

61012.

AC Melatonin Liposome SF

Pro-Aging
Skin Soothing
Antioxidant



VEGAN



SEPHORA
CLEAN



CREDO
CLEAN



COSMOS
COMPLIANT



ISO 16128



THE FEATURES. _____

Beauty sleep has long been considered nature's ultimate beauty treatment, inspiring generations of consumers to wake up looking refreshed and radiant. As interest in overnight skincare continues to grow, brands are seeking innovative ways to support the skin during its natural period of recovery and renewal. AC Melatonin Liposome SF brings the concept of "beauty sleep, bottled" to life through grape-derived melatonin delivered in an advanced liposomal system.

INCI: Water & Phospholipids & Melatonin

TECHNICAL DATA SHEET.

AC Melatonin Liposome SF

THE STORY.

Beauty sleep has long been considered nature's ultimate beauty treatment, but today's consumers are increasingly recognizing that what happens overnight can be just as important as the products used during the day. While skin spends daylight hours defending itself against environmental aggressors such as UV exposure, pollution, and daily stress, nighttime provides a critical window for recovery. During sleep, the skin naturally shifts from protection to repair, supporting processes associated with renewal, restoration, and visible rejuvenation. As a result, overnight skincare has become a growing focus for brands looking to support healthy-looking, radiant skin.

AC Melatonin Liposome SF brings the concept of "beauty sleep, bottled" to life through grape-derived melatonin delivered in an innovative liposomal system. Known for its role in regulating the body's sleep-wake cycle, melatonin has also garnered interest for its involvement in skin regeneration and antioxidant activity. By combining this naturally occurring molecule with advanced delivery technology, AC Melatonin Liposome SF offers brands a sophisticated ingredient for formulations inspired by overnight recovery, revitalization, and skin resilience.



THE SCIENCE.

Melatonin exerts anti-inflammatory activity through the regulation of key inflammatory signaling pathways. Research suggests that melatonin inhibits the nuclear translocation of nuclear factor-kappa B (NF- κ B), a transcription factor responsible for promoting the expression of pro-inflammatory mediators.¹ By suppressing NF- κ B activation, melatonin may help reduce the production of inflammatory cytokines, including interleukin-6 (IL-6).¹ Additionally, melatonin has been shown to modulate inflammatory responses through the downregulation of 5-lipoxygenase activity and a reduction in leukocyte migration, helping to limit chronic inflammation.¹

In addition to its anti-inflammatory activity, melatonin is recognized as a potent antioxidant. Melatonin directly scavenges reactive oxygen species and reactive nitrogen species, while simultaneously stimulating endogenous antioxidant defense systems through increased activity of enzymes such as superoxide dismutase, catalase, and glutathione peroxidase.^{1,2} Melatonin and its metabolites have also been found to help protect cellular lipids, proteins, and DNA from oxidative damage and support mitochondrial stability under conditions of oxidative stress.²

These antioxidant and anti-inflammatory activities are particularly relevant to skin aging, as oxidative stress, chronic inflammation, mitochondrial dysfunction, DNA damage, and extracellular matrix degradation are all recognized contributors to wrinkle formation.³ Melatonin has been shown to support pathways involved in DNA repair, mitochondrial function, and extracellular matrix homeostasis while limiting oxidative and inflammatory damage.³ *Ex vivo* research in aged human skin has demonstrated that melatonin can influence multiple molecular biomarkers associated with skin aging, including proteins involved in dermal matrix maintenance and collagen homeostasis.³ By helping protect the structural components of the skin from age-related damage, melatonin may support the appearance of smoother, firmer, and more youthful-looking skin.³

While melatonin offers significant antioxidant and skin-supportive benefits, its effectiveness in topical applications depends on maintaining stability and availability at the skin surface. To help optimize performance, AC Melatonin Liposome SF incorporates melatonin within a liposomal delivery system. Liposomes are microscopic vesicles composed of phospholipid bilayers capable of encapsulating active ingredients and are widely used in cosmetic formulations to support the stability and delivery of bioactive compounds. Encapsulation within liposomes may help protect sensitive ingredients from degradation while improving their interaction with the skin, making liposomal technology a valuable platform for the topical application of antioxidant actives such as melatonin.⁴

THE TECHNICAL DETAILS.

INCI. Water & Phospholipids & Melatonin

CAS. 7732-18-5 & 123465-35-0 & 73-31-4

EINECS. 231-791-2 & N/A & 200-797-7

EUROPE. Compliant

USA. Compliant

CHINA. Compliant

Origin. Botanical/Bacteria

Natural Antimicrobial. Lactobacillus Ferment

Preservatives. None

Solvents Used. Water

Appearance. Yellow to Amber Liquid Liposomal Dispersion

THE FORMULATION TIPS.

pH Stability. 4 - 7

Temperature Stability. Stable up to 50°C

Use Level. 1 - 10%

Ionic State. Nonionic

Alcohol Compatibility. Compatible with up to 10% alcohol

Solubility. Water Soluble

Pro Tips. It is recommended that this product is added to the batch in cooldown to maintain appearance

AC Melatonin Liposome SF

THE BENEFITS OVERVIEW.

Skin Soothing IL-6 ELISA (vs non-encapsulated melatonin)



Pro-Aging VISIA: Reduction in Wrinkles



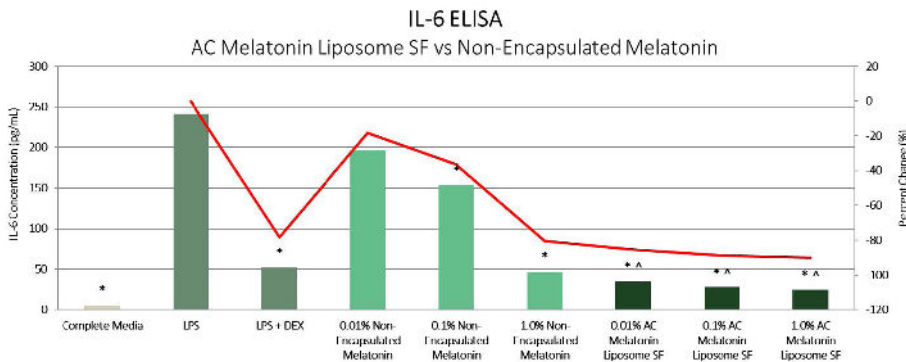
Antioxidant Protection Oxygen Radical Absorbance Capacity (ORAC) Assay



THE EFFICACY.

Skin Soothing

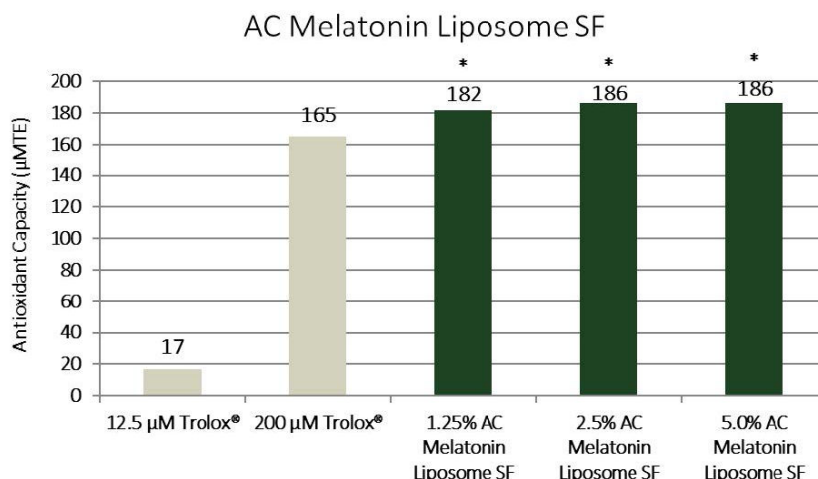
Chronic, low-level inflammation is increasingly recognized as one of the key contributors to visible skin aging. When skin is exposed to environmental stressors and daily oxidative challenges, inflammatory messengers such as interleukin-6 (IL-6) can become elevated. Increased IL-6 levels are associated with biological pathways that accelerate the breakdown of collagen and other essential components of the skin's support structure, contributing to the appearance of fine lines, wrinkles, and loss of firmness over time. By helping to maintain a balanced inflammatory response, cosmetic ingredients that reduce IL-6 may support a healthier skin environment and help preserve a smoother, more youthful-looking complexion. Accordingly, an in vitro Interleukin-6 (IL-6) ELISA was conducted to evaluate the ability of AC Melatonin Liposome SF to modulate IL-6 levels in human dermal fibroblasts. Non-encapsulated melatonin was also evaluated to compare the performance of free melatonin with the enhanced delivery provided by the liposomal system.



Reduced inflammation by -90%

Antioxidant Protection

Oxidative stress is one of the primary factors associated with premature skin aging and environmental skin damage. Daily exposure to UV radiation, pollution, and other external aggressors can increase the formation of reactive oxygen species (ROS), unstable molecules that can contribute to the degradation of key skin components such as lipids, proteins, and collagen. Over time, this oxidative damage may manifest as visible signs of aging, including dullness, uneven skin tone, fine lines, and loss of resilience. Antioxidants help defend the skin by neutralizing these reactive molecules before they can cause damage, supporting overall skin health and a more youthful-looking appearance. Accordingly, the Oxygen Radical Absorbance Capacity (ORAC) assay was conducted to evaluate the antioxidant potential of AC Melatonin Liposome SF. This widely recognized method measures a material's ability to scavenge free radicals and provides an indication of its capacity to help protect against oxidative stress.



Outperformed 200 μM Trolox® at all use levels

AC Melatonin Liposome SF

THE EFFICACY CONTINUED.

Pro-Aging

Wrinkles are among the most visible signs of skin aging and develop as collagen, elastin, and skin renewal naturally decline over time. Environmental stressors, particularly UV exposure, can further accelerate the appearance of fine lines, creases, and loss of skin firmness. Accordingly, an in vivo study was conducted to evaluate the ability of AC Melatonin Liposome SF to improve the appearance of facial wrinkles over a four-week period. Participants applied a base moisturizer to one half of the face and the same moisturizer containing 2.0% AC Melatonin Liposome SF to the opposite half twice daily. Wrinkle appearance was assessed weekly using the VISIA® Complexion Analysis System, which quantified visible wrinkle features to determine treatment efficacy.



**Reduced the
appearance
of wrinkles
by -13%**

References:

1. Cho, Joshua H., et al. "Anti-inflammatory effects of melatonin: A systematic review and meta-analysis of clinical trials." *Brain, Behavior, and Immunity*, 93 (2021): 245-253.
2. Monteiro, K.K.A.C., Shiroma, M.E., Damous, L.L., Simões, M.d.J., Simões, R.d.S., Cipolla-Neto, J., Baracat, E.C., and Soares-Jr., J.M. "Antioxidant Actions of Melatonin: A Systematic Review of Animal Studies." *Antioxidants*, 13.4 (2024): 439.
3. Samra, T., Gomez-Gomez, T., Linowiecka, K., Akhundlu, A., Lopez de Mendoza, G., Gompels, M., Lee, W.W., Gherardini, J., Chéret, J., and Paus, R. "Melatonin Exerts Prominent, Differential Epidermal and Dermal Anti-Aging Properties in Aged Human Eyelid Skin Ex Vivo." *International Journal of Molecular Sciences*, 24.21 (2023): 15963.
4. Lens, Marko. "Phospholipid-Based Vesicular Systems as Carriers for the Delivery of Active Cosmeceutical Ingredients." *Pharmaceutics*, 17.3 (2025): 357.

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