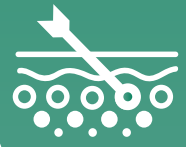


# Vegan DDS Pure Retinal

Deep Delivery Nanovesicles with 1% Retinal

Vegan DDS Pure Retinal\_01

DDS



**123.67%**

RECOVERY  
OF COLLAGEN  
LEVELS

**111.18%**

RECOVERY  
OF ELASTIN  
LEVELS

**HIGH**

MOLECULAR  
STABILITY

 **Ndermal**  
by Nanovex Biotechnologies



Intertek

# Vegan DDS Pure Retinal

**Code:** 20382

**Description:**

RETINAL (1 %) encapsulated in vegan deep delivery nanovesicles (DDS - Deep Delivery System) to add in cosmetic, cosmeceutical or dermo pharmaceutical formulations.


**INCI:**


AQUA, PHOSPHATIDYLCHOLINE, PENTYLENE GLYCOL, MANNITOL, GLYCERIN, POLYGLYCERYL-10 LAURATE, RETINAL, CETYL ALCOHOL, TOCOPHEROL

**Appearance:** Orange. Liquid

**Preservatives:** PENTYLENE GLYCOL




 **1-10%**  
RECOMMENDED DOSAGE


 **98.59%**  
NATURAL ORIGIN\*


**x15**  
LIPOSOME CONCENTRATION  
Up to **15 times greater** concentration than other standard liposome products


**[NANO FREE]** **150-300 nm**  
AVERAGE SIZE

 **Readily Biodegradable\*\***

## APPLICATIONS

  
**Skin care**  
Anti-aging

  
**Skin care**  
Balance

  
**Body care**

· Anti-oxidation · Wrinkles · Elasticity · Firmness · Pigmentation · Cell renewal ·

## CLAIMS

**123,61%**  
recovery of collagen levels (according to efficacy study)

**111,18%**  
recovery of elastin levels (according to efficacy study)

**High molecular stability**



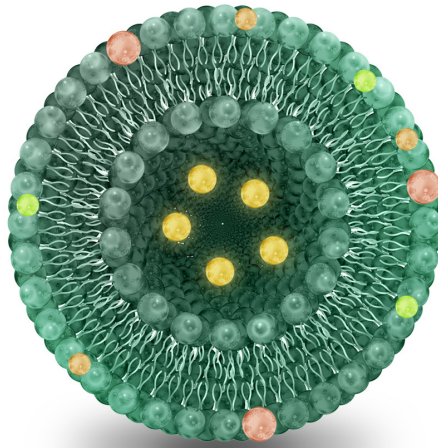
\* According to ISO 16128.

\*\* According to OECD criteria. The biodegradability of this product is calculated from the accumulated biodegradability data of the individual constituents used in the manufacture of this product.

## Certifications



**asi** assurance services international



## Vegan DDS Delivery System

DDS or Deep delivery system is composed of mainly phospholipids and membrane stabilizers. It contains the right amount of penetration enhancers and edge activators that help the system reach the desired cells.

### BENEFITS OF THE ENCAPSULATION VEGAN DDS

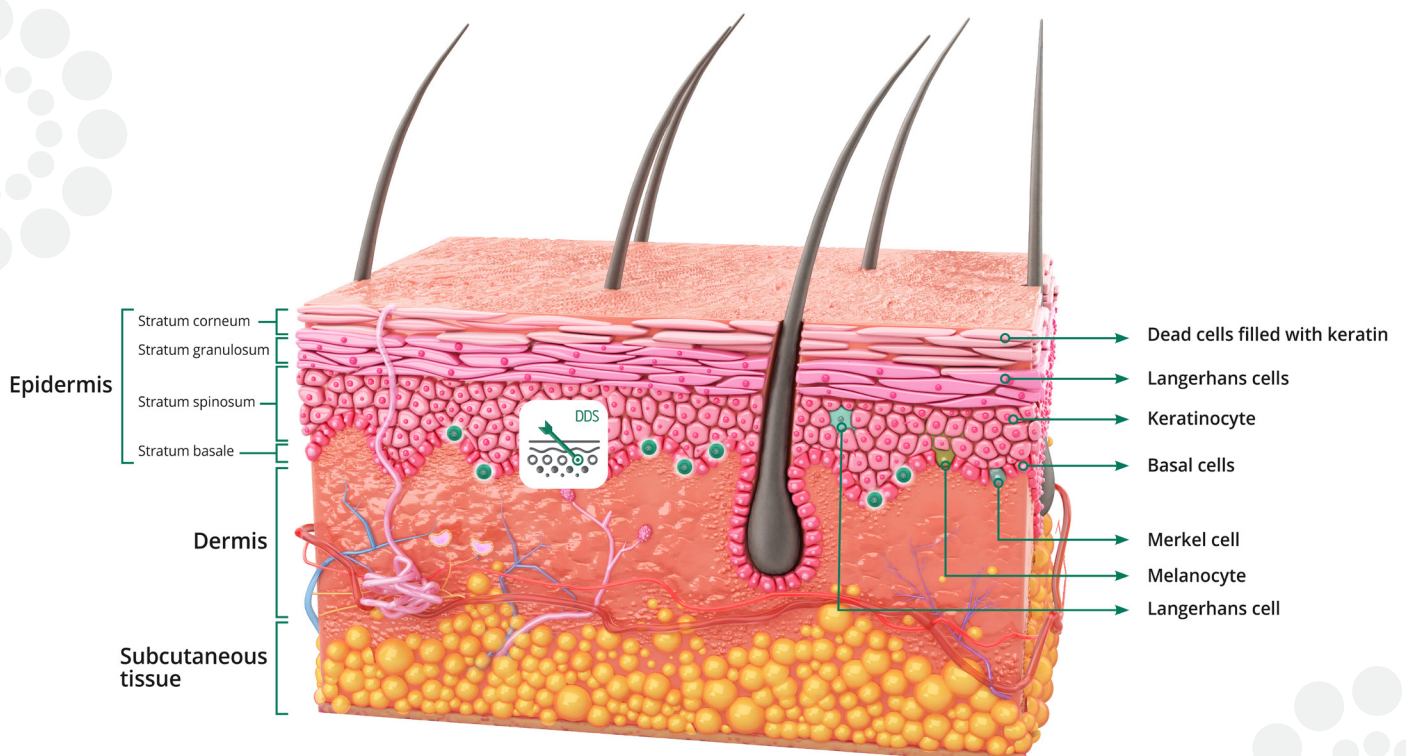
- ✔ Protects active against degradation
- ✔ Maximum delivery of the active ingredient into the deep skin levels
- ✔ Gradual delivery for longer lasting effect
- ✔ Increases the bioavailability of the active ingredient
- ✔ Avoids colour changes in the cosmetic product
- ✔ Biomimetic nanovesicle with high moisturising and restorative action

## Active encapsulated

Retinaldehyde or Retinal (RETINAL) is a precursor of retinoic acid, an intermediate metabolite produced in the transformation of retinol into retinoic acid in human keratinocytes. Retinal is metabolised to retinoic acid in the skin, as well as to retinol and retinyl esters (which usually diminish during photo-aging) and are indicated for use in the treatment of aging signs that require quicker results than those offered by other retinoids used in cosmetics.

### ACTIVE INGREDIENTS PROPERTIES

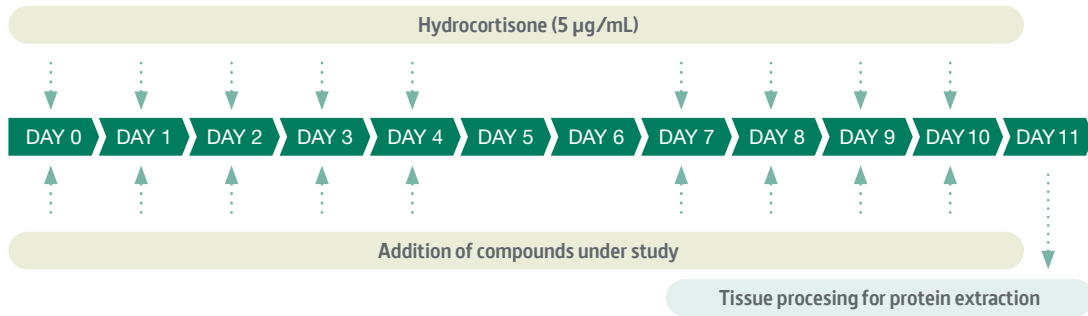
- ✔ Stimulates the production of collagen, elastin and hyaluronic acid
- ✔ Acts as an antioxidant and cell regenerator
- ✔ Minimises pore size and prevents hyperkeratinisation
- ✔ Reduces signs of acne
- ✔ Modulates the vascular endothelium growth factor



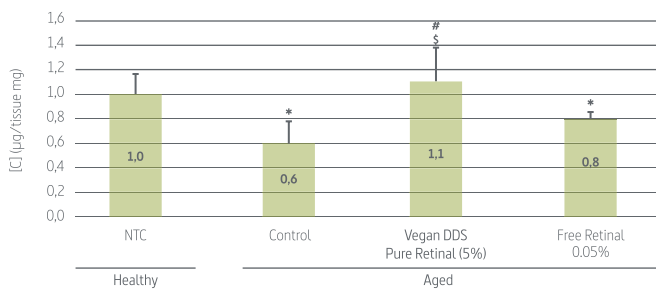


## Proven efficacy

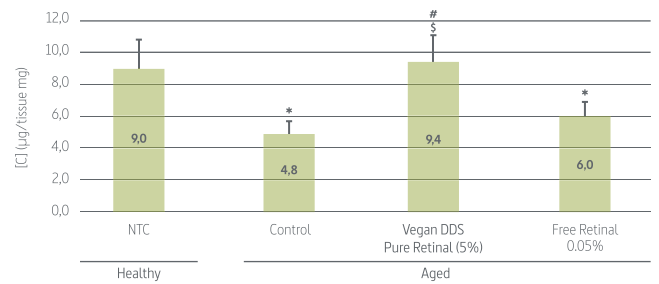
- + Gel with 5% Vegan DDS Pure Retinal vs gel with same concentration of free retinal.
- + Human organotypic skin explant cultures (hOSECs)
- + To replicate skin aging, a corticoid cocktail was administered to the growing skin medium.
- + Topical application over a period of 9 non-consecutive days



### COLLAGEN



### ELASTIN

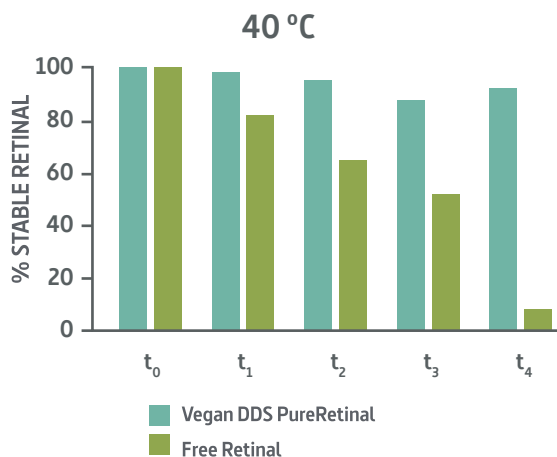


- + Vegan DDS-Pure Retinal (5%) can increase collagen levels up to 3,7 times more than the free Retinal (0,05%) achieving an increase of collagen levels by 123,61% with respect to the healthy control, while the free retinal increases collagen levels by 33,08%.

- + Vegan DDS-Pure Retinal (5%) can increase elastin levels up to 3,72 times more than the free Retinal (0,05%) achieving an increase of elastin levels by 111,18% with respect to the healthy control, while the free retinal increases elastin levels by 15,36%.

## Results of stability test

- + Vegan DDS Pure Retinal was analysed in terms of stability during 4 weeks at 40°C. Results are represented in the following graphic



T0	99.06%
Week 1	98.71%
Week 2	96.65%
Week 3	88.09%
Week 4	92.44%



## Notes for formulators: how to use

- Shake before using.
- If the product is stored under 12°C, let the product get room temperature before shaking. At low temperatures reversible changes in viscosity can occur.
- Add to bulk during the final phase of the production process, ensuring that the temperature does not exceed 40°C to avoid degradation of the encapsulated molecules. If you need to add it to higher temperatures, please consult our technical service.
- **Maximum homogenization:** 20.000 rpm
- **Formulation pH:** 3 – 11
- Ethanol concentrations higher than 15% may damage liposomes (contact our technical service for advice) Too high concentration of detergents may break liposomes.
- Do not add to oil.



### Add at room temperature:

The liposome does not protect heat-sensitive actives from heat



### Liposomes can be added without any problem to any cosmetic mixture

- Water-based formulas
- Oil-in-water emulsions
- Water-in-oil emulsions
- Gels
- Serums



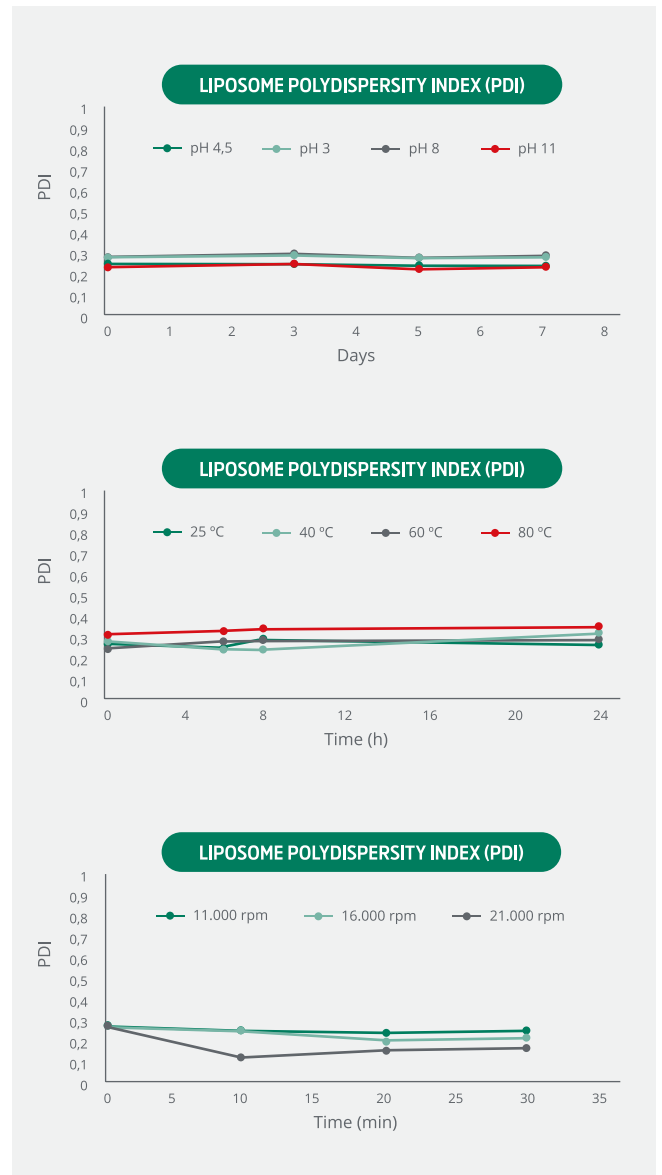
### Important:

To prevent liposomes from dissolving in emulsions with oils, it is recommended to add them in the **aqueous** phase



### Important:

Add them in the last stage of the manufacture process



## OTHER DELIVERY SYSTEMS AVAILABLE



### CORNEUM DELIVERY SYSTEM

The use of these superficial delivery systems substantially increases the concentration of the active ingredient in the stratum corneum, minimizing penetration at deeper levels. This is particularly useful in avoiding unwanted effects that can be caused at this level, for example when using active ingredients with a high irritant capability, like AHA.



### FOLLICULAR DELIVERY SYSTEM

The "Follicular Delivery" nanovesicles vectorise the active ingredients to the deepest areas of the hair follicle in order to have the most powerful and selective effect on the germ cells, hair bulb, dermal papilla and sebaceous gland. They are ideal for hair loss and sebum regulating products.



### HAIR DELIVERY SYSTEM

The "Hair Delivery" nanovesicles are formulated with cationic phospholipids and ceramides which give them high capillary adhesion and a considerable resistance to washing and rinsing. They progressively deliver the active ingredients to the hair stem cuticle, penetrating up to the cortex of the hair medulla, particularly when treating damaged hair.



### CUSTOMISED PROJECTS

At INdermal, we are happy to place our processes, knowledge and collaboration at your entire disposal in order to provide you with an accessible and speedy nanobiotechnological service, as if it were an extension of your own R+D department. We also offer you any nanoencapsulation system that you may require for your formulations. We would be delighted to receive your ideas or proposals as well as carry out a preliminary analysis free of charge and in complete confidence.



Incorporate encapsulated active ingredients in your formulations and take your products to the next level of efficiency to surprise your customers and stand out from the competition.



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