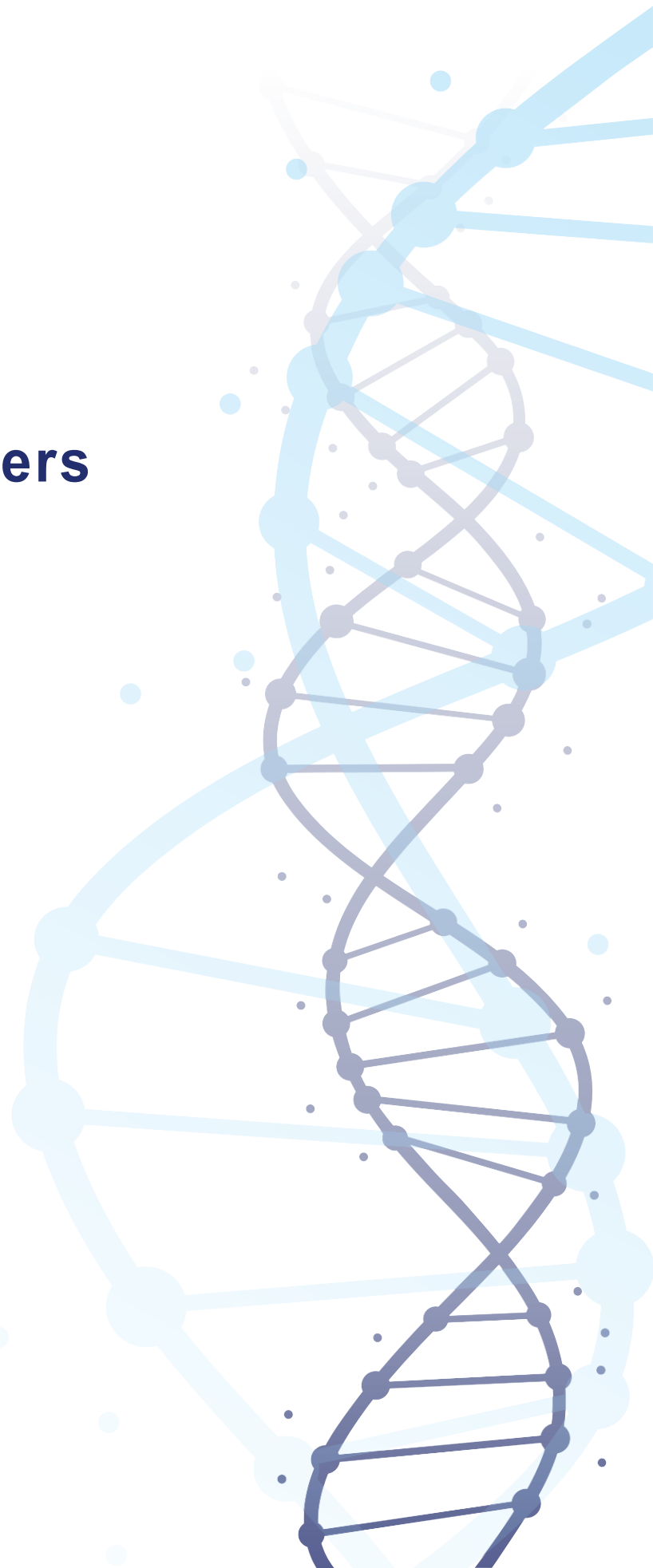
Driving the innovation
SUNRESIN
STOCK CODE 300487

SEPLIFE

Product Catalog

Enzyme Carriers

Sunresin Life Science



SUNRESIN NEW MATERIALS CO.LTD.

Sunresin New Materials Co. Ltd.

Sunresin Global Locations

Sunresin is an innovation oriented high-tech enterprise, specializing in supplying ion exchange resins, adsorption and chromatography resins, equipment solutions and relevant technical services. With 20 years of manufacturing experience, it is the only listed company in the IER industry (Shenzhen Stock code 300487) in China. Sunresin has 8 subsidiaries, 3 overseas branch offices, as well as 5 state-of-the-art manufacturing facilities around the world. Sunresin produces over a hundred resin products covering a wide range of applications for separation and purification. Sunresin products portfolio includes about 30 product categories and more than 100 different resin references which are commercialized in over 100 countries and broadly used in industries such as Water and wastewater treatment, Food Processing, Biotech, Pharmaceuticals, Plant Extraction, Membrane Caustic Soda, Hydrometallurgy, as well as Municipal Water Treatment among others.

Sunresin focuses on innovation, quality and services. Sunresin holds more than 30 patents, in China and internationally, and has accomplished more than ten national projects in the area of resin development. Sunresin is certified under ISO 9001 for Quality Control System and ISO14001 for Environment Control System. It has also been awarded with Certificates from WQA Golden Seal, Kosher, CE, Halal, etc. Under worldwide recognized QC systems, Sunresin provides excellent and high quality products to the market. All of the employed manufacturing processes are strictly controlled by the environmental regulations.

Based on the technical competence, the rich experience and under strict international standards, Sunresin supplies high quality products at a fast delivery time, cost-effective equipment, professional design and solution, as well as proactive customer services to our customers.

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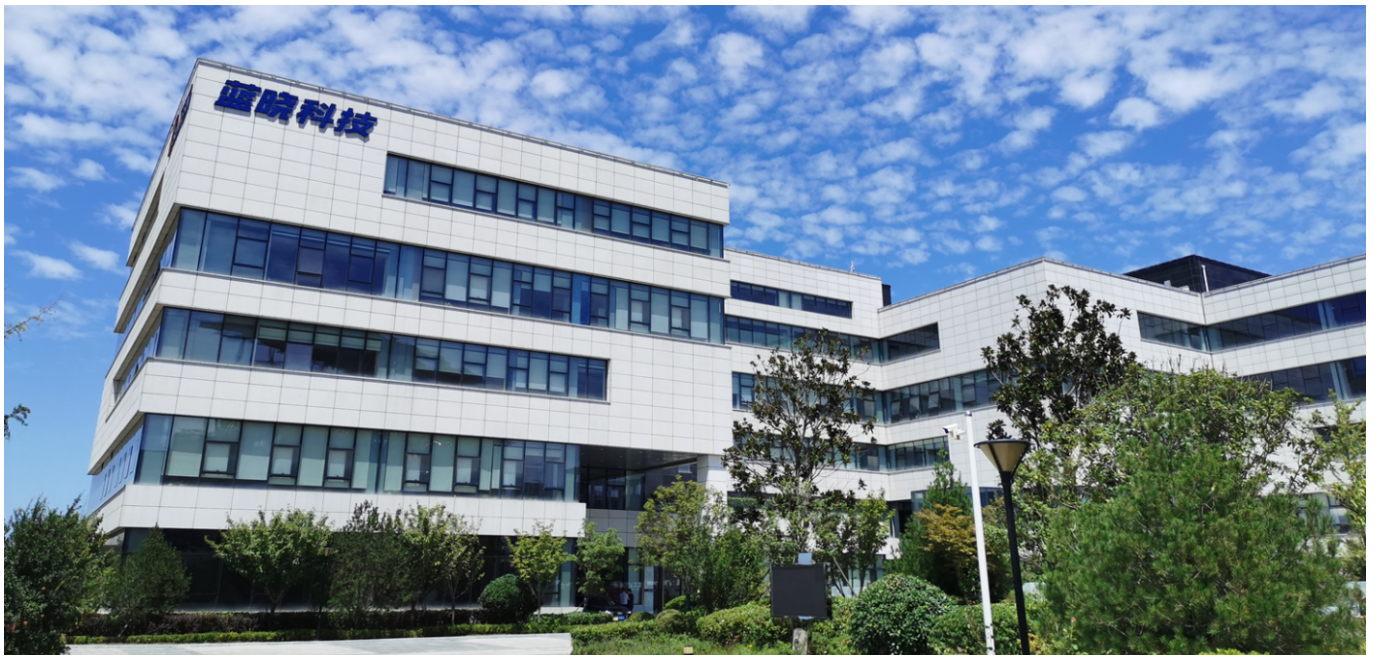


Sunresin Headquarter in Xi`an

· Sunresin Life Science

Sunresin Life Science is a division of Sunresin New Materials Co. Ltd. which covers research, development and production of the Seplife product line:

- chromatography agarose and dextran based resins for the downstream separation and purification of biomolecules such as MAbs, mRNA, viruses, with a total production capacity of 70,000L/Y
- chromatography synthetic resins for the downstream separation and purification of small biomolecules such as peptides, oligonucleotides, proteins with a total production capacity of 100,000L/Y
- cell culture microcarriers with a total production capacity of 20T/Y
- resins for Solid Phase Synthesis of peptides and oligonucleotides with a total production capacity of 60T/Y
- resins for enzyme immobilization with a total production capacity of 360T/Y.

SEPLIFE

Complete range of resins in Life Science applications including biomolecule manufacture and purification

MONOJET

The MonoJet® Technology enables the production of highly uniform particle size resins

SEPLITE

25 product categories and more than 200 different resin types applying in Water treatment, Life Science, Food, Hydromet, Lithium Extraction and Plant Extract&Purification

SEPSOLUT

Equipment and engineering solutions supporting adsorption and separation technology

· Our strength

The technical team of Sunresin has more than 20 years of experience in the development, production and application of resins in the Life Science domain. Sunresin offers a wide range of products based on agarose, dextran, styrene/DVB and acrylate. In addition to standard offer, Sunresin strength is the ability to understand technical requirements and adapt, customize and create specific processes to achieve customer satisfaction.

· Automated Production Control

Sunresin has developed the best in class world-leading automated console system to monitor the production operation in real time and ensure batch to batch consistency, quality and stability to meet the pharmaceutical requirements.

· Strict Product Quality Control

Sunresin has invested significantly in most advanced and high quality instrumentation and has established its own quality management system and norms in strict accordance with GHS, ISO9001 and the guidelines of pharmaceutical production related management norms. From raw materials to production process control and finished product testing, all methods and processes are performed in strict accordance with the documents to ensure stable product quality and provide guarantee for the safety and stability of the products.

Sunresin has established a complete product evaluation process to ensure the best quality of released products. A highly trained and experienced technical team is fully dedicated to perform complete testing of all products before release.

· Solution Provider in Process Development

Sunresin provides also a complete platform of engineering solutions for the development of the chromatography systems to enable the complete process implementation.

This platform allows to meet future production and consistent scale-up requirements by combining cell culture methods and separation and purification technology with the performance of Sunresin chromatography resins. Sunresin strength is the ability to work in close connection with customers with the target to optimize production process, costs, efficiency and environmental impact.

Laboratory for Quality Control

Peptide synthetizer

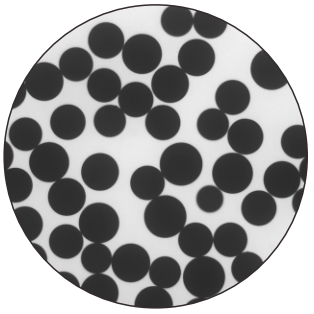
Cell culture white rooms

Resin synthesis

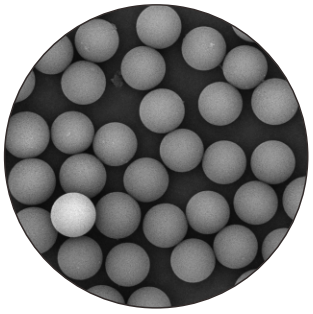
SEPLIFE

Under the brand Seplife a wide range of products is included:

- Resins for Solid Phase Peptide Synthesis (SPPS)
- Resins for Solid Phase Oligonucleotide Synthesis (SPOS)
- Chromatography resins (polymer-based)
- Chromatography resins (agarose and dextran based)
- Enzyme carriers
- Magnetic microspheres
- Microcarriers for cell culture

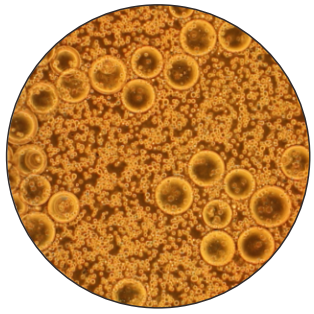


Solid Phase Synthesis resins



Chromatography resins

Enzyme carriers



Microcarriers cell culture


SEPLIFE

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Epoxy resins

Epoxy-activated resins allow a simple and fast immobilization of enzymes by multipoint covalent binding between the enzyme and resin.

Seplife® epoxy resins are porous, robust and hydrophilic. All epoxy acrylate resins are designed to form very stable covalent linkages with different protein groups (amino, thiol, phenolic) under very mild experimental conditions of pH and temperature. Epoxy acrylates can be used in either stirred tank or bed reactor.

Epoxy resins

Table 1. Seplife® epoxy acrylate resins for enzyme immobilization

PRODUCT	TYPE	FUNCTIONAL GROUP	IMMOBILIZATION	PORE DIAMETER(Å)	Particle size (micron)[1]	Total moisture (%)
Seplife® EMC7014	Epoxy acrylate	Epoxy	Covalent	400-600	150-350	58-68
Seplife® EMC7025	Epoxy acrylate	Epoxy	Covalent	300-500	150-350	58-68
Seplife® EMC7032	Epoxy/butyl acrylate	Epoxy	Covalent	200-400	150-350	55-65

[1] Customization of particle size is available

Amino resins

Seplife® amino acrylate resins allow covalent enzyme immobilization. The resins are functionalized with primary amines, and the covalent immobilization is performed by pre-activation with glutaraldehyde.

Reaction of the aldehyde groups with amino groups of enzymes forms Schiff bases which are very stable in a pH range 3-8 and provide the so called multipoint covalent binding. Seplife® amino resins are porous, robust and hydrophilic. All amino acrylate resins are designed to form very stable covalent linkages with different protein groups (amino, thiol, phenolic) under very mild experimental conditions of pH and temperature. Amino acrylates can be used in either stirred tank or bed reactor.

Amino resins(long spacer C6)

Amino resins (short spacer C2)

Table 2. Seplife® amino acrylate resins for enzyme immobilization

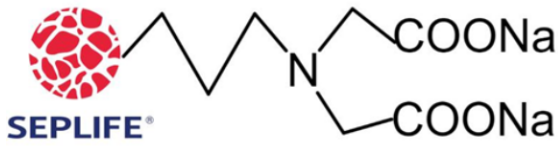
PRODUCT	TYPE	FUNCTIONAL GROUP	IMMOBILIZATION	PORE DIAMETER(Å)	Particle size (micron)[1]	Total moisture (%)
Seplife® EMC7120S	Amino acrylate	Amino (long spacer C6)	Covalent	200-400	100-300	50-60
Seplife® EMC7120M	Amino acrylate	Amino (long spacer C6)	Covalent	200-400	300-700	50-60
Seplife® EMC7225S	Amino acrylate	Amino (short spacer C2)	Covalent	500-700	100-300	60-70
Seplife® EMC7225M	Amino acrylate	Amino (short spacer C2)	Covalent	500-700	300-700	60-70

[1] Customization of particle size is available

Affinity, ionic and adsorption immobilization

Seplife® enzyme carriers also include resins for:

- Adsorption: Enzyme immobilization by adsorption is particularly useful for all enzymes that need to be used in oils and organic solvents.
- Ionic immobilization: Enzyme immobilization by ionic interaction depends on the isoelectric point of the enzyme, its optimal pH of activity and the ionic strength of the immobilization buffer.
- Affinity immobilization: Enzyme immobilization by affinity is suitable for recombinant enzymes that are manufactured containing an His-Tag.



Affinity IDA resins

Quaternary amine resins

Octadecyl resins (C18)

Macroporous

Table 3. Seplife® Affinity, ionic and adsorption resin for enzyme immobilization

PRODUCT	TYPE	FUNCTIONAL GROUP	IMMOBILIZATION	PORE DIAMETER(Å)	Particle size (micron)[1]	Total moisture (%)
Seplife® Chelex7350	Iminodiacetic acrylate	Iminodiacetic (Na^+) IDA	Affinity	800-1000	100-250	60-70
Seplife® EMC7435	Ionic styrene/DVB	Quaternary amine (Cl^-)	Ionic	500-700	315-1250	60-70
Seplife® EMC7528	Octadecyl acrylate	Octadecyl (C18)	Adsorption	200-400	400-1000	55-65
Seplife® EMC1020	Styrene/DVB	None	Adsorption	500-1000	300-900	45-55
Seplife® EMC1040	Acrylate/DVB	None	Adsorption	150-300	300-700	55-65

[1] Customization of particle size is available

Packaging information

Seplife® enzyme carriers are packed in PE bags as primary package and in blue plastic kegs as secondary package. Standard packaging is 25Kg.

Blue plastic kegs for enzyme carriers packaging

Shelf life and storage temperature

Product	Shelf life	Storage temperature (°C)
Epoxy resins	6 months	2-8
Amino resins	3 years	2-20
Octadecyl acrylate and adsorption resins	3 years	2-20
Quaternary styrene/DVB	3 years	2-20
Iminodiacetic acrylate	3 years	2-20

Ordering information

PRODUCT	REF.NO	PACK SIZE
Seplife® EMC7014	PM014S01	500g
	PM014S02	1kg
	PM014S03	5kg
	PM014S04	10kg
	PM014S05	25kg
Seplife® EMC7032	PC013S01	500g
	PC013S02	1kg
	PC013S03	5kg
	PC013S04	10kg
	PC013S05	25kg
Seplife® EMC7120S	PM033S01	500g
	PM033S02	1kg
	PM033S03	5kg
	PM033S04	10kg
	PM033S05	25kg
Seplife® EMC7225S	PM025S01	500g
	PM025S02	1kg
	PM025S03	5kg
	PM025S04	10kg
	PM025S05	25kg
Seplife® EMC7435	PS066I01	500g
	PS066I02	1kg
	PS066I03	5kg
	PS066I04	10kg
	PS066I05	25kg
Seplife® EMC1020	PS005M01	500g
	PS005M02	1kg
	PS005M03	5kg
	PS005M04	10kg
	PS005M05	25kg

PRODUCT	REF.NO	PACK SIZE
Seplife® EMC7025	PC013M01	500g
	PC013M02	1kg
	PC013M03	5kg
	PC013M04	10kg
	PC013M05	25kg
Seplife® EMC7120M	PM033M01	500g
	PM033M02	1kg
	PM033M03	5kg
	PM033M04	10kg
	PM033M05	25kg
Seplife® EMC7225M	PM025M01	500g
	PM025M02	1kg
	PM025M03	5kg
	PM025M04	10kg
	PM025M05	25kg
Seplife® Chelex 7350	PM057S01	500g
	PM057S02	1kg
	PM057S03	5kg
	PM057S04	10kg
	PM057S05	25kg
Seplife® EMC7528	PM042I01	500g
	PM042I02	1kg
	PM042I03	5kg
	PM042I04	10kg
	PM042I05	25kg
Seplife® EMC1040	PC009M01	500g
	PC009M02	1kg
	PC009M03	5kg
	PC009M04	10kg
	PC009M05	25kg

SEPLIFE

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SUNRESIN

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