



EPOCH
ESSENTIAL OILS
SCIENCE



A NATURAL PROGRESSION

Developing essential oils at Nu Skin couldn't have been a more natural endeavor. Ever since Nu Skin acquired Pharmanex in 1998, we have been combining the natural benefits of plants with the latest pharmaceutical science to bring out the best in natural products. Nu Skin has an extensive understanding of botanicals—from identifying the best natural components and determining optimal potency to delivering the purest forms in our products.

Nu Skin's experience with botanicals comes from our Epoch product line. We began partnering with world-renowned ethnobotanist Paul Cox when we created the Epoch product line in 1996. Epoch products feature efficacious plant wisdom from indigenous cultures. With Epoch Essential Oils, we consulted with Dr. Cox and leveraged his expertise to help select the pure botanicals found in our single oils and blends.

Due to our experience with botanicals, we already had all the equipment, quality control processes, experts, and tools in place to develop high quality essential oils. We believe we are among the very best at delivering consistent products free of contaminants and pollutants without harming the environment.



EPOCH ESSENTIAL OILS ARE PURE GRADE

Epoch Essential Oils are of the purest, most natural quality. Our products are Pure Grade essential oils—an industry standard that expert distillers give to products made with the highest-quality plants. The term “therapeutic grade” is a marketing term some companies use to designate quality. Nu Skin chooses to follow the U.S. Food and Drug Administration’s guidelines to not designate essential oils as products used for therapy.





STATE OF THE ESSENTIAL OIL INDUSTRY

The industry is in an interesting position at the present time. At times there are shortages of the desired crop for essential oils, which leads those who are unethical to substitute or adulterate the oils that they are selling to unsuspecting essential oils consumers.

Consumers want quality essential oils and are confused at the many claims of pure, therapeutic, or other marketing claims to represent the quality of the oils. The FDA and FTC have inserted themselves into this line of products and continue to address specific concerns with companies in this industry.



NU SKIN'S APPROACH TO ESSENTIAL OILS

From the beginning, we have approached the creation and manufacture of these oils with the quality and integrity of the products in mind. We worked to find a reputable supplier of oils that adds additional value through their own processes and has the technical capability to ensure the quality and value of the oils they are selling.

Part of the supplier selection process involved us auditing them and appropriately setting expectations for our standards. In addition, we adhere to our strict standards of the 6S Quality Process, paying attention to critical parameters. These parameters help to ensure the quality of our oils. For example, Nu Skin packages Epoch Essential Oils in amber glass vials because essential oils are sensitive to light, as it can affect the stability of the oils. Amber provides the best UV protection from product deterioration in sunlight compared to all other alternatives.





We are committed to ensuring that every ingredient comes from an ethical and honest source, without exception. For example, one of our essential oils comes from a prized ingredient, making it expensive to source. Nu Skin takes strides to ensure we are ethically sourcing this oil, even when cheaper, less ethical supply chains are available. We opted to use a product with better quality to provide transparency in our supply chain. **This also ensures that we are not enabling potentially corrupt individuals to profit from doing business with Nu Skin.** This choice may have made the price higher than it could be, but Nu Skin felt strongly about doing so as an ethical company. If finding another source became necessary, we would not budge on our ethical values, even if it meant facing a temporary stock out.





6S QUALITY PROCESS

Epoch Essential Oils carry the 6S Quality Standard. This means they have been developed and manufactured according to Nu Skin's 6S Quality Process.

SELECTION Nu Skin carefully considers each essential oil and each must pass criteria for its ability to deliver the intended benefits, suitability for formulation, and safety.

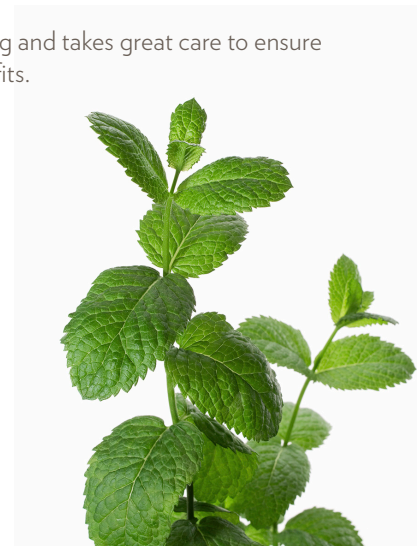
SOURCING Nu Skin seeks out the finest sources for the selected oils and works with qualified partners and trained perfumers who can guarantee availability and quality as they oversee the growing, distillation, and extraction of each essential oil. This helps protect against shortages, substitutions, adulterations, and quality concerns. We audit our supplier constantly to be sure our standard is met.

SPECIFICATION Through every step of the manufacturing process—from the raw ingredient level, to when we receive it from the manufacturer, to the finished product—Nu Skin sets specific standards for quality, safety, and efficacy. This helps provide consistency among our essential oils, from batch to batch, vial to vial.

STANDARDIZATION Nu Skin ensures each essential oil in the Epoch line has the inherent or biologically correct level of naturally occurring plant constituents. Through careful monitoring and testing, we ensure the proper identity and consistency of each product.

SAFETY Nu Skin reviews current scientific literature and conducts standard safety studies to make sure every essential oil is safe to use as directed.

SUBSTANTIATION Nu Skin performs aroma profile testing and takes great care to ensure that each Epoch Essential Oil will deliver the intended benefits.



SENSORY EXPERIENCE

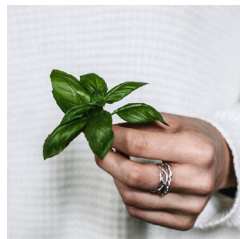
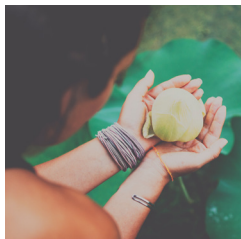
As we selected our essential oils, the primary driver for their use would be the sensory experience. We call this the **organoleptic properties of the oil**. This is just one of the critical parameters that we utilize to verify the quality of the oils. Building on our knowledge and experience in botanicals, we knew that it was important to find sources for the oils that met our criteria.



SELECTING A SUPPLIER

We selected a partner who has extensive experience in essential oils and has the technical capabilities to meet our requirements for testing. In addition to their technical capabilities, they also have trained perfumers with vast experience in organoleptic evaluation of the oils for quality. Our supplier's testing combined with our own provides exceptional quality control.

It is a tremendous advantage that we work with a supplier who partners with farmers in many countries. These farms supply documentation outlining product specifications for harvesting, storing, timing of distillation, labeling, and container compliance for every product.

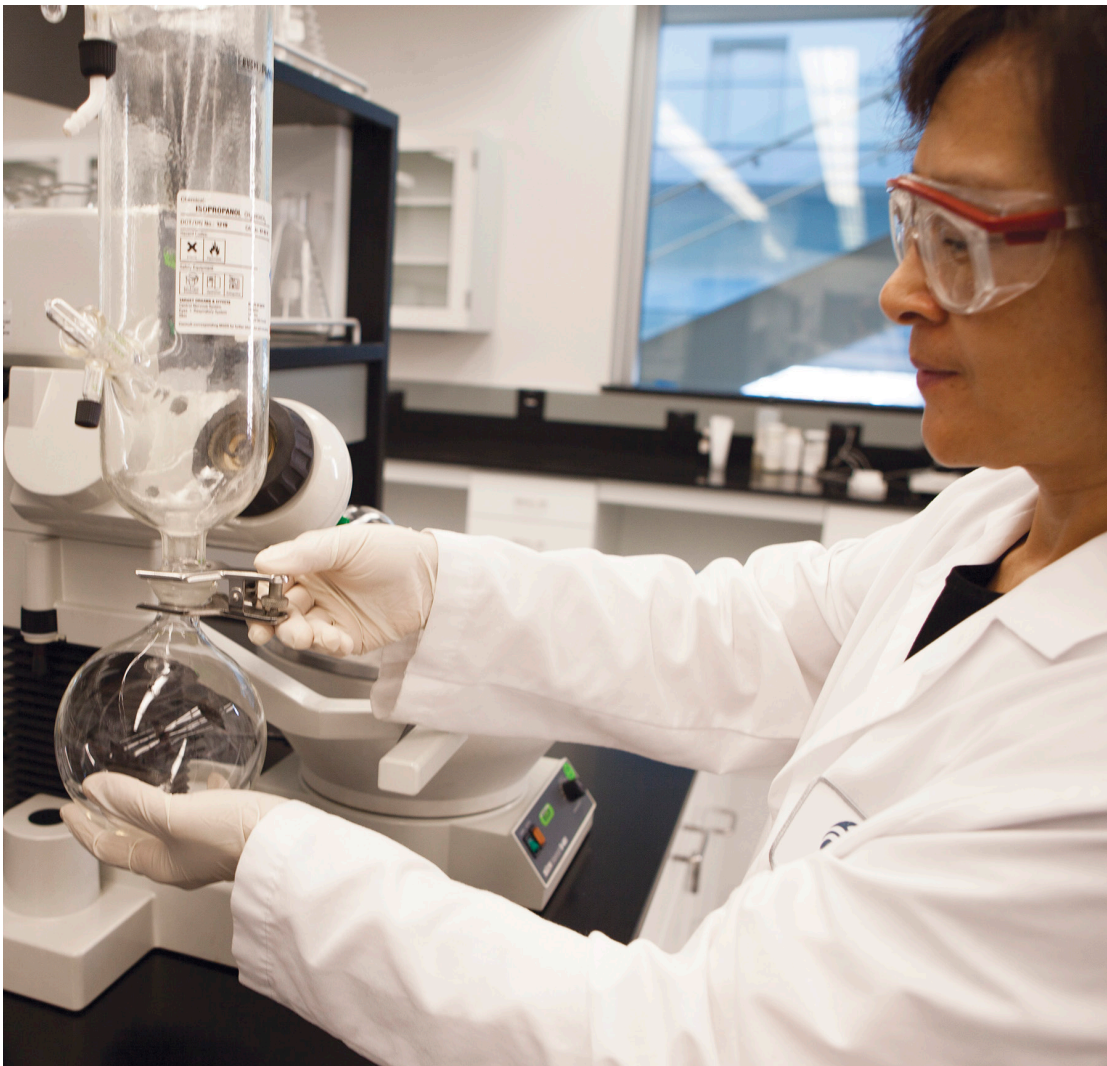




TESTING EPOCH ESSENTIAL OILS

Nu Skin uses a combination of testing methods to establish the authenticity and purity of our essential oils. This combination of tests ensure that our products are of the quality we claim and provide the sensory experiences that we expect. Batches of essential oil that differ in quality may sometimes look the same chemically but smell quite different from one another. They may also smell very similar but look different chemically. By being able to test each batch of oil in multiple ways, we avoid any pitfalls that may result in using a lower quality product.





TESTS PERFORMED ON EPOCH ESSENTIAL OILS

GC/MS (Gas Chromatography/Mass Spectrometry)

GC/MS profile and peak identification is an advanced method for determining the correct profile for the oils and blends. In addition, it can be used to test for the presence of compounds such as pesticides and residual solvents. This analysis helps us identify suitable, pure essential oils for our products.

ICP/MS (Inductively Coupled Plasma/Mass Spectrometry)

The ICP/MS can detect almost any element from the periodic table. Using this instrument, we verify that our oils do not contain “heavy metals,” such as lead, mercury, or arsenic, which exist in many natural ingredients.

Organoleptic Evaluation

This is our aroma profile testing where we use expert smellers to verify the proper sensory experience. By combining technological and human testing, we are able to provide consistent, high quality essential oils.

Specific Gravity

The specific gravity of an essential oil or oil blend is the measure of its density as compared to water. Each oil and oil blend has known ranges of specific gravity that help us to assess the purity and authenticity of the essential oils.

Refractive Index

This is a measurement of how much the light bends when passing through the oils. This is measured using a refractometer and the results are compared to the values from known authentic standards.



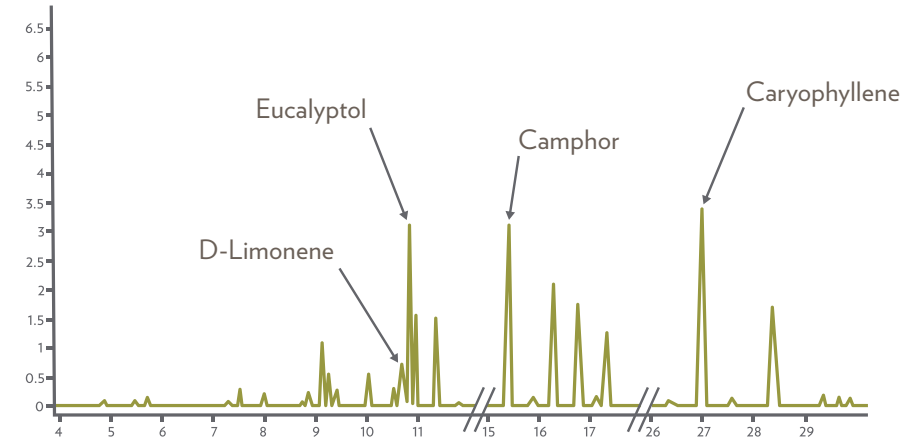
RAW INGREDIENT SELECTION

Here is an example of how our GC/MS testing capabilities help us assess the identity and quality of the oils we are sourcing. In this example, we examined two different sources of lavender oil. It was obvious from testing that one of the oils did not meet the known profile for high quality lavender oil. In this case, it is likely that a lower grade oil, lavandin, was represented as lavender oil. Lavandin produces much more essential oil per acre than lavender does, and as a result it is less expensive. Some companies are tempted to use it to cut the expensive lavender and achieve a lower price point than is realistic for high quality lavender essential oil. Nu Skin rejected the lavandin and stuck with the higher quality oil.

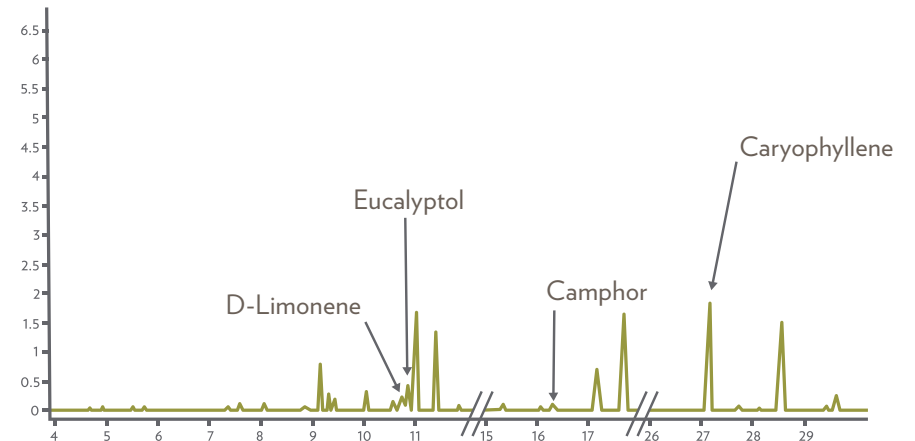
The peaks in the chromatogram are the individual components separated from the oil. The peaks in the chromatogram should match the profile of known reference oils within allowable ranges. As seen in these chromatograms, some of the peaks for the inferior product were higher than the Bulgarian Lavender. This does not mean that it was better. The differences are subtle, but our testing could easily detect them. What was important from this testing was that key individual compounds known to be in lavandin at higher levels were detected, leading us to reject this ingredient.



Bulgarian Lavender



Less Expensive Raw Ingredient (Lavandin)



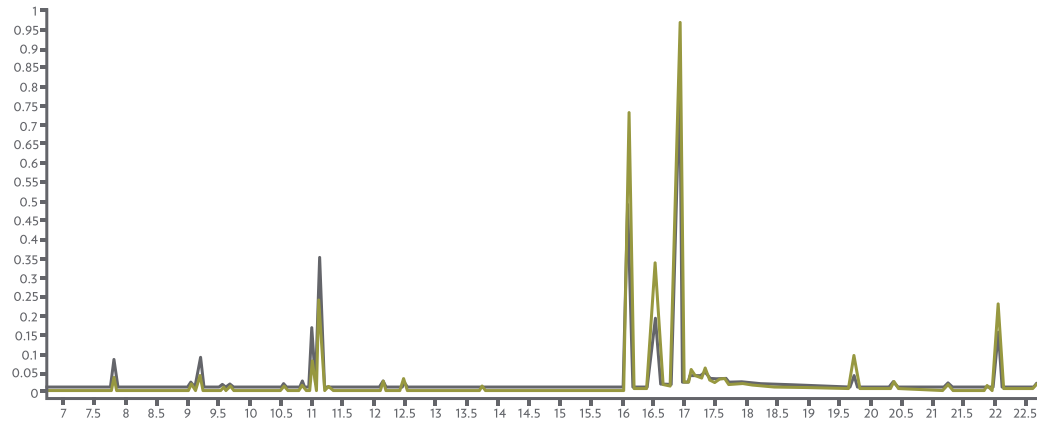


Here is an example of a product where two different batches from the same company had distinct and different aroma profiles. The variations in the peak heights and ratios are subtly different. But due to our sensitive testing methods, with proper specifications and a trained analyst, we can identify these differences. In this case, someone with a trained nose could also differentiate these two batches from one another, validating our tests.

Peppermint Essential Oil

Lot A ■

Lot B ■



Additional Testing

Our own analytical capabilities allow us to do analyses that are not available in-house to some of our competitors or at the same level of sophistication as we have available to us. Additionally, our experience in natural products allows us to ask for testing and evaluation that are not common in the industry. We require contaminant testing that is not usually performed due to the expense and complexities of testing. We also place these products through the same level of safety testing that we require of all of our personal care products.

We continue to improve our testing by building databases and performing specialized testing on aroma compounds to profile our essential oils in a unique way to ensure consistency and uniformity of the product. This further substantiates the product beyond the organoleptic substantiation of the quality of the product.





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