CollaPlant Z NPNF®

VEGETABLE ALTERNATIVE
FOR ANIMAL COLLAGEN

TRI-K
A MEMBER OF THE GALAXY GROUP

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VEGETABLE ALTERNATIVE FOR ANIMAL COLLAGEN

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THE IMPORTANCE OF COLLAGEN

THE MOST ABUNDANT PROTEIN IN THE BODY

Collagen is a trusted ingredient in beauty & personal care for hair is derived from animal sources.

Collagen Functions:

- Acts as the glue that holds us together
- Maintains strength & elasticity of hair
- Popular claims for collagen containing products are moisturization & anti-aging**
- As one ages, collagen levels decrease

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GUILT-FREE COLLAGEN

LIMITED OPTIONS FOR VEGAN CONSUMERS

Collagen is derived from animal sources, such as cows or fish

Animal collagen alternatives must have the following attributes:

- Vegan
- Not Tested On Animals
- Tensile Strength To The Hair
- Similar Sensorial Attributes
- Comparable Amino Acid Profile

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VEGAN GOES MAINSTREAM

VEGAN ALTERNATIVES IN ALL ASPECTS

- In line with global shift for consumer pursuit of total health & wellness, **vegan**, **plant-based** and **vegetarian** interest is booming, moving from a niche concept to global megatrend
- Consumers not only turning to vegan diets, but **vegan personal care products** as well

According to a report by Grand View Research, the global market for **vegan cosmetics** is expected to reach **$20.8 billion by 2025**

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ETHICAL CONSUMERISM

COMPANIES ARE ADAPTING TO ALL VEGAN PRODUCT LINES

Today's consumers desire **clean ingredients** with concerns of animal welfare, sustainability and planet consciousness

A rise in veganism has resulted in **animal welfare** being a strong indicator of how ethical a brand is

Most studies indicate that beef-based products **generate more greenhouse gas emissions** than plant alternatives

Source: Mintel

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PROTEIN-BASED INGREDIENTS WILL CONTINUE TO RISE IN POPULARITY

TARGETTING PROTEIN LOSS AND HELPING TO LOCK IN KERATIN AND AMINO ACIDS

Hair endures multiple stressors during everyday activities, such as product buildup, environmental aggressors, and frequent styling, leading to **damage and breakage**, resulting in **protein loss** from the hair fiber

These proteins can penetrate the cortex of the hair and fill the gaps in the hair fiber, to **strengthen fragile hair** and **fight against breakage**

They also serve to maintain the hair's elasticity and **balance the levels of hydration** and proteins in the hair's cortex.

Source: BEAUTYSTREAMS

VEGATABLE COLLEGEN HAIR PRODUCT LAUNCHES

36.2% OF GLOBAL PRODUCT LAUNCHES IN 2021 INCLUDED THE CLAIM **VEGAN**

Yanbal

Cat's Claw Repairing Hair Mask

A rinse-off formula with 97% natural origin ingredients, said to repair hair damage in three minutes, protect color, detangle, smooth and control frizz. This dermatologically tested clean beauty product features **CollaPlant NPNF.**
(Costa Rica)

Pacifica

Moon Cloud Overnight Repair Mask

Infused with **vegan collagen and hemp**, this rinse-off product can also be used as a **deep conditioner**. Suitable for vegans, it is free from silicone, cruelty, parabens, phthalates, SLS and mineral oil
(USA)

Glow Lab

Collagen+ Thick & Full Shampoo

Vegan, cruelty-free product for **thicker fuller hair**. Enriched with clinically proven **Rice Tein NPNF** to increase volume and bounce; niacinamide to boost collagen for enhanced body
(NZ)

Source: Mintel

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INTRODUCING **COLLAPLANT Z NPNF®**

VEGETABLE ALTERNATIVE FOR ANIMAL COLLAGEN

INCI: *Hydrolyzed Soy Protein, Rice Amino Acids, Hydrolyzed Adansonia Digitata Seed Extract, L-Proline*

BENEFITS:

- Increases tensile strength for **stronger hair**
- Increases hair resistance to breakage
- Reduces wet/dry combing forces for **better conditioning and manageability**

FEATURES:

- Specific vegetable complex designed to provide comparable amino acid composition & sensory profile of hydrolyzed collagen
- Comparable sensory profile to animal collagen
- Non-GMO, paraben & formaldehyde free
- Versatile for use in hair care applications

REGULATORY: Vegan, Cruelty-Free, Gluten-Free, GMO-Free, Paraben-Free, Formaldehyde-Free, Sulfate-Free

SUGGESTED USE LEVEL: 1-5%

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COLLAPLANT Z NPNF® TECHNICAL RATIONALE

COLLAPLANT Z NPNF® is a vegetable alternative to animal collagen specifically designed to provide **comparable amino acids composition & sensory profile** of Hydrolyzed Collagen

Normalized Amino Acid Composition Comparisons in Percentages		
Amino Acids	CollaPlant Z NPNF®	Hydrolyzed Collagen
Arginine	4.0 - 8.0	7.0 - 11.0
Glutamic Acid	13.0 - 17.0	9.2 - 13.2
Glycine	17.0 - 21.0	24.6 - 28.6
Lysine	2.0 - 6.0	2.1 - 6.1
Proline	14.0 - 18.0	12.9 - 16.9
Valine	1.2 - 5.2	0.5 - 4.5

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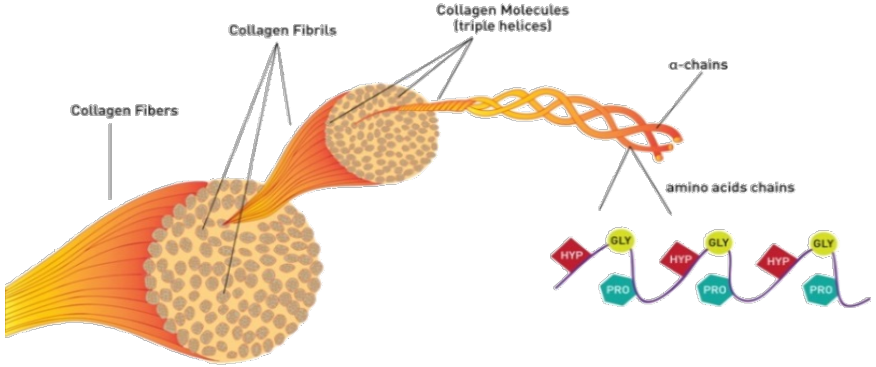
KEY AMINO ACID FUNCTIONALITY



Glycine	Proline	Arginine	Glutamic Acid	Lysine
Promotes collagen synthesis & tissue repair	Promotes collagen synthesis & moisture retention	Binds and holds water to skin for enhanced moisturization	Increases synthesis of collagen	Promotes collagen formation

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COLLAPLANT Z NPNF®

COMPARISON STUDIES TO HYDROLYZED COLLAGEN

Study 1: Hydrolyzed Collagen v CollaPlant Z NPNF®
Hair Evaluations Results

Study 2: Hydrolyzed Collagen v CollaPlant Z NPNF®
Hair Wet/Dry Combing Results

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STUDY 1: COLLAPLANT Z NPNF® VS. HYDROLYZED COLLAGEN HAIR EVALUATIONS RESULTS

Category	Details
Test Model	Single bleached Indian Hair Swatches (10 inches long, divided into 3 groups) 3 swatches of 5 g each
Materials	• TRI-K Shampoo & Conditioner Placebo • TRI-K- Shampoo + 1% Hydrolyzed Collagen, Conditioner + 1% Hydrolyzed Collagen • TRI-K- Shampoo + 3.7% CollaPlant Z NPNF®, Conditioner + 3.7% CollaPlant Z NPNF®
Treatments	• Group 1: Placebo • Group 2: Hydrolyzed Collagen 1% (0.55% Active) • Group 3: CollaPlant Z NPNF® 3.7 % (0.55% Active)
Instrument(s)	Dia-Stron MTT175 Miniature Tensile Tester & Dia-Stron Crimp Assembly System
Treatment Methods	• Swatches were clarified with 10% active SLES solution for 1 minute, rinsed with running tap water for 30 seconds and air dried overnight • 50 hair fibers were removed from each swatch for initial tensile property readings • 0.5g of respective shampoo was applied to each swatch, massaged for 1 minute and rinsed for 30 seconds • 1g of respective conditioner was then applied, massaged for 1 minute, allowed to rest for 1 minute, rinsed for 30 seconds and allowed to air dry overnight for a total of 5 cycles • 50 hair fibers were removed from each swatch after cycles 1 and 5 for analysis • Fibers were equilibrated in a controlled environment for 24 hours prior to testing • Tensile strength measurements were conducted at initial, after 1 and 5 applications
Conditions	Water Temperature: 35°C ± 2, Relative Humidity: 55% ± 2, Room Temperature: 20°C ± 2

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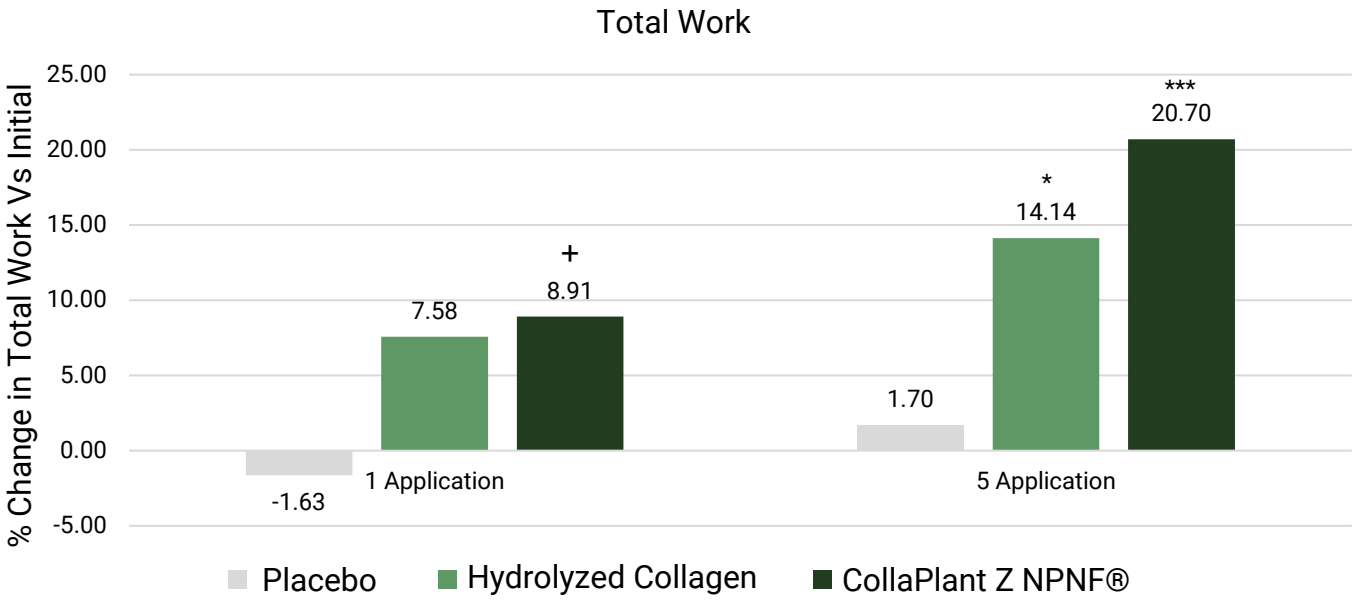
STUDY 1A: TOTAL WORK

CollaPlant Z NPNF® shows an **increase in tensile strength** after 1 and 5 applications for stronger hair



+ p<0.1 CollaPlant Z NPNF® after 1 app vs initial
*** p<0.001 CollaPlant Z NPNF® after 5 app vs initial
* p<0.05 Hydrolyzed Collagen After 5 app vs initial

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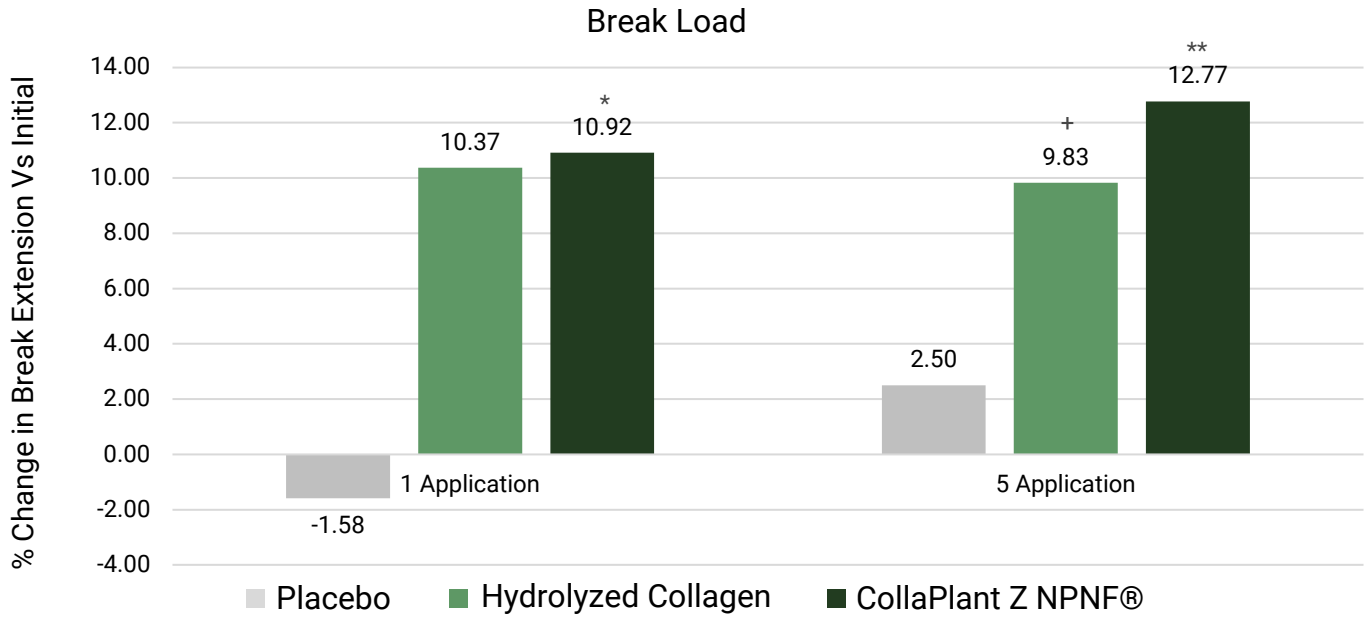
STUDY 1B: BREAK LOAD

CollaPlant Z NPNF® shows an **increase hair resistance to breakage** after 1 & 5 applications for more durable hair



* p<0.05 CollaPlant Z NPNF® after 1 app vs initial
** p< 0.001 CollaPlant Z NPNF® after 5 app vs initial
\+ p< 0.1 Hydrolyzed Collagen after 5 app vs initial

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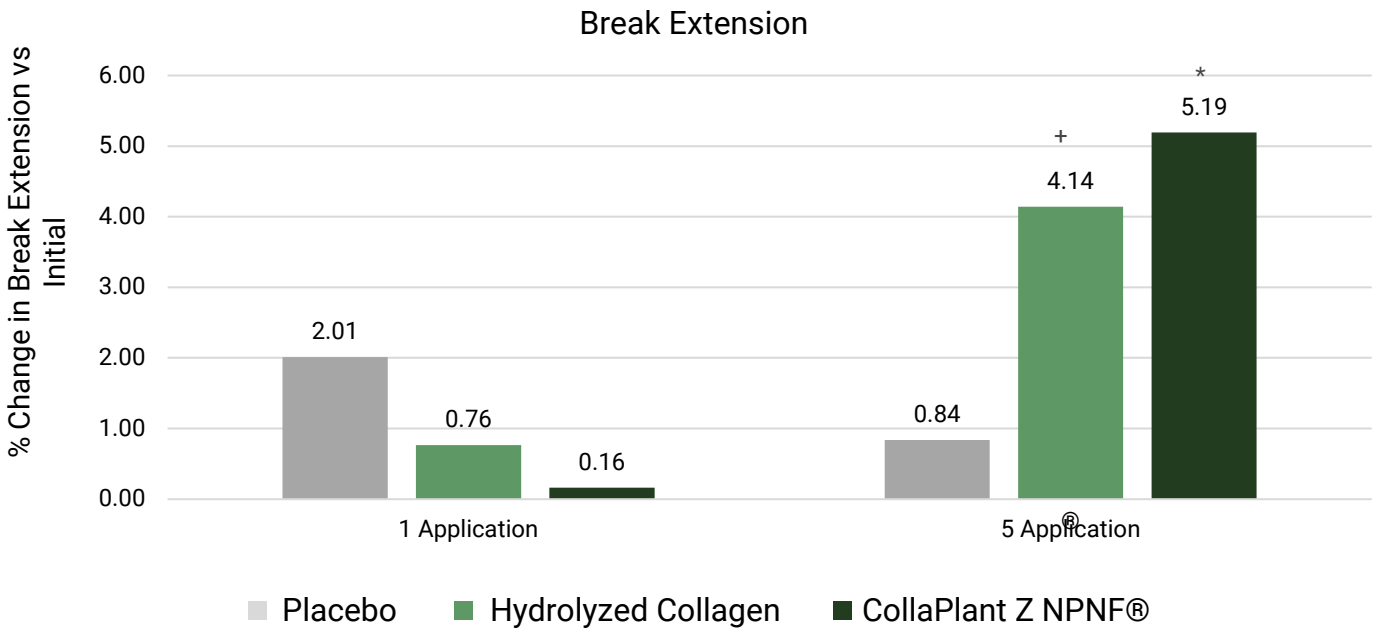
STUDY 1C: BREAK EXTENSION

CollaPlant Z NPNF® enhances hair **resistance to breakage** after 1 & 5 applications



* p<0.05 CollaPlant Z NPNF® after 1 app vs initial
\+ p< 0.1 Hydrolyzed Collagen after 5 app vs initial

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STUDY 2: COLLAPLANT Z NPNF® VS. HYDROLYZED COLLAGEN HAIR WET/DRY COMBING RESULTS

Category	Details
Test Model	9 Hair Swatches, 2.5 gr each, 2X bleached Indian Hairs, 180 cm long, divided into 3 groups
Materials	• TRI-K Shampoo & Conditioner (Placebo) • TRI-K- Shampoo + 1% Hydrolyzed Collagen, Conditioner + 1% Hydrolyzed Collagen • TRI-K- Shampoo + 3.7% CollaPlant Z NPNF®, Conditioner + 3.7% CollaPlant Z NPNF®
Treatments	• Group 1: Placebo • Group 2: Hydrolyzed Collagen 1% (0.55% active) • Group 3: CollaPlant Z NPNF® 1% (0.55% active)
Instrument(s)	Dia-Stron MTT175 Miniature Tensile Tester in combing orientation
Treatment Methods	• Swatches were clarified with 10% active SLES solution for 1 minute, rinsed with running tap water for 30 seconds and air dried overnight • Initial wet and dry combing evaluations were taken • 0.5g of respective shampoo was applied to each swatch, massaged for 1 minute and rinsed for 30 seconds • 1g of respective conditioner was then applied, massaged for 1 minute, allowed to rest for 1 minute, rinsed for 30 seconds, wet combing forces were measured afterwards. • Same set of swatches were dried overnight. Dry combing forces were measured afterwards. • Hair was evaluated at initial, 1 & 5 applications for wet and dry combing performance
Conditions	Water Temperature: 35°C ± 2, Relative Humidity: 55% ± 2, Room Temperature: 20°C ± 2

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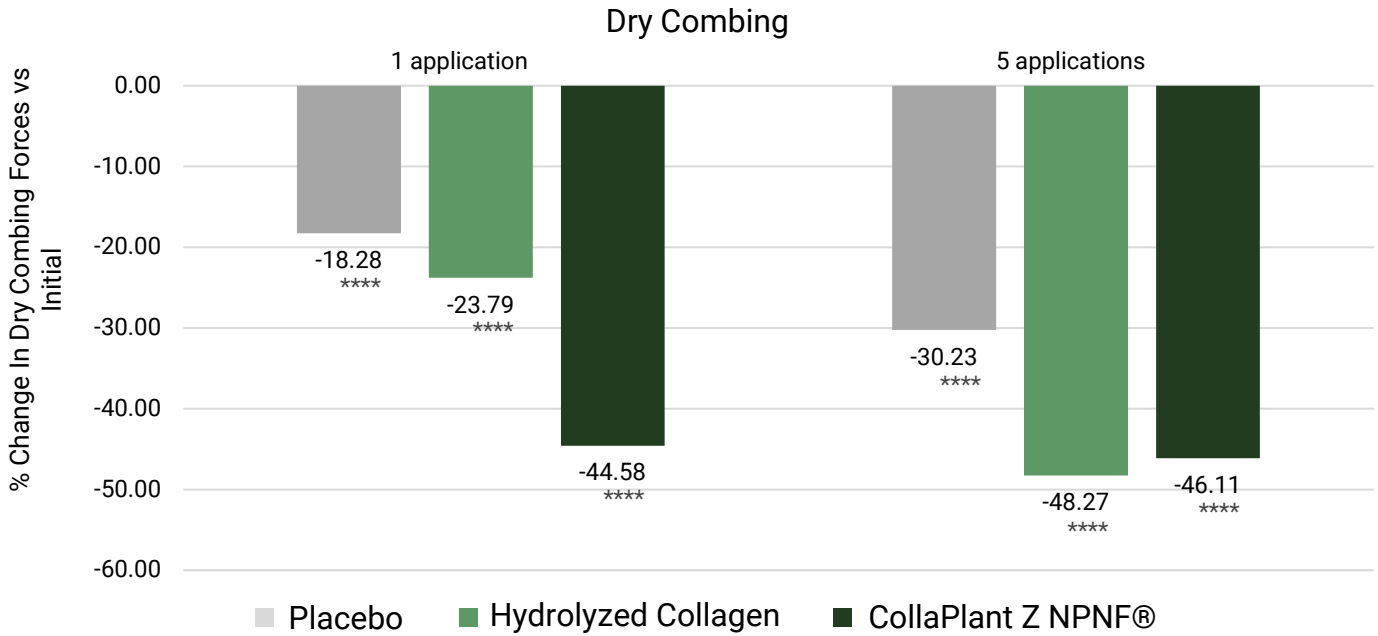
STUDY 2A: DRY COMBING RESULTS

****p<0.0001 vs initial

CollaPlant Z NPNF® shows **better conditioning and manageability** after 1 & 5 applications



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COLLAPLANT Z NPNF® TECHNICAL SUMMARY

VEGETABLE ALTERNATIVE FOR ANIMAL COLLAGEN

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BENEFITS:

- Increases tensile strength for stronger hair
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- Reduces wet/dry combing forces for better conditioning and manageability

FEATURES:

- Vegan collagen alternative
- Specific vegetable complex designed to provide comparable amino acid composition & sensory profile of hydrolyzed collagen
- Comparable sensory profile to animal collagen
- Non-GMO, paraben & formaldehyde free
- Versatile for use in hair care applications

SUGGESTED APPLICATIONS: Shampoos, Conditioners, & Leave-On Treatments

SUGGESTED USE LEVEL: 1-5%

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REGULATORY INSIGHTS

COLLAPLANT Z NPNF®

INCI: *Hydrolyzed Soy Protein, Rice Amino Acids, Hydrolyzed Adansonia Digitata Seed Extract, L-Proline*

- ISO 16128: NOI 0.95
- Country of Manufacture: USA
- REACH Compliant
- Cruelty-Free, GMO-Free, Gluten-Free, Vegan Compliant, NPNF®, Sulfate/Phthalate-Free, Palm Oil Free

CAS#: 68607-88-5, 65072-01-7, 147-85-3, 91745-12-9
EINECS#: 271-770-5, N/A, 205-702-2, 294-680-8

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Formulation Collection

HAIR CARE

FORMULATIONS

pH: 5-6

Viscosity: SP 5/20 rmp/1 min 8300 cps

DAMAGE CONTROL VOLUMIZING SHAMPOO

INCI Name/Chemical Name	Trade Name	Supplier	%	%
Phase A				
Water	Water		Qs to 100	Qs to 100
Glycerin	Glycerin		3.00	3.00
Phase B				
Cocamidopropyl Betaine	Galaxy CAPB SB	Galaxy Surfactants, Ltd.	10.00	10.00
Sodium Laureth Sulfate	Galaxy LES 30	Galaxy Surfactants, Ltd.	35.00	35.00
Water, Hydrolyzed Soy Protein, Rice Amino Acids, Hydrolyzed Adansonia, Digitata Seed Extract, L-Proline	**CollaPlant Z NPNF (0.55% active)**	TRI-K Industries, Inc.		3.7
Hydrolyzed Collagen	**CollaTein N 55 (0.55% active)**	TRI-K Industries, Inc.	1.00	
Phase D				
Phenoxyethanol, Benzoic Acid, Capryloyl Glycine, Undecylenoyl Glycine	**Galguard Tetra**	TRI-K Industries, Inc.		1.00
Phase F				
Sodium Chloride	Sodium Chloride		0.60	0.60

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FORMULATIONS

pH: 4-5

Viscosity: Spindle 4/20rmp/1 min 16140 cps

DEEP NOURISHING CONDITIONER

INCI Name/Chemical Name	Trade Name	Supplier	(%)	(%)
Phase A				
DI Water	Water		Qs to 100	Qs To 100
Ethylenediamine tetra Acetic Acid	EDTA	SD Fine Chem Ltd	0.1	0.10
Glycerin	Glycerin		3.00	3.00
Guar Hydroxy Propyl Trimonium Chloride	Jaguar LS	Solvay	0.3	0.3
Phase B				
Cetyl Alcohol	Cetyl Alcohol		3.00	3.00
Glyceryl Stearate, Sodium Stearoyl Lactylate, Cetearyl Alcohol	TRIsatin	TRI-K Industries, Inc.	4.00	4.00
Phase C				
Phenoxyethanol (and) Capryloyl Glycine (and) Undecylenoyl Glycine	**Galguard Trident**	Galaxy Surfactants Ltd.	1.20	1.20
Water, Hydrolyzed Soy Protein, Rice Amino Acids, Hydrolyzed Adansonia Digitata Seed Extract, L-Proline	**CollaPlant Z NPNF (0.55% active)**	TRI-K Industries, Inc.	3.70	
Hydrolyzed Collagen	**CollaTein N55 (0.55% active)**	TRI-K Industries, Inc.		1.00
Perfume		Sonarome	0.50	0.50

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Thank You

Questions?

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Appendix

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What is Driving Veganism?

49% of adults surveyed (in Great Britain by Mintel) say they are interested in cutting meat for health reasons

Weight management

Arguably the most common reason for choosing to live as a vegan are the health benefits associated with the lifestyle[4]

Animal Welfare

Environmental concerns[2]

Meat production places an enormous strain on the environment, everything from the grain the animals eat and the water they consume, to the land they live on, to the greenhouse gases they emit[4]

Growing number of young people are trying out vegan diets for personal health reasons (39% of generally young, generally female Veganuary participants)[3]

Celebrity endorsements & social media

References

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