

ADVANCING CHEMISTRY  
TRANSFORMING LIVES



WANHUA CHEMICAL GROUP CO., LTD.

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## A LETTER FROM THE CHAIRMAN



### “ KEEP MOVING FORWARD WITH LOVE IN MIND ”



This past year of 2023 has been full of ups and downs. In the face of the complex, changing world economic landscape, all Wanhua members went forward against the trend, opened a new chapter with courage, and deeply implemented the policy of "Carrying out high-quality investment strategies and consolidating the foundation of sustainable development", and did a good job with wisdom and endeavor by adapting to the changes and moving forward in adversity.

It was a year of global buzz for sustainable product solutions. We have been continuing to launch green, low-carbon and sustainable industry solutions, innovating application scenarios, promoting the high-quality development of the industry, and practicing the corporate mission of "Advancing Chemistry, Transforming Lives" with our actions. Wanhua's excellent culture, excellent products and excellent service are spreading to every corner of the world, making its brand well-known in the world as a reliable partner of customers.

It was a year of implementing the carbon peaking and carbon neutrality commitment. We released the Group's ESG strategy for the first time, solemnly declaring that Wanhua Chemical will achieve carbon peak by 2030 and strive to achieve carbon neutrality by 2048, which demonstrates Wanhua's firm determination to save energy and reduce carbon emissions. With the continuous optimization of the energy structure and the upgrading of carbon reduction technologies and processes. The company's low-carbon development is

receiving momentum from every corner of the company.

We have been pushing boundaries and witnessing rapid progress in the construction of our industrial parks. The construction of Wanhua Low-Carbon Industrial Park phase I is in full swing; the good news of energy saving and emissions reduction projects in all bases comes one after another; Yantai, Ningbo, Fujian and Hungary bases have gone through the largest, unprecedented overhaul and technical improvement, driving the green development of the company to the next stage, making it another solid step towards the goal of building a low-carbon, environmentally friendly and ultra competitive chemical park.

Wanhua Chemical will do more in the new year and make a greater contribution to high-quality development.

Aim to expedite high-quality project investment. The company will focus on the construction of the ethylene project phase II in Yantai Industrial Park, several fine chemicals projects and Wanhua Penglai Industrial Park phase I&II. The extend of portfolio to a series of high-value-added products such as POE, XLPE, citral, POCHP, battery materials, etc will benefit from these projects. Soon, twin world-class high-tech chemical parks will be standing on the southern coast of the Yellow Sea and the Bohai Sea. In addition, the Wanhua Yantai Electronic Materials Industrial Park is going to be built as a model park for promising industries. Never the less, the completion of the Wanhua-Hehai Heat Integration Project will provide civil heating for 79 million square meters of residential areas in Yantai from low-emissions energy source. Supported by our degradable plastics, Wanhua will contribute to the development of ecological agriculture, and make Yantai an eye-catching green city.

Breakthrough new technologies and fostering next-gen productivity.

Leveraging on our sophisticated R&D capability, we aim to expedite the development of medical-grade polymers such as PSU and high-performance engineering plastics like modified PCs. Also it is important to advance the R&D and industrialization of battery materials, positioning ourselves as the "Chief Innovation Officer" in this rising

segment. Meanwhile, leveraging on AI empowerment, we will explore deeper into the scientific research in new fields such as electrochemistry and synthetic biology, for cultivation of future industries.

Building a green brand and strengthening the synergistic effect across the industry.

Relying on global-pioneering technologies such as formaldehyde-free CWP solution, HCl oxidation circulation, and the Wanhua-Hehai project, we aim to elevate Wanhua's image in green development. Moreover, as a global-leading chemical company we are well-positioned to attract investment and relevant industries to settle down in our integrated industrial complex with global competency.

Improving excellent management for enhancing competitive advantages.

Through advanced digitization, we focus on the autonomous operation of production facilities to make production and management systems more efficient. With an unwavering determination, we encourage managers to take a lead role, and all staff to assume corresponding responsibility, with intrinsic safety as foundation, and ensure to realize a production management system that takes safety as the top priority. All of these measures will further elevate Wanhua's safety management performance.

We always strive for excellence and keep forging ahead. In 2024, we will stick to our medium and long-term strategies, with passion and hard work to achieve our mission. We will keep innovating and developing at cutting-edge level to achieve green, low-carbon, and high-quality development!

— Chairman of Wanhua Chemical Group Co., Ltd.

Zengtai Liao

# ABOUT WANHUA

## Corporate Profile

As a multinational chemical company, with continuous technology innovation, large-scale commercialized facilities and ultra-efficient operation model, Wanhua Chemical Group Co., Ltd provides competitive products and solutions to the clients.

Taking "Advancing Chemistry Transforming Lives" as our mission, Wanhua Chemical has always been adhering to innovation and industry structure optimization.

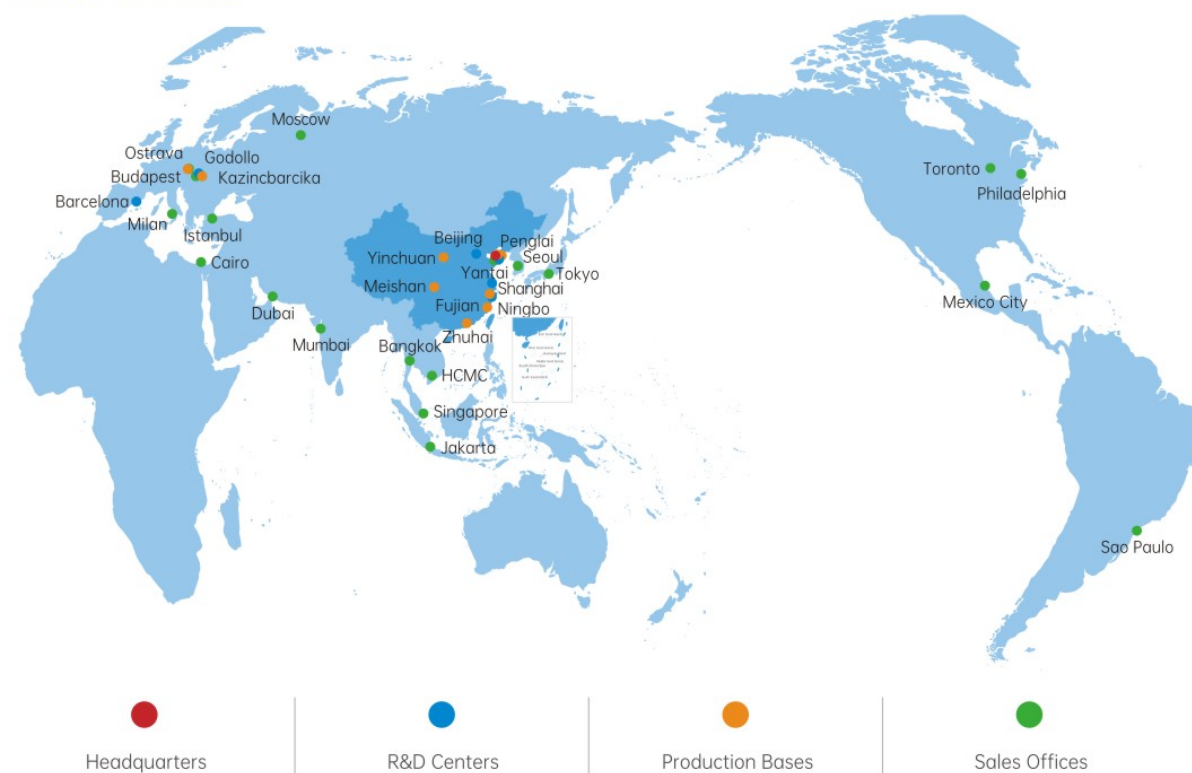
## Product Categories

- 4**
- Polyurethanes
  - Petrochemicals
  - Performance Chemicals
  - Emerging Materials

## Fields of Application

- 7**
- Homeware and Furniture
  - Sports and Leisure
  - Automobiles and Transportation
  - Building and Construction
  - Electronics and Electrical Appliances
  - Personal Care
  - Green Energy

## Global Strategy



## Honors and Awards



## HISTORY & DEVELOPMENT

To become an innovative, world-leading chemical company, admired by our employees and respected by the community.

### Founding and Exploration Stage ▶

1978

Started the construction of Yantai synthetic leather factory

1983

Successfully launched a project with an annual MDI output of 10,000 tons, marking the completion of China's first industrial base of polyurethanes - Yantai synthetic leather factory

### Innovation and Development Stage ▶

1998

Yantai Wanhua Polyurethanes Co., Ltd. (Yantai Wanhua) been established by restructuring of state assets

2001

Listed on Shanghai Stock Exchange, stock code: 600309

2003

The 160,000-metric-ton MDI plant started construction at Ningbo Industrial Park

2005

The 160,000-metric-ton MDI plant commissioned at Ningbo Industrial Park

### International Development Stage ▶

2010

The Ningbo Phase II 300 KT/Y MDI facility and supporting projects kicked out successfully

2011

- Acquired the largest chemical company of Hungary - BorsodChem Zrt
- Started the construction of Wanhua Yantai Industrial Park

2013

Yantai Wanhua changed company name to Wanhua Chemical Group Co., Ltd. (Wanhua Chemical)

2015

Industrial Park Phase I completed, remarking the set up of Wanhua's industry platform trinity- that is polyurethane, petrochemicals, and fine chemicals

2017

- The Wanhua Zhuhai project passed its first trial run
- The Wanhua North America Technical Center started operations

2019

- The construction of the 250 KT/Y high-performance modified resin project in Sichuan
- Wanhua announced its new mission statement: "Advancing chemistry, transforming lives"
- Acquisition of 100% share of Chematur Technologies AB of Sweden

2020

- Consolidation of Wanhua Chemical (Fujian) Co., Ltd.
- The ethylene cracking unit was successfully started up at once, thus all the key units in ethylene industry chain were successfully commissioned
- The Wanhua Sichuan site phase I modified plastics project was successfully delivered

2021

- Wanhua ranked 29th among C&EN's Global Top 50 chemical companies
- Wanhua obtained EcoVadisgold medal certification

2022

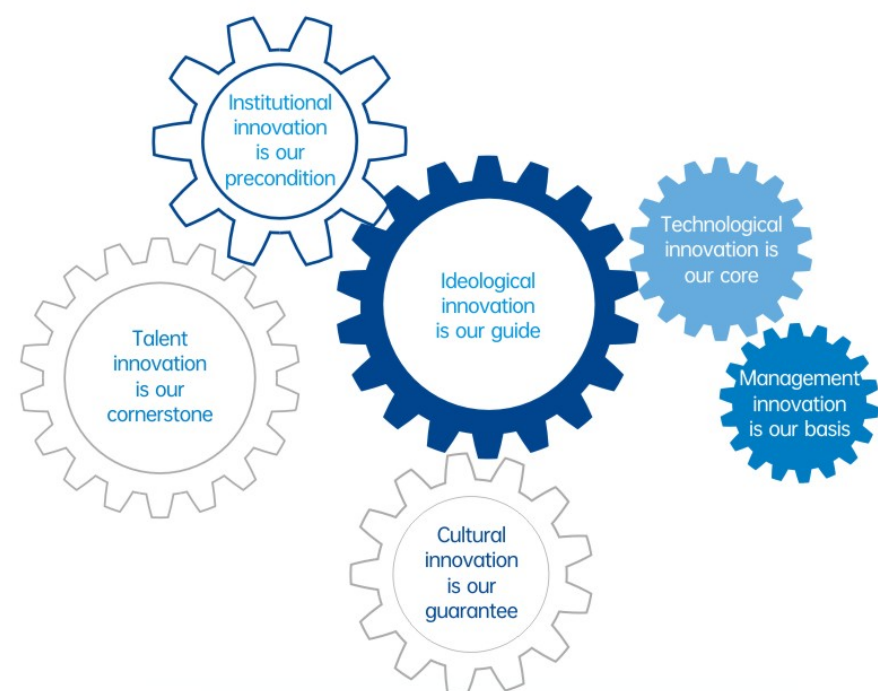
- Wanhua ranked 17th among C&EN's Global Top 50 chemical companies
- Wanhua ranked 9th among ICIS's Global Top 100 chemical companies
- Wanhua attained EcoVadis gold medal certification again
- The successful production of silicon copolymerized PC and nylon 12

2023

- The 7th China Grand Awards for Industry
- Wanhua ranked 16th among 2023 Fortune China ESG Impact Ranking companies

## INNOVATION

Implement systematic and innovative engineering processes



### Innovation Platforms

14

high-level innovation platforms

- Advanced polymers national engineering research center
- National technical standards innovation base
- National polyurethane engineering technology research centre
- National-level corporate technology centre
- Postdoctoral research station
- 9 provincial-level industrial engineering (technological) centers and key laboratories



### R&D Achievements

6

national science and technology awards

6200+

patent applications in the world

### R&D Investment

4.08 billion CNY

Cumulative R&D investment of 14.41 billion yuan in the past 5 years

### R&D Personnel

4000+ people

230+ With doctorate

2500+ With master degree

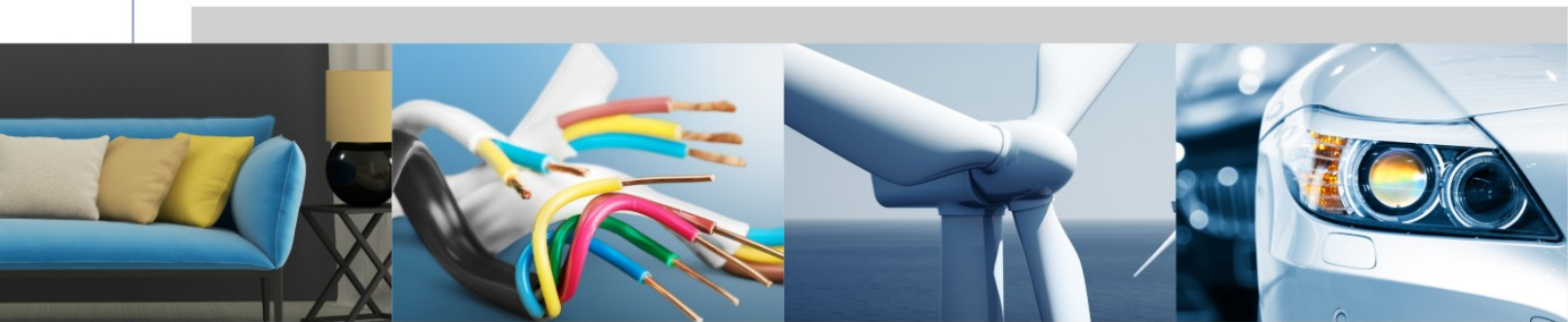
## PRODUCTS AND SOLUTIONS

Responding to customers more efficiently and quickly, and providing professional and tailored solutions



- Polyurethanes
- Petrochemicals
- Performance Chemicals
- Emerging Materials

# PRODUCTS AND SOLUTIONS



## Polyurethanes Business Unit

Mainly in charge of sales, production and R&D of diisocyanates and its derivatives, polyether polyols for flexible and rigid foam and PU systems as well as ethylene oxide derivatives (EOD).

WANNATE® WANEXEL® WANCOL® WANELAST®  
WANEFLEX® WANEFOAM® WANOL®

## Performance Chemicals Company

The portfolio includes aliphatic isocyanate products, special amine products and special performance chemical products.

WANNATE® WANACHEM® WANAMINE® WANKETONE®  
WANALINK®

## Performance Polymers Business Unit

Dedicated to R&D, production, and sales for polycarbonate (PC), biodegradable materials (PLA/PBAT/PBS), nylon 12 (PA12). Become an essential part of performance material solutions in Wanhua.

CLARNATE® WANBLEND® WANECO® WANAMID®

## Performance Materials Business Unit

Mainly produces thermoplastic polyurethane (TPU), polymethyl methacrylate (PMMA), Polyolefin Elastomer (POE) and membrane material.

WANTHANE® ACRYPLAS® WANSUPER® WANFORITE®

## Wanhua Petrochemical Co., Ltd.

A wholly-owned subsidiary of Wanhua Chemical Group Co., Ltd. It is mainly engaged in the construction and operation of the Wanhua platform for the petrochemical industry and responsible for the procurement, production, sales, operation, and management of major raw materials for petrochemical products.

## Surface Materials Business Group

Dedicated to R&D, production, sales, and services for environmental-friendly surface materials and new energy materials. It has established 11 R&D technology platforms for waterborne polyurethane (PUD), waterborne acrylics (PA), modified polyurethane (PUA), waterborne photocured (UV) materials, waterborne two-component materials (2K), waterborne epoxy (EP), rheological modifiers (HEUR and HASE), organosilicons, soft bioderived beads, super-absorbent polymers (SAP), and cathode materials for lithium-ion batteries.

ADWEL® CARFIL® LACPER® VESMODY® WANICE® ARCHSOL® CRYSQL®  
LEASYS® WANTIPRO® WANSPONGE® ANTKOTE® AQUOLIN® TEKSPRO®  
WANSPHERES® UNICAP®

## Chloride Products Business Unit of Wanhua Chemical Group Co., Ltd.

Chloride Products Business Unit businesses mainly involves domestic and international sales of PVC and caustic soda, also includes R&D, production and sales of specialty PVC and other chlorine products. Consumers gain the benefits of materials Chloride Products SBU produces in products such as building materials, industrial products, daily necessities, floor leather, floor tiles, artificial leather, pipe & fittings, wires & cables, packaging, foaming materials, sealing materials, fibers and other applications.

## Wanhua Chemical Group Battery Technology Co., Ltd.

Wanhua Chemical Group Battery Technology Co., Ltd. has been firmly promote its " Battery material ecosphere" strategy. Its products cover a wide range, including power battery, energy storage, digital products and other electrical devices. Believing in "low cost & stable supply", "customized R&D", "sustainable development", Wanhua Chemical Group Battery Technology Co., Ltd. is willing to offer great supply chain value to customers!

## Wanhua Electronic Materials Co., Ltd.

Wanhua Electronic Materials Co., Ltd, as wholly-owned subsidiary of Wanhua Chemical Group, is deeply engaged in research and development in the field of semiconductor industry. Benefiting from the overall industrial chain within Wanhua Chemical, we are striving to become a world-class electronic materials supplier.

Our portfolio includes: CMP Pad, CMP Slurry, chip packaging materials (TIM1, UF, AD), OLED packaging and display materials (INK, Fill, DAM).

Relying on the advantages of independent research and development/IP position, manufacturing excellence and complete supply chain system, we have always been adhering to innovation and customer demand-oriented, and provide valuable products and solutions to semiconductor integrated circuits and high-end display industries.

## Wanhua Chemical Group Nutrition Technology Co., Ltd

Wanhua Chemical Group Nutrition Technology Co., Ltd is dedicated to R&D, production, and sales of aroma, nutrition and other advanced intermediates. The downstream applications cover a wide range of fields such as nutrition and health, flavor and fragrance, personal care and so on. We promote sustainability of the industry with high-quality, healthy, green and low-carbon products, improve quality of life and are committed to becoming a leader in the aroma and nutrition industry.





# SUSTAINABLE DEVELOPMENT

## Strategy

### Advancing Chemistry, Transforming Lives

**Overall Vision** Wanhua Chemical is committed to promoting its own transformation through the power of chemistry, while providing solutions for common challenges of mankind, and contributing to a sustainable future

|                               |   |  |   |             |
|-------------------------------|---|--|---|-------------|
| <b>Core Areas</b>             | <b>Energize Green Chemistry</b>   | <b>Create Social Value</b>   | <b>Abide by Governance Principles</b>   |             |
| <b>Key Action Commitments</b> | <p><b>Climate Neutrality</b><br/>Achieve net zero emissions from our own operations<br/>Actively promote emissions reduction in value chains</p> <p><b>Environmental Protection</b><br/>Reduce the intensity of resource consumption<br/>Manage environmental footprint effectively</p> <p><b>Industrial Innovation</b><br/>Expand green solutions<br/>Circular economy</p> | <p><b>Safety and Health</b><br/>Fully ensure the safety of chemicals<br/>Zero injuries and zero accidents</p> <p><b>Talent Development</b><br/>Build a culture of diversity and equality<br/>Empower employees to innovate and grow</p> <p><b>Social Responsibility</b><br/>Create positive impact<br/>Sustainable procurement</p> | <p><b>Corporate Governance</b><br/>Improve governance structure<br/>Improve the ESG mechanism</p> <p><b>Business Ethics</b><br/>Fully compliant operation<br/>Anti-corruption</p> |             |
| <b>Strategic Pillars</b>      | Passionate Culture  | Technological Innovation   | Operational Excellence  | Partnership |



## Dual Carbon Goals

Wanhua Chemical is committed to achieving peak carbon no later than 2030 and carbon neutrality by 2048.

\*Scope 1+2

## Goals System

| Key Action Commitments                |                                 | Priority Issues   | 2021 (Base Year)  | 2023  | 2030 Target   |                     |
|---------------------------------------|---------------------------------|---|---|-------|---|---------------------|
| <b>Energize Green Chemistry</b>       | <b>Climate Neutrality</b>       | Total carbon emissions (Scope 1+2) (MMTCO <sub>2</sub> e) | 26.89   | 32.57 | Peak Emissions by 2030<br>Carbon Neutrality by 2048 |                     |
|                                       |                                 | Greenhouse gas emissions and energy management            | Carbon intensity (Scope 1+2) (CO <sub>2</sub> e/t)                | 1.11  | 0.89  | A reduction of ≥20% |
|                                       | <b>Environmental Protection</b> | Water resource management                                 | Fresh water consumption (m <sup>3</sup> /t)                       | 1.97  | 1.03  | A reduction of ≥25% |
|                                       |                                 | Waste and hazardous materials management                  | Exhaust emission intensity (t/million t)                          | 59.47 | 55.1  | A reduction of ≥10% |
| <b>Create Social Value</b>            | <b>Safety and Health</b>        | Solid waste emission intensity (10,000 t/million)         | 3.98  | 3.38  | A reduction of ≥10%                                 |                     |
|                                       |                                 | Employee safety and health                                | Recordable injury rate for employees                              | 0.056 | 0.038   | ≤0.06               |
|                                       | <b>Employees</b>                | Employee lost workday case rate                           | 0.024   | 0.032 | ≤0.03   |                     |
|                                       |                                 | Labor management  | Employee turnover rate (%)  | 4.1   | 2.4   | ≤5                  |
| <b>Abide by Governance Principles</b> | <b>Business Ethics</b>          | Supplier social assessment                                | New supplier social responsibility assessment rate (%)            | 100   | 100   | 100                 |
|                                       |                                 | Business ethics, compliance and anti-corruption           | Business ethics, compliance and anti-corruption training rate (%) | 100   | 100   | 100                 |

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