



吉林化纤

2024

**Jilin Chemical Fiber Stock Co., Ltd.  
Sustainability Report**



# CONTENTS

## Foreword

- 02 About This Report
- 04 Speech by the Senior Executive
- 06 Key Performance
- 08 Jilin Chemical
- 12 Stakeholder Identification and Communication
- 14 Material Topic Analysis

## 1 Climate Change Response

- 16 Sustainability Management
- 18 Energy Management
- 22 Carbon Footprint
- 23 Related Certifications

## 2 Advancing Closed-Loop Production

- 25 Environmental Management
- 26 Water Resource Management
- 28 Wastewater, Waste Gas, and Solid Waste Management



## **3** Strengthening Chemical Management

- 35 Comprehensive Chemical Management System
- 37 Environmental Risk Identification
- 42 Emergency Drills

## **5** Fulfilling Social Responsibility

- 59 Corporate Governance
- 60 Employees
- 66 Community Service
- 68 Rural Revitalization

## **4** Innovative Green Fibers

- 45 Supplier Management
- 47 Sustainable Product Innovation
- 56 Quality Assurance and After-sales Service





# 01. About This Report

## Publication Cycle

This is the third sustainability report issued by Jilin Chemical Fiber Stock Co., Ltd. (hereinafter referred to as “Jilin Chemical,” “the Company,” or “the Enterprise”). The report is published on an annual basis.

This report provides stakeholders with the latest information on the progress of Jilin Chemical's sustainable development.

## Time Scope

This report covers the period from January 1, 2024, to December 31, 2024 (hereinafter referred to as the “Reporting Period”), and includes selected historical data where relevant.

## Report Scope

The main body of the Report is Jilin Chemical Fiber Stock Co., Ltd., <sup>[1]</sup> including the Company and all its production and operation facilities.

## Basis of Preparation

This Report is prepared with reference to the 2021 GRI Sustainability Reporting Standards (hereinafter referred to as the “GRI Standards”), the United Nations Sustainable Development Goals (SDGs), and the Self-Regulatory Guidelines No. 17 for Companies Listed on Shenzhen Stock Exchange—Sustainability Report (For Trial Implementation).

## Sources of Information

The contents of the Report are all sourced from the official documents of Jilin Chemical, and some contents are compiled and reviewed with the assistance of the China Chemical Fibers Association.

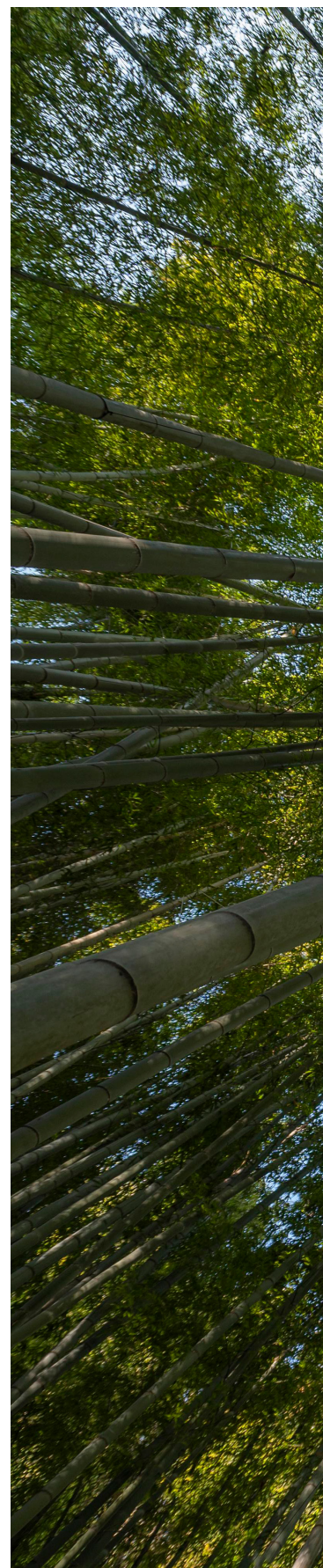
## Report Access

This report is published in electronic form. You are welcome to obtain the report through the official website of Jilin Chemical Fiber Group (<http://www.jlhxjt.com>).

## Contact Information

46285923@qq.com, 0432-63502699, Comprehensive Management Office

[1 ] The data in this report does not include subsidiaries. Additionally, the company's carbon fiber business is managed by Jilin Chemical Fiber Group Co., Ltd. on its behalf, and this part is also not included in the data range of this report.











## 02. Speech by the Senior Executive



### Jin Dongjie

General Manager of Jilin Chemical Fiber Co., Ltd.

As time passes, our commitment to green practices propels us forward. In 2024, in the face of a complex and ever-changing market environment and the new global trends in sustainable development, Jilin Chemical Fiber Stock Co., Ltd. adheres to its "12345" strategic plan. With the "one-center" business philosophy at its core, the "two-route" production layout as its framework, the "three product strategies" quality orientation as its guideline, and the "four-process upgrade" innovation path as its driving force, the Company is forging a "5G system" green and sustainable development model. We are firmly anchored to the "dual carbon" goals, deepening the implementation of the cleaner production concept, and continuously improving our green development system.

Putting customers first, we lay a solid foundation for sustainable development. Over the years, the Company has consistently adhered to a customer-centric business philosophy. We focus on customers' usage needs and prioritize the environmental performance of our products. Rooted in natural and virgin materials, we fully harness the soft texture of cotton, the resilient properties of wood, and the antibacterial advantages of bamboo, endowing our fibers with environmental friendliness and enduring vitality. Leveraging the natural growth cycles of plants and our exquisite rayon manufacturing processes, and capitalizing on the 93% biodegradability of cellulose-based materials, we have forged a thriving green biological chain. In 2024, our company is advancing the construction of a green supply chain with even higher standards, deepening strategic collaborations with green suppliers recognized by the Canopy organization to achieve raw material traceability. In the realm of technological innovation, we have achieved breakthroughs in key technologies for regenerated fiber production, elevating the proportion of recycled pulp to an industry-leading level. By expanding our market presence, we are driving the adoption of green raw materials in the textile industry, constructing a sustainable supply chain system, and injecting foundational momentum into green development.





"Continuous viscose filament yarn (continuous VFY) and centrifugal viscose filament yarn (centrifugal VFY)" - dual routes activate a new engine for green development. The Company focuses on meeting customer product demands by leveraging green energy to upgrade its production processes and implementing a dual-route development strategy encompassing both traditional spinning and continuous spinning. Guided by the principles of "high-end, intelligent, and green" development, the Company has introduced advanced intelligent monitoring systems to achieve dynamic optimization management of energy consumption. It has also deepened technological innovations in wastewater treatment, adopting new membrane filtration technologies and chemical treatment processes to continuously enhance water recycling rates. In terms of renewable energy substitution, the Company has signed a cooperation agreement with CHN Energy Jilin Electric Power Co., Ltd. to develop a 300-megawatt wind power project. Additionally, it continues to invest in photovoltaic power generation projects, reducing fossil fuel-based electricity generation and achieving green and low-carbon production.

Improving quality, expanding categories, and building brands, we are unleashing new vitality in green products. Centering around the three product strategies, we drive product iteration and upgrades, unlock new brand value vitality, and consolidate our advantageous brand position. In 2024, our company successfully passed the Canopy audit, earning 31.5 "buttons" and maintaining our "dark green shirt" status, thereby gaining unanimous recognition from international high-end brands. "JICELL™" has become the first Chinese rayon brand to enter the top BEST list of suppliers for Spain's INDITEX. The pre-consumer recycling brand EcoJilin and post-consumer recycling brand Jirecell have respectively entered the C-level and the highest A-level lists of environmentally friendly suppliers for Sweden's H&M brand. Notably, EcoJilin, with its outstanding quality, has also been included in the list of environmentally friendly raw material suppliers for Britain's Marks & Spencer, making it the only rayon manufacturer in China to receive this prestigious honor. The classic FSC-certified brand White Mountain® has become the sole designated Chinese rayon brand by the American PVH Group. The Company's independently developed bamboo fiber products, renowned for their exceptional environmental performance and diverse application potential, have witnessed a significant increase in market share across sectors such as apparel, home furnishings, and medical applications. These products have emerged as a new favorite in the green consumer market, solidifying the brand's advantage through green offerings.

Large-scale, homogeneous, fine denier, and continuous production approaches are expanding our green product matrix. The Company deeply integrates the concepts of green environmental protection and sustainable development, utilizing process and technological innovation and optimization as means to focus on achieving green and sustainable product development. Through innovative and optimized processes, we actively address the challenges posed by the trend of raw material diversification and the limits of hardwood pulp usage. We continuously deepen research on spinnability technology to protect the ecological environment and promote the long-term healthy development of the industry. Brands such as Reboocel and Jirecell have achieved mass production of eco-friendly fibers through independent innovation and R&D, upgrading production processes, and strengthening industry-university-research collaborations, significantly enhancing the added value of our products.

The "5G System," encompassing "green raw materials, green energy, green process, green products, and green certification," establishes a new benchmark for the industry's ecological development. In 2024, the Company comprehensively upgraded its green manufacturing system by installing energy conservation process devices and adopting innovative energy conservation technologies. Throughout the production process, we adhere to the principles of cleaner production, implementing source control, comprehensive governance, and whole-process management to minimize waste emissions and effectively reduce energy consumption in production. In the field of environmental protection, the biological exhaust gas treatment technology of viscose filament yarn (VFY) project has been continuously upgraded, and the decomposition efficiency of H<sub>2</sub>S and CS<sub>2</sub> has been greatly improved. The viscose staple fiber (VSF) production line has introduced the world's top waste gas recovery and treatment equipment, covering waste gas adsorption, recovery and treatment, and acid production equipment, truly achieving a win-win situation of pollution control and resource regeneration. In addition, the Company has also cooperated with universities and research institutions to carry out industry-university-research cooperation, promoting the dissemination of green manufacturing technologies toward the industry and facilitating the construction of a sustainable industrial ecosystem chain.

The journey ahead is long and arduous, yet we are poised to take on new missions with great vigor. Taking the conclusion of the "14th Five-Year Plan" and the scientific planning for the "15th Five-Year Plan" as opportunities, the joint-stock company will anchor green development as its foundation and innovation as its driving force, striving to achieve a new leap in sustainable development across the entire chain of raw materials, energy, manufacturing, and products. Looking ahead, we will continue to delve deep into the green and low-carbon sector, collaborate with industry partners to jointly draft a blueprint for sustainable development, and contribute China's chemical fiber strength to driving global green transformation!

# 03. Key Performance

## Environment



### "Dual Carbon" Goals

Achieve a **30%** reduction in carbon emissions per unit product by **2030**  
and attain **carbon neutrality** by **2055**

Canopy's Hot Buttons: **31.5**  
General Waste Generation: **3,430** tons  
Hazardous Waste Generation: **2,391** tons  
Annual Disposal Rate of Hazardous Solid Waste: **100%**  
Total sewage discharge is **18.75** million tons

Total COD (Chemical Oxygen Demand) Emissions: **958** tons  
Total Ammonia Nitrogen Emissions: **80.92** tons  
Total Sulfide Emissions: **1.07** tons  
Total Zinc Emission: **4.13** tons  
Number of Major Chemical Leakage Incidents: **0**

Number of Chemical-Related Emergency Drills: **165**  
Number of Major Environmental Protection Accidents: **0**  
Number of Major Incidents Involving Lawsuits or Penalties Due to Environmental Violations: **0**

## Products



Product Category	2024 Production Output (tons)
VFY	71125
VSF	103514





## Society



Total Number of Employees: **4,110**

Employee Insurance Coverage Rate: **100%**

Proportion of Female Senior Executives: **29%**

Total Annual Training Participation:

**22,535** person-times

Training Coverage Rate: **100%**

Total Annual Employee Training Hours: **285** hours

Pass Rate of Occupational Health Hazard Factor

Inspections: **100%**

Occupational Health and Safety Training

Participation: **6,409** person-times

## Governance



Total Sales Revenue: **3.785** billion yuan

Total Tax Payment: **89.03** million yuan

R&D Investment: **57.66** million yuan

Number of Patents Granted During the

Reporting Period: **4**

Total Number of Annual R&D Projects: **14**

Conversion Rate of R&D Projects: **42.8%**

Participation Rate of Compliance Training for

Directors, Supervisors, and Senior Management:

**100%**

Proportion of Senior Employees Receiving Anti-

Commercial Bribery and Anti-Corruption Training:

**100%**

Complaint Handling Satisfaction Rate: **100%**

Number of Violations of the Company's Code of

Business Ethics: **0**

Number of Corruption Incidents: **0**

Number of Unfair Competition Incidents: **0**





## 04. Jilin Chemical

Jilin Chemical Fiber Stock Co., Ltd., located on the picturesque banks of the Songhuajiang River, is a holding subsidiary of Jilin Chemical Fiber Group Co., Ltd. and ranks among the world's largest suppliers of viscose filament yarn. The Company was founded in **1960** and commenced operation in August 1964 upon completion of construction. It was listed on Shenzhen Stock Exchange in 1996 with the stock code 000420.

Jilin Chemical mainly focuses on the production and sales of viscose fiber and carbon fiber products. Our leading products are viscose filament yarn (hereinafter referred to as "VFY"), viscose staple fiber (hereinafter referred to as "VSF"), with an annual production capacity of **90,000** tons for VFY and **120,000** tons for VSF. With total assets amounting to **10.39** billion yuan, the Company's factory premises cover an area of **857,100** square meters.







**Development Concepts:**  
Innovation,  
Coordination,  
Green,  
Openness,  
and Sharing



**Business Concepts:**  
Quality-  
Based, Market-  
Oriented



**Enterprise Spirit:**  
Perseverance,  
Innovation and  
Creation



**Enterprise Mission:**  
Use technology  
to contribute to  
mankind, change  
life and save  
resources







## Social Responsibility Concepts



### Vision:

To become a global-leading innovator in green chemical fiber material sector and a dedicated practitioner of sustainable development.



### Mission:

To empower material innovation through technology, safeguard the ecological future with responsibility, create value for customers, and set benchmarks for the industry.



### Core Values:

**Innovation-Driven:** We focus on technological research and development to lead industry transformation.

**Green Responsibility:** We practice low-carbon production and collaborate to build a sustainable ecological chain.

**Customer First:** We are demand-oriented, providing high-quality solutions.

**Integrity and Win-win:** We adhere to transparent cooperation and share the fruits of development.

## Brand Positioning

### Technology·Green·Trust

#### Technology:

Backed by a national-level technology center and an academican workstation, we possess over 300 core patents.



#### Green:

We were among the first in China to obtain "Green Factory" certification, and our products comply with the EU's REACH environmental standards.



#### Trust:

We serve over 2,000 global clients, with a customer repurchase rate exceeding 85% for five consecutive years.





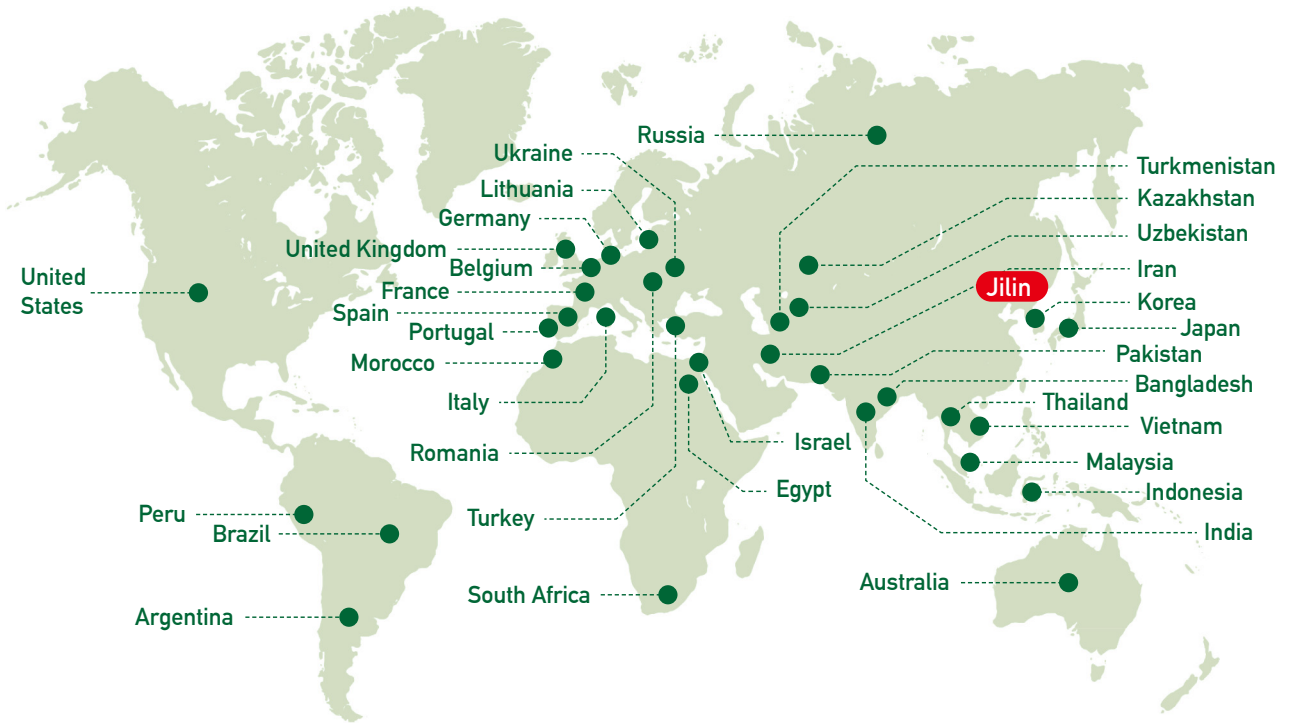


# Viscose Fiber

Jilin Chemical's viscose fiber yarn (VFY) and viscose staple fiber (VSF) business covers more than 30 countries and regions across five continents, including Europe, America, Japan, South Korea, India, Pakistan, Southeast Asia, West Asia, Africa, and Oceania. The Company has formulated the strategies of "improving quality, expanding categories, and building brands" and "large-scale, fine denier, homogeneous, and continuous" production, and is committed to quality and brand upgrading.

Annual Output of VFY (tons)		
2022	2023	2024
58381	68642	71125

Annual Output of VSF (tons)		
2022	2023	2024
84311	97762	103514






## Carbon Fiber

As a listed platform under Jilin Chemical Fiber Group, the Company adheres to the principle of "strengthening the core business and accelerating upgrading and transformation". Supported by high-quality raw yarn of Jilin Chemical and a complete carbon fiber industry chain of downstream composite materials, leveraging the innovative achievements of the Carbon Fiber Equipment Research Institute, Intelligent Research Institute, and Inspection and Testing Laboratory Center, and with the help of Jilin Provincial Party Committee and Provincial Government, Jilin Municipal Party Committee and Municipal Government, the Company is actively expanding into the carbon fiber industry, identifying breakthrough points for a second growth curve, and steadily advancing the strategic goal of "seeking growth".

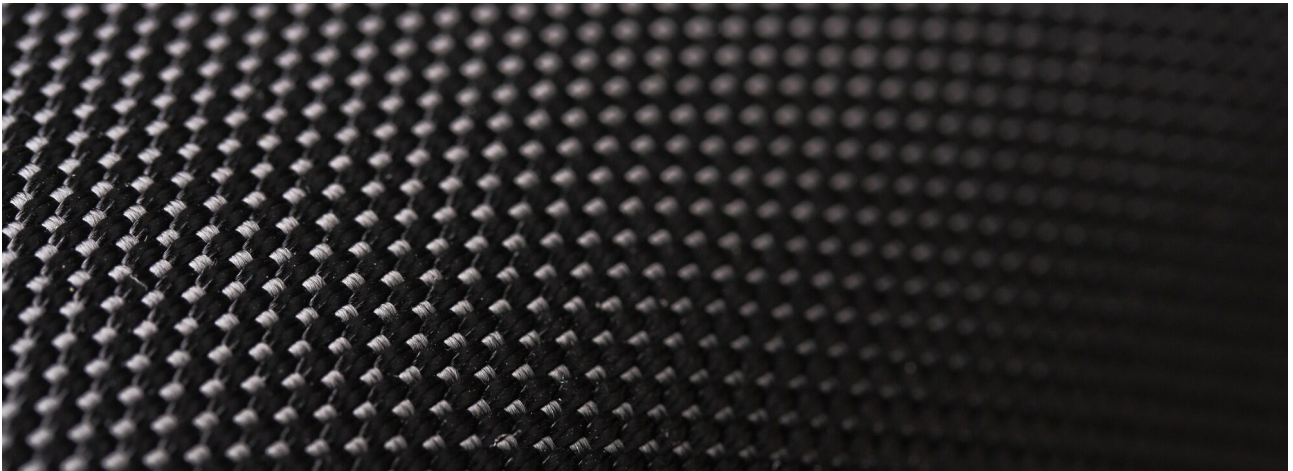
After years of development, Jilin Chemical Fiber Group has now achieved a production capacity of 160,000 tons for raw yarn, 49,000 tons for carbon yarn, and 20,000 tons for composite materials. The production capacity ranks among the top domestic carbon fiber companies, and the end products are exported to many countries including Europe and Japan.

### Capacity scale

**Precursor**  
 **160000** tons

**Carbon filament**  
 **49000** tons

**Composite products**  
 **20000** tons



## 05. Stakeholder Identification and Communication

Jilin Chemical places great emphasis on continuous communication with its stakeholders. Through regular internal and external exchange activities, the Company actively listens to the opinions and demands of all parties, adopts relevant standards and suggestions, and continuously strengthens cooperation within the industrial chain and the construction of its brand image. This two-way interactive mechanism effectively assists the Company in identifying key issues and improving its sustainability management system. As an important vehicle for communication, Jilin Chemical publishes a sustainability report annually, transparently disclosing its progress to stakeholders. Based on this feedback, the Company optimizes its management decisions and works jointly with stakeholders to advance the realization of sustainable development goals.





Stakeholders		Topics of concern to stakeholders	Communication and response channels
Category	Representatives		
Government agencies	Central government Local government	Law-abiding Tax payment according to law Production safety Product safety Environmental protection Common prosperity	Pollutant emission data disclosure Environmental and safety supervision, audit and management
Stock exchange	Shenzhen Stock Exchange	Compliance information disclosure Corporate governance Corporate social responsibility	Public disclosure of periodic and interim reports of the Company
Business operators and investors	Senior management of the group Senior management of Jilin Chemical Fiber Stock Co., Ltd. Investors	Corporate governance Profitability Information disclosure Investor relationship Public opinion Product innovation Customer Service	Company and exchange websites Working session Forum Mail, telephone and other social media
Employees	All employees of Jilin Chemical	Protection of labor rights and interests Occupational health and safety Remuneration and benefits Working environment Career development	Working session Employee training Employee's congress Mail, telephone and other social media Company and exchange websites
Suppliers/contractors	Wood pulp supplier Cotton pulp suppliers Chemical suppliers Project contractors	Business ethics Stable and sound operation Sustainable supply chain management	Annual supplier assessment Audit, evaluation and on-site investigation of the CoC supervision chain system of wood pulp suppliers Sustainability Report Product fairs and industry seminars Meetings, mail, telephone communication
Downstream customers	Direct customers: Yarn and fabric enterprises	Product quality and price Delivery date Innovation and R&D Sustainable supply chain management	Customer satisfaction survey New product trial Product fairs and industry seminars Company and exchange websites Meetings, mail, telephone communication
	End customers: Home textile and clothing brand enterprises Industrial textile enterprises Consumers	Product quality Innovation and R&D After-sales service Product compliance marketing Sustainable value chain management Business ethics Stable and sound operation Climate change response Cleaner production	
NGO (non-governmental organization)/ industry association/media	China Tanboocel Union Jilin Textile Association China Chemical Fibers Association China Filament Weaving Association Collaboration for Sustainable Development of Viscose (CV) Third-party organizations Environmental organizations Media	Climate change response Cleaner production Biodiversity conservation Labor protection Corporate social responsibility Sustainable supply chain management	Sustainability Report Audit and evaluation of the Chain of Custody supervision chain system Participation in industry research and standard setting Product fairs and industry seminars Company and exchange websites Meetings, mail, telephone communication
研究机构 / 高校		Product innovation Intellectual property protection	Academic and industry research Industry-university-research cooperation
社区		Social responsibility Emissions of three wastes Production safety	Joint training of talents Community charity activities Public complaint channel

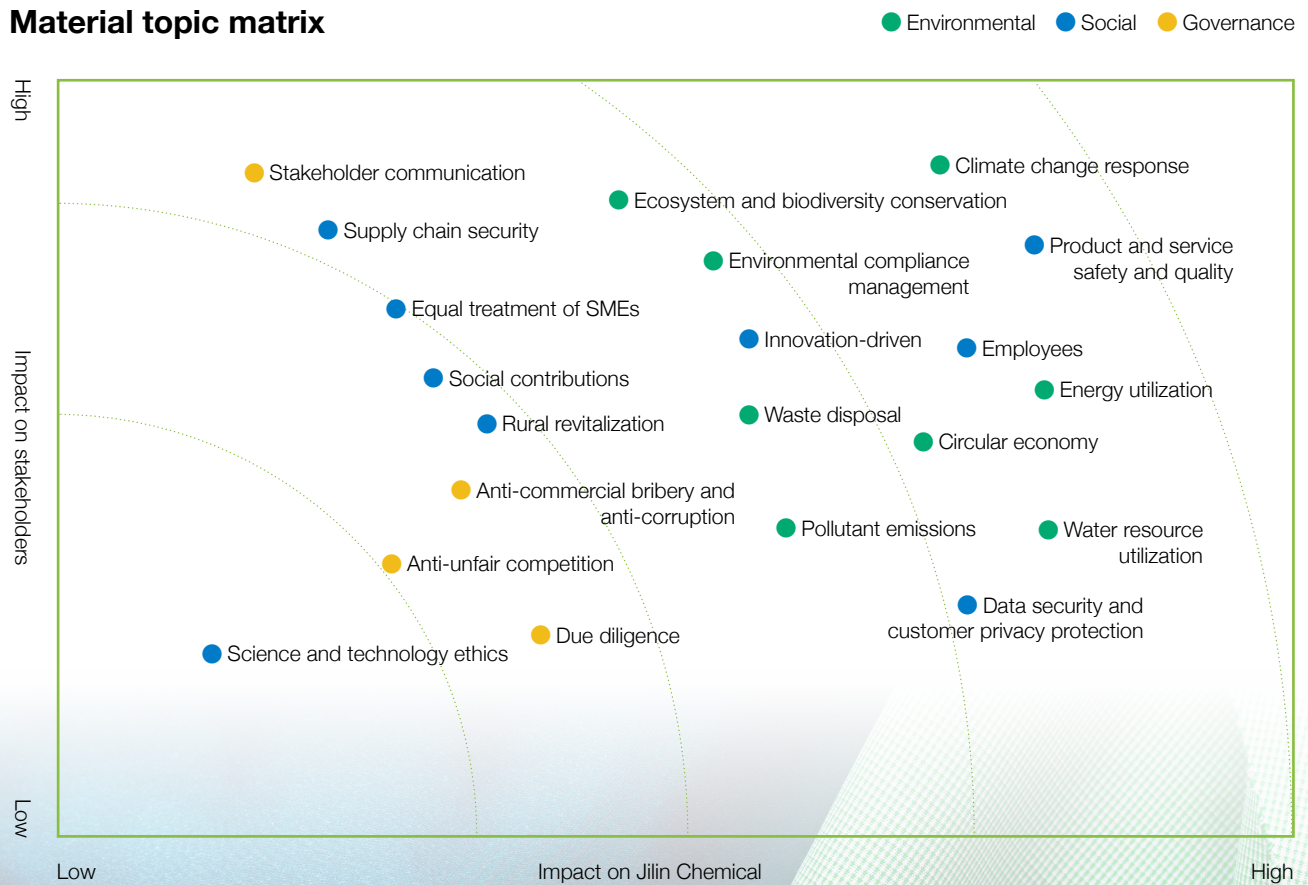


## 06. Material Topic Analysis

Jilin Chemical, based on national macro-policy orientations, research on domestic and international social responsibility standards (such as GRI, ISO 26000, and the Shenzhen Stock Exchange's *Self-Regulatory Guidelines No.17*), and in conjunction with its corporate strategy and operational management, identifies material topics and evaluates their significance through stakeholder communication and research, expert interviews, and internal meetings.

This report will refer to the 21 material topics outlined in the Shenzhen Stock Exchange's *Self-Regulatory Guidelines No.17* to establish an evaluation matrix and provide detailed disclosures on key topics.

### Material topic matrix





# 1

## Climate Change Response

Jilin Chemical actively implements the "dual carbon" strategy, integrating climate change response into its core sustainable development strategy. Through the establishment of a green production system, optimization of the energy mix, management of carbon footprint across the entire product lifecycle, and benchmarking against international certifications, the Company is driving its low-carbon transformation. Leveraging technological innovation, Jilin Chemical promotes the application of clean energy, strengthens collaborative carbon reduction efforts across the industrial chain, and contributes to the green and high-quality development of the industry.

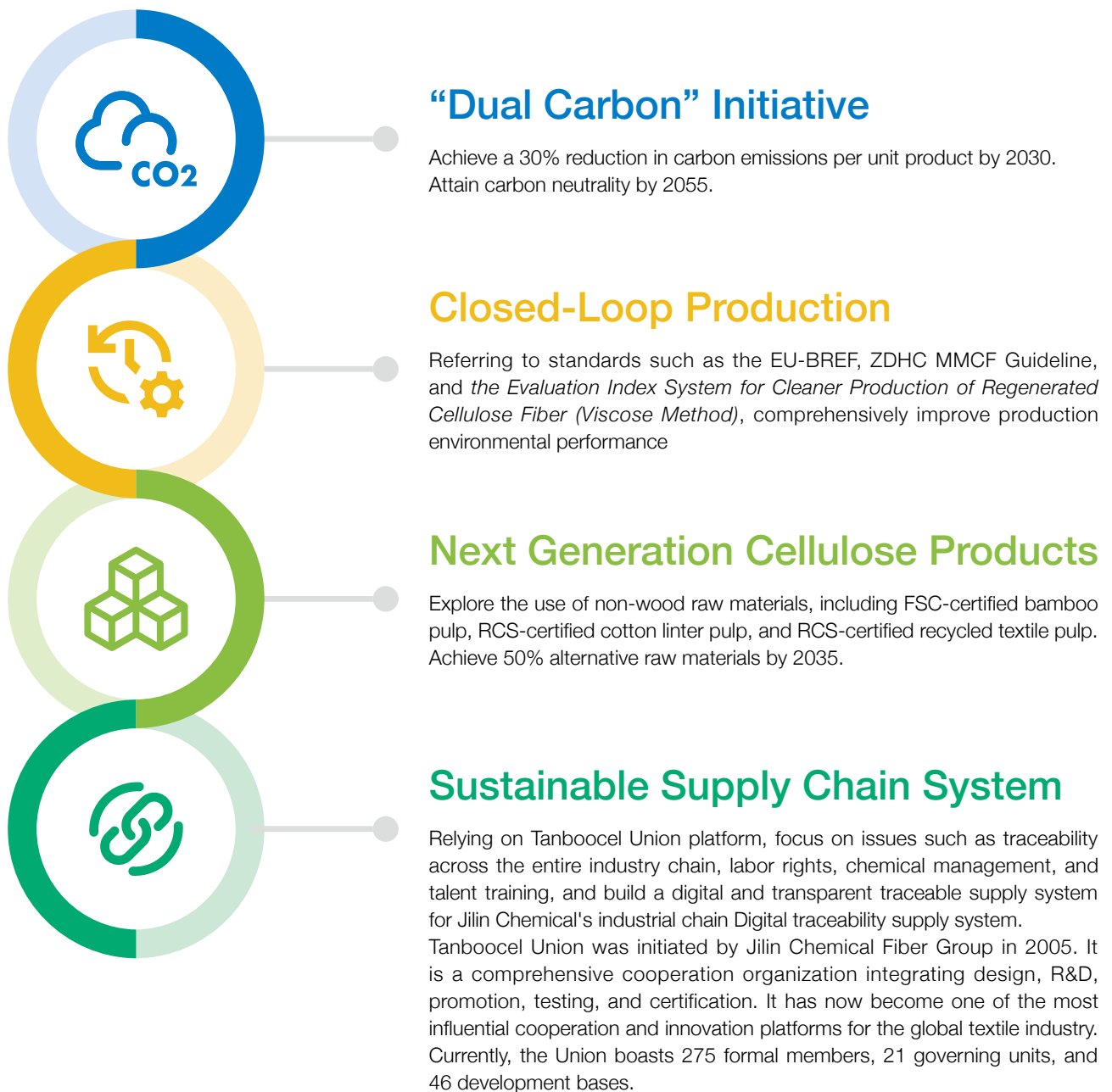




# 01. Sustainability Management

In 2023, Jilin Chemical officially unveiled its strategically significant "Sustainability Vision". This vision centers on four major sections: "dual carbon" goals, closed-loop production, a new generation of green cellulose products, and a sustainable supply chain system. Through this systematic planning, the Company not only continuously enhances its internal governance in sustainable development but also actively collaborates with partners across the industrial chain to jointly drive the green transformation of the industry.

## Sustainability Vision





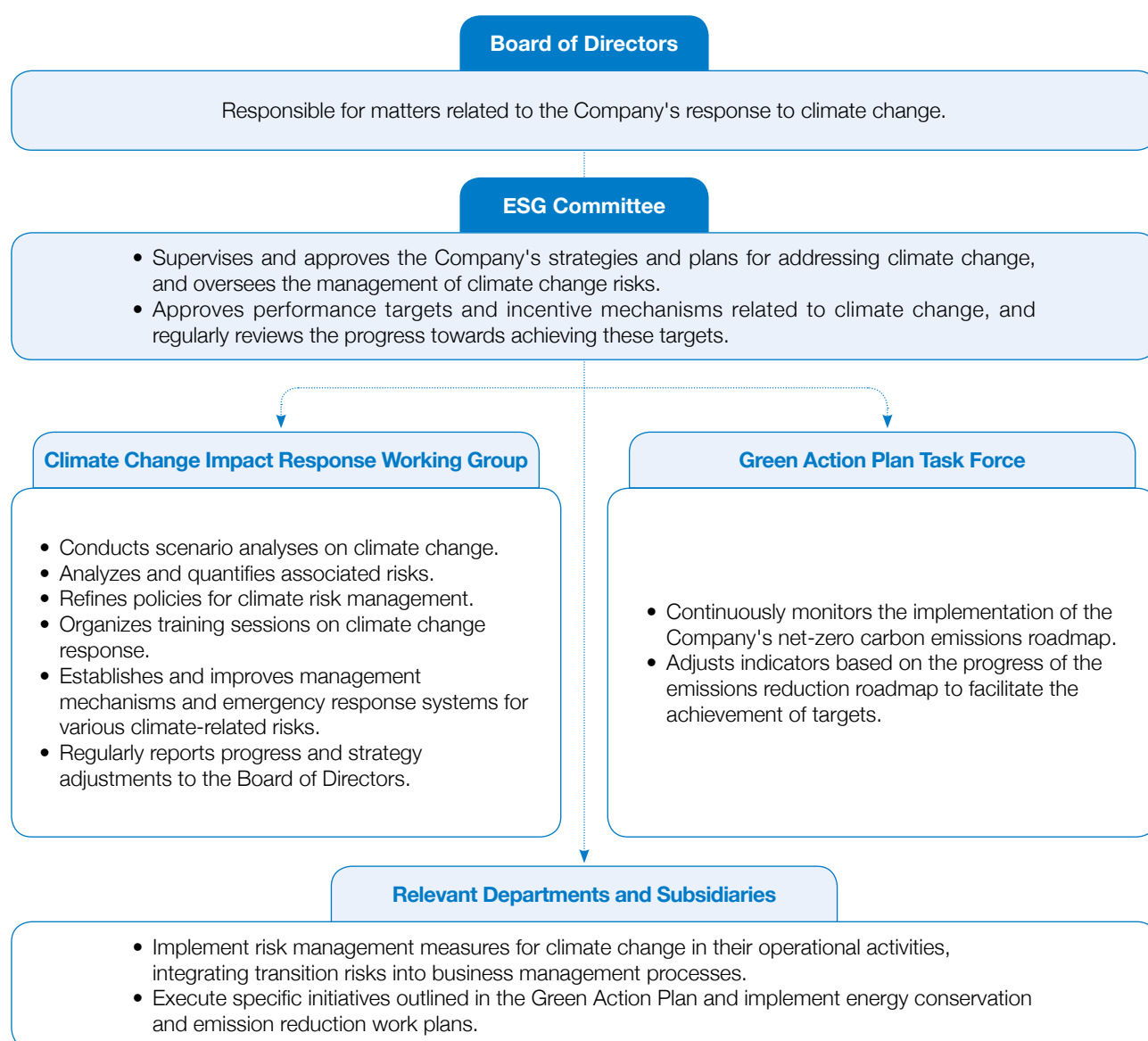


## Sustainability Management Structure

Jilin Chemical has built a sustainability management system and established an "ESG Committee" led by the general manager to coordinate and supervise Company's implementation of social responsibility. The Social Responsibility Management Committee is responsible for conducting regular written risk assessment and actively communicating with all stakeholders.

Jilin Chemical will continue to deepen and refine the Company's sustainability management structure and continuously enhance and improve sustainability management practices.

### Climate change governance architecture





## 02. Energy Management

Jilin Chemical adheres to standardized, specialized, data-driven, and refined management principles to ensure comprehensive coverage and legal compliance of its management requirements. The Company has established an all-encompassing energy management system, which has received the ISO 50001 Energy Management System Certification. To ensure the effectiveness and adaptability of its energy management, Jilin Chemical has formulated *the Energy Review and Management System*. The Company has established a mechanism for monitoring and reviewing energy performance and introduced systems such as the *Joint-stock Company Management and Control System for Energy Assessment and the Energy Performance Monitoring, Measurement, Analysis, and Evaluation Control System* to monitor energy usage over the long term and continuously optimize energy efficiency.

### Energy Management System



*Energy Laws and Regulations Evaluation System of Jilin Chemical Fiber Stock Co., Ltd.*

*Air Conditioning Operation Management System of Jilin Chemical Fiber Stock Co., Ltd.*

*Energy Risk Identification Management System*

*Energy Review Management System*

*Management and Control System for Energy Benchmark, Energy Performance Parameters, Energy*

*Targets and Measures Plan Management System*

*Energy Performance Monitoring, Measurement, Analysis, and Evaluation Control System*

*Energy Management Assessment Standards for the Stock Company*

*Regulations on Air Duct Management for the Stock Company*

*Standards for Anti-Freezing Management of Equipment and Pipelines for the Stock Company*

*Management System of Energy Data Processing and Statistical Analysis for the Stock Company*

*Management System of Energy Equipment and Its Economic Operation Evaluation for the Stock Company*

*Management and Assessment Standards for Energy-Insulating Materials of the Stock Company*

*Regulations on Inspection and Exhaust Management of Compressed Air for the Stock Company*

*Training System for Key Energy-Using Positions in the Stock Company*






Jilin Chemical sets its annual energy targets for the upcoming year at the end of each year based on production data and planning. These targets are then broken down into monthly planning indicators and assigned to the workshops. Every month, the Company organizes energy-saving labor competitions along with corresponding incentive mechanisms to encourage workshops to continuously enhance their cost awareness and explore potential energy-saving opportunities. The Company regularly holds cost analysis meetings to formulate improvement measures for indicators that exceed standards. Meanwhile, it improves internal feedback channels and establishes an evaluation mechanism to offer appropriate rewards for reasonable suggestions and promote their implementation.


In 2024, Jilin Chemical consumed a total of 7,208,952 GJ of energy in its production processes. Among this, the energy consumption for VFY production amounted to 5,063,229 GJ, while the energy consumption for VSF production was 2,145,723 GJ.



Production energy consumption (GJ)			
	2022	2023	2024
Total Amount	6238133	6755281	7,208,952
VFY	4262426	4604517	5,063,229
VSF	1975707	2150764	2,145,723

To continuously optimize energy efficiency, Jilin Chemical has been relentlessly exploring energy-saving potentials and implementing energy-saving projects. From 2022 to 2024, the energy consumption per unit of VFY product at Jilin Chemical has consistently outperformed the EU-BREF limit. In 2024, it stood at 71.2 GJ per ton of product, marking a 6.3% year-on-year increase<sup>[2]</sup>. Meanwhile, the energy consumption per unit of VSF product was 20.7 GJ per ton of product, representing a 5.9% year-on-year decrease, thus meeting the requirements within the EU-BAT limit. Both the VFY and VSF products have achieved the energy consumption levels that comply with the Level 1 requirements outlined in China's *Cleaner Production Evaluation Index System of Regenerated Cellulose Fiber Manufacturing Industry (Viscose Method)*.

VFY Comprehensive Energy Consumption (GJ/ton)			
	2022	2023	2024
	73	67	71

VSF Comprehensive Energy Consumption (GJ/ton)			
	2022	2023	2024
	23	22	21

[2] To optimize the product structure, the company increased the proportion of high value-added products in 2024, which led to a rise in the unit consumption of products.

## Energy Conservation and Efficiency Enhancement

During the Reporting Period, Jilin Chemical adhered to an integrated approach of energy conservation, consumption reduction, and recycling. It implemented an "intensive carbon emission reduction" solution, conducting comprehensive assessments through indicators such as energy consumption intensity, primary energy conversion efficiency, recovery rate of secondary energy, and labor productivity. The Company focused on energy conservation in three key areas: energy conservation management, energy conservation technologies, and energy conservation processes, thereby advancing its "Sustainability Vision."

In 2024



Electricity savings of

**2,700,120** kWh

Water savings of

**21,827** tons

Steam savings of

**19,272** tons

Resulting in cost savings and  
efficiency gains totaling

**5.4815** million yuan







## Key Energy Conservation Projects

No.	Energy Conservation Categories	Project Name	Project Introduction
1	Energy conservation process	Water Efficiency Upgrade in Dope Preparation	Improved the dope filter's rubber discs to reduce the use of industrial water for floor flushing. All viscose is now recovered into the rubber discs, eliminating viscose spillage on the floor. Saves 1.3 tons of water and 7.5 liters of viscose per machine.
2		Reduction of acid removal water consumption through benchmarking	Re-standardized the nozzle diameters and water tank levels to reduce water consumption. Instantaneous flow rate decreased by 15 tons/hour, saving 360 tons of soft water per day.
3		Reducing drying temperature/ increasing moisture content in viscose filament yarn continuous centrifugal	Increased the moisture content during drying to 6% ~ 7.5% and decreased the average temperature by 2°C. Saves 0.4 tons of steam per drying kiln per day, totaling 1,020 tons of steam saved annually.
4		Adjusting electric spindle rotation speed	Adjusted the rotation speed of 600D frequency-controlled single spindles from 138Hz to 110Hz. Saves 672 kWh of electricity per day.
5		Reducing drying temperature in viscose filament yarn continuous	Decreased the drying temperature from 92.5°C to 92°C. In each of the five spinning rooms, 1 ton of steam is saved per set of drying water, totaling 5 tons of steam saved per day.
6		Shortening sulfonation time	Reduced the sulfonation time in a dope workshop from 90 minutes to 85 minutes, saving 46,200 kWh of electricity annually.
7		Reducing soft water temperature in viscose filament yarn continuous centrifugal	Decreased the soft water temperature parameter from 26°C to 24°C, saving 4,020 tons of steam annually.
8		Reducing ambient temperature in viscose filament yarn continuous centrifugal	Decreased the ambient temperature in traditional spinning areas from 25°C to 24.5°C, saving 2,250 tons of steam annually.
9	Energy conservation management	Replacement of backwash water pumps with industrial water pumps	At the acid station's fifth unit, industrial water pumps were used to replace backwash water pumps, eliminating the need for one backwash water pump. This results in annual electricity savings of 159,840 kWh.
10		Cleaning of drying heaters	Leveraging medium and minor maintenance periods, the drying heaters are cleaned by soaking them in an alkali bath followed by high-pressure water jet cleaning. This enhances the heat transfer efficiency of the heaters and reduces steam consumption. It approximately decreases steam consumption by 2 tons per hour, leading to a reduction in specific steam consumption of about 0.07t/t.
11	Energy Conservation Technology	Waste heat recovery and reutilization transformation	A certain drying process recovers waste heat with an air volume of 40,000 m³/h, increasing the air temperature by 10°C and saving 0.712 tons of steam per hour.
12		Enhancing efficiency of heat exchange devices	By replacing heat pipes in a workshop, the waste heat recovery device can save 0.04 tons of steam per hour, amounting to 4.8 tons of steam saved daily, and improving efficiency to over 70%.
13		Recycling and reutilization of the wastewater from the second spray washing in continuous spinning	Utilizing physicochemical methods to reduce the content of heavy metal ions, turbidity, and insoluble organic matter in the wastewater from the second spray washing.
14		Economical operation of spinning air conditioning and heatstroke prevention measures	Through cleaning heat exchangers and replacing water spray nozzles, the actual average temperature at the centrifugal spinning site in July was 30.91°C, with an average processing site temperature of 28.48°C. The average temperature at the continuous spinning site was 36.17°C, and the average temperature at the finished product site was 29.0°C.
15		Improving air supply efficiency of air compressors in VSF utility engineering	The No. 7 air compressor in the VSF utility engineering was upgraded to improve air supply efficiency. The workshop replaced the original 515 kW motor of the No. 7 air compressor with a 600 kW motor. After implementation, a small 250 kW air compressor was decommissioned.



## 03. Carbon Footprint

Jilin Chemical has been conducting carbon footprint assessments of its products for three consecutive years, providing references for further integrating carbon management into product design and the Company's operational and production processes. During the reporting period, the Company commissioned Intertek to carry out a "cradle-to-gate" carbon footprint assessment (LCA) for its continuous VFY, centrifugal VFY, and viscose staple fiber (VSF). The assessment covered the entire lifecycle from raw material acquisition, transportation, production, to packaging.

The carbon footprint of continuous VFY is approximately 14.08 kg CO<sub>2</sub>e/kg, with the primary contributing stages being raw material acquisition and the production process, accounting for approximately 21.19% and 78.13%, respectively. The carbon footprint of centrifugal VFY is approximately 15.49 kg CO<sub>2</sub>e/kg, with raw material acquisition and the production process also being the main contributors, at approximately 16.5% and 82.43% respectively. The carbon footprint of bamboo fiber is around 4.61 kg CO<sub>2</sub>e/kg, with raw material production and the production process contributing approximately 21.84% and 77.02% respectively.

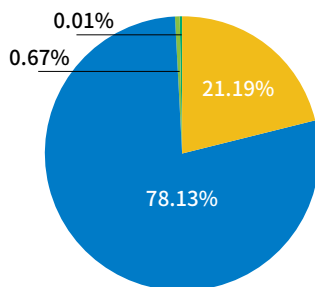
### Continuous VFY

Carbon footprint

14.08 kg CO<sub>2</sub>e/kg,

Emission proportion by stage:

- Raw materials
- Production process
- Waste disposal
- Packaging



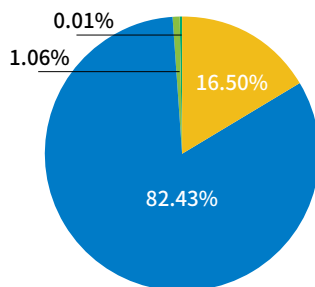
### Centrifugal VFY

Carbon footprint

15.49 kg CO<sub>2</sub>e/kg

Emission proportion by stage:

- Raw materials
- Production process
- Waste disposal
- Packaging



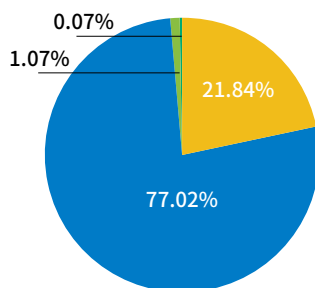
### Bamboo fiber

Carbon footprint

4.61 kg CO<sub>2</sub>e/kg

Emission proportion by stage:

- Raw materials
- Production process
- Waste disposal
- Packaging







## 04. Related Certifications

During the reporting period, in addition to meeting the government's mandatory environmental protection requirements, Jilin Chemical actively benchmarked against domestic and international third-party standards, achieving certifications in various aspects including corporate management, green raw materials, cleaner production, and product safety. These certifications encompass quality, environment, energy management, occupational health and safety management systems, as well as specific industry certifications such as FSC® Chain of Custody for forest products, OEKO-TEX® STeP certification for sustainable textile production, OEKO-TEX® STANDARD 100 certification for eco-textiles, and RCS (Recycled Claim Standard) certification. The Company conducts annual testing of wastewater, sludge, and influent in accordance with the ZDHC standards to promote the zero discharge of hazardous chemicals. This enables comprehensive ecological supervision throughout the entire supply chain, from raw materials to finished products, and enhances the Company's sustainable development capabilities across multiple dimensions.



FSC® Certification



RCS Certification



CanopyStyle Audit



EU-BAT Certification



Environmental Management System



Energy Management System



Occupational Health and Safety Management System



Quality Management System



SA8000® Certification



ZDHC MMCF Wastewater Testing



STeP by OEKO-TEX® Level 3 Certification (highest level)



Worldly (Higg FSLM)



Environmental Module Certification



OEKO-TEX® Standard 100 Certification



Green Leaf Certification



Degradability Testing and Certification



Life Cycle Assessment of Product Environmental Footprints (2 Items) VFY (Continuous, Centrifugal), VSF



Customs Advanced Certification



OCS Organic Content Standard Certification



Bamboo Pulp VSF Certification

# 2

## Advancing Closed-Loop Production

Jilin Chemical integrates the concept of circular economy into the entire production process, establishing a closed-loop environmental management and control system. Centered around the coordinated governance of water conservation and pollution reduction, the Company promotes the resourceful utilization of the "Wastewater, waste gas, solid waste". Through standardized management, technological innovation, and collaboration across the industrial chain, Jilin Chemical aims to build a green, low-carbon, and circular economic development system.

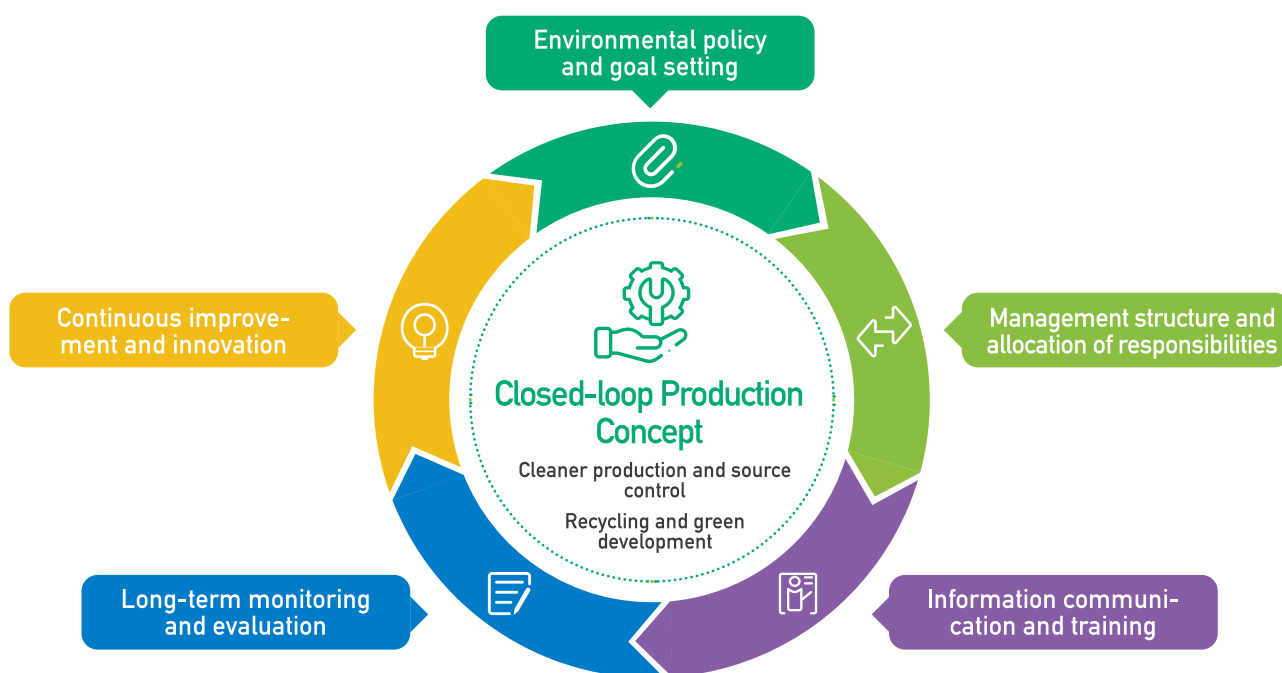






# 01. Environmental Management

Jilin Chemical incorporates environmental protection into its core management practices, establishing a comprehensive environmental management system and formulating the Environmental Protection Management System for the Stock Company. The Company has set up an Environmental Protection Committee to oversee and guide environmental efforts, supported by the Environmental Protection Post Responsibility System, which clearly defines the responsibilities of personnel at all levels.



## Environmental Management System



*Management and Control System for Environmental Management Assessment*  
*Environmental Protection Management System for the Stock Company*  
*Management and Control System for Environmental Protection Daily Inspection*  
*Management and Control System for Environmental Protection Facilities Operations*  
*Emergency Plan for Environmental Emergencies*  
*Management and Control System for Hidden Danger Investigation*  
*Management and Control System for Dust Suppression in Construction Projects Underway*  
*Garbage Classification Management and Control System*  
*Management and Control System for the Comprehensive Utilization of Solid Waste*

*Leadership Responsibility System for Hazardous Waste Management*  
*Environmental Management and Control System for Hazardous Waste*  
*Special Emergency Plan for Hazardous Waste*  
*Underground Water Pipeline Network Management and Control System for the Stock Company*  
*Management and Control System for Volatile Organic Compound Leakage Detection and Repair (LDAR) for the Stock Company*  
*Management and Control System for Laboratory Waste Liquids (and Wastes) for the Stock Company*  
*Management and Control System for Environmental Protection Training for the Stock Company*  
*Environmental Protection Post Responsibility System for the Stock Company*  
*Management and Control System for Environmental Protection Suggestions and Complaints for the Stock Company*



#### During the reporting period

**zero** major environmental protection incidents

**zero** instances of significant administrative penalties imposed by relevant authorities due to violations of laws and regulations.

The annual investment in environmental protection funds amounted to

**8.7** million yuan



## 02. Water Resource Management

Jilin Chemical strictly adheres to relevant laws and regulations such as the *Water Law of the People's Republic of China*. All water used in its production and operational activities is sourced from surface water resources, and the Company avoids establishing factories in water-scarce regions. The Company has formulated the *Water Usage Management and Control System for the Stock Company* to standardize water usage and conservation management. It places great emphasis on the recycling and reuse of water resources, enhancing water utilization efficiency through measures such as reclaimed water reuse, production water recycling, and optimization of equipment and processes.



#### During the reporting period

The Company's total annual water consumption amounted to

**20.59** million m<sup>3</sup>

The water consumption per ton of VFY products was

**229.8** m<sup>3</sup>/t

The water consumption per ton of VSF products was

**41** m<sup>3</sup>/t

Both figures are well within the limit values specified by the EU-BREF and EU-BAT standards.



**Water Resource Utilization (in 10,000 m<sup>3</sup>)**

2022	2023	2024
1688	2038	2059

**Water consumption per unit of VFY product from 2022 to 2024 (m<sup>3</sup>/t)**

2022	2023	2024
230.2	229.6	229.8

**Water consumption per unit of VSF product from 2022 to 2024 (m<sup>3</sup>/t)**

2022	2023	2024
41	39	41

**Wastewater Recycling and Reuse Project:  
The second spray washing of the wastewater MS Filtration**

During the VFY spinning process, two streams of acidic wastewater at 52°C with different levels of pollution are generated. Among them, the secondary water (which is the wastewater from the second spray washing step) is considered lightly contaminated process wastewater. However, the current centralized mixed treatment approach not only increases the burden on wastewater treatment but also wastes thermal energy. To address this, this project focuses on recycling and treating the secondary water for use as a substitute for soft water in centrifugal spinning processes. After trial operations and the completion of four key modifications - including flow metering upgrades, sludge discharge system enhancements, pH control optimization, and the addition of supporting equipment - the project officially commenced operations on January 31, 2024. It has operated steadily throughout the year, with a water production capacity of 8-11 tons per hour. The MS filter operates for 8-10 hours per cycle with zero self-consumption of water. The effluent quality is excellent, and the indicators for the spun filament products remain stable.



## 03. Wastewater, Waste Gas, and Solid Waste Management

As a key pollutant-discharging entity, Jilin Chemical strictly adheres to national and local environmental protection laws, regulations, and relevant emission standards. It implements comprehensive management of wastewater, exhaust gas, and solid waste generated during the production process to ensure that the treatment and discharge of various pollutants comply with standard requirements.

### Relevant Environmental Regulations and Standards



*Integrated Emission Standard of Air Pollutants(GB 16297-1996)*

*Emission Standards for Odor Pollutants(GB 14554-1993)*

*Standard for Fugitive Emission of Volatile Organic Compounds(GB 37822-2019)*

*Emission Standard of Pollutants for Petroleum Chemistry Industry(GB 31571-2015)*

*Emission Standard for Industrial Enterprises Noise at Boundary(GB12348)*

*National Catalogue of Hazardous Wastes (2021 Edition)*

*Standard for Pollution Control on the Non-hazardous Industrial Solid Waste Storage and Landfill(GB18599)*

*Standard for Pollution Control on Hazardous Waste Storage(GB 18597)*



#### During the reporting period

The Company invested

**8.7** million yuan

in environmental protection

Number of Major  
Environmental  
Protection Accidents:

**0**



Number of Major Incidents  
Involving Lawsuits or Penalties  
Due to Environmental Violations:

**0**

### Waste Gas Treatment

The production processes at Jilin Chemical primarily involve the emission of waste gases such as carbon disulfide (CS<sub>2</sub>) and hydrogen sulfide (H<sub>2</sub>S). The Company implements categorized control through the strategic layout of technical facilities: among the eight waste gas purification towers in the plant area, Towers 1-7 are specifically dedicated to treating waste gas from the VFY workshop, while Tower 8 is exclusively used for waste gas treatment in the VSF workshop. To strengthen emission supervision, the Company has established a dual-track monitoring system comprising monthly and quarterly checks. Monthly, third-party agencies conduct targeted inspections of organized emission outlets, such as exhaust towers. Quarterly, grid-based patrol monitoring is carried out to detect unorganized fugitive emissions at the plant boundary, forming a closed-loop waste gas treatment system that covers the entire production process.

In 2024, Jilin Chemical conducted a compliance review of its three waste treatment practices with reference to the ZDHC MMCF Guidelines.





## Process Waste Gas

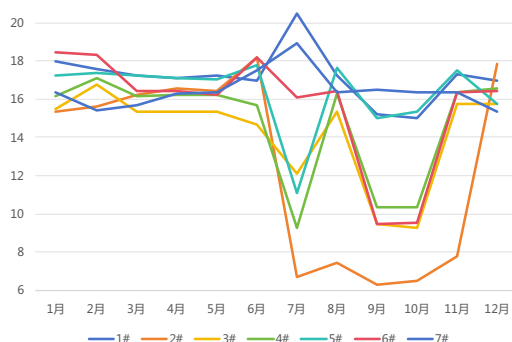
### VFY Waste Gas Treatment Process



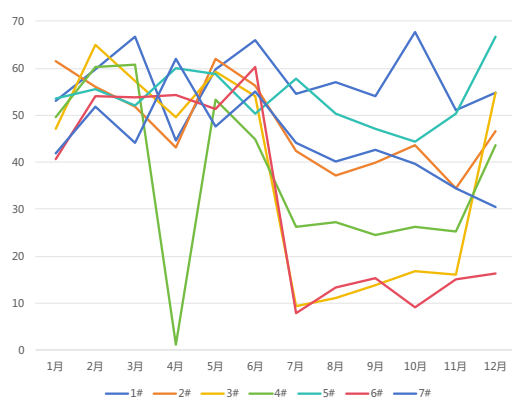
**Alkali Absorption:** This process employs alkali liquor atomization spray technology to treat waste gas. Through high-speed atomization, the alkali liquor is brought into full contact with  $\text{H}_2\text{S}$  in the waste gas, achieving an approximately 90% removal rate of hydrogen sulfide while concurrently reducing the concentration of  $\text{CS}_2$ . This installation innovatively integrates a resource recycling module, enabling the reuse of spent alkali liquor from the pressing process in the dope preparation workshop as an absorption medium after treatment.



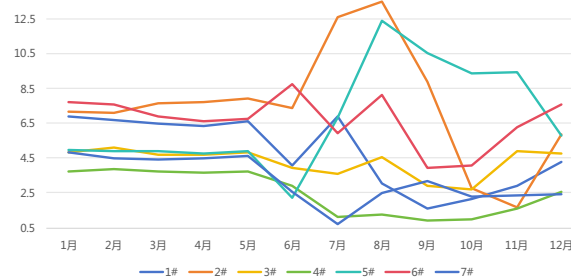
**Photocatalytic Oxidation:** The photocatalytic oxidation device primarily utilizes specific light beams to excite compound semiconductors such as titanium dioxide, leveraging the electrons and holes they generate to initiate redox reactions. There are a large number of defects and dangling bonds in semiconductor nanomaterials, which can capture electronics and electrons and holes and prevent their recombination. These trapped electronics and electrons and holes diffuse to the surface of the particles respectively, resulting in a strong redox potential.



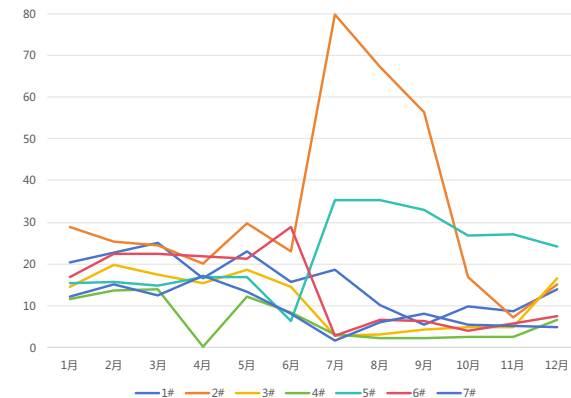
Hydrogen Sulfide ( $\text{H}_2\text{S}$ ) Detection Concentrations in Exhaust Towers 1-7 for VFY in 2024 ( $\text{mg}/\text{m}^3$ )



Carbon Disulfide ( $\text{CS}_2$ ) Detection Concentrations in Exhaust Towers 1-7 for VFY in 2024 ( $\text{mg}/\text{m}^3$ )



Hydrogen Sulfide ( $\text{H}_2\text{S}$ ) Emission Rates from Exhaust Towers 1-7 for VFY in 2024 ( $\text{mg}/\text{h}$ )



Carbon Disulfide ( $\text{CS}_2$ ) Emission Rates from Exhaust Towers 1-7 for VFY in 2024 ( $\text{kg}/\text{h}$ )



In 2024, the emissions of  $\text{CS}_2$  and  $\text{H}_2\text{S}$  per unit product of VFY were **17.48** kg/t and **4.69** kg/t, respectively.



## Case Study on Technological Transformation of VFY Waste Gas Treatment



To effectively reduce the emissions of pollutants such as  $\text{H}_2\text{S}$  and  $\text{CS}_2$  in waste gas and enhance environmental protection standards, Jilin Chemical initiated the "New Construction Project of Biofilm-Based Waste Gas Treatment System for the 10th VFY Workshop." The project's operational period is from September 2024 to April 2025. The Company has introduced the "High-Density Bacterial Array Biofilm Method" technology from Langkun (Beijing) New Environmental Protection Technology Co., Ltd. to construct a new biofilm-based waste gas treatment system in the 10th VFY Workshop for treating the spinning waste gas generated in the workshop.

After the implementation of the project, the pollutant treatment effects have been remarkable, with actual treatment rates for  $\text{H}_2\text{S}$  and  $\text{CS}_2$  both reaching or exceeding 99%, far surpassing initial expectations. Meanwhile, the system boasts advantages such as low operating costs, excellent treatment efficiency, and stable operation. From the perspectives of environmental protection outcomes, risk aversion, and brand enhancement, this system offers high cost-effectiveness. It has simultaneously elevated the Company's social image and brand value, bringing potential economic and social benefits to the Company. Additionally, the Company's technical team has accumulated valuable experience in biofilm-based waste gas treatment through this project, laying a solid talent foundation for the subsequent development of environmental protection technologies.

In the future, the Company plans to gradually promote the "High-Density Bacterial Array Biofilm Method" technology in other workshops, continuously optimize the system's operation, strengthen collaboration with scientific research institutions, and explore new, more efficient, and environmentally friendly waste gas treatment technologies to drive the Company's green and sustainable development.







## VSF Waste Gas Treatment Process



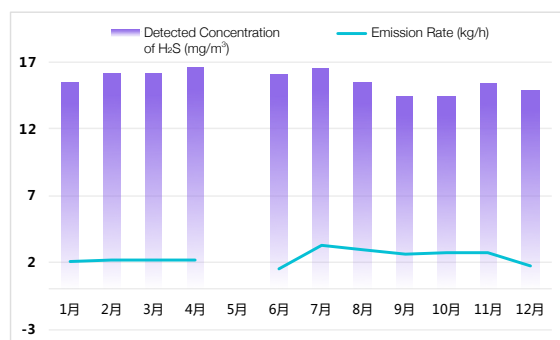
**Condensation Recovery:** A low-temperature condensation process is employed to treat high-concentration waste gas from the fiber feeding trough. The  $\text{CS}_2$  gas is cooled down to below  $46^\circ\text{C}$  for liquefaction and separation. After purification and refining, it is stored in specialized tanks and directly fed back into the production line for reuse, achieving a closed-loop recovery of  $\text{CS}_2$  resources throughout the entire process.



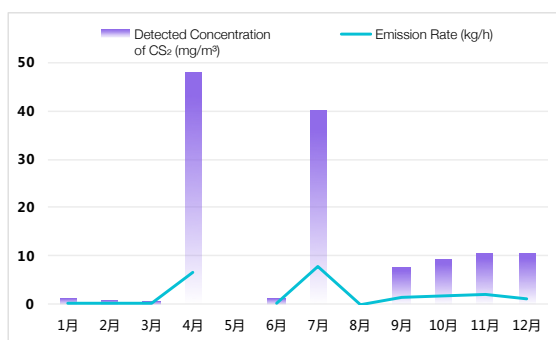
**Alkali Spray + Activated Carbon Adsorption:** High-concentration gases generated from the first and second bath tanks of the spinning machine, as well as exhaust gases from the yellowing process and post-condensation recovery waste gases, are scrubbed with an alkali ( $\text{NaOH}$ ) solution. Over 98% of the  $\text{H}_2\text{S}$  is converted into  $\text{NaHS}$ . A small amount of residual  $\text{H}_2\text{S}$  further reacts with  $\text{NaOH}$  in the scrubber to form a  $\text{Na}_2\text{S}$  solution. After being cooled down, the waste gas treated by alkali spray is directed into an activated carbon adsorption unit to precisely capture the  $\text{CS}_2$  component. When the adsorption approaches saturation, the activated carbon is regenerated using steam to desorb the  $\text{CS}_2$ , which is then recycled back into production.



**Device of Acid-making by Burning:** The Company is equipped with a device of acid-making by burning to treat the high-concentration exhaust gas containing  $\text{H}_2\text{S}$  (the main component) generated from the degassing tower of the plant acid station. After combustion treatment, the  $\text{H}_2\text{S}$  is converted into  $\text{SO}_2$  gas, which then undergoes a catalytic reaction to produce  $\text{SO}_3$ . Subsequently, dilute sulfuric acid is formed through condensation, and this sulfuric acid can be further recycled and reused in the production process.



$\text{H}_2\text{S}$  Detection Concentration and Emission Rate at Exhaust Tower 8# in 2024



$\text{CS}_2$  Detection Concentration and Emission Rate at Exhaust Tower 8# in 2024

Note: The factory underwent maintenance in May, during which the production line was not in operation. In April and July, the small-scale trial line for colored staple fibers was in operation, leading to slightly abnormal  $\text{CS}_2$  concentrations, though they did not exceed the standards.



In 2024,  
the  $\text{SO}_2$  emissions per ton  
of VSF product were

**0.11**  $\text{kg}/\text{t}$ ;

$\text{CS}_2$  emissions were

**0.22**  $\text{kg}/\text{t}$ ;

$\text{H}_2\text{S}$  emissions were

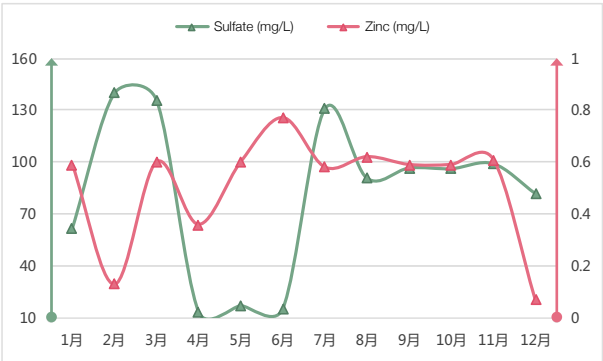
**0.20**  $\text{kg}/\text{t}$ ;

and  $\text{NO}_x$  emissions were

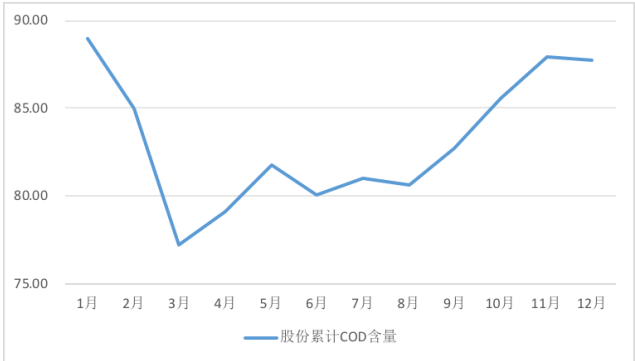
**0.34**  $\text{kg}/\text{t}$ .

## Wastewater Treatment

The wastewater generated at Jilin Chemical mainly includes production wastewater, domestic wastewater, and rainwater runoff. The Company implements a strict separation of rainwater and sewage. After being collected through rainwater drainage pipelines, the surface runoff rainwater is directly discharged into the Songhuajiang River. Production wastewater and domestic sewage are separately collected and conveyed to the sewage pump station, from where they are pumped to the wastewater treatment plant. After undergoing appropriate treatment to meet the discharge standards, the treated wastewater is released into the Songhuajiang River. The main pollutants in the wastewater include Chemical Oxygen Demand (COD), ammonia nitrogen (NH<sub>3</sub>-N), sulfides (SO<sub>x</sub>), and zinc (Zn), among others.



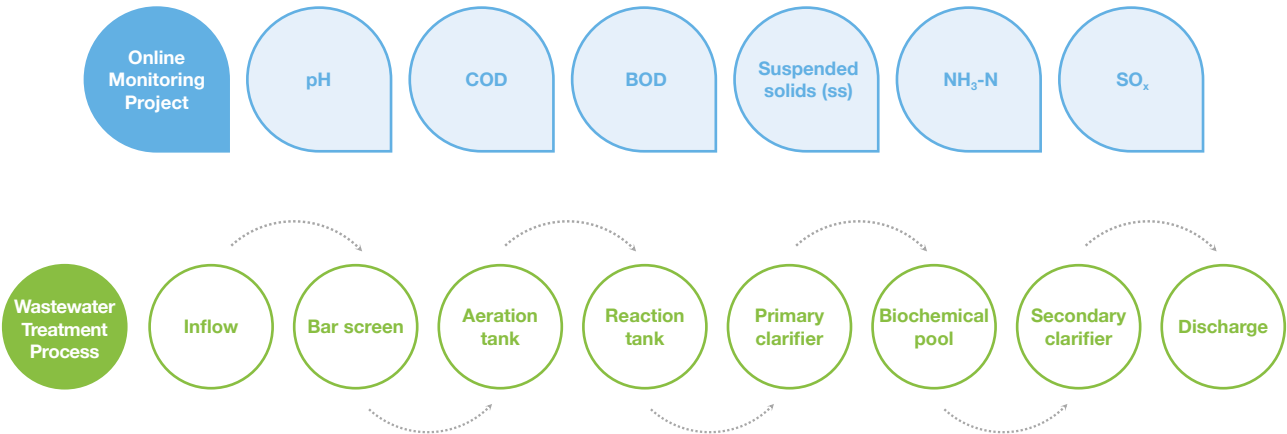
Detection Concentrations of Sulfate and Zinc in 2024



Cumulative COD Emissions of the Stock Company in 2024

During the reporting period, the pollutant emissions from Jilin Chemical were as follows:

Main Pollutant Emissions in Wastewater	Unit	2024
Total Sewage Discharge	million tons	18.75
Total COD Emission	tons	958
Total Ammonia Nitrogen (NH <sub>3</sub> -N) Emission	tons	80.92
Total Sulfide Emission	tons	1.07
Total Zinc Emission	tons	4.13







# Waste disposal

Jilin Chemical places great emphasis on environmental protection and waste management, strictly adhering to laws and regulations such as the *Law of the People's Republic of China on the Prevention and Control of Environment Pollution Caused by Solid Wastes*. The Company has systematically established a comprehensive solid waste management system that covers the entire lifecycle of waste, ensuring compliance at every stage and achieving the goals of waste reduction, recycling, and harmless treatment.

Relying on professional waste disposal service providers, the Company conducts intelligent sorting and calorific value testing of the on-site and group-wide domestic waste. Through targeted transportation to biomass power plants for co-incineration to generate electricity, the Company achieves effective energy recovery and utilization.

For hazardous waste, the Company has established a standardized hazardous waste storage area comprising four temporary hazardous waste storage rooms and two waste alkali liquor storage tanks. All are managed and operated in accordance with the hazardous waste management system to ensure safe storage before being transferred to third-party professional disposal facilities.

## Domestic Waste and Hazardous Waste Management System



*Garbage Classification Management and Control System*

*Management and Control System for the Comprehensive Utilization of Solid Waste*

*Leadership Responsibility System for Hazardous Waste Management*

*Environmental Management and Control System for Hazardous Waste*

	General solid waste	Hazardous waste
Main categories	Domestic waste	Waste activated carbon, waste engine oil, waste catalyst, waste packaging materials, waste paint and its packaging materials
Disposal method	Entrust a third party to sort waste. Sorted waste is then transported to a waste incineration plant for power generation through incineration	Entrust a qualified third party to dispose of waste



### 报告期内

Generated **3,430** tons  
of general solid waste

Achieving a **100%** disposal rate  
at a cost of **2.754** million yuan

Generated **2,391** tons  
of hazardous waste

Achieving a **100%** disposal rate  
at a cost of **0.22** million yuan

# 3

## Strengthening Chemical Management

As a viscose fiber producer, Jilin Chemical procures and utilizes chemicals such as sodium hydroxide (NaOH), carbon disulfide (CS<sub>2</sub>), concentrated sulfuric acid (H<sub>2</sub>SO<sub>4</sub>), and concentrated hydrochloric acid (HCl). To safeguard the lives of its employees and prevent accidents such as fires, explosions, and toxic exposures during the storage and use of these chemicals, the Company has formulated a series of chemical management systems. It has established a stringent hierarchical management mechanism for chemicals and implemented a chemical risk assessment process to ensure that every stage of the chemical lifecycle, from procurement to disposal, is effectively controlled.







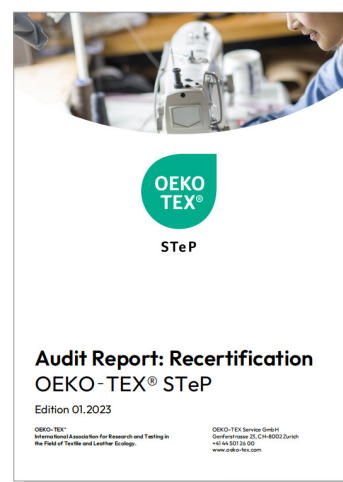
# 01. Comprehensive Chemical Management System

The Company has established a standardized comprehensive management system for chemicals throughout their lifecycle, achieving the STeP by OEKO-TEX® Level 3 certification. The system strictly adheres to six key control dimensions. The Company regularly organizes special drills for hazardous chemical explosion, leakage, and poisoning/asphyxiation incidents, as well as special drills for major hazard source incidents.

## Chemical Management System



*Chemical Safety Management and Control System*  
*Regulations on the Safety Control of Chemical Agents*  
*Regulations on the Safety Management of Chemical Storage*  
*Management System for Hazardous Chemicals*  
*Safety Management Regulation for the Transportation and*  
*Unloading of Hazardous Chemicals*  
*Regulations on the Safety Management of Hazardous Chemical*  
*Conveyance Pipelines*



## Chemical Management and Control



### During the reporting period

There were **zero** major chemical leakage incidents reported.

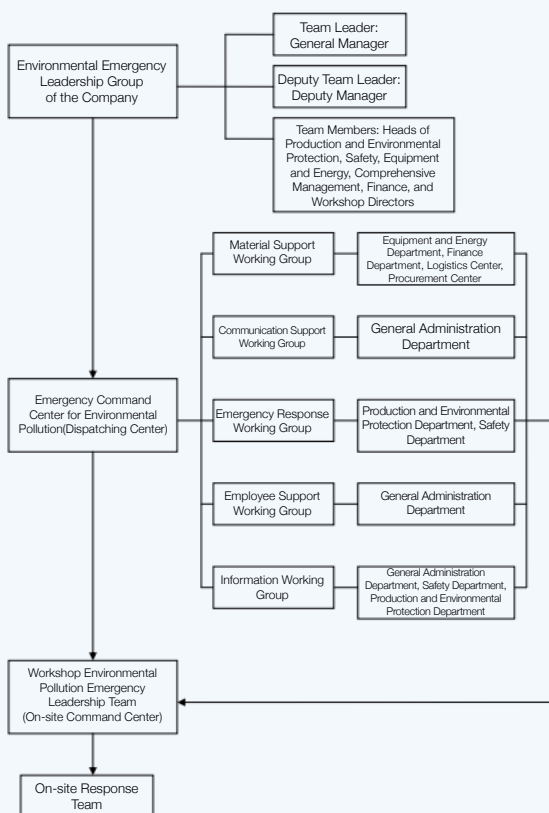
The Company achieved **100%** coverage in chemical management and conducted **165** emergency drills related to hazardous chemicals.

## Safety Status Assessment Report for the VFY Plant Area of Jilin Chemical Fiber Stock Co., Ltd.

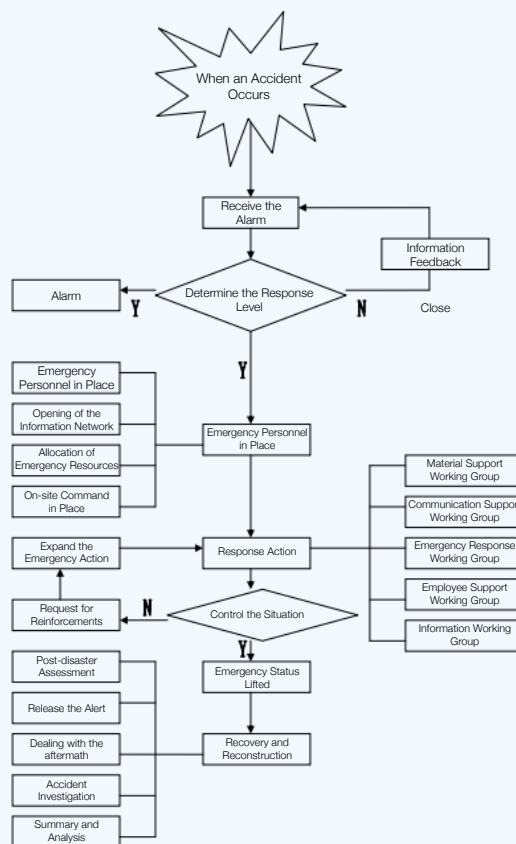


Jilin Chemical Fiber Stock Co., Ltd. entrusted a third-party company to conduct a safety status assessment of its VFY plant area. The assessment was carried out in accordance with laws and regulations such as the *Work Safety Law of the People's Republic of China* and the *Regulation on the Safety Management of Hazardous Chemicals*, with reference to the *General Principle of Safety Assessment* (AQ8001-2007) and the *Detailed Rules for Safety Assessment of Hazardous Chemical Construction Projects (Trial)* (An Jian Zong Wei Hua [2007] 255). Through a systematic analysis of the plant area's equipment, processes, raw materials, and operating conditions, the assessment evaluated compliance with work safety regulations, predicted potential accident risks and their severity, and proposed scientifically feasible safety countermeasures. These measures provide a basis for decision-making in the enterprise's safety management and offer references for regulatory authorities in implementing safety supervision.

Emergency Organizational Structure Chart for Environmental Pollution  
Incidents in the Production Facilities of the Stock Company



Emergency Response Workflow Diagram







## 02. Environmental Risk Identification

In order to prevent environmental pollution incidents, enhance emergency response capabilities, and ensure that the Company can quickly implement effective emergency measures and rescue operations in the event of a sudden environmental incident, thus preventing escalation and protecting the safety of employees and patients, preserving the ecological environment and natural resources from contamination, and minimizing losses and impacts caused by accidents, the Company conducted a comprehensive environmental risk identification across the plant in 2024. It also developed the *Emergency Plan for Sudden Environmental Incidents* and the *Emergency Plan for Sudden Environmental Incidents in the VFY Unit*.

### Risk Assessment

#### VSF Plant Environmental Risk Identification

- **Spinning Solution Workshop**

CS<sub>2</sub> used in the production process poses risks of leakage, flammability, and explosion. Potential incidents in this workshop include leaks, fires, explosions, and poisoning, which may lead to air, soil, and water pollution.

- **Spinning Workshop**

The spinning workshop generates acidic and alkaline wastewater during the production process, as well as exhaust gases containing CS<sub>2</sub> and H<sub>2</sub>S - both highly toxic substances. Leakage incidents may occur in this workshop, potentially leading to air, soil, and water pollution.

- **Acid and Alkali Tank Area**

Leakage incidents may occur in the acid and alkali tank area, potentially causing soil and water pollution.

- **Hazardous Waste Storage**

The Company's hazardous waste includes waste alkali liquor generated during production and waste engine oil from equipment maintenance. In the event of large-scale leakage, these substances may cause soil and water pollution.



## Environmental Protection Objectives

The VSF plant is located at the intersection of Jiuxing Road and Longxing Street. The north side of the plant borders Jiuxing Road, the west side is adjacent to Longxing Road, the south side is the Group's carbon fiber plant, and the east side is Jilin Jinggong Carbon Fiber Co., Ltd. Based on the types of chemicals used in the factory and the production process, the sensitive points around the plant are determined as follows:

### Sensitive Points within 2 km of VSF Plant

No.	Sensitive Point Name	Direction from Company		
		Number of People (approx.)	Distance to Plant Boundary (m)	Direction
1	Economic Development Zone Management Committee	300	1200	East
2	Jixian Community	16650	959	East
3	Xinhua Community	9408	1800	East
4	Xinxing Community	5000	1823	Southeast
5	Jilin Academy of Agricultural Sciences	330	150	Southwest
6	Jilin Agricultural Science and Technology College	11971	763	South
7	Sanhe Xinyuan Residential Area	3500	1738	South
8	Jiuzhan Village	1200	1843	Southwest



## Environmental Risk Emergency Facilities at the VSF Plant

- Safety valves and explosion-proof membranes are installed on major equipment.
- Key areas are equipped with portable fire extinguishers, above-ground fire hydrants, and other dedicated emergency facilities.
- A 60 mm high dike is installed around the acid/alkali storage tanks and CS<sub>2</sub> warehouse. The ground surface has been treated for anti-seepage and corrosion resistance.
- A 500 m<sup>3</sup> sulphuric acid collection pool is set up near the sulphuric acid tank area.
- An emergency wastewater holding tank with an effective volume of 66.27 m<sup>3</sup> is provided to prevent pollutants from entering surface water bodies.





## Emergency Response Measures for CS<sub>2</sub> Tank Area Leakage Incidents

Pollutant Name	CS <sub>2</sub>	Properties	Flammable liquid, highly toxic
Type of Incident	Leakage	Impact Scope	Within the company premises
Controllability	May affect surrounding environment or cause poisoning	Severity Level	Level III–IV
On-site Response Measures	<p>Leak in storage tank pipeline: Immediately stop material transfer. Collect leaking material using buckets and pour it back into the storage tank. Rinse the spilled material with water and direct the rinse water into the underground sump.</p> <p>Storage tank leakage: If leaked material enters the underground sump, use an explosion-proof pump to transfer it back to the tank for further treatment.</p> <p>Leak in plant pipeline: Immediately stop material transfer. Use sandbags or dikes to contain the spill, then collect the leaked material using buckets and return it to the tank. Rinse any remaining residue with water and direct the rinse water into the underground sump.</p>		
Measures to Prevent Pollutant Spread	<p>1. Quickly locate the leak and stop the release; control the spill within the dike; 2. For small leaks: collect the spilled material using buckets; 3. For large leaks: cover with mist water to reduce vapor hazards, condense the vapor, and collect the runoff into the underground sump.</p>		
Measures to Prevent Wastewater Pollution	<p>Tank area: Tanks are located inside an underground sump. Any leaked material will be contained within the sump. Decontamination rinse wastewater generated on site will flow along the ground into the underground sump.</p> <p>Plant pipelines: Rinse wastewater generated during decontamination will also drain into the underground sump via the ground surface.</p>		
Personal Emergency Protection	<p>Respiratory protection: When air concentrations exceed safe levels, personnel should wear half-face respirators with chemical cartridges. In emergency rescue situations, use air breathing apparatus.</p> <p>Eye protection: Wear chemical safety goggles when necessary. Body protection: Wear fully enclosed protective clothing. Hand protection: Wear chemical-resistant gloves.</p>		
First Aid Measures for On-site Personnel	<p>Skin contact: Immediately remove contaminated clothing and rinse skin thoroughly with flowing water for at least 20 minutes; Seek medical attention. Eye contact: Lift the eyelid and rinse the eye with flowing water or saline solution; Seek medical attention. Inhalation: quickly leave the site to a place with fresh air. Keep the respiratory tract unobstructed. In case of breathing difficulty, perform oxygen therapy. If breathing or heartbeat stops, perform artificial respiration (avoid mouth-to-mouth) and external chest compressions immediately. Seek medical attention.</p>		
Emergency Evacuation	<p>Evacuate all non-emergency personnel. For pipeline leaks within the plant, establish a danger zone with warning tape. No vehicles or unauthorized personnel are allowed in the tank area or danger zone. All maintenance work must be stopped in these areas.</p>		





## Properties of CS<sub>2</sub> (Excerpt)

Identification	Chinese Name: CS <sub>2</sub> (Carbon Disulfide, Er Liu Hua Tan)	English Name: Carbon disulfide; Carbon bisulfide
	Molecular Formula: CS <sub>2</sub>	Molecular Weight: 76.14 UN No.: 1131
	Hazard Class No.: 31050	RTECS No.: CAS No.: 75-15-0
Physical and Chemical Properties	Appearance & Shape: A colorless or light yellow transparent liquid with a pungent odor, highly volatile.	
	Melting Point (°C): -111.5	Relative Density (Water: 1): 1.26
	Boiling Point (°C): 46.3	Relative Vapor Density (Air: 1): 2.63
	Saturated Steam Pressure (kPa): 53.32 (28°C)	Heat of Combustion (kJ/mol): 1029.4
	Critical Temperature (°C): 280	Critical Pressure (MPa): 7.39
	Octanol/Water Partition Coefficient: 1.86, 1.93, 2.16	
	Solubility: Insoluble in water, soluble in ethanol, ether, and most organic solutions.	
Flammability and Explosion Hazards	Flash Point (°C): -30	Ignition Temperature (°C): 90
	Lower Explosive Limit [(% V/V)]: 1.0	Maximum Explosion Pressure (MPa):
	Upper Explosive Limit [(% V/V)]: 60.0	Polymerization Hazard: Does not polymerize
	Minimum Ignition Energy (MJ):	Stability: Stable
	Taboos: Strong oxidizing agents, amines, alkali metals	
	Hazard Classification: Class 3.1 – Low flash point liquid	
	Fire Extinguishing Methods: Use mist water, foam, dry powder, carbon dioxide, or sand to extinguish the fire. Firefighting Precautions & Measures: Firefighters must wear self-contained breathing apparatus and full-body protective clothing resistant to fire and poison. Cool containers with water spray. If possible, move containers from the fire area to an open space. If the container in the fire scene has changed color or generated sound from the safety relief device, on-site individuals must be evacuated immediately. Water alone is ineffective for extinguishing.	

## Risk Assessment of Storage Units at VFY Plant

Unit Name	Stored Medium	Storage Quantity (t)	Major Hazard Source?	Possible Causes of Incident	Consequences / Pollution Type / Severity Level
1# Intermediate Library	CS <sub>2</sub>	110	Yes	1. Flange leakage at pipe connections 2. Pipe damage due to external factors or corrosion 3. Fire caused by open flame	Leakage / Water pollution, air pollution, personnel injury / Level II~IV
2# Intermediate Library	CS <sub>2</sub>	200	Yes		
3# Intermediate Library	CS <sub>2</sub>	80	No		
Refining Unit	CS <sub>2</sub>	180	Yes		
Sulphuric Acid Storage Tank (Acid Station)	Sulphuric acid	240	No	1. Flange leakage at pipe connections 2. Pipe damage due to external factors or corrosion	personnel injury / Level III~IV
Caustic Soda Storage Tank (Alkali Station)	Sodium Hydroxide (NaOH)	300	No	1. Flange leakage at pipe connections 2. Pipe damage due to external factors or corrosion	Leakage / Water pollution, personnel injury / Level III~IV

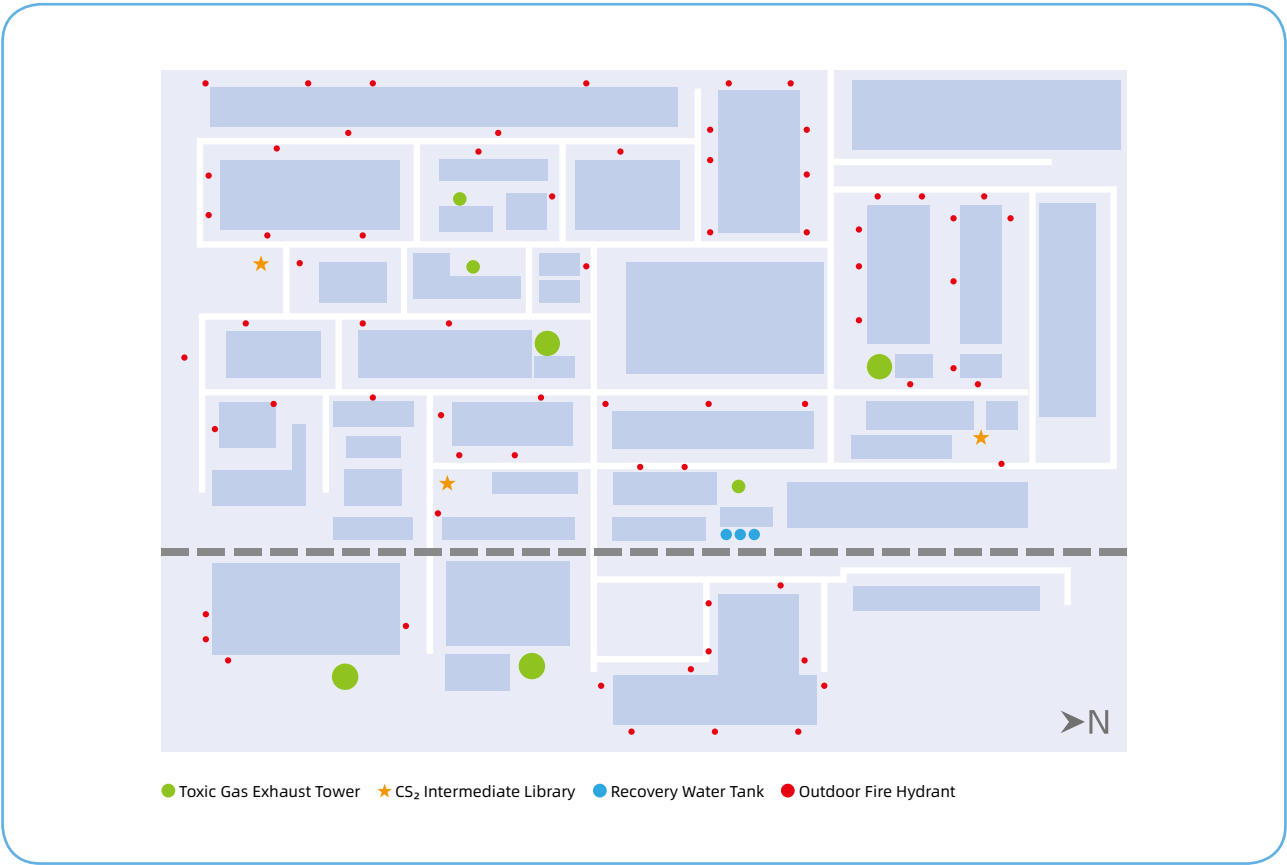




Risk Assessment of Transportation Units at VFY Plant

Unit Name	Medium	Possible Causes of Incident	Consequence	Pollution Type	Pollution Level
CS <sub>2</sub> Pipeline	CS <sub>2</sub>	1. Flange leakage at pipe connections	Leak	Water pollution, Air pollution	Level IV
		2. Pipe damage due to external factors or corrosion	Leak	Air pollution, Water pollution	Level III~IV
		3. Fire caused by open flame	Fire, Explosion	Personnel injury, Air pollution, Water pollution	Level II~III
Sulphuric Acid Pipeline	Sulphuric acid	1. Flange leakage at pipe connections	Leak	Water pollution, Air pollution	Level IV
		2. Pipe damage due to external factors or corrosion	Leak	Air pollution, Water pollution	Level III~IV
NaOH Pipeline	Sodium Hydroxide (NaOH)	1. Flange leakage at pipe connections	Leak	Water pollution, Air pollution	Level IV
		2. Pipe damage due to external factors or corrosion	Leak	Air pollution, Water pollution	Level III ~ IV

Plant Layout and Risk Source Location Map



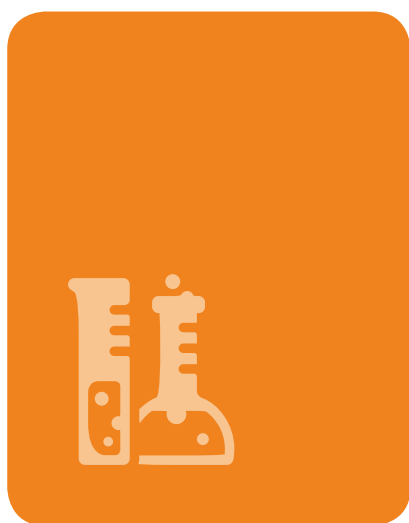


## Hazardous Chemicals Management

To strengthen the management of hazardous chemicals, prevent fire, explosion, and poisoning incidents, and ensure the safety of employees and company assets, Jilin Chemical has established both company-level and workshop-level regulations for the control of hazardous chemicals. These regulations cover the entire lifecycle of hazardous chemicals, including procurement, acceptance, storage, distribution, use, and disposal of packaging materials.

Company-level regulations include *Hazardous Chemicals Management System*, *Safety Management Regulation for Hazardous Chemicals Pipelines*, and *Safety Management and Control System for Transportation and Unloading of Hazardous Chemicals*.

Workshop-level regulations include *Control Regulation for Hazardous Chemicals in Quality Inspection Department*, *Management Regulation for Hazardous Chemicals in Power Workshop*, *Regular Inspection Management and Control System for Hazardous Chemicals Pipelines in VFY Workshop I*, and *Regular Inspection Management and Control System for Hazardous Chemicals Pipelines in VFY Workshop III*.



## 03. Emergency Drills

To enhance emergency response capabilities in the event of sudden accidents, Jilin Chemical conducted multiple emergency drills during the reporting period. For example, an emergency drill on major hazard sources (CS<sub>2</sub> leakage and fire) was organized to simulate a scenario where CS<sub>2</sub> leaks due to corrosion of valve flange gaskets and loose bolts in the intermediate tank at the acid station power workshop, followed by a fire caused by failure of the emergency shutoff valve. The drill focused on testing the feasibility of the emergency plan, readiness of emergency resources, coordination among response teams, and on-site handling capabilities. Through these exercises, Jilin Chemical identified shortcomings, improved emergency plans, enhanced employees' risk awareness, and strengthened their ability to conduct self-rescue and mutual rescue. This ensures efficient response and minimizes losses when actual incidents occur.



During the reporting period



A total number of **165** emergency drills related to hazardous chemicals were organized.

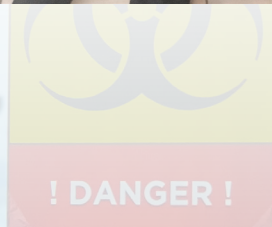




Fire and Explosion  
Emergency Response Drill  
in the new viscose dope  
workshop (xanthation  
area)



CS<sub>2</sub> Leak Poisoning and  
Asphyxiation Emergency  
Response Drill in the  
Metering Room of VFY  
Workshop





# 4

## Innovative Green Fibers

Guided by its sustainability vision, Jilin Chemical has built a closed-loop across its entire production chain, promoting deep integration of green procurement and circular economy practices. By engaging in transparent value chain cooperation and interacting deeply with stakeholders, Jilin Chemical continues to inject green momentum into the global textile industry, leading the sector toward efficiency and sustainability.







# 01. Supplier Management

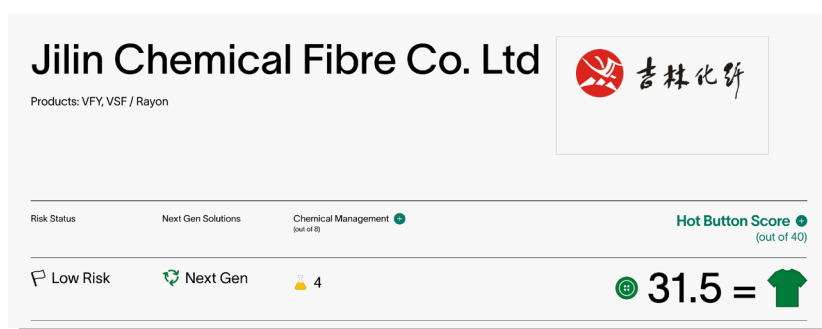
Jilin Chemical practices low-carbon and environmentally friendly principles in procurement, comprehensively evaluating environmental protection and resource conservation factors. The Company prioritizes the purchase of raw materials, products, and services that benefit the environment. The Company has formulated the Group Company Supplier Evaluation System, Procurement Process Control System, and Assessment and Management Standard for Pulp Supplier, which cover the management of various parts such as the construction of the supplier network, the supplier registration process, and supplier evaluation, leading to the closed-loop supplier management system.

## Fiber Procurement Policy

Regarding procurement of wood pulp and bamboo pulp, we have formulated the Fiber Procurement Policy, committed to playing a leading role in the dissolving pulp and fiber industry. We have been working with our dissolving pulp supplier to promote sustainable forest management and protect ancient and endangered forests. Suppliers are evaluated based on multi-dimensional performance indicators, and higher-rated suppliers are given priority in procurement. Jilin Chemicals Fiber continuously increases the proportion of PEFC™ CoC and FSC® CoC certified wood pulp purchases and phases out D-grade suppliers.



In 2024, Jilin Chemical earned 31.5 Canopy hot buttons, with a total annual procurement volume of 153,169.6 tons (t) of dissolving pulp, of which 64.5% was certified or controlled under FSC/PEFC standards.



To accelerate the realization of its sustainability vision, Jilin Chemical has set the goal of "achieving 50% alternative raw material by 2035". In 2024, the Company procured 3,500 metric tons of bamboo pulp. When procuring cotton pulp, we give priority to the suppliers that have passed the Recycled Claim Standard (RCS) certification and continue to increase the proportion of recycled cotton pulp. In 2024, the Company procured 1,786.12 metric tons of cotton pulp.





## List of Dissolving Pulp Suppliers (VFY)

No.	Dissolving Pulp Name	Supplier Name	Manufacturer	Country
1	Chemical Wood Pulp (Dissolving Grade)	BORREGAARD	BORREGAARD AB	Norway
2	Chemical Wood Pulp (Dissolving Grade)	EKMAN & CO AB	DOMSJO FABRIKER AB	Sweden
3	Chemical Wood Pulp (Dissolving Grade)	AUSTROCEL HALLEIN GMBH	AUSTROCEL HALLEIN GMBH	Austria
4	Chemical Wood Pulp (Dissolving Grade)	EKMAN & CO AB	SODRA SKOGSAGARNA EKONOMISK FORENING	Sweden
5	Chemical Recycled Pulp (Dissolving Grade)	EKMAN & CO AB	RE:NEWCELL AB	Sweden
6	Chemical Bamboo Pulp (Dissolving Grade)	Fujian Qingshan Paper Industry Co., Ltd.	Fujian Qingshan Paper Industry Co., Ltd.	China

## List of Dissolving Pulp Suppliers (VSF)

No.	Dissolving Pulp	Supplier Name	Manufacturer	Country
1	Chemical Wood Pulp (Dissolving Grade)	PULP TRADING GMBH	LENZING BIOCEL PASKOV A.S.	Czech Republic
2	Chemical Wood Pulp (Dissolving Grade)	Sappi Papier Holding GmbH	Sappi Saiccor mill 、 Sappi Ngodwana milland Sappi USA	South Africa
3	Chemical Wood Pulp (Dissolving Grade)	EKMAN & CO AB	CAIMA INDUSTRIA DE CELULOSE,S.A.	Portugal
4	Chemical Wood Pulp (Dissolving Grade)	CELULOSA ARAUCO Y CONSTITUCION S.A.	CELULOSA ARAUCO Y CONSTITUCION S.A.	Chile
5	Chemical Bamboo Pulp (Dissolving Grade)	Fujian Qingshan Paper Industry Co., Ltd.	Fujian Qingshan Paper Industry Co., Ltd.	China



## 02. Sustainable Product Innovation

Jilin Chemical regards innovation as the core driving force behind its development. By continuously researching new technologies and processes, actively introducing and upgrading equipment, the Company improves product quality and performance while ensuring environmental protection and efficiency throughout production. This enables the Company to meet diverse market demands. We focus on upgrading the VFY of "fine denier", "large-scale", "continuity" and "homogenization" and developing differentiated VSF, aiming to inject more green, efficient, and environmentally friendly elements into the global viscose fiber industry.



### During the reporting period

The Company invested

**57.66** million yuan

in research and development (R&D).



Filed **4** new patents, and had **4** patents granted, bringing the total number of filed patents to **50**, with **44** currently in effect.

A total of **14** R&D projects

were conducted during the year.

Technology Transfer Rate: Out of **14** R&D projects, **6** were successfully commercialized, achieving a technology transfer rate of **42.8%**.

During the reporting period, Jilin Chemical developed a range of new products for application in the high-end artificial silk lining fabric and premium velvet markets, including color-fast dyesafe products, 50D1F and 50D2F fine-denier low-hole fibers, and 150D and 300D slub yarns. All of these products have successfully achieved technology transfer and commercialization.

No.	Product Fields	Main Content
1	Artificial Silk Lining Fabric	To meet the dyeing requirements of high-end lining fabrics, Jilin Chemical developed the 75D Platinum Horse premium lining fabric yarn (cake-wound package). The upgraded anti-bright filament lining fabric has been recognized by key customers such as Yi Shin and Xinmin.
2	Premium Velvet	Varieties such as 75D/30F and 120D/40F were optimized through improved homogeneity parameters in spinning, low-temperature long-duration drying, and low-tension winding. These processes enabled stable production of the Platinum Horse color-fast series, which replaced German-made Enka fibers in top-tier Korean velvet applications and entered into batch repeat orders.

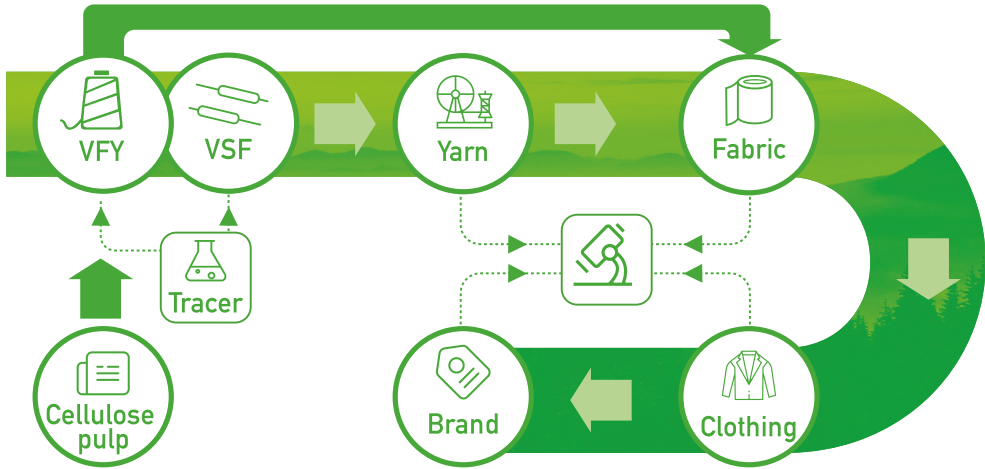






## Tracer Technology

Jilin Chemical has developed a textile tracer technology with independent intellectual property rights. By adding tracers during the fiber production process, tracer components are evenly distributed in the fibers. Textiles produced using Jilin Chemical's viscose fiber can be qualitatively and quantitatively identified at each stage, including yarn, fabric, and garment, which ensures traceability throughout the entire process from raw materials to end products.



Jilin Chemical integrates the principles of circular economy into its product development. Starting from the raw material stage, the Company applies more sustainable materials and cleaner production processes, building a transparent and sustainable product value chain that supports the creation of diverse low-carbon and sustainable brands.

## Innovative Products

To date, Jilin Chemical has launched a variety of branded products to meet different performance and application needs, including Jirecell™, Ecojilin™, Ecobamboo™, Jicell™, Tanboocel®, Platinum Horse®, White Mountain®, Siwear®, Color®, and AIWA®. These brands reflect Jilin Chemical's commitment to innovation and sustainability across multiple market segments.



Product Category	2024 Production Output (tons)
VFY	71125
VSF	103514



## JIRECELL™



### Wide Range of Varieties

Available from 75D to 1200D, lustrous/non-lustrous, continuous VFY/centrifugal VFY.



### Certified Materials

Made using RCS-certified recycled textile pulp.



### Traceable & Testable

Utilizing molecular traceability technology, professional test reports can be issued, enabling full transparency and traceability across the entire supply chain.

The product comprises 30% CIRCULOSE® recycled textile pulp and 70% FSC Chain of Custody certified wood pulp. By retaining the natural characteristics of excellent air permeability, hygroscopicity, and softness, Jirecell™ achieves circular reuse of waste textiles in the regenerated cellulose fiber field through optimized product structure. This gives new life to some old materials, reduces dependence on forest resources, and lowers cellulose production — contributing to carbon-free production and promoting a sustainable textile supply chain.

Jirecell™ has achieved industrial-scale mass production, with a wide range of product varieties. It supports production in denier ranges from 75D to 1200D, and can be manufactured as both lustrous and non-lustrous VFY, using either continuous or continuous centrifugal spinning processes.

## Further Reading: CIRCULOSE®

CIRCULOSE® is a type of pulp made from discarded textiles, such as used clothing, denim fabric, or textile waste. It is RCS-certified, biodegradable, and its production process consumes only 25% of the water and electricity required in conventional wood pulp production. It has a carbon footprint of -2 kg CO<sub>2</sub>e/kg, and can be blended with wood pulp during fiber production.

## EcoJilin™



## Circular Regeneration: Injecting Green Original Power

Made from **100%** natural cotton linter pulp

It is produced using agricultural waste — cottonseed floss as raw material, which is recycled and processed into pulp. This method can save 15–20% of cotton farmland. 95% of production water is effectively recycled. Through technological upgrades such as circulating water heat recovery and exhaust air waste heat recovery, the process achieves an annual energy saving of 24,133 tce.

The product has soil biodegradability. In soil degradation testing, after 178 days, the relative biodegradation rate reached 93.04% compared to standard samples - exceeding the testing standard requirement of 90%.

It is compatible with molecular traceability technology, detectable by third-party authoritative institutions. Professional test reports and certification letters can be issued for samples containing more than 50% Ecojilin™, enabling full supply chain transparency and traceability.



## Jicell™



Made from **100%** FSC® CoC certified wood pulp

it features excellent hygroscopicity, air permeability, and anti-static properties, offering broad application prospects in the textile, apparel, and home goods sectors.

## ECOBAMBOO™



The bamboo used in ECOBAMBOO™ is sourced through a traceable supply chain, ensuring that all materials are FSC-certified and meet the standards of organic bamboo forest management. The producer has received the Canopy Green Shirt Award and complies with the China Tanboocel Union's Bamboo Forest Management standard.

### LCA

Life Cycle Assessment  
acquired in 2016

ECOBAMBOO™ emphasizes the use of clean energy during production, with over 60% of the electricity used coming from renewable energy sources. 95% of production water is effectively recycled. In LCA evaluations, ECOBAMBOO™ has earned the Green Leaf Mark.

### Ø ZDHC

ECOBAMBOO™ achieves zero discharge of hazardous chemicals during production and is a ZDHC implementer.



ECOBAMBOO™ meets the highest international standards for sustainable textile production, having received OEKO-STeP Best Practice Example certification, and carries the "Green Manufacturing" mark.



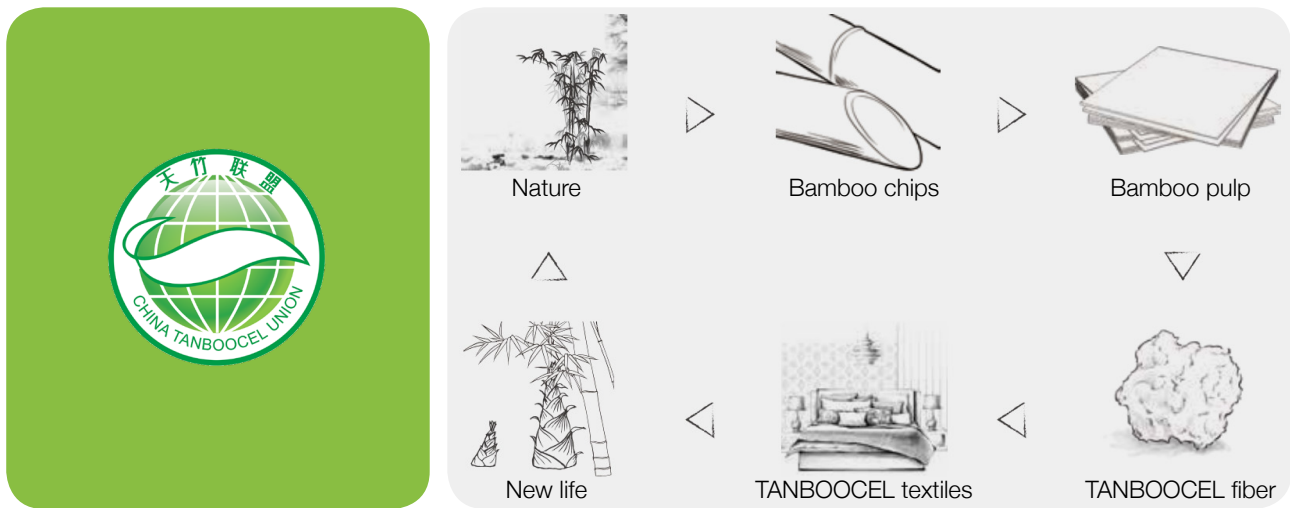
ECOBAMBOO™ ensures that all supplied products meet social responsibility standards, providing assurance of ecological product safety, and has obtained certifications including SA8000 and OEKO-TEX Standard 100.

### EU-BAT

ECOBAMBOO™ promotes sustainability and builds an environmentally friendly production system, recognized in the EU's Best Available Techniques (BAT) assessment report.



## TANBOOCEL Ecosystem



Jilin Chemical has always been committed to the development philosophy of “co-creating value and achieving mutual growth and shared success”. It regards extending and expanding the industrial chain as one of the four key pillars of its sustainable development, continuously deepening collaborative innovation across the entire value chain and enhancing overall value creation.



### Exhibition Activities

A total of **19** events were held throughout the year:

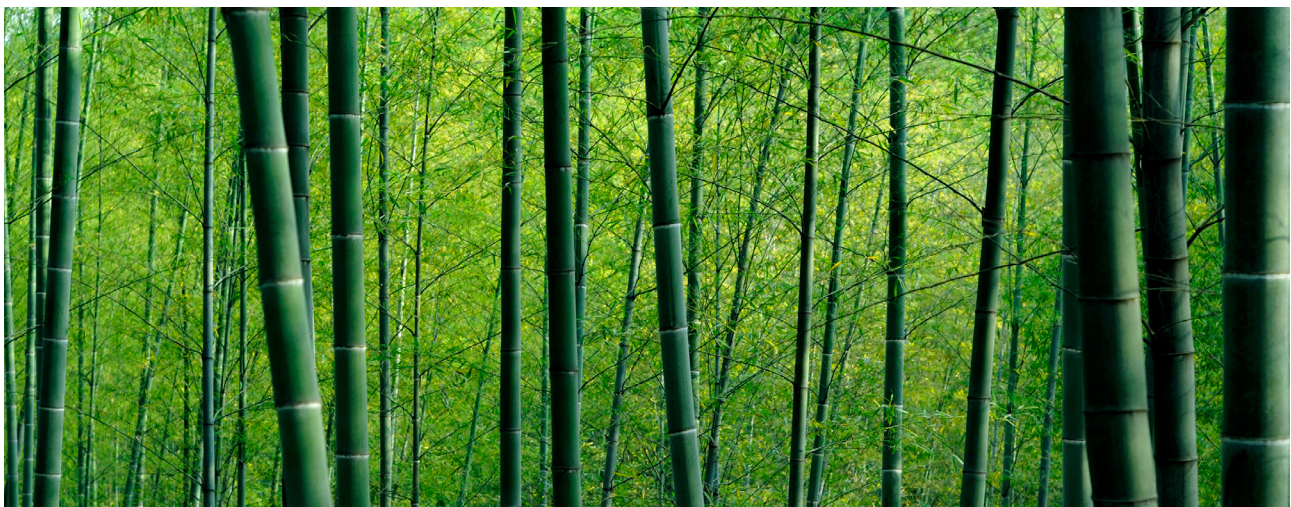
- Professional Exhibitions (e.g., Shanghai Yarn Expo, China (Shenzhen) International Brand Underwear Fair, etc.) - 10
- Industry Forums - 5
- New Product Launches - 2
- “Eradicate Fakes, Promote Authenticity” Campaign - 2



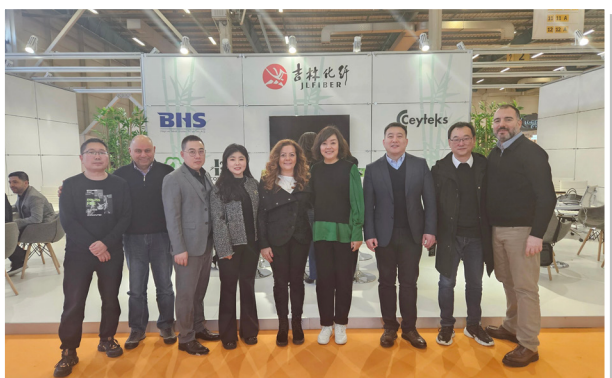
### Industrial Chain Collaboration

Convene **12** special meetings:

- Developed new bamboo cellulose blended fabrics (as a substitute for linen fibers)
- Launched the colored TANBOOCEL product series
- Promoted vortex spinning technology







**February 22–24**, Jilin Chemical participated in YARN FAIR — International Yarn Fair, Istanbul, Turkey



**March 6–8**, Jilin Chemical participated in the Yarn Expo Spring



**April 19–21**, Jilin Chemical participated in the 19th China (Shenzhen) International Brand Underwear Fair



**May 15–17**, Jilin Chemical participated in the 31st China International Disposable Paper Expo



**On August 9**, Jilin Chemical hosted the Tanboocel Union Fibers Fashion Trends 2024/2025 Show





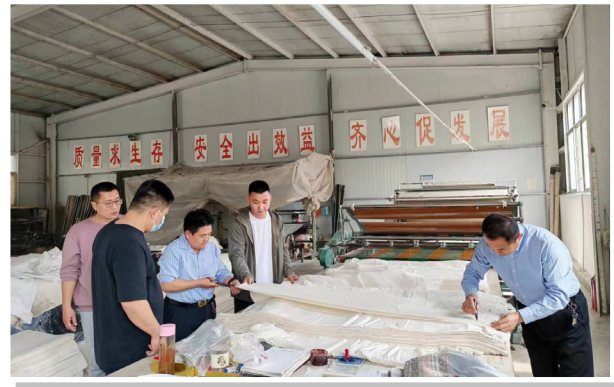
**On August 28**, Jilin Chemical successfully held the Low-Carbon "Bamboo" Trace - To Shape New Advantages of Tanboocel Green Development with New Quality Productivity"



**On September 25**, Jilin Chemical held the Tanboocel Fiber Bedding Product Development Seminar



**On November 26**, Jilin Chemical held the China Textile E-commerce Hosiery Innovation Salon (first session)



"Eradicate Fakes, Promote Authenticity" Campaign

## Première Vision Paris (PV Exhibition)

**In July 2024**, Jilin Chemical participated in the prestigious Première Vision Paris - a global textile and fashion flagship event held at the Paris Nord Villepinte Exhibition Center in France. As a leader in China's viscose filament yarn industry, Jilin Chemical presented a range of eco-friendly innovative products and cutting-edge technical solutions at the exhibition. It highlighted the potential of sustainable materials to the global fashion supply chain, garnering significant attention and partnership interest from international customers.



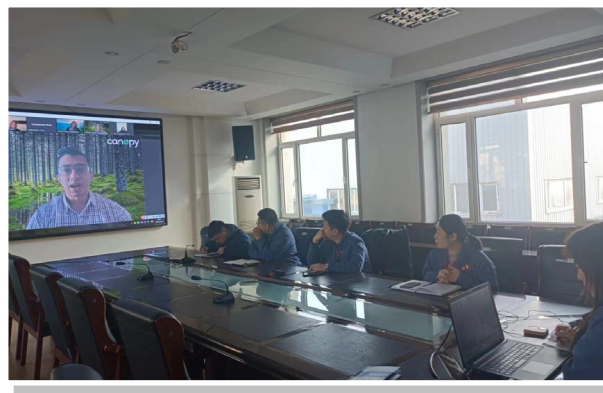


## Stakeholder communication

Jilin Chemical has consistently enhanced cooperation with stakeholders by implementing multiple initiatives in sustainability, marketing, and information disclosure. These efforts have driven green innovation, product promotion, and transparent communication, achieving mutual benefits for all parties involved.



**On March 11**, Jilin Chemical held the kickoff meeting for its SA8000 certification, where people in charge from the joint-stock company's board engaged in discussions with auditors from the certification company.



**On March 20**, people in charge from the joint-stock company held a video conference with Canopy certification representatives to discuss certification issues, exchange opinions, and determine certification-related matters.



**On March 27**, people in charge from the joint-stock company attended the Changchun Customs Advanced Certification Enterprise Symposium.



**On April 26**, Jilin Chemical joined the CV's "Green Production Tour - Xinxiang Chemical Fiber Station" initiative.



**On May 21**, the US SA8000 headquarters supervised the remote audit, and the relevant departments of joint-stock company communicated online with the US SA8000 through a Teams remote conference.



**On July 23**, an auditor of the Higg Environmental Certification company conducted an on-site review at Jilin Chemical, engaging with the Production and Environmental Protection Department, General Department, and Safety Department of the joint-stock company.





**On August 9**, Jilin Chemical hosted the "Chinese New Aesthetics, Viscose Splendor" Viscose User Symposium, which drew over 300 customers from home and abroad.



**On September 24**, the kickoff meeting for RCS certification was held, with the Sales Center, Procurement Center, Production and Environmental Protection Department, and General Management Department participating in the exchange with the certification company.



**On October 21**, an H&M certification auditor conducted the first on-site review at Jilin Chemical Fiber Stock Co., Ltd., meeting with relevant departments of the joint-stock company and conducting on-site exchanges.



**On October 29**, OEKO STeP certification auditors conducted an on-site audit, with the Company's relevant technical departments communicating with them.

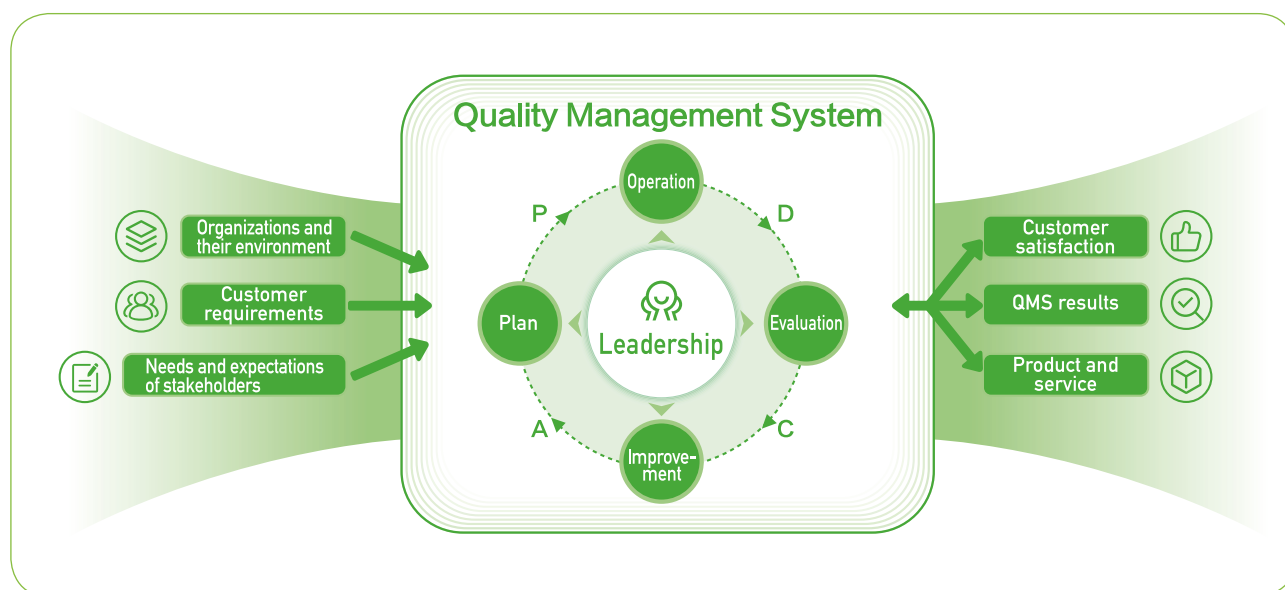


**On December 16**, Jilin Chemical underwent external audits for its ISO 9001/27001/14001/45001 Integrated Management Systems (ISO Quadruple System Certification). Relevant departments of the Company engaged with certification auditors, providing necessary documentation on-site and discussing relevant matters.



### 03. Quality Assurance and After-sales Service

Creating reliable products and protecting the rights and interests of customers are our solemn corporate commitments. Jilin Chemical upholds the principle that "Products Represent Reputation, Quality Forms the Foundation". By implementing a PD-CA-cycle-based quality management system, the Company ensures comprehensive quality control across every stage from production to delivery. It implements the ISO 9001 Quality Management System and conducts 100% inspection at critical process points.

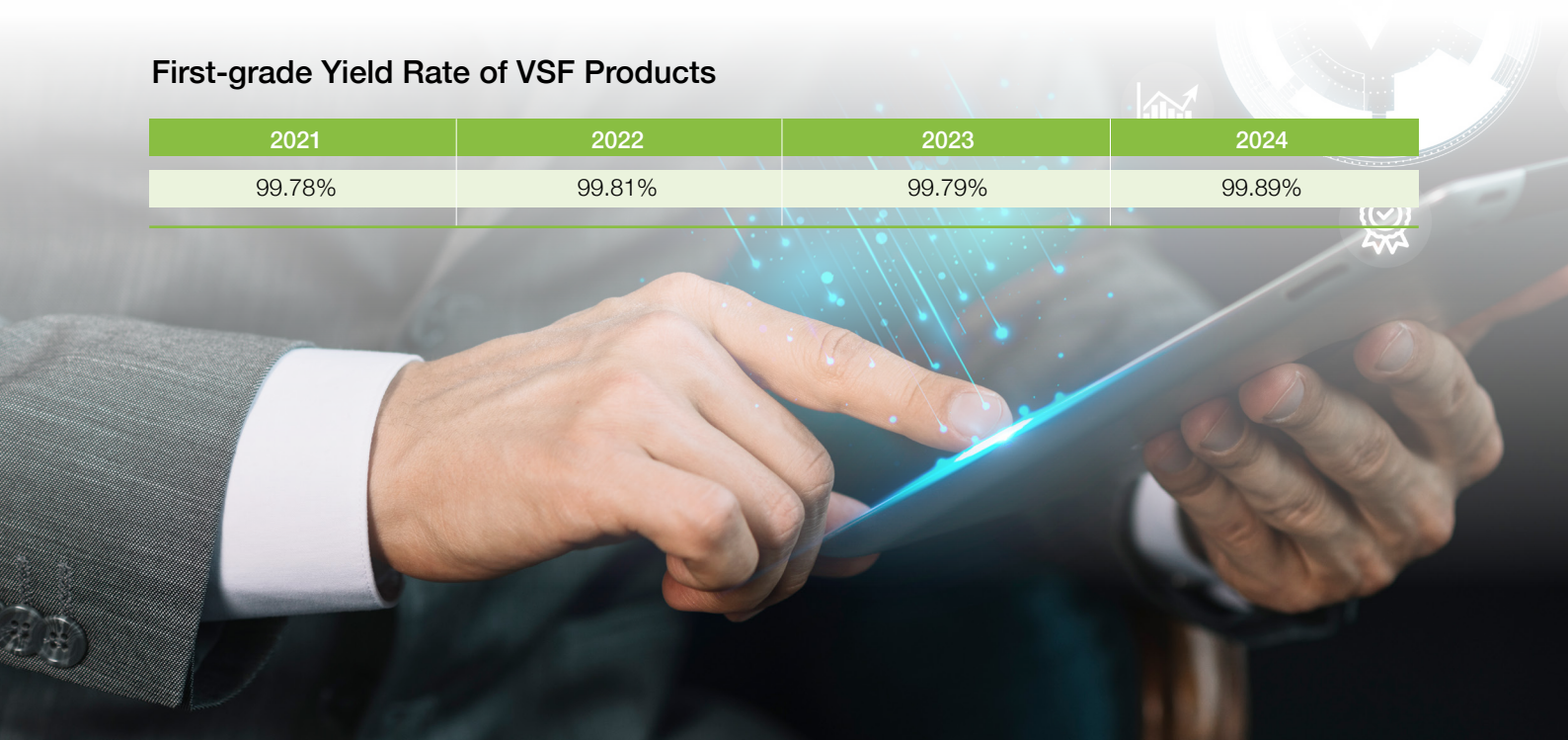


#### Grade A Yield Rate of VFY Products

	2021	2022	2023	2024
Continuous VFY	98.83%	98.86%	98.89%	98.94%
Centrifugal VFY	98.45%	98.53%	98.54%	98.87%

#### First-grade Yield Rate of VSF Products

2021	2022	2023	2024
99.78%	99.81%	99.79%	99.89%





## Control of Non-conforming Products

The Company has established a *Management System for Non-Conformity, Correction and Preventive Measures* to ensure the identification and control of non-conforming products and services, thereby preventing unintended use or delivery of non-conforming products.

The Company takes appropriate actions based on the nature of the non-conformity and its impact on products and services. This also applies to non-conforming products identified post-delivery and non-conforming services detected during or post-provision. Products with unmarked or questionable status should also be classified as non-conforming products and services.

## Responsible marketing

As global awareness of environmental protection and social responsibility continues to grow, sustainable development has become a key driver of corporate growth. Jilin Chemical is committed to integrating the concept of sustainable development into product marketing, promoting green development across both society and the economy. The Company pledges to uphold the following principles throughout product development, manufacturing, and sales:

**1. Environmentally Friendly:** Eco-friendly materials and processes shall be adopted to reduce energy consumption and environmental pollution during the production process. The Company's products shall be designed to help users reduce carbon emissions while increasing resource efficiency, contributing to a greener planet.

**2. Social Responsibility:** The Company shall respect labor rights and safeguard the legitimate rights and welfare benefits of its employees. Meanwhile, it shall actively participate in social welfare initiatives and contribute its own strength to the harmonious development of society.

**3. Economic Feasibility:** The Company shall pursue a win-win situation for both economic and social benefits, focusing on cost control and efficiency improvement, providing consumers with cost-effective products, and ensuring corporate sustainability.

## Customer Service and Support Assurance

Jilin Chemical is committed to providing customized services to its customers, offering comprehensive support throughout pre-sales, in-sales, and after-sales processes. The Company highly values customer opinions and suggestions, establishing dedicated channels for complaints and feedback. It has implemented a mature feedback and product recall system, collecting customer feedback year-round. The Company promptly addresses inquiries and complaints regarding information protection and actively takes measures to improve and optimize its services. The Company continues to standardize the process of handling after-sales issues to ensure that every customer can enjoy professional and considerate services.



In 2024

The customer  
complaint rate was  
**0.5%**



With a **100%** complaint resolution rate  
and **100%** satisfaction rate in complaint handling.

## Customer Information Protection

Jilin Chemical strictly adheres to relevant laws and regulations and has established a comprehensive information security management system. By employing advanced encryption technologies and security measures, it ensures the confidentiality, integrity, and availability of customer information. Customer information is only utilized within lawful and compliant boundaries. The Company will neither disclose customer information to any third parties nor use it for purposes unrelated to product marketing. Its operations guarantee the legality and compliance of customer information, ensuring its secure and proper custodianship.



# 5

## Fulfilling Social Responsibility

As an integral part of society, the Company recognizes that its growth is intrinsically linked to social support. The Company actively engages in philanthropic activities, bolsters local economic growth, and leverages its industrial chain to foster the development of both local businesses and communities.





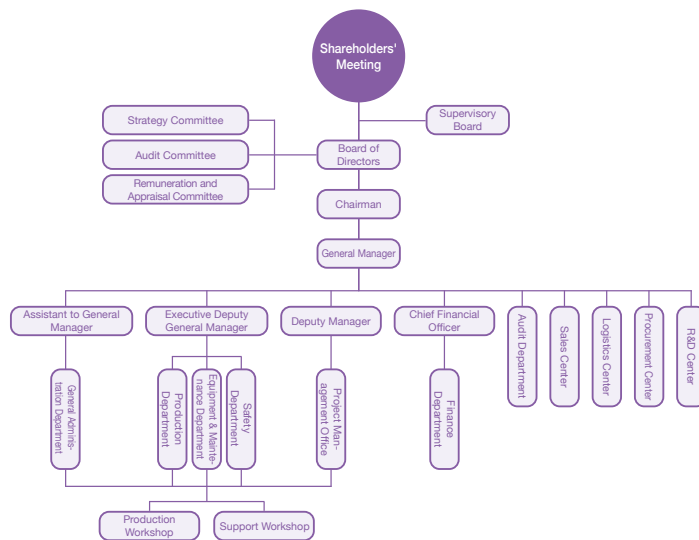


# 01. Corporate Governance

## "Three Meetings and One Tier" Standardized Governance

Jilin Chemical strictly complies with the Company Law of the People's Republic of China, the Securities Law of the People's Republic of China, the Corporate Governance Code for Listed Companies, the Basic Standards for Enterprise Internal Control, as well as relevant regulations and requirements set forth by the China Securities Regulatory Commission (CSRC) and the Shenzhen Stock Exchange. Under the proper leadership of the Party Committee, the company's Board of Directors has continuously strengthened corporate governance awareness and improved governance structures. The actual operations of the company align with the normative regulatory requirements on corporate governance issued by the CSRC.

During the reporting period, the company's three committees and one level attached great importance to standardized operations. In accordance with the revision of relevant laws and regulations and the needs of the company's development, the company revised its Articles of Association, further improved its corporate governance structure, and enhanced its level of standardized operations.



During the reporting period,  
the Company convened:

**3** Shareholders' Meetings, **7** Board of Directors Meetings, **6** Supervisory Committee Meetings.

**6** Special Committee Meetings, including:  
**4** Audit Committee Meetings, **2** Compensation & Evaluation Committee Meetings, **1** Strategy Committee Meeting.

Key Governance Metrics:

**98** resolutions adopted and disclosed (100% implemented)

Board composition:

**11** Directors (including **4** Independent Directors, **36%**)

**1** Female Director (**9%** gender diversity)

## Business ethics

The Company steadfastly adheres to the principles of integrity-driven operations and green development, strictly complying with national laws, regulations and industry standards. The Company maintains a quality-first, customer-centric approach while safeguarding employee rights and actively fulfilling environmental responsibilities. Through transparent management practices, it builds a sustainable supply chain system and promotes the healthy development of the industry with high business ethics standards.

## Anti-commercial bribery and anti-corruption

The Company rigorously fulfills its commitments to combating commercial bribery and anti-corruption, establishing a multi-level internal control system and compliance management framework. It routinely conducts integrity education programs, maintains streamlined reporting channels for oversight, strengthens risk prevention and control through independent audits, and upholds a zero-tolerance stance to safeguard a fair and transparent business ecosystem.

## Due diligence

The Company has institutionalized due diligence as a core management process, strictly adhering to domestic and international laws and regulations. Through full-process compliance reviews, multi-dimensional risk identification, and third-party professional assessment, it ensures the legality and compliance of its supply chains and business partners. It also establishes an information disclosure mechanism and regular training systems. These efforts effectively maintain market order and promote sustainable development.

## Equal treatment of SMEs

The Company upholds the principles of fair cooperation and works to create an equitable and transparent business ecosystem. In supply chain management, it implements non-discriminatory access mechanisms supported by standardized processes, targeted assistance policies, and technological empowerment. These initiatives aim to help small and medium-sized enterprises reduce operational costs, enhance efficiency, foster collaborative innovation, and jointly maintain a healthy and orderly competitive market environment.

## Science and technology ethics

The Company's business operations do not involve scientific research, technological development, or other activities in ethically sensitive technological fields such as life sciences and artificial intelligence.



## 02. Employees

Employees are the cornerstone of our company's long-term prosperity. Jilin Chemical prioritizes the reform of industrial workforce development in the new era through a tripartite governance model: "Party Committee leadership, executive management support, and trade union coordination". This institutionalized framework ensures long-term, regular and systematic advancement in industrial workforce development, fostering collaborative oversight and synergistic implementation across all organizational levels.

Total Number of Employees	4110
<b>Gender</b>	
Male Employees	3061
Female Employees	1049
<b>Age</b>	
Employees Under 30 Years Old	677
Employees Aged 30-50	3225
Employees Over 50 Years Old	208

## Strengthening Ideological Political Guidance and Uniting Employee Momentum

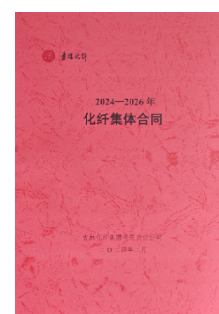
Jilin Chemical steadfastly educates and leads employees through the Party's innovative theories and the spirit of the times. By leveraging both online and offline platforms, it disseminates the guiding principles of the 20th National Congress of the Communist Party of China (CPC) and the 18th National Congress of the All-China Federation of Trade Unions (ACFTU), fostering employees' political, ideological, and emotional alignment. The Company enhances Party-building within the industrial workforce, expanding party organizational coverage and cultivating frontline backbones as party members. It gives full play to the demonstration role of party members' vanguard posts and assault teams in project construction and technical transformation. Simultaneously, the Company vigorously promotes the ethos of model workers, labor, and craftsmanship, utilizing various media channels to highlight corporate culture and advanced role models, thereby cultivating an environment that honors labor, knowledge, talent, and creativity.





## Safeguarding Employees' Mastery Status and Protecting Occupational Safety and Health Rights

Jilin Chemical strictly implements national and local laws and regulations by fully integrating democratic management into its internal control system. The Company established three core mechanisms to protect the rights and interests of employees: First, it improves the system of employee representative conferences, which stipulates that major matters must be reported to the employee representative conference, with employee interest-related issues subject to its deliberation, supplemented by annual proposal collection, implementation, and feedback procedures. Second, it improves the collective consultation system which features a collective consultation leadership group. It consolidates three contract types into a unified "Collective Contract", with a supervision and inspection team holding two special meetings annually to ensure compliance. Third, it develops supporting systems, such as detailed implementation rules, to achieve standardized and normalized democratic management operations while effectively safeguarding employees' legal rights and interests.



## Equal Opportunity and Diversity

Jilin Chemical strictly adheres to laws and regulations, including the *Labor Law of the People's Republic of China*, the *Labor Contract Law of the People's Republic of China*, and the *Social Insurance Law of the People's Republic of China*, upholding the principle of equal employment while deepening democratic management. The Company continuously optimizes its employee compensation system, lawfully signs labor contracts with employees, provides social insurance contributions, and fully safeguards the legal rights and interests of every employee.

Guided by a people-oriented philosophy, Jilin Chemical complies with requirements of laws such as the *Trade Union Law of the People's Republic of China* and the *Provisions on the Prohibition of Using Child Labor*, having established a well-functioning trade union organization. It resolutely opposes and rejects unethical practices such as child labor and forced labor. The Company is dedicated to fostering a discrimination-free workplace environment that actively prohibits discrimination based on race, religion, gender, age, marital status, disability, or nationality.



### During the reporting period

Labor Contract  
Signing Rate (%)

**100%**

Employee Insurance  
Coverage Rate (%)

**100%**

Percentage of Female  
Executives (%)

**29%**

Employee Turnover  
Rate (%)

**7.4%**





### Higg SLCP Plant Verification

With completion rate at **97.7%**  
accuracy at **98.1%**

## Care for Women

Jilin Chemical prioritizes the protection of the rights and interests of female employees, strictly complying with laws and regulations including the *Law of the People's Republic of China on the Protection of Rights and Interests of Women*, the *Special Rules on the Labor Protection of Female Employees*, and the *Provisions on the Scope of Prohibited Labor for Female Employees*. It ensures that female employees receive due respect and protection at work. Women accounted for 29% of senior management positions during the reporting period. The Company has established and improved a compensation distribution system for skilled workers, protected occupational safety and health rights and interests, and implemented a work-hour, rest, and vacation system.

## Health and Safety

Occupational health and safety, as a cornerstone of an enterprise's sustainable development, is critical to employees' physical and mental health, as well as the enterprise's operational stability. Jilin Chemical has established a comprehensive, standardized, scientific and effective occupational health and safety management system, supported by institutional frameworks including the *Risk Classification Management Regulations*, *Occupational Health Management Regulations*, and *Emergency Response Regulations*. This system operates through the "Safety Standardization" protocol and "Dual Prevention Mechanism", reinforced by regular occupational health and safety training programs to continuously improve employees' health and safety awareness. As of the end of the reporting period, the Company has successfully obtained ISO 45001 Occupational Health and Safety Management System certification.



Core Safety  
Concept

Intrinsic Safety  
and Life First

Safety  
Responsibility  
Concept

Everyone is  
accountable for safety

Production  
Safety  
Policy

Safety First,  
Prevention Focused,  
Comprehensive Governance



During the reporting period

**100%**

coverage of occupational  
health and safety training

**100%**

compliance rate in  
occupational hazard  
factor detection

**0**

new cases of  
occupational  
diseases

**0**

fatalities from  
work-related  
injuries

**0**

severe  
work-related  
injury incidents



## Training and Education

Jilin Chemical fully implements safety education and training programs, strictly enforcing three-level safety education for new employees, factory orientation training for related parties (100% coverage), and regular company-level safety campaigns. The Company develops annual training plans based on regulatory requirements and employee needs, with a focus on strengthening special training such as risk management and control and emergency response, continuously improving all employees' safety awareness and protection capabilities. Simultaneously, it collaborates with professional institutions to standardize the implementation of special operations personnel training and qualification review management, ensuring that special operations are carried out in accordance with applicable laws and regulations.

### Training Content



Law on Prevention and Control of Occupational Disease

Occupational health awareness training

Company policies on occupational health

Proper use and maintenance of protective equipment

Emergency response procedures and basic skills

Case studies of workplace hazards



During the reporting period

**6,409**

employees trained

**100%**

employee participation

**100%**

front-line workers certified

## Standardization Initiatives

To strengthen occupational health and safety management, the Company has developed a standardized construction scheme based on national laws, regulations and actual conditions. In 2024, 3,401 on-duty employees underwent physical examinations, reflecting an increase of 52 compared to the previous year. Pre-employment physical examinations were administered to 127 new hires, while 229 retiring employees received exit physical examinations, achieving basic coverage with some exceptional cases missed. Occupational disease hazard detection was conducted in collaboration with third-party institutions, covering 11 projects and 309 monitoring points. The newly identified DMAC factor requires prioritized prevention and control measures.

To establish a comprehensive occupational health management system centered around three core objectives - perfecting physical examination mechanisms, enhancing hazard monitoring, and elevating management standards - standardized measures have been systematically implemented across three key dimensions: occupational health examinations, on-site detection, and administrative oversight. The phased implementation strategy has been executed through three progressive stages, supported by robust organizational structures, financial allocations, and professional staffing. This initiative seeks to optimize management frameworks, safeguard workforce well-being, and drive the Company's sustainable development, with dynamic adjustments made during implementation based on operational realities.







## Promoting Employee Skill Development and Building a Platform for Outstanding Achievements

Jilin Chemical has formulated a series of systems, including the Joint-Stock Company Employee Training Management and Control System, Key Energy Position Training System, and Joint-Stock Company Environmental Protection Training Management and Control System, with the core objective of enhancing employee skills. Tailored to the characteristics of various hierarchies, professions, and positions, the Company employs diversified training formats, fully allocates and utilizes employee education funds, and conducts employee training programs stratified by hierarchy, system, profession, and position. Key initiatives include cross-departmental, interdisciplinary, multi-position, and peer-level mentorship programs, knowledge-sharing events, and collaborative learning exchanges. These efforts provide robust talent support for the Company's operational management and sustainable development.



In 2024, the Company conducted comprehensive employee training with a total of **22,535** participant sessions, achieving **100%** training coverage and accumulating **285** hours of total training duration.



**1. Carry out labor competitions throughout the entire process.** The Company organized end-to-end labor competitions across eight key operational areas: production and operations, project construction, production safety, technical transformation and innovation initiatives, dual-foundation projects, three comprehensive safety management, equipment maintenance, and employee competency enhancement. By implementing target decomposition to individual positions and establishing a three-tier recognition system, these competitions effectively mobilized all staff to actively participate in a healthy competition dynamic of "comparing, learning, and surpassing each other".



**2. Carry out employee skills competitions.** Leveraging the "Jixian Cup" employee skills competition platform, the Company organizes skills contests at frontline positions and team skill competitions to build a full-cycle vocational skill development platform. This transforms the competitions into training grounds for knowledge-based, skilled, and innovative workers, laying a solid foundation of skilled talent for industrial development.



**3. Carry out multi-level technical and skill training.** Leveraging the platforms of Jilin Province New Materials Craftsman College and Jilin City High-performance Fiber and Composite Materials Craftsman College, the Company conducted activities such as expert lectures, mentorship pairings of 100 model worker-craftsman pairs, and training sessions by model workers and craftsmen. It organized model workers and craftsmen to mentor new employees by teaching them work ethics, technical expertise, and management skills through mentorship programs, resulting in a "1+N" demonstration and radiating effect.

**4. Carry out mass economic and technological innovation activities.** Focusing on the "Four Enhancements" project and leveraging Model Workers and Craftsmen Innovation Studios, the Company has organized initiatives such as "Five Small" campaigns, rationalization proposals, and the collection of advanced operational methods among frontline employees, establishing an innovation platform to encourage participation from all employees.

### Story of an Outstanding Female Role Model

Since joining the Company in 2000, Li Wan has risen from grassroots positions to become Deputy Director of the ninth VFY Production Workshop at Jilin Chemical Fiber Stock Co., Ltd.. With unwavering dedication and innovative spirit, she implemented the Company's "Three Warnings, Four Principles, Five Smalls" philosophy by designing tailored training programs and streamlining workflows to boost production efficiency. With her extensive experience, she meticulously manages and controls the production chains, focusing on quality improvement and technological innovation while leading her team to complete tasks with exceptional efficiency. Committed to continuous learning, she actively acquires emerging skills such as automation and proactively communicates with international technicians to refine her professional competencies. Her remarkable sense of responsibility and work ethic have earned her multiple honors over the years, including the Group's "Outstanding Individual" award and the title of "Excellent Communist Party Member", demonstrating the responsibility and style of a female role model in the new era.





## Facilitating Career Development Paths and Building a Multi-Dimensional Incentive System

In addition to its existing management hierarchy, Jilin Chemical has proactively expanded diversified career progression channels for employees in technical skills, professional expertise, and scientific research. The Company has established an evaluation system oriented toward innovation capabilities, quality standards, practical results, and value contributions. This comprehensive approach integrates political incentives, material rewards, and achievement-based recognition mechanisms. The Company also consistently implements vocational skill certification programs for industrial workers.

### Employee Growth

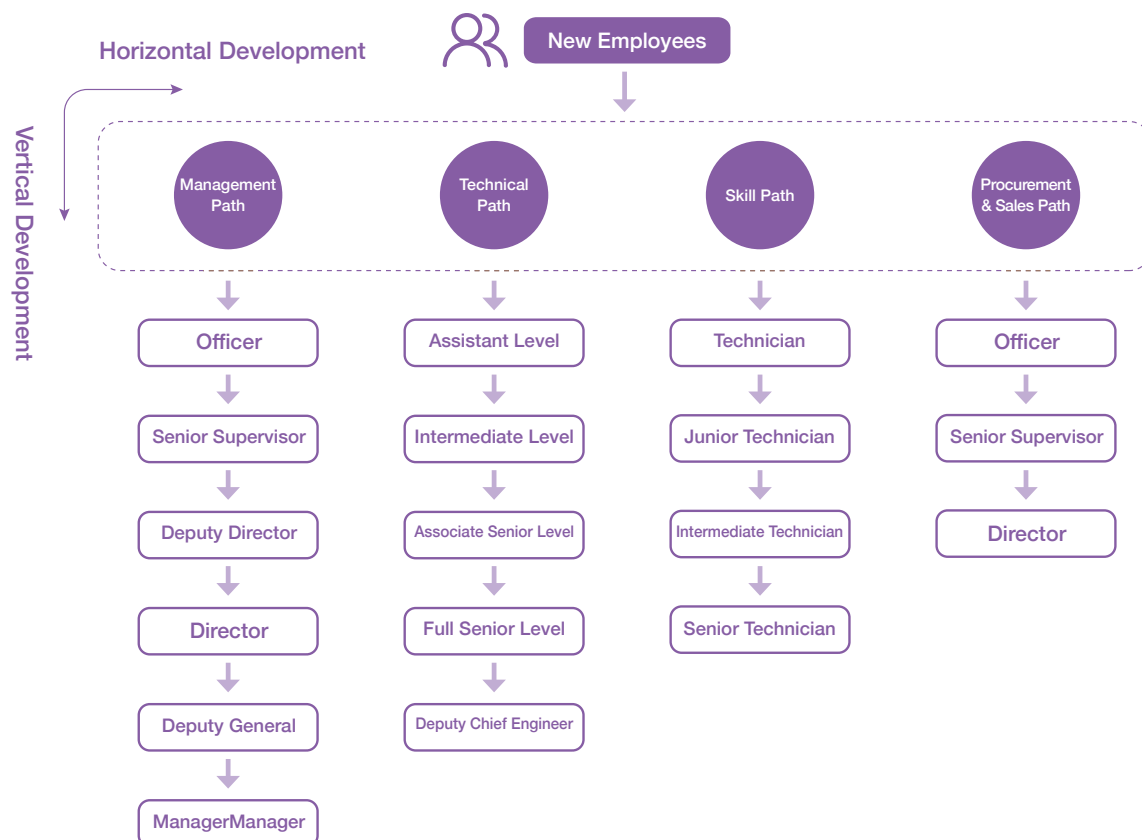
Based on the principle of selecting the best, Jilin Chemical has formulated talent management procedures. It strictly regulates the selection, appointment, and assessment processes, and it is committed to creating an open and transparent work environment with equal competitive opportunities, thus laying a solid foundation for the career path of employees.



### Development Pathway

Jilin Chemical has formulated the Implementation Measures for Market-oriented Selection and Appointment of Business Managers in Subsidiary Companies. Through grassroots Party branch recommendations and Party committee scrutiny, the Company nominates key talents for cultivation. It upholds strict assessment of cadre promotion and demotion to establish proper employment orientation and unblock career development paths. Simultaneously, the Company implements vocational skill level certification by refining the "New Eight-Grade Worker" occupational skill hierarchy system. It also advances the reform of personnel selection and employment mechanisms, providing employees with career advancement pathways that integrate both "horizontal" and "vertical" development dimensions.

The company develops talent planning at multiple levels, including individual career planning, organizational development strategies, and company-level strategic planning. At the individual level, skills and experience serve as crucial criteria for building talent pipelines. The Company creates talent pools and establishes electronic profiles based on employees' career paths. The company attaches importance to the cultivation of talent reserve, and has implemented a three-tiered development system spanning across departments, the company, and the group.







## 03. Community Service

On March 22, 2024, Jilin Chemical organized a "Spring Breeze Warms Hearts, Love in Fiber Continues" Lei Feng-themed community service day event, mobilizing over 150 young volunteers to participate. The event was divided into four sections: public convenience services, health care, parent-child interactions, and fun games, totaling over 50 volunteer services.



**Public Convenience:** Provided traditional services such as home appliance repair, haircuts, and knife sharpening to meet residents' daily needs. Promoted the Company's big health products and Tanboocel® thermal underwear (made from renewable bamboo fiber) to advocate for green consumption practices.



**Health Care:** Established blood pressure monitoring stations to enhance residents' awareness of health management. Established social insurance knowledge consultation service stations to address community members' inquiries and resolve related issues.



**Parent-Child Interaction:** Engage in activities such as kite making and drawing Lei Feng-themed posters to promote family emotional exchanges and convey values of sustainable development.



**Fun Games:** Host games like picking up table tennis balls with chopsticks and arrow throwing to enhance community cohesion.



The "Spring Warmth, Caring Together" volunteer service activity combines the industry characteristics of the Company, promoting the spirit of Lei Feng through innovative forms. This initiative strengthens the social responsibility of the Company's young employees, arouses the next generation's interest in public welfare and environmental protection, and promotes sustainable development linkage between the enterprise and the community.





## 04. Rural Revitalization

Jilin Chemical has always integrated the fulfillment of rural revitalization with its corporate development strategy. Through diversified initiatives such as extending the industrial chain, consumption-based assistance, and infrastructure construction, the Company continues to inject momentum into consolidating the achievements of poverty alleviation and promoting common prosperity.

### In-depth Research and Scientific Planning for Rural Revitalization

The Company's village-based secretary conducted thorough field research, engaging in face-to-face exchanges with veteran Party members, former village secretaries, and local villagers to gather opinions, insights, and suggestions. Based on these findings, Jilin Chemical formulated the Beiguokui Village 2024 Rural Revitalization Plan and the Five-Year Assistance Plan for Rural Revitalization, and signed a "Paired Assistance Agreement for Rural Revitalization" to establish a systematic development framework. This lays a solid foundation for comprehensively advancing the revitalization of Beiguokui Village.



### Improving People's Livelihoods, Building the "Rural Revitalization Road"

The Company constructed two cement roads totaling 3.15 kilometers in length and one bridge. These projects have connected Beiguokui Village into a nearly 6-kilometer scenic red-fruit loop road around the mountain, effectively solving the long-standing issue of dust in dry weather and mud in rainy conditions. The improved infrastructure has significantly reduced traffic risks during the busy farming season and provided essential transportation support for the modernization of the red-fruit industry and the development of rural tourism. While greatly improving convenience for villagers' daily life, it also lays a solid foundation for the modern development of the red-fruit industry and rural cultural tourism in Beiguokui Village.

### Developing the Collective Economy and Promoting Industrial Upgrading

In Beiguokui Village, the Company established the "Jilin Panbao Agricultural Products Co., Ltd." and the "Panshi Xinyu Fruit Tree Planting Professional Cooperative", led by the village Party branch. This created an operational model combining "Company + Cooperative + Farmers". The Company has promoted professional planting, management, and marketing of plumleaf crab apple, and introduced the "Internet+" model to expand market reach. Through these efforts, Beiguokui Village has grown from almost nothing to now achieving over 690,000 yuan in collective economic income.

### Product Promotion for Common Revitalization

To further expand the market for agricultural specialty products and continuously enhance the brand value of the "First Secretary Promotion" initiative, Jilin Chemical led Panshi City's village-based first secretaries and work teams to participate in 11 promotional events, including "First Secretary Promotion Product" New Year fairs, morning markets, and night markets at both higher-level and local levels. These activities have effectively increased village-level collective economic income, driven income growth for local farmers, and actively advanced the goal of common prosperity. So far, they have contributed an additional 1.9875 million yuan to the village's collective economy, injecting new vitality into rural revitalization.







## GRI Content Index

Describe	Jilin Chemical disclosed the information referenced in this GRI Content Index in accordance with the Global Reporting Initiative (GRI) Standards for the reporting period from January 1, 2024, to December 31, 2024.
GRI 1	GRI 1: Foundation 2021

### General Disclosures

Topics	Disclosure Item		Position in the report	Page number
Organizations and the reporting practices	2-1	Organizational details	Foreword - Jilin Chemical	8-12
	2-2	Entities included in the organization's sustainability reporting	Foreword - About This Report	2
	2-3	Reporting Period, frequency and contact point	Foreword - About This Report	2
Activities and workers	2-6	Activities, value chain and other business relationships	Foreword - Jilin Chemical	8-12
	2-7	Employees	Fulfilling Social Responsibility - Employees	60-65
Governance	2-9	Governance structure and composition	Fulfilling Social Responsibility - Community Service	59
	2-12	Role of the highest governance body in overseeing the management of impacts	Climate Change Response - Sustainability Management	16-17
	2-13	Delegation of responsibility for managing impacts	Climate Change Response - Sustainability Management	16-17
	2-14	Role of the highest governance body in sustainability reporting	Climate Change Response - Sustainability Management	16-17
	2-16	Communication of critical concerns	Foreword - About This Report	12-13
Strategy, policy and practices	2-22	Statement on sustainable development strategy	Climate Change Response - Sustainability Management	16-17
Stakeholder Engagement	2-29	Approach to stakeholder engagement	Climate Change Response - Sustainability Management	16-17

### Topic-specific disclosures for material topics

Topics	Disclosure Item		Position in the report	Page number
GRI 3: Material Topics 2021	3-1	Process to determine material topics	Foreword - About This Report	14
	3-2	List of material topics	Foreword - About This Report	14
<b>Corporate Governance, Business Ethics &amp; Integrity</b>				
GRI 3: Material Topics 2021	3-3	Management of material topics	Fulfilling Social Responsibility - Corporate Governance	59
GRI 205: Anti-corruption 2016	205-2	Communication and training about anti-corruption policies and procedures	Fulfilling Social Responsibility - Corporate Governance	59
<b>Procurement Policy &amp; Supply Chain Management</b>				
GRI 3: Material Topics 2021	3-3	Management of material topics	Innovative Green Fibers	45-57
GRI 301: Materials 2016	301-3	Reclaimed products and their packaging materials	Innovative Green Fibers - Sustainable Product Innovation	47-51
GRI 308: Supplier Environmental Assessment 2016	308-1	New suppliers that were screened using environmental criteria	Innovative Green Fibers - Supplier Management	45-46
GRI 414: Supplier Social Assessment 2016	414-1	New suppliers that were screened using social criteria	Innovative Green Fibers - Supplier Management	45-46





Topics	Disclosure Item		Position in the report	Page number
Energy Management System				
GRI 3: Material Topics 2021	3-3	Management of material topics	Climate Change Response - Energy Management	18-21
GRI 302: Energy 2016	302-1	Energy consumption within the organization	Climate Change Response - Energy Management	18-21
	302-3	Energy intensity	Climate Change Response - Energy Management	18-21
	302-4	Reduction of energy consumption	Climate Change Response - Energy Management	18-21
Water Resource Management & Wastewater Management				
GRI 3: Material Topics 2021	3-3	Management of material topics	Advancing Closed-Loop Production - Water Resource Management	26-27
			Advancing Closed-Loop Production - Wastewater, Waste Gas, and Solid Waste Management	28-33
GRI 303: Water and Effluents	303-1	Interactions with water as a shared resource	Advancing Closed-Loop Production - Water Resource Management	26-27
	303-2	anagement of water dischargereLATED impacts	Advancing Closed-Loop Production - Wastewater, Waste Gas, and Solid Waste Management	28-33
	303-3	Water withdrawal	Advancing Closed-Loop Production - Water Resource Management	26-27
	303-4	Water discharge	Advancing Closed-Loop Production - Wastewater, Waste Gas, and Solid Waste Management	28-33
	303-5	Water consumption	Advancing Closed-Loop Production - Water Resource Management	26-27
Waste Gas Management, Carbon Footprint & Climate Mitigation				
GRI 3: Material Topics 2021	3-3	Management of material topics	Advancing Closed-Loop Production - Wastewater, Waste Gas, and Solid Waste Management	28-33
			Climate Change Response - Carbon Footprint	22
GRI 305: Emissions 2016	305-4	GHG emissions intensity	Climate Change Response - Carbon Footprint	22
	305-7	Nitrogen oxides (NO <sub>x</sub> ), sulfur oxides (SO <sub>x</sub> ), and other significant air emissions	Advancing Closed-Loop Production - Wastewater, Waste Gas, and Solid Waste Management	28-33
Solid Waste Management				
GRI 3: Material Topics 2021	3-3	Management of material topics	Advancing Closed-Loop Production - Wastewater, Waste Gas, and Solid Waste Management	28-33
	306-1	Waste generation and significant waste-related impacts	Advancing Closed-Loop Production - Wastewater, Waste Gas, and Solid Waste Management	28-33
GRI 306: Waste 2020	306-2	Management of significant waste-related impacts	Advancing Closed-Loop Production - Wastewater, Waste Gas, and Solid Waste Management	28-33
	306-3	Waste generated	Advancing Closed-Loop Production - Wastewater, Waste Gas, and Solid Waste Management	28-33
	306-4	Waste sent for disposal	Advancing Closed-Loop Production - Wastewater, Waste Gas, and Solid Waste Management	28-33
Chemical Management				
GRI 3: Material Topics 2021	3-3	Management of material topics	Strengthening Chemical Management	34-43



Topics	Disclosure Item		Position in the report	Page number
Protection of Workers' Rights				
GRI 3: Material Topics 2021	3-3	Management of material topics	Fulfilling Social Responsibility - Employees	60-65
GRI 401: Employment 2016	401-2	Benefits provided to full-time employees that are not provided to temporary or parttime employees	Fulfilling Social Responsibility - Employees	60-65
GRI 404: Training and Education 2016	404-1	Average hours of training per year per employee	Fulfilling Social Responsibility - Employees	60-65
	404-2	Programs for upgrading employee skills and transition assistance programs	Fulfilling Social Responsibility - Employees	60-65
GRI 405: Diversity and Equal Opportunity 2016	405-1	Diversity of governance bodies and employees	Fulfilling Social Corporate Governance	59
			Fulfilling Social Responsibility - Employees	60-65
GRI 405: Non-discrimination 2016	406-1	Incidents of discrimination and corrective actions taken	Fulfilling Social Responsibility - Employees	60-65
GRI 405: Child Labor 2016	408-1	Operations and suppliers at significant risk for incidents of child labor	Fulfilling Social Responsibility - Employees	60-65
GRI 405: Forced or Compulsory Labor 2016	409-1	Operations and suppliers at significant risk for incidents of forced or compulsory labor	Fulfilling Social Responsibility - Employees	60-65
Occupational Health and Safety				
GRI 3: Material Topics 2021	3-3	Management of material topics	Fulfilling Social Responsibility - Employees	60-65
GRI 403: Occupational Health and Safety 2018	403-1	Occupational health and safety management system	Fulfilling Social Responsibility - Employees	60-65
	403-2	Hazard identification, risk assessment, and incident investigation	Fulfilling Social Responsibility - Employees	60-65
	403-3	Occupational health services	Fulfilling Social Responsibility - Employees	60-65
	403-4	Worker participation, consultation, and communication on occupational health and safety	Fulfilling Social Responsibility - Employees	60-65
	403-5	Worker training on occupational health and safety	Fulfilling Social Responsibility - Employees	60-65
	403-6	Promotion of worker health	Fulfilling Social Responsibility - Employees	60-65
	403-7	Prevention and mitigation of occupational health and safety impacts directly linked by business relationships	Fulfilling Social Responsibility - Employees	60-65
	403-8	Workers covered by an occupational health and safety management system	Fulfilling Social Responsibility - Employees	60-65
	403-9	Work-related injuries	Fulfilling Social Responsibility - Employees	60-65
	403-10	Work-related ill health	Fulfilling Social Responsibility - Employees	60-65





Topics	Disclosure Item		Position in the report	Page number
Corporate Social Responsibility				
GRI 3: Material Topics 2021	3-3	Management of material topics	Fulfilling Social Responsibility - Community Service	66-67
			Fulfilling Social Responsibility - Rural Revitalization	68
GRI 413: Local Communities 2016	413-1	Operations with local community engagement, impact assessments, and development programs	Fulfilling Social Responsibility - Community Service	66-67
			Fulfilling Social Responsibility - Rural Revitalization	68
Product Innovation & Stewardship				
GRI 3: Material Topics 2021	3-3	Management of material topics	Innovative Green Fibers - Sustainable Product Innovation	47-51
			Innovative Green Fibers - Quality Assurance and After-sales Service	56-57
GRI 417: Marketing and Labeling 2021	417-1	Requirements for product and service information and labeling	Innovative Green Fibers - Quality Assurance and After-sales Service	56-57

·Content Index of the United Nations Sustainable Development Goals (SDGs)

·Contents Index of the Shenzhen Stock Exchange's Self - regulatory Guidelines for Listed Companies No. 17 - Sustainability Report (Trial)



📍 216 Kunlun Street, Economic Development Zone, Jilin City, Jilin  
☎ 0432-63503922 ✉ 502094468@qq.com 🔗 [www.jlhxjt.com](http://www.jlhxjt.com)