

Actives

PRODUCT DOSSIER

Retinaxyl™

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VERSION 1.01

BEAUTICS
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PRODUCT DATA SHEET (TDS)

RETINAXYL™

Next-Generation Retinal Hydroxysome™

1. What Is RETINAXYL

RETINAXYL™ is a high-performance stabilized Retinal (Retinaldehyde) active adsorbed onto cosmetic-grade Hydroxyapatite, designed to provide superior formulation stability, improved handling, and enhanced protection against oxidation and photodegradation.

This innovative powder technology enables formulators to incorporate Retinal into advanced anti-aging, skin renewal, and pigmentation-control products while minimizing degradation during manufacturing and storage.

RETINAXYL™ delivers the biological efficacy of Retinal with improved formulation flexibility for premium dermo-cosmetic applications.

2. INCI COMPOSITION

Hydroxyapatite, Retinal

3. How It Works

3.1 Encapsulated Delivery & Protection

Retinal is loaded within a hydroxyapatite-based "Hydroxysome" matrix, which physically shields it from oxidation, light, and thermal degradation.

- ✓ This preserves retinal stability and maintains high active integrity until application on skin.

3.2 Controlled Conversion to Retinoic Pathway

After application, retinal is gradually released from the mineral carrier and converted in the skin to retinoic acid via endogenous enzymes (retinal dehydrogenases).

- ✓ This ensures high efficacy with reduced irritation compared to direct retinoic acid delivery.

3.3 Cellular Activation of Retinoid Signaling

Released retinal (and formed retinoic acid) binds to RAR/RXR nuclear receptors, triggering gene expression linked to: Collagen synthesis, Epidermal renewal, Pigment regulation and Sebum modulation.

- ✓ Results in anti-aging, skin renewal, and texture improvement effects.

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4. Recommended Use Levels

INGREDIENT	CONCENTRATION
RETINAXYL	0.07-0.7%

5. Pharmaceutical Characterization

PARAMETER	SPECIFICATION
ACTIVE COMPOSITION	Vitamin A Aldehyde, Hydroxyapatite
SOLUBILITY	Soluble in oils and organic solvents
STABILITY	pH 5.0 – 6.5
MOLECULAR TARGETS	Nuclear Retinoic Acid Receptors
APPERENCE	Yellow to orange free-flowing fine powder

6. Role in Cosmetic Formulations

Key Benefits

- Reduce appearance of fine lines and wrinkles
- Supports skin renewal and cell turnover
- Improves skin texture and radiance
- Reduce appearance of acne and blemishes
- Promotes smoother and firmer-looking skin
- Enhances overall skin vitality

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7. Formulation Considerations

7.1 Handling

- Protect from Light

Handle and store retinal under low-light conditions and use opaque or amber containers to prevent degradation.

- Avoid High Temperatures

Add retinal during the cool-down phase of formulation, preferably below 40°C.

- Minimize Air Exposure

Keep containers tightly closed and limit oxygen exposure during processing to maintain stability.

- Use Appropriate Protective Equipment

Wear gloves, protective eyewear, and a lab coat during handling.

- Store Under Recommended Conditions

Store in a cool, dry place, preferably at 2–8°C, away from moisture and direct sunlight.

7.2 Compatibility

- Works synergistically with:
 - Niacinamide
 - Hyaluronic Acid
 - Vitamin E (Tocopherol)
 - Ceramides

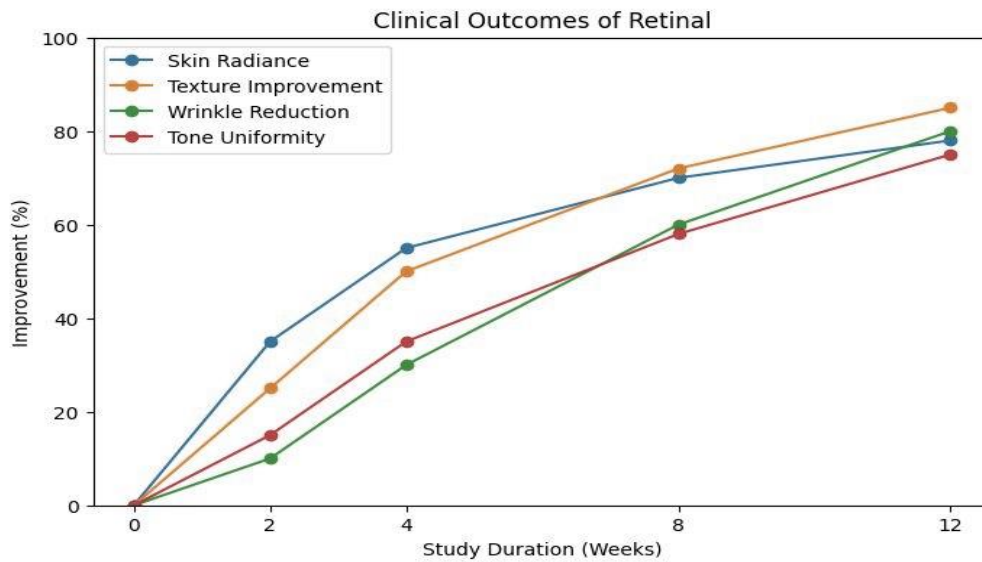
8. Application Formats

APPLICATION / USE CASE	RETINAXYL (%)	PRIMARY BENEFIT
ANTI-AGING SERUM	0.30–0.70 %	Wrinkle reduction and skin renewal
NIGHT CREAM	0.30–0.70 %	Skin repair and smoothing
ACNE CARE SERUM	0.07–0.35 %	Reduce blemishes and pores
EYE CONTOUR CREAM	0.07–0.20 %	Fine line improvement
BRIGHTENING TREATMENT	0.20–0.70 %	Tone and radiance enhancement

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9. Clinical Output

SHORT-TERM (2-4 WEEKS)	MID-TERM (4-8 WEEKS)	LONG-TERM (8-12 WEEKS)
<ul style="list-style-type: none"> • ↑ Skin smoothness • ↓ visible pore appearance • ↑ skin radiance and glow 	<ul style="list-style-type: none"> • ↓ fine lines • ↑ skin texture uniformity • ↓ acne lesions and post-blemish marks 	<ul style="list-style-type: none"> • ↓ wrinkle depth and skin roughness • ↑ skin elasticity appearance • rejuvenated and healthier-looking skin



9. Clinical Performance

PARAMETER	OUTCOME
SKIN RADIANCE	↑ 25-40% (4-8 weeks)
WRINKLE APPERANCE	↓ 20-35%
SKIN TEXTURE UNIFORMITY	↑ 30-45%
PORE VISIBILITY	↓ 15-30%
EPIDERMAL RENEWAL INDEX	↑ 35-60%

Advanced Clinical Performance of Retinal

The bar chart compares the minimum and maximum performance improvement percentages for three parameters. Epidermal Renewal Index shows the highest maximum improvement at 60%.

Parameter	Minimum Improvement (%)	Maximum Improvement (%)
Skin Radiance (4-8 weeks)	25	40
Skin Texture Uniformity	30	45
Epidermal Renewal Index	35	60

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