

21026.

AC Violet'Blond Toner

COMPLEX ACTIVES



VEGAN



COSMOS



EX VIVO



IN VIVO



CHINA



ISO 16128



PASSPORT



THE FEATURES.

Shampoos and other hair treatments containing purple pigments function as a toner, restoring hair to its original, cool, salon-fresh color in a more vibrant shade. They mask the yellow tones in permanently dyed or bleached hair that have been exposed to damaging agents such as sweat, sebum, and pollutants. Increased consumer demand for more natural alternatives has led to a gap in the formulation of these purple shampoos that traditionally use textile acid dyes. The goal of AC Violet'Blond Toner is to offer a natural, pigment-free alternative color to purple hair products, giving hair a tone or brightening effect comparable to that of historically used synthetic dyes.

Dipsacus Sylvestris Extract & Viola Tricolor Flower Juice & Lactobacillus Ferment Lysate & Pisum Sativum (Pea) Starch

Actions

Anti-Brassiness
Anti-Yellow
Hydrating
Color Protection

TECHNICAL DATA SHEET.

AC Violet'Blond Toner



THE REGULATION.

INCI. Dipsacus Sylvestris Extract & Viola Tricolor Flower Juice & Lactobacillus Ferment Lysate & Pisum Sativum (Pea) Starch
CAS. 90131-47-8 & 84012-42-0 & 68333-16-4 (or) 92128-79-5 & 90082-41-0
EINECS. 290-358-6 & 281-687-6 & N/A (or) 295-777-8 & 290-130-6
EUROPE. Compliant
USA. Compliant
CHINA. Compliant

THE SPECIFICATION.

Origin. Botanical
Natural Antimicrobial. Lactobacillus Ferment Lysate
Preservatives. None
Solvents Used. Water
Soluble/Miscible. Water Soluble
Appearance. Clear to Slightly Hazy Liquid Purple to Dark Purple
Use Level. 1 - 20 %



THE STORY.

Natural blonde hair is due to a lack of eumelanin pigment, which gives it its color. Lighter skin and hair colors were evolved to help absorb sunlight in Northern Europe. Blonde imagination has influenced historical depictions of heroes, characters, and symbols. Blonde is the most popular hair color, available in permanent, semipermanent, scalp bleach, bleach, and highlights, and can be done by a professional or at home. Developing hair care products related to the color maintenance and meeting the current desires of consumers seeking natural alternatives in hair color maintenance was the starting point that led us to the development of the hair toner for blonde hair. Professional and at-home treatments with color protection properties are essential for cool-tone highlights or cool-tone blonde hair to shield against unwanted, yellow tones. Bleaching is a chemical treatment that removes color from hair through oxidation, removing melanin from the hair shaft. This process decolorizes the pigment in the hair shaft, turning it yellowish. This is because bleached hair also contains pheomelanin, the last layer of melanin, which has a yellow color. Yellowish tones appear after a few weeks, especially on the neck, ears, and forehead hairline. Sun exposure and sweating dries hair out and lifts the color, resulting in a brassy appearance. The solution to avoid this undesired effect is a purple shampoo, which can add an undertone of purple color to your hair when you wash it, because purple is the color that contrasts with yellow on the color wheel. This aids in counterbalancing brass in blonde-colored hair. The most used purple pigments used in anti-yellow treatments have synthetic origin. Consumer demand is driving the use of natural colors including chlorophyll, carotenoids, anthocyanins, and flavonoids instead of synthetic dyes¹. Anthocyanins are water-soluble plant colors that give blue/purple shades to fruits, vegetables, and leaves. The juice extraction of Viola Tricolor, known to contain high quantities of anthocyanins², which have been explored for their remarkable antioxidant properties, has been employed in Violet'Blond Toner to enhance the purple color as well as its potential UV hair protection function³.

THE SCIENCE.

Active Concepts' goal is to improve the industry by integrating research and innovation from other sectors. Biodegradable plastics made from food or biomass resources like starch are being explored as a solution to reduce the environmental impact of petrochemical plastics. However, commercial success requires bioplastics to have adequate physical properties.⁴ Starch cross-linking is a technique commonly used in polysaccharide chemistry to enhance the performance of polysaccharide-based materials, resulting in bioplastics like natural films for the food industry. Cross-linking involves forming tridimensional networks of polymer chains, which have numerous applications across various industries. The challenge is to advance greener cross-linking techniques while reducing costs. Plant-derived phenolic compounds, such as tannic acid, ferulic acid, and gallic acid, can be used as crosslinkers for protein and polysaccharide polymers.⁵ The antioxidant properties of these compounds could bring additional benefits in cosmetics or medical applications. Our objective was to explore cross-linking technology using secondary metabolites from wild teasel in combination with pea starch, while also producing natural purple color as outcome. This approach is based on previous studies indicating that plant-derived secondary metabolites can play a role in cross-linking reactions and generating pigments suitable for use in a range of various industries. Wild teasel, also known as *Dipsacus fullonum* L., was once used in textile processing for cleaning, aligning, and raising the nap on fabrics, particularly wool. It is a natural source of bioactive compounds, particularly phenolics and iridoids - natural monoterpenoids widely distributed in ornamental plants, herbs, and medicinal plants. Iridoids have great potential for the pharmaceutical industry as they show significant biological properties, such as neuroprotective, antioxidative, and antibacterial properties.^{6,7}

THE BENEFITS.

Hair

Hair toning *Blond Hair Toning Assay*



Multi-Wash *Blond Hair Toning Assay*



Color fade prevention *Color Protection
Microscopy Imaging*



Hydrating *Hair Hydration via
Gravimetric Analysis*



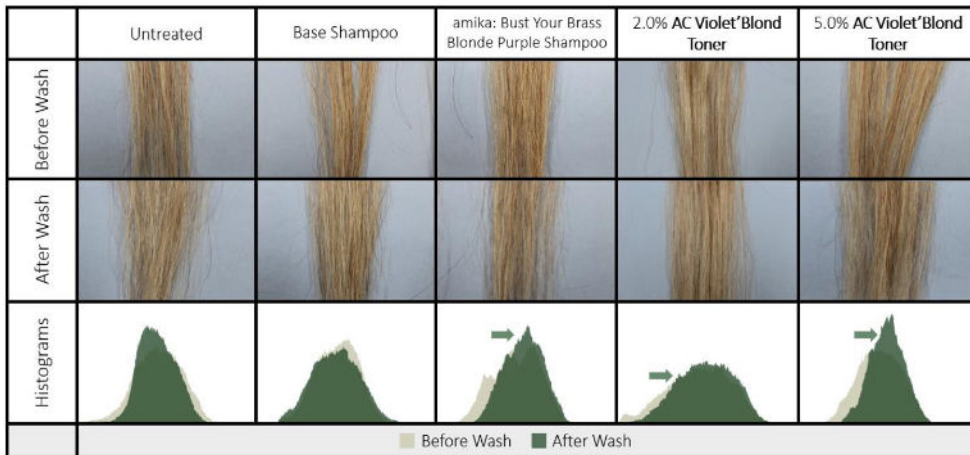
Conditioning *Salon Half Head Study*



THE EFFICACY.

Blond Hair Toning Assay.

A qualitative and quantitative assay was performed to determine the *ex vivo* color toning ability of AC Violet'Blond Toner on bleached hair. Brunette human hair tresses were bleached blonde as this shade is prone to exhibiting brassy tones. Tresses were imaged before and after treatment with test materials and analyzed for color shifts.



AC Violet'Blond Toner shampoos visibly removed brassy tones (-8.3% tested at 2%)

Toning effect.

Camouflage dull yellow & More vibrant Color

Multi-Wash Blond Hair Toning Assay.

A multi-wash toning assay was performed to determine the *ex vivo* benefits of AC Violet'Blond Toner on bleached hair. Twelve virgin brunette swatches were bleached twice using 30 volume bleach to obtain a brassy blonde hair color. Amika: Purple Shampoo was implemented for comparative purposes as a market standard, purple-pigmented shampoo. Each hair tress was evenly washed in its designated treatment a total of 14 times and allowed to fully air-dry between each wash.



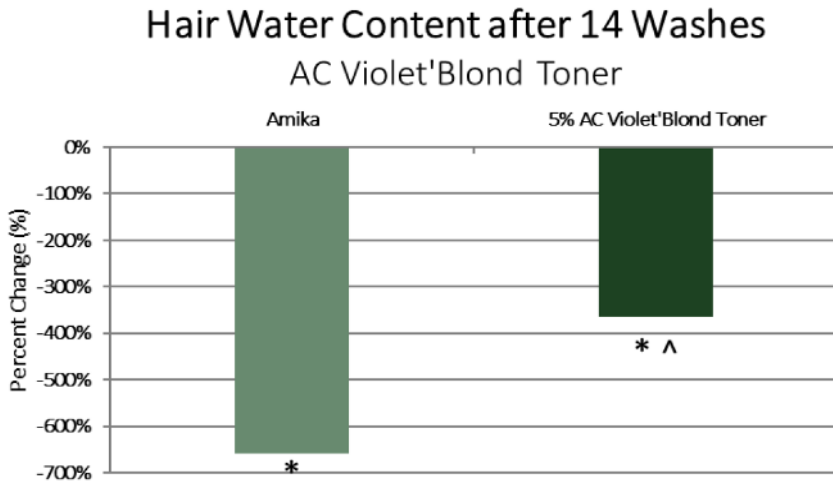
AC Violet'Blond Toner exhibited reductions in brassy tones (-8.2% tested at 5%)

Toning effect.

Daily protection & Less brassiness

Multi-Wash Blond Hair Toning Assay - Water Content.

Water content was evaluated using the TEWL probe on the Amika: Purple Shampoo tresses and 5.0% AC Violet'Blond Toner tresses to determine the drying effects of the colored products after 14 washes.



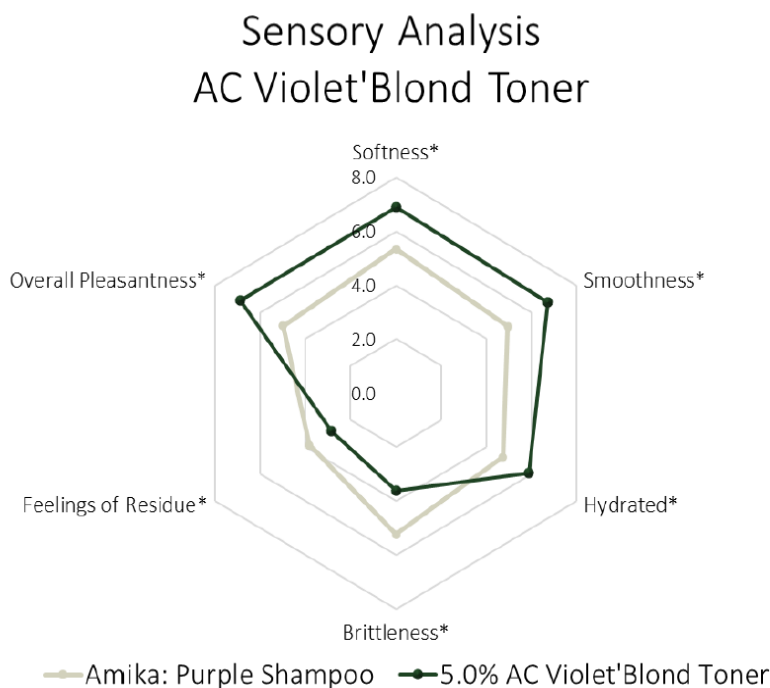
AC Violet'Blond Toner experienced less water loss
(tested at 5%)

Less drying.

Gentler application & Repeated washing

Multi-Wash Blond Hair Toning Assay - Sensory Analysis.

To understand the sensory differences between the two shampoos, a blind sensory study was conducted with 18 volunteers. After 14 washes, one tress from each condition was placed in a box so that participants could not see the tresses. Participants were asked to feel the tresses and rate each characteristic on a scale from 1 to 10, with 1 indicating the lowest and 10 representing the highest perceived benefit.



The tress treated with AC Violet'Blond Toner was rated softer
(tested at 5%)

Pleasant feel.

Reduced residue feelings & More hydrated hair

Color Protection - Microscopy Imaging.

An *ex vivo* Color Protection Assay was performed to determine qualitative and quantitative color fade benefits of AC Violet'Blond Toner on hair. Brunette human hair tresses were bleached blonde as this shade shows the greatest level of brassiness from wash-out and UV irradiation. Tresses were treated with test materials for a determined number of wash cycles followed by UV exposure.

	UV Exposure Time			
	0 Hours	10 Hours	20 Hours	30 Hours
Untreated Control				
Base Shampoo and Conditioner 7 Wash Cycles				
10.0% AC Violet'Blond Toner in Shampoo and Conditioner 7 Wash Cycles				
Base Shampoo and Conditioner 14 Wash Cycles				
10.0% AC Violet'Blond Toner in Shampoo and Conditioner 14 Wash Cycles				

The tresses treated with AC Violet'Blond Toner provided color protection
(tested at 10%)

Less color fade.

Color protection
&
Brassiness reduction

Hair Hydration via Gravimetric Analysis.

Human hair tresses were tested to understand the moisturizing capability of a cosmetic product. Tresses are weighed before and after application of the testing materials then subjected to heat treatment for a set period of time to allow for potential evaporation of the products. After heat treatment tresses are reweighed and moisture loss is calculated for each tress.

	Untreated Control	DI water	2.0% AC Violet'Blond Toner	5.0% AC Violet'Blond Toner
Initial Mass	0.995	0.987	1.012	0.991
Initial Mass + Test Product	0.995	1.980	2.024	1.931
Final Mass	0.926	0.951	1.025	1.015
% Moisture	-6.9%	-3.7%	1.3%*	2.5%*

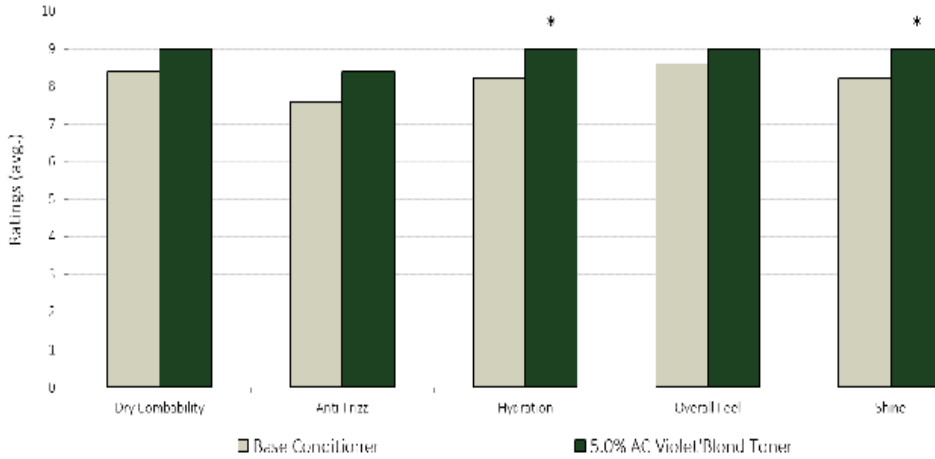
Bleach blonde hair tresses increase in moisture
(+2.5% tested at 5%)

Moisture retention.

Protective properties
&
Moisturizing activity

Half Head Study.

A Salon Half-Head Study was conducted to evaluate the perceived hair benefits of AC Violet'Blond Toner in a shampoo and conditioner on wet and dry hair.



Hair treated with AC Violet'Blond Toner is more hydrated and shinier (tested at 5%)

Positive hair feel.

Improved hair appearance & Less frizziness

References:

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3. Atefeh Ameri, Payam Khazaeli, Behzad Behnam et al "Formulation and optimization of phytosomes of ethanolic extract of Viola tricolor flowers using design of experiment (DOE) to evaluate in vitro photoprotective potential as sunscreen cream"
4. Ali S. Ayoub and Syed S. H. Rizvi "An Overview on the Technology of Cross-Linking of Starch for Nonfood Applications"
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