



Regenerate Neighborhood



From Rancid to Revolutionary: Solving the Omega-3 Crisis with VIRUN[®]'s O3Omega[®] Smoothies

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From Rancid to Revolutionary: Solving the Omega-3 Crisis with VIRUN[®]'s O3Omega[®] Smoothies



Philip Bromley
CEO & Co-Founder
VIRUN

From Rancid to Revolutionary:

Solving the Omega-3 Crisis with VIRUN®'s
O3Omega® Smoothies



PRESENTED BY PHILIP BROMLEY



Two Critical Issues



SHRINKING BRAIN

Since the 1950s the average Western IQ has dropped by 8 points, coinciding with a big increase in mental illness. Linked to a reduction in fish consumption. --Dr Michael Crawford, Imperial University



EPA & DHA OXIDIZES

A high percentage of mainstream fish oil capsules have gone off before the consumer eats them.

Introduction



Philip Bromley, CEO & Co-Founder of Virun Inc. and Co-Founder O3Omega®

O3Omega® Smoothies are a delicious range of lipid encapsulated Omega 3s.

Virun® specialize in formulating and co-manufacturing lipid emulsions which truly look to improve health.



What do we do?



EFFICACIOUS

DELICIOUS

BIOAVAILABLE





The Problems



01

Oxidized Fish Oil

Omega 3 DHA oxidizes easily and can have a detrimental impact on health.

02

Non-bioavailable Supplements

Powder supplements for nutrients which require fats for absorption are not absorbed in the body.

03

Flavor

Many supplements are not palatable.



What's the deal with fish oil?

Did you know?

Oxidation of fish oil exacerbates alcoholic liver disease by enhancing intestinal dysbiosis in mice

What are the risks of fish oil supplements?

Some studies have found that potent fish oil supplements can put people at higher risk of atrial fibrillation - an irregular heartbeat that **can lead to** blood clots, stroke and heart complications. One trial of 13,076 patients **was halted in 2020** “based on evidence of a low chance of clinical benefit and a statistically significant increase in atrial fibrillation”.

, [Meng Wang](#), [Conghui Liu](#), [Rujie Yang](#), [Huanxing Su](#), [Yan Yang](#) & [Jian-Bo Wan](#)

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[21](#) 



Oxidation of Marine Omega-3 Supplements and Human He

> [Nutrients](#). 2019 Apr 18;11(4):872. doi: 10.3390/nu11040872.

Oxidative Stress and Non-Alcoholic Fatty Liver Disease: Effects of Omega-3 Fatty Acid Supplementation

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HEALTH • DIET & NUTRITION

Why Fish Oil Supplements Can Be Dangerous
for the Heart

Wonder drug or waste of money? The truth about fish oil supplements

Fish oil may increase risk of heart conditions and stroke, study finds

Susceptible to oxidation



Problem

The Omega 3 DHA found in fish oil is highly volatile to temperature, processing and environmental fluctuations, which can lead to oxidized, rancid fish oil. Capsules block our ability to smell or taste the potential oxidation.

“Free radicals, toxic aldehydes and reactive oxygen species are all byproducts from lipid peroxidation (oxidized fats) that work in unison to wreak inflammatory havoc on our metabolic, neurological and cardiovascular health.”*

Research has shown how oxidized Omega 3s from fish oil are so inflammatory that they can cause fatty liver disease in mice!

Benefits of **non-oxidized** Omega 3 DHA can reverse fatty liver disease, improve children's cognitive test results, optimize eye health and brain development, reduce cardiovascular risk and reduce symptoms of postnatal depression in women.

Fish oil costs are increasing, it is not a sustainable ingredient and can be contaminated with toxins, chemicals and PCBs.

*Matsuo N. Studies on the toxicity of fish oil.
The Journal of Biochemistry. 1954;41:481-487



Oxidation Testing in Fish Oil Supplements – Limitations and Risks

Most fish oil softgel manufacturers only test for Peroxide Value (PV) and p-Anisidine Value (p-AV) to assess oxidation.

PV measures unstable primary oxidation products (lipid hydroperoxides), while p-AV measures certain secondary aldehydes formed during degradation.

The problem:

1. **PV and p-AV can decline over time** as oxidation progresses, not because the oil is fresher, but because hydroperoxides and reactive aldehydes are breaking down into **more harmful byproducts**.
2. These byproducts include volatile aldehydes and ketones (e.g., propanal, 4-hydroxy-2-hexenal, 4-hydroxy-2-nonenal, 2,4-heptadienal) — compounds linked to mutagenicity, DNA damage, non-alcoholic fatty liver disease (NAFLD), and cardiovascular disease.
3. **Softgel manufacturers and brands often market low PV/p-AV values as a “good” thing, exploiting the fact that these lower readings can actually mean the oil has progressed further into dangerous oxidation stages.**
4. A fish oil can “pass” PV/p-AV specs yet still contain high levels of these damaging compounds.

Better detection methods include volatile profiling (GC-MS for propanal and 1-penten-3-one), specific aldehyde quantification (LC-MS/MS for 4-HHE), and conjugated diene/triene UV absorbance — all of which detect rancidity beyond PV/p-AV's reach.

References

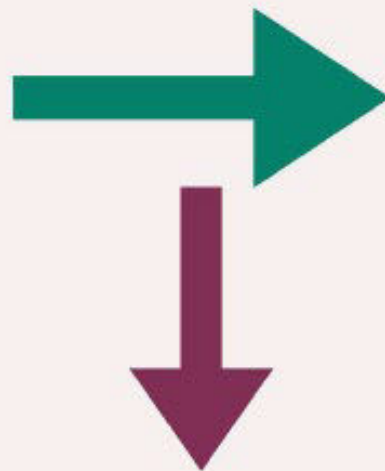
1. Jernat, A., et al. (2019). Oxidation biomarkers in fish oil supplements. *Food Research International*, 118(2), 1459-1467.
2. Truett, R. A. (2015). *Food Chemistry: Principles, Procedures, and Practices*.
3. Shetty, K., et al. (2018). Identification of oxidation products in fish oil by GC-MS and LC-MS/MS. *Journal of Food Science*, 129(10), 1759-1765.
4. Shetty, K. S., et al. (2019). Fish oil supplements in the United States: nutrient content and potential oxidative stability. *Food Research International*, 118(2), 1459-1467.



Oxidation Testing in Fish Oil Supplements

PV and p-AV

- Primary oxidation products
- Certain secondary oxidation products



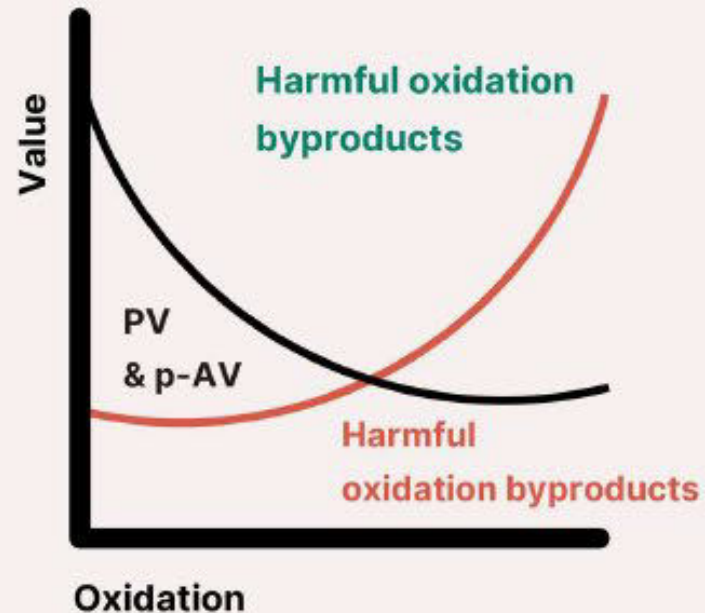
Advanced Oxidation Markers

- Volatile aldehydes (propanal)
- 4-Hydroxy-2-hexenal
- 4-Hydroxy-2-nonenal
- 2,4-Heptadienal

Detect rancidity beyond PV and p-AV

These oxidation byproducts — aldehydes like propanal, 4-HHE, 4-HNE, and 2,4-heptadienal — are mutagenic, pro-inflammatory, and linked to NAFLD and CVD, yet are not part of required QC testing

Most fish oil testing stops at PV & p-AV



The real problem:

- PV & p-AV can drop as oils oxidize-not because they're fresher, but because they're converting into more harmful compounds.
- These byproducts (propanal, 4 HHE, 4.N-heptadienal) are **mutagenic**, and linked to DNA damage, NAFLD, cardiovascular disease.
- Low PV/p-AV can be misleading - and some brands exploit this as a 'quality' claim.
- Oils can pass specs yet still be biologically rancid

Better Testing: Volatile aldehyde profiling (GC-MS), 4-HHE quantification (LC-MS/MS, conjugated diene/triene UV

In Summary

Mother Nature made rancid salmon smell awful for a reason...

It's basically nature's way of yelling: *"Don't eat this!"*

So why is rancid, stinky fish totally unacceptable at the dinner table...

...but somehow "premium quality" when it's hidden in a softgel?

**BECAUSE IF YOU CAN'T SMELL IT...
IT'S OBVIOUSLY FRESH**



NO WAY!



**TOTALLY FINE...
APPARENTLY**

Solution

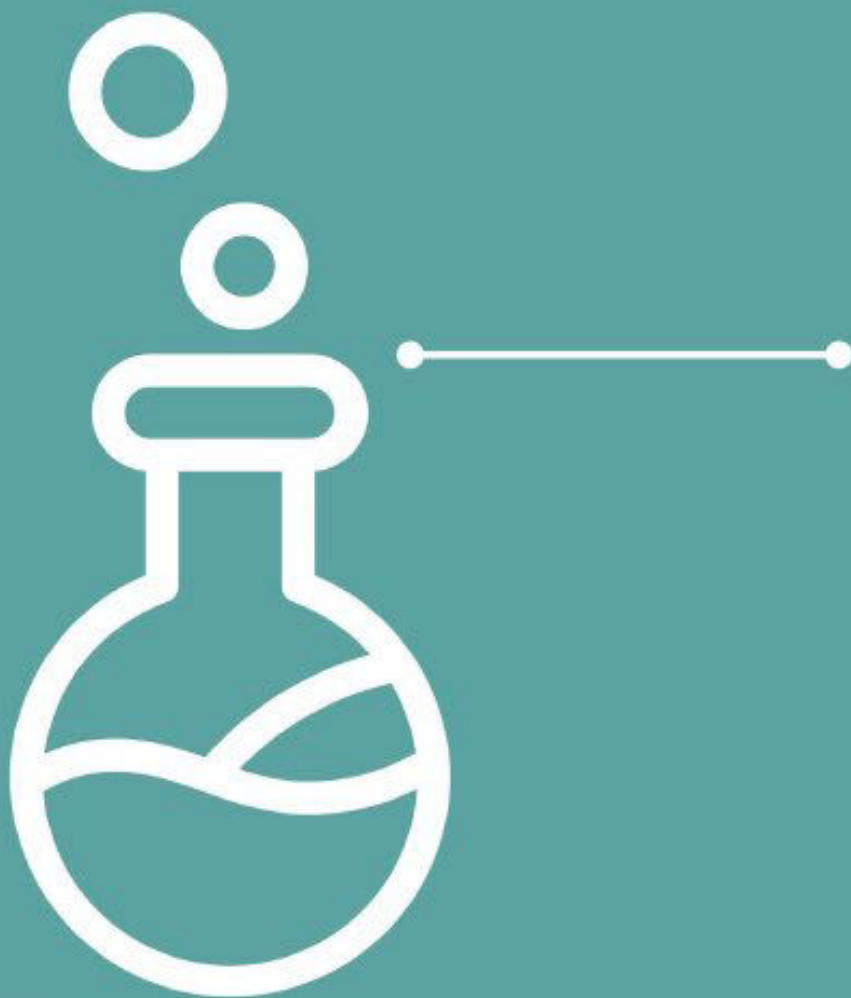
EPA and/or DHA Omega 3



O3omega® uses, patented Virun® technologies, including our patented bicarbonate downstream process to keep the Omega 3 from oxidizing.

- We start with oil (DHA or EPA/DHA) that isn't oxidized.
- Process with patented technology that protects the oil from oxidation.
- Freshness of the oil is maintained for the duration of the shelf life.





Solution

Bicarbonate Downstream Process

Bicarbonate downstream process deodorizes chemicals that would otherwise have strong odors and to and remove oxidative contaminants.

Just the way you can use bicarbonate of soda in your fridge to deodorize it.

We therefore do not need to use potentially toxic preservatives.



Patents & Processes

PURE VEGAN ALGAL DHA

CO₂-extracted,
frozen &
nitrogen-
protected

CREAMY EDIBLE EMULSIONS®

Our Creamy
Edible Emulsions®
patent allows
supplements to
taste more
delicious.

BICARBONATE DOWNSTREAM PROCES

Allows us to
deodorise, purify
and improve the
smell and flavour
profile of
nutrients without
the need for
preservatives.

DI-IONISE WATER

Di-onize water is
used in the polar
phase to produce
the
Liposomal/Micelle
emulsions.

NITROGEN FLUSHING

Displace oxygen
in the head space
of the bottle or
pouch. Then
Nitrogen Liquid
dosing is used to
remove dissolved
oxygen in the
bottle or pouch.

WHAT ARE O3OMEGA[®] SMOOTHIES?

A delicious range of smoothie-style supplements in an almond butter base, where natural fats (lipids) encase key nutrients.

Made without
sweeteners
artificial flavours
preservatives
or added sugars

OMEGA 3s
in fun flavors!
Improving absorption
and taste.





Get Emulsified!

Our technology, patents and innovative approaches solve some major problems in the supplement industry—pertaining to oxidized fish oils, unhealthy preservatives and unpalatable, ineffective supplements.

Avoid these pitfalls and liquify bioavailable and delicious supplements with us!



QUESTION EPA AND DHA
OMEGA 3 SUPPLEMENTS

1

2

THINK BIOAVAILABILITY

I want us to

HELP YOUR CLIENTS
ENJOY HEALTH

3

4

GROW BRAINS
TOGETHER





Thank you!

SAY HI ON BOOTH **1424**

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