

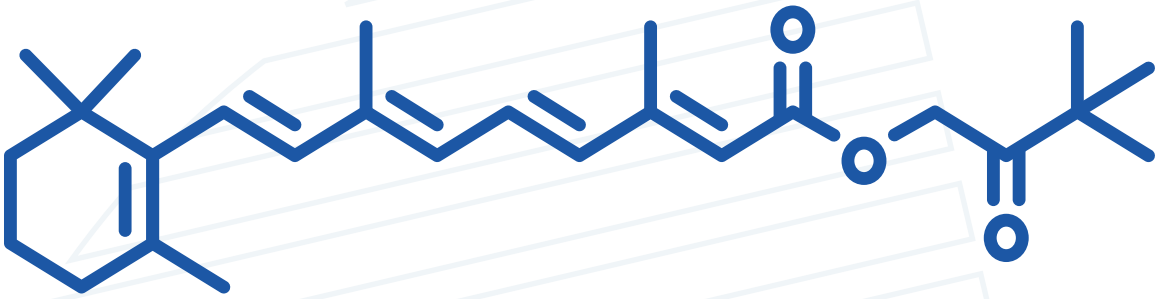
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Granactive Retinoid

THE POWER OF RETINOL WITHOUT THE IRRITATION

Technical support? formula@grantinc.com

GRANACTIVE RETINOID: THE NEXT STEP IN VITAMIN A CHEMISTRY



Granactive Retinoid is Hydroxypinacolone Retinoate, a cosmetic grade ester of all-trans retinoic acid. This skin care active ingredient belongs to a class of chemical compounds termed retinoids, which are natural and synthetic derivatives of Vitamin A capable of binding to retinoid receptors. The binding of retinoid receptors can enhance gene expression, which effectively turns key cellular functions on and off. When skin cell retinoid receptors are bound with retinoids, a cascade of mechanisms that benefit skin complexion are switched on. This can result in enhanced cell proliferation, biosynthesis of extracellular proteins and glycans, and improved cellular turnover. Stimulating these age defying processes in the skin is critical for fighting and reversing signs of aging.

BIOLOGICAL PATHWAYS TO YOUTHFUL SKIN WITH GRANACTIVE RETINOID

Stimulating cell proliferation and cell turnover are important for normalizing cell renewal and repair processes. As we age our skin becomes thinner and less elastic, leading to skin with a loose, sagging, and wrinkled appearance. Granactive Retinoid helps renew skin plumpness, elasticity, and hydration to provide a radiant and fresh appearance. Moreover, Granactive Retinoid stimulates skin cell proliferation; restoring thickness to skin that has become thinner over time. These processes help fill in lines and wrinkles to give a youthful appearance, while safeguarding skin from further wrinkle development. The effectiveness of Granactive Retinoid at filling lines and wrinkles can be seen in Image 1. Granactive Retinoid is highly recommended for promoting clear skin when used in conjunction with monographed anti-acne treatments. This cosmetic ingredient promotes cell turnover and renewal, which translates to improved skin clarity and the appearance of a healthier complexion.

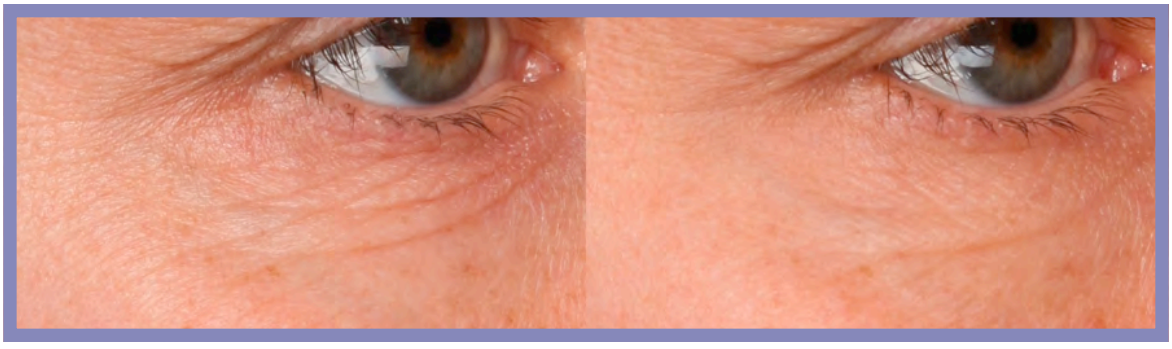


Image 1. Dramatic reduction of lines and wrinkles was observed after 14 day Granactive Retinoid application.

CHALLENGES WITH OLDER GENERATION VITAMIN A CHEMISTRIES

Although the benefits of retinoids have been known for decades, skin irritation, photochemical instability, and toxicity concerns have hindered their use. Retinoic acid is a topically applied ingredient recognized for its anti-aging benefits, however it can be irritating to skin and is sold as a prescription medication. Instead in recent years, milder synthetic and natural derivatives have become popular alternatives to Retinoic acid. These derivatives are metabolized to the active form by skin cells. Retinol (Vitamin A) is the most popular topical retinoid used to date, but its skin irritancy and instability to sunlight has limited its scope and appeal. Retinol esters are often used to lower the irritation potential and increase stability, but a tradeoff is decreased retinoid activity and benefits.

GRANACTIVE RETINOID ADVANCES OPPORTUNITIES IN VITAMIN A SKIN CARE

Granactive Retinoid is a next-generation anti-aging product, delivering the performance of retinol and retinoid derivatives with significantly lower irritation potential, thus supporting clear, visibly more youthful looking skin with better consumer acceptance. The mechanism of action of Granactive Retinoid is advanced compared to retinol derivatives. To interact with retinoid receptors, retinol must first be metabolized to more active forms, such as retinaldehyde and retinoic acid using several enzymatic steps. Granactive Retinoid is unique in that it processes innate retinoic activity, binding directly with retinoid receptors without the need for metabolic breakdown to more biologically active forms. Granactive Retinoid is dermatologically tested to offer less irritation potential than retinol, providing a gentle, safe and effective anti-aging retinoid.

GRANACTIVE RETINOID ACTIVE - CLINICAL RESULTS		
Assay	**Subject**	**Result**
Cumulative irritation patch	Human clinical panel	No irritation
Local irritation and sensitization potential assay	Human clinical panel	No adverse experiences
Skin roughness	Human clinical panel	50% improvement
Skin surface scaling	Human clinical panel	40% improvement
Skin irritation potential vs. retinol	Human skin cells	Lower irritation potential
Toleration under environmental stresses vs. retinol	Human skin cells	Better toleration
Retinoid gene expression modulation	Human skin cells	Typical retinoid expression
In vitro percutaneous penetration	Human skin	Better toleration
In vivo percutaneous absorption	Human skin	Passed – proven safe

These results add credence to the beneficial safety and irritation profile of Granactive Retinoid as a topical cosmetic. The low irritation profile of Granactive Retinoid versus retinol was demonstrated on a 24 hour occlusive patch test and can be seen in Image 2.

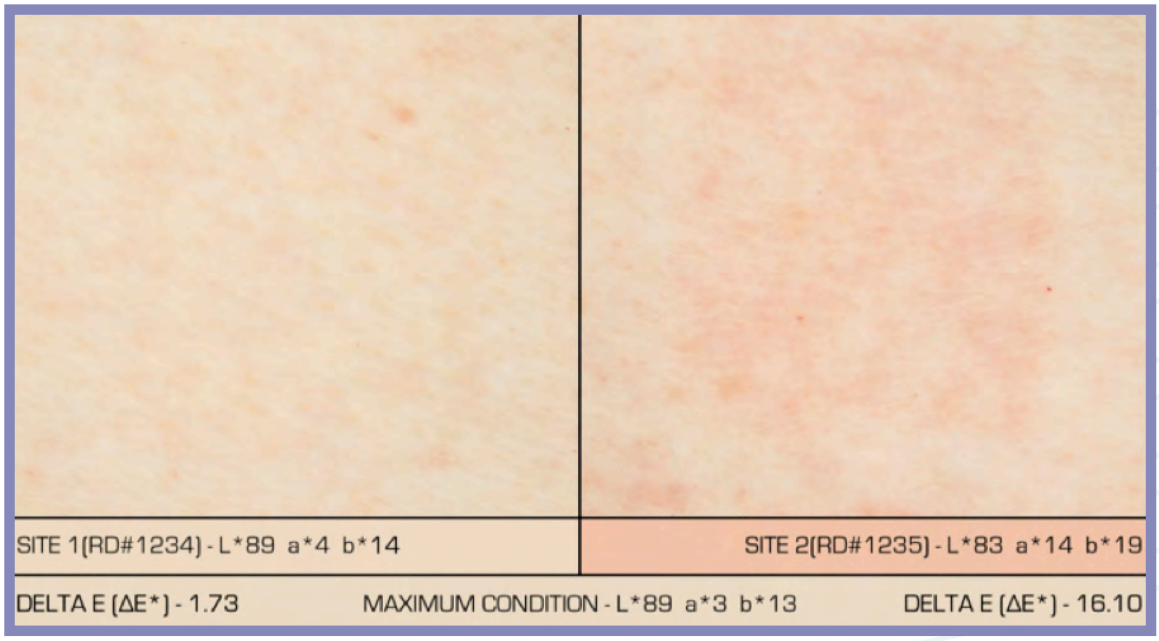


Image 2. After application on a 24 hour occlusive patch test, Granactive Retinoid demonstrated a significantly lower irritation profile versus retinol. Test samples were 0.5% retinoid in Gransolve DMI (dimethyl isosorbide).

PERFORMANCE

Granactive Retinoid combats the appearance of fine lines and wrinkles for a younger appearance while increasing skin elasticity for firmer, smoother skin texture. Overall skin clarity and appearance is enhanced for a healthier complexion. Dark spots and skin imperfections are reduced for a more even skin tone to give a brighter and more luminous appearance to skin. Reduction in pore size is observed leading to overall skin clarity. Granactive Retinoid delivers high performance compared to retinol derivatives, but with a significantly lower irritation potential.

FORMULATION

Granactive Retinoid is intended to support anti-aging and anti-acne beauty treatments by providing low irritating, effective active delivery in daily maintenance applications. Granactive Retinoid is available as a concentrated and easily formulated anhydrous matrix containing 10% of the retinoid active in a premium delivery solvent. This offers easy formulation into oil-in-water emulsions, water-in-oil emulsions, and other formula types. Applications include (but are not limited to) skincare, color cosmetic, and body care formulations. For anti-acne claims, the retinoid must be co-formulated with an approved anti-acne active as subject to regional laws. Granactive Retinoid should be added to the oil phase of all emulsion types with a clinical use level of 1-2%, but higher levels are possible without irritation, depending on the formula. It is recommended to formulate this product in a manner that avoids infusing air/oxygen into the final cosmetic product. Like all retinoids, the highly specific set of conjugated double bonds are susceptible to oxidation; anti-oxidants like Vitamin- E and BHT/BHA are suggested.



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RETINOID SERUM

Part	Ingredient	INCI Name	% (wt)
A	DEIONIZED WATER	Water	27.00
	NATROSOL 250 HHR, 2% AQ SOL.	Water & Hydroxyethylcellulose	10.00
	CARBOPOL ULTREZ-10 POLYMER, 2% AQ SOL.	Water & Carbomer	5.00
	BUTYLENE GLYCOL	Butylene Glycol	10.00
	GLYCERIN	Glycerin	5.00
	TWEEN 20	Polysorbate 20	0.30
	PLANTAREN 2000 N	Decyl Glucoside	0.10
	TEA, 99%	Triethanolamine	0.10
	JEECIDE CAP-5	Phenoxyethanol & Caprylyl Glycol & Potassium Sorbate & Water & Hexylene Glycol	1.00
B	CETIOL LC	Coco-Caprylate/Caprate	5.00
	DIMETHICONE, 5CST	Dimethicone	5.00
	WICKENOL-131	Isopropyl Isostearate	2.00
	ALCOLEC BS	Lecithin	0.30
	GRANACTIVE RETINOID	Dimethyl Isosorbide & Hydroxypinacolone Retinoate	2.00
	GRANSIL SIW-066	Dimethicone & Polysilicone-11 & Butylene Glycol & Water & Decyl Glucoside	20.00
	GRANSIL PSQ	Polymethylsilsesquioxane	5.00
	GRANSIL 530	Dimethicone	1.00
	RHEOSOL AVH	Sodium Polyacrylate & Ethylhexyl Stearate & Trideceth-6	1.00
	ARISTOFLEX AVC	Ammonium Acryloyldimethyltaurate/VP Copolymer	0.20
		Total:	100.00

Procedure

1. *Weigh Phase A in the main kettle equipped with side sweep. Mix well.*
2. *Weigh Phase B in a side kettle and mix well.*
3. *Slowly add Phase B to Phase A with mixing.*
4. *Mix until homogeneous.*

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NIGHT LITE REPAIR CREAM

Part	Ingredient	INCI Name	% (wt)
A	DEIONIZED WATER	Water	50.60
	CARBOPOL ULTREZ-10 POLYMER	Carbomer	0.20
	TEA 99%	Triethanolamine	0.20
	PROCOL SA-21	Steareth-21	2.00
	GRANSIL VX-418	Bis-Stearyl Dimethicone	20.00
	GLYCERIN	Glycerin	3.00
	BUTYLENE GLYCOL	Butylene Glycol	2.00
B	**GRANPOWDER USQ**	Polymethylsilsesquioxane & HDI/Trimethylol Hexyllactone Crosspolymer	5.00
	GRANSURF 50C-HM	Dimethicone & PEG/PPG-18/18 Dimethicone	1.00
	GRANACTIVE RETINOID	Dimethyl Isosorbide & Hydroxypinacolone Retinoate	1.00
	DIMETHICONE, 5CST	Dimethicone	6.00
	JEECHEM GMS-165	Glyceryl Stearate & PEG-100 Stearate	1.00
	PROTACHEM CS-50	Cetearyl Alcohol	2.00
C	**GRANSIL EP-9**	Polysilicone-11 & Water & Laureth-12 & Phenoxyethanol & Ethylhexylglycerin	5.00
D	EUXYL PE 9010	Phenoxyethanol & Ethylhexylglycerin	1.00
		Total:	100.00

Procedure

1. *Combine Phase A in the main kettle and heat to 70~75°C, prop mix until uniform.*
2. *Combine Phase B in support kettle and heat to 70~75°C. Mix until uniform.*
3. *Add Phase B into the main kettle while mixing. Continue to mix for 15~20 minutes.*
4. *Add Phase C into the main kettle while mixing and mix until uniform.*
5. *Start cooling with side sweep.*
6. *Add Phase D at 40~45°C and continue to cool until 30~35°C.*

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Contact us today to discover the ways we help ensure your product's performance is flawless, or learn more at **www.grantinc.com**.

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