



The ingredient with
ozone tailored for
your cosmetic and
pharmaceutical
products



nanakogoods



PeroxiBiokey®

PeroxiBiokey® includes a wide range of patented, very high quality and unique Ozonated Oil products which are:

- ✓ Lighter
- ✓ More stable
- ✓ Provides more skin-penetration capability than the vast majority of other ozonated oils

PeroxiBiokey® provides powerful **antiseptic, healing, regenerating and antioxidant properties**, that are very difficult to find in one single product.

Its **key properties** include:

Bactericide

Even the most resistant bacteria cannot withstand the breakdown of their cellular osmosis and die¹.

Fungicide

Through the destabilization of their lipid membrane, fungal cells die².

Virucide

The oxidative effect on structural proteins and lipids of the viruses impedes their life cycle³.

Healing

Cells get the oxygen they need to make ATP and recover⁴.

Antioxidant

Free radicals are stabilized and H₂O₂ activates antioxidant enzymatic pathways⁵.

Bacterial flora

Invasive bacteria die, the flora itself has genetic and innate recovery capacity⁶.

It is, of course, **totally safe**⁷ as its use is **scientifically and medically proven**.

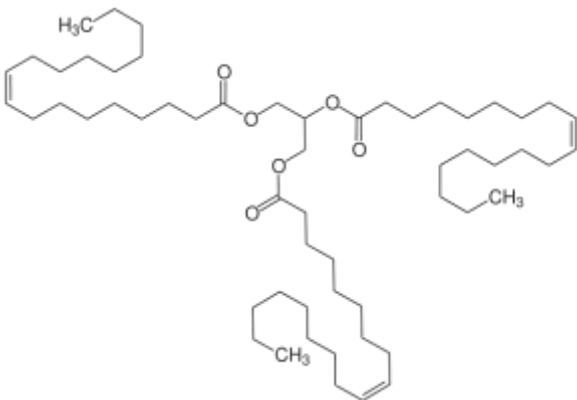
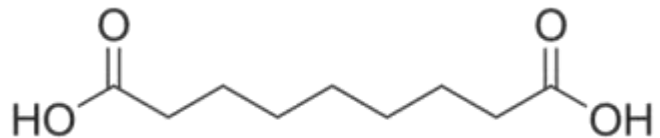


Additionally, structural analysis of PeroxiBiokey® confirms the presence of molecules such as **Trioleins⁸** and **Azelaic Acid⁹**, which are **not present in other ozonated oils**.

Azelaic acid

Present in many whole grains, it can be beneficial for **restoring levels of glucose** as well as having **numerous benefits in cosmetics**.

In topical applications, azelaic acid causes **minimal skin irritation** compared to other compounds.



Trioleins

The main component of human body fat and an important component of human skin oil.

These fatty acids are the best for **regenerating, moisturising, nourishing and soothing the skin** as they are the same oils that are **generated naturally** by our skin.



Applications of PeroxiBiokey®

Due to its properties, PeroxiBiokey® is used as a key active ingredient in many different applications:



PeroxiBioKey® Ozonated Oils are available in a wide range of **Peroxide Values (PV) of 50 – 1,500 mEqO₂/kg**. Each specific application and use has an optimum PV that will ensure the best results.



Our Manufacturing process

PeroxiBiokey® is obtained through the controlled diffusion of filtered ozone gas over top-quality 100% natural oils.

The process takes place in a **controlled, stable environment of temperature, pressure, relative humidity and diffusion rate.**

The low processing temperature used guarantees the quality and consistency of PeroxiBiokey® Ozonated Oils both from batch to batch as well as within each batch.

We have developed an **automatic diffusion control** that adjusts the critical parameters all throughout the ozonation process. For example, at the beginning of the process there are many double bonds that need to be broken. However, the diffusion rate and the process must be adjusted over time so as not to ruin the batch and generate volatile molecules. This is **not possible in most commercial production processes.**

The production process as well as the PeroxiBiokey® Ozonated Oils produced (also referred to as: peroxidised oil, ozone oil or ozonized oil) are **patented and unique.**

Thanks to the patented and proprietary production process and techniques, we can **control the presence and strength of different substances and molecules** in PeroxiBiokey® to **optimize the final product properties.**





Some of the oils we use are **olive oil** (*Olea europaea*) and **sunflower seed oil** (*Helianthus annuus*). Others include oils such as jojoba, macadamia or any other depending on the desired final product properties.

Our products are:



Most commercial production processes that are used to produce ozonated oil operate at **temperatures above 60°C, degrading and denaturing the oil.**

Typically, steel diffusers and other materials are used in the tank and are in direct contact with the oil, which **generates harmful compounds.**

Each batch has a **different molecular structure** since the **diffusion is not uniform** and oil in different areas of the tank ozonizes at different rates. In addition, the diffusion rate is generally not always controlled.


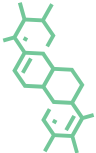






PeroxiBiokey®'s patented process avoids all these issues.



How are we different?

Key differences between PeroxiBiokey® and other commercial products available on the market.

Characteristic	PeroxiBiokey®	Other ozonated oils	Differences
Production process temperature 	T_{low} °C	>60 °C	Oils degrade significantly at higher temperatures (above 60°C). Lower temperature means less degradation. PeroxiBiokey® does not produce the odour typical in other ozonated oils. It smells oxidized but not rancid or denatured.
Molecular compounds present 	Trioleins, azelaic acid, triglycerides of different fatty acids, ozonides, hydroxyl-hydroperoxides and aldehydes.	Hydrogen peroxide, unstable ozonides, triglycerides of different fatty acids, ozonides, hydroxyl-hydroperoxides, aldehydes.	Trioleins and azelaic acid are only present in PeroxiBiokey® Ozonated Oils.
Volatile components 	Does not contain volatile ozonides.	Volatile ozonides present.	The absence of volatile ozonides results in more stable molecular structures.
Batch to batch consistency 	Reproducible, controlled & stable manufacturing process results in batches with identical properties. PeroxiBiokey® is 100% homogeneous.	Due to the manufacturing processes used, there is significant batch to batch variability. Also, the product is not homogeneous even within each batch.	Minimal batch variability results in very consistent properties and a stable formulation in the final product.
Production process control 	Fully controlled process and key parameters allows for very precise control over peroxidation rate and final product properties.	Uncontrolled peroxidation.	A controlled production process and its parameters allows for greater reproducibility , a greater range of PVs* as well as very precise control over final product PV . This results in tailored-product properties for different end uses and applications.
Types of different oils that can be ozonated 	Due to the very low processing temperature, any oil can be ozonated.	Production process and temperature limits the types of oils which can be ozonated.	The more oils that can be used, the wider the range of properties, possible end products and their applications.



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⁸ Trioleins

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