 mg/kg of said krill oil.

CLAIMS – '046 Patent

1. A method of production of krill oil comprising:

obtaining a krill meal produced by a process comprising treating krill to destroy the activity of lipases and phospholipases naturally present in krill and wherein said krill meal has been stored from 1 to 36 months; and

extracting krill oil from said krill meal that has been stored from 1 to 36 months to provide a krill oil with greater than 30% phosphatidylcholine w/w of said krill oil and astaxanthin.

13. A method of production of *Euphausia superba* krill oil comprising:

a) obtaining a *Euphausia superba* krill meal produced by a process comprising treating *Euphausia superba* krill to destroy the activity of lipases and phospholipases naturally present in *Euphausia superba* krill meal has been stored from 1 to 36 months; and

b) extracting *Euphausia superba* oil from said krill meal that has been stored from 1 to 36 months with a polar solvent to provide a *Euphausia superba* krill oil comprising greater than 30% phospholipids w/w of said *Euphausia superba* krill oil, less than 3% free fatty acids w/w of said *Euphausia superba* krill oil, and less than 0.5% astaxanthin w/w of said *Euphausia superba* krill oil.

CLAIMS – Key Features

- **Starting material: Denatured krill product (which can be krill meal) through a denaturation process which destroys activity of lipases and phospholipases.**
- **Storing the denatured krill product/krill meal for from 1 to 24 months.**
- **Extracting krill oil containing phospholipids from the stored krill product using a non-polar solvent.**

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