

Safety Data Sheet

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

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.**

1. Identification

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-SDS
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
Recommended Use	Cosmetic and personal-care raw material for professional formulation and manufacturing use. Intended to be incorporated into finished cosmetic products.
Restrictions on Use	Not intended for ingestion, injection, inhalation, or unsupervised topical use. Not a finished consumer product. Finished-product brand owners and manufacturers are responsible for final formula safety, preservation, labeling, claims, and regional compliance.

2. Hazard(s) Identification

GHS / OSHA Classification	Not classified as hazardous based on currently available information for the mixture and its component concentrations.
Signal Word	Not required.
Hazard Pictograms	None.
Hazard Statements	No GHS hazard statements required at this revision based on available information. Product may cause mild eye irritation from direct contact. Spilled product may be slippery.
Precautionary Statements	Use good industrial hygiene practices. Avoid eye contact. Wash hands after handling. Keep container closed when not in use. Clean spills promptly.
Other Hazards	Cosmetic raw material containing a recombinant protein / peptide and ammonium sulfate. Ammonium sulfate is an irritant in concentrated form; the finished suspension is intended for professional formulation use only.

3. Composition / Information on Ingredients

Ingredient / Chemical Name	CAS #	Function in supplied raw material	% 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%

Ammonium sulfate is disclosed on this SDS/TDS as part of the shipped suspension for industrial safety review. It is a process stabilizer and is typically removed or diluted below finished-product INCI thresholds when the active is incorporated into a cosmetic formula; the recommended cosmetic INCI declaration for labeling is the protein / peptide active only.

4. First-Aid Measures

Exposure Route	Recommended First Aid
Inhalation	Move person to fresh air if mist or vapor exposure causes discomfort. Seek medical attention if symptoms persist.
Skin Contact	Wash with soap and water. Product is intended for cosmetic formulation use, but prolonged or repeated contact with concentrated raw material should be avoided.
Eye Contact	Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do. Seek medical attention if irritation persists.
Ingestion	Rinse mouth. Do not induce vomiting. Seek medical advice if a significant amount is swallowed or symptoms occur.
Most Important Symptoms	Possible mild eye irritation; gastrointestinal discomfort if ingested.

5. Fire-Fighting Measures

Suitable Extinguishing Media	Use water spray, dry chemical, carbon dioxide, or alcohol-resistant foam as appropriate for surrounding materials.
Specific Hazards	Product is a water-based cosmetic suspension and is not expected to be flammable or combustible. Thermal decomposition may produce carbon oxides and irritating fumes.
Protective Equipment	Firefighters should wear self-contained breathing apparatus and protective gear if exposed to combustion products.

6. Accidental Release Measures

- Use caution: spilled suspension can create a slip hazard.
- Wear suitable gloves and eye protection for bulk spills.
- Contain spill, absorb with inert material, and place in a suitable container for disposal.
- Prevent large quantities from entering drains or waterways.
- Wash spill area with water after material is removed.

7. Handling and Storage

Handling	Avoid contamination during use. Use clean tools and closed transfer systems where possible. Avoid eye contact and prolonged direct handling. Avoid high shear, extended heat (>45 °C), and pH extremes during formulation.
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: 12-24 months at 2-8 °C; 6-12 months at controlled room temperature (20-25 °C) when protected from heat and light. Shelf-life ranges represent the current published target derived from formulation design and analogous catalog items; finished-batch stability data may refine these ranges in a future revision. Do not assign shelf life to open or repeatedly exposed containers without in-use controls.

8. Exposure Controls / Personal Protection

Occupational Exposure Limits	No occupational exposure limits established for the mixture. Component-level limits, where they exist, apply at the individual ingredient concentrations disclosed in Section 3.
Engineering Controls	General room ventilation is expected to be adequate for normal handling.
Eye / Face Protection	Safety glasses recommended when handling bulk material.
Skin Protection	Use suitable gloves for repeated or bulk handling.
Respiratory Protection	Not normally required. Avoid generating aerosols or mists.
Hygiene Measures	Handle according to good industrial hygiene and manufacturing practices. Wash hands after handling.

9. Physical and Chemical Properties

Property	Anticipated Value / Description
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
pH (target)	5.5-7.0 at 25 °C (anticipated)
Specific Gravity	Approximately 1.05-1.15 g/mL (anticipated; salting-out suspension)
Solubility	Water-miscible / water-compatible
Flash Point	Not applicable; aqueous product
Flammability	Not expected to be flammable
Boiling Point	Not determined; aqueous system
Viscosity	Anticipated low- to medium-viscosity pourable suspension with possible settling of ammonium sulfate on standing; resuspend before use.

10. Stability and Reactivity

Reactivity	No dangerous reactivity known under recommended handling and storage conditions, based on available component data and analogous cosmetic suspensions.
Chemical Stability	Anticipated stable under recommended storage conditions. See the Formulation Guidance section of the TDS for finished-formula compatibility considerations.
Conditions to Avoid	High heat, freezing, repeated contamination, direct sunlight, extremes of pH, and high-shear mixing once dispersed in the finished formula.
Incompatible Materials	Strong oxidizing agents, strong bases, strong reducing agents, and high-dose chelators where applicable to the active in this material.
Hazardous Decomposition	Carbon oxides and irritating fumes under fire or thermal decomposition conditions.

11. Toxicological Information

Endpoint	Information
Acute Toxicity	No mixture data available. Not expected to be acutely toxic under normal industrial handling based on available component information and use concentration.
Skin Corrosion / Irritation	No mixture data available. Not expected to be corrosive based on available component information.
Serious Eye Damage / Irritation	Direct contact may cause mild temporary irritation.
Sensitization	No mixture sensitization data available. Patch testing of finished formulations per standard cosmetic protocol is recommended.

Endpoint	Information
Carcinogenicity	No component intentionally added at >= 0.1% is known by Formulate Labs to be listed by IARC, NTP, OSHA, or ACGIH as a carcinogen, based on the current ingredient deck.
Additional Information	Toxicological properties of the finished mixture have not been fully investigated. Use with caution appropriate to cosmetic raw materials.

12. Ecological Information

- Ecotoxicity data for the finished mixture are not available.
- Avoid uncontrolled release to the environment or waterways.
- Product is primarily aqueous and contains cosmetic-grade components, but no complete biodegradation claim is made for the mixture.

13. Disposal Considerations

Dispose of product and contaminated packaging in accordance with federal, state, and local regulations. Do not discharge bulk product to drains or waterways. Empty containers should be cleaned or disposed of according to site procedures.

14. Transport Information

Mode	Classification
DOT	Not regulated as dangerous goods based on available information.
IMDG	Not regulated as dangerous goods based on available information.
IATA	Not regulated as dangerous goods based on available information.

15. Regulatory Information

Regulation / Program	Status / Statement
OSHA HazCom	Not classified as hazardous under the OSHA Hazard Communication Standard based on available information.
SARA 302 / 304	No intentionally added components known to be subject to emergency planning notification at listed thresholds.
SARA 311 / 312	No SARA hazard categories expected for this mixture at this revision.
SARA 313	No intentionally added components known to be reportable under SARA 313 at listed thresholds.
California Proposition 65	No Proposition 65-listed chemicals are intentionally added. Trace environmental constituents may be present in naturally-derived materials; batch or periodic testing should be used where Prop 65 exposure assessments are required.
EU / REACH	See separate REACH/SVHC and regulatory statement where provided. Recipe-specific REACH packets are issued on request via regulatory@formulate.co.

16. Other Information

Prepared By	Formulate Labs Quality / Regulatory
Issue Date	May 20, 2026
Revision	0.1
Abbreviations	GHS: Globally Harmonized System; OSHA: Occupational Safety and Health Administration; SDS: Safety Data Sheet; COA: Certificate of Analysis; INCI: International Nomenclature Cosmetic Ingredient; CAS: Chemical Abstracts Service; SVHC: Substances of Very High Concern.

Disclaimer

The information herein is provided in good faith based on current formulation information and available supplier data. It is not a warranty of merchantability or fitness. Users are responsible for determining suitability, safe handling, and compliance for their intended use and jurisdiction. This document is the current published web revision; the authoritative document for any specific shipment is the revision packaged with that batch.