

Technical Data Sheet

Honey Bee Defensin-1 (HBD-1) | 0.1% Honey Bee Defensin-1 in Ammonium Sulfate Suspension
Product Code FL-HBD1-AMS-01PCT-TDS

Current published version — subject to change.

This document is the current web-published revision. Specifications, classifications, and recommendations may be revised without notice as additional batch and analytical data become available. **For any shipment, the authoritative document is the revision packaged with your batch — refer to that version for the values that apply to the lot you receive.**

Product Overview

Product Name	Honey Bee Defensin-1 (HBD-1) 0.1% Honey Bee Defensin-1 in Ammonium Sulfate Suspension
Product Code / SKU	FL-HBD1-AMS-01PCT-TDS
Document Revision	0.1
Effective Date	May 20, 2026
Manufacturer	Formulate Labs, Inc. 1645 Headland Dr. Fenton, MO 63026
Quality Contact	quality@formulate.co <i>Lot issues, complaints, contamination concerns, out-of-spec materials, COA discrepancies.</i>
Regulatory Contact	regulatory@formulate.co <i>INCI, allergens, IFRA, Prop 65, vegan/natural claims, compliance documents, formulation-use questions.</i>
Adverse Effects Reporting	safety@formulatelabs.ai
Emergency Phone Number	888-999-2260

This material is bioengineered Honey Bee Defensin-1 at 0.1% in a fixed 35% ammonium sulfate / water salting-out suspension designed to preserve protein integrity during cold storage. It ships refrigerated and is intended for cosmetic formulators building premium renewal, barrier, or recovery-positioned leave-on serums and treatments.

Recommended Cosmetic INCI Declaration

Honey Bee Defensin-1

INCI ordering follows descending weight per FDA / EU cosmetic labeling convention; ingredients below 1% may appear in any order in the final label per local regulations. The process-integrated preservation system is disclosed in the SDS for industrial safety and formulation review. Finished-product manufacturers and brand owners remain responsible for final ingredient labeling determinations in each sale jurisdiction.

Composition / Information on Ingredients

Ingredient / Chemical Name	CAS #	Function	% by Weight
Ammonium Sulfate	7783-20-2	Salting-out stabilizer / protein precipitation carrier	35.000%
Honey Bee Defensin-1	—	Active recombinant protein / peptide; cosmetic raw material	0.100%
Purified Water	7732-18-5	Solvent (balance)	64.900%

Preservation System

System	Level	Notes
None (cold-chain salting-out suspension)	N/A	Refrigerate at 2-8 °C. Brand must validate preservation in the finished product.

Unpreserved salting-out suspension. No cosmetic preservative is added; stability relies on cold storage and the ammonium sulfate matrix. Finished formulations must include an appropriate preservation system.

Key Technical Attributes

Format	Aqueous cosmetic raw material
Appearance	Opaque to translucent suspension; salting-out ammonium sulfate may settle on standing. Resuspend gently before sampling.
Odor	Odorless to faint characteristic; no added fragrance
Preservation	Unpreserved salting-out suspension. No cosmetic preservative is added; stability relies on cold storage and the ammonium sulfate matrix. Finished formulations must include an appropriate preservation system.
Target pH	5.5-7.0 at 25 °C (anticipated)
Solubility / Compatibility	Water-miscible / water-compatible
Recommended Use Level	Use at typically 0.005-0.05% of the suspension into the finished formula Use levels are guidance only; finished-formula safety, preservation efficacy, and stability remain the responsibility of the brand.
Processing	Thaw or equilibrate to 2-8 °C before opening. Resuspend gently; avoid high shear and sustained heat. Dialyze or dilute to remove ammonium sulfate before incorporating into finished cosmetic phases when required by your SOP. Add during cool-down at <= 40 °C. Maintain finished-formula pH in a skin-compatible window (approximately 4.5-7.0) per your stability data.
Storage	Store tightly closed at 2-8 °C (refrigerated). Protect from light. Ship cold. Minimize freeze-thaw cycles. Resuspend gently before sampling. Use within opened-container guidance on the lot COA once production batches run.
Shelf Life	Anticipated unopened, refrigerated: 12-24 months. Anticipated unopened, controlled room temperature: 6-12 months. Open or in-use containers require site-specific microbial controls. Ranges represent the current published target and may be refined by future stability data.

Formulation Guidance

- Best suited to premium leave-on serums, eye treatments, and recovery-positioned skincare where a cold-chain protein active is desired.
- Dialyze or buffer-exchange to remove ammonium sulfate before adding to finished cosmetic phases if your SOP requires a salt-free active.
- Finished formulas must be independently preserved, stability tested, and micro challenge tested.
- Avoid strong oxidizers, chelators at high levels, and prolonged exposure above 40 °C after the active is incorporated.

Marketing / Claims Guidance

Appropriate cosmetic language may include supports a hydrated-looking finish, supports recovery appearance, and defensin-class antimicrobial peptide positioning. **Avoid antibiotic drug claims** ('treats acne', 'kills bacteria medically'). Structure/function statements must not imply medical benefit.

Regulatory Notes

- **Current published version — subject to change.** This document represents the current web revision. Specifications may be revised as additional batch and analytical data become available; the document packaged with each shipment is the authoritative version for the specific lot received.
- Recommended cosmetic INCI declaration is the descending-weight string listed above.
- SDS composition disclosure is provided for industrial safety, formulation review, and regional compliance assessment.
- No fragrance is intentionally added.
- **Not certified organic, kosher, halal, COSMOS, vegan, or non-GMO unless separately accompanied by a third-party certificate.** Suitability assessments based on the ingredient deck and supplier information are not equivalent to certifications.
- Component supplier data has been used in good faith; supplier-issued documents take precedence over individual statements above where a discrepancy exists.

- Finished-product manufacturers remain responsible for final product safety, claims, label compliance, regional restrictions, and preservative efficacy.