



2021

SOCIAL RESPONSIBILITY REPORT

HENGLI PETROCHEMICAL CO., LTD.



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About this Report

Purpose

This Report aims to communicate openly with all stakeholders of Hengli Petrochemical Co., Ltd., the company's corporate social responsibility philosophy and actual performance, and respond to their expectations and requests systematically.

Reporting period

The reporting period is from 1 January to 2021 to 31 December 2021. For completeness and comparability, some parts of the content have extended beyond the above-mentioned period.

Reporting cycle

This Report is published annually.

Description of data

The sources of data used in this Report include raw data from the actual operations of the Company, internal statistical data, public data from government authorities and third-party institutions, amongst others. All financial data in this Report is presented in RMB as the functional currency.

References in the Report

For ease of presentation, this Report covers information on economic, social and environmental responsibilities undertaken by Hengli Petrochemical Co., Ltd. (hereinafter referred to as "Hengli Petrochemical", the "Company", "we", or "us") and its secondary holding subsidiaries. The relevant case studies showcased in this Report are from enterprises affiliated to the Company. The secondary holding subsidiaries include Jiangsu Hengli Chemical Fiber Co., Ltd. ("Hengli Chemical Fiber"), Kanghui New Material Technology Co., Ltd. (formerly known as Yingkou Kanghui Petrochemical Co., Ltd., hereinafter referred to as "Kanghui Petrochemical" or "Kanghui New Material"), Jiangsu Hengke New Material Co., Ltd. ("Hengke New Material"), Hengli Petrochemical (Dalian) Chemical Co., Ltd. ("Hengli Petrochemical Chemical"), Hengli Petrochemical (Dalian) Refining Co., Ltd. ("Hengli Petrochemical Refining"), Hengli Petrochemical (Huizhou) Co., Ltd. ("Hengli Petrochemical (Huizhou)"), Hengli Petrochemical (Dalian) Co., Ltd. ("Hengli Petrochemical (Dalian)"), and Jiangsu Deli Chemical Fiber Co., Ltd. ("Deli Chemical Fiber").

Reference standards

- *Guidance on Social Responsibility* (ISO 26000:2010)
- 2030 Agenda for Sustainable Development, Sustainable Development Goals (SDGs) adopted by the United Nations
- *GRI Sustainability Reporting Standards* (GRI Standards), Global Sustainability Standards Board
- *Guidance on Social Responsibility Reporting* (GB/T 36001-2015), National Standard of the People's Republic of China
- *Guidelines on Corporate Social Responsibility Reporting for Chinese Enterprises (CASS-CSR4.0)*, Corporate Social Responsibility Research Center, Academic Division of Economics, Chinese Academy of Social Sciences
- *Guidelines on Preparation of Corporate Social Responsibility Reports*, Shanghai Stock Exchange

Report format

The electronic version of this Report is available for reading and downloading on the Shanghai Stock Exchange website (www.sse.com.cn), the company official website (www.hengliinc.com) and www.cninfo.com.cn.



Message from the Chairwoman



Practising safe and green development philosophy, building a world-class park that is excellent internally and beautiful externally

2021 marks the start of the “14th Five-Year Plan”. A new beginning signifies that Hengli Petrochemical has to transform and evolve in pursuit of “change”. “Change” refers to changing mindset to enhance learning to achieve higher level of enterprise independence; it also refers to changing the way we operate to strengthen independent innovation to realize high quality development of our core businesses. We value capability building and create innovative potential. Concurrently, we need to have the determination to remain “constant”, where we (i) value safety and build up accountability; (ii) value environmental protection and exercise recycling to build more exquisite green parks and factories; and (iii) grab hold of opportunities and expedite the construction of new projects. Of course, what remains unchanged also includes our sincere commitment to serving and paying back to the country through the industry, our entrepreneurial determination to surmount all obstacles, and our will for development through tough and crucial stages. We change to adapt to the situation and face challenges; we remain constant to keep to our original intent. Between changing and remaining constant, we shoulder the important responsibility of building a stronger country through the petrochemical industry.

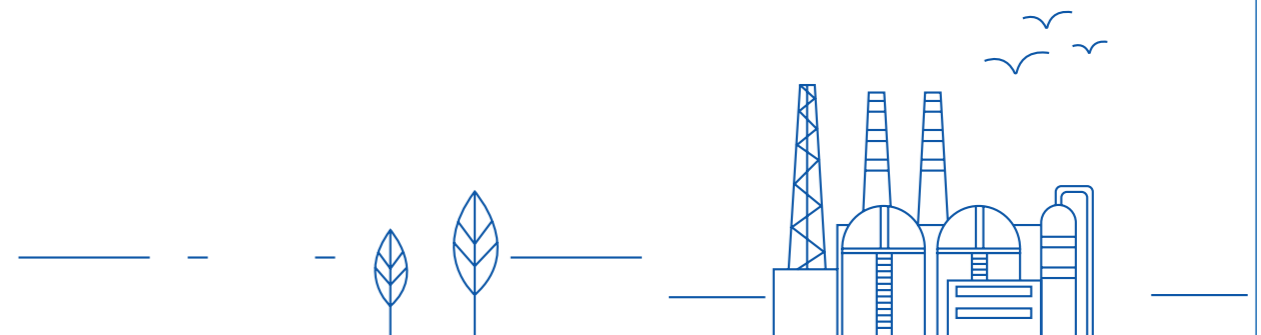
Against the backdrop of changes and the pandemic, Hengli continues to strive hard and apart from deep diving into our core businesses, we also strategize and build up new innovative industrial chains revolving around our existing industrial chains. Throughout the year, we pushed forth the “dual circulation strategy” to build up the economy. The 200,000 tons industrial yarn project by Hengli Chemical Fiber, and the polyester film and biodegradable plastic projects by Kanghui New Material were put into operations respectively. In addition, we also kickstarted the construction of the Hengli (Huizhou) Industrial Park, Hengli Petrochemical Refining Fine Chemical Park Phase I Project, and Hengli (Yangtze River Delta) International New Materials Industrial Base. The PBS biodegradable plastic project which could produce an annual output of 900,000 tons and the lithium-ion battery separator project with the annual output of 1.6 billion square meters have also been finalized. The five industrial chains plan were gradually unveiled. We carried out “disruptive changes” to overcome the shortcomings of the industry, such as coming up with more than 700 patented technologies where many made us stand out among others in the industry. Despite being in the

petrochemical business where we utilize large scale equipment, we bear in mind and take the lead in the areas of being green, environmentally friendly and leveraging smart technologies in our production. This has led to four companies under our belt, i.e. Hengli Petrochemical (Dalian), Hengli Refining, Hengke New Material and Hengli Chemical Fiber being conferred “Green Factories” at national level in 2017, 2020 and early 2022. We are always grateful and responsible and adhering to our original intent. Hengli has been actively participating in the fight against the pandemic and supported poverty alleviation, education, disaster relief and other public welfare projects.

Considering the domestic and international spheres, Hengli has specifically brought the development of human capability to a new level. In the new year, we will continue to build up our human asset and create a people-oriented environment for their development. We will also improve the human resource development mechanism that focuses on attracting, utilizing, retaining, and training staff to build up their accountability, competence, and contribution skills through evaluation and assessment. Driven by efficiency and innovation, we will adopt a two-pronged approach to advocate pragmatic, proactive and intelligent working styles; encourage a determined working attitude; and be opportunity-sensitive, time-sensitive and be efficient. We are committed to build a national enterprise that is continuously learning, innovative and technologically driven. We will continue to build up our research and development (R&D) expertise and break new grounds through collaboration with internal and external forces- our staff and other education and research institutions, as well as international enterprises.

We adopt broad strategies when we expand domestically and internationally, strengthening our five main business sectors. Tactically, we take note of fine details and focus on quality, cost and rapid response. We will continue to perfect our six major systems. i.e. the safety and environmental protection management system, financial security system, talent development system, quality management system, big data and information system and corporate culture system, and also put effort in corruption punishment and employee care.

“A broader future calls for more efforts of exploration.” Hengli will continue to build up our talent base, be more efficient, achieve dual breakthrough in R&D quality and quantity, and showcase our expertise in safety production. Moving forward, Hengli will also work towards a high quality, low energy consumption, and smart development journey. We will continue to drive innovative efforts to live up to the nation’s expectations. We will together make great achievements!



Sustainable Management

Analysis of substantive issues

To better address our stakeholders' concern and expectations, the company has identified and assessed substantive issues and will be addressing the key areas of concern in this Report.

◆ Analysis of substantive issues

Governance issues

- Corporate governance
- Risk and compliance
- Information disclosure
- Intellectual property rights
- Investor relations
- Anti-corruption

Environmental issues

- Integrated utilization of energy
- Solid waste treatment
- Exhaust emissions
- Treatment of hazardous waste
- Discharge of wastewater

Social issues

- Science and Technology innovation
- Employee rights and interests
- Customer service
- Training and development
- Product quality
- Compensation and benefits
- Supply chain management
- Community volunteering/activities
- Industrial cooperation

Participation of stakeholders

Identification of stakeholders	Expectations and requirements	Communication and response
 Employees	<ul style="list-style-type: none"> ○ Compliance protection for rights and interests ○ Comprehensive salary system ○ Progressive promotion system ○ Variety of employee activities 	<ul style="list-style-type: none"> ○ Internal communication via the intranet ○ Townhalls ○ Internal online communication platform ○ Employee training ○ Employee activities
 Investors and shareholders	<ul style="list-style-type: none"> ○ R&D and innovation ○ Transparency in disclosure of corporate information ○ Investor relations management ○ Composition and operation of the Board of Directors ○ Performance of the Supervisory Board ○ Risk management ○ Internal controls ○ Business information and data protection ○ Intellectual property management 	<ul style="list-style-type: none"> ○ Shareholders' meetings ○ Information disclosure ○ Roadshows ○ Establishing an open communication channel for investors ○ Reasonable profit distribution
 Government and regulatory authorities	<ul style="list-style-type: none"> ○ Emissions management ○ Employee rights and interests ○ Product portfolio management ○ Anti-corruption ○ Participation in community or volunteering activities ○ Corporate information disclosure ○ Risk management ○ Internal controls ○ Compliance operations 	<ul style="list-style-type: none"> ○ Institutional visits ○ Official correspondences ○ Policy implementation ○ Information disclosure ○ Regulatory compliance
 Suppliers (Service providers)	<ul style="list-style-type: none"> ○ Supply chain management ○ Mutually beneficial ○ Industrial communication and collaboration 	<ul style="list-style-type: none"> ○ Suppliers' evaluation ○ Suppliers' communication and training ○ Transparent open procurement
 Customers	<ul style="list-style-type: none"> ○ Product portfolio management ○ R&D and innovation ○ Industrial communication and collaboration ○ Anti-corruption ○ Intellectual property management 	<ul style="list-style-type: none"> ○ Customer research ○ Technology seminars ○ Customer service hotline ○ Customer satisfaction surveys
 Partners	<ul style="list-style-type: none"> ○ Supply chain management ○ R&D and innovation ○ Industrial communication and cooperation ○ Anti-corruption ○ Intellectual property management 	<ul style="list-style-type: none"> ○ Communication and visits ○ Industry forums ○ Cooperative R&D
 Community and public	<ul style="list-style-type: none"> ○ Emissions management ○ Resource utilization management ○ Anti-corruption ○ Participation in community volunteering or activities 	<ul style="list-style-type: none"> ○ Voluntary services ○ Community activities ○ Communication and interviews

Milestones in 2021

2021 January

Hengli Petrochemical was ranked 96th on 2020 "China's Top 500 Listed Companies by Market Capitalization".

2021 February

Hengli Petrochemical officially inked a deal for a project which could produce an annual yield of 300,000 tons of PBS biodegradable plastics.

2021 July

Hengli Petrochemical moved up to the 76th position on the Fortune China 500 list.

2021 July

Hengli Petrochemical made it to the Global Top 50 Chemical Companies list, released by the United States *Chemical & Engineering News (C&EN)* again, this time ranking 15th.

2021 September

Official commencement of construction for Hengli (Yangtze River Delta) International New Materials Industrial Base.

2021 November

Hengli Petrochemical was included in the sixth batch of Individual Champion Demonstration Enterprises in Manufacturing released by the Ministry of Industry and Information Technology.

2021 January

Hengli Petrochemical officially inked a contract for a PBS biodegradable plastic project which could produce an annual yield of 600,000 tons.

2021 April

Hengli Petrochemical donated to the construction of "Jianhua Building" at Tsinghua University's School of Economics and Management, where it was officially completed and operational.

2021 September

Hengli Petrochemical made it to the list of Global Chemical Company Billion Dollar Club released by *Chemical Weekly* again, this time ranking 14th.

2021 September

Hengli Petrochemical started the construction of a biodegradable new materials project which will generate an annual yield of 450,000 tons.

2021 December

Hengli Petrochemical entered into an equipment contract with Japan's Shibaura Machine Co., Ltd. and others, officially commencing the construction of a lithium-ion battery separator film project with an annual production capacity of 1.6 billion square meters.

Profile

Understanding and Knowing Hengli



Company Profile

Hengli Petrochemical Co., Ltd. was established in November 2002. With a registered capital of RMB 7.04 billion, its core businesses cover petroleum refining, petrochemical, aromatics, olefins, PTA, ethylene glycol, textile yarn, industrial yarn, engineering plastics, polyester films, biodegradable plastics, and other high-end chemical raw materials, as well as a variety of new chemical materials and applications which meet production and consumer needs. Currently, we have four major production clusters, comprising the global benchmark 20 million tons/year refining and chemical integration project, a modernized coal chemical plant with an annual production capacity of 5million tons, the world's largest single ethylene project with an annual production capacity of 1.5million tons, and five sets of PTA plants where the annual total production capacity amount to 11.6million tons. We overcame the upstream bottleneck of supplying raw materials and successfully built a modernized production system, integrating a world-class chemical refinery and modern coal chemical plant. At the same time, we have a comprehensive production plan in the downstream chemical new materials segment, which include differential fibers, functional polyester films, engineering plastics, and new biodegradable materials. This resulted in a systematic industrial landscape incorporating a big chemical platform and an extension of new materials. With over 30,000 employees and a national "Enterprise Technology Center", considering our

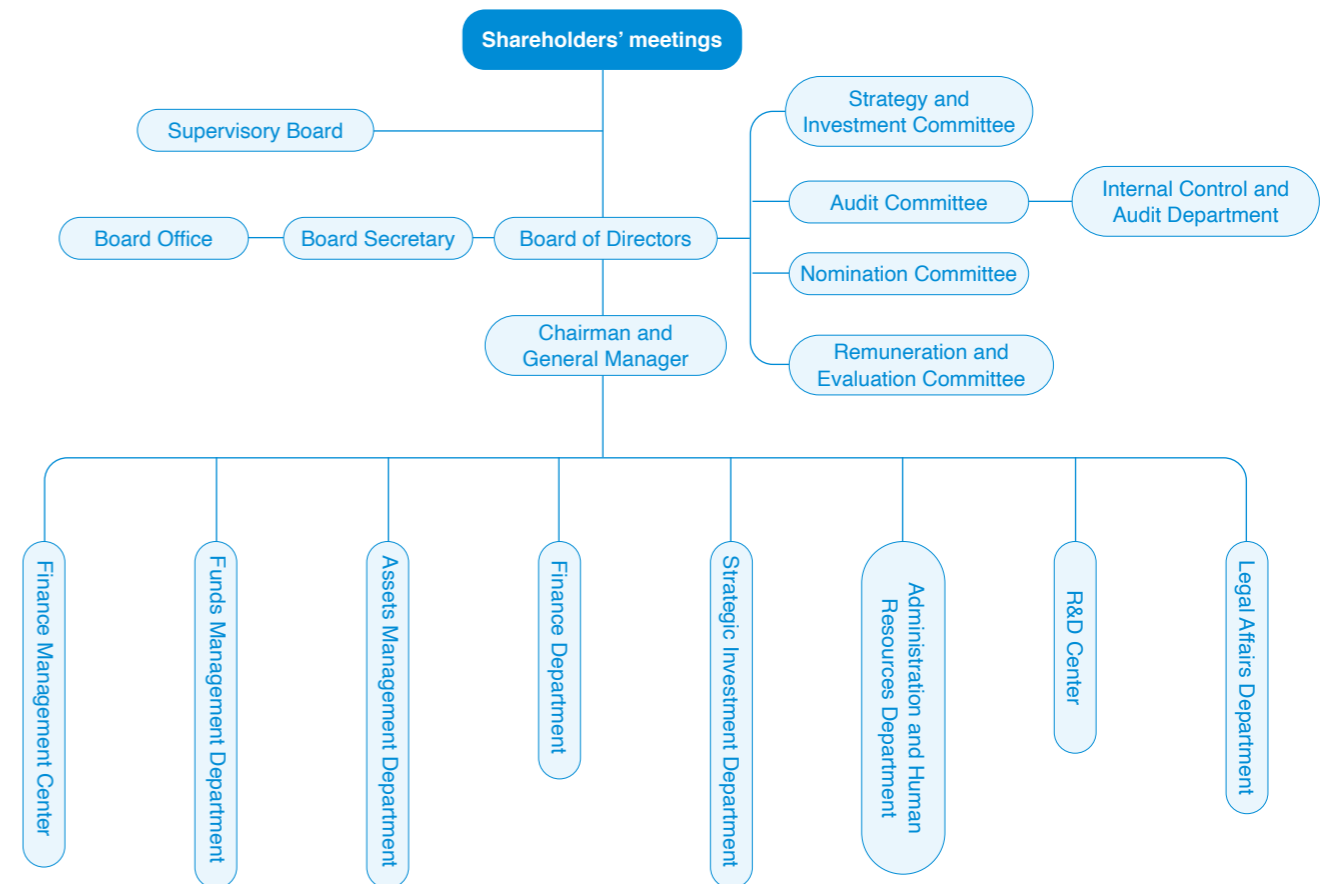
corporate competitiveness and product brand value, we are undoubtedly at the forefront in the global industry. With the company's headquarters and one of the production bases established in Suzhou, China, the other six major production bases include Dalian, Nantong, Suqian, Yingkou, Huizhou and the Yangtze River Delta Integration Demonstration Zone. We aim to become a world-class platform enterprise for the research, development, and manufacturing of new chemical materials. Hengli Petrochemical has laid out a high-quality and high-efficiency production capacity structure and public engineering support in the upstream, midstream and downstream of the whole industrial chain of polyester and new chemical materials, characterized by "large-scale plant, large-scale production capacity, structural integration, advanced technology, environmentally-friendly and well-equipped facilities". It is at the forefront of the industry in every aspect. The company adheres to the development route characterized by market differentiation, high-end technology, scale of setup, business integration, and a market formed after long periods of accumulation and exploration. The innovative mechanism associated with technology, its research and development capability and new products innovation ability are also leading in the industry. Four of its subsidiaries, i.e. Hengli Chemical Fiber, Deli Chemical Fiber, Hengke New Materials, and Kanghui New Material have obtained the "National High-tech Enterprise" accolade.

Entering the "14th Five-year Plan", Hengli Petrochemical will be making full use of the supporting "big chemical" platform integrating "oil, coal, and chemicals" in the upstream and cumulative R&D achievements in "new materials" combining "yarn, films, and plastics" in the downstream. We will also continue to promote the construction of the full industrial chain as well as improve the scarce production capacity for new chemical materials. We will also deep dive into a dynamic moat established by technology, management, cost, efficiency, and innovation and further expand our industrial chain. As a leading enterprise in research, development, and manufacturing of new chemical materials, Hengli Petrochemical has the advantage of leveraging the coupling of raw materials and system in the upstream to continue its quality development. At the same time, it continues to expand and specialize in the downstream chemical new materials segment.

"Establishing a world-class enterprise, creating internationally renowned brands". Hengli Petrochemical uses innovation as a driver to focus on its core businesses and meticulously utilizes its upstream advantage and downstream accumulated experience to develop a new downstream chemical new materials full industrial chain new market. It fulfils its "Hengli dream" of pushing forward the country's advancement with its businesses by mastering its core technology and achieving breakthroughs in manufacturing and scale.

Organizational Structure

The company has established a modern corporate governance structure comprising shareholders' meetings, Board of Directors, Supervisory Board and senior management as its core. The roles and responsibilities are clearly defined in terms of decision making, execution and supervision, forming a scientific and effective mechanism in the division of duties and in performing checks and balances. This ensures soundness, efficiency, and sustainable operations in the areas of organization and governance.



Development History

2002

Jiangsu Hengli Chemical Fiber Co., Ltd. was officially established with a total investment of RMB 2.2 billion for its first phase project. The completion and operationalization of this project is a solid step towards scaling up for the Group's development.

2007

Jiangsu Hengli Chemical Fiber Co., Ltd.'s ultra-bright yarn project which could produce an annual yield of 200,000 tons was put into production. This project bridged the gap of the production of high-end bright yarn in the domestic arena and opened up the medium and high-end markets of bright yarn which was previously monopolized by foreign manufacturers.

2008

The "Hengyuan" brand polyester fiber produced by the Company ranked first in sales across similar products of domestic brands in 2007.

2010

Jiangsu Hengli Chemical Fiber Co., Ltd.'s industrial yarn project which could generate an annual yield of 200,000 tons was put into production.

2011

The company's "Development of key technologies for high-quality melt direct spinning superfine denier polyester filament" project won the second prize for the National Science and Technology Progress Award

The Company was recognized as a "Key High-tech Enterprise under the National Torch Program".

2012

The Company was accorded the title of "National Enterprise Technology Center" at the award ceremony for National Innovation Capacity Building and National Informatization Building, organized by the National Development and Reform Commission, Ministry of Science and Technology, Ministry of Finance, General Administration of Customs, and the State Taxation Administration.

2021

Hengli Petrochemical made its way to the 2020 China's Top 500 Listed Companies by Market Capitalization list.

2020

Hengli Petrochemical ranked 99th on 2020 Fortune China 500 list.

Hengli Petrochemical made its way to the Global Top 50 Chemical Companies list by *Chemical & Engineering News (C&EN)* for the first time, ranking 26th.

2019

Hengli Petrochemical was accorded the title of China's socially responsible enterprise for its contributions.

2018

Hengli Petrochemical Co., Ltd. was included in the MSCI index system as the company with the greatest market capitalization among new constituent stocks in the MSCI China A-share index.

2017

The media briefing for Hengli Petrochemical Co., Ltd.'s significant assets restructuring was held at Shanghai Stock Exchange.

The China Securities Regulatory Commission approved Hengli Petrochemical Co., Ltd.'s issuance of shares to purchase assets in a related-party transaction and raise matching funds.

2016

Hengli Petrochemical Co., Ltd. restructured and was listed on the Shanghai Stock Exchange in 2016

2014

"Chaolite", an industrial yarn brand of the Company, was accorded the "Jiangsu Branded Product" title.

2013

The "Hengyuan" brand polyester fiber ranked first again in sales across similar products of domestic brands at the "17th National Market Sales Leading Brand Press Conference" organized by the China Industrial Information Issuing Center of the National Bureau of Statistics.

Pursuit

Striving for Rapid Development through Governance

Philosophy

Hengli Petrochemical is committed to implementing high standards of corporate governance, complying strictly with the requirements of the China Securities Regulatory Commission and the Shanghai Stock Exchange on regulatory governance. It continuously builds and improves the governance structure, safeguards the rights and interests of investors and enables investors to share the fruits of development and operation with the company. We have established sound systems and regulations and implemented strict internal controls and monitoring to actively maintain relations with investors and disclose information in a truthful, accurate, complete, and fair manner.

Our Actions

Regulatory Governance
Information Disclosure
Investor Relations Management
Internal Controls and Management
Integrity and Professionalism



Regulatory Governance

Hengli Petrochemical complies strictly with the *Company Law of the People's Republic of China*, the *Securities Law of the People's Republic of China*, and the relevant regulations of China Securities Regulatory Commission and Shanghai Stock Exchange, establishing a sound system with shareholders' meetings, Board of Directors, and Supervisory Board, forming a corporate governance structure with clear division of duties and responsibilities, effective checks and balances, scientific decision-making, and coordinated operations amongst the authority, decision-making organization, supervisory organization, and the management. At the same time, the Company's Board of Directors has set up four special committees, i.e. strategy and investment, audit, nomination, and remuneration and evaluation to provide consultation and suggestions, as well as to ensure professional and efficient discussions and decision making by the Board of Directors.

We implement and comply strictly with the requirements of the *Company Law*, the *Rules for Shareholders' Meetings of Listed Companies*, the *Articles of Association*, and the *Rules of Procedures for Shareholders' Meeting* to regulate the procedures for convening, holding, and voting at shareholders' meetings. We adopt a combination of on-site and online voting for important matters to sufficiently safeguard shareholders' rights to information, participation, inquiry, and voting. This also provides convenience for the medium and smaller shareholders and especially safeguards their interests.



Shareholders' meeting held in April 2021

All board meetings are convened and held in strict compliance with the *Rules of Procedure for the Board of Directors*, and all directors of the Company will attend all board meetings as shareholders' meetings and perform their duties and roles diligently. The professional structure of the Board of Directors, coupled with their diverse professional backgrounds, provide constructive ideas and suggestions from all perspectives and engage in effective discussions and analysis. This helps to raise the efficiency and standards of the scientific decisions made. The criteria for qualification, appointment, and dismissal of the members of the Board of Directors are strictly in accordance with the stipulated laws and regulations. There are three independent directors and four special committees, including the Strategy and Investment Committee, the Audit Committee, the Nomination Committee, and the Remuneration and Evaluation Committee. More than half of the independent directors are in the Audit Committee, the Nomination Committee, and the Remuneration and Evaluation Committee, and these committees are each chaired by an independent director. The independent directors perform their duties independently to safeguard the overall interests of the Company. They also ensure that the legitimate rights and interests of small and medium shareholders are not compromised, and express independent opinions on major and significant matters.

The company's Supervisory Board is made up of three members. The member in charge of employees is elected at the employees' representative meeting, and the appointment and dismissal of this member are in accordance with the statutory procedures. To be accountable to all shareholders, the Supervisory Board adheres to the *Company Law*, the *Articles of Association*, the *Rules of Procedure for the Board of Supervisors* to perform their duties. It also supervises the company's operations and development, financial situation, relevant transactions, major events and the performance of duties by the directors and senior management of the company in accordance with law and regulations. The Supervisory Board actively safeguards the legitimate rights and interests of the company and shareholders to ensure healthy, stable, and sustainable development of the company.



Shareholders' Meetings



Board of Directors



Supervisory Board

3 Shareholders' meetings were held in 2021.

9 Board meetings were held in 2021.

6 Supervisory Board meetings were held in 2021.

Information Disclosure

The information disclosure of the Company is strictly in accordance with the *Rules Governing the Listing of Stocks on Shanghai Stock Exchange* and other relevant provisions. The whole process is aligned with the principles of truthfulness, accuracy, completeness, timeliness, and fairness to safeguard the legitimate rights and interests of investors. In this regard, we have formulated several regulations, including the *Information Disclosure Management System* and the *Annual Report Information Disclosure Accountability System in significant errors*. We make interim announcements in a timely and effective manner and narrow the scope of insider information to ensure fair access to information for all investors. This facilitates all stakeholders' understanding of the company's operations and development of significant events.

- The department in-charge of providing the information and materials verifies all data meticulously.
- The disclosure of periodic and interim reports endorsed by the directors or supervisors attending the meetings shall be completed by the Board Secretary after seeking the Chairman's approval.
- The drafting of interim reports involving significant matters such as the sale and acquisition of assets and related transactions specified in the *Rules Governing the Listing of Stocks on the Shanghai Stock Exchange*, and that involving mergers and divisions of the company are arranged by the Board Secretary and will be disclosed after the Chairman's approval.
- Interim reports on abnormal stock trading fluctuations specified in the *Rules Governing the Listing of Stocks on the Shanghai Stock Exchange* are disclosed by the Board Secretary after seeking the Chairman's approval.
- Applications for suspension or resumption of the trading of the company's shares are disclosed by the Board Secretary after seeking the Chairman's approval.
- Any form of disclosure of information by any authorized persons shall seek the Chairman's approval before doing so.
- The opinions and proposals of independent directors shall be stated in writing and signed off before submission to the Board Secretary.
- When publishing regulations of the company relating to significant matters on the company's intranet or other internal publications, the consent of the Board Secretary shall be sought. The Board Secretary has the right to stop the release of any inappropriate information.
- The Board Secretary or securities affairs representative is responsible for the reviewing of announcements to be released on the Shanghai Stock Exchange website, and the sending of official documents to the designated media and websites.

4 periodic reports were released in 2021

82 interim disclosure reports

Information disclosure channels:
China Securities Journal
Shanghai Securities Journal
Securities Times
Securities Daily

Rating of information disclosure assessment at the SSE: A
 (Based on the assessment results of information disclosure by listed companies released by the SSE in August 2021)

Investor Relations Management

We have formulated the *Investor Relations Management System*, where we adopt an honest and open attitude towards all investors. We also abide by the requirements of the regulatory authorities and continue with the daily management and maintaining of investor relations.

Case study

New platform - Hengli Petrochemical held a virtual performance and results briefing

In April 2021, the company held a virtual briefing on our 2020 performance with visuals and textual aids. Our Chairwoman and General Manager, Mdm Fan Hongwei, our Board Secretary, Mr Li Feng, our Chief Financial Controller, Mdm Liu Xuefen, and our Deputy General Manager, Mr Liu Qianhan exchanged ideas and communicated with our investors on the company's operating results and financial results, amongst others. Within the allowance scope where information could be disclosed, generic concerns posed by investors were also addressed.



Hengli Petrochemical's 2020 performance and results briefing

Hengli Petrochemical's virtual performance and results briefing

Case study

Hengli Petrochemical (Dalian Changxing Island) Industrial Park received visits by SSE investors



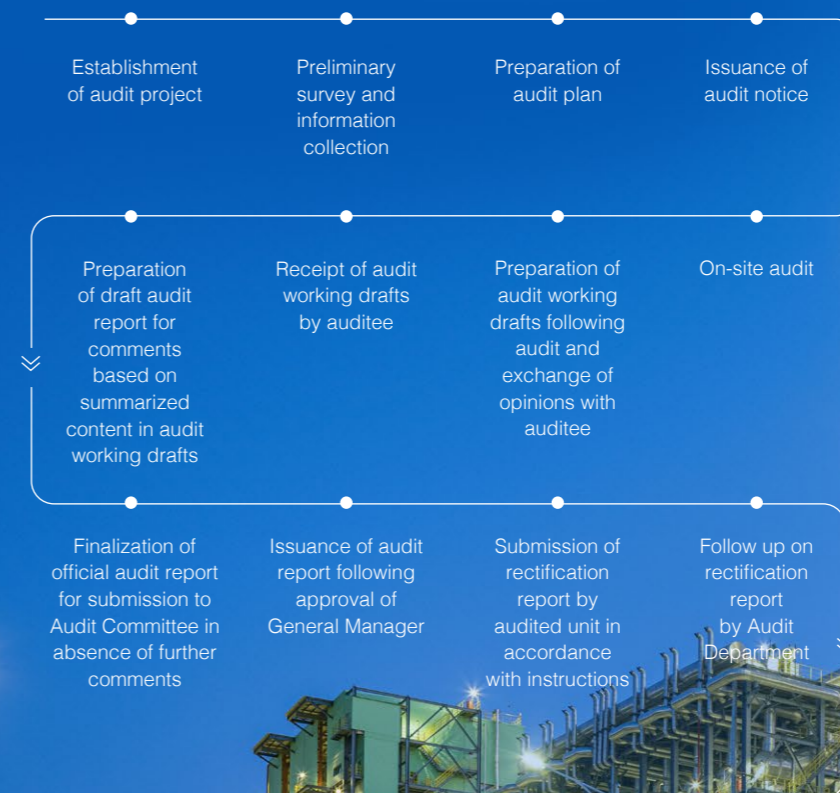
In July 2021, Dalian welcomed a series of SSE Investor Service Week activities. Small and medium investors visited Hengli Petrochemical (Dalian Changxing Island) Industrial Park and experienced the charm of the world's advanced chemical company. Themed "*Remembering original intention and mission, Leading valued investments*", the activities were organized by the Shanghai Stock Exchange in conjunction with China Securities Regulatory Commission Dalian Office, Association for Public Companies (Dalian) and Daton Securities Co., Ltd.

Investor Relations Service Week

Internal Controls and Management

Hengli Petrochemical has established a sound internal control system to ensure that the company's internal audit work is carried out seamlessly, and that the production operations and finance management and other activities of the company and its subsidiaries comply with the relevant provisions of national laws and regulations in accordance with the *Audit Law of the People's Republic of China*, the *Basic Standard for Internal Controls of Enterprises* and the *Rules Governing the Listing of Stocks on the Shanghai Stock Exchange*, amongst others. The audit department had in 2018 completed the *Internal audit system of Hengli Petrochemical Co., Ltd.* and the Board of Directors had in 2019 approved the "*Hengli Petrochemical Co., Ltd. internal controls system*" to strengthen the management of internal audit.

During the Reporting Period, the company did not experience any emergency incidents. Generally, when the company receives an assignment outside of the annual audit plan, we will fulfil the stipulated procedures of the internal audit system and deal with any problems in a timely manner and rectify them accordingly. This helps to prevent any violation of laws and regulations and ensure that the enterprise's operations are compliant, enhancing the economic efficiency.



Integrity and Professionalism

The company places great importance on anti-corruption and anti-commercial bribery work. Apart from regular supervision, we also released the *Management methods for Awards and Punishment* to strengthen peer supervision. We value integrity and professionalism and take corruption, misappropriation of public funds, abuse of power, falsification and accepting bribes and commission very seriously. In accordance with the *Labor Law*, the *Labor Contract Law* and relevant provisions of the Company, offenders may be removed from office or be referred to the judicial authorities. In addition, to standardize procurement behavior and eliminate any dishonest and corruption acts during procurement processes, every procurement contract inked by the company is accompanied with an anti-bribery agreement.

To strengthen the ethos of integrity in the company, push forth operations of the enterprise in accordance with the law, promote staff integrity, and safeguard the company and staff's interests and legitimate rights, CPC Hengli Disciplinary and Supervision Committee released the *Hengli Integrity Employment Code of Conduct* which contains 10 items on employees' and 23 items on managers' code of conduct respectively.

We create an environment of integrity and diligence by establishing bulletin boards with slogans promoting such ethos at our staff activity centers.

Case study

Establishment of Inspection Team at Hengli Petrochemical to strengthen integrity management

Established in April 2010, the Disciplinary Supervisory and Inspection Team of Hengli Petrochemical was selected as the first batch of examples for upholding integrity in Wujiang city in October 2012. Since its establishment, the committee has participated in the supervision of the financial, production, procurement, administration, and other operating aspects to safeguard the healthy development of the company.

To comprehensively enhance the political awareness and responsibility of all managers and employees in advocating anti-corruption and integrity, we organized a variety of activities to promote anti-corruption and integrity, such as legal literacy lectures, conducting trainings on integrity and organizing visits to "red sites", i.e. locations with historical and cultural significance to the ruling Community Party's history.



Hengli Chemical Fiber organized a visit to the anti-corruption and upholding integrity education base in Wujiang, Suzhou, attended by over 400 staff, ranging from senior and middle management to administrative staff.

Belief

Keeping Our Society in Mind and Remaining True to Our Original Aspiration

Philosophy

Hengli Petrochemical actively fulfils its social responsibilities by promoting advancement and upgrade of the industry, emphasizing employee safety and development, and actively participating in community and volunteering activities. Hengli Petrochemical strongly believes that an enterprise should be accountable to the society and contribute towards building a harmonious society.

Our Actions

- Quality First for Products
- Safety First in Production
- Being People-oriented to Employees
- Common Development for Industry
- Harmonious Advancement for Society



The company invested over
RMB **10** billion in R&D technology in 2021.

Up **23.42** % from 2020

With **3,220** R&D researchers

9.03 % of the total number of employees

Hengli Petrochemical has an Innovation
Research Institute and
12 overseas R&D centers

By the end of 2021,
the Company had obtained
834 patents

480 invention patents

36 international invention patents

Accorded accolades such as National Patent
Silver Award and Exemplary Enterprise in
National Intellectual Property Rights

Quality First for Products

Science and Technology Innovation

Hengli Petrochemical has all along emphasized on science and technology innovation and has been improving its scientific research skills, such as bringing in advanced technology, building an international research and development (R&D) team and a high standard R&D platform. Through these, it hopes to provide its customers with high quality and satisfactory products. Hence, we have developed a series of management methods to attract talents, motivate employees to invent and create to provide an impetus for the development of the company. Hengli Petrochemical has implemented the *Management Measures for Awards and Punishments of Independent Innovations* to reward new products and new technology development projects which has passed assessments, as well as encourage employees to continue to innovate and develop competitiveness for the benefit of the company's development.

Case study Kanghui New Material implements point accumulation reward system

Through the *Management Measures for Performance Evaluation of Scientific Research Personnel* and the *Annual Evaluation Form of Scientific Research Personnel*, Hengli New Material evaluates and rewards scientific research personnel through a point accumulation reward system. At the same time, through the invention and production chains, the rewards for the personnel are also divided into invention award and production award respectively. The differentiation in the reward system further motivates staff and increases the competitiveness of the company.

Case study Kanghui New Material implements talent development strategy

Kanghui New Material has always focused on talent training and development. Against the backdrop of the pandemic, it started phase three of the PBT/PBAT modification project through the pre-organizational structure established and talent recruitment. It aligns with the group's talent development strategy and mainly takes in graduates from the list of universities under the "985" and "211" projects, top universities, and top graduates from other universities. 231 professional cadres were recruited for the three projects, amongst which all were graduates from the above-mentioned universities and four were master's students. In addition, 73 highly competent engineering and technical talents (including four with master's degree) were engaged externally. This effectively guarantees the development of new products and promotes scientific research to overcome bottleneck technology difficulties, as well as convert scientific research results into actual productivity.

The company's subsidiaries, i.e. Hengli Chemical Fiber, Deli Chemical Fiber, Hengke New Material, and Kanghui New Material, are national high-tech enterprises with product quality and stability superiors to its peers in China. Currently, we are the only company capable of producing 7DFDY products, an ultra-thin single yarn that is only 1/16 thick as compared to a single strand of hair. Such technology is the first in China. In addition, the company has the largest single production facility for PBS/PBAT biodegradable new materials in China where the production rate of new products has been growing steadily over the years. This has formed a technological moat within the industry which is difficult to replicate within a short period of time.

In the synthetic silk sector, Hengli has independently developed the synthetic acetate fiber, which has made it the most advanced and the only enterprise with such capability. The luster, softness and touch of the synthetic acetate fiber can almost replace the real acetate fiber. Hengli independently developed and produced special binding fiber specially made for the high-end wind power generation sector and broke the foreign market monopoly by its 95% market share. This plugged the gap of the lack of technology in this sector in China, and the development and production of the solar panel substrate films were also welcomed by its customers.

Case study Kanghui New Material achieves global first for its further breakthrough in ultra-thin film



Kanghui New Material independently developed the 4.5 um ultra-thin film and hot stamping transfer base film, making it the first enterprise capable of producing such ultra-thin film products using the melt direct stretching method globally. The 12 um in-line silicon coating film of Kanghui New Material Technology Co., Ltd. has been put into mass production and Kanghui New Material has become the first in China and the second globally capable of producing in-line silicon coating films of such thickness.

Case study The Company develops the most advanced antibacterial fiber

The antibacterial fiber invented by the company is a multi-functional antibacterial fiber with nano active mineral added based on the molecule structural design. It is permanently antibacterial, non-toxic and durable. Its antibacterial effects have reached the AAA grade (the highest grade). The main component of the antibacterial agent is active mineral, and the active component is zinc compounds of 700-1000ppm. This product also possesses anti-static, pilling resistant, moisture absorption, moisture wicking and far infrared features. This antibacterial agent has obtained domestic and international invention patents.



Hengli Petrochemical obtained the accolade of "Exemplary Enterprise in National Intellectual Property Rights"



Hengli Chemical Fiber was awarded the "Product Development Contribution Award" by the China National Textile and Apparel Council



Hengli Chemical Fiber was awarded the "Exemplary Enterprise in Technological Innovation" accolade under the "13th Five-year Plan"



Hengli Chemical Fiber was accorded the accolade of Suzhou's "Advanced Technology Research Institute Construction Enterprise"



Hengli Chemical Fiber won the title of single champion of the manufacturing industry



Intellectual Property Management System certification



Hengli Chemical Fiber won the China Patent Silver Award for its invention patent



Hengli Chemical Fiber won the Jiangsu Province Enterprise Technology Innovation Award



Digitalization and Intelligence

The company regards "smart connection" as an important entry point for industrial transformation and upgrade. Therefore, we take great efforts to promote in-depth integration of the internet, big data, artificial intelligence, and the real economy to establish an efficient data platform and efficient management model, developing advanced manufacturing capabilities, and creating the driver for intrinsic growth. With integration of smart manufacturing, the internet, the Internet of Things and other technologies, the company relentlessly promotes smart manufacturing throughout the entire process. Through the independently developed product inspection system, automatic bar code system, smart input and output system, sales system, and the seamless connectivity with the ERP system, product traceability, full process control, corporate control, research and development, business management and financial connectivity can be integrated. This promotes the company's manufacturing move towards smart manufacturing and transforms its single business management to a highly-coordinated operation of the industry chain.

Intelligence

In January 2021, Hengli's intelligent manufacturing comprehensive standardization and new model application project successfully passed the project acceptance. This project mainly comprises 42 major components, where the industrial Internet of Things, artificial intelligence, cloud computing, industrial big data, and other new technologies are widely applied and used to support business control operations in productions, equipment, energy and HSE.

Case study Zero error leading to further upgrade of Hengli Chemical Fiber's intelligent manufacturing demonstration area

In the production workshops of Hengli Chemical Fiber, through China's first full process digitalized intelligent spinning equipment and with the help of Internet, Internet of Things, and other technologies, the system has realized real-time monitoring and remote monitoring of equipment operation and quality data. Coupled with inspection by workers, robots communicate with the production line through software connection to complete production.



Hengli Chemical Fiber intelligent manufacturing demonstration area

Digitalization

In the area of building a digitalized factory, the company uses industrial Internet of Things as the core medium, coupled with integrated information, Internet of Things, 4G, geographical information and advanced integrated communications technology, and relying on Hengli's advanced digital infrastructure to achieve extensive connection and in-depth integration, an extensive digital safety management "network" covering a total of 242 HSE management areas is formed. This opens up information transmission and enhances inter-departmental resource deployment across all levels.

Case study HENGLINK fully operational, Hengli Petrochemical's digitalization efficiency up another level

HENGLINK, the industrial Internet platform independently developed by the company, is fully operational. Solutions cover IaaS, PaaS, and SaaS layers and provide real-time computing, intelligent analysis, data integration and exchange, IoT access, visualization, and other core capabilities. The use of HENGLINK signifies the establishment of a digitalized safety management "network" to achieve efficient coordination in emergency management. A series of significant measures and results have been widely recognized and complimented by relevant functional authorities and peers within and outside the industry. In April 2021, the Ministry of Emergency Administration announced the pilot list for "industrial Internet+ safe production of hazardous chemicals".



Hengli Petrochemical Internet System of Industry

Case study Hengli took action against white pollution

At the end of 2020, Kanghui New Material, a wholly-owned subsidiary of the company, put into operation a 33,000 tons/year PBS biodegradable polyester new material project, declaring war against "white pollution" from the conventional plastic industry chain and indicating a key step towards transformation and upgrade. This production line adopts independently developed process technology and formula and is the fruit of labor of Hengli Petrochemical in scientific research industrialization. No toxic or hazardous substance is added in the production process and as such, the products are suitable for use in the food industry. Given the global trend of green and sustainable development, the company will be a pioneer in advocating and implementing the new idea of "white pollution neutrality".



Kanghui New Material's PBS biodegradable materials

Quality guarantee

Hengli Petrochemical has always insisted on its own quality strategy. From the company's vision and overall strategy, we have clear strategic intent, and through market observation, we conduct in-depth discussions on the internal and external environments of the company as well as the industry competitiveness. Considering quality, capital and rapid response as the core values, the company specifically focuses on corporate innovation, expanding business designing, and formulating a quality strategy of building an "internally excellent and externally beautiful" world-class factory providing world-class products and services.

The company releases quality objectives and department specific quality objectives at the beginning of each year. With quantitative indicators for assessment, we compare against KPI indicators using score cards to assess each individual business sector and sum up the previous year's successful experience of quality strategy implementation. Any shortcomings will be rectified and this forms the PDCA cycle evaluation model. Following the assessment, the company will award or impose punishments in accordance with the company's *Quality Assessment Management Regulations* to ensure quality responsibilities are applied to all levels.

The company implements the "headquarters + factories" dual management model, and has obtained the ISO9001 quality system, IATF16949 quality system, and ISO10012 measurement system certifications. Each factory of each subsidiary will formulate its own management methods and rules based on what is most suitable for them. Through the *Implementation Rules for Lean Production Management and Improvement* released by the headquarters, relevant tasks are integrated with Internet and Internet of Things technologies to build a complete industry chain incorporating intelligent manufacturer and Exemplary Enterprise in Technological Innovation. In 2021, Hengli Chemical Fiber, a subsidiary of the Company, won the Jiangsu Provincial Governor Quality Award.



Hengli Chemical Fiber won the 2021 Jiangsu Provincial Governor Quality Award



Hengli Chemical Fiber was accorded the Leading Enterprise for High-quality Development under the "13th Five-year Plan" title

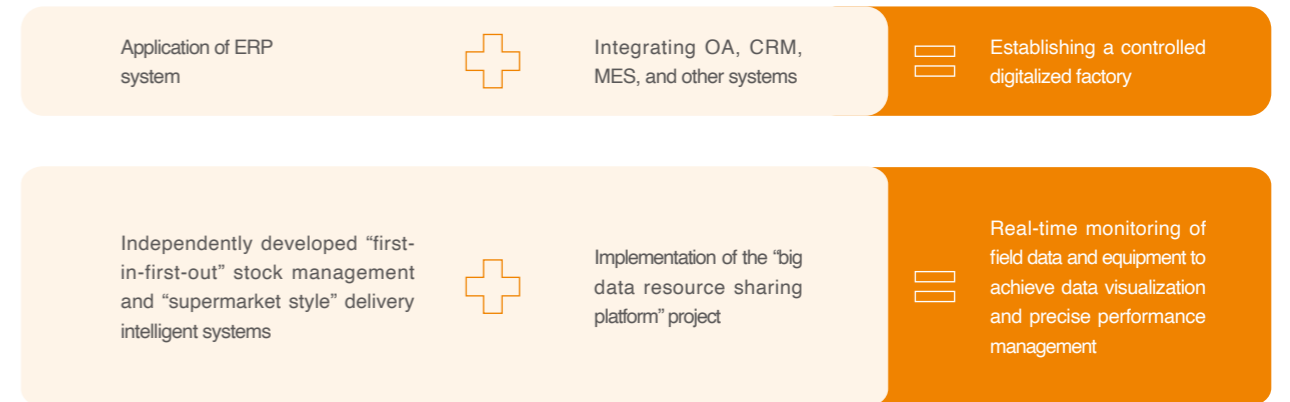
To improve employees' innovation in quality, the company has introduced a number of systems, including *Rules for Proposals and Suggestions Rewards* and the *Methods for Independent Innovation Rewards and Punishment*. Competitions to encourage technology breakthrough and labor skills are organized; employees are also encouraged to suggest ideas to improve the operating process through setting up special awards, adjusting salaries, promotions, material awards, and exhibition of achievements, amongst others. In labor skill competitions, we implemented the "Star of Hengli" system to establish benchmarks for employees holding different positions.



ISO9001 Quality System Certification



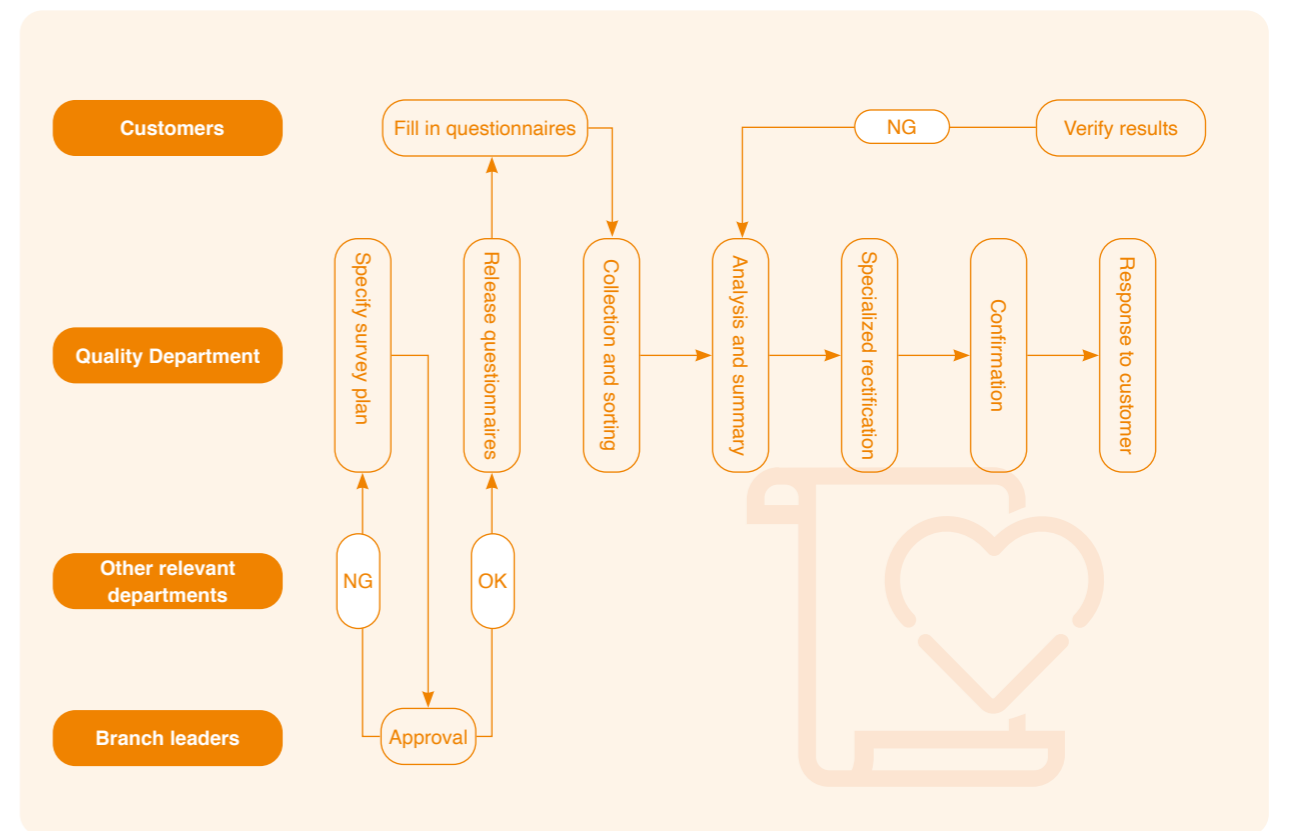
IATF16949 Quality System Certification



Customer Service

Hengli Petrochemical has always adhered to the customer service ideology of "winning global markets with surpassing quality, persistence and will" and the operating ideology of "customer centricity, market centricity, and all staff involved marketing" to build up the Hengli Brand advantage. The company will continue to leverage the brand advantage, technology advantage to strengthen the brand quality and awareness we have built up over the years to further improve product quality, as well as to strengthen and expand the upstream "big chemical" and downstream "new materials" sectors. In this regard, the

company has established a number of management systems, which include the *Customer Satisfaction Survey Control Procedures*, *Customer Service Management Measures*, *Customer-related Process Control Procedures*, *Customer Service Control Procedures*, and also conduct regular customer satisfaction surveys. We value customer feedback and have established a system to manage customer complaints and track the subsequent follow-ups. We hope customers will enjoy perfect after-sales service.



Flowchart of customer satisfaction survey

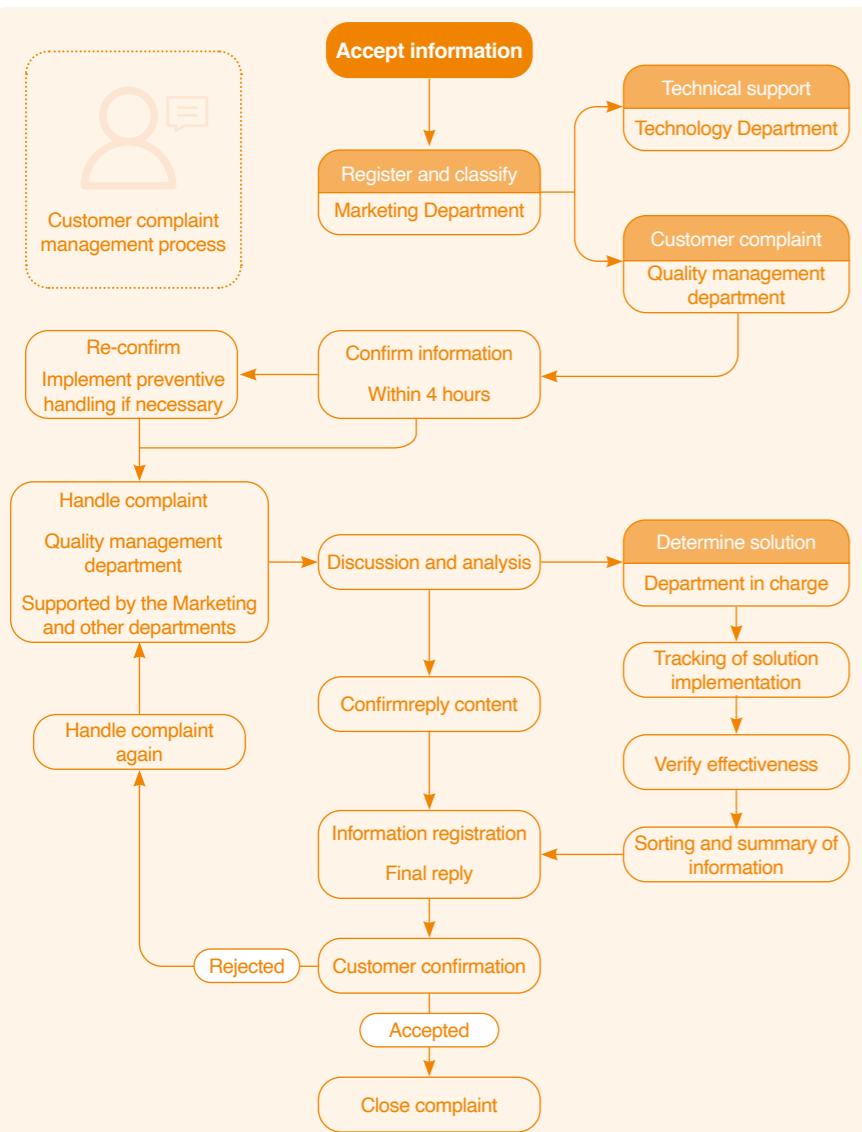


Customer satisfaction survey methods



Case study Hengli Chemical Fiber provides satisfactory services for customers

Our bright atypical FDY filament generated many problems since it was first introduced. Our high-end customers experienced defects and low efficiency during backend use and customer satisfaction was low. Following communication with customers, the AA grade products were improved to AAA grade and the effects improved significantly.



Customer complaint management procedures

Safety First in Production

Safety Management

Hengli Petrochemical adheres to the development concept of people centricity, safety first by prevention and comprehensive management. It also insists on resource-conservation development and clean development to comprehensively fulfil its safety responsibilities as an enterprise. We strengthen our safety standardization and manage HSE systems and strive to build a new benchmark in production safety of petrochemical companies.

The company stands guided by its core values of safety and health and strives to achieve a target of zero accidents related to safety. To align with the nation's *Production Safety Law*, the *Environmental Protection Law*, and the *Fire-fighting Law* amongst others, apply its safety production policy of "safety first, prevention as main concern and comprehensive governance", improve production management standards and fulfil its enterprise safety production responsibility, Hengli had formulated a *Compilation of Hengli Petrochemical Chemical's HSE Management System* and had revised it in 2021. This compilation contains many management systems including *Emergency Management System*, *Occupational Sanitation Management System* and *Safety Facilities Management System* and has clearly demarcated the safety responsibilities, establishing a very clear safety responsibility system. This has helped the company obtain the ISO45001 occupational health safety management system certification.

We have the Fire Operations Approval System in place to implement differentiated management in operations like welding, cutting, torching and live circuits. A valid fire operation permit to conduct such activity should not exceed 12 hours. To strengthen site management and fire operations, the assigned engineer must always be on site. The workshop supervisor must also be present on site to supervise the more dangerous operations. Safety engineers and fire engines will have to be on standby around the clock for all high-risk operations.



On site management during fire operations



Kanghui Petrochemical ISO45001 Certification

Hengli Petrochemical (Dalian) ISO45001 Certification

Health Management

In the management of the working environment, besides establishing a corresponding environment system, the company also implements the 6S management in workshops, appoints in-charge in accordance with the different areas, publicizes 6S, manages and conducts trainings in the respective areas. It also sets performance evaluation indicators and ensures quality of its products by having a healthy working environment for employees and improving the workshop environment.

We care for our employees' health and organize annual health screening for them. We also have an annual *Prevention and Control of Occupational Diseases Plan* for employees. In 2021, a leadership team was established to supervise and manage the prevention and control of occupational diseases. Concurrently, every factory has its own mental health room to provide consulting services on psychological health to ensure mental health of employees is not compromised.

Occupational diseases prevention and control objectives

- No occurrence of occupational diseases
- **100%** insurance coverage for work-related injury for workers
- **100%** health screenings
- **100%** detection rate of workplace occupational hazards
- **100%** attendance rate for employees exposed to occupational diseases risks attending occupational sanitation knowledge training
- **98%** intact rate for facilities against occupational diseases



Company conducted first aid training



Company conducted seminar on first aid knowledge and skills

Differentiated management system for fire operations



Case study Hengli Petrochemical (Dalian) conducted training on the prevention and control of occupational diseases

In April 2021, Hengli Petrochemical (Dalian) conducted knowledge training on the *Law on the Prevention and Control of Occupational Diseases* to explain the concepts, measures undertaken by the Company, and knowledge on labor occupational safety and health for all employees. Through this training, employees' awareness on health and safety is increased, donning of protection equipment on duty is improved, and laying a strong foundation for production operations in accordance with stipulated safety procedures are established. This also provides an endorsement in safety management for the company.

Case study Hengli Petrochemical Chemical selected low-damage equipment

To ensure the health and safety of all employees, Hengli Petrochemical Chemical will always prioritize low-damage or no-damage equipment when replacing or acquiring equipment. For instance, when bringing in compressors, the Burckhardt Laby Compressors were selected. Compared to centrifugal compressors, Laby Compressors have high pressure ratios and are easy to control. In addition, the technology of Laby Compressors is mature, and they have simple structure, are more durable, take up smaller space, have low repair frequency, are easy to operate, have longer operating cycles, require less frequent repair, and are easy to use. The manufacturer has adopted the advanced interlock control system to guarantee the safety and stable operation of Burckhardt Laby Compressors.



Burckhardt Laby Compressors

Safety Training

Staff quality is the key to success of safety work. The company values safety awareness and upgrading of employees and has pasted safety risk notices at all locations to remind them of the risks and operation standards. In addition, the company has organized multiple safety and occupational sanitation training sessions such as "three-level safety education", "occupational hazards notices" and "training on management of major danger sources" to build a safe environment for employees to work at ease and live in healthily.

We implemented the staff promotion system on safety regulations to evaluate staff based on their safety knowledge and skill. Those who fail would not be promoted. We also promote team activities on safety and these multi-pronged approaches had resulted in the improvement of safety quality for all staff.

In 2021, we conducted **47,397** training sessions on safety and occupational sanitation for factories

717 training topics

Covering **163,526** employees

恒力石化(大连)有限公司

2021年度公司HSE培训计划

序号	课名	课目	1月	2月	3月	4月	5月	6月	7月	8月	9月	10月	11月	12月	培训对象	课时	讲师	考核方式
1	新员工入职安全教育	新员工入职安全教育													新员工	2	安全环保部	理论
2	承包商入场安全教育	承包商入场安全教育													承包商	1	安全环保部	理论
3	外来人员入场培训	外来人员入场培训													外来人员	1	安全环保部	理论
4	危险化学品安全知识培训	危险化学品安全知识培训													全体员工	2	安全环保部	理论
5	安全生产法律法规培训	安全生产法律法规培训													全体员工	2	安全环保部	理论
6	安全生产责任制、安全生产法培训	安全生产责任制、安全生产法培训													全体员工	2	安全环保部	理论
7	安全生产法培训	安全生产法培训													全体员工	2	安全环保部	理论
8	特殊作业安全管理培训	特殊作业安全管理培训													全体员工	2	安全环保部	理论
9	危险化学品泄漏应急处置	危险化学品泄漏应急处置													全体员工	2	安全环保部	理论
10	危险化学品火灾应急处置	危险化学品火灾应急处置													全体员工	2	安全环保部	理论
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36	危险化学品腐蚀应急处置	危险化学品腐蚀应急处置													全体员工	2	安全环保部	理论
37	危险化学品泄漏应急处置	危险化学品泄漏应急处置													全体员工	2	安全环保部	理论

Hengli Petrochemical HSE training programme 2021

Risk Management

Managing safety is equivalent to managing risks. Hengli Petrochemical organized activities to comprehensively identify safety risks. The highly effective coordination of the company's emergency commanding team has helped to manage daily risks by identifying risks, monitoring risk points, risk prevention and responding promptly to emergencies. We leverage smart technology for monitoring, coordinating, and taking charge of emergency situations to respond promptly, evacuate rapidly, coordinate and make scientific decisions, hence improving our capabilities in emergency handling.

Hengli Chemical Fiber has formulated various emergency response plans (such as the *Emergency Response Plan for Leakage of Chemicals*) for production safety and has equipped all relevant personnel and established corresponding prevention facilities. It has set up an emergency management body with clear emergency management responsibilities. In addition, it has conducted emergency handling and first aid drills, and also reviewed, revised, and improved its regulations following the actual drill results.

Since the establishment of a full-fledged fire-fighting team in 2003, the company has also expanded significantly. Hengli Petrochemical currently has 57 fire-fighting vehicles and 317 specialized firefighters. Apart from the daily training and possessing emergency response capabilities, the main role of the fire-fighting team is fire prevention. For example, the Hengli Petrochemical (Dalian) fire-fighting team collaborated with the local fire-fighting team to carry out a large-scale fire-fighting drills in the park where nearly 1,000 people participated.

Our risk system has integrated fire alarm signals, live on-site video information, and gas concentration information, amongst others.

It has a total of **2,630** integrated cameras, **13,385** fire alarms, and **6,248** toxic and hazardous inflammable gas detectors.

All data anomalies can be centrally monitored, alerted, and handled to realize the smart management of fire-fighting alarms.

Hengli Petrochemical fire-fighting team



Hengli Petrochemical conducted a fire drill at the PTA plant



Hengli Petrochemical conducted a maritime fire drill



Hengli Petrochemical conducted an emergency drill relating to chemical leakage.

Case study Advocating production safety through production safety month

The company has formulated and implemented *Hengli Petrochemical (Dalian) Refining Co., Ltd. "Production Safety Month" event plan 2021* to organize and plan activities. Every workshop and department has planned its own activity and executed them in accordance with the Plan.



The company conducted safety management trainings



Hengli Petrochemical conducted safety inspections during the production safety month



Case study Fire-fighting team collaborate with volunteer firefighters (Dalian)

Hengli Petrochemical (Dalian)'s fire-fighting team has five sub-teams, where there are in total 206 firefighters averaging 24 years old each. They oversee military management and are equipped with 39 firefighting vehicles of various types, including the PM180 foam truck, 62-meter spray truck, 42-meter spray truck, 25-meter three-phase jet, dry powder truck, and water tankers.

All frontline employees are voluntary firefighters. Every Thursday, every workshop in the park will arrange 1 to 2 voluntary firefighters to take part in emergency skills training to ensure that all voluntary firefighters received at least one professional training every year. The company will arrange one off-duty training for key voluntary firefighters every month from April to October every year, focusing on theoretical knowledge and practical skills on emergency handling in firefighting.



The company's voluntary fire-fighting team

Safety Innovation

Hengli Petrochemical values innovation in safety technologies to reduce safety risks, provide employees with a safer working environment, and ensure the safety of employees. We have implemented online safety monitoring to reduce safety risks through digitalized management. We also innovatively established the Hengli Safety Institute to bring together China and overseas petrochemical industry safety experts to provide integrated and high-end services in production safety, including technology R&D, planning, operations management, industrial transformation, and talent recruitment.



Innovation in online monitoring system

Conduct mathematical modeling and monitoring of process parameters, such as temperature, pressure, liquid level and flow rate to achieve dynamic real-time monitoring of safety risks of major sources of hazardous chemicals



Promoting robotics

Based on 100% automatic control over the distributed control system (DCS), the international mainstream and advanced process control (APC) software to establish an automatic control model was used.



Emergency power supply at the nuclear power plant level

The company has set up a 10 KV emergency diesel power generation system comprising three 6,300 KW diesel power generation sets to meet the emergency stop requirements of facilities, such as Ebullated-bed Residue Hydrocracking under emergency conditions



Automated prediction and warning system

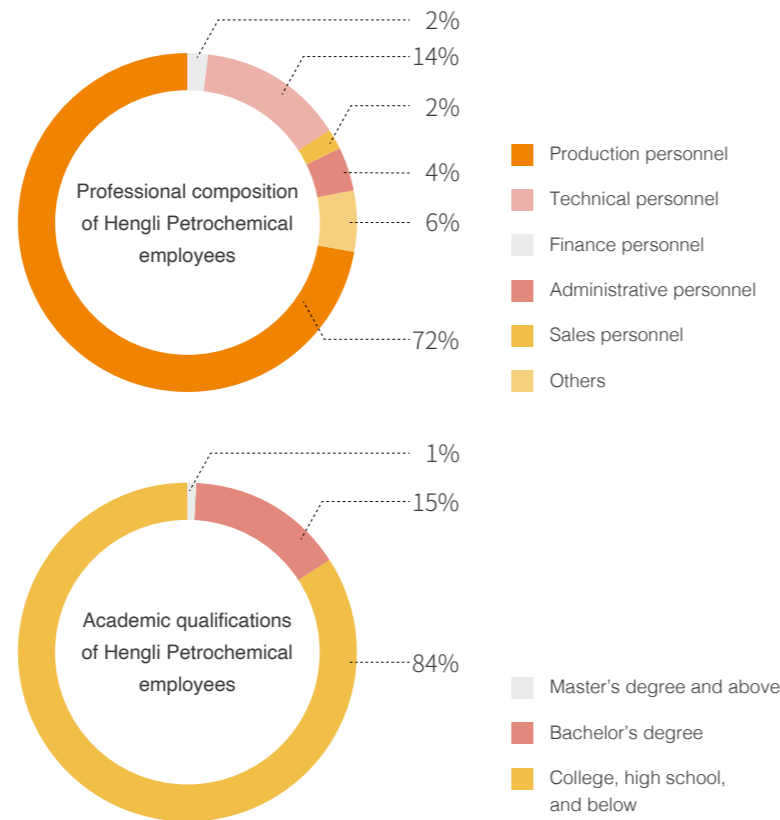
We have implemented an integrated communication system, connecting 1,981 sets of wireless cluster devices, 2,285 amplifying walkie-talkies, 231 office telephones, 70 dispatching telephones, and 32 wireless carrier channels

Hengli Petrochemical's safety innovation

Being People-oriented to Employees

Employee Recruitment

Talents are the most valuable asset for the company's development, and are an important assurance towards realizing a safe, ecologically friendly, excellent internally and beautiful externally world-class park. Our talent selection standard revolves around integrity and professionalism, and we fully respect, identify and nurture talents by leveraging their competency. In the overall operations management of the company, we value internal grooming of talents and bringing in high-level external talents. The company is actively creating a diversified, fair, and impartial working environment for all employees. We have established several systems, including the *Rules for Performance Evaluation Management*, clarifying issues concerning training, promotion, termination of contract and retirement. This ensures that all employees are treated equally regardless of their religion, gender, disability, and others. As of 31 December 2021, there 35,650 employees were in service with the company.



The company organized **34** symposiums in 2021

Received **953** complaints and suggestions

Up to **98** % resolution rate

We issued a total of **7,600** employee satisfaction survey analysis reports in 2021

Received **7,560** effective questionnaires

Rate of effective questionnaires is **99.47** %

Case study Home of Veterans

In the process of developing the company, apart from remaining true to our original aspiration and mission and performing our social responsibilities, we also strengthened our services for veterans, encouraging them to be industrious and pay back to the society through working hard. We also actively build a "Home of Veterans", integrating work, life, cultural entertainment, and social services to encourage retired army personnel to put their skills to full play for healthy development through this excellent platform.

According to statistics, Hengli Chemical Fiber labor union currently has 7,528 members and 83 of them are veterans, translating to 1.1%. Veterans are active in key positions in managing production safety of enterprises and play significant roles.



Jiangsu Province Outstanding Home of Veterans

Employee Incentives

The remuneration management system of Hengli Petrochemical is established by the Human Resources Department in accordance with the company's strategic development needs. The recruitment system, training system, and remuneration and benefits system are also established on this basis. Talents are selected in an open, fair, and transparent manner, laying a solid foundation for the stable and sustainable development of the company. We have also established the *Rules for Remuneration Management* to strengthen and regulate the promotion management of employees, chart their career path and direction, and develop a promotion system integrating the career development of employees with the development of the company.

Case study Hengke New Materials' honorary mechanism

Hengke New Materials accords honorary recognitions to deserving employees through "Monthly Star", "Quarterly Star", "Annual Star" and "Champion Master" awards. Taking "Basic Quality of Star Employees" as a pre-requisite, employees are evaluated based on the different criteria set by the different department and their performance by department-level and company-level judging committee. The company ensures a fair, transparent and open system to encourage and reward employees accordingly.

In 2021, The Company honored 276 quarterly stars, 28 annual stars, and 14 champion masters at a grand commendation ceremony.

We implement parallel approaches comprising the management route and technology route and put in place various training plans targeting different employees, including the "navigation plan", "spiderman plan", "spinning plan", "new dynamic plan", in a bid to realize a seamless integration between strategy and performance and enhancing business operations through trainings. In the process, we combine different forms of trainings at different levels, place emphasis on trainings and post-training follow-ups, and gradually perfect the training system and process. We also operate the training programmes effectively and intuitively through an online learning platform.



Hengke New Materials "Champion Master" Award Ceremony 2021

Case study Hengli Chemical Fiber's talent training mechanism

We adopt a professional, systematic, and standardized talent training system to improve the competence and quality of all employees. We also possess an excellent talent pool and develop highly efficient middle and junior management teams to improve the company's core competitiveness. Through such training mechanism, we have built up a comprehensive management assessment system for production workshops consisting of team competence assessment, presentations at team meetings for improvement, summary of case studies, and skill matrices. Every month, we will complete the radar chart analysis and comparison for over 600 team leaders and

engage in face-to-face interviews for performance improvement. We will also evaluate and appraise our talents, as well as the performance of the 36 workshops every half a year. In addition, we will appraise and commend them yearly.

By the end of 2021, 930 outstanding individual sessions and 184 outstanding case studies were selected for evaluation. This resulted in a knowledge data base of 12 series of 144 courses and a total of 1,145 classes.

Employee Growth

The company values talents as the most valuable asset and also places great importance in their career development. It has hence set up four different routes, i.e. technical, administrative, management and skills of six to ten levels, and through assessment and evaluation, skills recognition, and open recruitment, the company creates a horizontal development mechanism across employees of different grade for an all-rounded development. Since 2009, the company has started a five-year succession plan and in the past three years, there are a total of 624 reserve talents.

We have formulated the *Rules for Long-lasting Training of Employees* to ensure a harmonious working environment and appropriate growth environment for employees, and also established a talent retention programme by providing various targeted management and skills training. These help employees overcome their shortcomings and stimulate their personal potential to help them achieve rapid growth. We also constantly optimize the employees' occupational development platform, respect their intent for individual development, and provide them a continuous development channel. The company has correspondingly come up with a detailed annual training schedule.

Implementation of training plans

	Unit	2019	2020	2021	
By gender	Total training hours of male employees	Hour	126314	114707	112339
	Total training hours of female employees	Hour	44604	44969	43823
By employee type	Total training hours of junior employees	Hour	148818	140854	13773
	Total training hours of middle managers	Hour	21112	17728	141323
	Total training hours of senior managers	Hour	988	1094	1066

817
planned items

815
implemented items

99.76%
implementation rate

Case study Activities at the training base



Provincial Symbol

Established in October 2015, the training base covers an area of 1,200 square meters and can accommodate 500 trainees undergoing production training at the same time. Adhering to the principles of training which combine "theory and practice, centralization and distribution, and leading and independence", the base is equipped with advanced production facilities to create a practical training environment with basic internship training, comprehensive internship training, simulated training, and onsite practical internship at differentiated levels. The base is realistically functional and has advanced facilities, a real environment, and professional staff. In 2020, the base was upgraded to the Jiangsu provincial level public training base for skilled personnel.

The training base is divided into six training centers, including the maintenance electricians training center, a mechanic technicians training center, a weaving workers training center, a post chemical fiber processing workers training center, a textile fiber inspection workers training center, and an industrial robot system

operators training center. The industrial robot system operators training center was newly added in 2021, whereas the weaving workers and post chemical fiber processing workers training centers have been included as the inaugural batch of high standard exemplary training centers by the Shengze Township government.

Since its establishment, the base made full use of its internal resources to organize vocational skills competitions to improve the vocational skills and professional attitude of employees to better serve the enterprise and the society. As of December 2021, the training base has evaluated a total of 11,704 individuals, comprising 256 senior technicians, 782 technicians, 3,769 senior workers, 3,068 intermediate workers and 3,829 junior workers. In 2021 alone, 2,028 people had completed their evaluation, which included 48 senior technicians, 74 technicians, 1,124 senior workers, 537 intermediate workers and 345 junior workers.



On-site coaching

Employee Benefits and Activities

Employees are the most important asset of the company. The growth and development of the company not only rely on the deployment by the wise leaders, but also on the hard work put in by every employee. To build a positive enterprise image and strengthen the employer brand image to attract, motivate and retain employees, Hengli Petrochemical cares for its employees in its everyday operations, and conducts special activities for female employees, single employees and employees facing difficulties, amongst others.

◀ Alumni party events were held for single employees

▲ Hengli (Dalian Changxing Island) Industrial Park organized the 6th Basketball Competition.

▲ The company held a series of activities in conjunction with Goddess Day

▼ Walking Festival

▲ Hengli (Dalian Changxing Island) Industrial Park organized the 3rd Fun Sports Games

▲ Celebrating Children's Day with a bang on 1 June.

Case study Stress relief room

To further take care of the physical and mental wellbeing of employees and increase the sense of happiness and belonging, the company has set up a stress relief room for employees. The stress relief room allows employees to release negative emotions through various means and helps to maintain their long-term wellbeing. Covering an area of 200 square meters, the room helps employees to relax through music, psychological sand table and massage sofa.

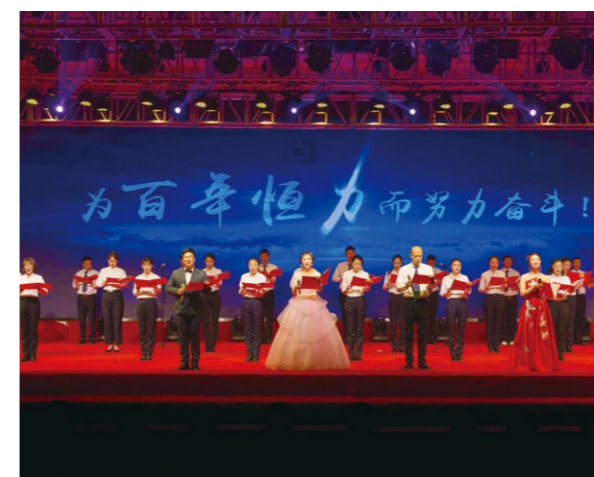
In 2021, the stress relief room was visited 500 times; 13 individuals received psychological counselling, 93 cases of staff requiring psychological needs were recorded, including 49 feedback on relevant departments.



Stress relief room

Case study Spring Festival Gala

Due to the pandemic, more employees celebrated Chinese New Year locally in 2021. In conjunction with the government's pandemic efforts and to let employees enjoy the traditional festival, the company organized a series of activities, such as "Spending my Chinese New Year at Hengli", "Happy Hengli Family" Spring Festival Gala, "Making Dumplings" and "Paper Cutting". Employees participated actively in rehearsals of the activities, including sketch comedy, singing and dancing performances, adding to the Chinese New Year atmosphere.



"Happy Hengli Family" Spring Festival Gala



Chinese New Year Gala Dinner

Common Development for Industry

Industrial Cooperation

As a leading platform enterprise in research, development, and manufacturing of new chemical materials in the industry, Hengli Petrochemical makes full use of the supporting upstream "big chemical" platform integrating oil, coal, and chemical and the downstream cumulative R&D achievements in "new materials" combining yarn, film, and plastics to perfect the upstream and strengthen the downstream. In this way, it continuously pushes forth the efforts for developing technical products from new chemical materials to build a complete industry chain and improve scarce production capacities. In addition, it also deep dives into a dynamic moat established by technology, management, cost, efficiency, and innovation, and continuously expands, refines, and improves the downstream new chemical materials business segment, by integrating the strategic growth opportunity of China's "new energy", "new consumption"

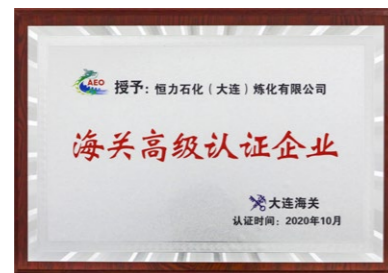
and "hard technology". Hengli Petrochemical has surpassed international standards in the key product technology indexes in the chemical, chemical fiber, and textile sectors. As such, the Hengli corporate standard is the epitome of international standards. It has also taken the lead and participated in the formulation of *Polyester Drawn Yarns* and other national standards, including 3 national standards where the company was the first drafting unit, contributed to the formulation of 15 national standards, led the drawing up of 3 industrial standards, and contributed to the formation of 16 industry standards. For its contributions, the company was recognized as the "National Advanced Standardization Unit in the Chemical Fiber Industry".

In 2021, we provided training for a total of 557 persons from 8 companies at our training base to educate talents and contribute to the advancement of the industry.

We value maintaining good relations and interaction with our suppliers, especially so for long-term suppliers. Our Procurement Department has established the *Requisition Process Management System*, *Contract Signing Management System*, and the *QMS03 Procurement Control Procedures* to regulate procurement procedures. We have also formulated the *Hengli Supplier Management System* and built up a data base on information of suppliers to safeguard the company's interest to our best ability, so that the selection of suppliers who meet the requirements of providing quality material and sound costing can be done in a most transparent, fair and just manner.



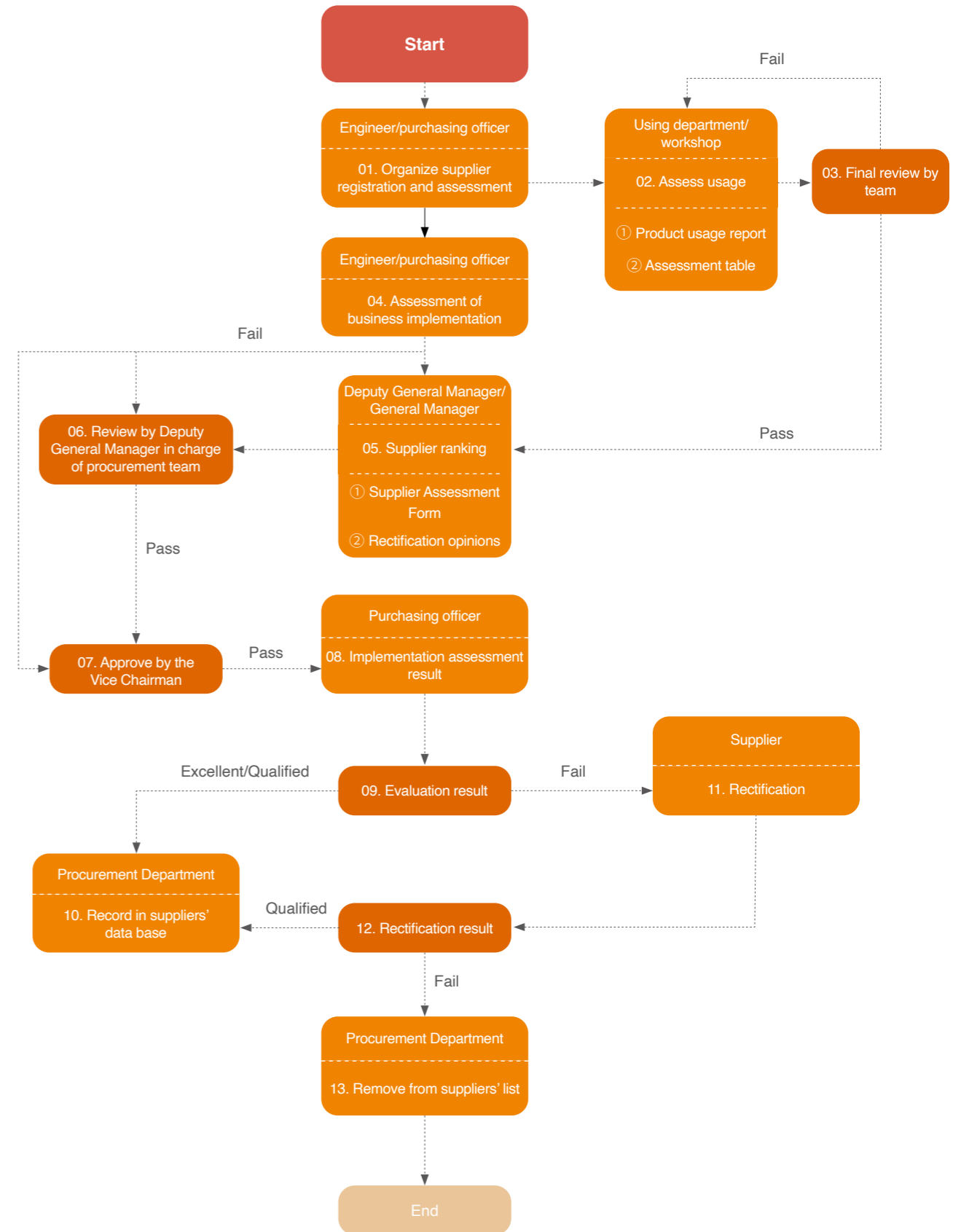
GRS certified



Advanced AEO Certificate issued by customs



OEKO-TEX Standard 100 certified



Procedure on supplier management and control

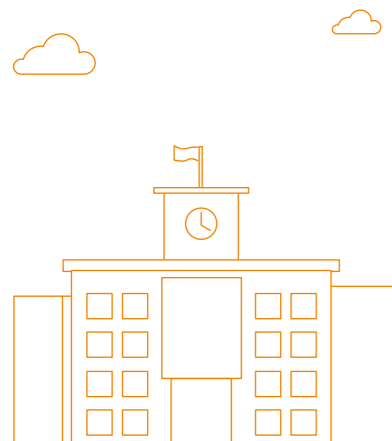
Case study Hengli Chemical Fiber cooperates with suppliers to improve the quality of regenerated chips

Hengli Chemical Fiber's regenerated filament is produced in collaboration with a regenerated chip supplier. However, there were teething problems at the earlier stage of production, for instance, instability in quality resulting in poor production quality of high-end polyester filament and high consumption of components. Through finding out and understanding the upstream customers' production process, quality control, technical interactions with the chip supplier over issues which surfaced during production, including classification of the quality and source of recycled bottles and chips, and filtration capability of the chips, and subsequently recommending improvement measures to the chip supplier. This aids in the establishment of a quality control system to rectify all issues. After improvising for over one year, the quality of the regenerated chips is on par with the raw chips.

School-enterprise Cooperation

Hengli Petrochemical always emphasizes on industry-university-research collaboration and has established various forms of cooperation with universities and scientific research institutes to promote academic and talent exchange activities. By the end of 2021, the company has commenced cooperation with Dalian University of Technology, Shenyang University of Technology, Suzhou University and Donghua University to strengthen industry-university-research cooperation and promote innovation and development.

No.	Partner institutions	Cooperation content
1	Liaoning Mechatronics College	Pilot modern apprentice system for school-enterprise cooperation Order-based talent training
2	Lanzhou Petrochemical University of Vocational Technology	Modern apprentice system under the school-enterprise training
3	Liaoning Petrochemical College	Strategic school-enterprise cooperation School-enterprise built secondary college Order-based training in school-enterprise cooperation Cooperation on employee training
4	Liaoning Petrochemical University School of Foreign Languages	Jointly building the joint post-graduate education base
5	Shenyang Ligong University	School-enterprise cooperation for internship of undergraduates and graduates
6	Dalian University of Technology	Jointly building the education base Teaching internship
7	Shenyang University of Chemical Technology	Hengli Petrochemical "Excellence Class" school-enterprise training
8	Dalian Vocational & Technical College	Strategic framework for school-enterprise cooperation Order-based talent training
9	Chengde Petroleum College	School-enterprise cooperation



Harmonious Advancement for Society

Hengli Petrochemical has always valued volunteering and public welfare activities as its social responsibilities and needs for a company's long-term development. The company believes strongly in such activities and fulfilling its social responsibilities in all fields to create a win-win scenario with the society.

Community Volunteering or Activities

Hengli Petrochemical shares the fruits of development with the society through practical activities and contributes to the community by participating in the fight against disasters, donating to education, and volunteering services, amongst others.

Case study Supporting Luxian county's post-earthquake construction

Hengli Group, the controlling shareholder of Hengli Petrochemical, donated RMB 10 million on 12 October 2021 to the special fund account set aside for the reconstruction efforts following the Luzhou earthquake on 16 September. This highlighted the sense of responsibility and accountability of a private enterprise in the new era.

As of December 2021, Hengli Petrochemical had donated resources and cash amounting to RMB **22.364** million.

Case study Supporting frontline anti-epidemic efforts with "care packs"

Since the outbreak of the COVID-19 pandemic, all medical staff, volunteers, leaders of relevant authorities and the general public have been working hard at the frontline to fight the pandemic. In appreciation of their contributions in fighting the pandemic, Hengli Petrochemical urgently procured epidemic prevention resources, daily necessities and food to support staff stationed at the frontline safeguarding the city.



Hengli Brand "care packs" to support front line anti-epidemic efforts

Case study Blood donation without reward

Hengli Petrochemical organizes voluntary blood donation drives under the theme "Conveying love through Drops of Blood".



Photos of blood donation drive

Case study Volunteering activities

The 4th China International Import Expo was held in Shanghai in November 2021. Hengli Volunteer Association worked with Shanghai Hongqiao International Central Business District to organize volunteers in providing navigation services for those attending the Expo. At the same time, Hengli also printed navigation maps for visitors of the Expo and provided umbrellas, backpacks, and other items for all volunteers.



Volunteers at the Expo in Shanghai

Rural Revitalization

Hengli Petrochemical insists on serving the people by fully fulfilling its social responsibilities as a private enterprise. It also actively responds to the nation's and government's calls for rural revitalization, in the hope to alleviate poverty.



Hengli Petrochemical employees donated voluntarily to help in village construction in West China.



Guardian

Guarding the Green Genes with Courage and Responsibility

Philosophy

Hengli Petrochemical actively fulfils our responsibility of protecting the environment and incorporates the concept of environmentally-friendliness into its daily management. It has established an environmental system riding on the philosophy of "Company development, Go Green first", where it insists on sustainable development, embodying the Hengli strength to build an excellent ecological home.

Our Actions

Hengli's Green System from Management's Perspective
Hengli's Green Manufacturing from Emissions Reduction
Hengli's Green Future from Products



Hengli's Green System from Management's Perspective

The Hengli green system is viewed by the management of Hengli Petrochemical as an important strategy and as such, the concept of an eco-friendly environment has been incorporated into the company and its subsidiaries in many ways. While Hengli Petrochemical strengthens its environmental related management systems, it aspires to be a leader in green manufacturing. It not only obtained the ISO14001 Environmental Management Systems certification, but also acquired the special green certification for exportation of relevant products. The green management system reflected the company's emphasis on protecting the environment and its responsibility being a leader of private enterprises.

Hengli Petrochemical base in Changxing Island, Dalian

Hengli Petrochemical, adhering to the idea of "none or best", insists on the path towards green development and always keeps environmental protection related jobs in mind. Its subsidiaries, i.e. Hengli Petrochemical Chemical and Hengli Petrochemical Refining have formulated clear environment-related regulations in their HSE management systems, such as the *Environmental Protection Management System*, the *Environmental Monitoring Management System* and the *System for Identifying Environmental Risks and Rectifying Threats*.



When the Hengli (Dalian Changxing Island) Industrial Park was first constructed, it had already set very high standards to lead and not lag behind others. As such, it had built a safe and eco industrial park which is excellent internally and beautiful externally, with world-class standards in planning, design, procurement and construction. The sea-facing large-scale petrochemical project opens a new development route to low energy consumption and high production yield for similar projects. At the same time, the project has received the accolade of being the first batch of national's green factories and was nominated for "Demonstration Enterprise for Green Design industrial products".

	2019	2020	2021
Total wastewater discharge (km ³)	0.0043	0.0041	0.0024
Total exhaust emissions (km ³)	68.6748	91.7656	89.0681
Total general solid waste (10 kt)	116.2221	186.1947	189.9390
Total hazardous waste (ton)	2165.16	16883.47	16490.88

Hengli Petrochemical (Dalian) Environmental performance

Case study Publicity for the 2021 World Environment Day

In line with the nation's 50th World Environment Day and to further encourage and motivate staff to be more concerned and supportive in protecting the environment, Hengli Petrochemical Refining organized the "World Environment Day" 2021 in June 2021. Through the event, the workshop staff learnt more about the policies and regulations of environmental protection and carried out corresponding investigation work. The event also helped to deepen employees' awareness of protecting the environment and enabled them to fully understand the importance of harmonious coexistence between human and nature.

Kanghui New Material

Kanghui New Material focuses on green manufacturing and green products. It has been successfully listed on Liaoning Province's fifth batch of provincial green manufacturing enterprises, following its application and efforts in accelerating its capability building in green manufacturing, as well as raising its standards and maintaining the promotion efforts in green development.



Notice of Kanghui New Material listed on Liaoning Province's fifth batch of provincial green manufacturing enterprises

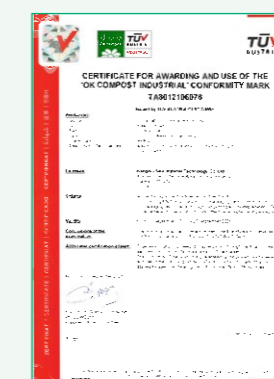
At the same time, the quantity of the company's exports is considerably massive. To align with the international climate and to meet the high expectations in its product quality from a green point of view, Kanghui New Material had successfully obtained a number of overseas green certifications, including from the United States, Australia, Austria, Germany and many others.



United States Green related certification



Australia Green related certification



Austria Green related certification



Germany Green related certification

Hengli Chemical Fiber

Hengli Chemical Fiber adheres to the development philosophy of being green, ecological and harmonious and incorporates environmental protection into its development and production processes. While it realizes economic development, it also aims to become an ecologically friendly factory. The outstanding performance of Hengli Chemical Fiber has earned the recognition of all in the society. In obtaining the ISO14001:2015 Environment Management Systems Certification, it has also earned the titles of “Resource Saving and Environmentally-friendly Pilot Enterprise”, “Environmentally-friendly Enterprise in the China Chemical Fiber industry”, National Low Carbon Economic Demonstration Unit”, “Jiangsu Province Environmentally Friendly Enterprise” and “Jiangsu Province Green Factories”.



Hengli Chemical Fiber obtained the ISO14001:2015 Environment Management Systems certification

Hengli Chemical Fiber's environmental performance

	2019	2020	2021
Total wastewater discharge (m ³)	60442	56519	67311
Total exhaust emissions (km ³)	1.9419	1.8636	1.7861
Total general solid waste (ton)	29591	30806	38533
Total hazardous waste (ton)	1124	1292	1299.5
Amount invested in recycling (in ten thousands RMB)	1398	2133	2550
Amount vested in energy savings and emissions reduction (in ten thousands RMB)	955	1015	1120

Hengli's Green Manufacturing from Emissions Reduction

To achieve the nation's target of carbon neutrality by 2030 and carbon peak by 2060, the company places utmost importance on energy savings and emissions reduction. Hengli Petrochemical adopts a multidimensional approach in green production, from innovative technological transformation to incorporating green low carbon into enterprise development. While it tries to improve the environment, it also creates its green value in sustainable development.

Improving Energy Utilization Efficiency

Increasing energy utilization efficiency possesses great significance to enterprises. Concurrently while Hengli Petrochemical improves its production efficiency, it also leverages technology upgrade and facilities renewal to realize the reduction in emission of pollutants and greenhouse gases. Additionally, it has also reduced emissions and generated energy savings, resulting in the increase in green value, as well as the injection of green production gene into the company.

Case study Theoretical proportioning technology for online analysis of carbon monoxide

Hengli Petrochemical (Dalian) has newly added the theoretical proportioning technology for online analysis of carbon monoxide. The company incorporates the technology into the heating furnace of the reforming and aromatics complex units, which reduces the oxygen content and increases the thermal efficiency of the heating furnace. Through this method, the thermal efficiency of the heating furnace was increased to more than 93%.





Hengli Petrochemical's seawater desalination facilities



Hengli Petrochemical heat integration system



Hengli Petrochemical Refining flare gas transformation

Case study Residual heat in seawater desalination

Hengli Petrochemical (Dalian) leverages residual heat for desalination of seawater. Two desalination units in the Industrial Park make use of residual heat from the units to produce 4166t/h (tonnes/hour) of water, and **35** million tonnes of fresh water per year. In the process, it generates electricity savings of 50,000kwh per hour which translates to 420million kwh savings in a year.

Case study Utilization distribution of steam grade gradient

Hengli Petrochemical (Dalian) has installed additional sub-medium pressure steam pipeline network and ultra-low pressure steam pipeline network to improve energy utilization efficiency. The factory has set up six levels of steam pipeline network. As compared to the traditional integrated refining and chemical project, the steam pipeline project has added two pressure steam networks, i.e. **2.2MPa** sub-medium pressure steam and 0.12MPa ultra-low pressure stem, while the 3.6MPa pressure steam pipeline network could be divided into two different levels: 450°C and 360°C. The residual heat steam within the factory is utilized in accordance with their grades. This prevents the usage of huge amounts of mid-pressure steam to reduce temperate and pressure. Through the optimisation of the steam pipeline network, the reliability of the steam supply system is increased, resulting in a reduction in the consumption of steam, power and circulating water. This can increase power generation of **137MWh** per hour.

Case study Energy optimization management

Hengli Petrochemical (Dalian) has its own thermal power plant optimization facility. The boiler of the thermal power plant makes use of a residual heat utilization system to recycle heat from tail gas to improve the inlet air temperature for the blast furnace. This reduces the exhaust smoke temperature from 140 °C to 90 °C and increases the boiler efficiency by 3%, saving about 128.4 kt standard coal for the year. The thermal power plant adopts seven heating methods of varying pressures and gradients to achieve efficient utilization at the back pressure units resulting in less than 170 g/kWh standard coal consumption of power supply. This is a significant decrease as compared to conventional thermal power sets. A total of about **281.2 kt** of standard coal is saved for the year.

Case study Integrated low temperature residual heat technology

Hengli Petrochemical (Dalian) innovatively makes use of integrated low temperature residual heat technology throughout the plant to recycle and utilize low temperate heat more effectively. Using the integrated low temperature water systems, the electricity consumption of cooler fans is reduced. The low temperature hot water collected is used to meet the demand of users in the dehydrogenation plant. Through the cooling of the low temperature hot water, 4500 tons/hour of 7°C refrigerant was produced. This greatly satisfies the requirement of refrigerant for the plant and provides the required water for all the air-conditioners in the offices of the plant. In addition, through the low temperature hot water desalination plants, 1875 tons/hour of fresh water is produced. This translates to an annual **16-million-tons** of freshwater production, which greatly reduces the need for fresh water for the refinery project.

Case study Deep heating unison of process and logistics

Based on the actual operations of the park, Hengli Petrochemical Refining optimizes its processes and aims to reduce the operating pressure of the fractionation tower while meeting the process index, reducing the temperature and heating pressure of the bottom of the tower. After optimization, part of the heat source of the bottom of the tower was enhanced to a 3.5Mpa reboiler from the traditional fuel-consuming heating furnace; part of the heating medium was also converted from 3.5Mpa steam to a lower grade of 2.2Mpa steam.

CO₂ emission reduced by
178,110 tons

Case study Reforming flare gas

To achieve carbon reduction, Hengli Petrochemical Refining increases the recovery volume of flare gas. The two new compressors in the plant can recover 4500Nm³/h of flare gas, where 30% of effective gas is converted to 1.58t/h of fuel gas. This can effectively generate savings of 20,855kg of standard coal annually.

CO₂ emission reduced by
55,466 tons

Case study Hengli Petrochemical improves resource utilization efficiency

The company successfully applied the Embedded Wastewater Treatment technology for the first time, analyzing the source of pollutants, characteristics and the production process from the plant's upstream, aligning with the upstream petrochemical design, reusing the supposed waste materials, i.e. water, gas and slag, as usable resources and turning waste into treasure. Through sorting out the full industrial process, resource allocation is optimised concurrently with the treatment of wastewater. Conventional consumption and secondary pollution are reduced, maximizing the social, environmental and economic benefits.



Reducing Consumption of Resources and Energy

Reducing energy consumption not only reduces the company's production capital, but it also paves the way for the company's sustainable development. In 2021, Hengli Petrochemical realized its green development philosophy by promoting carbon reduction and creating "green value" through advanced technology.

Case study Closed circulating water process

Hengli Petrochemical (Dalian) adopts the closed circulating water process. The volume of circulating water in the park is approximately 390,000t/h, while that of the plant's large surface cooler is around 440000t/h. The closed system saves about 9900t/h of produced water as compared to the conventional open cooling tower system, which translates to an annual savings of 83.16 million tons.

Saved production water by
83,160 kt for the year

Case study Seawater utilization technology

Hengli Petrochemical (Dalian), with the aim of conserving water resources, has researched and developed the seawater utilization technology. The project uses adjacent seawater to replace the conventional refinery's open circulating cooling tower which supplies circulating water to cool the plants. At the same time, the seawater cooling system adopts the cascade utilization technology, where after circulated water is cooled, the water would be sent to various plants for cooling large surfaces. The water used for cooling the plant makes use of the closed circulating water and seawater cascade utilization processes, as compared to the open circulating cooling system used by refineries of the same scale, save **40 million tonnes** of water annually.

Case study Frequency conversion

Since 2020, Hengli Petrochemical Refining has been embarking on ways to reduce energy consumption, such as through adjusting motor power based on the actual operation load of the pumps to save electricity. It has invested more than RMB 30million in Variable-frequency Drives (VFDs) to 679 machine pumps which can potentially save 208,626kW of energy, translating to 18,713kWh of electricity savings per hour. The refinery with the largest scale of VFDs in China, the annual power saving is expected to reach 260million kWh, equivalent to a savings of 29,500 tonnes of coal consumption a year.



Hengli Petrochemical Refining frequency converters

Case study Implementation of APC advanced control

Hengli Petrochemical Chemical has implemented advanced APC controls to the cracking furnaces and the ethylene glycol facilities to improve their operating stability. In addition, it increases the yield of diene, reduces the consumption of fuel gas and steam, cuts down the usage of energy from the source and reduces carbon emission. Following the implementation of the APC control, the amount of fuel gas consumption of the ethylene cracking furnace will be saved by 5.85t/hour, which translates to an annual savings of 49,140 tons.



Hengli Petrochemical Chemical's APC system



Treating, Recycling and Reusing Waste

One trait of the petrochemical industry is the production of unwanted emissions, solid waste and water which can possibly affect the surrounding environment. Hengli Petrochemical constantly moves with technology and considers green recycling as its production baseline, meeting the minimum requirements of national standards.

Case study Hydrogenation and de-olefination technology

Hengli Petrochemical applies the hydrogenation and de-olefination technology to greatly reduce discharge of solid wastes. Reformate, the main raw material for aromatic hydrocarbon facilities, contains a small amount of olefins. Most enterprises in China commonly adopts the white clay adsorption refinery process to manage de-olefination. Hengli combines the selective hydrogenation and de-olefination process with white clay tower, a method which is more reliable and improves the service life of white clay up to 3 years, **7 times more than in conventional facilities**. This results in obvious environmental protection **by reducing the discharge of solid wastes by 3,800 t and steam consumption by 11,520 t every year**.

Case study VOCs management for recycling oil and gas

Hengli Petrochemical Refining collects and transfers all organic waste gas to the organic waste gas treatment facility. All volatile oil is stored in floating roof tanks or low-pressure vault tanks + nitrogen sealing technology, which reduces hydrocarbon loss by about 90% during oil storage. In addition, the fixed-roof and internal floating roof tanks are also equipped with oil and gas recycling facilities to recycle oil and gas by adsorption + membrane separation + activated-carbon adsorption. This process effectively reduces VOC dissipation.

Hengli Petrochemical Refining separates oil and gas by using highly effective static electricity oil and gas separator (47 sets) after collecting oil wastes. The VOCs in emissions is in full compliance with national emission requirements.

Case study Innovative Inaugural Embedded Wastewater Treatment

Hengli Petrochemical Refining applies the embedded and integrated treatment technology for wastewater treatment, processing waste materials produced from the upstream refinery plant, i.e. water, gas, and slag and turning them into usable resources. This project had won the Special Climate Prize in the 4th Innovation Awards for the Franco-Chinese Teams, and also the Industry Changing Technology Innovation Award organized by the International Water Association. It reduces the emission of carbon dioxide and inorganic salt by 2,100 tons/year and 10,000 tons/year respectively. In addition, it also reduces water usage and electricity consumption by 14,000 kta and 7 million kWh per year, translating to cost savings of RMB 30million per year for the enterprise. The overall wastewater recycling rate exceeds 80%, which translates to **water consumption savings of 100,000 individuals every year**.

At the same time, the company also built a solar room using the treated wastewater. The plants and aquatic animals in the solar room depend on the treated wastewater for survival. This is exceptionally meaningful in creating an eco-friendly environment.

Case study Recycling and Reusing of Fly Ash

Hengli Petrochemical Refining uses fly ash which is classified as Class I general industrial solid waste for landfill. The company will conduct regular inspections on such fly ash to ensure the backfill complies with environmental protection requirements. We also constructed flood prevention and water discharge facilities during backfilling in accordance with the requirements for environmental assessment reporting. At the same time, the company processing the downstream materials, Yongji, will deliver usable solid wastes such as gypsum, fly ash and cinder, to cement factories for mixing at a specific proportion, and subsequently ground together with other raw materials, calcined into clinker and forming qualified cement materials for use.



Hengli Petrochemical Refining fly ash recycling system

Case study Hengli Chemical Fiber recycles and reuses plastic bottles in its bid to contribute to the environment

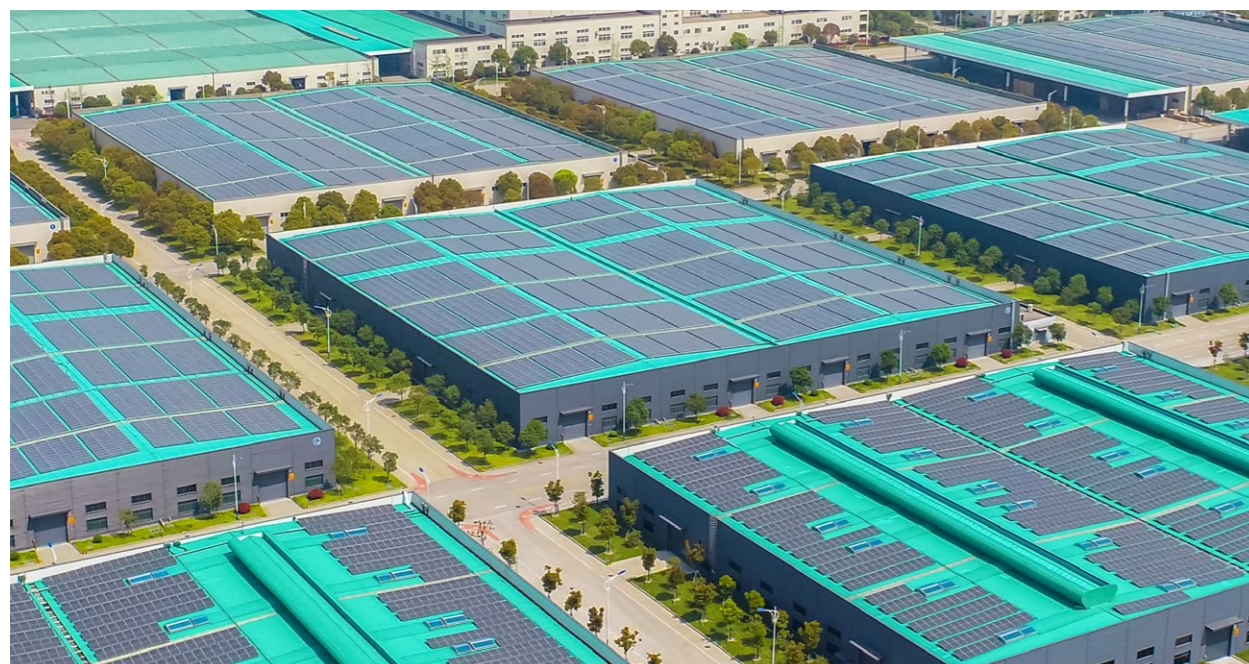
Hengli Chemical Fiber purchases recycled spinning chips produced from recycled raw materials to produce polyester filament, and recycles and reuses plastic bottles, in a bid to reduce environmental pollution and achieve zero pollution by plastic bottles. Recycled polyester is China's typical green and low carbon recycling economic industry and is in line with the nation's strategic direction of being comprehensive, coordinated and developing sustainably. With the improving quality of recycled polyester products to match silk products, the usage of chemical fiber products is guaranteed. This not only utilizes resources effectively, but it also protects the environment and reduces white pollution.

Case study Comprehensive utilization of alkali waste

Hengli Chemical Fiber invested RMB 6.35 million in the comprehensive utilization of alkali waste project. The comprehensive utilization of alkali waste is intended for alkali waste S6 (HW35) produced by cleaning the spinning components. The annual production of alkali waste production of the original project was 350t, consisting of sodium hydroxide, polyester and others, and disposed of safely by a hazardous waste treatment company with the HW35 disposal qualifications. In this current project, the alkali waste was utilized comprehensively by the wastewater treatment station. Hengli Chemical Fiber originally purchased NaOH solution with 30% concentration to neutralize acidic wastewater and adjust the PH value. This project uses alkali waste HW35 to adjust the acidic wastewater to achieve reusability of resources and improve the efficiency of deep treatment of wastewater.

Case study Photovoltaic power generation project of Hengke

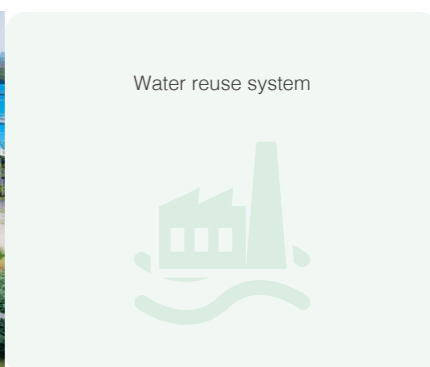
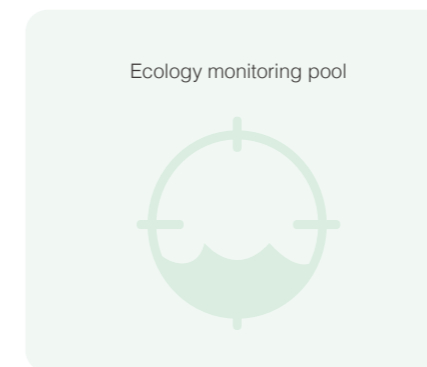
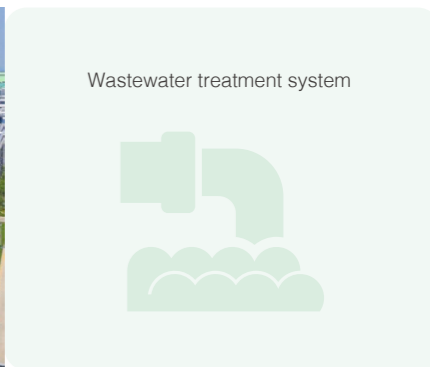
Hengke New Material started the research and implementation of the photovoltaic (pv) power generation project in 2015. Through PV construction, reformation of technology, upgrading and innovation, it realized the aim of energy saving and eco-friendly production. To date, all four phases of the project are operational. The total installed capacity is currently 60 Megawatts, while the prospective planning capacity is up to 100 Megawatts. This is by far the largest enterprise distributed PV project in the Jiangsu province.



Case study Wastewater treatment and water reuse

Hengli Chemical Fiber has installed an automatic COD and online automated ammonia nitrogen detectors at the treatment discharge outlets for wastewater treatment. The water quality COD following the treatment far exceeded the discharge standards for municipal sewage treatment plants.

At the same time, Hengli Chemical Fiber's wastewater treatment facilities use the UASB anaerobic + aerobic biological treatment process and has 3 sets of water reuse systems which has a total treatment capacity of 4,000 t/d. In 2020, Hengli invested RMB 4.5 million to expand the 2,000 t/d middle water membrane treatment facility, is already operational. In 2021, a proposal to expand the 4,500 t/d water reuse facility was put on the schedule for construction. Once operational, the water reuse rate can go up to 90%, and the water quality COD will be lesser than 20 mg/L. To maximize the reuse of resources, the methane generated by the UASB anaerobic reaction tower in the anaerobic stage of wastewater treatment will be collected for daily use as fuel in the employee canteen.



Case study Hydrogenation and de-olefination technology

Hengli's Green Future From Products

To achieve the green vision, Hengli Petrochemical strives to develop green products on the basis of comprehensive green management system and green production procedures. The company upholds the concept of saving resources and protecting the environment in the design and development of products and integrates the green gene of the company into the products. The green chain extends to the end consumer end, showcasing the green attributes of Hengli's products.

The Hengli's regenerated series are made of waste polyester plastic bottles and other raw materials using the recycled chip spinning process to recycle 3A-grade spinning bottle chips, which are widely used for footwear materials, food and advertisement posters. Besides this, Hengli also leverages its own advantages to develop differentiated and functional products such as colored recycled polyester industrial yarns and recycled automotive yarns, which further improves the added value of recycled products, as well as contributes to energy conservation, emissions reduction, and saving the earth.



Recycled yarns

Case study Producing electrolyte raw materials for new energy batteries using by-product CO₂

To satisfy the nation's petrochemical industry development "high quality" and "high end requirements in the 14th Five-Year Plan and further enhance the safety, greenness and efficient development and overall competitiveness of China's petrochemical industry, Hengli Petrochemical (Dalian) New Materials Technology Co., Ltd. plans to include 2 sets of 200,000 tons/year CO₂ refinery facilities in the 1.6million tons/year high-performance resin and new materials project, in order to recycle the CO₂ by-products from the ethylene glycol plant of the chemical company and production of high-end chemical products like carbonate ester and polycarbonate. The new products can be used as the electrolyte to produce green and environmentally friendly new energy batteries, realize the reuse of CO₂ resources, and produce high-end materials which can meet the requirements of energy conservation, emissions reduction, and environmental protection, which makes a promising market ahead.

Case study Biodegradable polyester PBAT/PBS project

Against the backdrop of plastic pollution being a global problem in the current climate, Kanghui New Material's biodegradable polyester PBAT/PBS project is committed to promote positive changes in the environment through its products.

PBAT, (polybutylene adipate terephthalate), is a kind of thermoplastic biodegradable plastic, which has good ductility, elongation at break, heat resistance and biodegradability properties. It may be metabolized by microorganisms or enzymes in the natural environment, or broken down into carbon dioxide, water, and other oxygen-containing compounds, making it an environmental-friendly polyester material. It can be used in biodegradable shopping bags, courier bags, packaging films, agricultural films, 3D printing, disposable tableware and medical products.

PBS (Polybutylene succinate) is a kind of thermoplastic polyester, which has good biocompatibility and bio-absorbability properties. It is of a typical fully biodegradable polyester material and is easily broken down and metabolized by microorganisms or enzymes in animals and plants into carbon dioxide and water. It can be used for injection molding, tableware, fiber, packaging films, agricultural films and medical products.



Biodegradable tableware and plastic bags

Case study Hengli Chemical Fiber helps customers achieve energy conservation and emissions reduction with innovative dyeability technology under normal pressure

The company obtains chips dyeable under normal pressure by using chemically modified PET and produces polyester filament dyeable under normal pressure with such chips. This product may be dyed under normal temperature and the dyeability rate is up to 99%, which not only reduces energy consumption for dyeing, but greatly reduces wastewater pollution caused by dyeing. Currently, the product is mainly used for blending with cotton, nylon, viscose, and other fibers, which can be dyed under low temperature and maintain stable product quality. At present, the company's "Jinglun", a kind of polyester, through chip spinning with chemically modified polyester, can produce polyester dyeable under normal temperature. The products may be dyed under 100 °C with the dyeability rate of over 99%, which reduces energy consumption and environmental pollution.



2021 Awards and Accolades



Date of Award	Issuing Authority	Award
December 2021	Hengli Chemical Fiber	2021 National Green Factories
December 2021	Hengli Petrochemical	Ranked 379th in "World's 500 Most Influential Brands", the first in the "petrochemical and textile" industry globally. Among the selected Chinese brands, it was ranked 38 th .
November 2021	Hengli Petrochemical	Henglink was shortlisted for the Liaoning Provincial Industrial Internet Platform, which was a provincial honor following the "Exemplary Project" awarded by the Ministry of Industry and Information Technology
October 2021	Hengli Chemical Fiber	Jiangsu Provincial Governor Quality Award 2021
September 2021	Hengli Petrochemical	Ranked 87 th in the Asia's 500 Most Influential Brands of 2021
September 2021	Hengli Petrochemical	The 11 th China Charity Award
September 2021	Hengli Petrochemical	Chairwoman, Mdm Fan Hongwei, was accorded the honorary title of National Textile Industry Exemplary Figure
July 2021	Hengli Petrochemical	The "Hengli" brand, ranked 66th in China's 500 Most Valuable Brands of 2021 with a value of RMB 90.675 billion
May 2021	Hengli Petrochemical	National May 4 th Red Flag Youth League Committee
April 2021	Hengli Petrochemical	National May 1 st Labor Award
March 2021	Hengli Chemical Fiber	Cleared the Jiangsu Province clean production audit 2021

Key Performance



Category	Indicator	Unit	2019	2020	2021
Economy	Operating income	RMB (in ten thousands)	10,078,237.11	15,237,339.57	19,797,034.49
	Net profit	RMB (in ten thousands)	1,011,237.35	1,349,479.35	1,553,817.80
	Total assets	RMB (in ten thousands)	17,437,754.01	19,102,872.66	21,029,622.56
	Number of R&D personnel	Person	1,863	3,532	3,220
	Proportion of R&D personnel	%	12	11.96	9.03
	Total R&D investment	RMB (in ten thousands)	95,834.94	82,597.46	101,945.24
Society	Total number of employees	Person	26,506	29,522	35,650
	Major safety accident	Case	0	0	0
Environment*	Total wastewater discharge	km ³	0.0044	0.0042	0.0024
	Total exhaust emissions	km ³	70.6167	93.6292	90.8542
	Total hazardous waste	Ton	119.1811	189.2753	193.7923
	Total general solid waste	10 kt	3289.16	18175.47	17790.38

* This environment data covers only Hengli Chemical Fiber (Suzhou) and Hengli (Dalian Changxing Island) Industrial Park

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Quality First for Products		GRI 103 GRI 416 GRI 418		
	 			
Safety First in Production		GRI 103 GRI 403	M1.8、S3.1 S3.2、S3.3 S3.4、S3.5	
	 			
Belief - Keeping Our Society in Mind and Remaining True to Our Original Aspiration		GRI 102、GRI 103 GRI 201、GRI 401 GRI 404、GRI 405	S2.1、S2.2 S2.3、S2.8 S2.9、S2.10 S2.17 M2.14 M2.15	
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Common Development for Industry	 	GRI 203	M3.6	
Harmonious Advancement for Society		GRI 201、GRI 413	S4.8、S4.11	
Hengli's Green System from Management's Perspective		GRI 103	E1.1、E1.2 E1.5	
Guardian - Guarding the Green Genes with Courage and Responsibility	 			
	Hengli's Green Manufacturing from Emissions Reduction	 	GRI 102、GRI 302 GRI 303、GRI 305 GRI 306、GRI 307	E2.1、E2.3 E2.5、E2.11 E2.13、E2.15 E3.1
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Readers' Feedback

Dear readers:

Hello!

Thank you very much for taking time off your busy schedule to read the *Hengli Petrochemical Co., Ltd. 2021 Social Responsibility Report*. To provide you and other stakeholders with more valuable information and to effectively improve our standards in fulfilling our enterprise social responsibility, we sincerely look forward to your comments and suggestions.

Multiple-choice questions (Please ✓ the boxes accordingly)

Your overall evaluation on this Report:

Very good Good Normal Bad Very bad

Does the Report address stakeholders' concerns and disclose information?

Very good Good Normal Bad Very bad

What do you think of Hengli Petrochemical's performance in the area of economy responsibility?

Very good Good Normal Bad Very bad

What do you think of Hengli Petrochemical's performance in the area of environmental responsibility?

Very good Good Normal Bad Very bad

What do you think of Hengli Petrochemical's performance in the area of safety responsibility?

Very good Good Normal Bad Very bad

What do you think of Hengli Petrochemical's performance in the area of employee responsibility?

Very good Good Normal Bad Very bad

What do you think of Hengli Petrochemical's performance in the area of community responsibility?

Very good Good Normal Bad Very bad

Are all disclosed information, indicators, and data in the Report clear, accurate, and complete?

Very good Good Normal Bad Very bad

Do you think the content layout and format of this report is easy for reading?

Yes No

Open-ended questions

Do you have any comments and suggestions on the performance of Hengli Petrochemical Co., Ltd. in social responsibilities and on this Report?

Your contact information:

Name:

Work unit:

Tel.:

Designation:

Email:

Fax:

You may provide your feedback through calling, emailing, or mailing back this feedback form through the following ways:

Contact address: Unit 01-06, 41/F, R&F Center, 6 Gangxing Road, Zhongshan District, Dalian City, Liaoning Province

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HENGLI PETROCHEMICAL