品鸿生物科技
Pinhon Biotechnology

Technical Data Sheet

PINHONBIO® Hydroxyectoin

TDS | Assay ≥98.0% | General product specification | Version 1.0

Hydroxyectoin is a water-soluble cyclic amino acid derivative used in cosmetic skin-conditioning formulations. This sheet defines the standing quality specification for the ≥98.0% grade and provides handling and formulation guidance.

1. Product identity

Product name / INCI	PINHONBIO® Hydroxyectoin / HYDROXYECTOIN
Other name	Hydroxyectoine; 5-Hydroxyectoine
CAS number	165542-15-4
Molecular formula / weight	C6H10N2O3 / 158.16 g/mol
Chemical name	(4S,5S)-5-Hydroxy-2-methyl-1,4,5,6-tetrahydropyrimidine-4-carboxylic acid

2. Quality specification

Test item	Specification	Method
Hydroxyectoin content	≥98.0%	HPLC
Ectoin content	≤0.5%	HPLC
Appearance	White to off-white crystalline powder	Visual examination
Odour	Characteristic	Organoleptic examination
pH	5.0-8.0	Potentiometry
Loss on drying	≤0.5%	105 °C to constant mass
Total heavy metals	≤10 mg/kg	ICP-MS
Arsenic (As)	≤2 mg/kg	ICP-MS
Cadmium (Cd)	≤1 mg/kg	ICP-MS
Lead (Pb)	≤2 mg/kg	ICP-MS
Mercury (Hg)	≤0.1 mg/kg	ICP-MS
Total aerobic microbial count	≤1,000 CFU/g	Microbiological culture
Yeasts and moulds	≤100 CFU/g	Microbiological culture
Staphylococcus aureus	Not detected in 1 g	Microbiological culture
Salmonella	Not detected in 1 g	Microbiological culture
Escherichia coli	Not detected in 1 g	Microbiological culture

pH preparation: the manufacturer technical reference specifies a 2% aqueous solution. Methods above are concise descriptions; controlled laboratory procedures define preparation and acceptance details. 1 mg/kg = 1 ppm. No tasting is required for quality evaluation.

3. Properties and cosmetic applications

Solubility: Soluble in water. Incorporate through the aqueous phase rather than treating the powder as an oil-soluble ingredient.

Function: Hydroxyectoin is used for skin conditioning, emollience and buffering. It belongs to the ectoine family of compatible solutes; technical literature describes stabilization of biological macromolecules under environmental stress.

Application formats: Aqueous serums, lotions, emulsions, creams and masks. Suitability depends on the full formula and intended use.

4. Formulation guidance

Dissolve the required amount in the available water phase with mixing until uniform. Minimize dust during weighing and transfer. Check dissolution at the actual concentration and processing temperature before scaling up.

Select the use level through formulation development and finished-product evaluation. The raw-material pH specification is a quality-control test, not a guaranteed finished-formula stability range. Verify compatibility with preservatives, electrolytes, surfactants, other actives and packaging.

Use the complete finished-product assessment to support efficacy, tolerability and shelf-life claims. This raw material is not supplied as a finished cosmetic or a pharmaceutical product.

5. Packaging and storage

Packaging	Double inner plastic bags in a neutral fibre / cardboard drum. Net weight is defined by the order.
Storage	Keep tightly closed in a cool, dry place, protected from moisture and direct sunlight. Reseal promptly after opening.
Shelf life	36 months in original unopened packaging when stored as recommended.
Handling	Use clean, dry utensils. Prevent contamination and moisture uptake. Refer to the SDS for workplace precautions.

6. Supplier information

Shaanxi Pinhon Biotechnology Co., Ltd. | Manufacturer & Supplier

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7. Document control and references

Issue date: 13 Oct 2026 | Version: 1.0. Quality limits apply across batches of this product grade. Batch compliance is documented separately in the COA. This TDS describes specifications and technical guidance; it is not a batch test report.

Merck / Sigma-Aldrich Hydroxyectoin technical information, product 70709. View source

COSMILE Europe Hydroxyectoin ingredient functions. View source

Identity and quality limits follow the PINHONBIO product specification; water solubility and the 2% pH preparation are described in the supplied manufacturer TDS. Reference information does not transfer other suppliers' certifications or performance guarantees to PINHONBIO.