Pieridae Beauty — Honey Melt Leave‑In Serum (Deviated Build)

Lightweight conditioning milk blending premium Hyaluronic Acid and Manuka Honey with Ceramide Complex and Hydrolyzed Protein for enhanced barrier support and slip. **Target pH: 4.8–5.2 (aim ~5.0). Batch shown: 100 g.**

# Change Log vs. Baseline

**Added** Ceramide Complex 2.0%, Hydrolyzed Protein 1.0%, optional Disodium EDTA 0.10%. All other actives, preservative, and emulsifier stack remain aligned to baseline.

## Formula — 100 g Batch

|  |  |  |  |
| --- | --- | --- | --- |
| Phase | Ingredient / INCI | % w/w | Grams |
| A — Heated Water | Aqua (Water), q.s. to 100% | 65.2 | 65.20 |
|  | Aloe Barbadensis Leaf Juice | 10.0 | 10.00 |
|  | Glycerin (veg.) | 3.0 | 3.00 |
|  | Disodium EDTA (optional) | 0.10 | 0.10 |
| B — Heated Oil/Conditioning | Behentrimonium Methosulfate (and) Cetearyl Alcohol (BTMS‑50) | 4.0 | 4.00 |
|  | Cetearyl Alcohol | 2.0 | 2.00 |
|  | C12-15 Alkyl Benzoate | 5.0 | 5.00 |
|  | Caprylic/Capric Triglyceride | 2.0 | 2.00 |
| C — Cool-Down (≤40 °C) | Panthenol (Pro‑Vitamin B5) — pre‑dissolve | 2.0 | 2.00 |
|  | Sodium Hyaluronate (Low MW) — pre‑hydrate | 0.20 | 0.20 |
|  | Allantoin — side‑solution | 0.20 | 0.20 |
|  | Leptospermum Scoparium Mel (Manuka Honey) | 2.0 | 2.00 |
|  | Ceramide Complex (Lotioncrafter) (≤40 °C) | 2.0 | 2.00 |
|  | Hydrolyzed Silk/Wheat Protein | 1.0 | 1.00 |
|  | Phenoxyethanol (and) Ethylhexylglycerin (PE 9010) | 1.0 | 1.00 |
|  | Fragrance / Parfum (optional) | 0.30 | 0.30 |

## Formula — 500 g Batch

|  |  |  |  |
| --- | --- | --- | --- |
| Phase | Ingredient / INCI | % w/w | Grams |
| A — Heated Water | Aqua (Water), q.s. to 100% | 65.2 | 326.00 |
|  | Aloe Barbadensis Leaf Juice | 10.0 | 50.00 |
|  | Glycerin (veg.) | 3.0 | 15.00 |
|  | Disodium EDTA (optional) | 0.10 | 0.50 |
| B — Heated Oil/Conditioning | Behentrimonium Methosulfate (and) Cetearyl Alcohol (BTMS‑50) | 4.0 | 20.00 |
|  | Cetearyl Alcohol | 2.0 | 10.00 |
|  | C12-15 Alkyl Benzoate | 5.0 | 25.00 |
|  | Caprylic/Capric Triglyceride | 2.0 | 10.00 |
| C — Cool-Down (≤40 °C) | Panthenol (Pro‑Vitamin B5) — pre‑dissolve | 2.0 | 10.00 |
|  | Sodium Hyaluronate (Low MW) — pre‑hydrate | 0.20 | 1.00 |
|  | Allantoin — side‑solution | 0.20 | 1.00 |
|  | Leptospermum Scoparium Mel (Manuka Honey) | 2.0 | 10.00 |
|  | Ceramide Complex (Lotioncrafter) (≤40 °C) | 2.0 | 10.00 |
|  | Hydrolyzed Silk/Wheat Protein | 1.0 | 5.00 |
|  | Phenoxyethanol (and) Ethylhexylglycerin (PE 9010) | 1.0 | 5.00 |
|  | Fragrance / Parfum (optional) | 0.30 | 1.50 |

## Formula — 1000 g Batch

|  |  |  |  |
| --- | --- | --- | --- |
| Phase | Ingredient / INCI | % w/w | Grams |
| A — Heated Water | Aqua (Water), q.s. to 100% | 65.2 | 652.00 |
|  | Aloe Barbadensis Leaf Juice | 10.0 | 100.00 |
|  | Glycerin (veg.) | 3.0 | 30.00 |
|  | Disodium EDTA (optional) | 0.10 | 1.00 |
| B — Heated Oil/Conditioning | Behentrimonium Methosulfate (and) Cetearyl Alcohol (BTMS‑50) | 4.0 | 40.00 |
|  | Cetearyl Alcohol | 2.0 | 20.00 |
|  | C12-15 Alkyl Benzoate | 5.0 | 50.00 |
|  | Caprylic/Capric Triglyceride | 2.0 | 20.00 |
| C — Cool-Down (≤40 °C) | Panthenol (Pro‑Vitamin B5) — pre‑dissolve | 2.0 | 20.00 |
|  | Sodium Hyaluronate (Low MW) — pre‑hydrate | 0.20 | 2.00 |
|  | Allantoin — side‑solution | 0.20 | 2.00 |
|  | Leptospermum Scoparium Mel (Manuka Honey) | 2.0 | 20.00 |
|  | Ceramide Complex (Lotioncrafter) (≤40 °C) | 2.0 | 20.00 |
|  | Hydrolyzed Silk/Wheat Protein | 1.0 | 10.00 |
|  | Phenoxyethanol (and) Ethylhexylglycerin (PE 9010) | 1.0 | 10.00 |
|  | Fragrance / Parfum (optional) | 0.30 | 3.00 |

# Manufacturing SOP (First‑Pass Yield Optimized)

1. 1. Sanitize all vessels, tools, and workspace. Reserve ~15 g of A‑phase water for pre‑solutions.
2. 2. Heat Phase A (water, aloe, glycerin, EDTA) to 72–75 °C with mixing until uniform.
3. 3. In a separate beaker, heat Phase B (BTMS‑50, cetearyl alcohol, esters/oils) to 72–75 °C until fully molten.
4. 4. Emulsify: add Phase B into Phase A (hot‑hot) under high shear 1–2 minutes; then switch to gentle prop mixing and begin cooling.
5. 5. Prepare pre‑solutions (room temp unless noted):
6. 6. • Allantoin side‑solution: Heat reserved DI water to 65 °C, dissolve allantoin until clear; cool to room temp.
7. 7. • Hyaluronic Acid: Pre‑hydrate via glycerin slurry, then into reserved room‑temp water until fully hydrated/clear.
8. 8. • Panthenol: Pre‑dissolve in a small aliquot of reserved water until clear.
9. 9. When batch is ≤40 °C, add in sequence: Manuka Honey → Allantoin solution → HA solution → Panthenol solution → Ceramide Complex (≤40 °C) → Hydrolyzed Protein → PE 9010 → Fragrance.
10. 10. pH tune to 4.8–5.2 (target ~5.0) using 10% L‑Arginine or 10% NaOH to raise; 10% citric acid to lower. Mix 10 min, de‑bubble.
11. 11. Fill into airless pumps or soft‑touch squeeze bottles. Label with batch #, date, pH, preservative system.

# QC / Release Criteria

• pH (10% dilution, 24 h): 4.8–5.2 (target ~5.0).

• Appearance/Texture: glossy, light conditioning milk; no separation at 48 h.

• Allantoin: no visible crystallization/grit at 48 h.

• Viscosity: stable after 24–48 h; record spindle/RPM if available.

• Preservation: as per house micro schedule (record PE 9010 lot).

# Micro‑SOP: pH Tuning (Pilot → Scale)

• Bench a 20–30 g pilot from the batch; adjust pH dropwise with 10% solutions; record grams required to hit target pH.

• Scale the dose to full batch as % w/w; add under stirring; wait 5–10 min and re‑measure.

• Re‑check pH at T+24 h to confirm stability; log final pH and adjusters added.

# Packaging & Storage

Airless pump or soft‑touch squeeze bottle; store cool and dry. Avoid prolonged >40 °C exposure.

# INCI (Draft for Labeling — verify supplier INCI for Ceramide Complex)

Aqua (Water), Aloe Barbadensis Leaf Juice, Behentrimonium Methosulfate (and) Cetearyl Alcohol, C12-15 Alkyl Benzoate, Glycerin, Caprylic/Capric Triglyceride, Panthenol, Leptospermum Scoparium Mel (Manuka Honey), Hydrolyzed Silk, Ceramide Complex, Sodium Hyaluronate, Allantoin, Phenoxyethanol (and) Ethylhexylglycerin, Disodium EDTA, Fragrance (Parfum).

# Batch Record — Fields

• Batch #: \_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_ Operator: \_\_\_\_\_\_\_\_

• Raw lots (key actives/preservative): \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

• pH pre‑adjust: \_\_\_\_ pH final (24 h): \_\_\_\_

• Adjusters added (10% NaOH / L‑Arginine / Citric): \_\_\_\_ g

• Observations (appearance, scent, viscosity): \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_