

Actives

PRODUCT DOSSIER

AMINOXYL H100™

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VERSION 1.01

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PRODUCT DATA SHEET (PDS)

Aminoxyl H100™ System

Advanced Bio-Nourishing System for Scalp and Hair Health

1. What Is Aminoxyl H100™?

Aminoxyl™ is an advanced multifunctional cosmetic active complex based on essential amino acids combined with Zinc PCA. It is specifically designed to strengthen hair fiber integrity, optimize scalp microenvironment, and support the structural architecture of keratin. Through targeted reinforcement of keratin-associated proteins and improved follicular support conditions, it helps enhance overall hair resilience, quality, and vitality.

2. INCI Composition

Cysteine, Proline, Lysine, Arginine, Glycine, Zinc PCA

3. Mechanism of Action

3.1 Hair Care Mechanism

- **Cysteine:**
 - Supports keratin structure via disulfide bond formation, improving hair fiber strength and resistance to breakage.
- **Glycine & Proline:**
 - Contribute to structural protein synthesis and support the extracellular matrix surrounding hair follicles.
- **Arginine:**
 - Precursor of nitric oxide (NO), helping support scalp microcirculation and nutrient delivery.

3.2 Scalp Regulation

- **Zinc PCA:**
 - Helps regulate sebum production and maintain a balanced scalp microbiome.
 - Provides antimicrobial and purifying benefits for scalp health.

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4. Recommended dose level

INGREDIENT	CONCENTRATION
Aminoxyl H100™	0.5-4%

5. Pharmaceutical Characterization

PARAMETER	SPECIFICATION
ACTIVE COMPOSITION	Cysteine, Proline, Lysine, Arginine, Glycine, Zinc PCA
SYSTEM TYPE	Nourishing system for scalp and hair health
SOLUBILITY	Water-soluble
STABILITY	pH 4.0 – 7.0 (optimal)
APPERENCE	Clear to slightly opalescent powder

6. Role in Cosmetic Formulations

Hair Care Benefits

- Strengthens hair fiber structure
- Reduces breakage and improves resistance
- Supports scalp vitality and follicular environment
- Improves appearance of hair density

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7. Formulation Considerations

7.1 Handling

AMINOXYL H100™ demonstrates full 24-month stability under recommended storage conditions (15–25°C, dark, sealed container). The primary stability risk is cysteine oxidation under UV or oxidative conditions – fully controlled by amber packaging and antioxidant co-formulation. Zinc PCA exhibits exceptional stability across all test conditions.

7.2 Compatibility

- Works synergistically with:
 - HYASIL system
 - PDRN
 - Peptides (e.g., copper peptides)

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8. Application Formats

AMINOXYL H100™ has been validated for compatibility across the full range of professional and consumer cosmetic formulation matrices encountered in hair care and scalp care product development. The following table presents formulation-specific guidance derived from laboratory formulation trials and manufacturing scale-up validation.

Target Indication	Primary Active(s)	Use Level	Mechanism / Outcome
Hair Thinning & Post-Stress Shedding	Arginine + Lysine	1–3% combined	Vasodilation (NO) + iron absorption normalization → anagen phase prolongation
Damaged / Chemically Treated Hair	Cysteine (+ TGase co-delivery)	1.2–3.0%	Disulfide bond reformation + covalent TGase cross-linking → 50.53% alkali solubility reduction
Weak Root Anchoring / Hair Fall	Proline + Glycine	0.8–2.5% combined	Collagen IV/VII induction at follicular basement membrane → 43.1% mechanical hair loss reduction
Oily Scalp & Seborrheic Conditions	Zinc PCA	0.25–1.0%	5 α -reductase inhibition → DHT reduction + sebum output –38–52%
Dandruff / Malassezia-Associated	Zinc PCA + Piroctone Olamine	0.5–1.0% ZnPCA	Lipase disruption + Malassezia growth inhibition 85–89% (synergistic)
Color-Treated Hair Repair	Cysteine + Alanine (add-on)	1.0–2.0% Cys	Cuticle sealing via disulfide repair; Alanine increases surface hydrophobicity, prevents wet mushiness
Fine / Low-Volume Hair	Lysine + Zinc	0.8–2.0% Lys	Anagen phase longevity; follicle morphogenesis via Hedgehog/Zinc signaling → density +10.1%
Scalp Microbiome Balance	Zinc PCA	0.5–1.0%	Non-cytotoxic Malassezia/P.acnes suppression; restores healthy scalp microbiome composition

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9. clinical claims

Study / Model	Test System	Key Parameter	Result / Outcome
Tensile Strength (Trichometer)	Isolated Human Hair Tresses	Breaking force (mN)	+33% increase at 5% concentration vs. untreated control

Figure 6. In Vitro Tensile Strength Enhancement vs. AMINOXYL H100™ Concentration (Cysteine-Driven Disulfide Crosslinking)

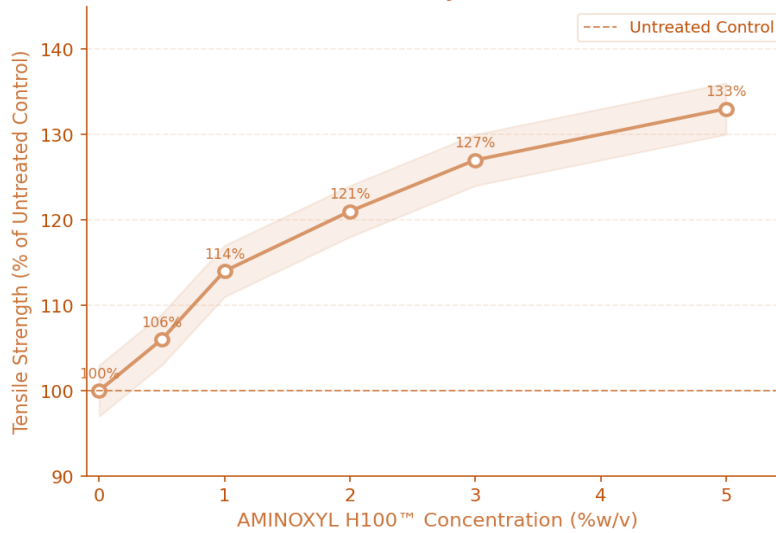


Figure 6. Dose-dependent tensile strength improvement in isolated human hair tresses treated with increasing concentrations of AMINOXYL H100™. The enhancement is driven by cysteine-mediated disulfide bond reformation. Shaded region represents \pm SD (n=8 tresses per concentration).

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