



ANHUI WANWEI GROUP CO., LTD.

安徽皖维集团有限责任公司

世界PVA看中国 中国PVA看皖

维

The PVA of the world looks at China, and the PVA of China looks at WANWEI

矢志打造行业世界一流 “品质皖维”

Pledge to build the First-rate qualitative WANWEI of the world



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01

企业简介

COMPANY PROFILE



1.企业概况

Company Coverview



安徽皖维集团有限责任公司
ANHUI WANWEI GROUP CO., LTD.



安徽皖维集团有限责任公司，是安徽省国资委管辖的大型化工、化纤、建材、新材料联合制造企业，始建于1969年，总部坐落于美丽的安徽省巢湖市凤凰山脚下，是**中国聚乙烯醇（PVA）行业领军企业，国内规模最大、技术最先进、产业链最完整**。PVA国内市场占有率超过30%，位居国内第一、世界第二，PVA纤维出口市场占比超过60%。PVA光学薄膜，国内唯一。PVB树脂及胶片填补国产化空白。可再分散乳胶粉，国内唯一自主品牌。公司拥有职工5100余人，总资产135亿元，年销售收入100亿元，出口创汇3.5亿美元。

Anhui Wanwei Group Co., Ltd., a large-scale chemical, chemical fiber, building materials and new materials joint manufacturing enterprise under the jurisdiction of the State owned Assets Supervision and Administration Commission of Anhui Province, was founded in 1969. Its headquarters is located at the foot of Phoenix Mountain, Chaohu City, Anhui Province. **It is a leading enterprise in the polyvinyl alcohol (PVA) industry in China, with the largest scale, the most advanced technology and the most complete product chain in China.** PVA's domestic market share exceeds 30%, ranking first in China and second in the world, and the export market share of PVA fiber exceeds 60%. PVA optical film, the only manufacturer in China. PVB resin and film fill the gap of localization. RDP has the only independent brand in China. The company has more than 5100 employees, total assets of 13.5 billion yuan, annual sales revenue of 10.2 billion yuan, and export earnings of 350 million dollars.

01

皖维 “一体两翼”

“one body two wings”

◆ 世界PVA向中国转移，中国PVA向西部地区转移

The world PVA transfers to China, and the Chinese PVA transfers to the western region.

皖维：“一体两翼”领跑中国PVA行业

WANWEI: Leading China's PVA industry



资料来源：前瞻产业研究院

@前瞻经济学人APP



内蒙古蒙维科技有限公司（电石乙炔法）



皖维集团安徽总部（石油乙烯法，在建）



广西皖维生物质科技有限公司（生物质乙烯法）

01

2.行业地位 Industry Position



安徽皖维集团有限责任公司
ANHUI WANWEI GROUP CO., LTD.



拥有PVA行业唯一国家级企业技术中心

We have the only national enterprise technology center in PVA industry

国家知识产权示范企业

National intellectual property demonstration enterprise

中国化纤行业科技领军企业

Science and technology leader of China's chemical fiber industry

中国化纤行业标准化领军单位

Standardization leader of China's chemical fiber industry

中国化纤行业绿色制造优秀企业

Excellent green manufacturing enterprise of China's chemical fiber industry

中国化纤行业新产品研发及推广创新企业

New product R&D and promotion innovation enterprise of China's chemical fiber industry



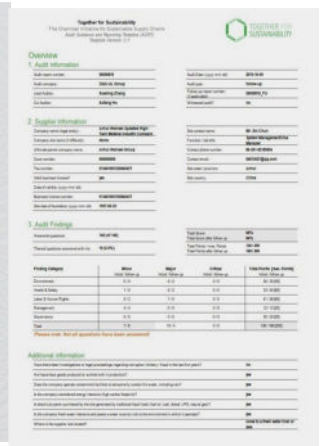
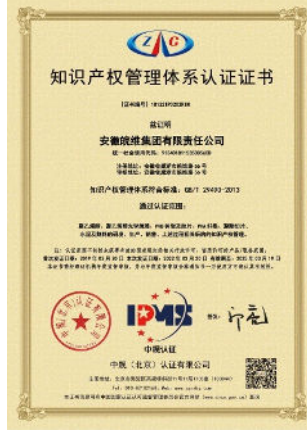


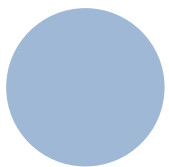
3.可持续发展 Sustainable Development



安徽皖维集团有限责任公司
ANHUI WANWEI GROUP CO., LTD.

- 通过ISO 9001, ISO 14001, ISO 45001, ISO 50001, ISO 14067, IQnet, GRS, TFS, 碳足迹认证, ISCC 及知识产权管理体系认证
- Certified by ISO 9001, ISO 14001, ISO 45001, ISO 50001, ISO 14067, IQnet, GRS, TFS, Product Carbon Footprint Certificate, ISCC and intellectual property management system.





02

企业文化

COMPANY CULTURE

使命 MISSION

实业报国，引领中国PVA行业高质量发展

Dedicate to serve the country, leading the high-quality development of China's PVA industry

核心价值观 CORE VALUES

弘德 进责 笃严 求新

Enhancing the morals,
Go into responsibility,
Be cautious and strict,
Strive for innovation



愿景 VISION

建成行业世界一流，“品质”皖维

Successfully construct the first-rate qualitative WANWEI of the world

经营理念 MANAGEMENT IDEA

以诚立道，以信固本

Build the way with honesty and consolidate the foundation with trust

2021年荣获瓦克公司授予的年度最佳供应商

Won one of the best suppliers of the year awarded by Wacker in 2021



WACKER

CREATING TOMORROW'S SOLUTIONS

荣誉证书

安徽皖维新材料股份有限公司
Anhui Wanwei Updated High-Tech Material Industry Co., Ltd.

被授予2021年度最佳供应商奖
is granted the 2021 BEST SUPPLIER AWARD

特颁此证!

瓦克化学(中国)有限公司
Wacker Chemicals (China) Co., Ltd.

2021年9月29日
Sep. 29, 2021



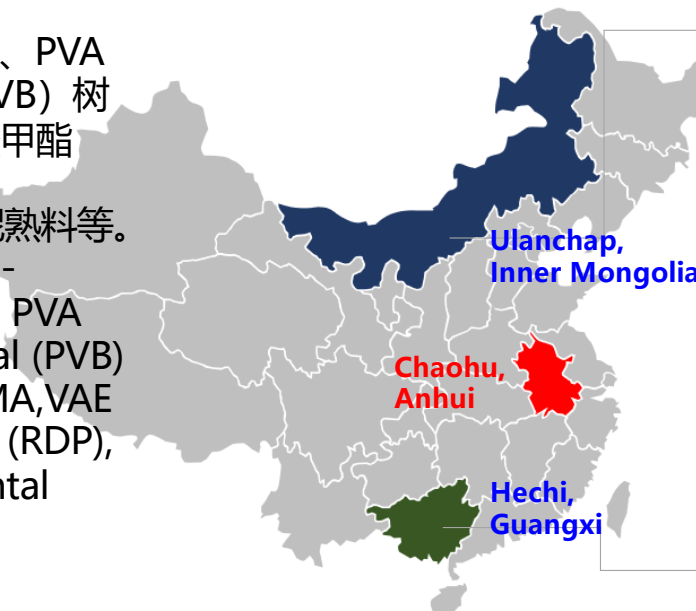
03

产品介绍

PRODUCT INTRODUCTION



- 主要产品包括：PVA、高强高模PVA纤维、PVA光学薄膜、偏光片、聚乙烯醇缩丁醛（PVB）树脂、PVB胶片、醋酸乙烯（VAC）、醋酸甲酯（MEAC）、VAE乳液、可再分散乳胶粉（RDP）、功能型聚酯切片、环保型水泥熟料等。
- The main products include: PVA, high-strength and high modulus PVA fiber, PVA optical film, polarizer, polyvinyl butyral (PVB) resin, PVB film, vinyl acetate (VAM), MA, VAE Emulsion, redispersible latex powder (RDP), functional polyester chip, environmental friendly cement clinker, etc.



内蒙古蒙维科技有限公司

世界最大的PVA生产基地
The world's largest PVA production base(200Kt/a)



广西皖维生物质科技有限公司

世界唯一的生物质PVA生产基地
The world's only biomass PVA production base(50Kt/a)

➤ PVA	320Kt/a	➤ PVA fiber	30Kt/a
➤ VAC	750Kt/a	➤ VAE	120Kt/a
➤ PVA optical film	12Million m ² /a	➤ PVB resin	22Kt/a
➤ Polarizer	7Million m ² /a	➤ PVB film	30Kt/a
➤ Polyester chip	80Kt/a	➤ RDP	50Kt/a



01 醋酸乙烯 VAM



醋酸乙烯 (VAM, 又名乙酸乙烯酯), “皖维”牌醋酸乙烯通过电石乙炔法、石油乙烯法 (在建)、生物质乙烯法等三种工艺路线制得。产能75万吨/年, 其中安徽巢湖20万吨/年 (石油乙烯法, 2023年建成)、内蒙古察右后旗45万吨/年 (电石乙炔法)、广西宜州10万吨/年 (生物质乙烯法)。

"Wanwei" brand vinyl acetate is prepared by three process routes: calcium carbide acetylene process, petroleum ethylene process (under construction), and biomass ethylene process.

醋酸乙烯主要用于生产聚乙烯醇树脂和合成纤维。其单体能共聚可生产多种用途粘合剂; 还能与氯乙烯、丙烯腈、丁烯酸、丙烯酸、乙烯单体能共聚接枝、嵌段等制成不同性能的高分子合成材料。

The production capacity will be 750000 tons/year, including 200000 tons/year in Chaohu, Anhui (petroleum ethylene method, completed in 2023), 450000 tons/year in Chayouhou Banner, Inner Mongolia (calcium carbide acetylene method), and 100000 tons/year in Yizhou, Guangxi (biomass ethylene method).

APPLICATION:VAM is mainly used to produce polyvinyl alcohol resin and synthetic fiber. Its monomers can be copolymerized to produce multi-purpose adhesives; It can also be copolymerized with vinyl chloride, acrylonitrile, butyric acid, acrylic acid and ethylene monomers to make polymer synthetic materials with different properties.

02 聚乙烯醇 PVA



聚乙烯醇 (PVA) ——始于“四五”期间的**国家战略**。

Polyvinyl alcohol (PVA) - a national strategy that began during the "Fourth Five-Year Plan" period.

目前我司PVA生产基地分布于安徽、内蒙古和广西，产能分别为7万吨、20万吨和5万吨,共32万吨。

At present ,We have three plants in China, Inner Mongolia Plant (The annual capacity is 200,000tons), Anhui Plant (The annual capacity is 70,000tons), Guangxi Plant (The annual capacity is 50,000tons).

近年来，PVA的用途由维纶、纺织、造纸、建材、化工生产，逐步拓展到用于电子、新型显示、汽车、新能源、5G等**新兴产业**领域，成为“**芯屏汽合**”等**高技术战新产业**不可或缺的关键材料。

In recent years, the use of PVA has gradually expanded from the production of vinylon, textiles, paper, building materials, and chemicals to the emerging industries such as electronics, new displays, automobiles, new energy, and 5G, and has become an indispensable key material for high-tech and new industries such as "core screen steam sealing".



液晶显示



电子陶瓷与油墨



维尼纶



粘合剂



纺织浆料



柔性显示



安全玻璃夹胶



医用材料



水溶膜



沙漠治理



悬浮聚合分散剂



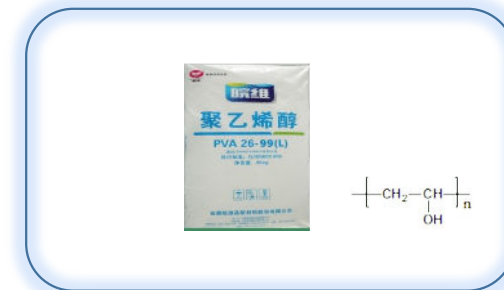
增强纤维



纸张施胶



可再分散性胶粉





03 高强高模PVA纤维 HSHM PVA FIBER

PVA纤维各项技术应用于3万吨/年高强高模PVA纤维生产线

高强高模PVA纤维是以PVA为主要原料生产的合成纤维。强度高、模量大，添加在混凝土中起到抗裂、增强、增韧的作用，被广泛应用于建筑材料，大型水电大坝、高速公路、桥梁混凝土工程和造币、军事等特殊领域；具有耐酸碱、抗老化、无污染、环保性等优势，是替代工业石棉最理想的材料。

High strength and high modulus PVA fiber is a synthetic fiber produced with PVA as the main raw material. With high strength and large modulus, it is added to concrete to play the role of crack resistance, reinforcement and toughness, and is widely used in construction materials, large hydropower dams, highways, bridge concrete engineering, coinage, military and other special fields; It has the advantages of acid and alkali resistance, anti-aging, pollution-free, environmental protection, and is the most ideal material to replace industrial asbestos.

皖维与日本可乐丽PVA纤维产品指标对比表

Comparison Table between Wanwei and Kuraray

指标	单位	皖维 PVA纤维	KLL PVA纤维	比较结果
强度	CN/dtex	12~15	12~16	相当
模量	CN/dtex	280~340	280~340	相当
纤度	dtex	2~15	2~18	相当



产品在溪洛渡大坝应用



产品在机场高速应用

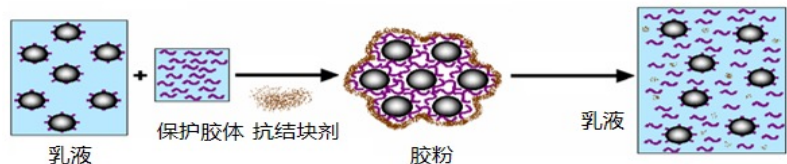
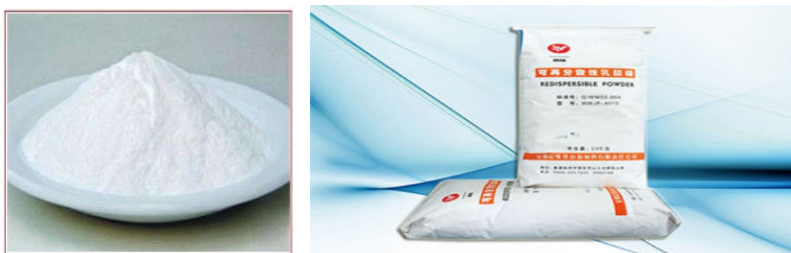


04可再分散乳胶粉 (RDP) Redispersible latex powder (RDP)



安徽皖维集团有限责任公司
ANHUI WANWEI GROUP CO., LTD.

可再分散乳胶粉 (RDP)



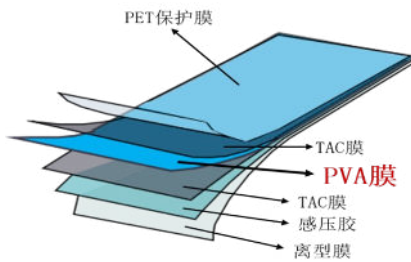
- RDP product is a kind of powder building material produced by WANWEI using its own PVA raw materials and technical advantages and introducing advanced spray drying technology and equipment from Danish Niro Company.
- The existing production capacity is 50000 tons/year, as one of the largest in China, and the products are mainly used in building fields such as external wall insulation, ceramic tile bonding, interface treatment, bonding gypsum, plastering gypsum, building interior and exterior wall putty, decorative mortar, etc.

- 皖维牌RDP产品是皖维利用自身PVA原料和技术优势，引进丹麦Niro公司先进的喷雾干燥技术和装备生产的一种粉体建材。
- 现有产能5万吨/年，国内规模最大，产品主要应用于外墙保温、瓷砖粘结、界面处理、粘结石膏、粉刷石膏、建筑内外墙腻子、装饰砂浆等建筑领域。



PVA光学薄膜及偏光片

PVA optical film and polarizer



偏光片结构图

POLARIZER STRUCTURE



光学级PVA树脂生产线

Optical PVA resin production line

- 聚乙烯醇 (PVA) 光学薄膜, 是液晶显示关键材料偏光片的核心膜材. 2022年8月建成国内第一套自主知识产权的700万平方米/年PVA光学薄膜生产线, 最大成品宽度3.4米, 厚度30~75 μm , 具有良好的力学、光学性能.
- PVA optical film is the core film material of the polarizer.
- In August 2022, the first set of PVA optical film production line with full independent intellectual property rights of 7 million square meters/year was built in China, with the maximum width of finished products of 3.4 meters and thickness of 30~75 μm . It has good mechanical and optical properties.

- 偏光片的应用范围很广, 按用途分类有液晶显示器 (LCD) 用偏光片、有机电致发光二极管 (OLED) 用偏光片和眼镜用偏光片等之分.
- Polarizers have a wide range of applications, including polarizers for liquid crystal display (LCD), organic light-emitting diode (OLED) and glasses, etc

新建PVA光学膜厂房
PVA FILM PLANT



新建偏光片厂房
POLARIZER PLANT



PVB胶片在安全玻璃上的应用示意图



新建PVB树脂厂房
PVB RESIN PLANT



新建PVB胶片厂房
PVB FILM PLANT

皖维汽车级PVB树脂及胶片



- PVB胶片是制造安全夹层玻璃用的最佳粘合材料，现已广泛应用于建筑幕墙玻璃、汽车前挡风玻璃和光伏组件等领域。
- PVB film is the best adhesive material for manufacturing safety laminated glass. It has been widely used in the fields of building curtain wall glass, automobile front windshield and photovoltaic modules.

- 粘胶剂PVB可广泛用于纸基覆铜板、热转印油墨、水松纸油墨、电子陶瓷等；膜级PVB可广泛应用于航空、汽车和高层建筑安全玻璃制造。
- Adhesive PVB can be widely used in paper-based copper clad plates, heat transfer printing ink, tipping paper ink, electronic ceramics, etc; Membrane-grade PVB can be widely used in aviation, automobile and high-rise building safety glass manufacturing.



- 特性：**水溶性、生物降解**
- 近年来发展起来的**新型绿色环保包装材料**

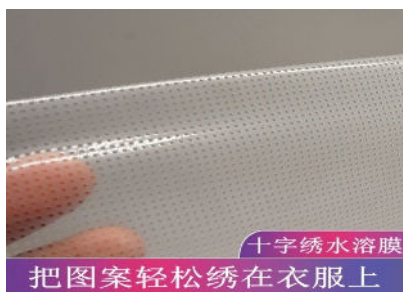
- Characteristics: water-soluble, biodegradable
- New green environmental protection packaging materials developed in recent years

广泛应用于种子袋、洗衣袋，钓鱼饵料包装袋，洗衣凝珠，环保购物袋以及作为暂时性载体用于刺绣等领域。

It is widely used in seed bags, laundry bags, fishing bait packaging bags, laundry beads, environmental shopping bags and as a temporary carrier for embroidery and other fields.

皖维研制的PVA水溶膜可在180天内实现95%降解!

The PVA water-soluble membrane developed by Wanwei can achieve 95% degradation in 180 days!



作为暂时性载体用于刺绣



用作种子袋、洗衣袋



用作钓鱼饵料包装袋



洗衣凝珠



环保购物袋



04

展望未来

FUTURE OUTLOOK

◆ 人才是企业发展的核心竞争力，皖维现有国贴专家4名、各类高层次创新人才22人、博士7人
There are 4 national subsidy experts, 22 high-level innovative talents and 7 doctors in Anhui Province

□ 国务院津贴专家4人



□ 高层次创新人才22人，其中领军人才6人



◆ 安徽省“115”产业创新团队2个，庐州产业创新团队1个
 ◆ *Two "115" industrial innovation teams in Anhui Province and one in Luzhou*

□ 累计有效专利超过200件，65件专利在审

□ The cumulative number of effective patents exceeds 200, and 65 patents are under review



- 目前，皖维已基本建成以PVA产业为核心，以高端功能膜材料为引领的五大产业链，正加快向世界产业链高端迈进。
- At present, WANWEI has basically construct five industrial chains with PVA industry as the core and high-end functional membrane materials as the leader, and accelerate to the high-end of the world industrial chain.
- PVA → PVA optical film → Polarizer
- PVA → PVB resin → PVB film
- PVA → PVA fiber → Fibrous building material
- Bio-based alcohol → VAC → PVA → Bio-based PVA materials
- VAC → VAE Emulsion → RDP

皖维集团（股份）公司五大产业链图



04

皖维未来发展展望

做大做强做优五大产业链 Five industrial chains to be bigger, stronger and better

◆ 围绕“五大产业链”建设，深化国企改革，持续加大研发投入，引进高端人才，健全创新机制，狠抓项目建设

□ Focusing on the construction of "five major industrial chains", deepen the reform of state-owned enterprises, continue to increase investment in research and development, introduce high-end talents, improve the innovation mechanism, and pay close attention to project construction

□ 围绕五大产业链实施16个重点项目。

□ Implement 16 key projects around the five major industrial chains.

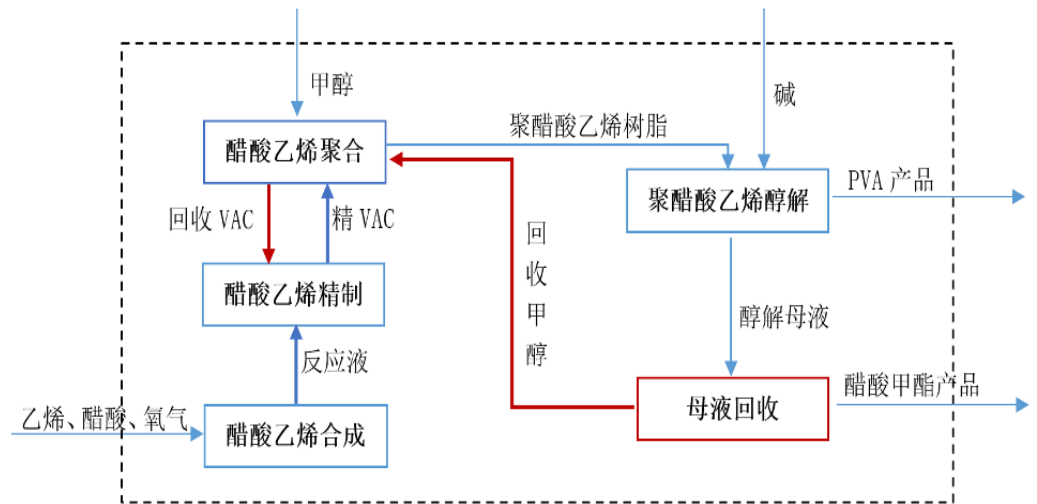
序号	项目名称	总投资
—	续建项目	
1	年产5000吨功能性PVA项目	1.11
2	年产700万平方米PVA光学薄膜项目	3.55
3	年产700万平方米偏光片项目	4.20
4	年产2万吨PVB胶片项目	2.97
5	年产6万吨VAE乳液项目	3.28
6	年产2万吨差别化可再分散乳胶粉项目	1.37
7	商都新材料分公司6000吨/年水溶性聚乙烯醇纤维项目	1.27
二	新建项目	
8	年产6万吨乙烯法特种PVA树脂升级改造项目	13.03
三	规划项目	
9	年产2万吨多功能PVB树脂项目（三期）	3.15
10	年产2万吨汽车级PVB胶片项目（二期）	1.81
11	年产1400万平方米PVA光学薄膜项目	7.10
12	年产5000吨功能性PVA项目（二期）	1.11
13	年产6万吨VAE乳液项目（二期）	3.28
14	年产2万吨超高强高模纤维项目	4.2
15	年产6000万m ² 纤维水泥板材项目	2.39
16	年产2万吨PVA水溶膜项目	2

布局乙烯法特种PVA产业（安徽本部） Layout special PVA of ethylene process



乙烯法特种PVA项目鸟瞰图

- ◆ 采用乙烯法工艺路线替代原有的电石乙炔法工艺路线
Use the ethylene process route to replace the original carbide acetylene process route:
- ◆ 产品质量好，生产效率大幅提高 Good product quality and greatly improved production efficiency
- 装备技术、能效、环保、本质安全达到国内领先水平
- Equipment technology, energy efficiency, environmental protection and intrinsic safety have reached the leading level in China





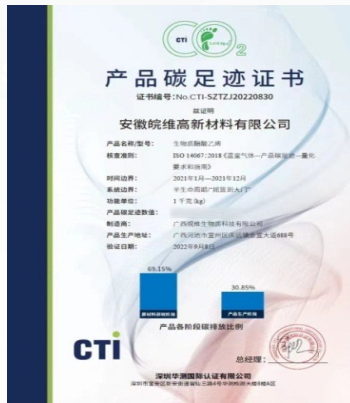
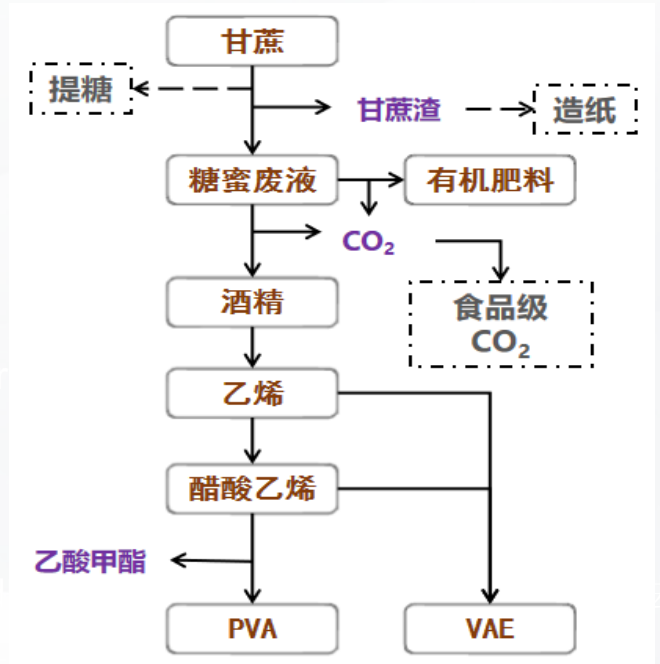
生物基醋酸乙烯合成及相关减污降碳技术应用于广西皖维



The technical application of bio based VAM and related pollution reduction and carbon reduction technology in Guangxi Wanwei

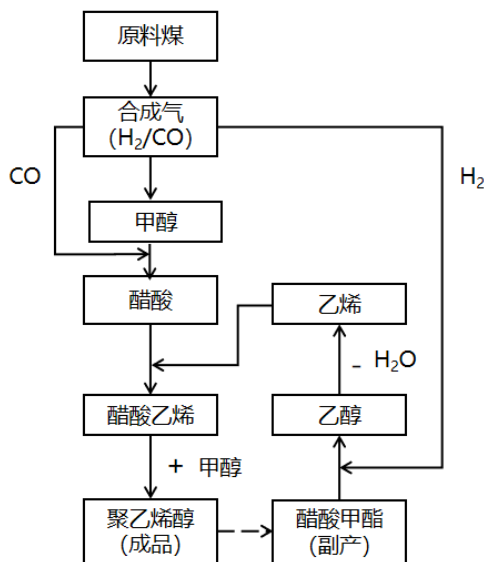
广西皖维生物质科技有限公司，利用甘蔗等生物质资源，走酒精-乙烯-PVA及其它衍生产品路线，建成世界第一套生物质VAC、PVA生产装置。生物质PVA年产能达5万吨，产品与人体、环境高度友好。

Guangxi Wanwei Biomass Technology Co., Ltd., using sugarcane and other biomass resources, made the world's first set of biomass VAM and PVA production equipment. Biomass VAM with capacity of 100000 tons, is highly friendly to human body and environment.



去

- 开创新型煤基PVA生产工艺技术路线，正加快转化为现实生产力，将颠覆行业发展格局。
- Creating a new coal based PVA production process and technology route is speeding up its transformation into real productivity, which will overturn the industry development pattern.
- 质量高，成本低
High quality, low cost
- 三废排放少
Less waste discharge
- 碳排放极低，1吨PVA排放2.7吨CO₂，仅为电石乙炔法的23.32%
Lower carbon emissions, only 23.32% of that of calcium carbide acetylene method



副产醋酸甲酯循环乙烯法PVA生产
以煤为原料通过煤气化、净化制取CO+H₂，用于生产甲醇、醋酸，再以乙醇、醋酸为原料制备乙烯和醋酸乙酯，最终以醋酸乙酯、甲醇为原料生产PVA

煤制甲醇、醋酸

以煤为原料通过煤气化、净化制取CO+H₂，用于生产甲醇、醋酸

乙醇脱水制乙烯技术

广西皖维5万吨/年生物乙醇制乙烯装置已成功应用



广西皖维乙醇制乙烯装置一角

醋酸甲酯
副产品

醋酸甲酯加氢技术

PVA
高品质

醋酸乙酯、甲醇制PVA

世界PVA看中国 中国PVA看皖维

The PVA of the world looks at China, and the PVA of China looks at WANWEI

PVA装置副产的醋酸甲酯加氢回收乙醇、甲醇，皖维成功掌握该项技术
皖维拥有成套的自主知识产权技术

皖维集团

国家企业技术中心

矢志打造行业世界一流品质皖维！

*Pledge to build the First-rate qualitative
WANWEI of the world!*

THANK YOU!



科技成就皖维
创新驱动发展