

30+ More than 30 years of Research and Development experience in bacterial fermentation industrial process
Granted patent number: more than 330

International company based in **Jinan, China** (Headquarters) with other 2 offices in **Shanghai** and **Guangzhou**

- Subsidiaries in **USA, Europe, Japan** and **Korea**
- **Global distribution**

More than 800 R&D persons (professional background of Pharmacy, Microbiology, Fermentation Engineering, Molecular Biology, Biomedical Engineering, Fine Chemical Engineering, Practical Chemistry)

Collaboration with **Harvard University, Tsinghua University** and others

Active members of **International Society of Hyaluronan Sciences (ISHAS)**



Bloomage Biotech - the biofermented Hyaluronic Acid leading company - is directly involved in the Global Sustainable Economy Project.

EHS Management

Environmental Protection
 Sewage biological treatment
ISO 14001:2015 Environmental Management System

Safety Management
 Work safety standardization certificate
 Safety production Award

Low Carbon Economy
 Ethanol recovery/Biogas plant
ISO 50001:2018 Energy Management System

Occupational Health
ISO 45001:2018
 Occupation Health Safety Management System

Quality & Certifications

On site audits by **US FDA, China NMPA** and **KOREA MFDS** passed
 More than 50 times customers and authorities yearly audited



WORLD HYALURONIC ACID MUSEUM (JINAN, CHINA)



Exhibition of Discovery, Development, Production and Application of HA



4 Facilities	1483 Employees	770 HA tons per year capacity	>40% International distribution



CREATIVE TECHNOLOGY FOR VIBRANT LIFE

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Hyatru[®] Sodium Hyaluronate

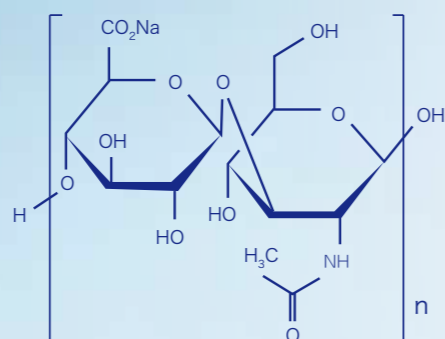
Pharmaceutical Grade

The Widest Viscosity Range by Microbial Fermentation



Bloomage Biotech - The Biofermented Hyaluronic Acid Leading Company

Sodium hyaluronate, also known as hyaluronan or hyaluronic acid (“HA”), is a natural polysaccharide existing in human and animal bodies, mainly in the soft connective tissues such as the skin, vitreous humor of eyes and synovial fluid of joints. HA is a mucopolysaccharide composed of repeating disaccharide units of D-glucuronic acid and N-acetyl-D-glucosamine. Its random coiled configuration and fluid kinetics characteristic in solutions gives it some important physical characters such as moisturizing and lubricating properties, viscoelasticity and pseudo-plasticity. Based on the good biocompatibility, HA is widely used in pharmaceuticals and medical devices.



Chemical Structure
CAS No.: 9067-32-7

HyatruTM Sodium Hyaluronate (Pharmaceutical Grade)

The Widest Viscosity Range (up to 4.5 m³/kg) for option¹

Capable of the Narrowest Viscosity Control (up to 0.1 m³/kg)²

Natural & Safe

Biocompatibility data available

It is produced by **bacterial fermentation**

- ✓ The strain is widely accepted and safe
- ✓ Non GMO (The strain: Streptococcus equi subsp. Zoepidemicus)
- ✓ No-animal origin raw materials used



High Purity

Nucleic acids and Bacterial endotoxins can reach 1/50 and 1/20 EP standard, respectively.

The highest performance in bacterial fermentation industrial process allows products wide range in terms of specifications and technical features (viscosity, molecular weight and purification)

High Stability in Quality & Supply Chain

HyatruTM Sodium Hyaluronate Pharmaceutical Grade is stable under recommended storage condition.



The Widest Range of Sodium Hyaluronate Pharmaceutical Grade

01 SELECT THE CATEGORY

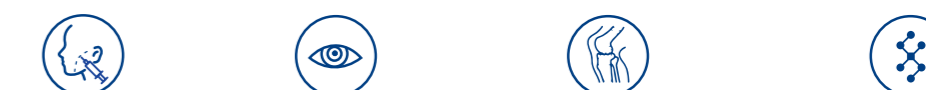
Hyatru TM Sodium Hyaluronate - 4 Category Grades					
CATEGORY USE	CATEGORY GRADE	PRODUCT CODE	INTRINSIC VISCOSITY (m ³ /kg)	NOTE	
INJECTABLE GRADE	HA-EP	HA-EP1.2	0.9-1.7	Injectable grade: Highest Purification Different Viscosity Grade (up to 4.5 m ³ /kg)	
		HA-EP1.8	1.6-2.2		
		HA-EP2.4	2.2-2.8		
		HA-EP3.0	2.7-3.6		
		HA-EP3.8	3.4-4.5		
	HA-EP-N	HA-EP-N0.8	0.5-1.0		Injectable grade: High Purification Different Viscosity Grade (up to 3.0 m ³ /kg)
		HA-EP-N1.3	1.12-1.50		
		HA-EP-N1.8	1.6-2.2		
		HA-EP-N2.5	2.2-3.0		
		HA-EP2	-		
NON-INJECTABLE GRADE (medical grade)	HA-E	HA-E2.0	1.2-2.8	Different Viscosity Grade (up to 3.6 m ³ /kg)	
		HA-E3.0	2.7-3.6		
		HA-P-0.5	0.5-1.0		
		JP-AE	10.0-24.9dL/g		
		HA-EP1	-		
	MD	HA-MDII	-		Different Molecular Weight Grade (from less than 10K Da to more than 1.5M Da)

➤ Be capable of producing tailor-made viscosities or molecular weight ranges and HA derivatives as per the customers' needs

➤ Research grade sodium hyaluronate oligosaccharides, including tetrasaccharide(HA4), hexasaccharide(HA6), octasaccharide(HA8) and decasaccharide(HA10) can be provided.

HyatruTM Sodium Hyaluronate Pharmaceutical Grade For All The Applications

02 CHOOSE YOUR USE



CATEGORY GRADE	AESTHETICS	OPHTHALMOLOGY	RHEUMATOLOGY	OTHERS
HA-EP HA-EP-N	Dermal fillers Mesotherapy	Ophthalmic viscosurgical devices	Intrarticular injections	Anti-adhesive agents Tissue engineering Bladder instillations Embryo culture
CATEGORY GRADE	DERMATOLOGY	OPHTHALMOLOGY	OTHERS	
HA-E	Topical drug Skin ulcers Microneedle	Eye-drops (as API or excipient) Lens care solutions	Nasal spray Vaginal dryness Drug delivery Cell culture media	
MD	Topical preparations such as medical dressing for wound healing or burnings, lubricants for medical use	Eyewash solutions Eyelid wipes	Oral preparations (mouthwashes etc.) Hygienic use Electrospinning	

The Widest Range of Sodium Hyaluronate Pharmaceutical Grade

03 CHECK THE REGULATORY STATUS

Hyatru TM Sodium Hyaluronate - 4 Category Grades						
CATEGORY GRADE	GMP/WRITTEN CONFIRMATION	DMF	CEP	US-DMF	KDMF	JAPAN-MF
HA-EP	✓	✓	✓	✓	✓	✓
HA-EP-N	✓	✓	✓	✓	✓	✓
HA-E	✓	✓	✓	✓	-	-
MD	✓	N/A	N/A	N/A	N/A	N/A

4 CATEGORY GRADES FOR MORE THAN 16 SODIUM HYALURONATE PRODUCT TYPES

*1 According to CEP certification database of EDQM as of April 10, 2023

*2 Tested by Ph. Eur. Method