

**IN CHINA FOR WORLD
PREMIER CERAMIDE INGREDIENT
WITH INTELLIGENT SOLUTIONS**



CHONGQING ZHIHE BIO-PHARMACEUTICAL CO.,LTD.

WE CREATE CERAMIDE AESTHETICS



**CHONGQING ZHIHE
BIO-PHARMACEUTICAL CO.,LTD.**

Address: No.688 Xiema Street, Beibei District, Chongqing City

**SHANGHAI HUYU ZHIHE
BIO-PHARMACEUTICAL CO.,LTD.**

Address: Room 504, No. 781 Cailun Road, Pudong New Area, Shanghai City

WEBSITE

<https://www.zhswyy.com/cn>

LINKEDIN

www.linkedin.com/company/zhihe-bio



CATALOGUE

I. Corporate Information

About Zhihe Bio
Milestone Events
Certificates and Intellectual Properties

03

II. Product Series Overview

Natural Ceramides
Natural Sphingoids
Four Innovative Application Technologies
Ceramide Application Innovations
Fragrance & Flavor
Other Products

07

III. Core Product Details

1. Ceramide Application Innovations	15
Cellimide® LC-10	
Cellimide® 6C-20	
Cerax® Lipi-3 PRO	
Cerax® Lipi-5	
Cerax® SLP-50	
Cerax® OS	
Cerax® 7C-OS 2.0; Cerax® 7C-OS 1.0	
2. Natural Ceramides	29
Ceramide NP	
Ceramide AP	
Ceramide EOP	
Ceramide NP/Ceramide NG	
Ceramide NG (NDS); Ceramide NG-O (NDS)	
Ceramide EOS; Ceramide EOG (EODS)	
Ceramide AS; Ceramide NS	
Ceramide AG (ADS)	
3. Natural Sphingoids	39
N-Acetyl Phytosphingosine	
Sphinganine; Sphingosine	
Phytosphingosine	
Salicyloyl Phytosphingosine	
Tetraacetyl Phytosphingosine	
Phytosphingosine/Sphinganine	
Caproyl Sphingosine; Caproyl Phytosphingosine	
Valencene; Nootkatone; Sclareolide; Ambrox	47
L-Fucose	
Phytosphingosine HCl	

IV. Other Products



ABOUT ZHIHE BIO

WE CREATE CERAMIDE AESTHETICS

Zhihe Bio is pioneering the development and industrialization of ceramide-based active compounds worldwide.

Using advanced strain construction, optimisation and screening methodologies, we have achieved a breakthrough in the independent R&D and mass production of phytosphingosine in China.

Derived from natural and green synthetic biology technology, we feature a fully integrated solution from strain construction to ingredient production to formulation application, establishing key differentiation. Balancing future trends with sustainability, we are dedicated to the ceramides research, offering safe and comprehensive solutions to ceramides application, enhancing innate beauty pursuit.

From laboratory R&D to smart factory production to tailored solutions, we are committed to becoming your strong partnership to co-create industry prosperity.



LABORATORY OVERVIEW

2000+m²

Laboratory Area

ISO9001

Quality Management System

Fermentation/Reaction System Scale

Full-scale fermentation systems from 1L to 15,000L.
Max. single-batch capacity: 1 ton of phytosphingosine.

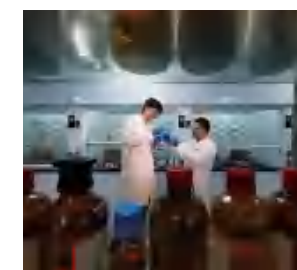
Analytical Testing Throughput

Multiple HPLC/GC units processing over 800 samples daily.
Key parameter detection limits as low as 0.1 ppm.

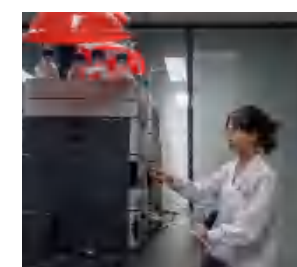
Bio-Synthesis Laboratory



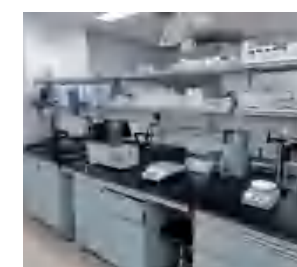
Synthesis & Purification Laboratory



Analysis Laboratory



Application Innovation R&D Center



MILESTONE EVENTS

2016

From the original strain of tetraacetyl phytosphingosine, utilized bioinformatics analysis and high-throughput screening breeding technology, gained high-quality candidate strain.

2018

Succeeded in the culture and selection of strain with commercial capacity and process development.

2019

Completed pilot to scaled-up manufacturing and production process validation.

2020

Took the lead in China’s massive production and commenced sales of phytosphingosine and ceramides powder.

2021

Innovated industrial production technology of dihydrosphingosine, being the second enterprise mastering the core technology of this product and achieving large-scale massive production.

2022

Pioneered the industrial production technology of ceramide EOP, achieved the local production of high-end ceramide in China.

2023

Created oil-soluble composite Ceramide solvent, addressed application challenges and acquired national invention patents.

2024

Integrating resources from top experts for years, we lauched Ceramide Liquid Crystal Emulsifier, inaugurating a new era of skincare.

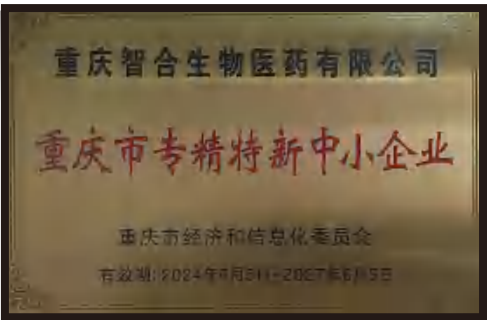
2025

The new headquarter with 2060 m² in Chongqing, laboratory space accounting for over 85%.

CERTIFICATES AND INTELLECTUAL PROPERTIES

Zhihe Bio has obtained the recognition of Chongqing Municipal Specialized Small and Medium-sized Enterprises and National High-tech enterprises, and has more than 10 authorized and accepted invention patents. In addition, the company's full range of products have obtained COSMOS certification and HALAL certification.

The production plant has passed both China GMP certification and US FDA certification.



NATURAL CERAMIDES

Ceramide P Series

Patent Application

Product Name	INCI	Key Benefits		Recommended Dosage	Natural Origin Index (NOI)	Certifications
Ceramide NP1	Cermide NP	Moisturizing, Improving Cell Activity, Barrier Repair, Anti-Allergy Key raw materials are self-developed and self-produced	Multiple fatty acid composition designed, leading quality and purity	0.1~5.0%	1	HALAL
Ceramide NP2			Single fatty acid component (oleic acid)		1	
Ceramide III			Single fatty acid component (stearic acid)		1	
Ceramide AP	Ceramide AP	Moisturizing, Firming, Anti-wrinkle, Promotes Keratin Renewal		0.1~5.0%	0.986	HALAL
Ceramide EOP	Ceramide EOP	Moisturizing, Firming, Anti-wrinkle Unique extremely long chain design of omega fatty acids, commercialization of rarity		0.0001~2%	1	HALAL

Ceramide Mixture Series

Patent Application

Product Name	INCI	Key Benefits	Recommended Dosage	Natural Origin Index (NOI)	Certifications
Ceramide NP/ Ceramide NG	Ceramide NP, Ceramide NG	Retains moisture, promotes skin barrier repair Significant in China	0.1~5.0%	1	HALAL

Ceramide G (DS) Series

Patent Application

Product Name	INCI	Key Benefits		Recommended Dosage	Natural Origin Index (NOI)	Certifications
Ceramide NG(NDS)	Ceramide NG	One of the 12 subtypes of human skin ceramides Pioneer in China	Single fatty acid component (stearic acid)	0.1~5.0%	1	HALAL
Ceramide NG-O(NDS)	2-Oleamido-1, 3-Octadecanediol		Single fatty acid component (oleic acid)	0.1~5.0%	1	-
 Ceramide AG(ADS)	Hydroxypalmitoyl Sphinganine	One of the 12 subtypes of human skin ceramides		0.1~5.0%	0.985	HALAL
 Ceramide EOG (EODS)	Ceramide EODS	One of the 12 subtypes of human skin ceramides		0.0001~2%	1	HALAL

Ceramide S Series

Patent Application

Product Name	INCI	Key Benefits	Recommended Dosage	Natural Origin Index (NOI)	Certifications
Ceramide NS	Ceramide NS	One of the 12 subtypes of human skin ceramides Pioneer in China	0.1~5.0%	1	HALAL
Ceramide AS	Ceramide AS	One of the 12 subtypes of human skin ceramides Pioneer in China	0.1~5.0%	0.985	HALAL
 Ceramide EOS	Ceramide EOS	One of the 12 subtypes of human skin ceramides Barrier Repair, Hydrate and moisturize, Scalp care	0.0001~2%	1	HALAL

NATURAL SPHINGOIDS

Product Name	INCI	Key Benefits	Recommended Dosage	Natural Origin Index (NOI)	Certifications
Phytosphingosine NEW (P) Patent Application	Phytosphingosine	Anti-Allergy, Soothing, Antibacterial 1 st mass-produced in China, yeast-fermented	0.1~2.0%	1	COSMOS HALAL
NEW Sphinganine	Sphinganine	Improving and strengthening the skin barrier function Hair care and anti-hair loss Anti-inflammatory, soothing sensitivity Deep hydration and moisturizing	0.1~0.5%	1	HALAL
NEW Sphingosine (P) Patent Application	Sphingosine	Improving and strengthening the skin barrier function Deep hydration and moisturizing Anti-aging, improving skin elasticity	0.1~0.5%	1	
Salicyloyl Phytosphingosine	Salicyloyl Phytosphingosine	Repairing, Moisturizing, Anti-wrinkle, Anti-photoaging, Anti-inflammatory, Anti-bacterial	0.05~0.5%	1	HALAL
Tetraacetyl Phytosphingosine (P) Patent Application	Tetraacetyl Phytosphingosine	Moisturizing, Fade dark circles, Antioxidant Unique purification preparation process	0.1~1.2%	1	HALAL
N-acetylphytosphingosine	N-acetyl phytosphingosine	Moisturizer	0.1~1.2%	1	HALAL
Phytosphingosine/ Sphinganine (P) Patent Application	Phytosphingosine/ Sphinganine	Moisturizer	0.1~2.0%	1	
NEW Caproyl Sphingosine	Caproyl Sphingosine	Hair Care Strengthen Skin Barrier, Deep Hydration Antibacterial & Anti-inflammatory, Soothing Oil Control	0.1~2.0%	1	
NEW Caproyl Phytosphingosine	Caproyl Phytosphingosine	Strengthen Skin Barrier, Hydration, Anti-Aging & Antioxidant, Antibacterial & Oil Control, Scalp Care	0.05~2.0%	1	

Ceramide Physicochemical Properties

Composed of a long-chain sphingoid base linked to a fatty acid via an amide bond.

Possesses a hydrophilic head and a hydrophobic tail.
Exhibits high lipophilicity, high molecular weight, and a polymorphic nature.

Poor solubility, difficult to incorporate into formulations.

Insoluble in both oil and water. While soluble in oils at high temperatures, it readily recrystallizes upon cooling.

Low stability, prone to crystallization and precipitation, compromising product efficacy.

Undissolved ceramides form acicular crystals, impairing product efficacy which in severe cases, even causing product flocculation or phase separation.

Low bioavailability in traditional carrier systems compromises product efficacy.

Large particle size and poor dispersion hinder transdermal absorption. The skin permeability and efficacy of ceramides delivered via traditional carriers remain debated, with effectiveness highly dependent on whether the skin is healthy.

Four Major Innovation Technologies To Overcome Challenges in Effective Ceramide Application



Liquid Crystal Structure Series

Phospholipid Embedding
Biomimetic Technology

Utilizes liquid crystal phospholipid embedding technology to encapsulate ceramides, forming ordered, fine liquid crystals. This solves the problem of ceramides' tendency for irregular precipitation, enhancing their bioavailability.

Applicable for formulations such as lotions and creams.

Patent Application No.: CN202410609982.8



Lipid Vehicle Series

Solid Lipid Particle (SLP) Technology
Liposome Technology

Employs solid lipid particle technology and liposome technology to overcome ceramides' oil-water insolubility. Enables stable encapsulation of ceramides without precipitation at various concentrations.

Applicable to formulations such as serums, lotions, and creams.



Oil Soluble Series

Deep Eutectic Technology

Utilizes deep eutectic technology to compound multiple ceramides, achieving a transparent oil-soluble product while maintaining stable active ingredients without precipitation.

Applicable to formulations such as transparent facial oils, cosmetics, lotions, and creams.

Patent Application No.: CN202310439304.7



Water Soluble Series

Nano-Enhanced Penetration Delivery Technology

Employs nano-enhanced penetration delivery technology with particle sizes in the nanometer range, enabling transparent water-soluble products and enhanced transdermal absorption rates.

Applicable for formulations including toners, serums, lotions, and balms.

CERAMIDE APPLICAITON INNOVATIONS

Liquid Crystal Structure Series

Commodity Name	Cellimide® LC-10 Patent Application	Cellimide® 6C-20 NEW
INCI Name	Ceramide NP, Ceramide AP, Ceramide EOP, Phytosphingosine, Hexyldecanol, Behenyl Alcohol, Stearyl Alcohol, Cetyl Alcohol, Phytosterols, Glyceryl Stearate, Stearic Acid, Hydrogenated Lecithin	Ceramide NP, Ceramide AP, Ceramide NG, Ceramide NS, Ceramide AS, Ceramide EOP, Phytosphingosine, Hydrogenated Lecithin, Behenic Acid, Phytosterols, Cetearyl Glucoside, Sorbitan Olivat
Key Benefits	Multiple Ceramides: With a total ceramides content of 10%~30%, layered liquid crystal structure. As the second layer of your skin, ensure a balanced healthy barrier.	A six-ceramide complex in skin-identical ratios, combined with an equimolar blend of skin lipids, sterols and fatty acids, comprehensively rebuilds a healthy skin barrier.
Dispersion Performance	Oil Soluble	Oil Soluble
Recommended Dosage	0.5~5%	0.5~5%
Natural Origin Index (NOI)	0.7	0.95
Certifications	HALAL	HALAL

Oil Soluble Series

Commodity Name	Cerax® OS	Cerax® 7C-OS 2.0 NEW	Cerax® 7C-OS 1.0 NEW
INCI Name	Ceramide NP, Ceramide AP, Ceramide EOP, Phytosphingosine, Octyldodecanol, Pentylene Glycol	Ceramide NP, Ceramide NS, Ceramide NG, Ceramide AP, Ceramide EOP, Ceramide AS, Phytosphingosine, Hexyldecanol, Pentylene Glycol	
Key Benefits	The ceramide component is based on the natural skin composition and can be used in transparent oil systems with stabilized actives that do not precipitate.	A seven-ceramide complex biomimetically balanced to match natural skin composition, enables phase-stable solubilization of actives without precipitation.	
Dispersion Performance	Oil Soluble	Oil Soluble	
Recommended Dosage	0.1~10%	0.5~10%	
Natural Origin Index (NOI)	-	-	
Certifications	HALAL	HALAL	HALAL

Lipid Vehicle Series

Commodity Name	Cerax® Lipi-3 PRO	Cerax® Lipi-5	Cerax® SLP-50
INCI Name	Glycerin, Butylene Glycol , Phytosphingosine, Phytosterols Ceramide NP, Ceramide AP, Ceramide EOP, Hydrogenated Lecithin, Water	Glycerin, Butylene Glycol, Ceramide NP, Ceramide NG, Polyglyceryl-10 Stearate	Ceramide NP, Hydrogenated Lecithin, Sucrose Stearate, Polyglyceryl-10 Stearate
Key Benefits	Bionic skin lipid profile, lipid carrier to enhance penetration. Stable formulation without precipitation, high bioavailability, higher skin care effect.	Transparent and stable system in the surfactant system, ceramide deposited on the skin reduces the irritation of the suractants to the skin and the skin dryness.	Employs Solid Lipid Particle (SLP) technology, improving the oil-insoluble properties of ceramide.
Dispersion Performance	Water dispersible	Water dispersible	Water dispersible & Oil Soluble
Recommended Dosage	0.5~10%	0.5~10%	0.1~5%
Natural Origin Index (NOI)	0.93	0.95	0.97
Certifications	HALAL	HALAL	HALAL

Water Soluble Series

Cerax® WS-2

TO BE EXPECTED

FRAGRANCE & FLAVOR

Product Name	INCI Name	Key Benefits	Purity	Certifications
Valencene TO BE EXPECTED	Valencene	Precursor of nootkatone The aroma and flavor of grapefruit	≥ 60.0%	HALAL
Nootkatone TO BE EXPECTED	Nootkatone	Long-lasting and strong citrus-like fruity aroma. Protecting the kidneys from chronic damage, protecting nerves, stimulating enzymes to decompose fat for weight loss	≥ 90.0%	HALAL
Sclareolide TO BE EXPECTED	Sclareolide	The synthesis of important drugs such as anti-inflammatory and anti-cancer drugs	≥ 90.0%	HALAL
Ambroxan TO BE EXPECTED	Ambroxan	Good roundness, strong fragrance fixative ability	≥ 98.0%	HALAL

ENZYME PREPARATIONS & ADVANCED PHARMACEUTICAL INTERMEDIATES

Product Name	INCI Name	Key Benefits	Purity
L-Fucose	L-Fucose	Natural, reducing skin damage, the fermentation process features more harmless manufacturing process both to human beings and environment.	≥ 98.0%

TEXTILE & MEDICAL MATERIAL

Product Name	INCI Name	Key Benefits	Purity
Spidroin TO BE EXPECTED	Silk Protein	Special kind of fibrous protein	≥ 90.0%

FINE CHEMICALS

Product Name	INCI Name	Key Benefits	Purity
Phytosphingosine HCl	Phytosphingosine HCl	Barrier repair, antibacterial and anti-inflammatory, moisturizing	≥ 90.0%

Cellimide® LC -10

Patent Application No.: CN202410609982.8

HALAL

Liquid Crystal Biomimetic Ceramide-10

A ceramide-containing efficacious liquid crystal emulsifier.

INCI Name		
Ceramide NP		Cetyl Alcohol
Ceramide AP		Phytosterols
Ceramide EOP		Glyceryl Stearate
Phytosphingosine		Stearic Acid
Hexyldecanol		Hydrogenated Lecithin
Behenyl Alcohol		Stearyl Alcohol

High Concentration | Multiple Compounds

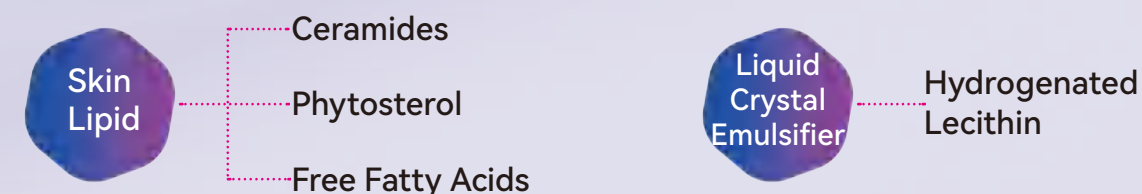
Multiple Ceramides: Contain Ceramide NP, AP, and EOP, etc., with a total ceramides content of 10~30%

Versatile Formulas | Broad Applications

Perfect for O/W emulsifying system (such as lotions/creams) and pure oil system (such as lipstick).

High Stability

Ceramides are interspersed within the liquid crystal layer to prevent precipitation and crystallization. The liquid crystal structure features excellent stability, resistant to salt, acids and bases, and extreme temperatures.

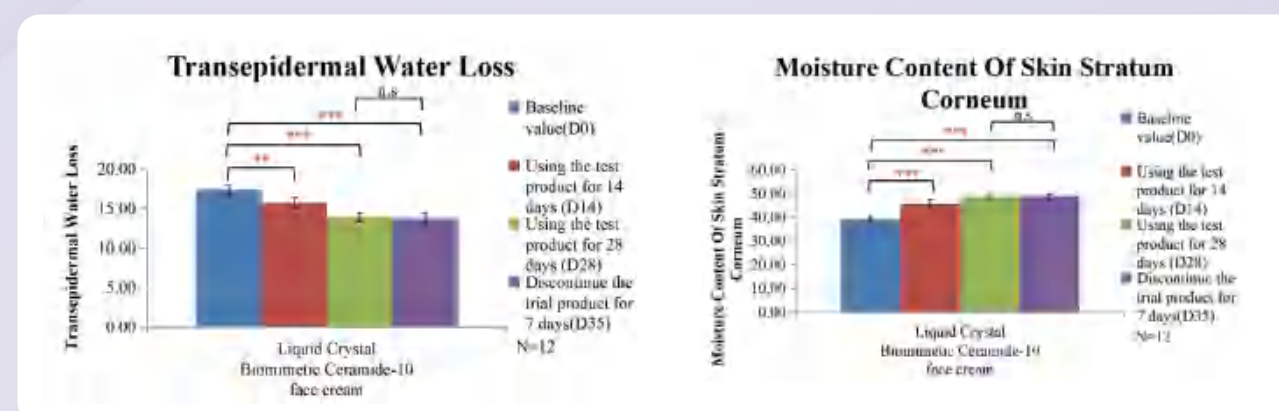


Ceramides Active Substance Content

Ceramides are interspersed within the liquid crystal layer to prevent molecular aggregation and crystallization, thereby enhancing bioavailability. This ceramide-containing liquid crystal emulsifying technology enables the formulation of high-concentration ceramide preparation (10~30%).

NO.	INCI	Content
1	CERAMIDE NP	≥ 5.6%
2	CERAMIDE AP	≥ 2.2%
3	CERAMIDE EOP	≥ 0.2%
4	PHYTOSPHINGOSINE	≥ 2.0%

Efficacy Test (Repair & Moisturize)



28 days of use: 20.06% improvement in transepidermal water loss(TWEL), 24.59% improvement in stratum corneum moisture content, stopped using for 7 days still in succession.

Datas from a third-party testing organization.

Other efficacies: Improves redness of sensitive skin | Soothing or others.

Cellimide® 6C-20

HALAL

Hexagonal Source Ceramide-20

Liquid crystal encapsulation embedding technology

INCI Name		
Ceramide NP		Phytosphingosine
Ceramide AP		Behenic Acid
Ceramide NS		Phytosterols
Ceramide NG		Cetearyl Glucoside
Ceramide AS		Sorbitan Olivat
Ceramide EOP		Hydrogenated Lecithin

Core Strain Construction & Ingredient Production

Ceramide core base chain self-developed and self-produced.
Derived from natural and green synthetic biology technology.

Versatile Formulas | Broad Applications

Formula Simplified, perfect for O/W emulsifying system (such as lotions/creams) .

High Stability

Liquid crystal emulsion encapsulation technology ensures high stability and prevents ceramide from precipitating.

Skin-identical Biomimicry

Ceramide Biomimicry:
Skin-proportion blended
six-fold ceramide

Skin Lipid Biomimicry:
Ceramide: Sterol: Fatty acid = 1:1:1



Ceramides Active Substance Content

Formulated with a six-fold blend of ceramides in skin-proportional ratios, combined with skin lipid biomimetic ingredients (ceramides/sterols/fatty acids) in equimolar proportions, to comprehensively build a healthy skin barrier. Utilizing liquid crystal emulsion encapsulation technology, this system enables 20% high-concentration ceramide formulations with precipitation-resistant stability.

NO.	INCI	Content
1	CERAMIDE NP	6.0-8.0%
2	CERAMIDE AP	2.0-4.0%
3	CERAMIDE EOP	0.1-0.5%
4	CERAMIDE NG	2.0-4.0%
5	CERAMIDE AS	2.0-4.0%
6	CERAMIDE NS	1.0-4.0%
7	PHYTOSPHINGOSINE	0.5-2.0%
8	PHYTOSTEROLS	10.0-20.0%
9	BEHENIC ACID	5.0-15.0%

Cerax® Lipi-3 PRO

HALAL

Composite Ceramide Lipid Vehicle 3.0 Pro

Lipid carrier preparation using hydrogenated lecithin and phytosterol as wall materials to encapsulate ceramides

INCI Name		
	Glycerin	Ceramide AP
	Butylene Glycol	Ceramide EOP
	Phytosphingosine	Hydrogenated Lecithin
	Phytosterols	Water
	Ceramide NP	

Highly active ingredients

Ceramides, phytosphingosine, phospholipids, sterols: total content greater than 10%.

Stable and highly effective

Stable formulation without precipitation, high bioavailability, higher skin care effect.

Easy to add

Dispersible in water at room temperature, suitable for water-based toner, cream & serum systems.

- PEG-free surfactants
- No animal-derived ingredients
- No preservatives

Ceramides Active Substance Content

Composite Ceramide Lipid Vehicle 3.0 Pro uses hydrogenated lecithin and phytosterols as wall materials to achieve a nanoscale structure similar to that of biological cells. This structure makes it easy to be adsorbed and fused with skin cells, which improves bioavailability.

This structure also enhances the skin barrier repair ability, reduces sensitivity, improves skin brightness and provides moisturizing effects.

NO.	INCI Name	Content
1	CERAMIDE NP	≥ 1.8%
2	CERAMIDE AP	≥ 0.7%
3	CERAMIDE EOP	≥ 0.02%
4	PHYTOSPHINGOSINE	≥ 0.8%

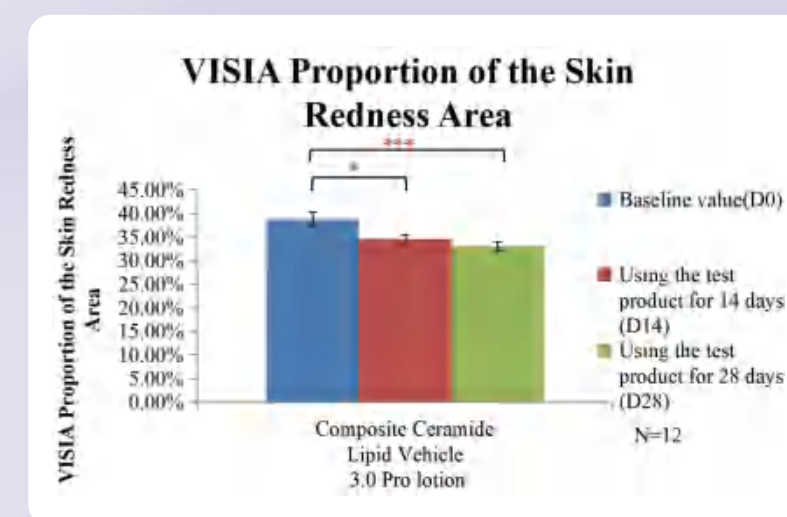
Efficacy Test (Soothing, Improves redness)

Long-lasting significant improvement of redness.

14 days: 10.54% improvement in redness area.

28 days: 14.6% improvement in redness area.

Third-party testing, using 3.0 Pro O/W lotion.



Cerax® Lipi-5

HALAL

NP/NG Ceramide Solid Lipid Particle 5.0

The inner phase is a solid lipid carrier

INCI Name	Glycerin
	Butylene Glycol
	Ceramide NP
	Ceramide NG
	Polyglyceryl-10 Stearate

More stable

SLP is solid at room temperature, which slows down the diffusion rate of bioactive molecules. The inner phase of SLP is solid oil, and the particle size is not affected by surfactants and other ingredients in the formula, so the structure is more stable during application.

More effective

The inner phase is solid lipid, which does not affect the viscosity and foam of the rinsing/cleansing formula.

Better skin feel

Ceramide-containing cleansing/rinsing products are easy for ceramides to flocculate/deposit on the skin when used, which reduces the irritation of the surfactant to the skin and skin dryness.

Ceramides Active Substance Content

NP/NG Ceramide Solid Lipid Particle 5.0 forms a transparent and stable system in the surfactant system by adopting solid lipid carrier technology. In the rinsing process, it deposits ceramide on the skin and hair through flocculation, which achieves barrier repair. It is added to the rinsing formula to form a stable preparation. Ceramide deposited on the skin reduces the irritation of the surfactants to the skin and the skin dryness.

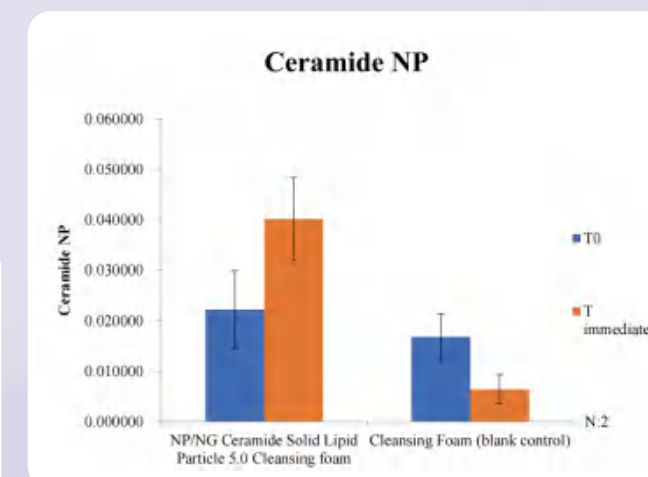
NO.	INCI Name	Content
1	CERAMIDE NP	≥ 3.7%
2	CERAMIDE NG	≥ 1.3%

Efficacy Test (Ceramides Retention)

Significantly improves the retention of active ceramides after rinsing, with an improvement of 81.04% in T0 immediately after rinsing.

Source: Third-party testing, using 2% 5.0 cleansing foam.

Test Product	T0	T immediate	Improvement Rate
NP/NG Ceramide Solid Lipid Particle 5.0 Cleansing foam	0.022205±0.007715	0.040200±0.008210	81.04%
Cleansing Foam (blank control)	0.016780±0.004630	0.006432±0.002920	-61.67%



Cerax® SLP-50

HALAL

Ceramide SLP-50

Water-oil compatible solid lipid particles

INCI Name	Ceramide NP
	Hydrogenated Lecithin
	Sucrose Stearate
	Polyglyceryl-10 Stearate

High content

50% of ceramide facilitates high content demand of ceramide for your formula.

Excellent performance

Could be both water dispersed and oil soluble when heated up.

Simplified formula

Containing only four ingredients.

Ceramides Active Substance Content

NO.	INCI	Content
1	CERAMIDE NP	≥ 50%

Water dispersion test

The appearance of aqueous dispersion of ceramide SLP-50 with different additions is shown in the figure on the right. The appearance of the aqueous solution changes from semi-transparent to milky white as the additions of 0.02%~5% (corresponding to the ceramide content of 0.01%~2.5%) .



5% 1% 0.5% 0.1% 0.02%

*Cerax® SLP-50 aqueous dispersion solutions of different content

Ingredients Introduction

Ceramide

Ceramide NP, a key ingredient, acts as a skin barrier repair agent, improving the skin's ability to lock in moisture while promoting skin health.

Hydrogenated lecithin

Phospholipids are components of biological cell membranes and therefore have better biocompatibility and safety. The use of phospholipid embedding promotes absorption and also provides moisturizing and nourishing effects.

Polyglyceryl-10 Stearate & Sucrose Stearate

Polyglyceryl-10 Stearate and Sucrose Stearate are friendly emulsifiers that both have moisturizing properties, locking in moisture to keep skin hydrated and supple.

Cerax® OS

HALAL

Ceramide Transparent Oil 2.0

Supreme Stability

INCI Name	Ceramide NP
	Ceramide AP
	Ceramide EOP
	Phytosphingosine
	Octyldodecanol
	Pentylene Glycol

Multiple ceramides

Ceramide NP + Ceramide AP + Ceramide EOP + Phytosphingosine =2%
Mimic the ratio of the ceramides complex in human skin.

More effective & stable

Supreme stable & no precipitation.
Show good storage stability of transparent oils at different temperatures.

Versatile applications & Formulator friendly

Mix well with GTCC, vegetable oil, etc., without heating to dissolve.
Apply in transparent skin care oils, hair care products, color cosmetics ,
lotions, creams, etc.

Ceramides Active Substance Content

Zhihe Bio has launched Cerax® OS (Ceramide Transparent Oil 2.0), which can be applied in clear oil system with stability. Solve the problem of ceramide's water and oil insolubility. It has excellent barrier repair, moisturizing and water locking, anti-allergy and soothing efficacy.

NO.	INCI	Content
1	CERAMIDE NP	≥ 1.09%
2	CERAMIDE AP	≥ 0.42%
3	CERAMIDE EOP	≥ 0.012%
4	PHYTOSPHINGOSINE	≥ 0.48%

Stability Test

Cerax® OS has good compatibility with GTCC, wheat germ oil, jojoba seed oil, no precipitation when stored at different temperatures for several months under 5% additive quantity, transparent and clear appearance.



*Storage stability of transparent oils at different temperatures

Cerax® 7C-OS 2.0/1.0

7-Ceramide Complex Transparent Oil 2.0/1.0

High Transparency and Stability, No Precipitation

INCI Name	Ceramide NP	Ceramide AS
	Ceramide NG	Phytosphingosine
	Ceramide NS	Hexyldecanol
	Ceramide AP	Pentylene Glycol
	Ceramide EOP	

Seven-Ceramide Complex

Ceramide NP, Ceramide NG, Ceramide NS, Ceramide AP, Ceramide EOP, Ceramide AS and Phytosphingosine, total concentration up to 2% or 1%. Mimic the ratio of seven ceramide complex in human skin.

High Transparency & Stability, No Precipitation

Supreme stability & no precipitation
Show good storage stability of transparent oils at different temperatures.

Versatile Application & Formulator Friendly

Can be mixed with GTCC, vegetable oils, etc., at room temperature, Apply in transparent skincare oils, hair care products, cosmetics, lotions, creams, etc.

Ceramides Active Substance Content

Zhihe Bio has launched the newly upgraded Cerax® 7C-OS 2.0 (7-Ceramide Complex Transparent Oil 2.0) and Cerax 7C-OS 1.0 (7-Ceramide Complex Transparent Oil 1.0). They are seven-fold ceramide blends which can be applied in transparent oil systems with stability. Solve the problem of ceramide's water and oil insolubility. It has excellent barrier repair, moisturizing and water locking, anti-allergy and soothing efficacy.

NO.	INCI	7C-OS Cerax®2.0 content	7C-OS Cerax®1.0 content
1	CERAMIDE NP	≥ 0.56%	≥ 0.48%
2	CERAMIDE AP	≥ 0.22%	≥ 0.04%
3	CERAMIDE EOP	≥ 0.03%	≥ 0.02%
4	CERAMIDE NG	≥ 0.25%	≥ 0.22%
5	CERAMIDE AS	≥ 0.24%	≥ 0.02%
6	CERAMIDE NS	≥ 0.20%	≥ 0.02%
7	PHYTOSPHINGOSINE	≥ 0.50%	≥ 0.20%

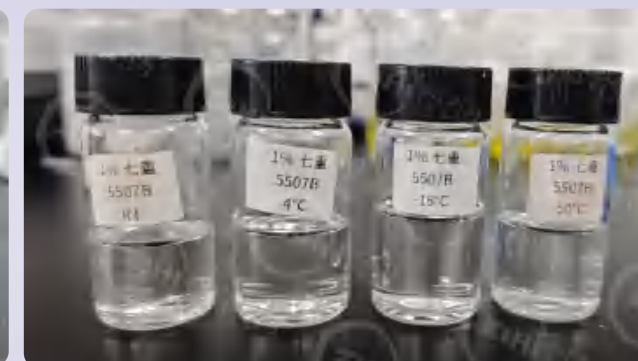
Stability Test

Cerax® 7C-OS 2.0/1.0 has good compatibility with GTCC, wheat germ oil, jojoba seed oil. No precipitation when stored at different temperatures for three months, transparent and clear appearance.

Cerax® 7C-OS 2.0



Cerax® 7C-OS 1.0

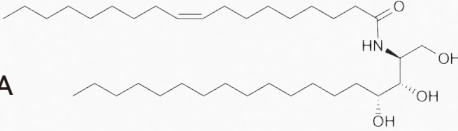
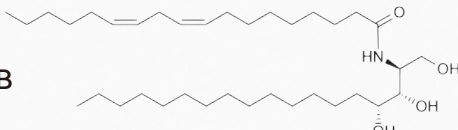
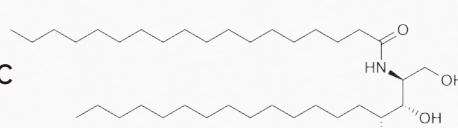
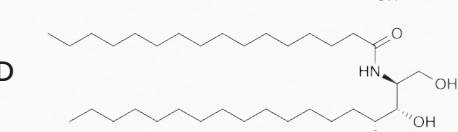


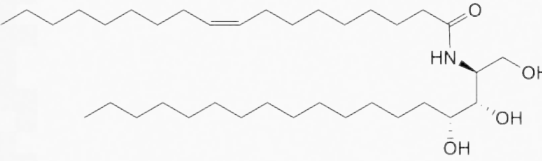
*Storage stability of transparent oils at different temperatures
Left to Right: RT, 4°C, -18°C, 50°C

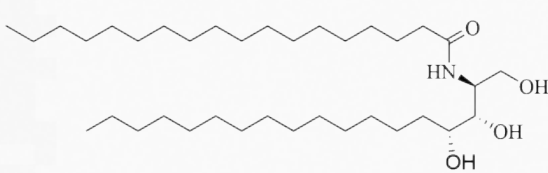
Ceramide NP

HALAL

Zhihe Bio possesses Ceramide NP1, Ceramide NP2 and Ceramide III

INCI Name	Ceramide NP	Structural Formula A  B  C  D 
CAS No.	100403-19-8	
Appearance	White or off-white powder	
Purity	A ≥ 85.0% A+B+C+D ≥ 95.0%	
Recommended Dosage	0.1~5.0%	
Other Description	Ceramide NP1 is composed of: A (N-oleoyl-phytosphingosine) B (N-linoleoyl-phytosphingosine) C (N-stearoyl-phytosphingosine) D (N-palmitoyl-phytosphingosine)	

INCI Name	Ceramide NP	Structural Formula 
CAS No.	100403-19-8/178436-06-1	
Appearance	White or off-white powder	
Purity	≥ 95.0%	
Recommended Dosage	0.1~5.0%	
Source	Fermentation + Green Chemistry Synthesis	

INCI Name	Ceramide NP	Structural Formula 
CAS No.	34354-88-6	
Appearance	White or off-white powder	
Purity	≥ 90.0%	
Recommended Dosage	0.1~5.0%	
Source	Fermentation + Green Chemistry Synthesis	

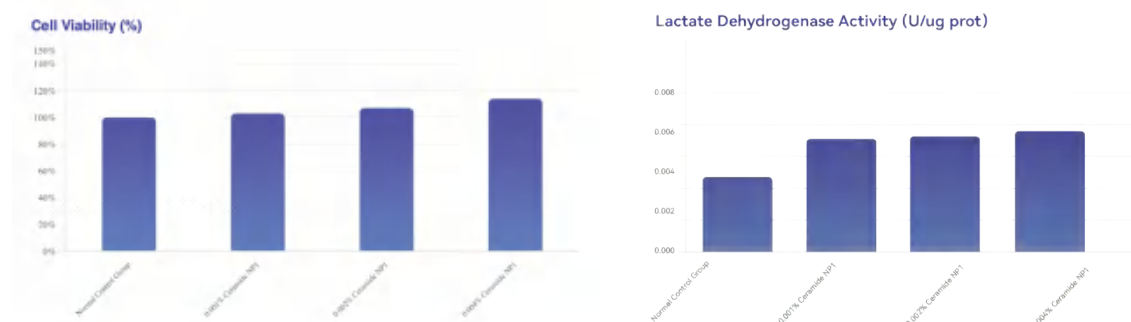
Core Advantages

1. The key raw materials are self-developed and self-produced, which ensures high quality control.
2. The fatty acid component is designed with either single stearic acid, oleic acid or fatty acid mixture, which meets the customer's demand for the purity of a single component of the product or specific requirement.
3. It is 100% identical to the natural ceramide structure in the skin.

Efficacy Report/Test

Improve cell activity

According to experimental results, in the experimental group added with 0.001%, 0.002% and 0.004% Ceramide NP1, the cell viability value and lactate dehydrogenase activity increases significantly, which proves that Ceramide NP1 promotes cell adhesion and reveals that the sample has the effect of improving cell activity.



Other effects: moisturizing, repairing damaged skin, anti-allergic, etc.

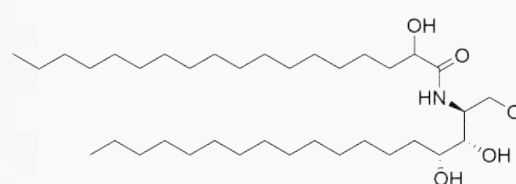
Product Applications

As a basic component of human skin intercellular lipids, ceramide NP promotes the repair of skin barrier and protects the skin from external physical and chemical invasion. In addition, ceramide NP has moisturizing, moisture-retention and anti-inflammatory effects. Therefore, it is widely applied in various types of skin care, cleansing and other products. It was found that currently thousands of cosmetics in China have registered the ingredient of ceramide NP as raw materials, with a significant growth trend. Zhihe Bio has developed a variety of application technologies on the formulation application platform to enable the downstream application of ceramides, which improves the solubility and stability of this raw material.

Ceramide AP

HALAL

α -Hydroxy fatty acid design, high purity and high quality control

INCI Name	Ceramide AP	Structural Formula 
CAS No.	212070-45-6	
Appearance	Off-white powder	
Purity	$\geq 95.0\%$	
Recommended Dosage	0.1~5.0%	
Source	Fermentation + Green Chemistry Synthesis	

Basic Description

Ceramide is the main component of intercellular lipids in keratinocytes, accounting for about 50%. It is also an essential component for normalizing barrier function. Among the ingredients, Ceramide AP accounts for about 8.8%. Similar to Ceramide NP, Ceramide AP has a highly effective moisturizing effect. And also helps skin keratin metabolism and promotes skin smoothness and tenderness.

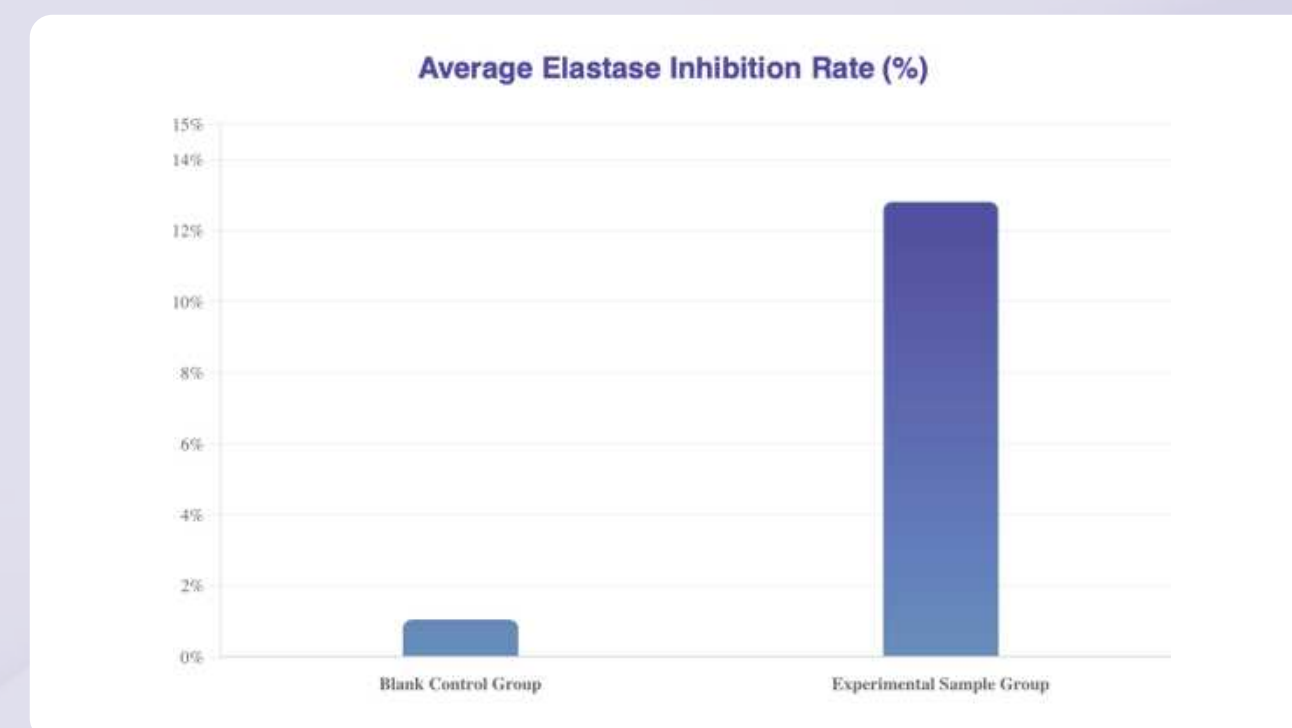
Core Advantages

1. The key raw materials are self-developed and self-produced, which ensures high quality control.
2. The fatty acid component is designed with a single α -hydroxy fatty acid, which meets the customer's demand for the purity of a single component of the product.
3. It is totally identical to the natural ceramide structure in the skin.

Efficacy Report/Test

Firming and Anti-Wrinkle

The inhibition rate of the test samples was better (higher) than that of the blank control group and the statistical difference P value <0.05 , indicating that the difference was significant and the test samples had firming and anti-wrinkle efficacy.



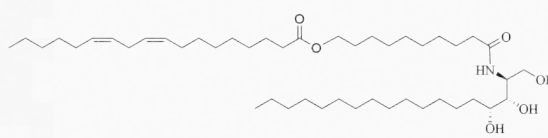
Product Applications

Ceramide AP is a basic component of the intercellular matrix of human skin. Generally, it is used in combination with Ceramide NP and ceramide EOP. Ceramide AP strengthens the efficacy of other ceramides and promotes the renewal of the stratum corneum. Zhihe Bio has developed a variety of application technologies on the formulation application platform to enable the downstream application of ceramides, which improves the solubility and stability of the raw material.

Ceramide EOP

HALAL

Unique extremely long chain design of ω -hydroxyl fatty acids, commercialization of rarity

INCI Name	Ceramide EOP	Structural Formula 
CAS No.	100403-19-8	
Appearance	White or off-white particles	
Purity	$\geq 90.0\%$	
Recommended Dosage	0.0001~ 2.0%	
Source	Fermentation + Green Chemistry Synthesis	

Basic Description

Ceramide is the main component of intercellular lipids in keratinocytes, accounting for about 50%. Ceramide EOP accounts for about 1.1%. Ceramide EOP is a long-chain ceramide that crosses the lipid bilayer and maintains the lipid bilayer membrane structure. Ceramide EOP mainly protects the skin, increases skin oxygen stability, promotes healing, improves skin elasticity and prevents allergic eczema.

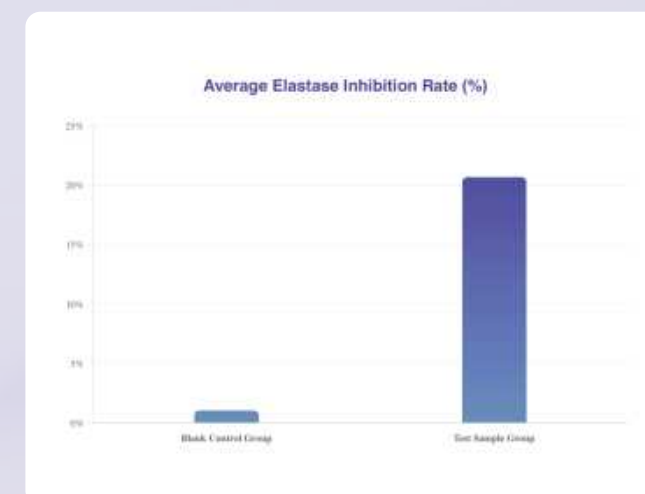
Core Advantages

Zhihe Bio is one of the few suppliers on the market that commercially provide this product thanks to its unique extremely long chain design of ω -hydroxyl fatty acids.

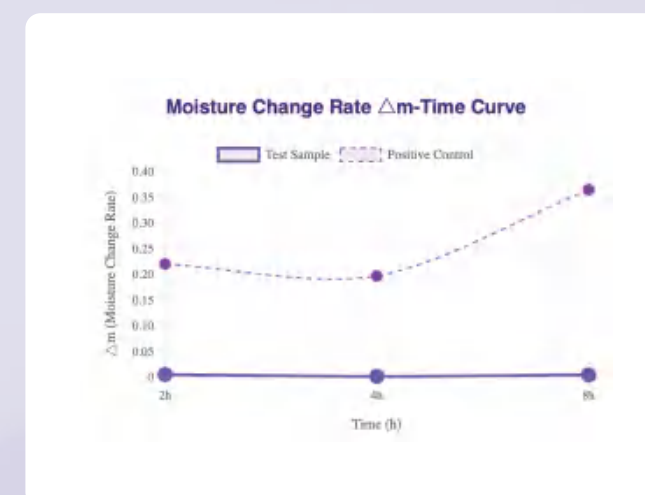
Efficacy Report/Test

Anti-wrinkle, firming, moisturizing

The inhibition rate of the test sample is better than (higher than) that of the blank control group, and the statistical difference P value is less than 0.05, which proves that the difference is significant and the test sample has firming and anti-wrinkle effects.



The moisture change rate Δm curve of the test sample is smaller than (better than) that of positive control, which shows that the test sample has moisturizing effect.



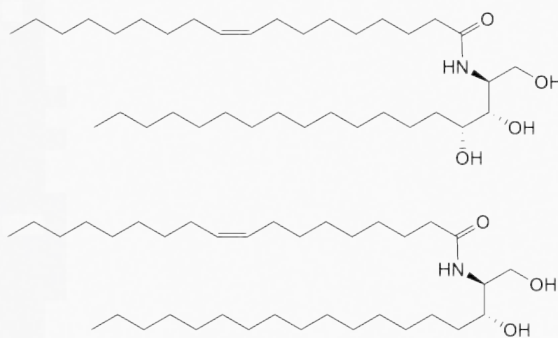
Product Applications

Different from other raw materials in the ceramide family, Ceramide EOP has an extremely long chain design, and its compatibility with common family raw materials such as ceramide NP and AP doubles the barrier repair function of the series of products. Due to the relatively complicated process, there are not many commercial suppliers available for this raw material in the market. Ceramide EOP is often used in formulas with other ceramides. It is not as stable as other ceramide family members, so it is recommended to be added in a certain way during the preparation process.

Ceramide NP/Ceramide NG

HALAL

The only one in China derived from synthetic biology, high quality and cost-effective

INCI Name	Ceramide NP, Ceramide NG	Structural Formula
CAS No.	100403-19-8	
Appearance	White or off-white powder	
Purity	Ceramide NG ≥ 26.0% Ceramide NP+Ceramide NG ≥ 90.0%	
Recommended Dosage	0.1~5.0%	
Source	Fermentation + Green Chemistry Synthesis	

Basic Description

As a member of ceramide, Ceramide NG not only retains moisture, promotes skin barrier repair and regulates skin cells, but also inhibits active sebaceous glands while improving the sebum membrane, which balances the water and oil content in the skin and enhances the skin's self-protection. It is used as a skin conditioner, antioxidant agent and moisturizer in cosmetics.

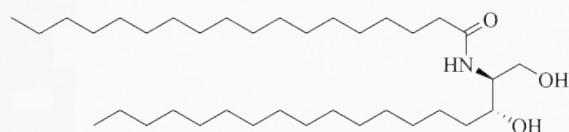
Product Applications

Applied in cosmetics to retain moisture and repair the skin barrier. After this product was launched on the market, many leading cosmetics companies home and abroad have applied it in their cosmetics, such as PROYA 3.0 Ruby Cream. Zhihe Bio has optimized the bacterial strain by using synthetic biology techniques and obtained a bacterial strain that produces both Sphinganine and Phytosphingosine, which can be further synthesized to obtain Ceramide NP/Ceramide NG raw materials. The Ceramide NP/ Ceramide NG mixed powder produced by this method is of high quality and competitive price, which facilitates application of end-users.

Ceramide NG (NDS)

HALAL

Breakthrough in domestic commercial mass production completed.

INCI Name	Ceramide NG	Structural Formula
CAS No.	2304-80-5	
Appearance	White or off-white powder	
Purity	≥ 95.0%	
Recommended Dosage	0.1~5.0%	
Source	Fermentation + Green Chemistry Synthesis	

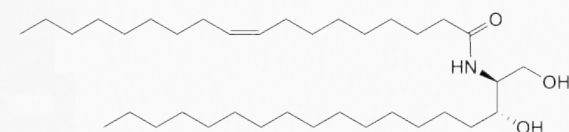
Basic Description

Compared with Ceramide NP, NG (NDS) is a multifunctional ceramide that can help form various ceramide molecules and lipid mediators to enhance differentiation and autoimmunity. Fermented sources have higher chiral purity compared to synthetic sources. The product is widely used in skin care products such as creams, lotions, essences and masks, and is also used in scalp care products.

Ceramide NG-O (NDS)

HALAL

Breakthrough in domestic commercial mass production completed.

INCI Name	2-Oleamido-1,3-Octadecanediol	Structural Formula
CAS No.	54422-45-6	
Appearance	White or off-white powder	
Purity	≥ 90.0%	
Recommended Dosage	0.1~5.0%	
Source	Fermentation + Green Chemistry Synthesis	

Basic Description

Ceramide NG-O (NDS) mimics the natural lipid structure of the skin, has certain lipophilicity and hydrophilicity, and can integrate well into the lipid layer of the skin. It has outstanding barrier repair ability, enhances the adhesion of keratinocytes to make the skin tighter and smoother, and moisturizes and locks in water. It can be added to skin care products such as lotion, cream and essence to improve problems such as dry, sensitive and aging skin.

Ceramide EOS

HALAL

NEW
RELEASE

Breakthrough in domestic commercial mass production completed.

INCI Name	Ceramide EOS	Structural Formula
CAS No.	100403-19-8	
Appearance	White or off-white powder	
Purity	≥ 90.0%	
Recommended Dosage	0.0001~2.0%	
Source	Fermentation + Green Chemistry Synthesis	

Basic Description

Ceramide EOS is one of the most structurally complex and water-locking ceramides in the skin's natural lipids. It belongs to the esterified ceramide type and is the golden component for long-lasting water-locking and extremely dry skin repair. It is widely used in high-end skin care and barrier repair products. Ceramide EOS was first launched in China by our company. Ceramide EOS can be compounded with NP, AP, etc. It adopts platform formula technology to solve solvent problems and is used for skin barrier repair. It can also be used for scalp care to reduce dandruff, etc.

Ceramide EOG (EODS)

HALAL

NEW
RELEASE

Domestic breakthroughs have been made in laboratory process development and sample preparation

INCI Name	Ceramide EODS	Structural Formula
CAS No.	100403-19-8	
Appearance	Off-white powder	
Purity	≥ 90.0%	
Recommended Dosage	0.0001~2.0%	
Source	Fermentation + Green Chemistry Synthesis	

Basic Description

Ceramide EOG (EODS) are the ultra-long chain esterified subtype of the ceramide family, featuring a unique amphiphilic molecular structure. Ceramide EODS are typically used together with other types of ceramides in some skin care products and cosmetics. We produce various types of products such as body lotions, lotions, essences, eye creams and sunscreens to help improve the skin's barrier function, moisturizing performance, etc.

Ceramide NS

HALAL

Breakthrough in domestic commercial mass production completed.

INCI Name	Ceramide NS	Structural Formula
CAS No.	100403-19-8	
Appearance	White or off-white powder	
Purity	≥ 95.0%	
Recommended Dosage	0.1~5.0%	
Source	Fermentation + Green Chemistry Synthesis	

Basic Description

Ceramide NS is one of the 12 subtypes of human skin ceramides, one of the components of the intercellular matrix of human skin cells, and also one of the components of human hair ceramides. Ceramide NS was first launched in China by our company. Ceramide NS has multiple skin care benefits. It can quickly penetrate into the intercellular spaces, deeply nourish the skin, stabilize and rebuild the connections between cells, immediately repair dry and damaged skin, and is especially suitable for sensitive skin. It is used as a skin conditioner, antioxidant and moisturizer, and has a good effect on skin moisturizing and repairing. It is an important skin-activating ingredient in the stratum corneum and can enhance the skin barrier. Rebuild the cells.

Ceramide AS

HALAL

Breakthrough in China

INCI Name	Ceramide AS	Structural Formula
CAS No.	100403-19-8	
Appearance	White or off-white powder	
Purity	≥ 95.0%	
Recommended Dosage	0.1~5.0%	
Source	Fermentation + Green Chemistry Synthesis	

Basic Description

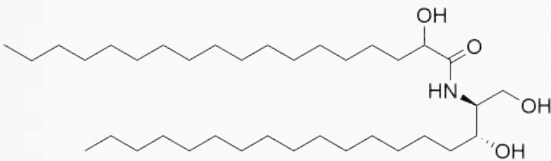
Ceramide AS is a subtype of the 12 ceramides found in human skin and a key component of the intercellular matrix of human skin cells. It is extensively used for skin barrier repair and is scarce in the market. Ceramide AS can be blended with other ceramides such as Ceramide NP and AP. By utilizing platform formulation technology to address solubility issues, it is used in skincare products for barrier repair, as well as in scalp and hair care and cleansing products.

Ceramide AG (ADS)

HALAL

NEW
RELEASE

Core ingredients for barrier repair, moisturizing and anti-aging

INCI Name	Hydroxypalmitoyl Sphinganine	Structural Formula
CAS No.	215528-91-9	
Appearance	White or off-white powder	
Purity	≥ 95.0%	
Recommended Dosage	0.1~5.0%	
Source	Fermentation + Green Chemistry Synthesis	

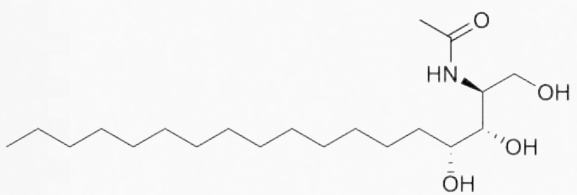
Basic Description

Ceramide AG (ADS) is one of the 12 subtypes of human skin ceramides and a component of the intercellular matrix of human skin cells. It is a core component for repairing the barrier, moisturizing and anti-aging, and is especially suitable for sensitive skin, dry skin and early aging skin. The market supply is scarce. Ceramide AG (ADS) can be combined with ceramide NP, EOP, etc., and then work in synergy with cholesterol and free fatty acids to form a lipid bilayer structure. This can simulate the lipid ratio of the natural stratum corneum, enhance the skin's water retention capacity, and promote the repair of the skin barrier.

N-acetylphytosphingosine

HALAL

Highly effective barrier repair and anti-inflammatory ingredients regulate sebum secretion and maintain follicle health

INCI Name	N-acetylphytosphingosine	Structural Formula
CAS No.	21830-28-4	
Appearance	Off-white powder	
Purity	≥ 90.0%	
Recommended Dosage	0.1~1.2%	
Source	Fermentation + Green Chemistry Synthesis	

Basic Description

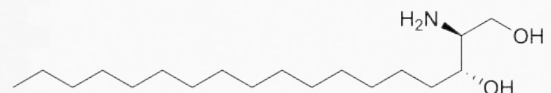
N-acetylphytosphingosine is a sphingolipid-based cosmetic ingredient with a structure similar to the components of the skin's stratum corneum. It helps retain skin moisture, regulate skin metabolism to brighten complexion, and promote skin cell regeneration and repair. Additionally, it supports hair follicle health through its anti-inflammatory and barrier-repairing properties, reducing hair breakage. With excellent water solubility, it can be effectively incorporated into toner formulations, making it an ideal ingredient for both skin and hair care products.

Sphinganine

HALAL

NEW
RELEASE

Improve the hair follicle microenvironment, Promote scalp health, Strengthen the skin barrier function

INCI Name	Sphinganine	Structural Formula
CAS No.	764-22-7	
Appearance	White or off-white powder	
Purity	≥ 90.0%	
Recommended Dosage	0.1~0.5%	
Source	Fermentation + Green Chemistry Synthesis	

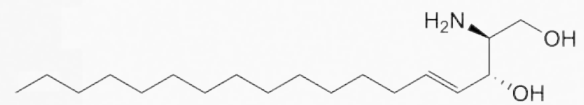
Basic Description

Phytosphingosine is a precursor of ceramide and is one of the important lipid components in the human epidermis. It naturally has the function of repairing the barrier, and also has soothing, calming, desensitizing and anti-allergic effects. It deeply repairs and maintains sensitive skin, enhances skin defense capabilities, and inhibits the reproduction of a variety of harmful bacteria.

Sphingosine

NEW
RELEASE

The core skeleton molecule of sphingolipid metabolism and the core ingredient of restorative skin care products

INCI Name	Sphingosine	Structural Formula
CAS No.	123-78-4	
Appearance	White or off-white powder	
Purity	≥ 90.0%	
Recommended Dosage	0.1~2.0%	
Source	Fermentation + Green Chemistry Synthesis	

Basic Description

Sphingosine is a core skeleton molecule in sphingolipid metabolism. In the field of skin care, it can strengthen the skin barrier, moisturize and lock in water, have anti-inflammatory and soothing effects, and also regulate sebum secretion and promote keratin metabolism. It is often used as a core ingredient in repair skin care products. In terms of hair care, low concentrations can prolong the hair growth period and improve hair loss problems. Sphingosine can be compounded with Ceramide NP, AP, etc. The platform formula technology is adopted to solve the solvability problem and is applied in various skin care products.

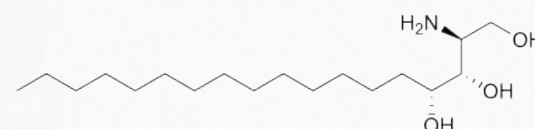
COSMOS

HALAL

Phytosphingosine

Anti-inflammatory and soothing, anti-allergic and antibacterial

INCI Name	Phytosphingosine	Structural Formula
CAS No.	554-62-1	
Appearance	White or off-white powder	
Purity	≥ 90.0%	
Recommended Dosage	0.1~2.0%	
Source	Fermentation	



Basic Description

Phytosphingosine is a precursor of ceramide and is one of the important lipid components in the human epidermis. It naturally has the function of repairing the barrier, and also has soothing, calming, desensitizing and anti-allergic effects. It deeply repairs and maintains sensitive skin, enhances skin defense capabilities, and inhibits the reproduction of a variety of harmful bacteria.

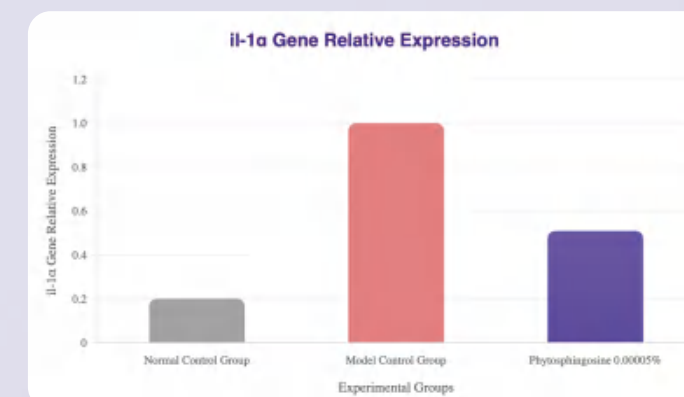
Phytosphingosine has two major applications in cosmetics. As a key precursor for ceramide, it synthesizes and derives active ingredients such as ceramide NP, AP, and EOP that are widely used in formulas; it also has anti-allergic, soothing, antibacterial and other effects as an active ingredient.

Zhihe Bio applies a synthetic biology technology platform to realize the first tonnage mass production of this product in China. The product features simple production process, green environmental protection, high quality and competitive price, bacterial strains with high yield capacity, modern production process, and stable supply chain, which has proposed a Chinese solution for domestic substitution of high-end active raw materials, and has played a positive role in promoting this product and a series of phytosphingosine-derived products in the personal care industry.

Efficacy Report/Test

Soothing effect

According to experimental results, the relative expression of il-1α gene of phytosphingosine group is significantly reduced compared with the model control group, which proves that the product has a soothing effect.



Antibacterial Effect

According to the experimental results of QB/T 2738-2012 evaluation method for antibacterial and antibacterial effects of daily chemical products, phytosphingosine has an inhibitory effect on Propionibacterium acnes.



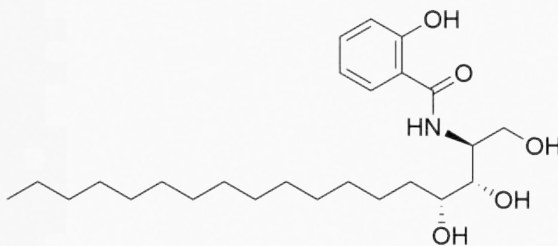
Product Applications

- Application areas:** Many downstream companies purchase phytosphingosine to produce derivative products such as Ceramide NP, AP, and EOP, or directly use it in the compounding of some cosmetic active ingredients.
- Market performance:** As the first domestic mass-produced phytosphingosine manufacturer, Zhihe Bio attracted great attention from the industry when launching this product. Based on its application scenarios, this product has excellent production performance and provides domestic substitutions for many domestic companies.
- Compatibility and solubility:** Phytosphingosine has poor water solubility and fat solubility, but when using liposome encapsulation/liquid crystal insertion and other delivery technologies, it can be compounded with most cosmetic formulas.
- Stability:** This product has good chemical stability. Attention should be paid to its precipitation and stratification in formula concerning material stability. This product has high bioavailability if delivery technology is applied.

Salicyloyl Phytosphingosine

HALAL

Ideal skin care ingredient for aging and photodamaged skin

INCI Name	Salicyloyl Phytosphingosine	Structural Formula
CAS No.	212908-67-3	
Appearance	White or off-white powder	
Purity	≥ 95.0%	
Recommended Dosage	0.05~0.5%	
Source	Fermentation + Green Chemistry Synthesis	

Basic Description

Salicyloyl Phytosphingosine is a mild and superior skin care ingredient prepared by the reaction of salicylic acid and phytosphingosine. Phytosphingosine is a precursor to ceramides and enhances absorption when combined with salicylic acid.

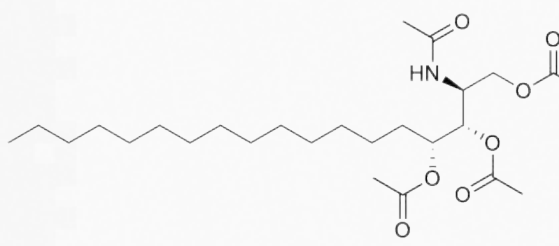
Product Applications

Salicyloyl Phytosphingosine minimizes oxidative stress, mitigates the harm caused by photoaging, reduces wrinkles, and smooths skin. It also increases skin moisture and inhibits epidermal pigments, making the skin fair, elastic, and shiny. It is anti-inflammatory and antibacterial, which improves inflammatory skin.

Tetraacetylphytosphingosine

HALAL

Unique purification and preparation process, market-leading purity

INCI Name	Tetraacetylphytosphingosine	Structural Formula
CAS No.	13018-48-9	
Appearance	White or off-white powder	
Purity	≥ 95.0%	
Recommended Dosage	0.1~1.2%	
Source	Fermentation + Green Chemistry Synthesis	

Basic Description

Tetraacetylphytosphingosine is a natural skin care ingredient with moisturizing, antioxidant, whitening and freckle removal effects. It features good emulsification, dispersion and lubrication capabilities, and excellent compatibility with the skin.

In addition, tetraacetylphytosphingosine is also of great use in the medical field.

1. Tetraacetylphytosphingosine has better solubility and compatibility in oil phase than other ceramide series products.
2. It has a higher purity than counterparts on the market due to its unique purification and preparation process.

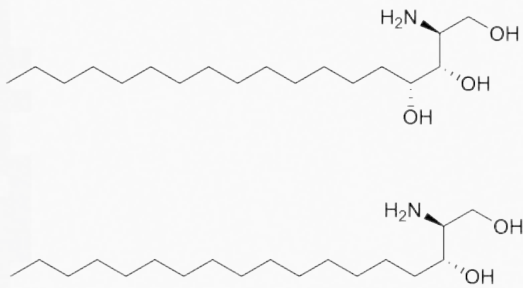
Product Applications

Tetraacetylphytosphingosine is an acetylated derivative of phytosphingosine that stimulates the synthesis of glucosylceramide in vitro. Glucosylceramide plays a protective role by strengthening the skin barrier function, inhibiting inflammation and angiogenesis, and reducing dark eye circles.

Tetraacetylphytosphingosine has good solubility and compatibility with a variety of cosmetic ingredients, suitable for anti-aging, repair and eye cream products.

Phytosphingosine/Sphinganine

Dual lipid replenishment significantly enhances skin/scalp barrier function and reduces transepidermal water loss (TEWL)

INCI Name	Phytosphingosine/Sphinganine	Structural Formula
CAS No.	Phytosphingosine : 554-62-1 Sphinganine: 764-22-7	
Appearance	White or off-white powder	
Purity	≥ 90.0%	
Recommended Dosage	0.1~2.0%	
Source	Fermentation + Green Chemistry Synthesis	

Basic Description

Phytosphingosine/Sphinganine demonstrate more comprehensive efficacy in skincare than single components through their synergistic "active repair + signal regulation" mechanism. This dual-action system exhibits:

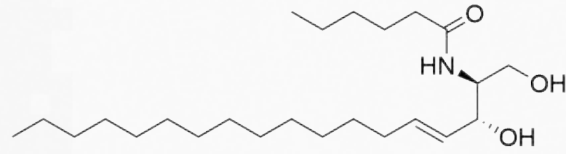
- Enhanced barrier restoration
- Superior moisture retention
- Potent anti-inflammatory & antimicrobial effects
- Advanced hair repair capabilities

With better dispersibility in lipid-based matrices compared to individual ingredients, this combination is particularly suitable for high-performance skincare and haircare formulations.

Caproyl Sphingosine

NEW
RELEASE

Similar to the natural lipid structure of the skin, it has an amphiphilic structure that hydrates and locks in moisture

INCI Name	Caproyl Sphingosine	Structural Formula
CAS No.	124753-97-5	
Appearance	Off-white powder	
Purity	≥ 90.0%	
Recommended Dosage	0.1~2.0%	
Source	Fermentation + Green Chemistry Synthesis	

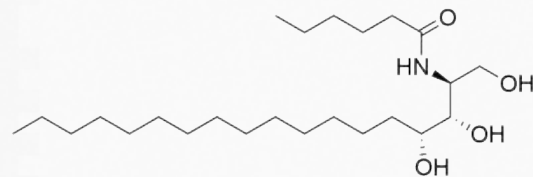
Basic Description

Caproyl sphingosine belongs to synthetic ceramide analogues. Its molecule has both a lipophilic long-chain structure and a hydrophilic hydroxyl group, which is similar to the natural lipid structure of the skin and has strong permeability. It can simulate the effect of natural ceramides, fill the intercellular spaces of the stratum corneum, repair the damaged lipid bilayer, and reduce transdermal water loss. Its amphiphilic structure can adsorb and lock in moisture, while regulating sebaceous gland secretion, keeping the skin in a state of water-oil balance.

Caproyl Phytosphingosine

NEW
RELEASE

Similar to the natural lipid structure of the skin, it has an amphiphilic structure that hydrates and locks in moisture

INCI Name	Caproyl Phytosphingosine	Structural Formula
CAS No.	249728-45-6	
Appearance	Off-white powder	
Purity	≥ 90.0%	
Recommended Dosage	0.05~2.0%	
Source	Fermentation + Green Chemistry Synthesis	

Basic Description

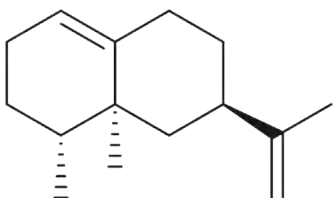
Caproyl Phytosphingosine has a molecular structure highly similar to the natural ceramides of the skin. It can penetrate between the cells of the stratum corneum to form a lipid bilayer and repair the damaged barrier. The hydrophilic amino alcohol group in the molecular structure of Caproyl Phytosphingosine can adsorb water, and the lipophilic hexanoyl long chain can form a closed film on the skin surface, reducing water evaporation and hydrating while locking in water. It can also fight inflammation and aging, and is the golden ingredient of "repair + anti-aging" in modern skin care products.

Valencene

HALAL

TO BE EXPECTED

Mainly applied as food additive and as the starting material for the synthesis of nootkatone

INCI Name	Valencene	Structural Formula 
CAS No.	4630-7-3	
Appearance	Colorless or pale yellow liquid	
Purity	≥ 60.0%	
Source	Fermentation	

Basic Description

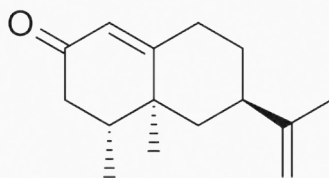
Valencene is a sesquiterpene and a basic aroma component of citrus fruits and citrus-derived flavoring agents. It is obtained from Valencia oranges or by microbial fermentation. Valencene is the precursor of nootkatone, which is the main contributor to the aroma and flavor of grapefruit.

Nootkatone

HALAL

TO BE EXPECTED

Nootkatone is mainly used in food additives, tobacco additives and mosquito repellent products

INCI Name	Nootkatone	Structural Formula 
CAS No.	4674-50-4	
Appearance	Colorless or pale yellow liquid	
Purity	≥ 90.0%	
Source	Fermentation + Green Chemistry Synthesis	

Basic Description

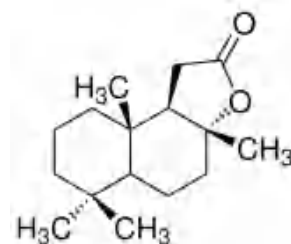
Nootkatone is a sesquiterpene ketone isolated from grapefruit peel oil and Alaska cedar oil. It has a long-lasting and strong citrus-like fruity aroma. At a lower dilution, it has a typical grapefruit aroma with a cypress-like flavor and a bitter taste. Nootkatone has the effects of protecting the kidneys from chronic damage, protecting nerves, etc. It is often used to prepare edible flavors and tobacco flavors such as grapefruit, oranges, and tropical fruits.

Sclareolide

HALAL

TO BE EXPECTED

As an extremely important intermediate for the synthesis of ambrox, sclareolide is widely used in tobacco, alcohol, food additives and flavor preparation

INCI Name	Sclareolide	Structural Formula 
CAS No.	564-20-5	
Appearance	White or off-white powder	
Purity	≥ 90.0%	
Source	Fermentation + Green Chemistry Synthesis	

Basic Description

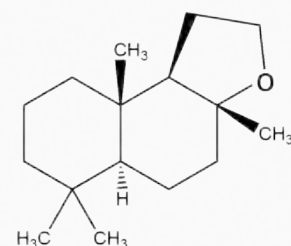
1. Sclareolide is an intermediate used in the synthesis of important drugs such as anti-inflammatory and anti-cancer drugs, and has become an important hotspot in the spice industry.
2. Excellent tobacco flavoring agent. In blended cigarettes, it masks the coarse smell of tobacco, improves the flavor quality, and gives tobacco a pleasant characteristic aroma.
3. Enhance food sensory. It is used in foods containing sweet condiments as a flavoring agent to increase the olfactory effect. A small amount of sclareolide added in the coffee industry increases the bitterness of coffee and improves the refreshing effect.

Ambrox

HALAL

TO BE EXPECTED

Zhihe Bio uses fermentation technology to prepare key intermediates, which is technically difficult

INCI Name	Ambrox	Structural Formula 
CAS No.	6790-58-5	
Appearance	White to off-white Solid	
Purity	≥ 98.0%	
Source	Fermentation + Green Chemistry Synthesis	

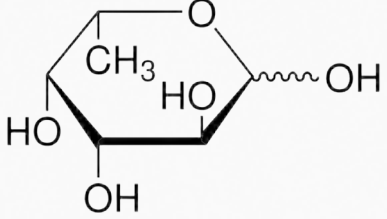
Basic Description

Ambrox has good roundness and strong fragrance fixative ability. Natural ambergris is a metabolite of sperm whales, the only animal in the ocean that can produce fragrance. As sperm whales are on the verge of extinction and commercial whaling is banned worldwide, there is very little ambergris left in the world, and various synthetic substitutes for ambergris have emerged. It can be used as a fixative with a unique and long-lasting fragrance, or as a tobacco flavoring agent.

L-fucose

HALAL

Enhance the body's immunity and delay skin aging endogenously, without fear of the ravages of time

INCI Name	L-Fucose	Structural Formula 
CAS No.	2438-80-4	
Appearance	White or off-white powder	
Purity	≥ 98.0%	
Recommended Dosage	0.1~5%	
Source	Fermentation	

Basic Description

L-fucose is a natural deoxyhexose that exists in many organisms. It is an important component of mammals and one of the five basic monosaccharides that constitute human milk oligosaccharides (HMOs).

L-fucose has multiple physiological effects. It can serve as an important biological functional feature of cancer biomarker or target in mammalian cells, and achieve targeted delivery of anti-tumor drugs in intelligent nano-drug delivery systems. It has the effect of reducing skin damage and delaying skin aging in cosmetics.

Core Advantages

1. Most domestic mass production companies use full synthesis technology, while Zhihe Bio applies fermentation technology. Compared with the synthesis process, the fermentation process features more harmless manufacturing process both to human beings and environment.
2. L-fucose by fermentation technology is of superior quality and more favorable price to counterparts on the market.
3. The whole process is in strict compliance with GMP, which can be used not only in cosmetics but also in the pharmaceutical preparation industry.

Efficacy Report/Test

Delay skin aging

Skin thickness decreases with age, resulting in damage to the stratum corneum, epidermis, cells and matrix, and collagen reduced. In animal experiments, skin thickness increases significantly after L-fucose is applied to rats for 4 weeks. According to the transdermal penetration experiment, L-fucose penetrates deep into the skin, reduces MMP-2 and MMP-9, scavenges free radicals and stimulates cell proliferation, which proves that L-fucose helps delay skin aging.

	Epidermis (μm)	Dermis (μm)	Total skin thickness (μm)
Controls	17.6 ± 3.87	528.23 ± 67.06	545.83
Treated%	19.9 ± 3.61	806.84 ± 71.37	826.74
Increase	13.06	52.74	51.46

Data on skin thickness increase after 4 weeks of use of L-fucose cream*

Hour of sampling	5-50 μm	% of total
n exp.	cpm	
1 h (8)	1689.37	14.05
2 h (4)	1226.53	17.46
3 h (6)	413.06	9.16
4 h (4)	1431	13.29
5 h (5)	1660.5	16.01
6 h (4)	1987.11	17.79
Average	1401.23	14.66
S.D.	547.98	3.26

Hour of sampling	55-800 μm	% of total
n exp.	cpm	
1 h (8)	11054.50	85.95
2 h (4)	6133.75	82.54
3 h (6)	4093	90.84
4 h (4)	9789.12	86.71
5 h (5)	8549.51	83.98
6 h (4)	10420.08	82.02
Average	8339.96	85.34
S.D.	2710.83	3.26

L-fucose skin penetration data*

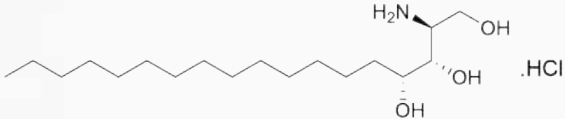
*[1]Fodil-Bourahla I, Bizbiz L, Schoevaert D, et al. Effect of L-fucose and fucose-rich oligo- and polysaccharides (FROP-s) on skin aging: penetration, skin tissue production and fibrillogenesis. [J]. Biomedicine & Pharmacotherapy, 2003, 57 (5-6):209-215.DOI:10.1016/S0753-3322(03)00047-7.

Product Applications

1. Application areas: 1) L-fucose resists infection and cancer, enhances immunity, prevents viruses, bacteria, and toxins from infecting cells, which enhances the body's immunity. 2) Skin moisturizing and anti-aging: L-fucose stimulates the proliferation of fibroblasts, prevents the damage of fibroblasts caused by Na ascorbate, and reduces the activity of proteolytic enzymes MMP-2 and MMP-9 in the skin, which minimizes skin damage. Applying a cream containing 1% L-fucose to mouse skin for four consecutive weeks will increase the density of collagen fibers in the mouse skin, increase the thickness of the epidermis, dermis and total skin, increase skin tissue generation, reduce wrinkles, enhance skin elasticity, and delay skin aging. 3) Nutritional supplement: Fucose is one of the eight essential sugars for the human body and one of the oligosaccharides in human breast milk (human breast milk also contains sialic acid, N-acetylglucosamine, D-glucose and D-galactose, etc.). It is an ideal dietary supplement and a nutritional supplement and immunity-enhancing factor for baby food.
2. Market performance: This product has a wide range of application scenarios and is popular in the market.
3. Compatibility and solubility: L-fucose has good water solubility and is compatible with most formulas.
4. Stability: L-fucose has stable chemical and physical properties.

Phytosphingosine HCl

High-performance water-soluble barrier restorative

INCI Name	Phytosphingosine HCl	Structural Formula 
CAS No.	6640-58-6	
Appearance	Off-white powder	
Purity	≥ 90.0%	
Recommended Dosage	0.1~0.5%	
Source	Fermentation + Green Chemistry Synthesis	

Basic Description

Phytosphingosine HCl is a water-soluble derivative of phytosphingosine, renowned for its exceptional skin barrier repair, antimicrobial, anti-inflammatory, and moisturizing properties. As a precursor to ceramides, it effectively enhances stratum corneum structure, reduces transepidermal water loss (TEWL), while regulating skin microbiome balance.

The hydrochloride form significantly improves water solubility and bioavailability, making it highly adaptable for various cosmetic formulations.