

20650PF.

AC Rice Curl Complex PF

PROTEINS



EX VIVO



ISO 16128



THE FEATURES.

AC Rice Curl Complex PF is a powerhouse blend designed to enhance curl retention, definition, and hydration. Crafted from rice amino acids, tomato bioferment, keratin amino acids, and acyl coenzyme A desaturase, this active helps improve overall hair health. Ideal for textured and curly hair, AC Rice Curl Complex PF supports long-lasting curl formation without stiffness, delivering soft, bouncy, and well-defined curls. Perfect for a wide variety of hair styling treatments, this active provides the nourishment and control needed for effortlessly beautiful curls.

Water & Lactobacillus/Tomato Fruit Ferment Extract & Oryza Sativa (Rice) Extract & Keratin Amino Acids & Acyl Coenzyme A Desaturase

actions

Curl Retention
Nourishing
Restorative
Conditioning

AC Rice Curl Complex PF



THE REGULATION.
INCI. Water & Lactobacillus/Tomato Fruit Ferment Extract & Oryza Sativa (Rice) Extract & Keratin Amino Acids & Acyl Coenzyme A Desaturase
CAS. 7732-18-5 & 90131-63-8 & 68553-81-1 & 65072-01-7 & 85-61-0
EINECS. 231-791-2 & 290-375-9 & N/A & N/A & 201-619-0
EUROPE. Compliant
USA. Compliant
CHINA. Contact Us

THE SPECIFICATION.
Origin. Botanical/Bacteria/Yeast/Animal
Natural Antimicrobial. Leuconostoc/Radish Root Ferment Filtrate*
Preservatives. None
Solvents Used. Water
Soluble/Miscible. Water Soluble
Appearance. Slightly Hazy to Hazy Liquid, Very Pale Yellow to Yellow
Use Level. 1 - 10 %



THE STORY.

The beauty industry has seen a powerful shift toward embracing natural hair textures, with curly-haired individuals celebrating their unique waves and coils like never before. This movement prioritizes hair health over excessive heat styling or chemical treatments, encouraging consumers to nourish and enhance their natural curl patterns rather than fight against them. However, maintaining defined, bouncy curls can be a challenge. Curly hair tends to lose moisture quickly, leading to frizz, breakage, and lackluster definition. The need for high-performance ingredients that support curl retention while fortifying the hair fiber has never been greater.

Curly hair's structure is naturally more fragile than straight hair due to its uneven cuticle layer and higher number of disulfide bonds, which contribute to its unique shape but also make it prone to damage. As curls coil and twist, they create more points of stress along the hair shaft, leading to breakage, tangles, and moisture loss.¹ Everyday factors such as friction, humidity, and improper styling can further weaken curls, diminishing their bounce and definition over time. To counteract these challenges, a solution must go beyond surface-level conditioning and target hair health at a molecular level to improve elasticity, hydration, and curl retention.

Harnessing the power of biofermentation and advanced hair science, this innovative ingredient blends fermented tomato fruit extract, rice extract, keratin amino acids, and acyl coenzyme A desaturase to enhance the beauty of natural curls. Fermented tomato fruit extract helps retain moisture while rice extract nourishes and smooths the cuticle.^{2,3} Keratin amino acids reinforce the hair's structure and acyl coenzyme A desaturase supports lipid balance.^{4,5} The result of this unique combination? Bouncy, well-formed curls that maintain their shape and shine without stiffness or frizz — empowering individuals to embrace their natural hair with confidence.

THE SCIENCE.

AC Rice Curl Complex PF is a scientifically designed ingredient complex that strengthens, protects, and optimizes hair integrity while enhancing curl retention. This innovative blend of rice amino acids, stearoyl CoA-desaturase (SCD-1), tomato bioferment, and keratin amino acids works synergistically to improve flexibility, moisture balance, and curl definition.

Rice amino acids have been shown to play a crucial role in conditioning and hydrating the hair, reinforcing its structure while minimizing moisture loss. Rice, a staple grain celebrated for its nutritional benefits, also carries strong consumer appeal when incorporated into cosmetic applications.³ Maintaining flexibility is essential for curly hair, as rigidity can lead to breakage and loss of definition. SCD-1, an enzyme that converts saturated fatty acids in the hair to unsaturated fatty acids,⁶ helps regulate the hair's lipid composition. This conversion lowers the melting point of fatty acids, improving hair flexibility and enhancing curl retention while refining texture.

AC Rice Curl Complex PF also features tomato bioferment, a powerhouse ingredient that has been shown to actively convert serine into cysteine within the hair.⁷ This researched process has proven to help repair oxidized sulfhydryl groups, effectively restoring disulfide bonds and reinforcing the hair's natural curl structure. Strengthening these bonds not only improves hair resilience but also enhances curl retention for both naturally curly hair and heat-styled curls. This mechanism is particularly beneficial for individuals who use curling irons or undergo perm treatments, as stronger hair structure leads to better curl memory and longevity.

Lastly, keratin amino acids have proven to further amplify hydration and smoothness, acting as humectants to lock in moisture, reduce frizz, and enhance curl retention.⁴ By reinforcing structural integrity, AC Rice Curl Complex PF empowers curls to stay strong, defined, and beautifully bouncy — naturally.

AC Rice Curl Complex PF



THE BENEFITS.

Hair

Long-Lasting Curls Hair Curl Retention



THE EFFICACY.

Hair Curl Retention Assay.

A Hair Curl Retention Assay evaluated AC Rice Curl Complex PF's ability to maintain curl definition. Twelve virgin brunette hair tresses were treated with either deionized (DI) water or 2.0% AC Rice Curl Complex PF, set in heatless curlers overnight, and imaged post-removal. Three tresses per group were exposed to ambient humidity (<30% RH), while six underwent high humidity (>90% RH). Images were captured at specific time points (30 min, 1 hr, 4 hrs, 8 hrs, and 24 hrs at ambient; 30 min, 1 hr, 2 hrs, 4 hrs, and 8 hrs at high humidity). Curl length was measured using retention scale paper, and percent retention was calculated. Statistical analysis was performed using a one-way ANOVA with significance set at $p \leq 0.05$.

	Uncurled	Curled	30 Minutes	1 Hour	2 Hours	4 Hours	8 Hours
DI Water							
2.0% AC Rice Curl Complex							

Figure 1. Representative Images of Curl Retention at High Humidity Over Time.

Exhibited +36% curl retention after 8 hours under high humidity exposure (tested at 2%)

Bouncy Curls.

Protects the Hair & Maintains Style

References:

1. Marsh, Jennifer Mary, John Gray, and Antonella Tosti. Healthy hair. No. 12380. New York: Springer International Publishing, 2015.
2. Jamaledidine, Aya, et al. "Ecodesigned formulations with tomato pomace extracts." *Cosmetics* 10.1 (2022): 7.
3. Kharde, Mir Abrishkek, et al. "Rice water: A Natural Remedy For Hair Health."
4. Cruz, Celia F., et al. "Peptide-protein interactions within human hair keratins." *International journal of biological macromolecules* 101 (2017): 805-814.
5. Stoffel, Wilhelm, et al. "Hair growth cycle is arrested in SCD1 deficiency by impaired Wnt3a-palmitoleylation and retrieved by the artificial lipid barrier." *Journal of Investigative Dermatology* 137.7 (2017): 1424-1433.
6. Paton, Chad M., and James M. Ntambi. "Biochemical and physiological function of stearoyl-CoA desaturase." *American Journal of Physiology-Endocrinology and Metabolism* 297.1 (2009): E28-E37.
7. Kim, Eun-Ju, et al. "A GC-MS based metabolic profiling of fermented tomato by lactic acid bacteria." *Applied Biological Chemistry* 62 (2019): 1-9.

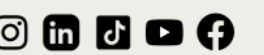
Active Concepts LLC
Lincolnton, NC - USA
Tel +1 704-276-7100
info@activeconceptsllc.com

Active Concepts SRL
Bareggio, (Milano) ITALY
Tel +39 02 90360719
info@activeconcepts.it

Active Concepts LLC, Asia
Kaohsiung, Taiwan
Tel + 886 73599900
info-asia@activeconceptsllc.com.tw



www.activeconceptsllc.com



Social Media
@activeconceptsglobal

Information contained in this technical data sheet is believed to be accurate and is offered in good faith for the benefit of the customer. The company, however, cannot assume any liability for risk involved in the use of its chemical products since the conditions of use are beyond our control. We make no warranty of any kind, express or implied, concerning the quality, performance, or products in the employment of any third party. Other than the material contained in the application literature, no other information is provided for the application of our products. Freedom from patent infringement is not implied. All trademarks are for identification purposes only.