ROVISOME® Sensitive NG

Deep relief for your sensitive skin

October 2019

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Growing need for sensitive skin care

The demand for sensitive skin care is increasing due to environmental factors, personal lifestyle habits, and psychological stress.

Consumers are exposed to a growing number of triggers that negatively impacts how consumers look and feel

Many perceive the resulting skin irritation as a sign that they have sensitive skin

Brands need to expand product positioning to care for sensitive skin.

Source: Mintel, The breakthrough ingredients for sensitive skin, 2017

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Sensitivity remains a global concern

27%

of UK consumers aged 16-24 experienced body skin irritation in the last 12 months

56%

of women in Japan say they have sensitive skin

83%

of US iGen (9-21 years) with sensitive skin are interested in purchasing a body lotion that reduces skin irritation

Source: Mintel, The breakthrough ingredients for sensitive skin, 2017

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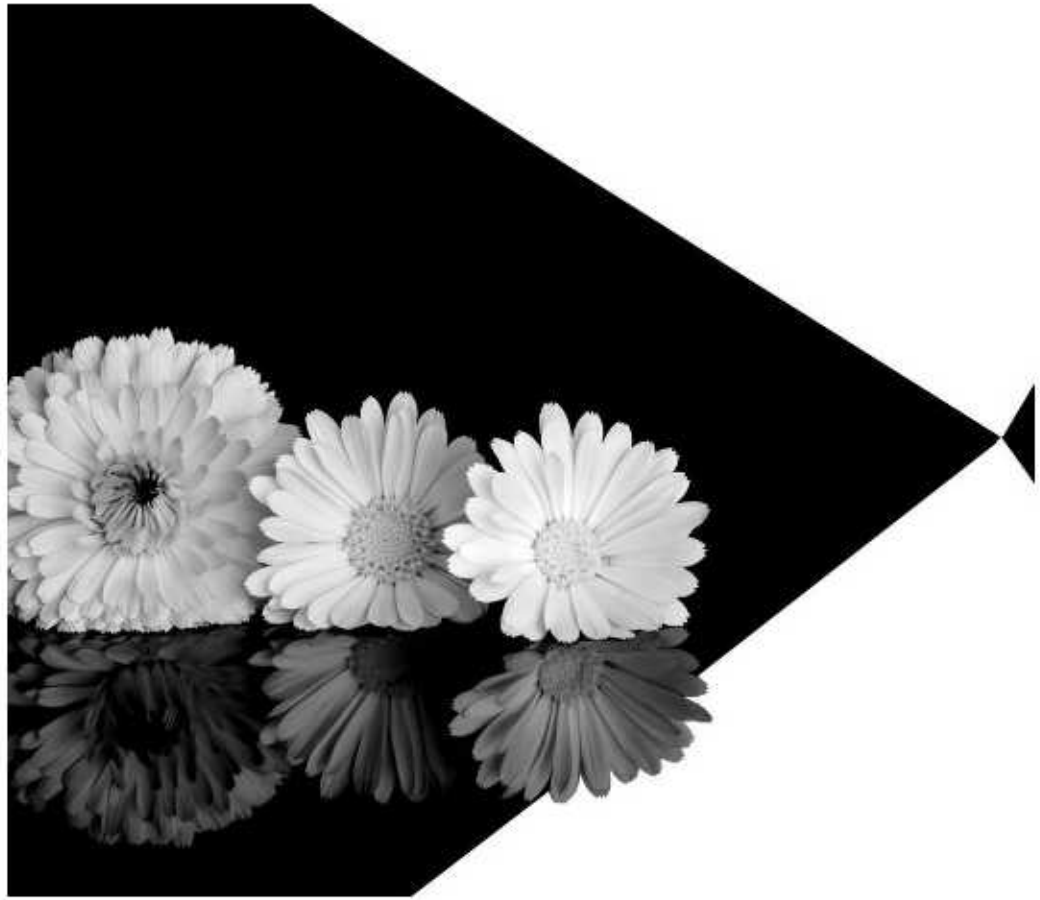
ROVISOME® Sensitive NG
Composition and properties

A cosmetic delivery system to soothe skin irritations based on ROVISOME® NG technology

INCI	Water/Aqua; Glycerin; Lecithin; Dipotassium Glycyrrhizate; Calendula Officinalis Extract; Lonicera Caprifolium Flower Extract; Lonicera Japonica Flower Extract; Benzyl Alcohol; Benzoic Acid; Dehydroacetic Acid
Recommended usage level	1 – 5%
Appearance	yellow – yellow brown, fluid
Odor	lecithin typical

China IECIC listed



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Natural power of calendula and licorice extract

Calendula

Healing benefits can be attributed to the high level of faradiol esters and carotenoids

Licorice root extract

Triterpenes and flavonoides are beneficial in decreasing inflammatory skin conditions

Traditional Benefits

Both ingredients are are well-known for their soothing properties and target inflammatory skin conditions

How do we know?

Our studies based on ROVISOME® Sensitive NG

In vitro anti-inflammatory study
3D skin model

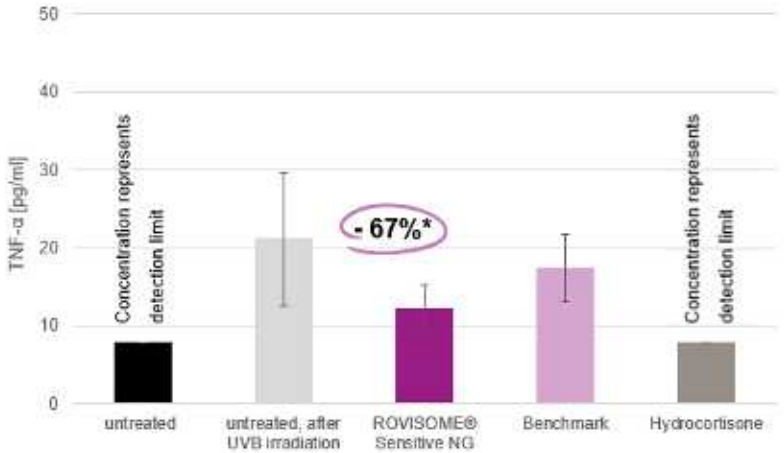
In vivo irritation
study

Inflammatory response after UV-irradiaton in reconstructed human 3D-skin
Test design

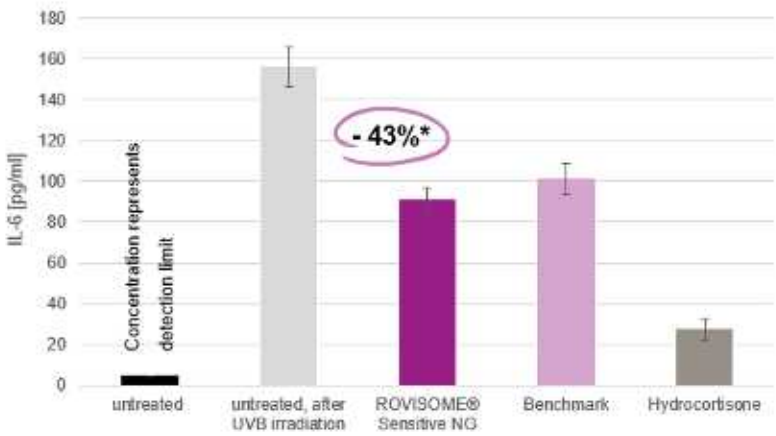
Cell type	Human reconstructed 3D-skin models (MatTek, Ashland, USA), cultured under optimal atmospheric conditions at 37°C, 95% H_2O and 5% CO_2 regarding to manufactures instructions
Test concentration	▪ Radiation control (positive control) (untreated) ▪ 0.03% Hydrocortisone ▪ 3% ROVISOME® Sensitive NG ▪ 3% Benchmark with N-Acetyl-Tyrosyl-Arginyl-Hexadecyl Ester
Application	UVB exposure (220 mJ/cm²)
Time of measurement	48h after UVB exposure
Measurement	ELISA
Observed activity	Quantification of cytokines: TNF-α, IL-6, IL-8 (pro-inflammatory cytokines)

Inflammatory response after UV-irradiaton in reconstructed human 3D-skin
Test results

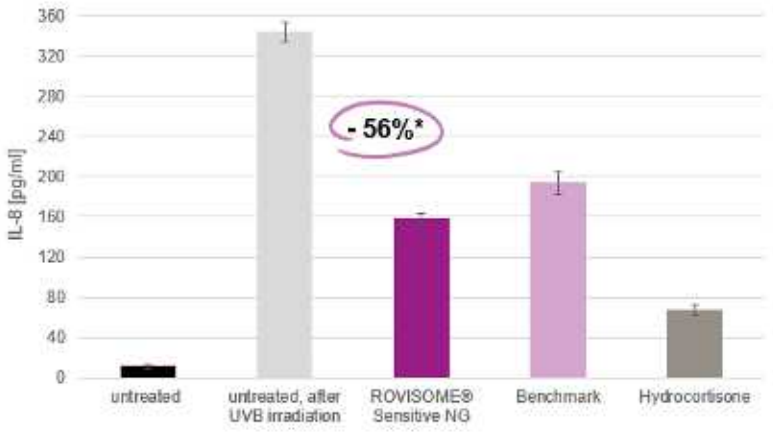
TNF-α release 48h after UVB exposure



IL-6 release 48h after UVB exposure



IL-8 release 48h after UVB exposure



Benchmark: N-Acetyl-Tyrosyl-Arginyl-Hexadecyl Ester
*Compared to untreated after UVB irradiation

ROVISOME® Sensitive NG can promote soothing benefits.

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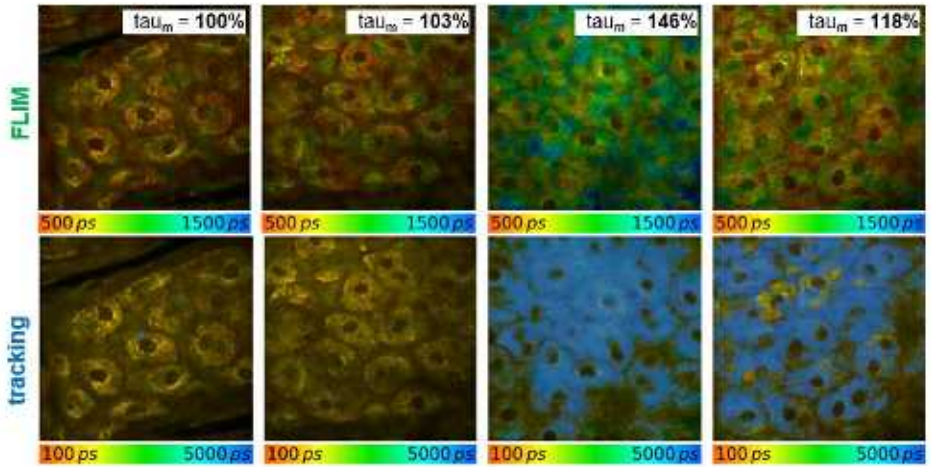
In vivo irritation study - Multiphoton study
Test design

Equipment	Multiphoton tomography instrument (JenLab GmbH, Jena, Germany) combined with fluorescence lifetime imaging microscopy (FLIM).
Test design	Measurement 48 hours after occlusive application via patch test kits, cleaning of the treated areas with a disinfectant compress and subsequent drying. Excitation λ_{ex} = 700/710 nm
Test formulations	1) Untreated (P1) 2) Aqueous solution containing 4% ROVISOME® Sensitive NG (P2) 3) 0.032% Retinol solution (P3) 4) 0.032% Retinol solution + 4% ROVISOME® Sensitive NG (P4)
Application area	Inner forearm
Application frequency	Once
Measurements	Recording of NADH fluorescence lifetime (FLIM) signals in sequences of 10 µm penetration steps.

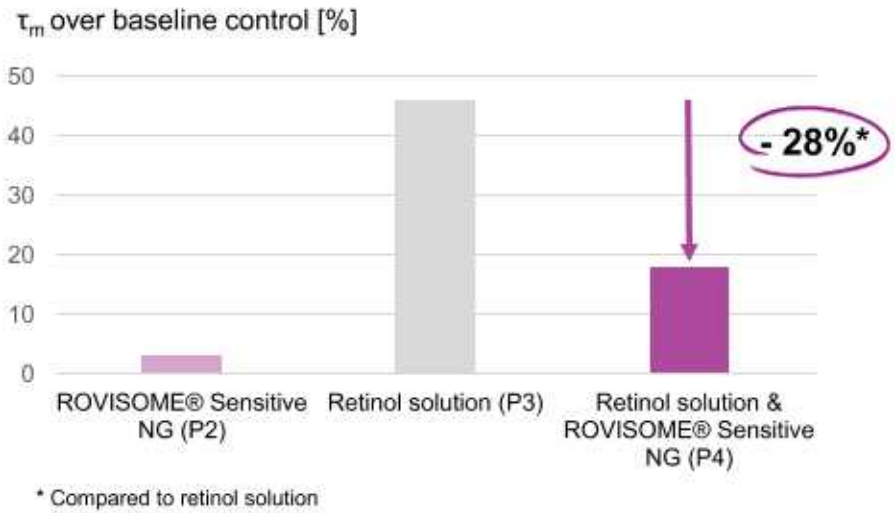
Details of the test design published in SÖFW magazine SOFWjournal | 143 | 03/17 (pages 22 – 26)

5D-IVT study – irritation potential *in vivo* – *Stratum granulosum*
Test results (1/2)

5D-IVT visualization of skin irritation in *Stratum granulosum* 48h after application of test formulations and untreated control.
Color scale: 500ps – 1500ps



FLIM signal: Skin irritation shown in *green*
Tracking: Retinol shown in *blue*



ROVISOME® Sensitive NG reduces skin irritation side effects from cosmetic ingredients (retinol).

For detailed information regarding the test method see | Huck, V. *et al.* From morphology to biochemical state – intravital multiphoton fluorescence lifetime imaging of inflamed human skin. *Sci. Rep.* 6, 22789; doi: 10.1038/srep22789 (2016)

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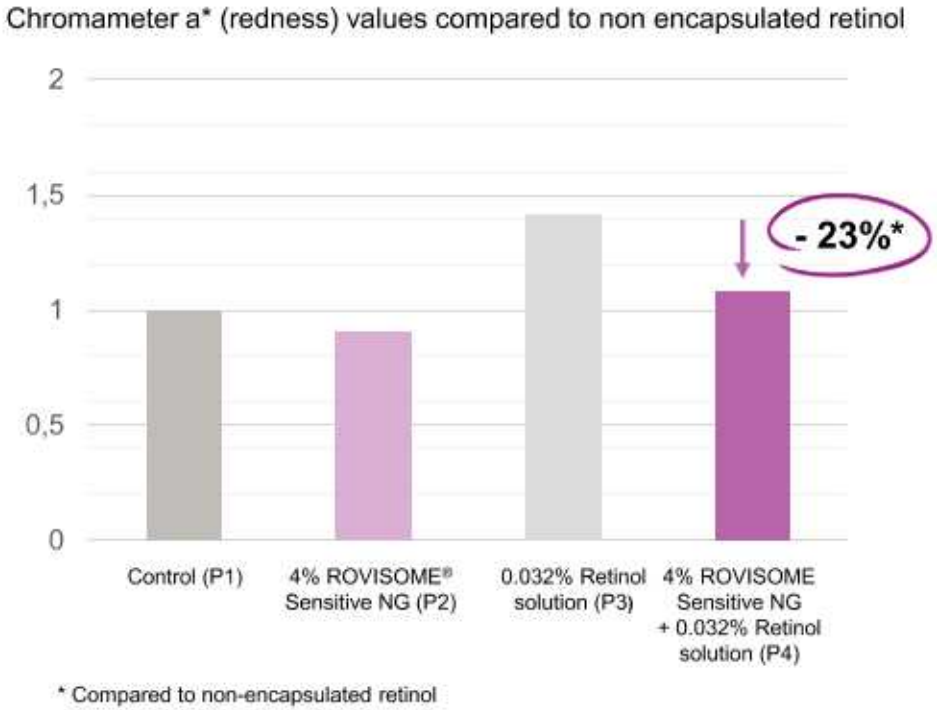
Chromameter study – irritation potential *in vivo* – ***Stratum granulosum***
Test results (2/2)



Chromameter results of skin irritation in *Stratum granulosum* 48h after application of:

1) untreated control (P1)
2) ROVISOME® Sensitive NG (P2)
3) non-encapsulated retinol (P3)
4) a mixture of ROVISOME® Sensitive NG and non-encapsulated (P4)

ROVISOME® Sensitive NG reduces redness from skin irritation.

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Calendula Repair & Moisture Cream
CNA 036-010

Phase	Ingredients	w/w %
A	**TEGO® Care 450 MB** (Polyglyceryl-3 Methylglucose Distearate)	1.50
	ABIL® Care XL 80 MB (Bis-PEG/PPG-20/5 PEG/PPG-20/5 Dimethicone; Methoxy PEG/PPG-25/4 Dimethicone; Caprylic Capric Triglyceride	0.50
	Stearyl Alcohol	1.50
	TEGIN® M Pellets MB (Glyceryl Stearate)	2.50
	TEGOSOFT® M (Isopropyl Myristate)	6.50
	TEGOSOFT® APM (PPG-3 Myristyl Ether)	4.80
	TEGOSOFT® MM MB (Myristyl Myristate)	0.50
	Phytosphingosine SLC (Salicyloyl Phytosphingosine)	0.10
B	Glycerin	3.00
	TEGO® Natural Betaine (Betaine)	1.00
	Water	70.00
C	Carbomer	0.20
	TEGOSOFT® M (Isopropyl Myristate)	0.80
	Keltrol CG (Xanthan Gum)	0.10
D	**SK-INFLUX® V MB** (Ceramide NP; Ceramide AP; Ceramide EOP; Phytosphingosine; Cholesterol; Sodium Lauroyl Lactylate; Carbomer; Xanthan Gum)	2.00
	ROVISOME® HA NG (Aqua/Water; Glycerin; Lecithin; Sodium Hyaluronate; Benzyl Alcohol; Benzoic Acid; Dehydroacetic Acid)	2.00
	ROVISOME® Sensitive NG (Water/Aqua; Glycerin; Lecithin; Dipotassium Glycyrrhizate; Calendula Officinalis Extract; Lonicera Caprifolium Flower Extract; Lonicera Japonica Flower Extract; Benzyl Alcohol; Benzoic Acid; Dehydroacetic Acid)	2.00
	Sodium Hydroxide	q.s.
	Verstatil® PC (Phenoxyethanol; Caprylyl Glycol)	1.00
	Perfume	q.s.

Preparation:

1. Heat phase A and B separately to approx. 80 °C.
2. Add phase A to phase B with stirring.[1)]
3. Homogenize.
4. Cool with gentle stirring to approx. 60 °C and add phase C. Homogenize for a short time.
5. Cool with gentle stirring and add the ingredients of phase D. Adjust pH to 6.0-6.5.

[1)] Important: If phase A has to be charged into the vessel first, phase B must be added without stirring.

Formulation hints and remarks:

Recommended usage concentration: 1 – 5%

Processability: ROVISOME® Sensitive NG can easily be processed into final formulations by stirring at 30 °C.

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ROVISOME® Sensitive NG

Deep relief for your sensitive skin

A cosmetic delivery system to sooth skin irritations based on ROVISOME® NG technology

Easy to formulate
&
China IECIC listed

Efficacy proven by in vitro anti-inflammatory study 3D skin model and in vivo irritation study

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