

Sustainable Development Report

Innovation Creates Excellence



Sustainable Development Report **2017**

Wanhua Chemical Group Co., Ltd.

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PREPARATION INSTRUCTIONS

This is the Sustainable Development Report of Wanhua Chemical Group Co., Ltd. for the purpose of presenting to the stakeholders, the information related to our sustainable development in terms of economy, environment and social in 2017.

Scope of the Report

Time range: from January 1, 2017 to December 31, 2017, with few data of 2018 and over the years disclosed.

Business scope: the performance data in sustainable development revealed herein covers the businesses in the premises of all entities in the financial report of Wanhua Chemical Group Co., Ltd. and their businesses related to the production of MDI, petrochemicals, special chemicals and new materials, which are divided by regions into Wanhua Beiijing, Wanhua Yantai, Wanhua Ningbo and Wanhua Guangdong. Annotation and notes are attached in the main body hereof when some data cannot cover the entire scope.

Reporting Period

Starting from this Report, Wanhua Chemical Group Co., Ltd. will release its sustainable development report on an annual basis.

Reference Standards

This Report is prepared in accordance with the “core programs” of the Sustainability Reporting Standards of the Global Reporting Initiative (GRI Standards) while referring to the disclosure requirements based on the Guidelines of the Shanghai Stock Exchange for the Disclosure of Environmental Information by Listed Companies and the Sustainable Development Goals of the United Nations (SDGs).

Data Sources

The financial data herein comes from the 2017 Annual Report of Wanhua Chemical Group Co., Ltd. upon the independent audit of Deloitte Touche Tohmatsu Certified Public Accountants LLP. All amounts herein are expressed in RMB unless stated otherwise. Other non-financial information was provided by the functional departments of Wanhua Chemical Group Co., Ltd. and its branches.

Release of the Report

The Report is released in printed version and electronic version in both Chinese and English. The electronic version can be accessed and downloaded from Wanhua's website (<http://www.whchem.com>).

Vocabulary Definition

The abbreviations herein have the following specific definition.

Abbreviations	Full Name
Wanhua, Wanhua Chemical, Group, Group Company, We	Wanhua Chemical Group Co., Ltd.
WIG, controlling shareholder	Wanhua Industrial Group Co., Ltd.
CSRC	China Securities Regulatory Commission
SSE	Shanghai Stock Exchange
GRI	Global Reporting Initiative
GRI Standards	Sustainability Reporting Standards of the Global Reporting Initiative
PDCA	Plan-Do-Check-Action
LDAR	Leak Detection and Repair
MDI	Methylenediphenyl Diisocyanate
HDI	Hexamethylene Diisocyanate
ADI	Aliphatic Diisocyanate (including H12MDI, HDI, HDI derivatives, IPDI, etc.)
HCL	Hydrogen Chloride
IPDI	Isophorone Diisocyanate
SAP	Super Absorbent Polymer
TPU	Thermoplastic Polyurethanes
LPG	Liquefied Petroleum Gas
PC	Polycarbonate
MMA	Methyl Methacrylate
PMMA	Polymethyl Methacrylate
PDH	Propane Dehydrogenation
COD	Chemical Oxygen Demand
TOC	Total Organic Carbon
C2	Carbon 2
C3	Carbon 3
C4	Carbon 4
CWAO	Catalytic Wet Air Oxidation
G7	Vehicle data management platform

Acknowledgements

We hereby express our sincere thanks to the staffers from the following departments for their contribution to the compilation of the Report. (This list does not follow a particular order)

Liao Zengtai, Chen Yifeng
Zhao Jide, Wu Bo
Zou Jihua, Wang Junkai
Qian Zhaogang, Wang Weiling
Sun Hongbin, Tang Peng
Pu Jianwu, Lv Huisheng

Ye Ming, Liu Xiaofei
Zhang Shoujun, Zhuang Chaowu
Tian Hongguang, Wu Chongyan
Zhang Wenping
Jiang Lei
Liu Panguo

Yan Bo
Ke Lin
Yang Yong
Sun Shuchang
Wang Zhaojun
KS RAJAH

KEY PERFORMANCE

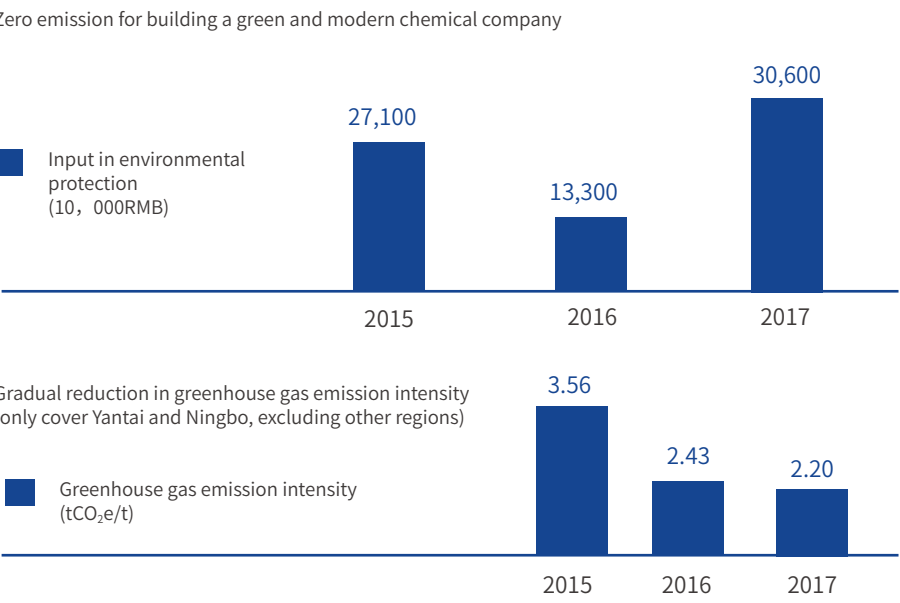
Economic Performance	Items	Performance in 2017 (unit: 10, 000 RMB)	Rate of change (compared with 2016, %)
Wanhua Chemical has the world's largest production capacity of MDI, with its annual output of 1.8 million tons.	Operating income	5,312,317	76.49%
	Cash flow from operating activities	1,021,215	38.96%
	Research & development (R&D) expenditure	123,826	70.67%

Technological Innovation



Environmental Performance

The energy conservation projects saved about 60,300 tons of standard coal, with an annual yield of RMB338 million;



Social Performance

Staff Relations

The Best Employers Award of Aon Hewitt for the 5th time consecutively

Enterprise of Shandong Province with Harmonious Labor Relations

Storage and Transportation Safety

Annual safe trip mileage exceeded 80 million kilometres and 790,000 sea miles for the first time, winning back the “Social Responsibility Contribution Award” of the Hazardous and Chemicals Logistics Society of the China Federation of Logistics & Purchasing.

Work Safety

Major accident number stood at 0, recordable incident rate and process safety accident rate was 0.06 and 0.04 respectively

Notes:

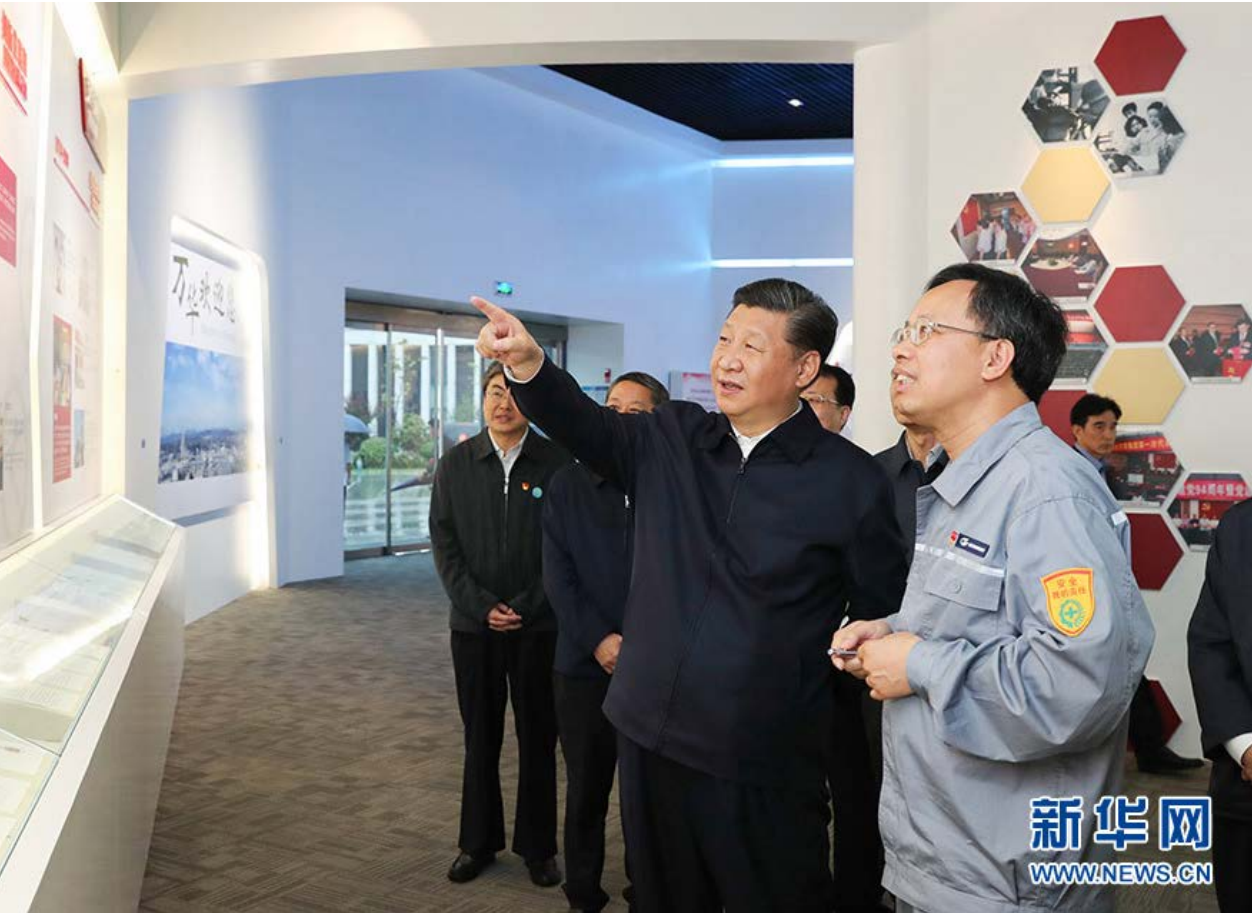
1)Recordable incident rate is the recordable incident cases per 200,000 man-hours, recordable incident rate= recordable incident cases/ total man-hours*200,000

2)Process safety accident rate is level 4 and above process safety accident number per 200,000 man-hours (production man-hour), process safety accident rate= level 4 and above process safety accident number*200,000/production man-hours

3)Major accident and casualties number

4)All amounts above and herein are expressed in 10,000 RMB, amounts in Wanhua Chemical financial report are expressed in RMB

President Xi Jinping Makes Inaugural Visit to Wanhua



Original Image on Xinhua

President Xi was overwhelmed to learn that Wanhua has covered a long journey of introduction, digestion, absorption, re-innovation and independent, creation, developed and grown its technological knowhow out of nothing, and has become the industrial leader.

He said that your journey of arduous entrepreneurship proves that what you have done is great and successful. Your success can be attributed to your road of indigenous innovation. Nothing is impossible and resilience is rather necessary. As Chinese poet Qu Yuan said, “My way ahead is long; I see no ending; yet high and low I will search with my will unbending.” Who said that a state-owned enterprise cannot succeed? To make achievements, reform becomes necessary, and conservative is unviable. Reform leads to success and makes you a modern enterprise. I hope you can make persistent efforts at one fling, remain coherent and consistent, and forge ahead towards your established goals.

ADDRESSES FROM THE LEADERSHIP

Address from the Chairman

Developing a green and technologically advanced chemical company while nurturing a harmonious relationship between nature and society at large is the foundation and prerequisite requirement for Sustainable Development. As the practitioner and disseminator of sustainable development, Wanhua regards the safety and health of our associates, stakeholders and community residents, environmental stewardship and resource conservation as our moral duty, observes the spirit of the *Responsible Care Global Charter*, follows through on the principles for green development, actively advances circular economy, and seeks to realize the “win-win” outcome in both social responsibility and economic benefit.

Safety Appreciation Entrenches the Cornerstone of Corporate Sustainability

For long, Wanhua has been committed to improving process safety, ensuring conduct safety and strengthening product safety, with a view to consolidating the lifeline of corporate sustainability based on the “trinitarian” systematic safety management.

As the first-ever company in China to bring in the DuPont Safety Management System, Wanhua has been exploring into the relationship between safety, greenness and sustainability since early days. By integrating the safety management expertise of DuPont and other multinationals with our realities, we have projected the safety philosophy that “all accidents can be prevented”, and phased in the Wanhua safety management regime which aims to realize “zero harm, zero accident and zero emission”, identifies the 10 safety concepts as the guiding principles, and features “regional safety management”. Back in March 2017, we engaged DNV, the world-renowned safety consulting company, to launch a comprehensive diagnosis and systematic review on our HSE management system from 15 perspectives, thus finding a breakthrough point for enhancing our sustainable development.

Going Green and Environmental-Friendly Constantly Creates the New Practices of Chemical Production

Wanhua practices the concepts of going green, environmental protection, energy saving and emission reduction, seeks to emit no pollutants, develops itself into a green and environmental-friendly chemical company featuring “no leakage, no unusual odor and no mechanical noise”, and establishes a green and environmental management system that is typical of Wanhua and conforms with the development of circular economy.

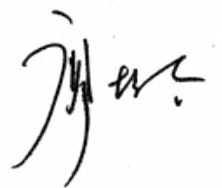
The MDI waste salt water treatment technology was indigenously developed by Wanhua to save 720,000 tons of water and reuse 140,000 tons of salt per year; the resourceful treatment technology of high salt, high COD, and hard biodegradable butyl ester sulfonated waste water independently developed by Wanhua takes the lead in achieving industrialization in the industry and tackles the issue of hard treatment of butyl acrylate waste water; the base metal HCL oxidation technology initiated by Wanhua in the world can comprehensively use 300,000 tons of 31% by-product hydrochloric acid and reduce the environmental risks in the transportation and storage of hydrochloric acid; and Wanhua realizes the reuse of reclaimed water by using the “ultrafiltration + reverse osmosis” technology. In 2017, Wanhua reused 5.38 million tons of sewage water and recorded 61% of recovery rate, projecting the benchmark of green development in the industry.

Perspectiveness Constantly Drives Sustainable Development of Chemical Industry

As the representative of enterprises from developing countries at the Second Session of the United Nations Environmental Assembly, Wanhua proposed that “sustainability is the only viable road to the development of the chemical industry” and undertook to work with its worldwide peers to jointly advance the 2030 Agenda for Sustainable Development of the United Nations, particularly making constant efforts to adapt to climate change, eliminate poverty and concentrate on other key topics.

In view of this, Wanhua has established the Sustainable Development Committee, launched the sustainable development project within the organization, and attached great importance to environmental protection, labor and human rights, commercial ethics, sustainable procurement and other work. At the same time, Wanhua has carried out forward-looking R&D in such fields as 3D printing, massive health, new energy and new materials, formed the membrane material and water treatment R&D team with high-caliber overseas returnees as the core members, and employed internationally advanced technology to boost green development.

In the common pursuit and aspiration of mankind to safeguard the ecological homeland and achieve common growth and win-win outcome. Going forward, Wanhua will continue to strengthen safety management, facilitate the sustainable development of the chemical industry via technological innovation, and join hands with its clients, associates, shareholders, communities, suppliers and people from all walks of life to shape a new world that is more sustainable and more beautiful.



‘Developing a green and technologically advanced chemical company while nurturing a harmonious relationship between nature and society at large is the foundation and prerequisite requirement for Sustainable Development.’



Chairman, President and Communist Party Secretary of Wanhua Chemical Group Co., Ltd.

Liao Zengtai

Unswervingly Follow the Road of Green and Sustainable Development

Chemical companies often present to the public the impression of being irresponsible, discharging waste water randomly, emitting bad smell and causing frequent accidents. This has negatively affected the development of the chemical industry and the internationalization of enterprises.

As the Vice President of Wanhua and the Vice Chairman of the Sustainable Development Committee, I fully understand that for chemical enterprises to be prosperous and “century-old”, it is truly necessary to make constant technological innovations, value safety and environmental protection, and embark on the road of green and sustainable development.

Therefore, Wanhua has been living by the sustainable development goals of the 2030 SDGs of the United Nations, following sustainable development concepts, seeking to keep the high standards for greenness, safety and environmental protection in product R&D, design, production and routine management. Wanhua has put in place the sustainable development management system typical of Wanhua and put it into practice, thus making green and sustainable development the most beautiful symbol of the Company.

Advanced Idea and High Goal

Idea comes at the core for improving the management level of safety and environmental protection. Wanhua has come up with the “three-zero goals” for safety and environmental protection on the basis of the sustainable development objective, namely zero harm, zero accident and zero emission, as a way to develop itself into a green and modern chemical company. This makes Wanhua the first-of-its-kind in the chemical industry who has initiated the concept of “zero emission”, which contains rather rich meaning: as for organized emission, we aim to completely reach standards and constantly reduce emission to zero; concerning unorganized emission, we resolutely work to realize zero emission. To that end, Wanhua has taken many steps to prevent, eliminate, gather and treat “the three wastes (waste water, waste gas and solid waste)”, constantly cut back on pollutant discharge and try to be the first in the industry to achieve the high goal.

System Safety and Management

Guided by the “three-zero goals”, Wanhua has kept exploring, acted upon its realities and established the sustainable development management system typical of Wanhua based on the national safety standardization system, the 2030 SDGs of the United Nations and the Responsible Care Global Charter. The system covers 15 core elements,

63 sub-elements and 307 requirements. We have developed 10 safety concepts, 10 infrangible rules, regional management accountability system, safety chart, the Sustainable Development Committee and other management measures, thereby realizing the effective management and control over the sustainable development of the environment, communities and economy.

Earnest and Continuous Practice

With advanced management philosophy, procedures and systems as guarantee, the most crucial part is to practice earnestly and continuously. Driven by the sustainable development culture of total involvement, Wanhua has accumulated profound and unique best practices in waste water reuse, waste gas treatment, solid waste management and other areas, and built up “three-no” (no leakage, no unusual odor and no mechanical noise) factories and no spillage factories via sound-proof door, pipeline blowing silencer, drainage outlet blockade, spherical bunker, closed sampler, collection of tank breathing exhaust, breather valve transformation, improving pressure test grade, LDAR detection and other measures. All of these measures and practices have won extensive praises for Wanhua across the world.

Thanks to our years of commitment, Wanhua Ningbo Industrial Park won the title of “National Environmental-friendly Project”, the highest award for environmental protection in China, allowing Wanhua to be the first and only chemical enterprise to receive such honor. Wanhua has been practicing the concept of green and sustainable development and is highly recognized by its industrial peers. In 2013, Wanhua was invited to attend and address the annual meeting of the Responsible Care Leadership Group of the International Council of Chemical Associations (ICCA RCLG); in 2016, Wanhua was invited to attend and address the Second Session of the United Nations Environment Assembly where it elucidated and shared its concepts and practices in green chemistry and sustainable development, and received confirmation and respect from the participants. When exchanging views with our industry peers, I deeply acknowledge that for chemical enterprises to succeed and live in harmony with the international community, we can only unswervingly follow the road of technological innovation and green and sustainable development. For that only in this way, can we go further and better.



‘ Long term realistic strategies on sustainable development is the key to our future growth and success. ’



Vice President of Wanhua Chemical Group Co., Ltd.

Chen Yifeng

01

COMPANY OVERVIEW

Company Profile

Business Overview

Honors of Wanhua



Company Profile

Established in 1998 with its registered address in No. 17 Tianshan Road, Yantai Economic and Technological Development Area, Shandong Province. Wanhua Chemical Group Co., Ltd. went public on the main board of the Shanghai Stock Exchange in 2001 (stock code: 600309). Its predecessor is Yantai Wanhua Polyurethanes Co., Ltd. and the Company changed its name to Wanhua Chemical Group Co., Ltd. in 2013.



Wanhua Chemical operates in locations across the world, with four manufacturing bases in Yantai, Ningbo, Zhuhai and Hungary. Wanhua has also established marketing units and offices in Europe, Middle East, United States, Japan and India. Its total assets stood at 65,827,730,000RMB at the end of the term of 2017.

Wanhua Chemical has the world's largest general capacity of MDI. It is the most comprehensive and competitive MDI manufacturer with advanced technology in the world. As a company with a world-class scale, Wanhua boasts C3/C4 petrochemical industrial chains with sophisticated technologies.

Wanhua Chemical also manufactures ADI products in its state of art industrial complex, and is one of the leading supplier in the world for Thermoplastic Polyurethane(TPU) and Synthetic Optical Resin materials, Wanhua has been following the road of specialized development and been committed to developing in the field of new chemical materials.

Business Segments

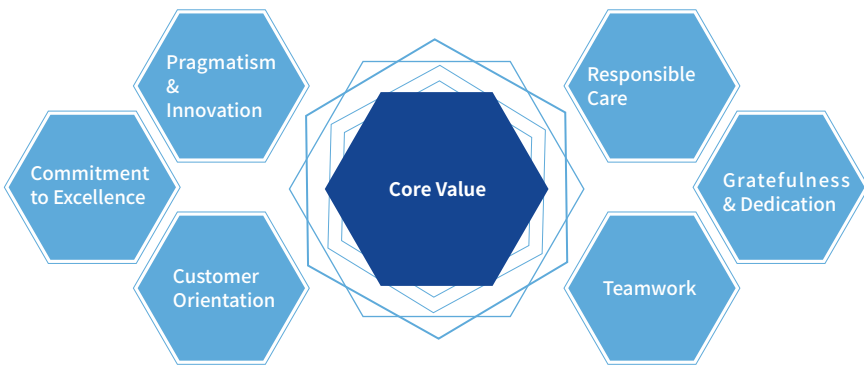
Polyurethanes	Petrochemical products		Fine chemicals	
MDI TDI Flexible foam polyol Rigid foam polyol Polyester Polyol MDI Varaint	Propylene PO PP MTBE AA+AE Butanol	MMA Ethylene SM HDPE LLDPE PVC	Surface Material TPU SAP ADI series Special Amine Series PU catalyst NPG	PC PMMA EOD Special acrylates and derivatives Other C3/C4 derivatives Isobutylene downstream fine chemicals

Vision

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

Mission

- To provide customers with value
- To create opportunities for employees
- To create wealth for shareholders
- To build a wonderful world for humanity



Wanhua's History of Development

- 1978 MDI branch of Yantai Synthetic Leather Plant, the company's predecessor, went up and running
- 1998 Yantai Wanhua Polyurethanes Co., Ltd was established after the shareholder restructure reform.
- 2001 Wanhua Yantai was listed on the Shanghai Stock Exchange
- 2003 160,000-ton per annum MDI project of Wanhua Ningbo started construction
- 2005 Phase I of Wanhua Ningbo went up and running
- 2010 Phase II of Wanhua Ningbo, with a production capacity of 600,000-tons per annum, went into operation
- 2011 Wanhua Yantai Industrial Park started construction
- 2013 The company was renamed Wanhua Chemical Group
- 2015 Phase I of Wanhua Yantai Industrial Park was fully completed
- 2017 Wanhua Zhuhai project succeeded in trial run at one go

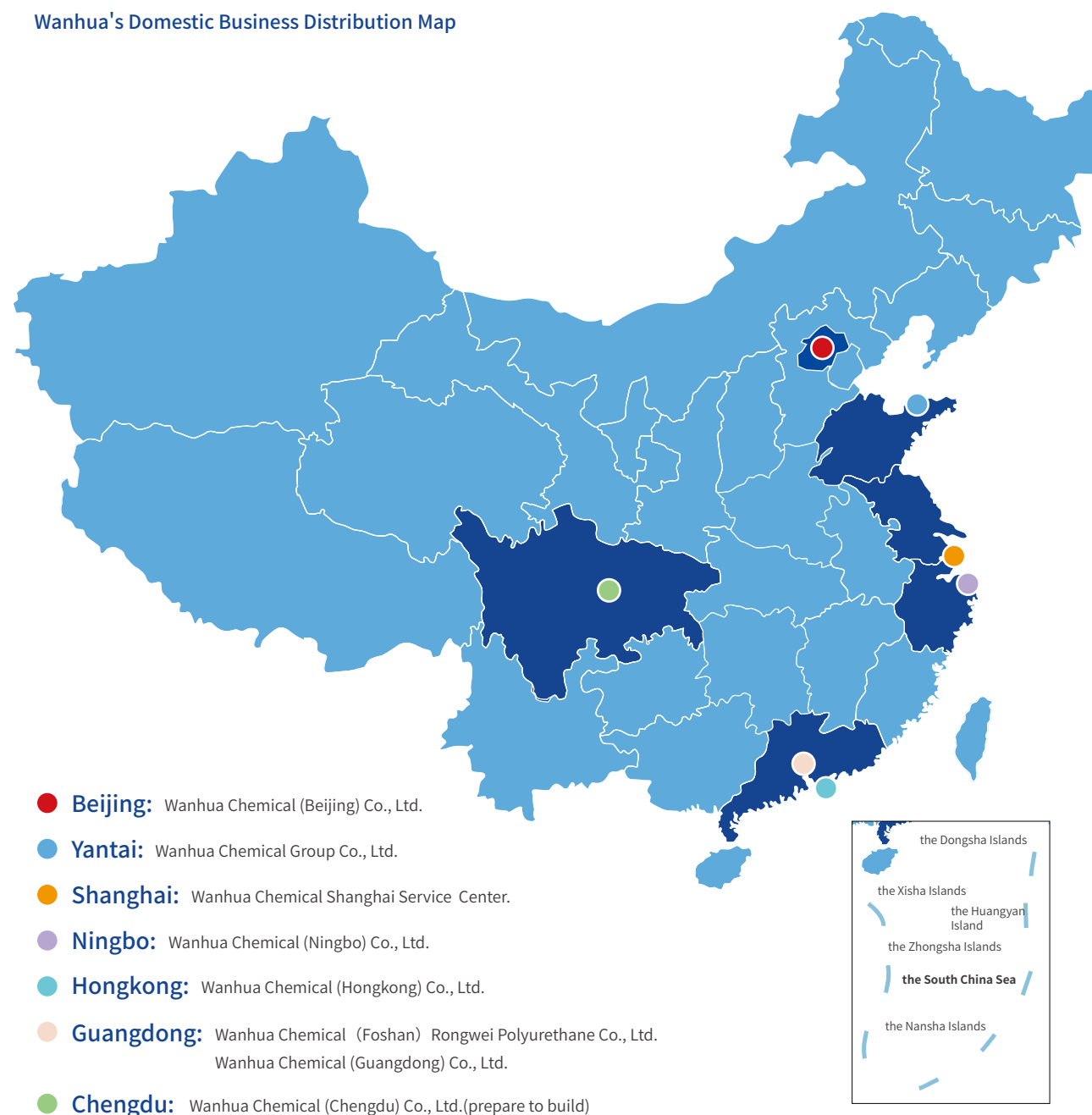


Business Overview

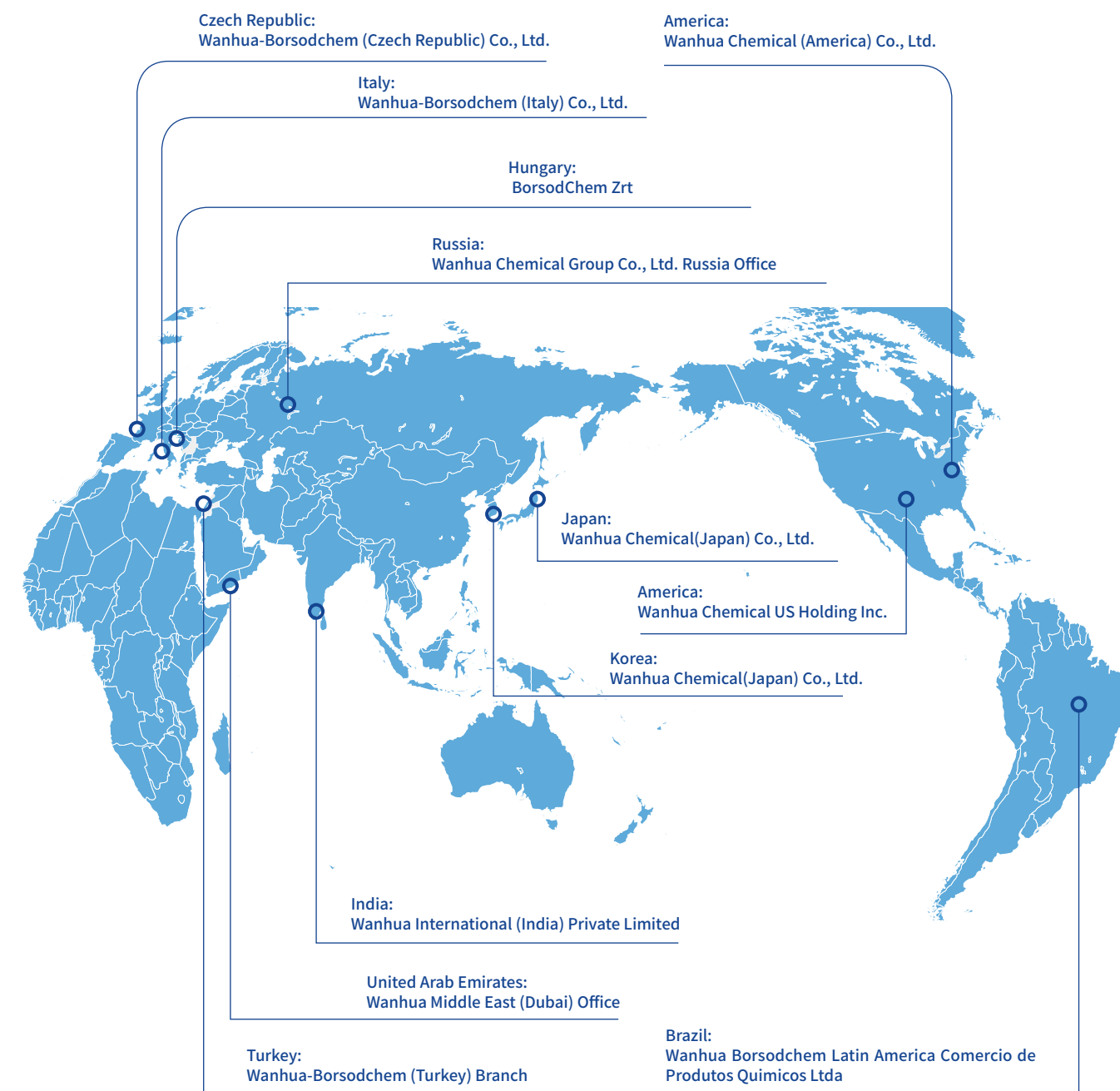
Wanhua mainly specializes in the R&D, production and sales of polyurethanes (MDI, TDI and polyhydric alcohols), propylene and its downstream acrylic acid, epoxypropane and other series of petrochemical products, fine chemicals and new materials including SAP, TPU, PC, PMMA, organic amine, ADI and water-based paint. These products are widely used in fields including chemistry, light industry, textile, construction, household appliances, building materials, transportation and aerospace.

Wanhua has three production bases in Yantai, Ningbo and Guangdong within mainland China; In the R&D fields, its R&D centers have gradually taken shape in Yantai, Beijing, Foshan, Shanghai and other areas. Based on such foundation, Wanhua Chemical is expanding its sales, R&D and production to a global scale.

Wanhua's Domestic Business Distribution Map



Wanhua's Global Business Distribution Map



Honors of Wanhua

Award-winning year	Name of honors and awards	Issuing body
2017	Best Employers Award (winner for the 5 th time consecutively)	Aon Hewitt
	Enterprise with Harmonious Labor Relations of Shandong Province	Human Resources and Social Security Department of Shandong Province, Federation of Trade Unions of Shandong Province, Association of Undertakings/ Association of Entrepreneurs of Shandong Province, and Chamber of Industry and Commerce of Shandong Province
	The Most Responsible Company	China Petroleum and Chemical Industry Federation
	High-and-new-tech Company (winner for the 5 th time consecutively)	Department of Science & Technology, Department of Finance, National Taxation Bureau and Local Taxation Bureau of Shandong Province
	Social Responsibility Contribution Award	Hazardous and Chemicals Logistics Society of the China Federation of Logistics & Purchasing
	Luban Prize for the Wanhua Ningbo MDI Extension Project and the Crylic Acid and Ester Project of Wanhua Yantai Industrial Park	China Construction Industry Association
2015	Governor Quality Award of Shandong Province	People's Government of Shandong Province
2014	List of Best Practice Unit for "Responsible Care" of China's Petroleum and Chemical Industry	China Petroleum and Chemical Industry Federation
2013	Top 500 Chemical Companies in China in 2013	China Chemical Enterprise Management Association and China National Chemical Information Association
	State Technological Invention Award	State Council of the People's Republic of China

2012	Science and Technology Award of Shandong Province	People's Government of Shandong Province
	Gold Award of National High-quality Projects	National Certification Committee of Engineering Construction Quality Award
2010	Second Prize of the National Science and Technology Progress Award	State Council of the People's Republic of China
2008	China Environmental-friendly Project awarded for Wanhua Ningbo	Ministry of Environmental Protection
2007	One of the First Pilot Enterprises of "Responsible Care" of China's Petroleum and Chemical Industry	China Petroleum and Chemical Industry Federation
	First Prize of the National Science and Technology Progress Award	State Council of the People's Republic of China

Associations Wanhua Chemical has joined:

2017	International User Association of Automation Technology in Process industries (NAMUR)	The first invited Chinese company, member of the task force
2016	Yantai Association of Public Companies	Vice Chairman entity (several Vice Chairmen)
2014	China Chemical Supplies Committee of the China Petroleum and Chemical Industry Federation	Vice Chairman
2013	China Association for Public Companies	Member
2013	Isocyanate Branch of the Plastics Standardization Committee	Member
2013	Standardization Committee for Plastic Products	Member
2012	China SAP Users Association	Member entity
2002	International Isocyanate Institute	Member of the Board of Directors
2001	Listed Company Association of Shandong	Vice Chairman entity (several Vice Chairmen)

The background of the slide is a photograph of an industrial refinery or chemical plant. It features several tall, vertical distillation columns, a complex network of pipes, and large horizontal storage tanks. The scene is illuminated by bright sunlight, creating strong highlights and shadows. A large, semi-transparent blue graphic element, consisting of a curved shape, is overlaid on the right side of the image, serving as a backdrop for the text.

02

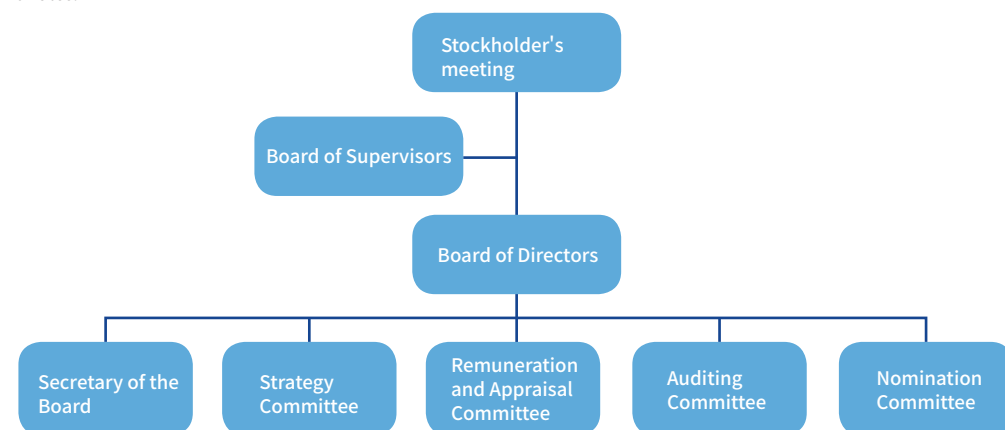
CORPORATE GOVERNANCE

Governance Framework and Principles

Compliance Operation

Governance Framework and Principles

Wanhua has constantly improved its governance structure and regulated corporate operation according to the *Company Law*, the *Securities Law*, the *Guidelines for the Corporate Governance of Listed Companies*, the *Stock Listing Rules of the Shanghai Stock Exchange* and other laws, regulations and rules.



Corporate Governance Framework

Compliance Operation

To ensure compliance operation, Wanhua follows the principles of “prevention, supervision, control, zero tolerance about malpractice, and promotion of corporate compliance management and healthy development”. The Auditing & Compliance Department is responsible for maintaining and supervising the compliance principles, and sets up four functional modules, namely management audit, legal audit, engineering audit and inspection audit. Following national internal audit standards, enterprise internal control basic norms, enterprise internal audit system and intergrate enterprise development strategy and business plan, management audit carries out works on operation management audit, financial audit, oversea audit, economic responsibility audit, information system operation and maintenance and security audit, secret management audit, etc., and evaluate the effectiveness of internal control system, report the major risks, control deficiency and various violations found during the audit to the management in time, propose suggestions, follow up corrective actions to help company (including all subsidiaries) to improve current management situations; Legal audit aims to construct and improve company's legal risk prevention and control and supporting system, help company to identify, monitor, report and prevent legal risks, and deal with risk accidents to safeguard the legal rights and interests of the company, develop consultings go deep into business and relevant legal training to colleagues and promote the overall legal risk management and control level; Engineering audit focuses on engineering contract audit, construction site track audit, engineering audit, party B supply special audit, construction project management compliance audit, settlement audit. Based on company development strategy, the inspection audit assures that bidding and procurement, supplier identification, party B supply audit, equipment supervision, fraud investigation to be carried out orderly, implements in-process control of business activities in time and ensure all departments, business divisions, subsidiary corporations and all colleagues abide by national laws and regulations and strictly execute company's rules and regulations; Meanwhile, the department formulates compliance system across the organization, makes clear detailed internal evaluation indicators for the functions of each post and audit on a regular basis, puts in place reasonable reporting and complaint handling procedures, and takes proper measures to protect the informers (if any) and prevent retaliation.

According to the *Anti-Unfair Competition Law of the People's Republic of China*, the *Anti-Monopoly Law of the People's Republic of China* and other laws and regulations, we have established a host of internal management systems, including Wanhua Chemical Anti-Malpractice Management System, *Anti-Monopoly Compliance Manual*, *Wanhua Chemical Auditing Department Management Manual*, *Wanhua Chemical Internal Audit Policy*, *Wanhua Chemical Internal Audit Workflow*, *Wanhua Chemical Contract Management System*, *Wanhua Chemical Tender Management Measures*, *Wanhua Chemical Measures for the Administration of Bid Evaluation Experts*, *Wanhua Chemical Reporting Management System*, *Wanhua Chemical Engineering Settlement & Audit Operation Specification*, *Wanhua Chemical Measures for the Administration of Audit Liaison Officers*, and work book of various business modules, compiles the *Contract Review Manual*, *Engineering Audit SOP* and *Audit Case Book* based on our experience, carried out training on and conveyed the systems across the Company, and implemented them strictly.

In addition, we have also actively participated in the Audit Club and Anti-Malpractice Alliance composed of China's advanced companies, launched the special study of “learning driven by research”, founded internal journal, enhanced the information-based development of auditing, and walked in the forefront of compliance operation among Chinese companies.

Anti-malpractice and commercial fraud

Integrity and law awareness education covers **100%** staff at each plant
The Company handles **100%** of the malpractice and fraud reports/complaints
Goal: At least once external anti-malpractice exchange held in 2017; Actual exchange **3** times. **100%**

Anti-unfair competition

100% of anti-unfair reports/complaints are handled
Education on anti-unfair competition law covers **100%** staff at each plant
Anti-monopoly lawyers witness and declare **100%** of the business negotiations between operators with competitive relation

Risk control

Engineering settlement and audit: complete more than RMB4.826 billion worth of engineering settlement tasks in 2017, with an auditing reduction rate of over **3.39%**
Contract becomes template-based: constantly updates the contract templates and increases the utilization rate to over **70%**

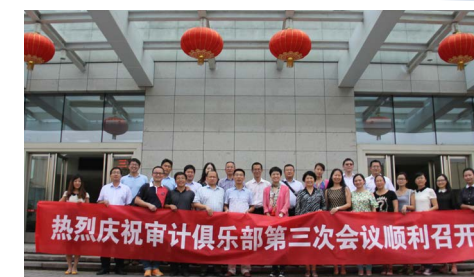
Achievement of 2017 Compliance Operation Goals

The company did not have lawsuits concerning malpractice, corruption and unfair competition in 2017;



Audit Club

Established on August 21, 2014, the Audit Club is initiated by Wanhua Chemical and participated by China's leading enterprises, such as Huawei, Midea Group and Sany Heavy Industry. It is committed to jointly advancing the practical work and case study of respective enterprises, supporting and promoting the development of the internal control system within the companies, and accelerating the internal audit transition and development.



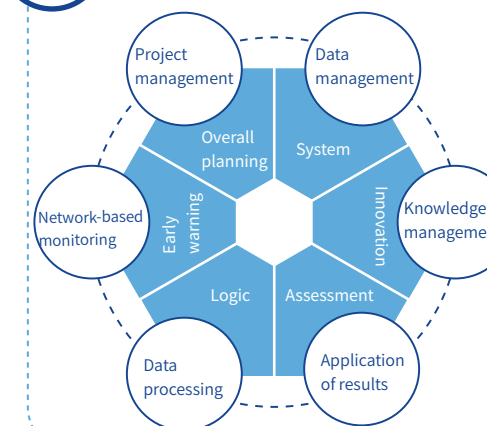
Special Research and Special Issue

The Auditing & Compliance Department innovatively practices the manner of working of “learning driven by research”, launches six research projects, including “study on the risks of contracts involving foreign interests”, “study on the risks of intellectual property management”, “legal study on the construction projects of the US”, and “application of information technology in auditing activities”. In the year 2017 the Auditing & Compliance Department independently develops bid evaluation experts random selection software, applies crawler technology on supplier legal risk screening process, realizes the combination of research project and project study, uses research to seek for direction and research results to guide internal audit practices, promotes the overall risk control on key businesses. Till 2017, The department has finished research on preliminary Anti-Monopoly Law, American Business Law, legal risks of Human Resources Management, Foreign Maritime Business Law, American Construction Law, etc., formulated and compiled relevant law research report or business guide book, shared and trained in the related business departments.

The Auditing & Compliance Department founds and issues the internal auditing journal – Internal Auditing Study, which serves as the major media for the Company to vigorously publicize and exchange views on the advanced ideas and technologies, best practices and typical auditing reduction cases of internal audit both at home and broad, promote and elevate new practices, refer to new ideas, follow up on new hotspots, advance experience sharing and realize common improvement.



Compliance Activity Audit Informatization Development



Wanhua Joined the Enterprise Anti-Fraud Alliance

Wanhua Chemical officially joined the Enterprise Anti-Fraud Alliance of China on July 14, 2017, becoming a benchmark enterprise of the Alliance in the chemical industry.

03

SUSTAINABLE DEVELOPMENT STRATEGY

Sustainable Development Committee

Responsible Care

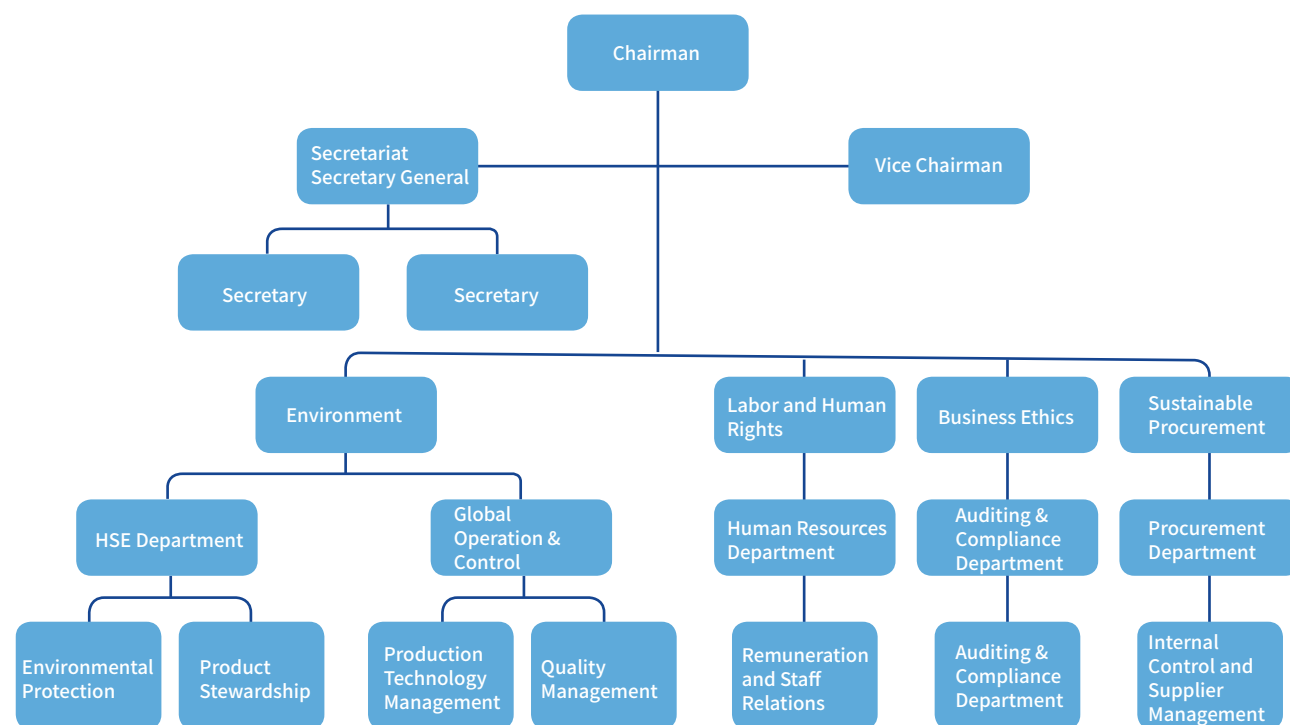
Participation of Stakeholders

Material Topics



Sustainable Development Committee

Liao Zengtai, Chairman of Wanhua Chemical, and Vice President Chen Yifeng serve as the Chairman and Vice Chairman of the Sustainable Development Committee respectively who comprehensively lead and advance the work on every front of the Company's sustainable development.



Sustainable Development Committee of Wanhua Chemical

Sustainable Development Goals

		Item	2020 Goals
Energy	1	Water Consumption Per Product (m3/ton)	-15%
	2	Energy Consumption (kgce/ton)	-15%
	3	Carbon Footprint (tce/ton)	-15%
ENV	4	COD Emission(ton/10,000ton)	-20%
	5	Solid Waste(ton/10,000ton)	-20%
Quality	6	Customer Complaint Rate(Pieces/10,000Ton)	-10%
	7	Refund Rate (ton/10,000ton)	-10%
Labor	8	Quit Rate (%)	5%
	9	Female Employee Proportion (%)	16%
Safety	10	Major Accident	0
	11	Process Safety Incident Rate (%)	0.2
	12	Recordable Incident Rate (%)	0.2
PUR	13	CSR Assessment Rate for Existing/New Suppliers (%)	30%/70%

Notes:

- The scope of statistics only include mainland China, excluding Wanhua oversea companies
- Above value takes the corresponding data of 2017 as the baseline
- Annual quit rate=annual separation number/ total employees number of the year+quit employees number)*100%
- Process safety accident rate= level 4 and above process safety accident number*200,000/production man-hours
- Recordable incident rate= recordable incident cases/ total man-hours*200,000
- CSR assessment rate for existing= purchasing value of qualified suppliers of CSR assessment/annual purchasing value
- CSR assessment rate for new suppliers=Number of new accessed suppliers who have conducted CSR assessment/number of new accessed suppliers

Responsible Care

Channelling responsible care is the rudiment of our sustainable development management strategies. On September 18, 2005, Ding Jiansheng, former signed and made clear our commitment on the World Declaration on Safety and Health of the 17th World Congress on Safety and Health. Wanhua became the one of the first pilot enterprises of "Responsible care" of the China Petroleum and Chemical Industry Federation on April 16, 2007, and released the annual report on responsible care at the 2009 China Responsible Care Promotion Conference.

In May 2016, Wanhua attended the Second Session of the United Nations Environment Assembly on invitation, where Mr. Chen Yifeng, Vice President of Wanhua, delivered the keynote speech on safety, environmental protection and sustainable development on behalf of developing countries, specifying the responsibilities of enterprises in realizing the SDGs of the United Nations.



Participation of Stakeholders

Wanhua Chemical's stakeholders include shareholders and investors, clients, employees, partners, suppliers, peers of the chemical industry, industry associations, stock exchange, NGOs, governments, surrounding communities, general public. In light of the evaluation on the importance of their impacts on the Company and the importance of the Company's impact on them, Wanhua defines key stakeholders and actively invites them to be part of its management on topics related to sustainable development.

Key stakeholders	Expectations of stakeholders	Ways of participation and response
Shareholders and investors	Stable value growth Perfect corporate governance Effective risk management Honest commercial environment	Stockholders' meeting Annual report and announcement of the Company Performance presentation Investors' exchanges www.whchem.com
Clients	Safe and compliant products Convenient and high-quality services Perfect management on the risks of sustainable development	Satisfaction survey Service line Exhibition Technical seminar www.whchem.com

Employees	Right to democratic participation Occupational health and safety Sound career development platform Harmonious working environment	Workers' congress and trade union committee Internal association Staff assembly “Thanks-giving month” in each November Luncheon party HR help email Complaints & reports email Coffee time 243 Project Informal meeting Career mentors Business mentors Social gathering Staff communication seminar www.whchem.com
Suppliers	Cooperative and win-win partnership	Supplier training Code of conduct for suppliers' social responsibilities Announcement on the supplier management platform www.whchem.com
Governments and regulatory authorities	Responding to national strategies Assuming the social responsibilities of listed companies Promoting industrial development and exchanges	Compliance operation Actively participating in the “Belt and Road” Initiative Actively claiming the tasks of governments and regulatory authorities Joining industry associations and societies Seminar on key topics, policy proposal Regular reporting and communication www.whchem.com
General public	Improving people's well-being Promoting social management Charity	Volunteer activity Charitable donation Well-targeted poverty relief
Surrounding communities	Protecting the environment Ensuring community safety Promoting the economic development of the communities	Community care Community education Community public benefit activities

Participation of Key Stakeholders

Material Topics

We holistically analyze our activities, products and services as well as various relations related to them from the dimension of “evaluation on stakeholders and impact of decisions” and the dimension of “degree of importance of the impact on economy, society and environment” based on the participation of stakeholders, expert consultation, team discussion and study on peer benchmarking, and according to the requirements of the GRI Standards, SDGs and the Guidelines of the Shanghai Stock Exchange for the Disclosure of Environmental Information by Listed Companies. As a result, we have confirmed the material topics about social responsibilities involved herein, disclosed and expounded on information related to these topics in this Report.

Fields of sustainable development		Material topics
Topics of the GRI Standards	Economy	Economic performance Indirect economic impacts Procurement behaviour Anti-corruption Anti-competitive Behavior
	Environment	Energy Water and Effluents Emissions Effluents and Waste Environmental compliance Supplier Environmental Assessment
	Society	Employment Labor relations Occupational health and safety Training and education Diversity and Equal Opportunity Non-discrimination Freedom of association and collective bargaining Child labor Forced and compulsory labor Security measures Human rights assessment Local communities Suppliers' social assessment Customer health and safety Marketing and labeling Socioeconomic Compliance
Organizational topics	Society/economy	Science and technology and innovation

Material Topics of the Sustainable Development Report 2017

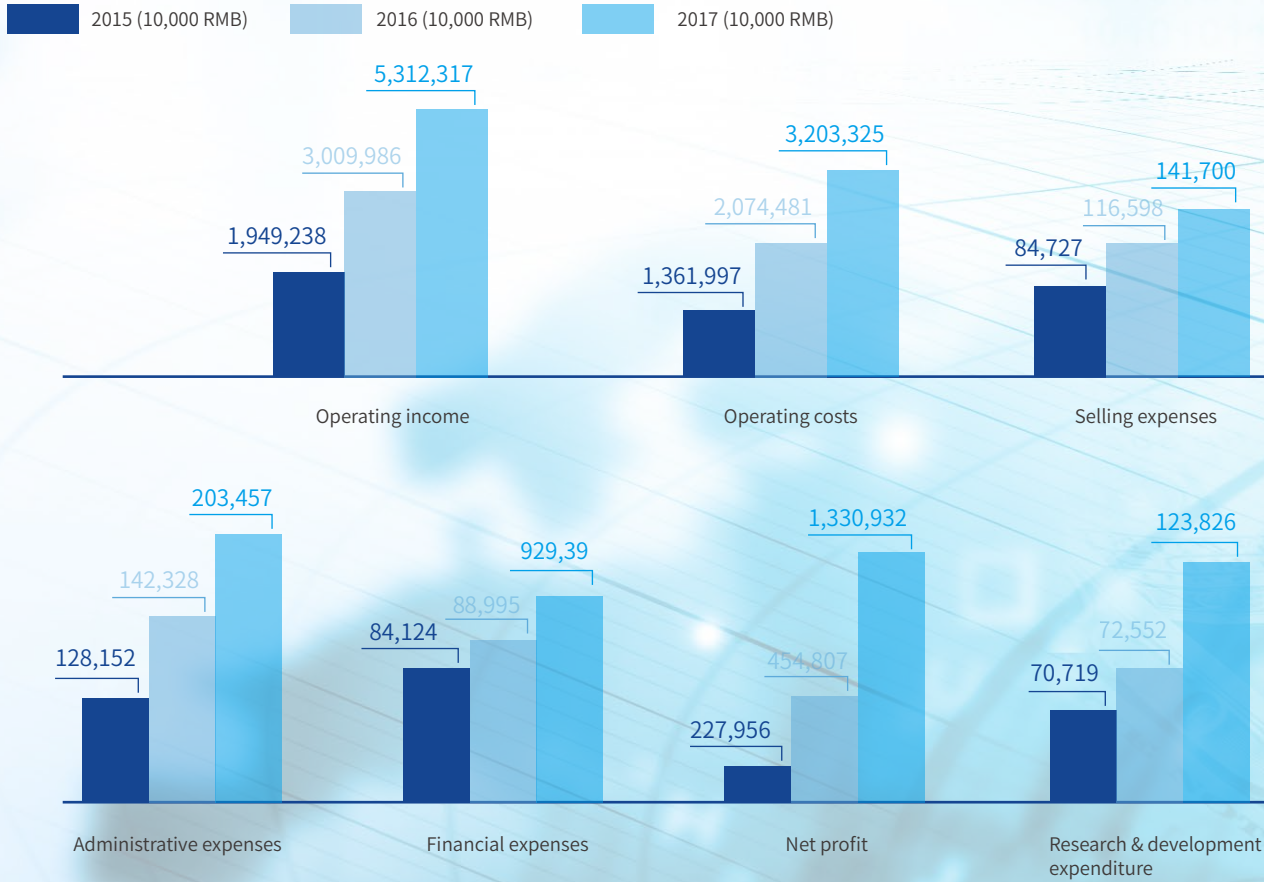
While taking a global perspective, Wanhua makes reasonable arrangements about its production and sales outlets, procures and provides services locally, thus achieving rapid development. We emphasize on the systematization of management and build up an integrated management system integrating multi-themes.

Management themes	Management systems	External certification
Quality management	ISO 9001	Yes
Environmental management	ISO 14001	Yes
Safety management	OHS 18001 DuPont Management System	Yes
Energy management	ISO 50001	

Integrated Management System

Note: Every region of Wanhua Chemical has built energy management system based on ISO50001 standard, during the report period, Ningbo region has received ISO50001 certificate.

The MDI was in strong demand in 2017, enabling us to acquire uncommon market opportunities; we set up the industrial chain value analysis model and market supply-demand analysis model in the petrochemical business segment, joined the Asia LPG CFR Committee, and constantly promoted the deep strategic cooperation with mainstream suppliers in Middle East; and we also made progress in the operation of the new materials business segment.



Basic Financial Data 2015-2017

Note: the data is extracted from the annual reports 2015-2017. For details, please refer to www.whchem.com/cn/investorrelations/news/annual.shtml



05

TECHNOLOGICAL INNOVATION AND PRODUCT STEWARDSHIP

Technological Innovation

Product Stewardship

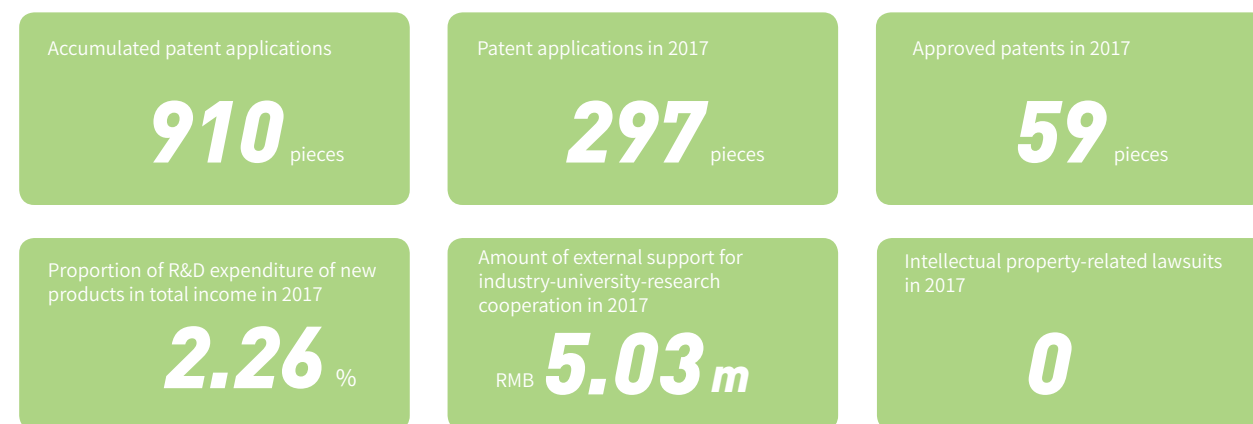
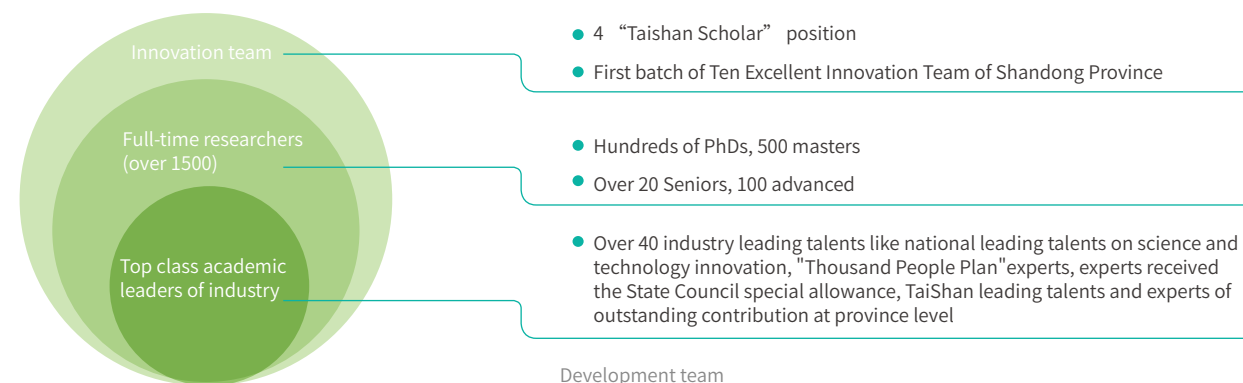


Technological Innovation

Technological innovation is cultivated as the core competitive power of Wanhua. We established R&D platforms like national polyurethane engineering technology research center and national polymer surface material engineering laboratory, formed an innovative system combined the fundamental research, applied research, innovative product development, engineering and industrialization in one. Wanhua Chemical received 7 items National Science and Technology Award successively, China Innovative Company Top 100 (third place), National Innovative Project Pilot Company Top 100 (only 9 companies in the first batch) High-and-new-tech Company Innovation Capability TOP 100 of Shandong Province (first place). Through intellectual property protection and transformation, Wanhua Chemical independently developed our own intellectual-property rights system for high-tech products, making Wanhua Chemical the only Chinese Company owns the independent intellectual property of whole series isocyanate (MDI, TDI, ADI) and PC.

Wanhua engages in the development of new products and new technologies and the transformation of technological achievements, incubates and cultivates new strategic businesses in light of the company strategy and industrial chain planning, develops technology updates focused on main raw materials of new chemical material industry, and select process technologies featuring high atom use ratio, energy conservation and emission reduction, and recycling materials, tackles key technical issues restricted greening, high performance and sustainable development of industry, and promote energy conservation and emission reduction and development of circular economy for downstream relevant industries.

We now have owned a best in class environmental technology development platform and a dedicated technical team, successfully realized the industrialization of the CWAQ treatment technology of high concentrated wastewater (Second Prize of Science and Technology Progress Award of Shandong Province) and the waste salt water recycling technology of MDI device (First Prize of Science and Technology Progress Award of Ningbo).



Wanhua's technological innovation

Case

By Product HCL Green Recycling

We developed indehydrogen chloride catalytic oxidation chlorine-making process of "copper catalyst + fluidized bed reactor" with independent intellectual property, constructed 100,000 ton/year demonstration plant, realized the chlorine recycle from HCL- chlorine-HCL, figured out the bottleneck problem on isocyanate industry development, reduced environmental risks on HCL transportation and storage.

Case

Water-Based Paint and Resin for Adhesive Use

We developed whole water-based solutions for architectural coating, carpentry, industrial paint, adhesion agent, garment printing industry. Through the replacement of solvent based products, Wanhua Chemical reduced a large number of VOC emissions in organic solvent and protected the environment.

Case

Recycling of Butyl Acrylate Sulfonated Waste Water

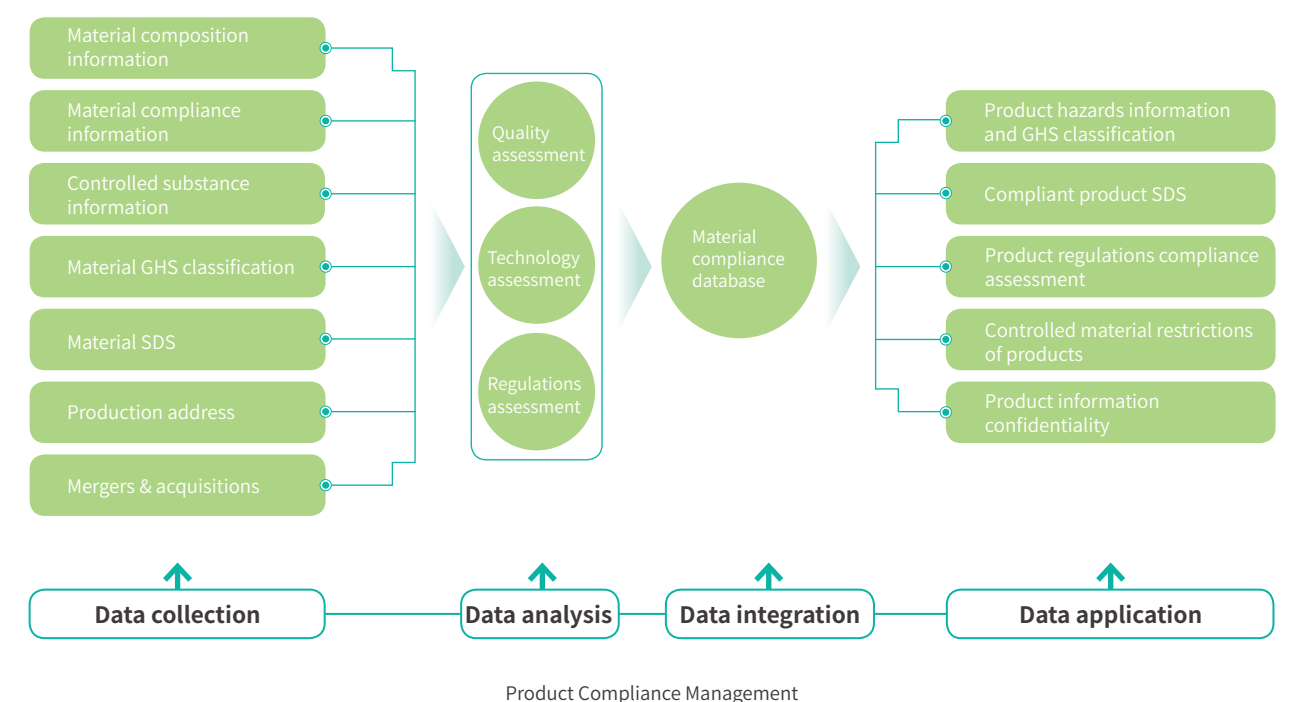
The independently developed technology for recycling of high salt, high COD, biorefractory butyl acrylate sulfonated waste water is firstly industrialized in the industry, tackles the difficulties in butyl acrylate sulfonated waste water treatment, meeting the requirement for direct disposal at sea.

Product Stewardship

Product stewardship is a comprehensive business process used in each stage of product life cycle to identify, manage and reduce the impact on health, safety and environment (HSE). Wanhua's HSE Department is responsible for supervising the compliance of all products, conducting compliance assessment in each stage of product life cycle, and maintaining close cooperation and communication with clients, suppliers and other parties on the supply chain, thus ensuring that they fully understand the HSE information related to chemical products.

The key point of the product stewardship and management system rests with raw material compliance, product compliance, new product development compliance, safety information communication, client stewardship, transportation of hazardous goods, and contractor and storage safety, including the global chemicals supervision catalogue, product registration, GHS management and insecticide requirement. Wanhua also conducts due diligence investigation with all existing and new suppliers concerning the usage of conflict materials.

Product stewardship and management also plays a dominant role in the sustainability assessment of the supply chain. By entering into close cooperation with suppliers and clients, Wanhua meets the demand for sustainability. Currently, the Product Stewardship Department partners closely with relevant departments of the Company responsible for labor and human rights, commercial ethics, sustainable procurement and energy and environment, so as to further elevate our rating on the sustainability platform of ECOVADIS and other suppliers.





06

ENVIRONMENTAL PROTECTION

Environment and Safety Management System

Energy and Energy Efficiency

Water Resources Protection

Zero Emission Management

Environment and Safety Management System

Wanhua's manufacturing process and final products contain a variety of dangerous chemicals, and there are organized or fugitive emissions of various pollutants in the process engineering and the operation of auxiliary facilities. Based on the national safety standards, Wanhua has integrated the relevant requirements of responsible care and learnt from experience of world's leading chemical companies to establish the Wanhua health, safety and environment (HSE) system which is in line with the methodology of PDCA, risk management and process management , including HSE Commitment, principles 15 Key Elements and 63 Sub-elements, Programmatic Document for HSE Event and operation standard and practice.

Wanhua HSE Commitment



At Wanhua, we are continuously pursuing sustainable development. The health and safety of our employees, interested parties and the community is our priority, and we see environmental protection and resource optimization as our sacred duty. We firmly believe that all injures, safety and environmental accidents could be avoided. Therefore, our goal is: Zero injury, Zero accident, Zero emission. To build a modern green ecological chemical enterprise.

We Promise:

- To comply with the national and local laws, rules, codes, standards and other requirements
- To achieve sustainable development by reducing waste water, waste gas and solid waste, and increasing efficiency of energy
- To provide a safe working environment to prevent harming employees and the community, as well as protecting the environment



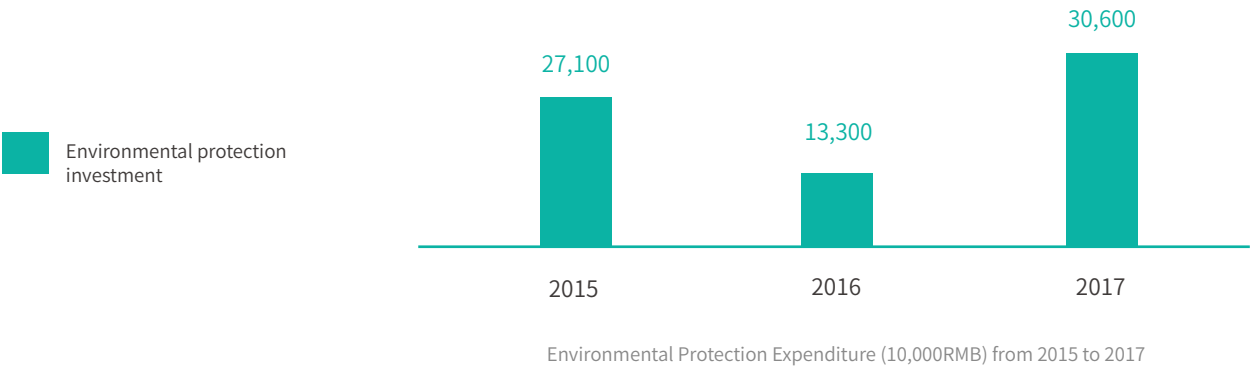
We are committed to

achieve the zero emission by building a “responsible” factory with “three-nos”, “zero waste”.The “Three-nos” are:

- No leakage: We will ensure no liquid leakage and smoke with drainage outlet blockade, leak-proof equipment spherical bunker;
- No unusual odor: We will ensure no odor by closed sampler, collection of tank breathing exhaust, and collection of waste gas in biological filter under negative pressure;
- No mechanical noise: We will ensure no noise by sound-proof door, pipeline blowing silencer, noise enclosure and silencing storeroom;
- Build a factory with “no waste” : Such a factory can be set up through saline reuse, HCL oxidation, CO₂ recycle and reuse of reclaimed water;
- We aim to realize zero discharge in waste water, waste gas and the waste and noise.
- Build a “responsible” factory: We set out from the source to prevent pollution in links of recycling, end-of-pipe treatment and terminal process to realize zero emission.

HSE Department leads the overall operation of the management system, monitors and records data to realize the continued improvement of the system. HSE management requires close cooperation and exchanges with all stakeholders. HSE Department sets up an information exchange program to ensure a smooth information flow.

As a key element of HSE management system, the environmental management system covers the management of product life cycle, the pollution prevention of wastewater and gas, noise, solid waste and radioactive materials, the management of chemicals, the management of energy saving and clean production, as well as monitoring statistics and improvement.



Energy and Energy Efficiency

During the production and operation, we consume energy including coal, gasoline, diesel, natural gas, propane liquefied petroleum gas, electricity and steam. Complying with the laws and regulations such as the *Energy Conservation Law of the People's Republic of China*, we have set up Wanhua Energy Conservation Committee, built energy management system, published the *Measures for Energy Conservation of Wanhua Chemical* and formulated the long-term energy conservation plan and annual goal. We carried out education and training for employees across the company and reviewed the energy efficiency benchmarking and the cost of the energy conservation projects to improve the energy efficiency and reduce the energy consumption.

In evaluating the energy conservation and consumption reduction projects across the company, we collected 64 projects of this sort in 2017, with the energy conservation of 60,300 tons of standard coals and annual profits of RMB338 million. With the implementation of energy optimization system, Yantai Production Base achieved an annual profit of RMB11.34 million.

Energy Consumption Volume from 2015 to 2017

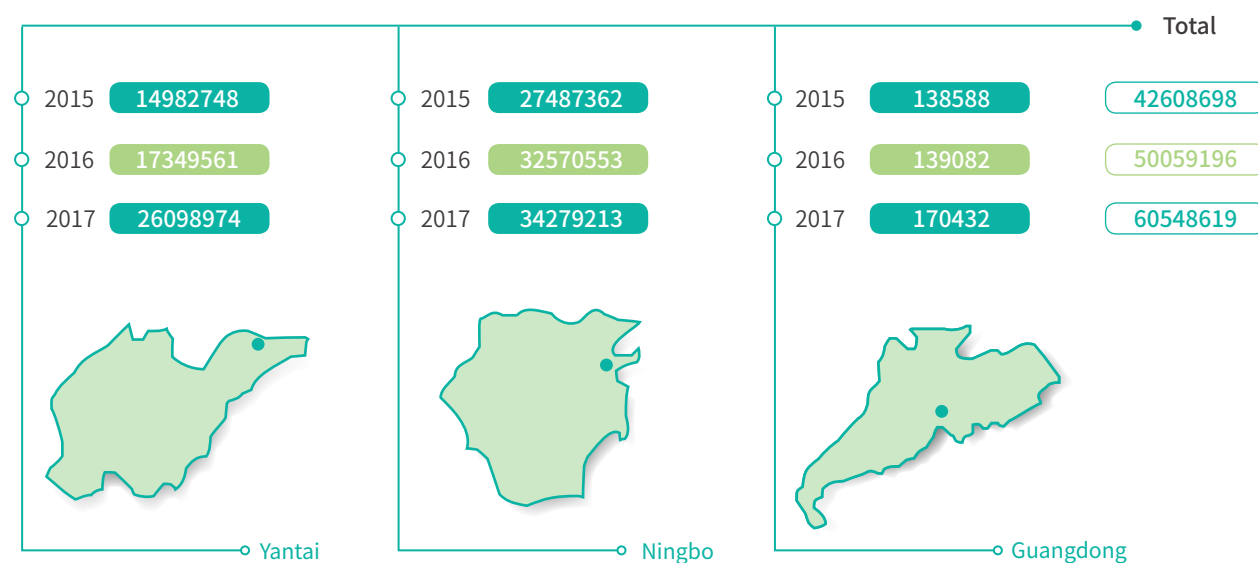
Category	Unit	2015	2016	2017
Coal	Ton (t)	1,316,623.23	1,520,993.45	1,587,037.29
	Kilojoules (KJ)	27,527,958,576,472.00	31,800,931,052,600.00	33,181,775,680,228.00
Gasoline	Liter (L)	6,406.83	9,234.01	8,352.93
	Kilojoules (KJ)	201,437,782.71	290,327,431.81	262,625,307.42
Diesel	Liter (L)	298,926.60	253,837.21	603,091.82
	Kilojoules (KJ)	10,964,843,085.76	9,310,931,600.00	22,121,842,166.65
Natural gas	Cubic meter (m3)	5,731,369.75	3,228,458.25	4,980,796.90
	Kilojoules (KJ)	223,127,955,737.25	125,687,108,130.75	193,907,404,113.90
Propane LPG	Ton (t)	0	13,118.00	16,412.00
	Kilojoules (KJ)	0	658,248,122,000.00	823,537,748,000.00
Electricity consumption	Kilowatt-hour (KWH)	2,100,858,874.39	3,663,349,006.91	4,062,763,048.89
	Kilojoules (KJ)	7,563,091,947,804.00	13,188,056,424,876.00	14,625,946,976,004.00

Steam consumption	Ton (t)	3,763,169.76	6,413,462.33	6,766,706.42
	Kilojoules (KJ)	14,059,202,204,680.00	23,960,695,276,088.00	25,280,415,185,120.00
Steam sold	Ton (t)	3,332,800.00	3,945,000.00	4,132,266.00
	Kilojoules (KJ)	12,451,340,800,000.00	14,738,520,000,000.00	15,438,145,776,000.00
Electricity sold	Kilowatt-hour (KWH)	1,119,579,267.85	1,338,101,123.64	1,371,311,709.00
	Kilojoules (KJ)	4,030,485,364,260.00	4,817,164,045,104.00	4,936,722,152,400.00

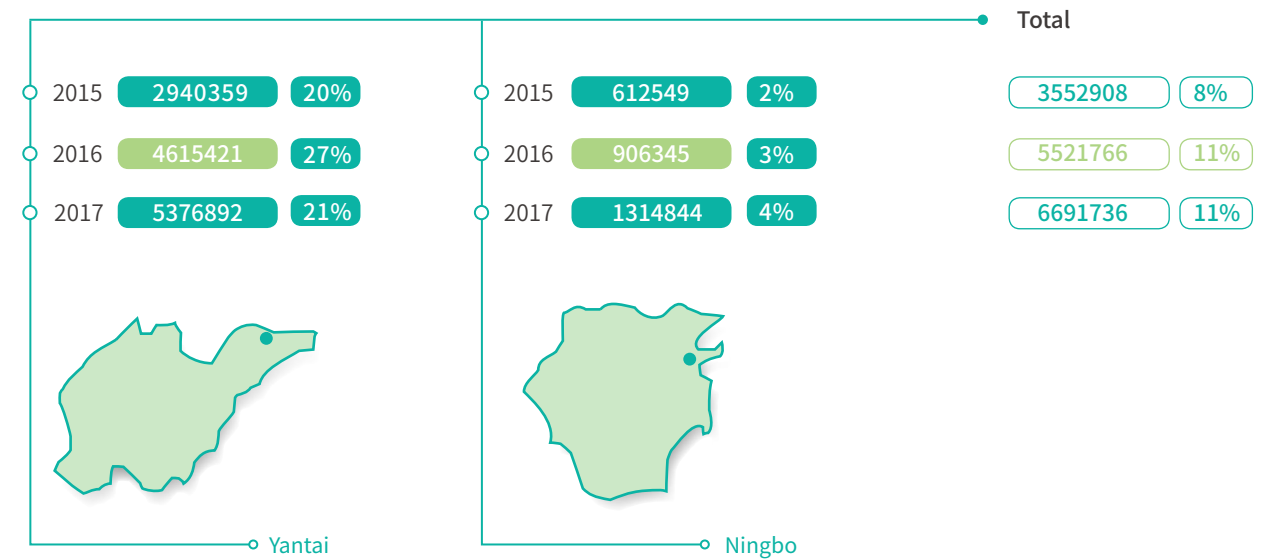
Note: The scaling factor is taken from that in the GB 31830-2015 norm of energy consumption per unit product of diphenyl methane diisocyanate.

Water Resources Protection

Municipal water supply system provides water for Wanhua's factories in various places and no other sources of water supply will be affected by the company. In order to save water, we have formulated water conservation standard, developed recycle processing technology and improved the use efficiency.



Water Consumption (Ton) from 2015 to 2017



The Amount of Water Circulation from 2015 to 2017 (Ton, %)

Case

Reuse of Reclaimed Water in Yantai

In 2017, we reused **5.38** million tons of waste water, achieving a reuse rate of reclaimed water at **61**%.



Case

Comprehensive Use of Saline Water

Waste saline recycling technology can help us save

720,000 tons of water and reuse **140,000** tons of saline per year.



Zero Emission Management

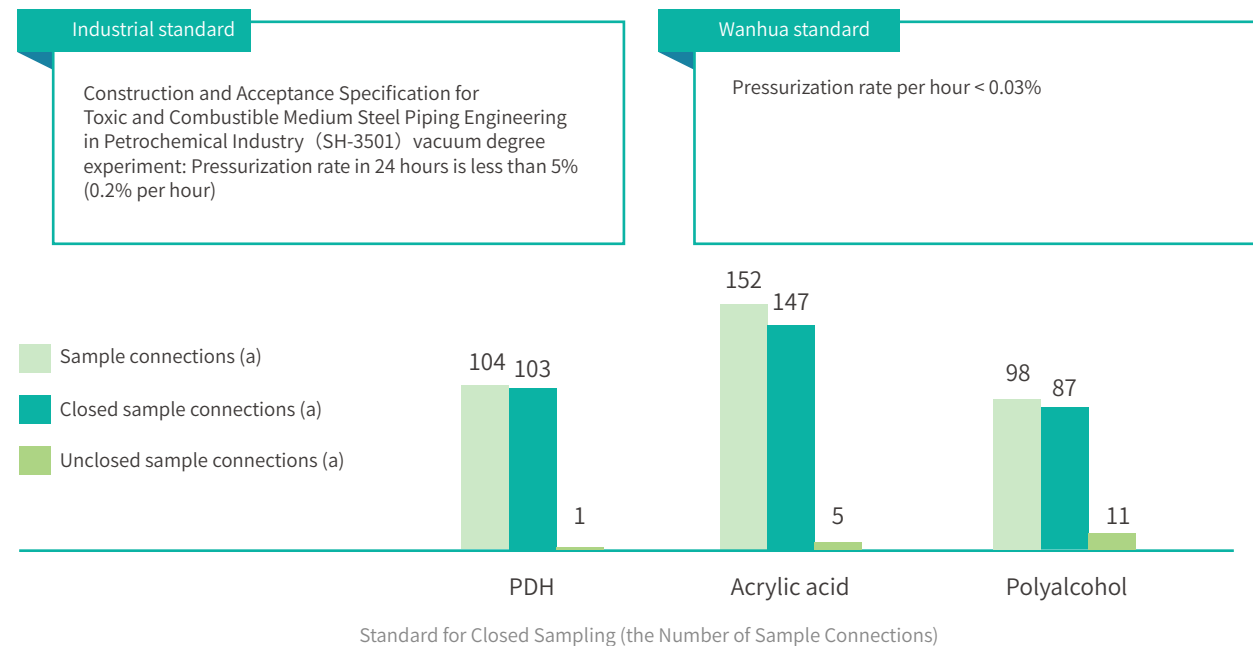
Wanhua is committed in achieving the environmental target of “zero emission”. Adhering to the idea of “reduction at the source – reuse – recycling – end-of-pipe treatment – terminal processing”, we ensure that substantial reduction at the source through advanced design to realize zero emission.

Pollution Prevention

Environmental protection facilities	Pollution factor	Unit	National standard	Wanhua's actual emissions
Photochemical exhaust funnel	Chlorine	mg/Nm ³	65	0.4
Nitric acid tail-gas absorption tower	NO _x	mg/Nm ³	200	3
Aniline absorption tower	Aniline	mg/Nm ³	20	0.8
Sulfur recovery equipment	SO ₂	mg/Nm ³	200	4.4
Formaldehyde ECS waste gas	Formaldehyde	mg/Nm ³	25	0.09
Boiler for waste energy	NO _x	mg/Nm ³	250	10
	SO ₂	mg/Nm ³	100	4.6
	Particulate matter (PM)	mg/Nm ³	10	1.25

Wanhua's Actual Emissions

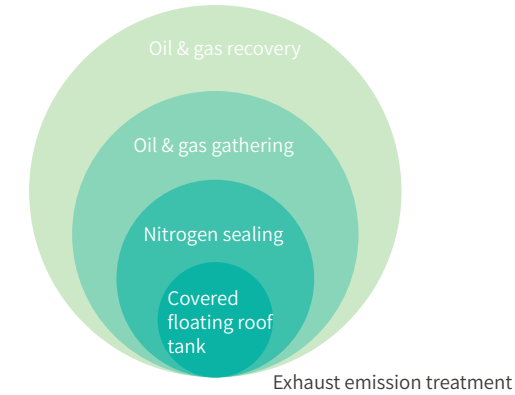
Note: Wanhua's actual emissions originate from the third-party monitoring data.



Note: The reason for not using closed sampler is attributable to pressures, characteristic of materials, etc.

Case

Shifting of Emissions from Fugitive to Organized Mode



Case

Environmental Protection Examination and Repair

Before commencing process with the equipment, we initiate a closed steam purge, blowing and replacing to ensure there is no residual material. The collected waste gas is then passed through a negative pressure hose to the treatment system.



Case

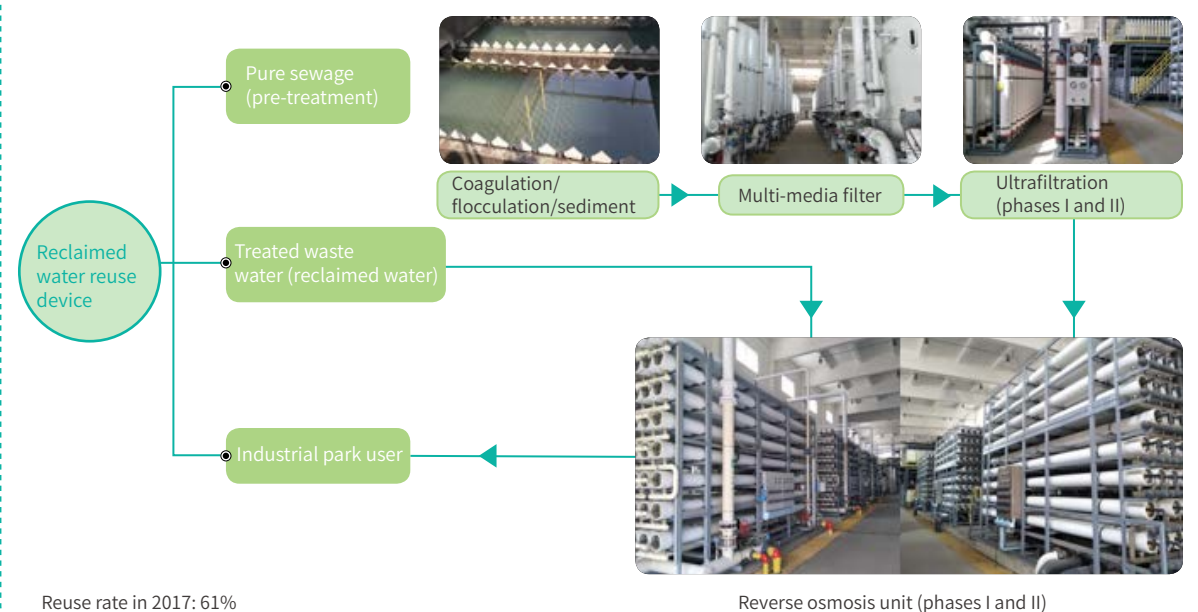
Flare Gas Recovery

Flare gas recovery system contains two liquid ring compressors, and these exports the recovered gas back to the boiler.



Case

Comprehensive Recycling



Case

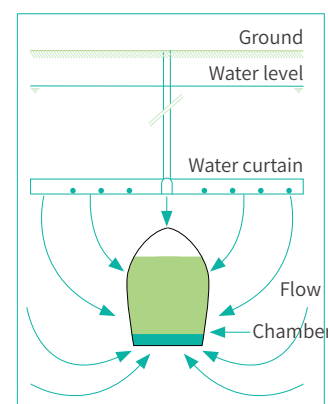
Hazardous Waste Life Cycle Management



Case

Underground Storage Base

- Deeply buried underground, LPG is isolated from the ground air and thus less exposed to fire and explosion;
- The pipeline of LPG connected with the ground is equipped with automated protective valve to avoid failure and leakage.
- The solid underground cavern is safe and reliable; with a less coverage of ground, the natural view will not be ruined.
- No leak of storage medium guarantees no influence on water and geographic environment;
- Less emission of surface wastewater, gas and oil.



Waste Water

Wanhua's wastewater is divided into domestic and industrial wastewater. A small percentage of saline water is discharged to sea, and other wastewater will be channeled to the municipal pipeline network after processing in line with the standard. In 2017, Wanhua optimized and adjusted the water supply temperature at various water circulation stations, decreasing the water use volume by 20% as compared with the target volume.

Regions	Check point, category	Emission standard	Test item (Name of the pollutants)	Average emission concentration (mg/l)				Total emission (t)			
				Standard	2015	2016	2017	Standard	2015	2016	2017
Yantai	Municipal waste water emission	Standard for pipeline in processing urban sewage treatment works	COD	500	86.38	179.26	130.88	1038.35	252.15	703.4	687.16
			Ammonia nitrogen	35	1.78	2.04	4.89	69.22	5.19	7.99	25.68
Ningbo Wanhua	Municipal waste water emission	Comprehensive Waste Water Emission Standard and the Limitation of Nitrogen and Phosphorus of Indirect Waste Water Emission by Industrial Companies of Zhejiang	COD	500	87.6	75.9	126	136.00	128.17	119.87	115.66
			Ammonia nitrogen	35	1.52	0.96	0.41	25.50	13.94	19.04	2.91
Beijing	Sanitary sewage	DB11/ 307—2013-Comprehensive Emission Standard of Water Pollutant	COD	500	/	64.5	46	/	/	0.22	0.41
			Ammonia nitrogen	45	/	11.9	11.3	/	/	0.06	0.08
Guangdong	Municipal waste water emission	Three-level Standard of the Second Period of Guangdong Local Standard Limitation of Water Pollutant Emission	COD	500	Non-start	Non-start	21.7	/	Non-start	Non-start	2.37
			Ammonia nitrogen	45	Non-start	Non-start	0.16	/	Non-start	Non-start	0.02

Wastewater Emissions from 2015 to 2017

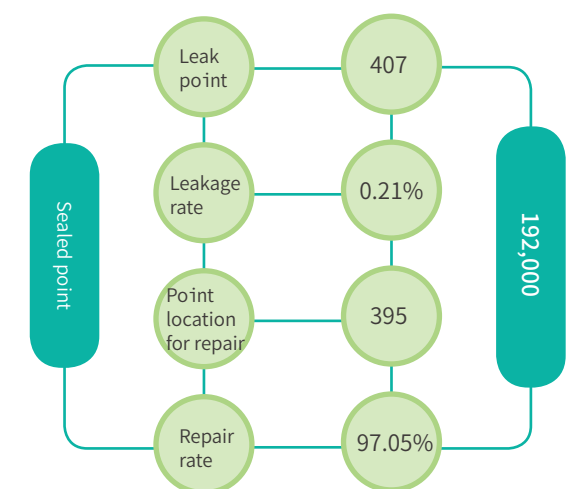
Waste Gas

Wanhua strives to achieve "zero emission" of waste gas: zero fugitive emission and qualified organized emission. Wanhua transforms the fugitive emission such as breathing exhaust of storage bulk, exhaust gas of loaders and exhaust gas volatilized from wastewater pool into organized emission, and construct supporting processing facilities. For sealed site, we conduct LDAR management to locate and repair the leaking point in a timely manner.

Raw materials of storage tank	Waste gas treatment
Benzene	Recycle of benzene oil and gas
Methyl alcohol	Water washing of methyl alcohol
PO waste liquid, isobutyraldehyde	Incinerator
Ethyl alcohol, capryl alcohol	Water washing of polyhydric alcohols
Normal butanol	Water washing of polyhydric alcohols
MTBE	Recycle of MTBE oil and gas
TBA	Water washing of polyhydric alcohols
LPG, C4, isobutene	Transmit to be burned in the flare
Acrylic acid and esters	Transmit to TVG line

Treatment of Breathing Exhaust of Storage Tank

The company has 13 sets of LDAR equipment and one infrared monitor. We arrange theoretical and practical training for relevant personnel, establish PID document and carry out on-site measurement.



2017 LDAR Management Performance

Note: The above data is of Wanhua Chemical in Yantai.

Waste

Wanhua adheres to the principle of “volume reducing, recycling, utilization, and safe disposing” for waste and annually formulates dedicated solid waste rate per 10,000 tons (solid waste rate/10,000 tons = solid waste volume/capacity * 10,000) for the fixed evaluation of the units.

We set up an information management system in 2007 to achieve a traceability management throughout the entire life cycle of hazardous waste. In 2017, Wanhua Guangdong and Wanhua Beijing reduced 400 tons of packaging containers through measures such as replacing and identifying intermediate bulk container (IBC)/TANK; the New Materials Business Unit reduced 150 tons of waste containers through replacing with IBC, transporting with TANK and increasing storage tanks. During the period, no significant spills happened in Wanhua.

Category	Hazardous waste (ton)			General waste(ton)		
	2015	2016	2017	2015	2016	2017
Recycled waste						
Waste package bulk (Ningbo Rongwei)	249.94	225.64	104.9	/	/	/
Waste chlorobenzene (Ningbo)	468	739	983	/	/	/
Waste package bulk (Ningbo)	79	297	351	/	/	/
Ferrimolybdate catalyst (Ningbo)	0	0	43	/	/	/
Waste oil (Ningbo)	60	95	26	/	/	/
Salt slurry (Ningbo Chlor-Alkali)	/	/	/	2570.96	2883.78	2766.98
Lubricating oil (Ningbo Chlor-Alkali)	1.64	2.44	1.98	/	/	/
Waste lubricating oil (Yantai)	24.92	42.8	105.36	/	/	/
Waste empty bulk (Yantai)	10.92	97.9366	104.26	/	/	/
Waste catalyst (Yantai)	0	366.26	846.07	/	/	/
Weight of recycled waste, including recycled energy						
Crude and fine residues (Ningbo)	/	/	/	62350	60600	78900
Residue of gasifier in Yantai	/	/	/	76803.5	108864	123390.9
Thermo-electric furnace in Ningbo	/	/	/	145525	163246	144997
Waste weight of incineration (large-scale burning)						
Ningbo Rongwei	228.2	221.55	268.17	0	0	465.97
Other incineration (Yantai)	1507.6	1041.981	1183.26	/	/	/
Yantai Chlor-Alkali Thermal Power	/	/	10.261	/	/	190297.02
Aniline tar (Ningbo)	1803	1419	693	/	/	/

Other incineration waste (Ningbo)	418	1311	850	/	/	/
Other incineration (Ningbo Chlor-Alkali)	2.82	13.16	28.46	/	/	/
Waste weight of landfill						
Heat preservation cotton, glass fibre reinforced plastics (Ningbo)	/	/	/	151.5	195.9	163.9
Residue of furnace (Yantai)	28.16	0	0	/	/	/

Waste Volumes from 2015 to 2017

Note: “/” means the corresponding area did not produce such waste.

Noise

In order to reduce the influence of noise on our employees and surrounding environment, we have purchased low noise equipments and that has greatly reduced the noise generation during the equipment operation and material transportation through measures including shock pads, soundproof rooms, noise enclosures and silencer. The noise of the factory reaches the standard consistently.

Regions	Measuring point	2015		2016		2017	
		Measured value dB(A)		Measured value dB(A)		Measured value dB(A)	
		Daylight	Night	Daylight	Night	Daylight	Night
Yantai	Outside the north gate at Hexi factory	49.73	49.20	54.00	51.23	52.75	47.63
	Southern part out of the factory of Hexi Solid Waste Station	49.23	48.77	60.33	53.70	55.03	49.73
	Eastern border of the factory on Wanhua Road and Industrial Park North Road	50.23	50.28	46.60	47.57	49.53	47.38
	Southwestern border of the factory with chlor-alkali equipment	60.28	50.08	57.50	50.83	60.73	52.70
	Southwestern part of Anbao Building outside the factory	47.07	46.90	49.87	47.20	49.03	48.35
	Southern part outside the front factory gate #1	47.68	46.03	45.77	46.33	49.08	46.20
Guangdong	One-meter measuring point 1# outside eastern factory	Non-start	Non-start	Non-start	Non-start	57	48
	One-meter measuring point 2# outside southern factory	Non-start	Non-start	Non-start	Non-start	60	52
	One-meter measuring point 3# outside western factory	Non-start	Non-start	Non-start	Non-start	61	48
	One-meter measuring point 4# outside northern factory	Non-start	Non-start	Non-start	Non-start	58	50
Ningbo	Eastern factory	57	54	60.2	52.3	50	48
	Western factory	50	45	62.8	49.8	49	50
	Northern factory	52	43	53.9	52.9	48	46
	Southern factory	61	54	56.3	49.8	52	50

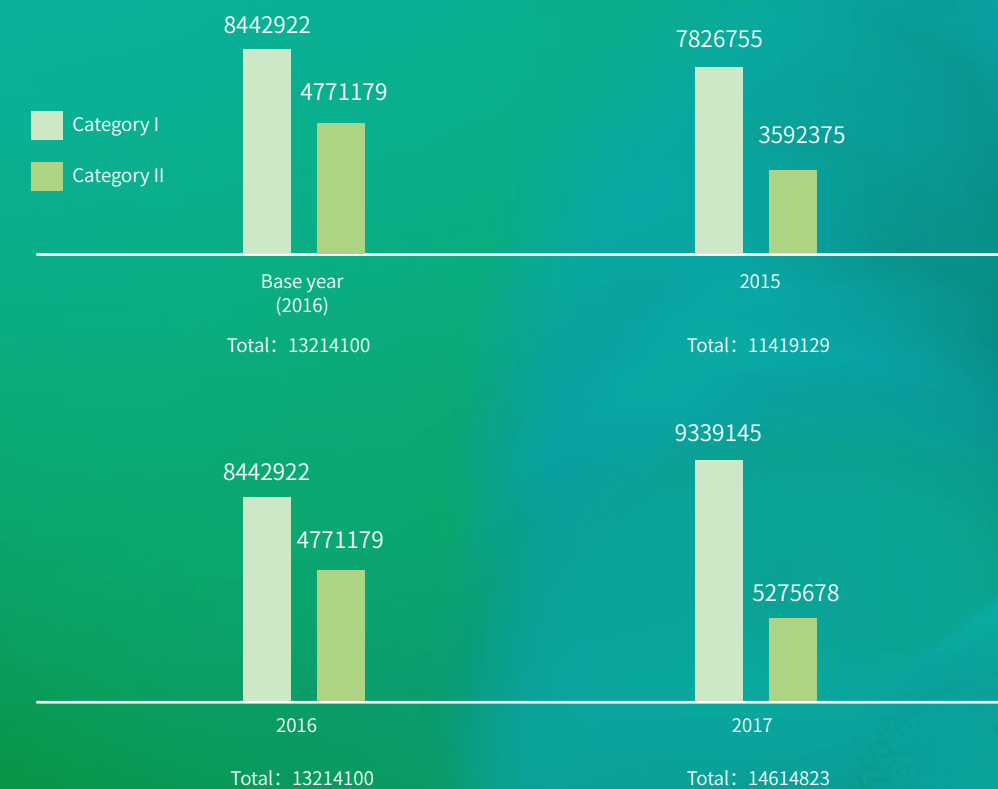
Noise Emission from 2015 to 2017

Note 1: Wanhua complies with the Class III of the Emission Standard for Industrial Enterprises Noise at Boundary (GB12348-2008).
Note 2: The monitoring result does not deduct the background noise.

ADAPTATION TO CLIMATE CHANGE

Wanhua Chemical attaches great importance to climate change, establishes a carbon emission management system, formulates measures for carbon emission management and data calculation guidance for carbon emission, organizes relevant propaganda and training, improves the awareness of energy conservation and low carbon emission of our employees and reduce the actual emission volume. The production management center conduct discussions about the emission reduction target (the emission intensity per unit of RMB10,000 output value and emission intensity per unit of product) with the production management departments of various production bases in October every year. The 2017 target of emission intensity per unit of RMB10,000 output value and emission intensity per unit of product respectively reduced 15% and 5% compared with 2016, and the actual ones decreased by 31.72% and 7.39% respectively, successfully achieving the established target of 2017.

Total greenhouse gas emission volume (tCO₂e)



Greenhouse gas emission intensity (tCO ₂ e/t)	Base year(2016)	2015	2016	2017
	2.43	3.56	2.43	2.20

Note: Greenhouse gas emission volumes cover Yantai and Ningbo, excluding other regions.

08

WORK SAFETY

Process Intrinsic Safety

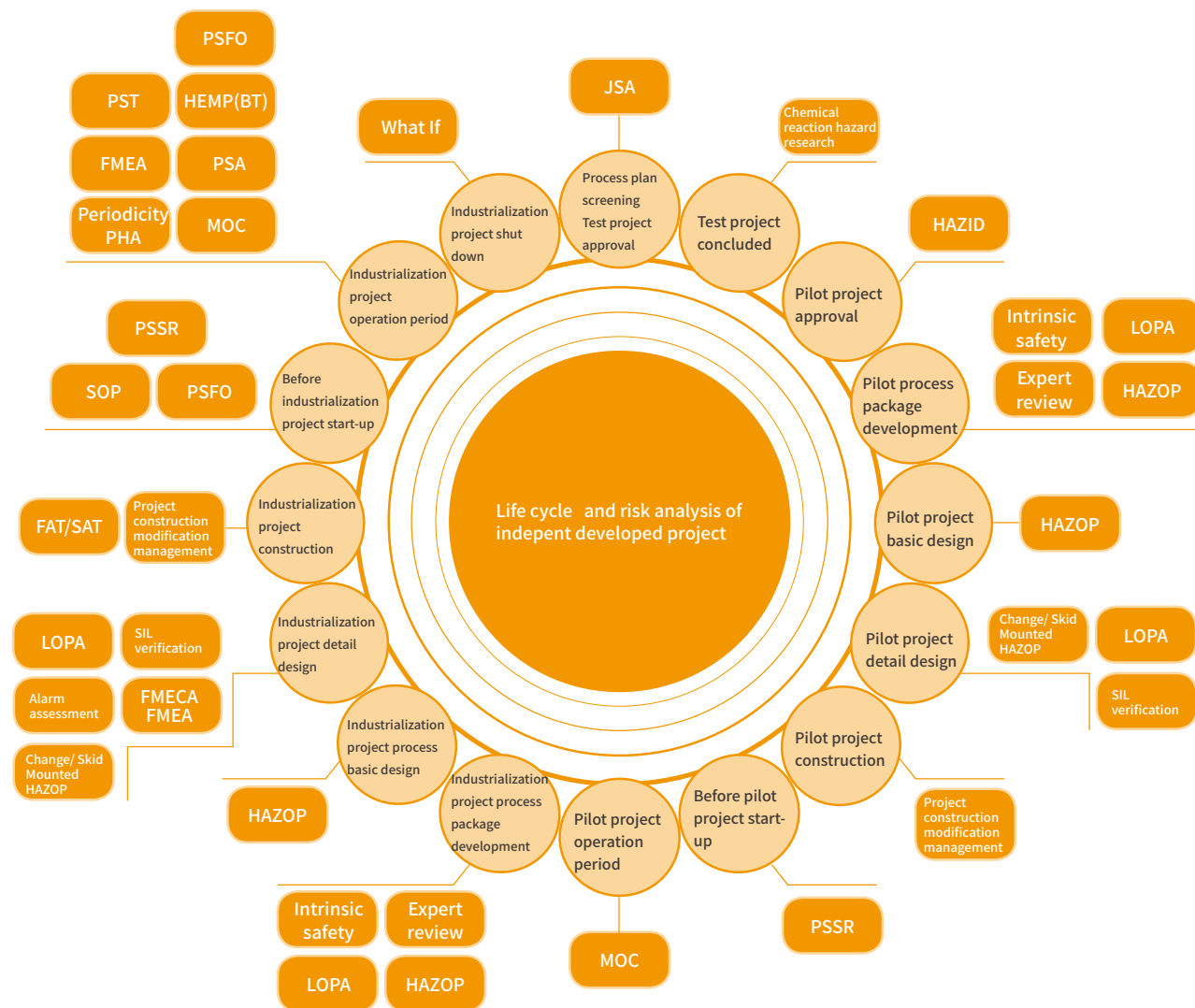
Process Safety

We have established a Safety Production Committee responsible for vocational health and safety affairs. Our top management takes charge of the operation of the Committee. The Committee, on behalf of all employees, participate in the formulation of company's vocational health and safe regulations and procedure documents. The Committee regularly organizes internal and external evaluation and management evaluation to ensure the effectiveness of the system operation.

Process Intrinsic Safety

Intrinsic Safety Design

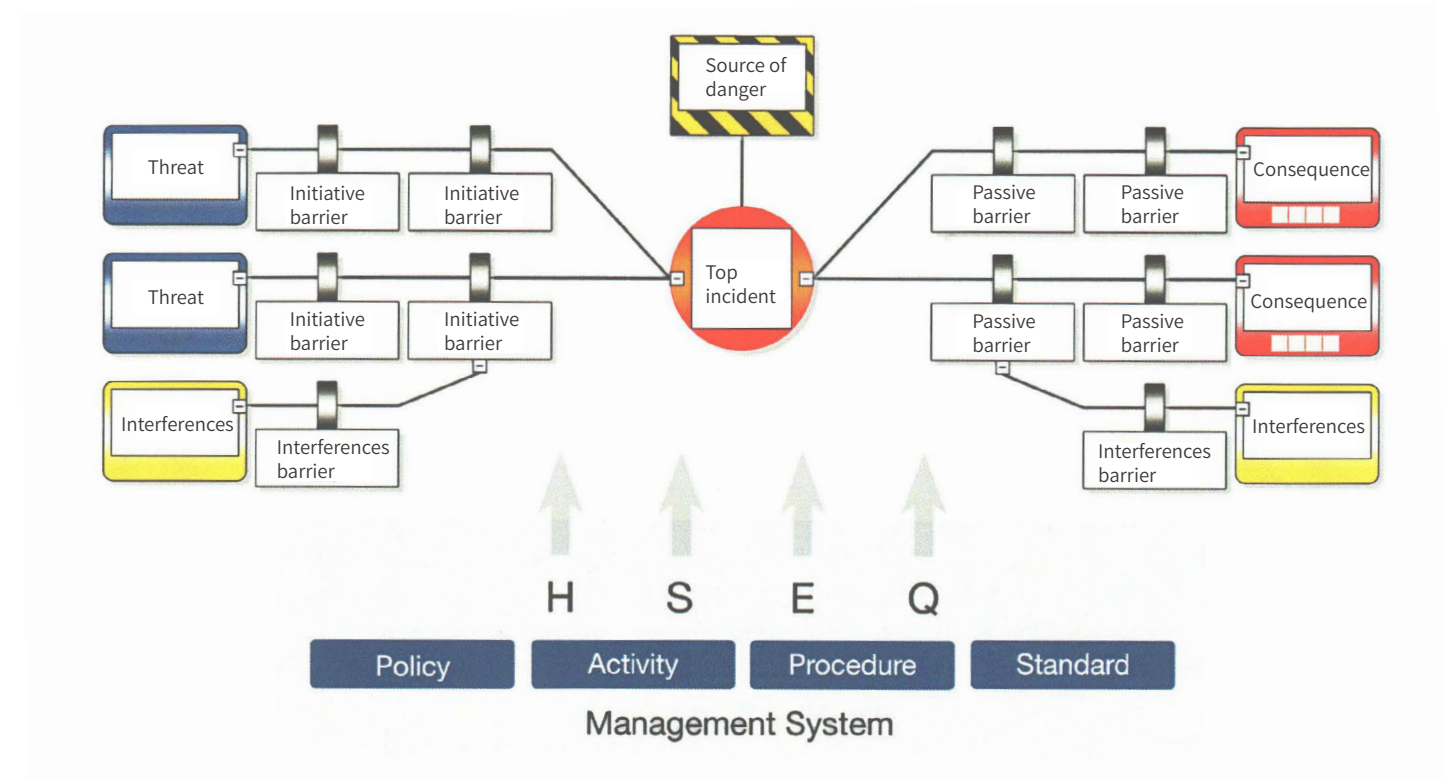
We conduct risk analysis on the whole life cycle of equipment related to the process and intrinsic safety during the basic and detailed design for our self-developed lab-scale, pilot-scale, industrialized and technical transformation projects and carry out reactive hazard research and evaluation, so as to ensure the essential safety of process. Upon completion, we deliver the design, provide services on site of construction to ensure the smooth start and the stable and safe operation of the equipment.



Life cycle of safety risk management process

Intrinsic Safety Risks of Equipment and Facilities

We have introduced the world-leading risk management tool Bowtie to carry out risk analysis of equipment and facilities. After the introduction, we have trained relevant personnel and transformed the measurements into our own standards -- *Guidelines of Wanhua Chemical Bowtie Risk Analysis*.

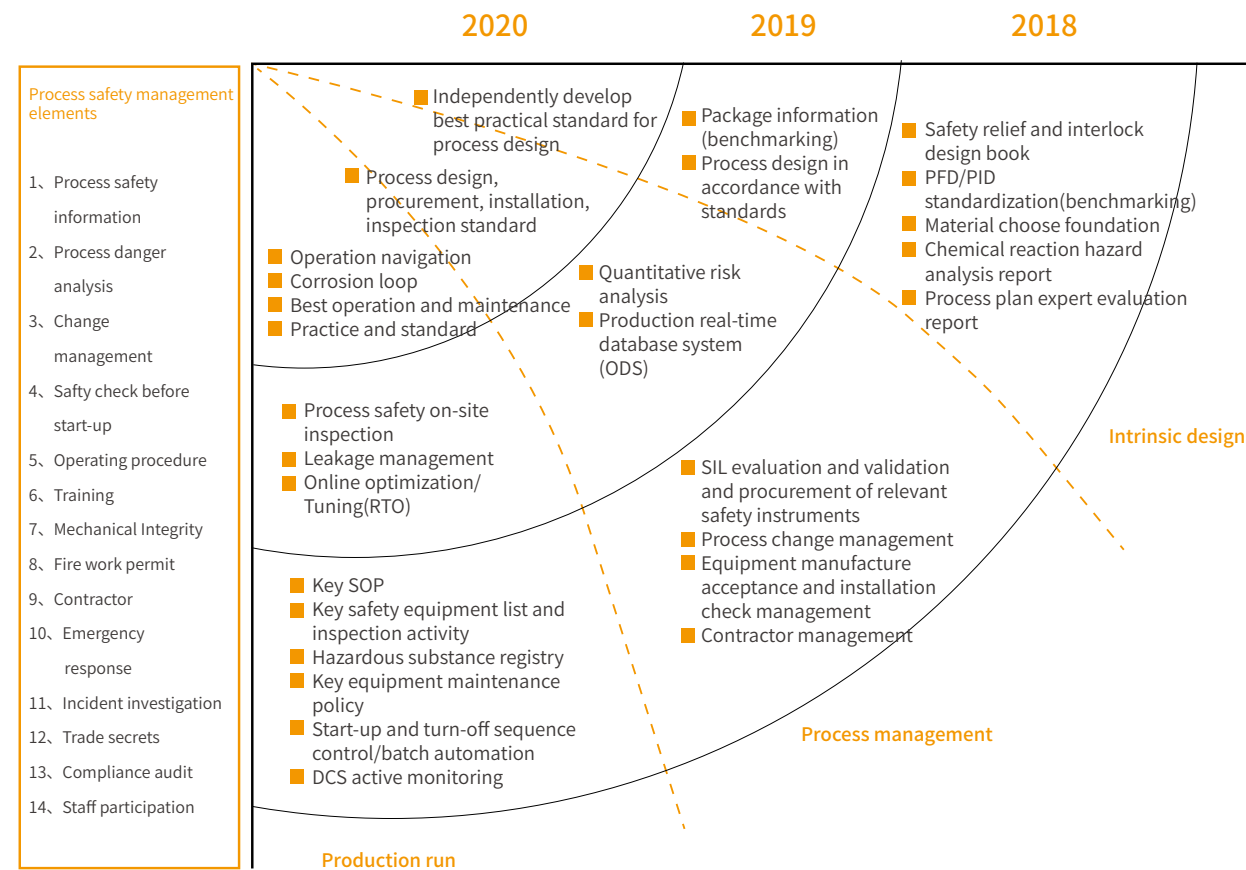


Risks of Personnel Practices and Unconventional Activities

Per JSA Analysis Guideline, based on the result of JSA (job safety), we have revised the company's SOP and gradually checked the revised SOP in the operation to ensure the efficiency of the control measure. We revises SOP every year, some of which have been made into videos for employees to study at any time.

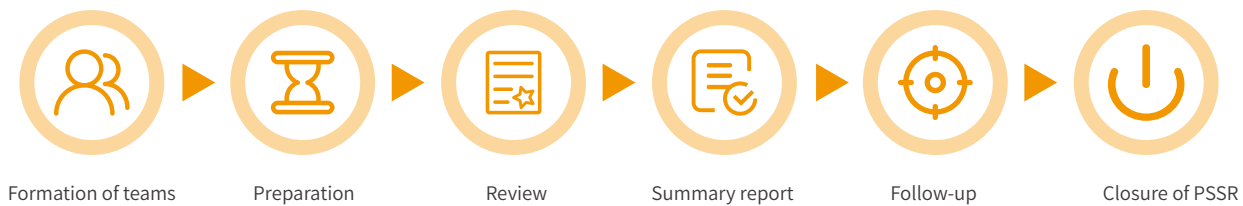
Process Safety

The process safety management should be controlled at the source and based on the intrinsic safety of the process. Wanhua Chemical has established professional technology teams such as Production Technology Expert Commission and Special Electromechanical Instrument Committee which are responsible for safety in various professional technology fields. Complying with *Guidelines for Risk Assessment of Fine Chemical Reaction* issued by China's Ministry of Emergency Management, we conduct researches on hazards of chemical reaction and formulate documents such as *Hazard Analysis Management Program during Process*.



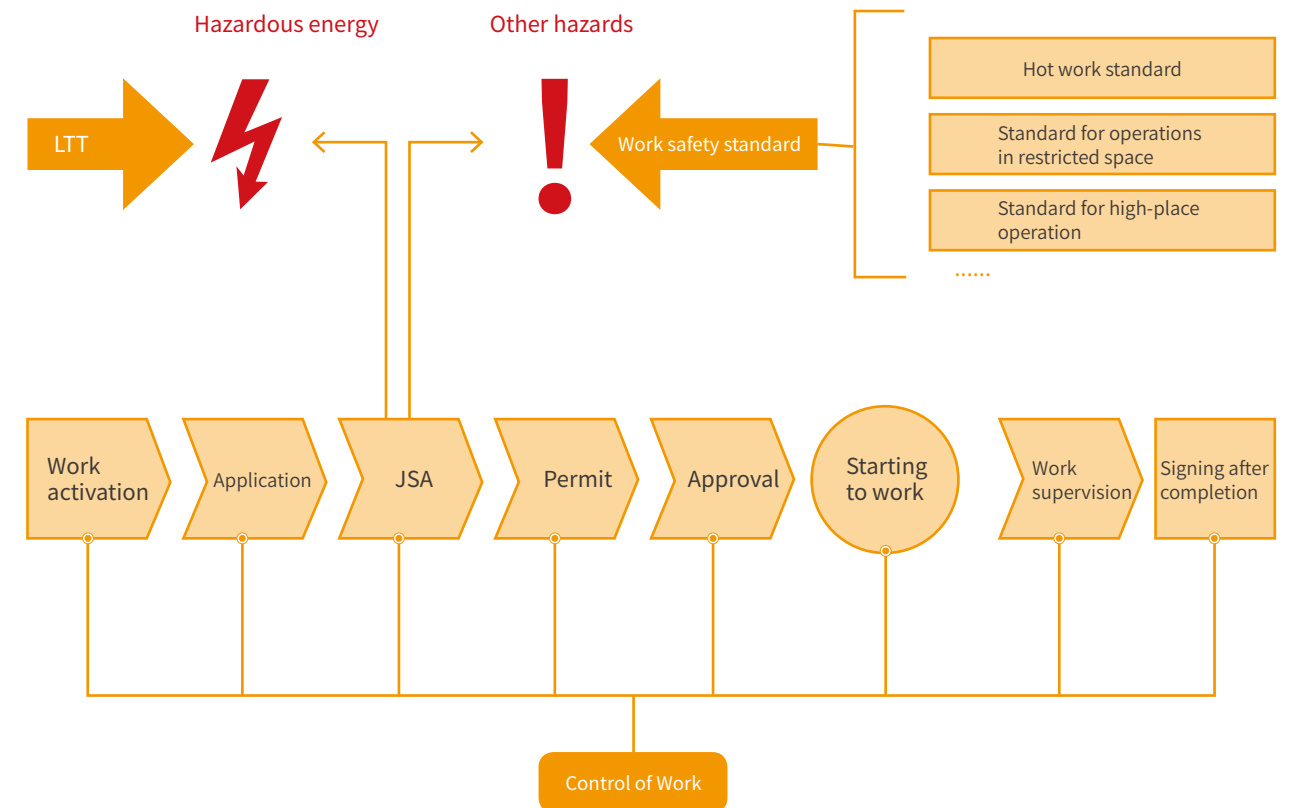
PSSR Examination Before the Operation Starts

PSSR examination includes 18 categories and 389 items which need to be examined and approved before the start-up to ensure the safety of the operation.



Whole Process Management of Hazardous Operations

According to regulation of *Safety Code of Special Work in Chemical Manufactory* (GB30871-2014), Wanhua Chemical form a working permission system and eight work safety standards to strictly control the operation risk.



Hot work

"Five preventions" of onsite hot work effectively solve the problem of imprecise traditional fire welding protection apparatus. For irregular hot work, we "stop for an hour" to ensure safety.

Operations in Confined Space

In accordance with the *Safety Management System in Restricted Space*, we conduct "the approval of work permission" and set hard defense for double protection of operators.

Lock management of hazardous energy Isolation

For operations related to hazardous energy, we use a management system of "safe custody with personal lock" to 100% prevent the hazardous energy from accidentally releasing during the operation.

09

STORAGE AND TRANSPORTATION SAFETY

Road Transportation Safety

Maritime Transportation Safety

LMS of the Logistic Service Center

Wanhua Chemical mainly transports chemical products by road and by sea. Transportation and storage safety is one of 15 core elements of Wanhua safety management system and also one of the six elements of responsible care. Wanhua sets vehicle safety standard, road safety standard and ship safety standard and carry out HSE management assessment for carriers.

Targets

Target of major accident(Level1/
Level2):0

Target of accident rating at level 4 and
above:

Accident rate of freight is 0.5 per a
million kilometers

Accident rate of passenger is 1 per a
million kilometers

Accident rate of ship friction is 5.0 per
1,000 ships at wharf

Accident rate of ship leasing is 8.0 per
1,000 ships

The safe driving mileage
exceeds 60 million kilometers

Activities

Comprehensive intelligent on-way
system

Intelligent logistics service center

Internet emergency sharing
platform

Multimodal transport

Enhancement of vehicular safety
hardware

Continuous responsible care

Ship screening mechanism

Preferred use of SIRE/CDI certified
ship

Third-party on-board examination
and reservoir

Achievements

Major accident(Level1/Level2):0

Accident rating at level 4 and above:
Accident rate of freight is 0.02 per a
million kilometers

Accident rate of passenger is 0.0 per a
million kilometers

Accident rate of ship friction is 1.28 per
1,000 ships at wharf

Accident rate of ship leasing is 5.0 per
1,000 ships

Obtained the first prize of Social
Responsibility Contribution Award, the
highest honorary award of chemical
logistics industry in 2017

The safe driving mileage exceeded
80 million kilometers, reaching
the milestone of Level 5 of safety
transportation;

2017 Storage and Transportation Safety Target

Road Transportation Safety

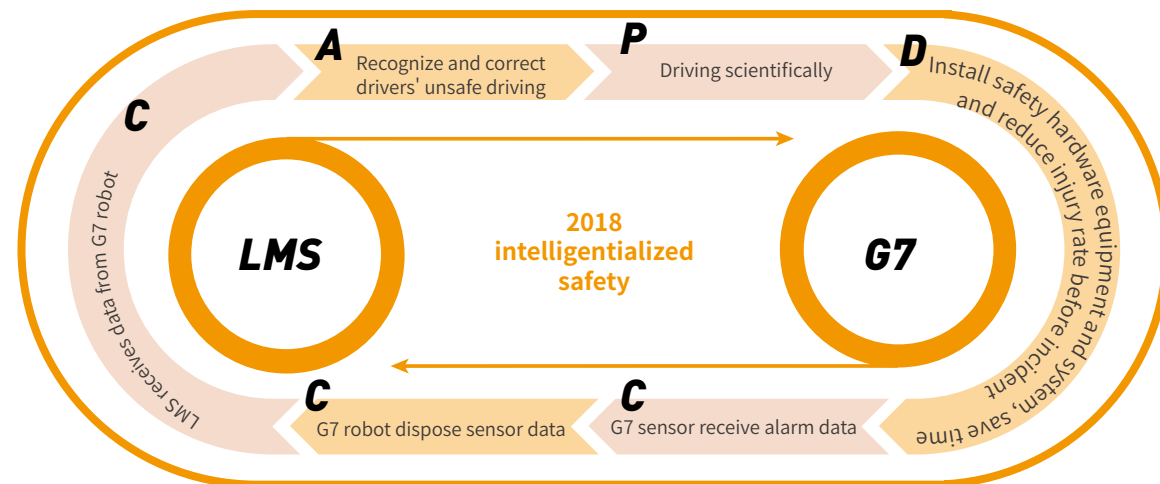
Wanhua Chemical conducts strict pre-examination, tendering and contract review to select qualified carriers and manages them by classification of Class I, Class II, Class III and non-carrier according to the contract period and transportation capacity. After signing the contract, we evaluate suppliers with HSE effective indicator.



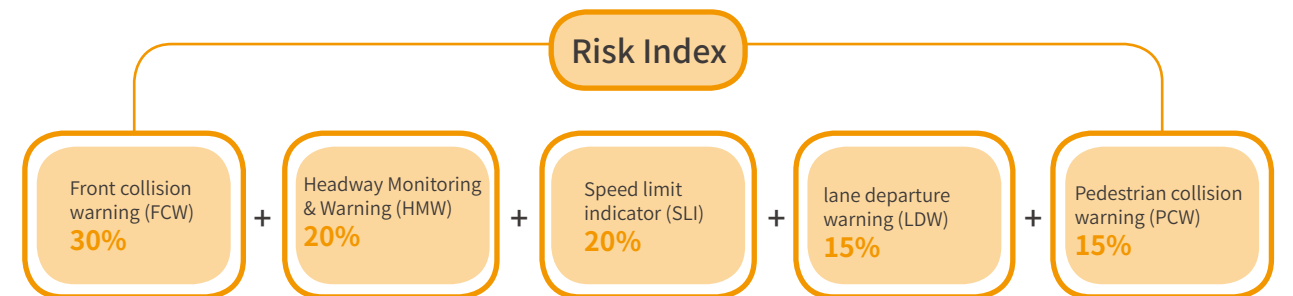
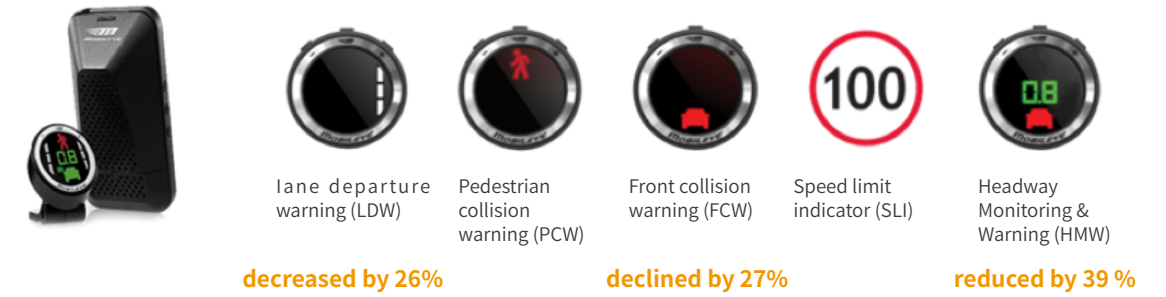
According to material hazard, total material volume, transportation distance, automobile conditions, road conditions and experience of drivers and personnel accompanied, we classify the risk of road transportation and implement it in line with the control process of transportation procedure, and execute the Road Transportation HSE Management Procedure.

Wanhua Chemical conducts a whole life cycle management on carriers, sets up an intelligent management system and implements the intrinsic logistics safety management; sets up a vehicular logistics service center and one-stop service hall. All vehicles must pass the inspection and examination and all personnel accompanied must be trained and pass the exam before entering the factory. We establish ADAS system for monitoring and early warning of vehicular transport safety conditions, build an exchange sharing platform, provide trainings and consulting services, to help carriers continuously improve.

We conducted intelligent point-line-surface inspection to all carriers and introduced the world's most advanced driving auxiliary hardware MOBILEYE which contains front collision warning (FCW), Headway Monitoring & Warning (HMW), lane departure warning (LDW), pedestrian collision warning (PCW) and speed limit indicator (SLI), reducing the accident rate of over 70%. Vehicles with MOBILEYE will be connected with Wanhua's LMS system by China's largest car management operator G7. G7 + MOBILEYE can intelligently recognize and correct drivers' unsafe driving via AI-based risk algorithm. Their real-time information intercommunication system can judge the risk level in real time, ensuring drivers' safety through manual intervention/automated reminder. Through a self-defined risk parameter, they evaluate the safety trend from a macroscopic perspective, locate cars with safety risks and deeply explore the reasons of unsafety to continuously promote the level of safety management on carriers of Wanhua Chemical.



G7. G7 + MOBILEYE Intelligent Management System



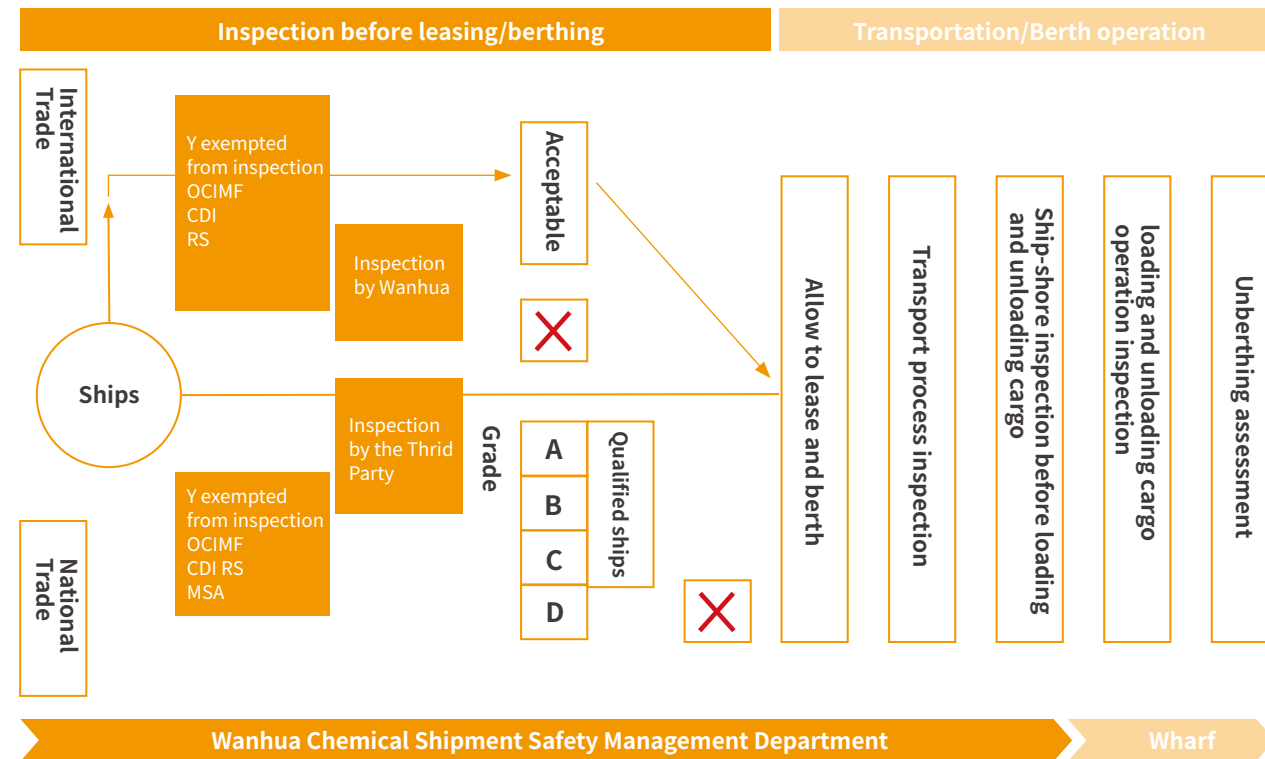
Before training	After training
Only 68% of carriers scored over 80 points	All carriers scored over 80 points

Intelligent Performance Management

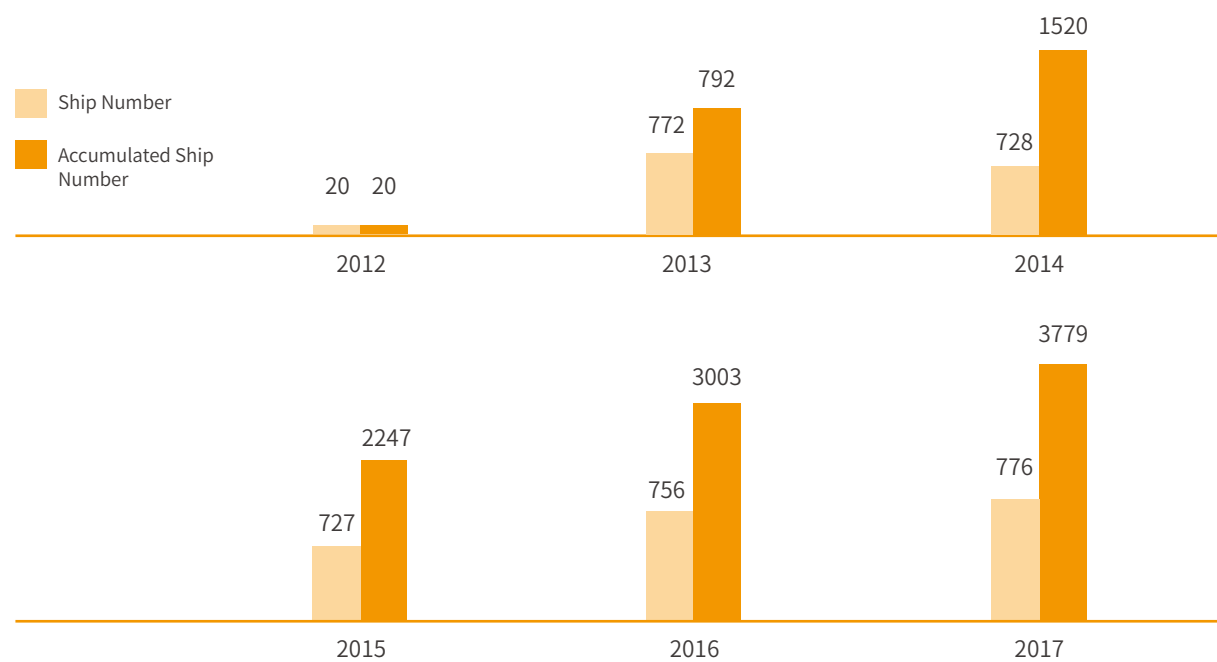
Maritime Transportation Safety

Water transportation poses potential risks to water safety of oceans and lakes. In order to protect water environment of the route, Wanhua establishes *Ship Safety Standard* and *Ship HSE Management Procedure*, *Wharf Safety Standard*, check ship and personnel qualification, strictly comply with the regulation of safety management on the berthing operation of Wanhua's wharf, greatly reduce the risks.

According to *Ship Safety Inspection and Assessment Procedure*, we, per international trade and domestic trade, respectively formulate ship screening and greading mechanism (Grade A\B\C\D) on carrying ships. Grade D ships are not considered to be rent or allow to berth. Ships passed screening is under dynamic navigation monitoring, berth operation supervision, assessment and improvement procedure. By this, we ensure Wanhua's ship safety and improve carriers' safety performance.



Wanhua Ship Screening Procedure Operation Flow



Terminal Safety Operation Milestone in Yantai Region

LMS of The Logistic Service Center

Wanhua has established a logistics service center and has implemented a Logistic Management System (LMS), in 2016, and the system was launched on 1st January, 2017. Tracking the motor transportation and shipping in real time and the information of carriers and the status of goods. As of Dec. 31, 2017, 1,460 vehicles were registered on the LMS platform with 2,600 registered drivers and escorts.

Through the system setting, we have designed 20 combinations of vehicles registered on the platform to set a fixed value of total weight of cars and goods and restrict vehicle overload to achieve safe transportation. For non-registered vehicles, we promise to implement a policy of one car per transport. Through the "one reform and two deployments", we implement and input the LMS system. After the reform of less-than-truck-load (LTL) transport in 2017, the complaint ratio of LTL transport of common goods in Yantai reduced to 0.04% at the end of year from 0.12% at the beginning of the year.

Case

Enhance Carriers' Capacity of Motor Transport and Shipping

Since 2016, Wanhua started to deploy for a higher capacity of motor transport and shipping. Since the system was put online, 449 units of cars and 11 ships joined the system.



449 units of cars



11 ships joined the system

Case

Logistics Mode of "Multimodal Transport + Distribution Center"

Since 2016, we have gradually transferred our distribution centers closer to our clients and have replaced the long-distance motor transport with multimodal transport system to improve the safety of logistics and reduce the logistics cost. We took the advantages of forward-moving storage to improve the logistics respond speed and customer satisfaction.

In 2017, the capacity of multimodal transport reached **220,000** tons, increasing by **120%** compared with 2016;

The LTL trips of our five business divisions (including Performance Materials, Surface Materials, Performance Chemicals, Polyether and Wanhua Beijing) and Wanhua declined to **42%** of the total automobile trips from **52%**;

The use rate of container tanks of butyl ester, methyl ester and acrylic acid increased to **50%** from **20%**.

10

EMERGENCY MANAGEMENT

Emergency System

Hardware Allocation

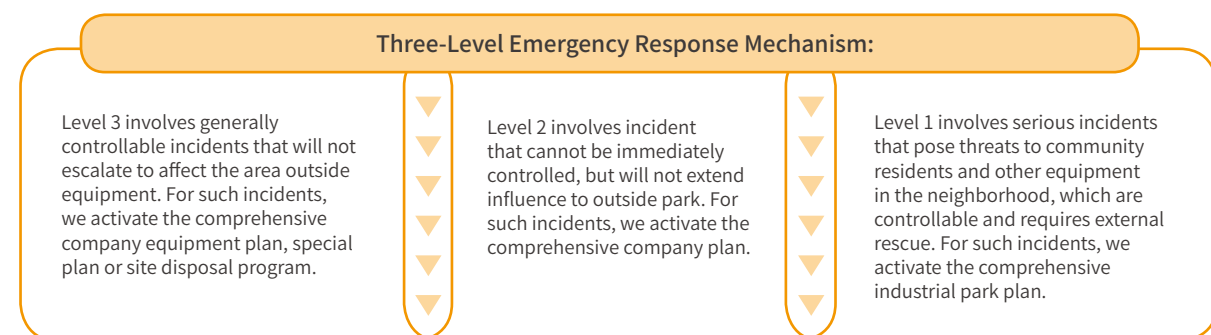
Personnel and Materials Allocation

Emergency Training and Drills



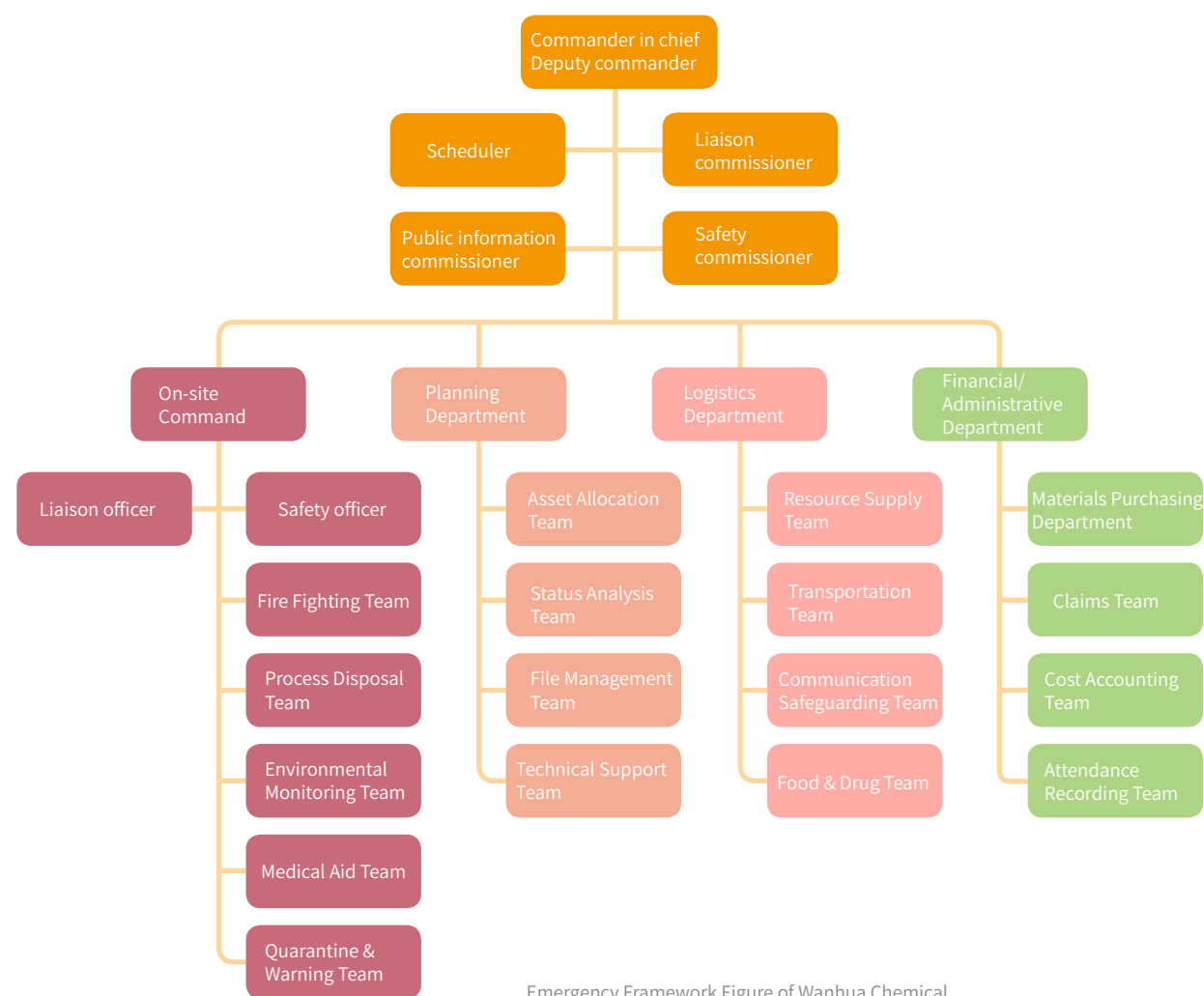
Emergency System

Effective emergency management serves as a key guarantee to our post-accident risk control. We have established a three-level emergency organizational structure, a three-level emergency response and a three-level early warning mechanism with reference to the US Accident Emergency Command System (ICS- Incident Commander System).



In the practice of emergency rescue, we uphold the principle of “prioritizing protection of personal safety, prevention and control the spread of incidents; unified command, level-to-level responsibility, region-based focus, integration of entity self-help and social assistance”.

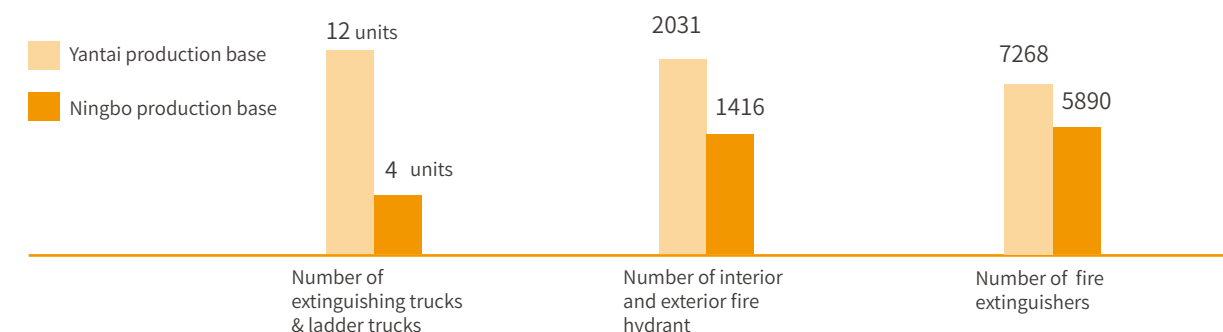
We have put in place a safe environment crisis management plan for making timely response and positive guidance on complaints and online media reports.



Emergency Framework Figure of Wanhua Chemical

Hardware Allocation

We set up fire stations in Yantai production base and Ningbo production base respectively, equipped with advanced emergency response hardware facilities and emergency command platforms. The fire stations are mainly responsible for all kinds of incident rescues in the production base and the response for incidents involving hazardous chemicals vehicles handled by the company within the service radius while undertaking the fire reinforcement tasks assigned by the 119-command center.



Personnel and Materials Allocation

We have an information communication system for all types of personnel at varying levels to ensure that all emergency personnel are notified of the response within 5 minutes after receiving the alarm.

	Yantai production base	Ningbo production base	Beijing	Guangzhou
Number of firefighters	80	20	/	/
Number of first-aiders	300	100	12	12
Number of doctors	11	3	1	0

We employ drones for aerial reconnaissance and installed a large number of video surveillance systems and fire alarm equipment around or inside the equipment so that the emergency command center can receive the alarm in time and keep abreast of the on-site status and emergency response.

All emergency materials are registered on the emergency command platform in the mode of uniform scheduling and management.

Emergency Training and Drill

We organize the preparation of emergency training plan for the industrial park, conduct emergency plans and skills training for our staff, supervise and check the completion on an annual basis.

For different production equipment, we formulate circumstance-specific emergency plans. In the last week per month, we carry out the plan drill where a blind drill is conducted in random areas in irregular hours or a plan drill in combination with equipment. Such emergency plan drill is divided into industrial park or production base level (comprehensive), equipment level (special) and team level (on-site disposal). It includes two forms, namely desktop and actual drill. We will assess and summarize the drill results and prepare schemes for continuous improvement.

In addition, the emergency drill for industrial park and the joint emergency drill for surrounding enterprises are organized regularly every year.

In 2017, a total of 214 drills were conducted in Yantai and Ningbo, including fire-fighting plan drill, equipment and drill, industrial park and drill.

11

EMPLOYEE CARE

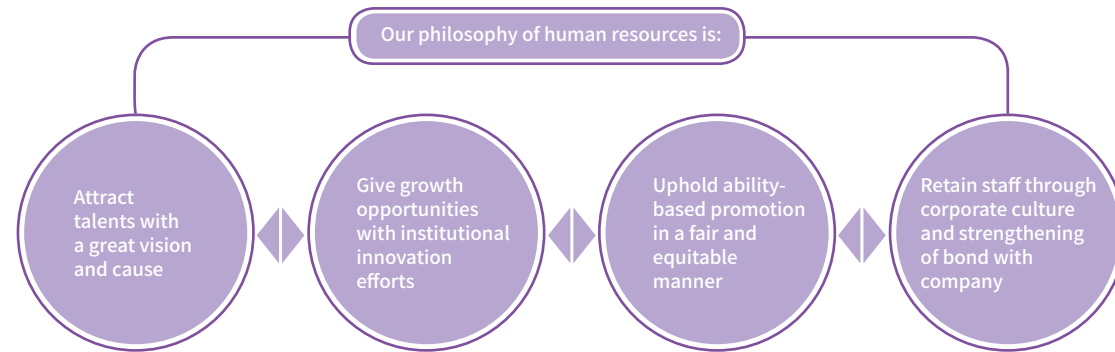
Harmonious Employment Relationship

Occupational Planning and Development

Occupational Health and Safety



Harmonious Employment Relationship



We strictly followed the requirements of state regulations to develop a human resources management system, respect human rights and freedom of association, reject child labor and formulate aid policies, prohibit discrimination and forced labor, and highlight the diversified employment and professional development of equality between men and women. We facilitate our employees' understanding about human resources policies and their rights by training programs, and establish trade unions and employee representative meetings to safeguard their rights and interests.

By the end of the reporting period, there have been no incidents of child labor, discrimination, coercion and forced labor or violations of diversified employment.

As of Dec. 31, 2017, we have a total of **8,158** employees (including 542 interns), **6,853** of which are male and **1,305** are female.

Regions	2015	2016	2017
	Regular employee	Regular employee	Regular employee
Yantai	5013	5294	6412
Ningbo	1423	1333	1423
Beijing	171	182	172
Guangdong	168	164	151
Total	6,775 (including 228 interns)	6,973 (including 263 interns)	8,158 (including 542 interns)

Classified by Type

Regions	Dec.31, 2015		Dec.31, 2016		Dec.31, 2017	
	Male	Female	Male	Female	Male	Female
Yantai	4133	880	4407	887	5445	967
Ningbo	1141	282	1075	258	1158	265
Beijing	122	49	134	48	124	48
Guangdong	143	25	139	25	126	25
Total	5539	1236	5755	1218	6853	1305

Classified by Gender

Regions	Dec.31, 2015			Dec.31, 2016			Dec.31, 2017		
	Aged below 31	Aged 31 to 50	Aged above 50	Aged below 31	Aged 31 to 50	Aged above 50	Aged below 31	Aged 31 to 50	Aged above 50
Yantai	3562	1187	264	3674	1318	302	4331	1740	341
Ningbo	1081	318	24	997	311	25	1060	340	23
Beijing	76	92	3	81	95	6	78	87	7
Guangdong	152	15	1	146	17	1	133	17	1
Total	4871	1612	292	4898	1741	334	5602	2184	372

Classified by Age

Regions	2015					2016					2017				
	Doctor	Master	Bachel	Associate	Others	Doctor	Master	Bachel	Associate	Others	Doctor	Master	Bachel	Associate	Others
Yantai	60	803	1404	2256	490	72	828	1409	2495	490	94	972	1720	3103	523
Ningbo	1	35	356	910	118	0	29	291	910	103	0	26	288	1005	104
Beijing	2	75	61	13	20	2	80	66	19	15	3	74	59	18	18
Guangdong	0	5	21	142		0	3	22	139		0	2	17	132	

Classified by Education Background

Regions	Han nationality	Minority	Regions	Han nationality	Minority	Regions	Han nationality	Minority
Yantai	6197	215	Beijing	162	10	Total	7895	263
Ningbo	1387	36	Guangdong	149	2			

Classified by Nationality

Regions	New Staff			Employment Rate		
	2015 年	2016 年	2017 年	2015 年	2016 年	2017 年
Yantai	600	528	1329	11.97%	9.97%	20.73%
Ningbo	145	64	139	10.19%	4.80%	9.77%
Beijing	42	14	13	24.56%	7.69%	7.56%
Guangdong	46	1	10	27.38%	0.61%	6.62%
Total	833	607	1491	12.30%	8.71%	18.28%

Employment Rate of New Staff

Regions	2015	2016	2017
Yantai	4%	5%	3%
Ningbo	5%	7%	4%
Beijing	6%	7%	17%
Guangdong	1%	6%	14%
Total	4%	5%	4%

Employee Turnover Rate

Note: Data above is Wanhua wholly-owned

Staff Relations

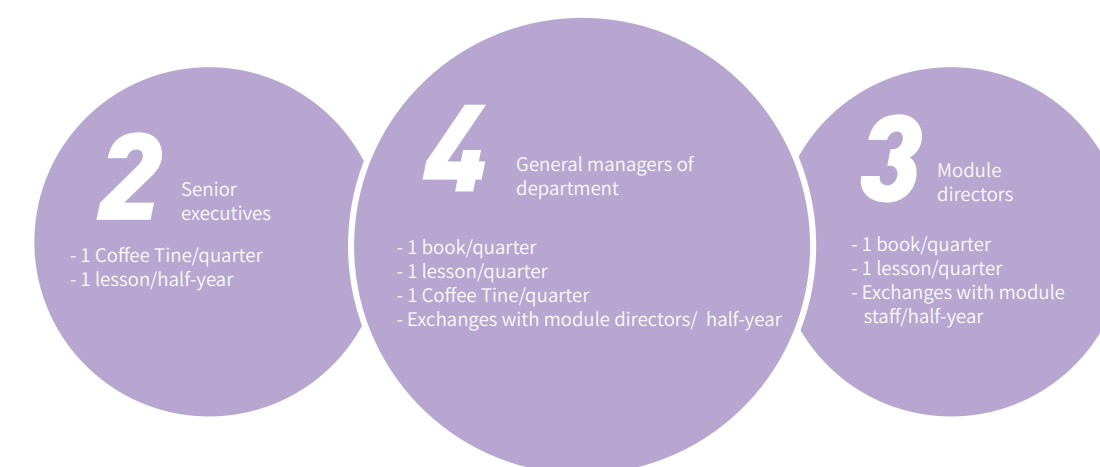
Our staff relations cover four parts, namely labour relation management, employee communication management, employee discipline management, and employee activity management.

Target of 2017	Moves taken in 2017	Performance in 2017
<p>Less than 10 cases of labour dispute a year;</p> <p>Above 75 scores of employees' satisfaction/ dedication</p>	<p>1. Adopt 243 mechanism for communication;</p> <p>2. Inform employees of policy changes in time;</p> <p>3. 1 group wedding/year, 1 social gathering/quarter, 1 ideological trend reporting/month;</p>	<p>No case of labour dispute;</p> <p>Comprehensive employee satisfaction scored 78; winning the award of Shandong Provincial Labour Relation and Harmonious Enterprise;</p>

We boast a comprehensive staff communication system to ensure transparent, timely and effective communication between the management and employees in various forms, and to measure results using staff relation chart, staff dedication reports and ideological trend reports. As of now, we have not conducted economic layoffs. In case of a major business change, we will notify our employees at least one year in advance.



Staff Communication System



"243" Mechanism

While meeting the rights of employees as legally provided, we offer an integral and diversified benefit package for every and each employee:

- We provide employees with a 200,000 interest-free loan for house purchase after one year of service;
- All employees enjoy a yearly team activity fund of RMB1,000/person;
- We provide additional leave of 1 day/quarter for interns and formal workers who are unable to enjoy annual leave due to non-compliance with the legal requirements; we provide 2 days/year of personal leave on pay for those with less than 10 years but more than 1 year of service;
- Pregnant employees are entitled to an extended leave until 1 year after childbirth from the statutory maternity leave with 70% of salary paid (no more than twice of the local minimum wage);
- The children of the employees are entitled to a baby stroller as a gift upon birth and a child care subsidy of RMB500 when aged 2 to 7;
- Night shift allowances, food and beverage subsidies, regional allowances, holiday allowances, birthday benefits, Children's Day gifts, free shuttles, rental subsidies, and free accommodation, among other benefits.

In 2017, 315 of our employees enjoyed parental leave, including 52 male and 263 female ones. All of them returned to work during the reporting period upon the completion of leave and were in post 12 months later, contributing to 100% of return and retention rates.

Case Wanhua Group Wedding – Stay in Eternal Love at Wanhua

We have successfully hosted 11 group weddings as an iconic brand ceremony, helping 430 newlyweds to form their own family;



Case Wanhua Thanksgiving Day – Gratitude Conveyed to Consolidate Team Spirit

We set the Thanksgiving Day on an annual basis. Our 13th Thanksgiving Day falls on Nov. 23, 2017.



Case Staff Sports Meeting

We held the first session of staff sports meeting in 2017.



“ We have won the fifth award of “Aon Hewitt Best Employers” in 2017. ”

Occupational Planning and Development

We have formulated policies such as *Human Resources Management Procedures*, *Training Management Measures*, and *Position Skills Certification Sequence Policy* to regulate the career planning and development of our employees. We adopt various forms of education, training and assessment systems to enhance employees' awareness and skills.

Contents	Time	Male	Female	Regular employee	Dispatched employee
Average training hours per employee annually	2015	36	36	36	24
	2016	37	37	37	24
	2017	40	40	40	24

Training Hours from 2015 to 2017 (Unit: hour)

Target groups	Results
Engineers	<ul style="list-style-type: none">Develop the model of capabilities of process engineer & electromechanical engineerComplete development of 479 courseware (342 for process engineer, and 137 for electromechanical engineer)Organize the optimization of 32 courseware by Lanzhou Petrochemical Polytechnic (29 for process and 3 for equipment)
Group leaders	<ul style="list-style-type: none">Develop 3 courseware for group leaders training campOrganize 2 sessions of summit forum for 24 group leaders present
Managers	<ul style="list-style-type: none">Complete the appointment of new manager academy and graduation report in 2016, with 40 members involved in 2 classesComplete the leadership improvement training and graduation reporting for incumbent managers with 20 members in 1 class
New hires	<ul style="list-style-type: none">Complete 8 training sessions for 1,491 new hires

Career Development Training Results for Employees in 2017

OCCUPATIONAL HEALTH AND SAFETY

Wanhua Ten Safety Principles

- 01

Never compromise on safety
- 02

I will be responsible for the safety in my area
- 03

Every employee takes responsibility and accountability for his and other's safety
- 04

All accidents are preventable
- 05

Safety is the precondition of all jobs
- 06

Near misses mean accidents
- 07

All deficiencies must be corrected promptly
- 08

Good safety is good business
- 09

Working safely is a condition of employment
- 10

You will achieve the level of safety excellence that you demonstrate you want

We nurture the “all-hands” safety culture.



2017 marked the “Year of Safety Management” for Wanhua Chemical.

- 01 Strengthen labor discipline and build a disciplined team;
- 02 Enhance process discipline, adopt rigorous operating instructions and increase sense of responsibility;
- 03 Expand the research of process technology to improve the scientific and intelligent level of process control;
- 04 Intensify the management of mechanical integrity to ensure the completeness and safety of process equipment;
- 05 Carry out systematic reaction hazards research to master the reaction rules under different working conditions;
- 06 Reinforce incident control and expose process risks as well as administrative vulnerability through incident investigation;
- 07 Reshape safety culture by all-hands participation and commitment fulfillment.

Health & safety serves as one of the six elements of our responsible care program. We foster all-hands safety culture to implement zero-injury, zero-incident and ten major safety concepts.

We regularly organize the identification of risk sources, risk assessment, and identification of occupational hazards.

We conduct a regular hazard factors testing on all occupational hazard sites every year,

the detection rate of occupational hazards is **100** %.

In pre-employment, we inform our employees of the occupational hazard factors in contact, and ensure that they receive three-level safety education and are equipped with adequate personal occupational health protection equipment to take adequate precautions to prevent possible occupational hazards.

As of Dec.31, 2017,

3,961 of our employees were exposed to occupational hazards.

All employees who were exposed to occupational hazards received pre-job and on-job medical examinations. The off-duty personnel are required to go through physical examination as required.

The medical examination rate for occupational hazards was **100** %.
The incidence of occupational diseases is zero.

In 2017, Wanhua Chemical 's performance has reached the safety management standard.

Major accident number was **0** , recordable incident rate and process safety accident rate was **0.06** and **0.04** respectively .

To protect the rights and interests of employees, we have signed the collective bargaining agreement with our staff and the female employee protection agreement with all female employees. All signed collective agreement covers health and safety issues.

12

PARTNERSHIPS

Customer Satisfaction

Supply Chain Management

Belt and Road Initiative for Win-Win Cooperation

CONTRACT

Customer Satisfaction

Customer orientation serves as one of the core values of Wanhua Chemical. The Marketing Department and business units provide products to customers and safe keep customer confidential. The Production Management Centre is responsible for understanding customer satisfaction, accepting and resolving customer complaints, and conducting regular surveys of customer satisfaction.

We publish the Responsible Care Handbook of different products to provide relevant publicity and training for our customers. In 2017, some pure MDI dealers were trained in product knowledge and safe use, and encouraged to downstream communicate.

In 2017, we have optimized and upgraded the customer service telephone system by transforming it from the original stand-alone manual answering to automatic system enabling accurate diversion of customer calls and at the same time shortening online waiting time and call transfer link.

We handle customer complaints in accordance with the Customer Complaint Handling Process and give feedback within 24 hours:

24-hour customer service hotline: 0535-3388000 (available 24/7);

24-hour feedback for customers;

24-hour arrival of goods: vehicle home delivery with adequate credit and transportation radius within 24 hours;

24-hour arrival on complaint site: technicians organized to arrive to the site within 24 hours as of receipt of the customer complaint.

In the past three years, we have not been subjected to any punishment from the regulatory authorities or had any major customer complaints as well as data leak. In 2017, we issued 811 customer satisfaction questionnaires to our customers in China and 107 ones to those at abroad, with a respective return rate of 77% and 40%. The average customer satisfaction stood at 4.48 (maximum score: 5) in 2017.

	MDI China	Performance chemicals	Wanhua Beijing	Polyether Rongwei	Performance Materials	Surface Materials	Polyether for soft foam	International Business Department
2017	4.82	4.79	4.58	4.52	4.51	4.40	4.25	4.10
2016	4.55	/	4.57	4.47	/	4.43	/	/

Average Customer Satisfaction Scores of Business Units In 2016 and 2017

	2015	2016	2017
Complaints from customers (letter)	437	361	359

Number of Customer Complaints from 2015 to 2017

Case Nitrogen-Powered Unloading Service

In 2017, 12 customers have adopted nitrogen-powered unloading, thus achieving safe and smooth unloading, and ensures the safe operation of the customer's site to the greatest extent.

Customer Storage Tank Tech Service

To help customers eliminate the potential risks and hidden dangers of bulk PM product storage tanks, we develop customer tank technology services to help customers build tank systems suitable for product storage and handling. In 2017, we assisted 26 customers in the construction support and inspection and acceptance of storage tanks.

Supply Chain Management

Wanhua Chemical has committed itself in promoting sustainable procurement as the deputy director of the China Petroleum and Chemical Industry Federation's Supply Chain Working Committee. We carry out routine assessments on supplier access and their relative trading suppliers, assign the Procurement Department with the task of handling whole-process supply chain management, and train suppliers and request them to make commitment, in a bid to ensure that the procurement process meets the supplier/sustainability requirements.

The basic objectives for sustainable procurement are:

- a We will have a strict grip on the sources of raw materials, and ask raw materials suppliers providing more than 1 ton to complete the RMIR form.
- b Suppliers are required to comply with Wanhua's Social Responsibility Code of Conduct for Suppliers, which includes requirements on labour and human rights, health and safety, environment, ethics and sustainability. Suppliers are encouraged to sign a Corporate Social Responsibility (CSR) commitment letter, and we will first cooperate with those signing the Commitment.
- c All regular suppliers and new ones must sign the integrity agreement.

At the access stage, all potential suppliers need to sign the *Supplier Registration Guidelines* (i.e. the *Code of Conduct of Suppliers*) and voluntarily sign *Wanhua's CSR Commitment*. Where the total score is above 60, we will prioritize the selection of partners which have signed the Commitment. We have published the Code of Conduct on our official website, which is free, easy and convenient access for all.

Wanhua conducts annual performance evaluations on suppliers, including compliance on social responsibilities and ethics, and the communication of social responsibilities by direct suppliers to the upstream supply chain. We required all cooperating suppliers to sign a commitment of integrity and ensure that all suppliers are aware of our integrity policy. These requirements are for the protection of intellectual property rights as specified in the terms of the contract.

We adopt supplier relationship management (SRM) system to conduct regular online and offline assessments of suppliers. We review the key suppliers with closer ties in line with *Wanhua Supplier CSR CheckList* and the *Materials Risk Assessment Form*, which take into account such contents as labour, environment, health and safety, ethics, and business continuity.

In order to protect the rights and interests of suppliers, we require all employees of the Procurement Department to comply with the *Code of Conduct for the Procurement Department* and make a joint commitment to integrity. We regularly hold supplier conferences to understand their weak links and demands, and train them on social responsibilities such as procurement integrity, intellectual property rights, environmental protection, prohibition of child labour, prohibition of forced labour, and freedom of association.

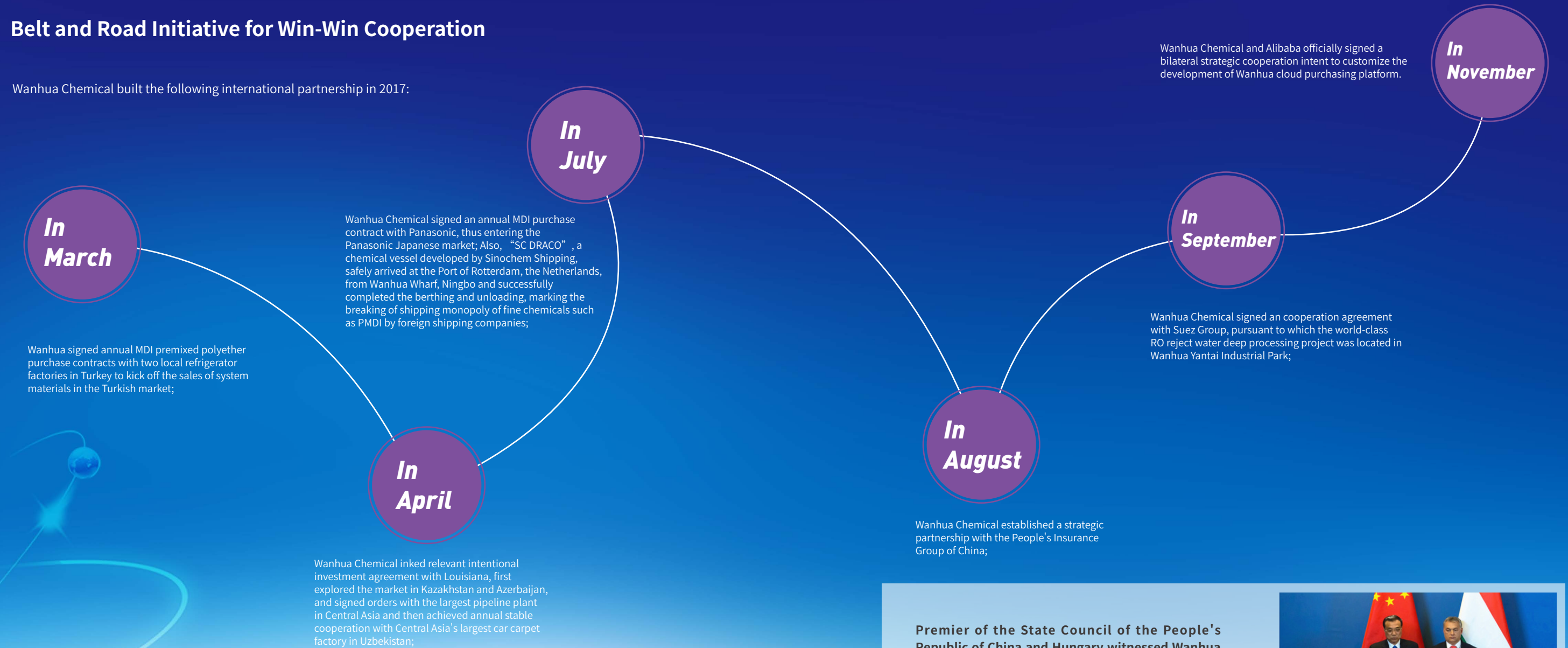
Time	Number of participating suppliers	Number of trainees
January, 2017	42	90
July, 2017	200	318
October, 2017	30	50

Training for Suppliers in 2017

In 2017, all of our new suppliers passed the screening of environmental standard. There were no violations of suppliers on social responsibility and the basic management objectives were completed. In terms of on-site inspection on suppliers, we will add a CSR on-site audit in 2018, so as to supervise and track the problems found in the supplier's CSR audit, and require them to complete the rectification within the specified time range.

Belt and Road Initiative for Win-Win Cooperation

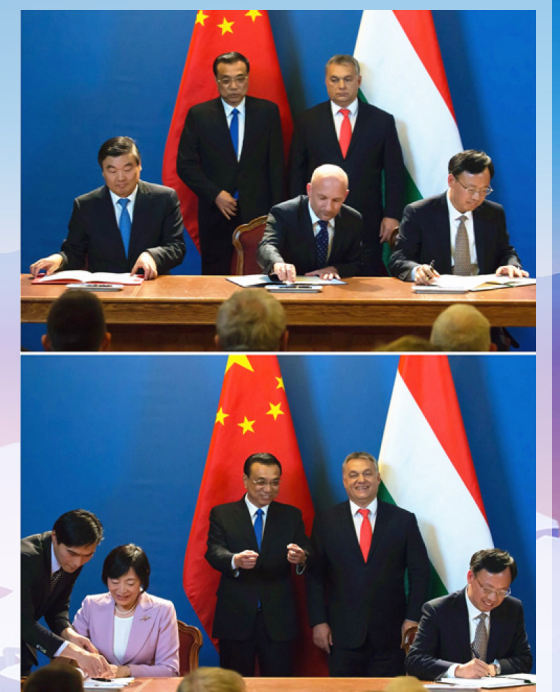
Wanhua Chemical built the following international partnership in 2017:



Premier of the State Council of the People's Republic of China and Hungary witnessed Wanhua signing Financing Agreement

On Nov. 28, Wanhua Industry Group attended the agenda of the Sixth "16+1" Summit of China and Central and Eastern European Countries, which was held in Budapest, Hungary. At the witness of Li Keqiang, Premier of the State Council of the People's Republic of China and Hungarian Prime Minister Viktor Orban, Wanhua signed the Thrid Party Financing Framework Agreement with China Development Bank and Hungarian Development Bank, signed financing agreement with the Export-Import Bank of China. Liao zengtai, chairman of Wanhua Chemical, signed the agreement represented the Group. The two agreements are the significant achievements of Summit of China and Central and Eastern European Countries, as well as the milestone of Wanhua globe development.

During the period, Liao has visited the Hungarian Investment Promotion Agency(HIPA) and had a deep communication with Róbert ÉSIK, President of HIPA.



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COMMUNITY CARE

Community Recognition

Well-Targeted Poverty Alleviation



Community Recognition

Wanhua Chemical values communication and exchanges with the residents of surrounding communities, schools, government, enterprises and institutions. Before the major projects are newly built, rebuilt or expanded, we will visit surrounding communities, disclose the environmental impact assessment report, public monitor data, and collect opinions and suggestions from stakeholders. We set up a special working committee to handle complaints and suggestions from residents around, and made public complaint and suggestion channels:

Correspondence address: R1309, Auditing Department, No.1 Wanhua Chemical Building, No.17 Tianshan Road, Economic and Technological Development Zone, Yantai, 264006

Tip-off telephone: 0535-8203820 (internal telephone connections: 63820)

Tip-off e-mail: HR@whchem.com, whjc@whchem.com

Tip-off mailbox: In between No.1 and No.2 Wanhua Chemical Building, No. 17 Tianshan Road, Economic and Technological Development Zone; east door to canteen, Procurement Building, Wanhua Yantai Industrial Park; east door to canteen, front section of Wanhua Yantai Industrial Park; south door to canteen, First Maintenance Station, Wanhua Yantai Industrial Park; No.1 Dormitory Apartment, Zhujiang Road; C1 Dongtai Apartment.

Case Family Day in Wanhua



Case Scholarship Granted by Wanhua

Since 2002, Wanhua Chemical has been providing scholarships for excellent students in chemical-related majors from Tianjin University, East China University of Science and Technology, Central South University, and Beijing University of Chemical Technology for 16 consecutive years. As of Dec. 31, 2017, we have granted RMB3.2 million of scholarships to 640 college students in cumulative terms. During the reporting period, a total of RMB200,000 of scholarships were offered to 40 outstanding students in chemical-related majors.

Case Wonder Lab and Doctor's Lecture Room

In our "Wonder Lab" and "Doctor's Lecture Room" projects, children can have an understanding about simple chemistry knowledge and approach the great fun and charm that chemistry brings to them.



Case Innovation and Application Competition

Wanhua Chemical has hosted the "Innovation and Application Competition" in more than 20 colleges and universities nationwide for four years in a row.



Well-Targeted Poverty Alleviation

In response to the National Targeted Poverty Alleviation Policy and the UN's 17 Sustainable Development Goals (SDGs), Wanhua takes practical moves to show care for the disadvantaged social groups.



	2015	2016	2017
Charity donations	97	103	76
Other public benefit activity expenditures	30	40	50

Economic Expenditures of Public Charity from 2015 to 2017 (10,000RMB)

Assurance Statement



ASSURANCE STATEMENT

SGS-CSTC STANDARDS TECHNICAL SERVICES CO., LTD. REPORT ON SUSTAINABILITY ACTIVITIES IN THE WANHUA CHEMICAL GROUP CO., LTD.'S SUSTAINABILITY REPORT FOR 2017

NATURE AND SCOPE OF THE ASSURANCE/VERIFICATION

SGS-CSTC Standards Technical Services Co., Ltd. (hereafter as "SGS") was commissioned by Wanhua Chemical Group Co., Ltd. (hereafter as "Wanhua Chemical") to conduct an independent assurance of *Sustainability Report 2017* of the Wanhua Chemical Group Co., Ltd. (hereafter as "the Report"). The scope of the assurance, based on the SGS Sustainability Report Assurance methodology, included the text and data in accompanying tables contained in the Report 2017. Data and information for company other than located at No.59, Chongqing Street, Economic and Technological Development Zone, Yantai, Shandong Province, P.R., China named Wanhua Chemical Group Co., Ltd. was not included in this assurance process.

The information in the Report and its presentation are the responsibility of the directors and the management of Wanhua.

SGS's responsibility is to express an opinion on the text, data, graphs and statements within the scope of assurance set out below with the intention to inform all Wanhua Chemical's stakeholders.

SGS sustainability report assurance procedure was based on internationally recognized guidance, including the Principles contained within the GRI STANDARDS for accuracy and reliability and the guidance on levels of assurance contained within the AA1000 series of standards and guidance for Assurance Providers.

The Report has been assured at a moderate level of scrutiny using our protocols for:

- Evaluation of content veracity; and
- Evaluation based on the GRI Standards.

The assurance comprised a combination of pre-assurance research, site assurance, and interviews with relevant employees at Wanhua Chemical. Documentation and record were verified.

Financial data drawn directly from independently audited financial accounts has not been checked back to source as part of this assurance process.

STATEMENT OF INDEPENDENCE AND COMPETENCE

The SGS Group of companies is the world leader in inspection, testing, verification and certification, is the acknowledged benchmark on quality and integrity. SGS affirm our independence from Wanhua Chemical Group Co., Ltd., being free from bias and conflicts of interest with the Organization, its subsidiaries and stakeholders.

The assurance team was comprised with people who have knowledge, experience and qualifications for this assignment, including Sustainability Reporting Auditor, CCAA ISO 9001 Auditor, ISO 14001 Auditor, OHSAS 18001 Auditor.

VERIFICATION/ ASSURANCE OPINION

On the basis of the methodology described and the verification work performed, the information and data contained within the Report is accurate and reliable. It is satisfied that the statements Wanhua Chemical

Group Co., Ltd. provided on sustainability activities are justified and critical.

The assurance team is of the opinion that the Report can be used by the Wanhua Chemical's Stakeholders.

We believe that Wanhua Chemical has chosen an appropriate level of assurance in accordance with GRI Standards for this stage in their reporting.

GRI STANDARDS CONCLUSIONS, FINDINGS AND RECOMMENDATIONS

In our opinion, the Report is presented in accordance with the requirements of GRI Standards core programs on report content and quality criteria.

Principles

Stakeholder Inclusiveness

Wanhua Chemical had identified stakeholders who might be affected by its activities, established channels for Stakeholders' inclusiveness and explained rational expectations and appropriate response to stakeholders

Sustainability Context

Fully considered the sustainable development background in the industry, Wanhua Chemical had presented its effort on sustainable development at economic, environment and social aspects and the performance be achieved.

Materiality

Based on the stakeholder focused issues and the significant impacts organizations have on economy, environment and society, Wanhua Chemical has disclosed reasonable issues and indicators which have material influence on the assessments and decisions of stakeholders.

Completeness

The Report contained coverage of material aspects and boundaries, reflected its significant economic, environmental and social impacts and enabled stakeholders to assess the performance of Wanhua Chemical in the reporting period.

Accuracy

The information provided in the Report is comparatively accurate, and the Report disclosed a number of qualitative and quantitative information of the performance.

Balance

The Report respected the balance principle and disclosed information at positive and negative aspects.

Clarity

Wanhua Chemical's report has presented in different ways like words, charts, graphics and pictures, also described with practical cases, which made it easy for stakeholders to understand.

Comparability

The Report has disclosed performance indicators of Wanhua Chemical in 2017, some previous data were disclosed for comparison, which could help stakeholders to understand the effectiveness of continuous improvement and the development trend of performance indicator.

Reliability

Though the information and data disclosed in the report has been collected and recorded systematically, we suggest Wanhua Chemical Headquarters to file and manage the original data more completely.

Timeliness

Being assured that the data and information was on a regular schedule and available in time, Wanhua Chemical would report annually to assure the good timeliness.

Management Approach

The Report disclosed the management approach of the selected disclosures but still need to improve on supply chain sustainable development management.

General Disclosures

The general disclosure part of the Report is in accordance with requirements of GRI Standards core programs.

Topic-Specific Disclosures

Wanhua Chemical has disclosed all the topic-specific disclosures on economic, environmental, and social areas in accordance with GRI Standards

Findings and suggestion

Best practices, advices on sustainable development management are all described in the internal sustainable management report and submitted to relevant management departments of Wanhua Chemical for continuous improvement.

Signed:

For and on behalf of of SGS-CSTC Standards Technical Services Co., Ltd.



Ben Tsang
Senior Director, China and Hong Kong
Certification and Business Enhancement
25 August 2018

A-16F, Century YuHui Mansion, No.73, Fucheng Road, Beijing, P.R. China
WWW.SGSGROUP.COM.CN

APPENDICES

GRI Standards Index

GRI Standards (2016)	Disclosure	Page
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Readers' Feedback

Dear reader,

Thanks for reading this report!

This is the first sustainable development report formulated by Wanhua Chemical in line with GRI standard. Prior to this, we have issued the Responsible Care Report for nine consecutive years. We look forward to receiving your valuable comments and suggestions on this report, and we are more than willing to adopt them for better improvement in our future reports. You are welcome to answer the following questions, and pass on this questionnaire to us:

Contact: Wanhua Sustainable Development Committee

E-mail: stocks@whchem.com

Contact address: No. 59 Chongqing Avenue, Economic and Technological Development Zone, Yantai City, Shandong Province

Postal code: 264000

1.Please tick “√” the corresponding cell in the table

Questions:	Yes	No	Not sure
(1) Do you think this report mirrors the significant impact on the environment, economy and society, and the results on these aspects by our company?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(2) Do you think this report discloses real, accurate and valid information?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(3) Do you think this report is clear and easy to understand in terms of its description, content arrangement and graphic design?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

2.Open-ended questions:

- (1) Which part of the report do you like best?
- (2) What other information do you think need to be disclosed in the report?
- (3) What are your expectations for the future sustainable development reports of Wanhua Chemical?

3.Please, if you may, leave your information, so that we can give timely feedback on your comments and suggestions:

Name: _____ Company: _____

Contact number: _____ E-mail: _____

Contact address: _____

Scan the QR code below to learn more about Wanhua Chemical:





WANHUA CHEMICAL GROUP CO., LTD.

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