BAYNOE

BAYNOE CHEM（SUZHOU) CO.,Ltd.

棓诺（苏州）新材料有限公司

| technology | innovation | security | discipline | team |

Core Value

全员创业 人尽其才

以技术为尊，推崇创新

以纪律为准，服从管理

以安全为纲，坚守红线

以团队为友，友爱互助

以公司为家，荣辱与共

CONTENTS

01

introduction

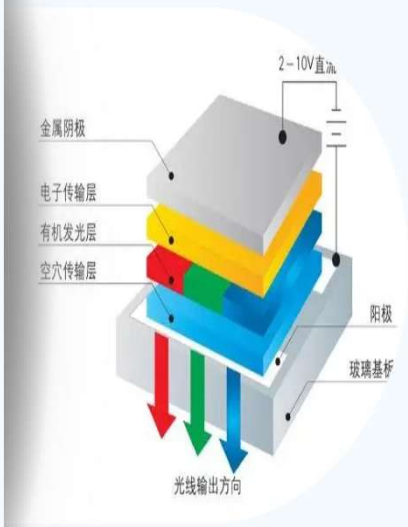
becoming an innovator and supplier of OLED molecular blocks and new materials

profitable company and valuable company

1.1 Profile

BAYNOE, established at the end of 2017, is a high-tech enterprise specializing in the R&D, manufacture and sales of electronic chemicals such as OLED materials and photoresist, and a **SRDI enterprise** in Jiangsu Province. The company has a 2,600 m^2 R&D center in **SIP**, with the investment of more than 20 million yuan in equipment, and more than 50 high-skilled R&D personnel from Zhejiang University, Lanzhou University and Soochow University. It has set up an ITC in Shanghai and built 3000 m^2 international standardized production workshop.

The company is committed to the R &D and production of OLED key materials and photoresist, involving organic light-emitting materials, hole transport materials and electronic transport materials, and has formed a complete IP layout. The company develops more than 300 products per year, and by 2023, it has developed more than 1,800 products, covering more than 90% of OLED structure types, more than 60 mass-production projects in the production base. It has applied for 40 patents, and some patented products have been verified by manufacturers.



1.2 Founding team

吴清来 / Wu Qinglai （CEO）

Postdoctoral fellow at Zhejiang University

Engaged in chemical work in 2001, He is good at R&D of large-scale product technology and new OLED materials. A number of technical invention patents have been obtained, and the production of specific products accounts for 60% of the world's production.

宋文志 / Song Wenzhi （GM）

Graduated from Lanzhou University

In 1999, he was engaged in chemical work, and in 2005, he began to engage in the development and research of OLED products. Good at R&D and mass production of new OLED processes. The general manager of BAYNOE is responsible for the production of the company's factory mass production projects.

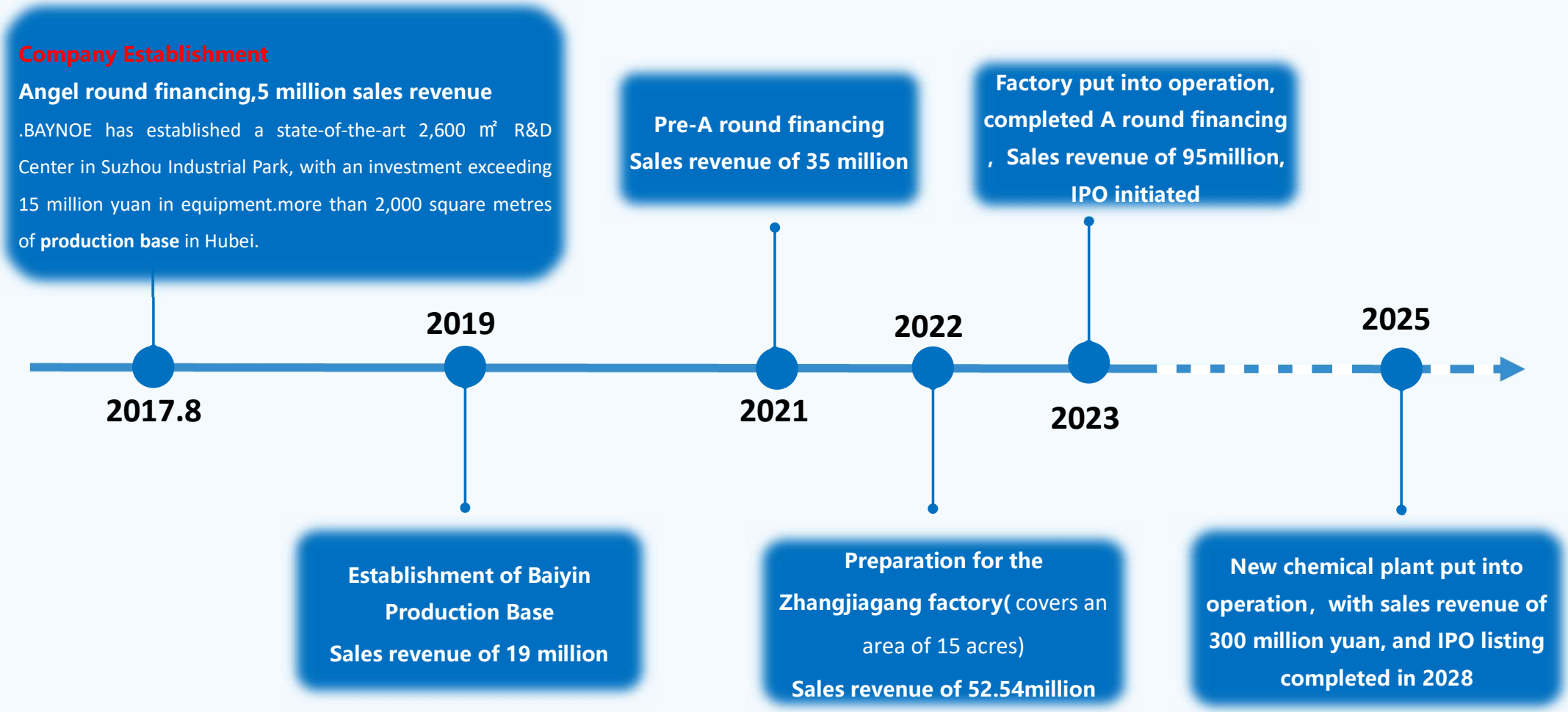
程佳伟/Chen Jiawei （MD）

Rich experience in domestic and foreign market analysis, development and sales of OLED new materials, and has rich market information and customer resources in the field of OLED new materials.

李显跃/Li Xianyue （CTO）

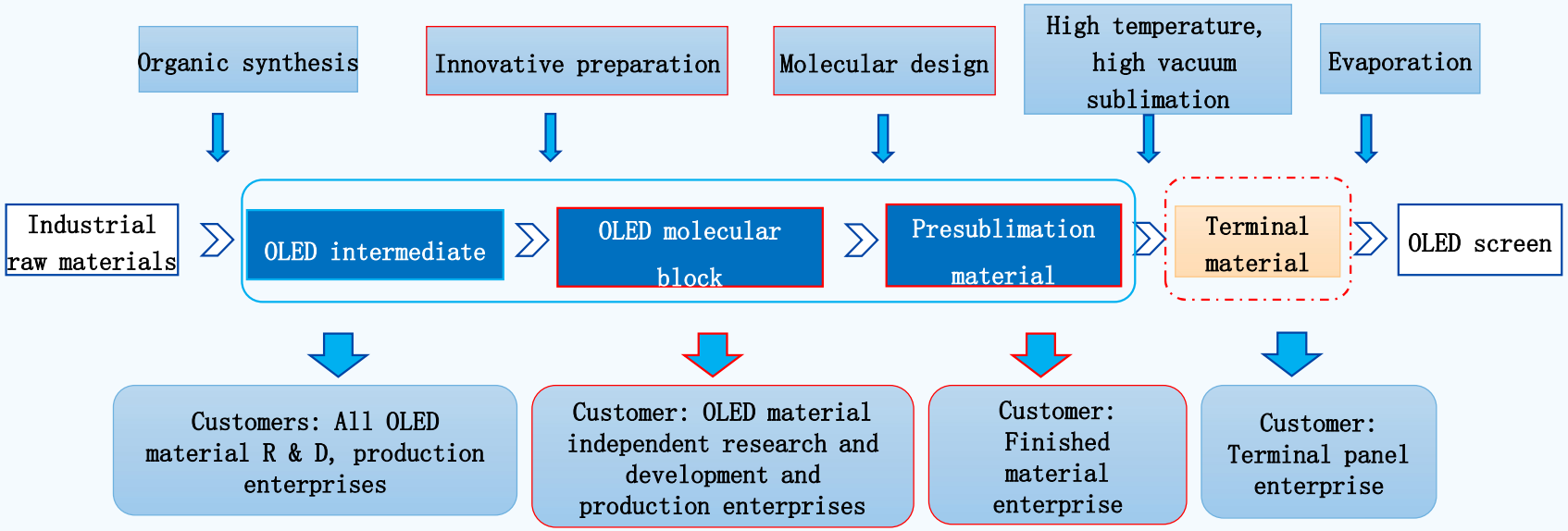
With 15 years of experience in the development and industrialization of organic synthesis technology. In the past 10 years, he has served as the research and development project leader in OLED new materials related enterprises, and has mastered the synthesis and production technology of more than 300 OLED new materials.

1.3 Development history



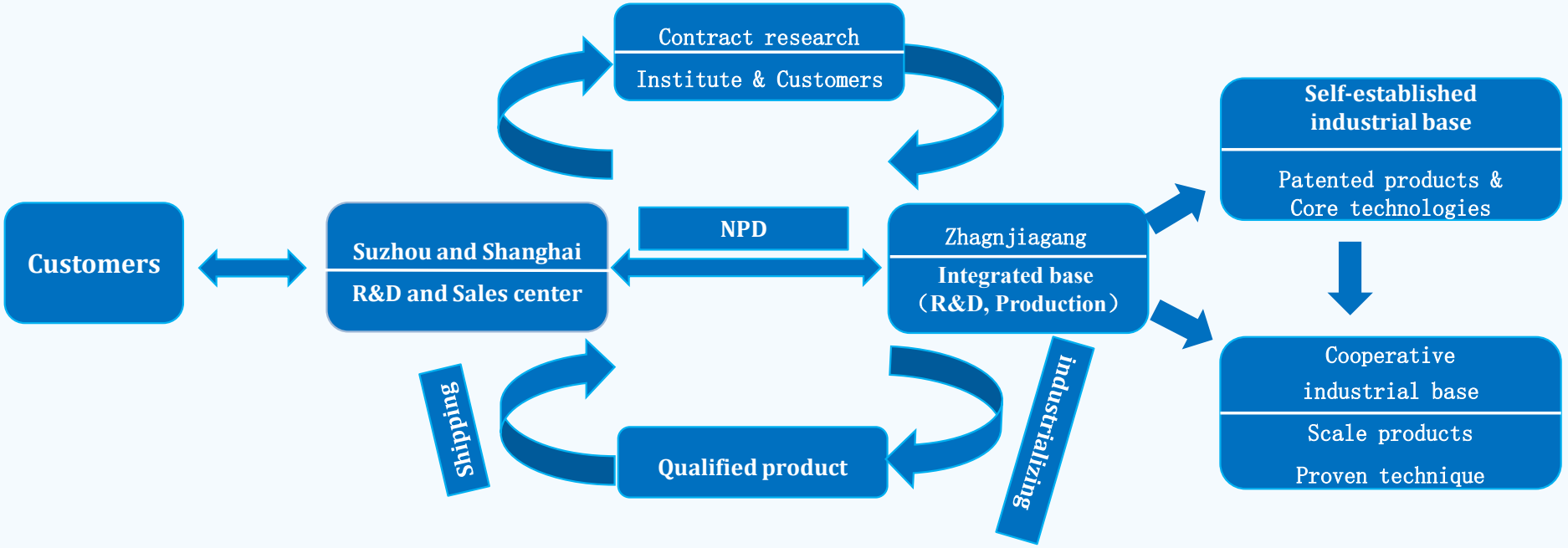
1.4 Industrial layout

OLED intermediates, OLED molecular blocks and pre-sublimation material supplier



Innovation-driven, technology-oriented, product-oriented!

1.5 Business model canvas



- Early-term (≤5 years)： Driven by innovative technology, using the technical influence and market resources accumulated by entrepreneurial talents in the industry, technology development and industrialization of existing products and product customization services.
- Medium-term (5-8 years) : Driven by innovative technology and products, it enters the stage of independent new product development and forms patented products and technologies.
- **Later period (≥8 years) : Driven by innovative products, with independent innovation products as the core development driving force, to become a leader in independent innovation materials.**

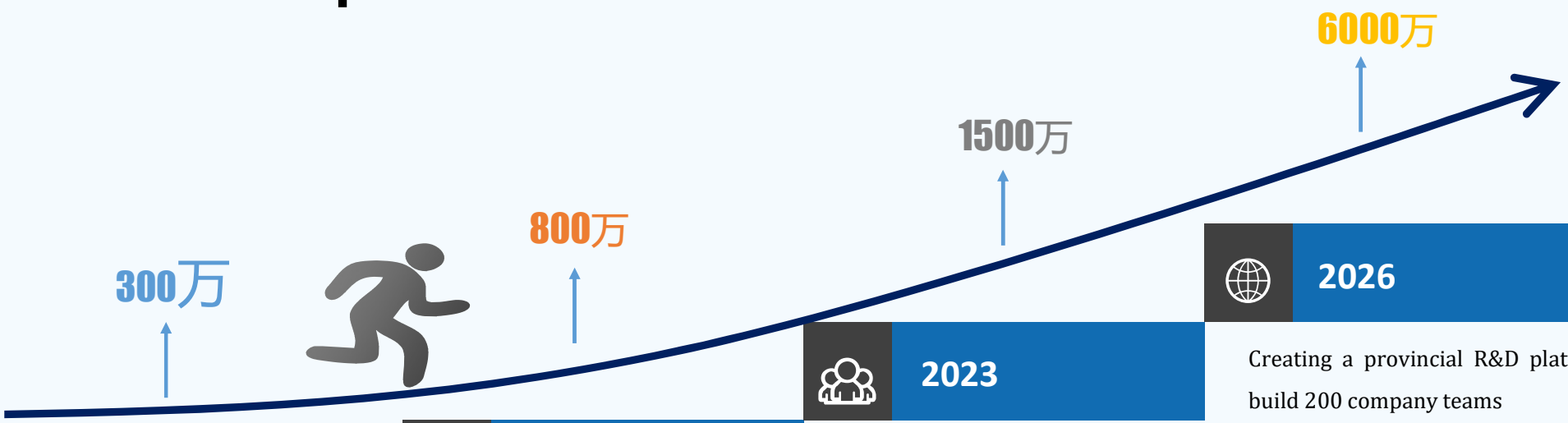
02

R&D center

Business policy: Innovation-driven, technology-oriented, product-oriented

Business strategy: R&D investment, team building, platform building

2.1 R&D expenses



2017年

Establishment of R &D platform, technical team, managment system

Applying for 3-5 patents

2020

Setting up a technical team of 25 people and development 30 projects& 3-5 industrialization projects

Applying for 8-10 patents

2023

Building a company team of 100 people

Development 50 projects & 8-10 industrialized technologies

Applying for 30-50 patents

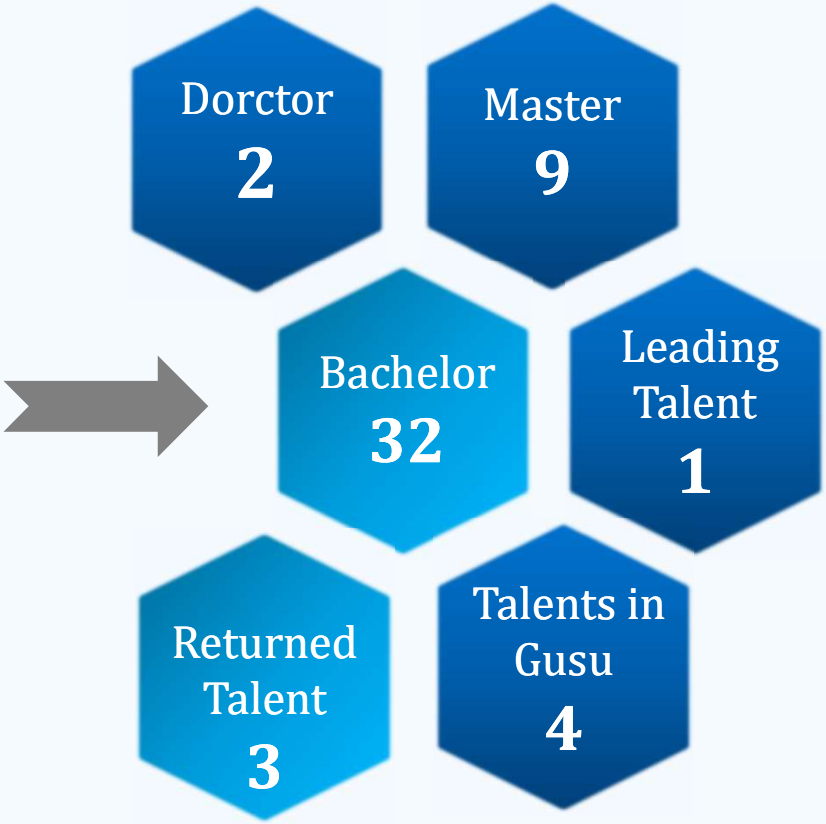
2026

Creating a provincial R&D platform and build 200 company teams

development 300 new projects and15-25 industrialized technologies

Applying for 50-100 patents

2.2 Team


Dorctor
2
Master
9
Bachelor
32
Leading
Talent
1
Returned
Talent
3
Talents in
Gusu
4

2.1 R&D platform

- 425 Changyang Street
- 2600 m^2 of R&D Lab
- 600 m^2 of Analytical Lab

倍诺新材料研发中心

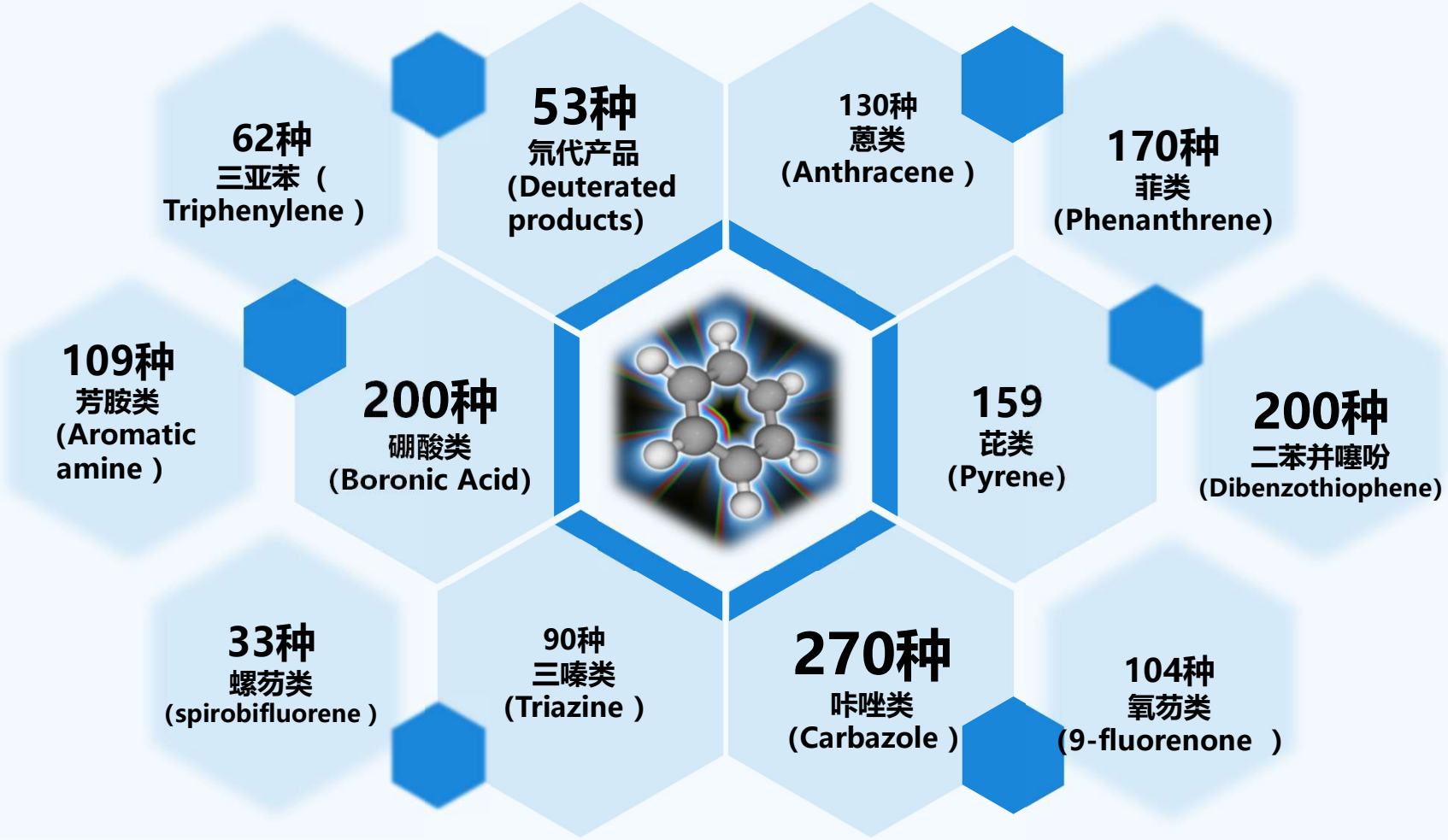
2.3 R&D lab

- ✓ Has a small test, scale-up R & D laboratory R & D, analytical equipment investment of 20 million R & D investment accounted for the total revenue> 10%

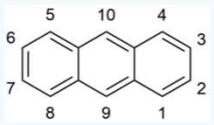
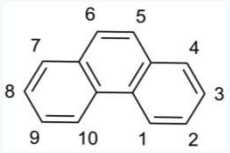
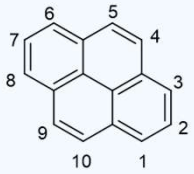
2.4 Analytical Lab

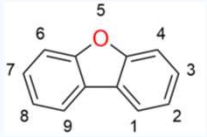
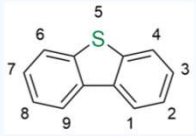
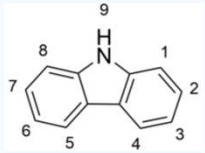
设备	品牌	型号	数量
核磁共振波普仪	Bruker	400’54 Ascend	1
高效液相色谱仪	Agilent	HP1200	3
液相色谱仪	Shimadzu	LC-20AD XR	4
气相色谱仪	Aglient	GC7890	5
气相色谱-质谱联机	Aglient	GC-MS6890	1
红外光谱仪	Thermo Fisher	Nicolet 6700	1
紫外光谱仪	Aglient	Cary 60	1
流变仪	Mettler Toledo	MCR-302	1
熔点仪	Mettler Toledo	MP90	1
水分测定仪	Mettler Toledo	V20	2

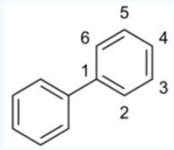
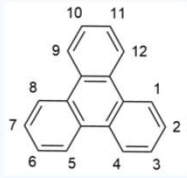
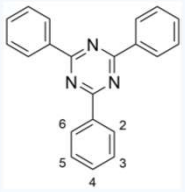
2.5 Block library



2.6 Block library

	9-Bromoanthracene-d9 CAS#183486-02-4
	9-(3-bromophenyl)-10-phenylanthracene CAS#:1023674-80-7
	9-Bromo-10-phenylanthracene-1,2,3,4,5,6,7,8-d8 CAS#:2377545-66-7
	9-bromo-10-(1-naphthalenyl)anthracene CAS#:400607-04-7
	9-Phenanthrene boronic acid CAS#:68572-87-2
	2-(4-bromophenyl)-1,10-phenanthroline CAS#:149054-39-7
	10-bromophenanthren-9-ol CAS#:4120-76-7
	9-(4-bromophenyl)phenanthrene CAS#:853945-49-0
	1-bromopyrene CAS#:1714-29-0
	1,6-dibromopyrene CAS#:27973-29-1
	pyrene-1-carbaldehyde CAS#:3029-19-4
	1-bromo-6-phenylpyrene CAS#: 294881-47-3
	4,4,5,5-tetramethyl-2-(3-(pyren-4-yl)phenyl)-1,3,2-dioxaborolane N/A

	1-bromodibenzo[b,d]furan CAS#50548-45-3
	2-bromodibenzo[b,d]furan CAS#:86-76-0
	3-bromodibenzo[b,d]furan CAS#:26608-06-0
	Dibenzo[b,d]furan-2-amine CAS#:3693-22-9
	Dibenzo[b,d]furan-4-amine CAS#:50548-43-1
	1-bromo-7-chlorodibenzofuran CA#:2173555-52-5
	1-bromodibenzo[b,d]thiophene CAS#65642-94-6
	3-bromodibenzo[b,d]thiophene CAS#:86-76-1
	1-bromo-8-chlorodibenzothiophene CA#:1956366-55-4
	9-(3-Bromophenyl)carbazole CAS#:185112-61-2
	(2-(9H-carbazol-9-yl)phenyl)boronic acid CAS#:1189047-28-6
	9-(2-bromophenyl)-9H-carbazole CAS#:902518-11-0
	N,9-diphenyl-9H-carbazol-2-amine CAS#:1427316-55-9

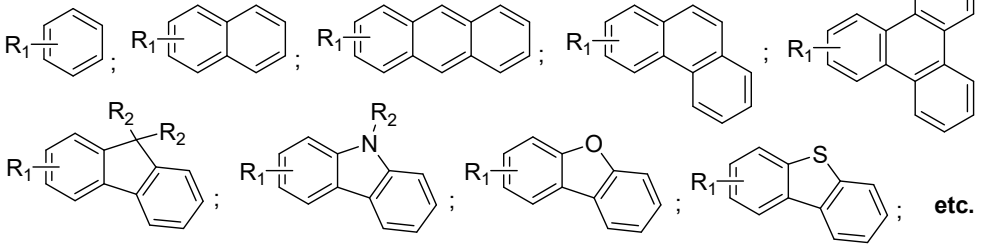
	3-Bromobiphenyl CAS#2113-57-7
	2-Bromo-4'-chlorobiphenyl CAS#:179526-95-5
	3-Bromo-4'-chlorobiphenyl CAS#:164334-69-4
	3-bromo-1,1'-biphenyl-d5 CA#:51624-39-6
	3-Acetylbiphenyl CAS#:3112-01-4
	2-Bromotriphenylene CAS#19111-87-6
	Triphenylen-2-ylboronic ester CAS#:890042-13-4
	Triphenylen-2-ylboronic acid CA#:654664-63-8
	(3-(triphenylen-2-yl)phenyl)boronic ester CA#:1115639-92-3
	2-(2-Bromophenyl)-4,6-diphenyl-1,3,5-triazine CAS#:77189-15-2
	2-(3-Bromophenyl)-4,6-diphenyl-1,3,5-triazine CAS#:864377-31-1
	2-(4-Bromophenyl)-4,6-diphenyl-1,3,5-triazine CAS#:23449-08-3
	2-(3-Bromo-5-chlorophenyl)-4,6-diphenyl-1,3,5-triazine CAS#:1073062-42-6

2.7 Core technology

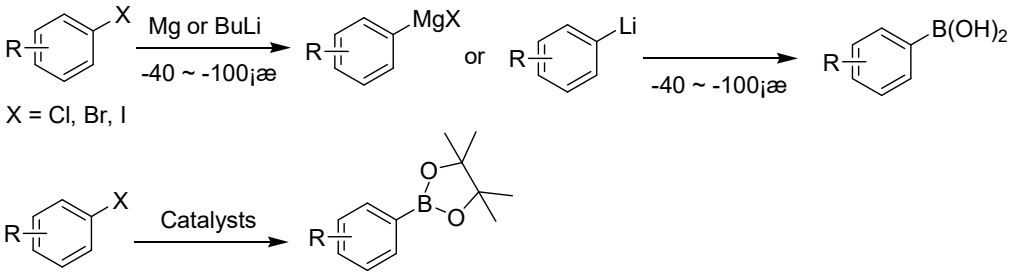
◎ 芳烃卤代

Aryl-R ⟶ Aryl-X

R = H, NH_2 , OH

Aryl = 

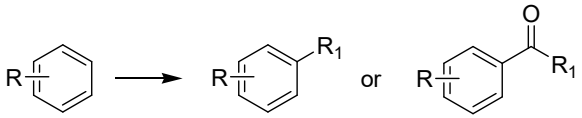
◎ 有机硼酸或酯（超低温）



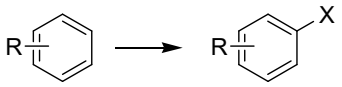
X = Cl, Br, I

X = Cl, Br, I

◎ 弗里德尔反应

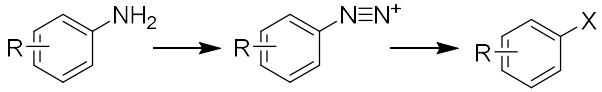


◎ 芳香族亲电取代反应



X = Cl, Br, I, NH_2, NO_2, CN, etc.

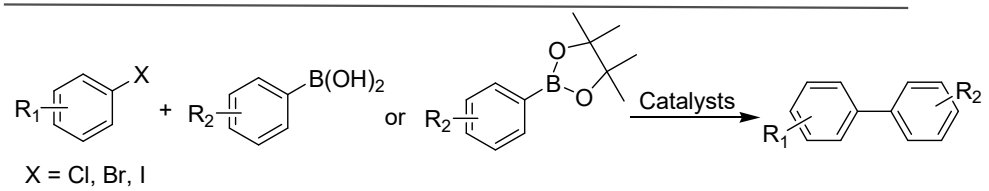
◎ 重氮反应



X = H, F, Cl, Br, I, CN, etc.

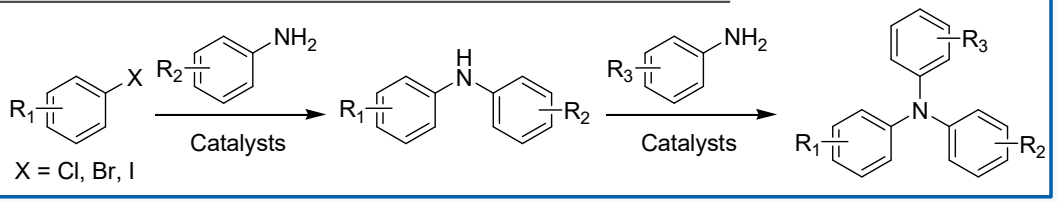
2.7 Core technology

◎ Suzuki偶联反应、Heck偶联、kumara偶联、C-N偶联等



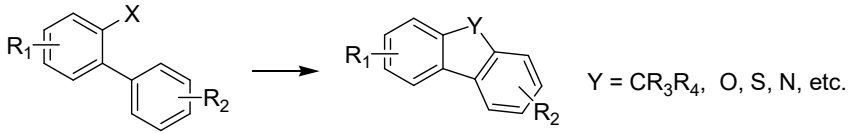
X = Cl, Br, I

◎ Ullmann 反应/Buchwald-hartwig 偶联反应



X = Cl, Br, I

◎ 五元环化反应



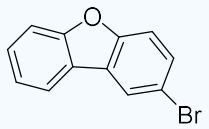
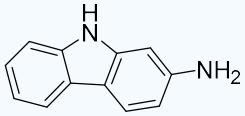
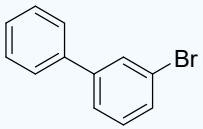
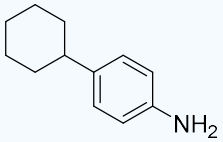
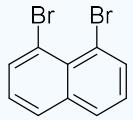
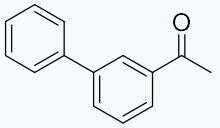
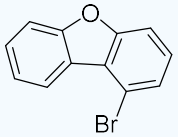
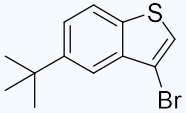
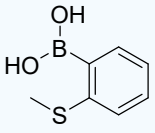
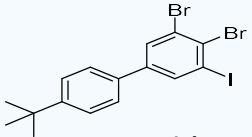
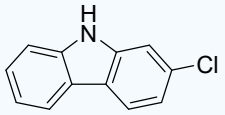
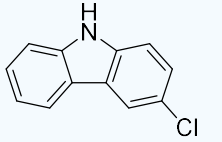
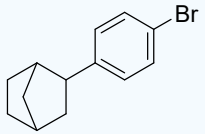
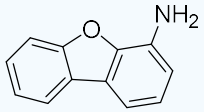
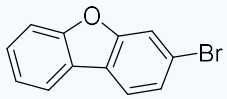
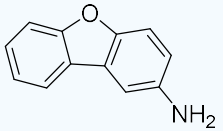
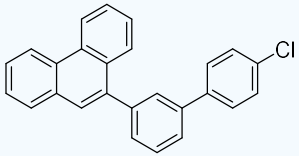
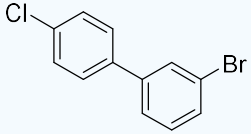
Y = CR_3R_4, O, S, N, etc.

X = Br, O, S, NO_2, NH_2, etc.

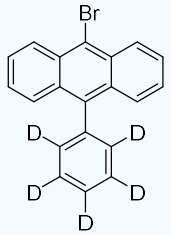
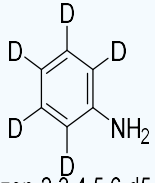
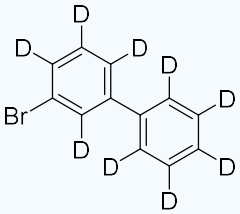
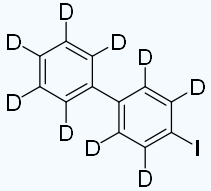
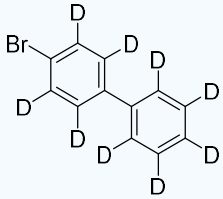
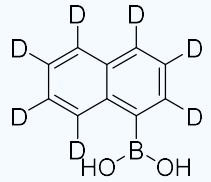
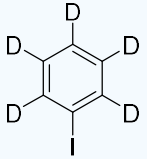
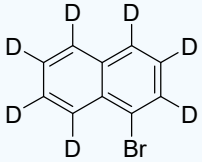
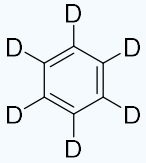
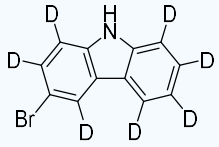
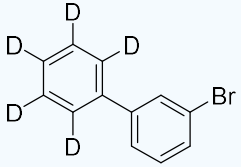
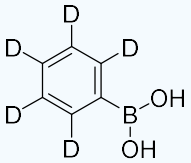
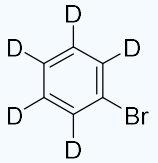
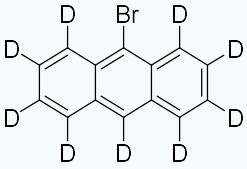
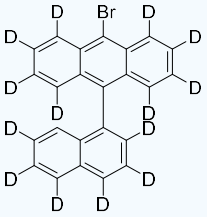
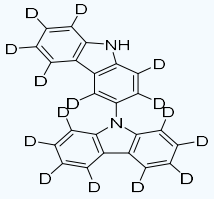
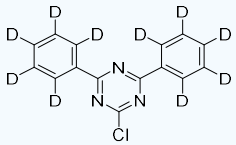
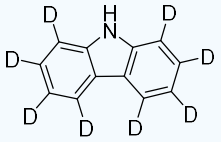
- More than 1000 types of OLED front-end material compounds have been developed, and more than 1,500 types of synthesis routes have been independently developed, and the products have achieved full coverage of luminous layer materials and universal layer materials
- Original "complexation - crystallization - analysis - ion adsorption" four-step purification method: only one sublimation is required, product content ≥ 99.5%, total ion content ≤ 1ppm
- Development of deuterated materials and creating a new direction for OLED luminescent materials

2.8 Scale product

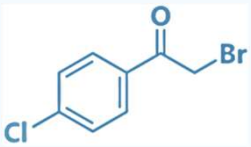
BAYNOE

Quantified product					
 2-bromodibenzo[b,d]furan 86-76-0	 9*H*-carbazol-2-amine 4106-66-5	 3-bromo-1,1'-biphenyl 2113-57-7	 4-cyclohexylaniline 6373-50-8	 1,8-dibromonaphthalene 17135-74-9	 1-([1,1'-biphenyl] -3-yl)ethan-1-one 3112-01-4
 1-bromodibenzo[*b*,*d*]furan 50548-45-3	 **3-Bromo-5-(tert-butyl)benzo[b]thiophene** **1780644-81-6**	 (2-(methylthio)phenyl) boronic acid 168618-42-6	 **3,4-dibromo-4'-(tert-butyl)-5-iodo-1,1'-biphenyl**	 2-chloro-9*H*-carbazole 10537-08-3	 3-chloro-9*H*-carbazole 2732-25-4
 2-(4-bromophenyl)bicyclo [2.2.1]heptane 2533349-57-2	 dibenzo[*b*,*d*]furan-4-amine 50548-43-1	 3-bromodibenzo[b,d]furan 26608-06-0	 dibenzo[*b*,*d*]furan-2-amine 3693-22-9	 9-(4'-chloro-[1,1'-biphenyl] -3-yl)phenanthrene 2707470-64-0	 3-bromo-4'-chloro -1,1'-biphenyl 164334-69-4

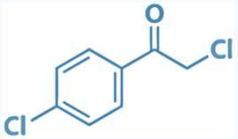
2.9 Deuterated products

euterated product					
 9-bromo-10-(phenyl-d_5)-anthracene 1185864-38-3	 Benzen-2,3,4,5,6-d5-amine 4165-61-1	 3-bromo-1,1'-biphenyl-2,2',3',4,4',5,5',6,6'-d9 2363789-28-8	 4-iodo-1,1'-biphenyl-2,2',3,3',4',5,5',6,6'-d_9 1370362-73-4	 4-bromo-1,1'-biphenyl-2,2',3',4,4',5,5',6,6'-d9 142475-00-1	 (naphthalen-1-yl-d_7)-boronic acid 1000869-26-0
 1-iodobenzene-2,3,4,5,6-d_5 7379-67-1	 1-Bromonaphthalene-d7	 benzene-d6 1076-43-3	 3-bromo-9*H*-carbazole-1,2,4,5,6,7,8-d_7 2764814-81-3	 3-bromo-1,1'-biphenyl-2',3',4',5',6'-d_5 51624-39-6	 (phenyl-d5)boronic acid 215527-70-1
 1-bromobenzene-2,3,4,5,6-d5 4165-57-5	 9-bromoanthracene-1,2,3,4,5,6,7,8,10-d9 183486-02-4	 9-bromo-10-(naphthalen-1-yl-2,3,4,5,6,7-d6)anthracene-1,2,3,4,5,6,7,8-d8	 9H-3,9'-bicarbazole-1,1',2,2',3',4,4',5,5',6,6',7,7',8,8'-d15 2778147-33-2	 2-chloro-4,6-bis(phenyl-d_5)-1,3,5-triazine 1300115-09-6	 9*H*-carbazole-1,2,3,4,5,6,7,8-d_8 97960-57-1

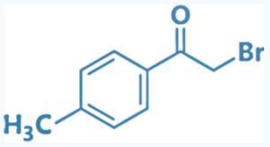
2.10 Other Product



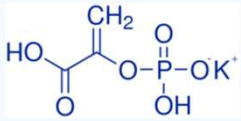
2-溴-4′-氯苯乙酮
2-Bromo-
4′-Chloroacetophenone
(BCPA)
CAS No.: 536-38-9
分子式: $ClC_6H_4COCH_2Br$



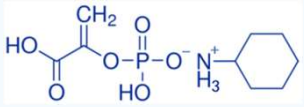
2,4′-二氯苯乙酮
(2-氯-1-(4-氯基苯基)乙酮)
2,4′-Dichloroacetophenone
(DCAP)
CAS No.: 937-20-2
分子式: $ClC_6H_4COCH_2Cl$



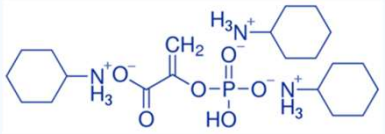
2-溴-4′-甲基苯乙酮
2-Bromo-
4′-Methylacetophenone
(BMAP)
CAS No.: 619-41-0
分子式: $CH_3C_6H_4COCH_2Br$



磷酸烯醇丙酮酸单钾盐
Potassium
Phosphoenolpyruvate
(PEP-K)
CAS No.: 4265-07-0
分子式: $C_3H_4KO_6P$



磷酸烯醇丙酮酸单环己胺盐
Phosphoenolpyruvic acid
mono(cyclohexylamine) salt
(PEP-CHA)
CAS No.: 10526-80-4
分子式: $C_3H_4O_6P{\cdot}C_6H_{13}N$



磷酸烯醇丙酮酸三环己胺盐
Phosphoenolpyruvic acid
tris(cyclohexylamine) salt
(PEP-3HA)
CAS No.: 35556-70-8
分子式: $C_3H_4O_6P{\cdot}3C_6H_{13}N$

2.11 Intellectual property

Patent classification	Direction	Quantity
Invention patent	Advanced material	10
	Innovation	13
	New application	3
	Analytical method	2
Utility model	Equipment and devices	12
Trademark registration		1

2.12 Qualification

No.	project	Time
1	National high-tech enterprises	2021-12
2	National science and technology enterprises	2023-4
3	private science and technology enterprises	2023-4
4	SRDI enterprise	2023-11
5	quality credit grade A	2023-4
6	The 8th Maker China Top 100 Project/Winner Award	2023-10
7	entrepreneurial Angel Program	2019-7
8	Leading talents of SIP	2020-12
10	innovative enterprises of Jiangsu	2023-4
11	graduate practice base of Yangtze University	2021-6

03

Manufacture

3.2 Production base

BAYNOE

production base

Address: Zhangjiagang

Area:: 3000㎡

Equipment: 20

Capacity: 30MT/a

20 set of reeactor exclud 2 set of ultra-low temperature reactor, refrigeration units, centrifuges, drying systems, nitrogen systems, etc.

BAYNOE

Thanks !

| TECHNOLOGY | INNOVATION | SECURITY | DISCIPLINE | TEAM |