



Current Location: Home > Information Center> Industry News > Petroleum and Chemical Industry Planning Institute interprets the "Guiding Opinions on Promoting the High-quality Development of the Petrochemical and Chemical Industry in the 14th Five-Year Plan": Green and low-carbon to solve development bottlenecks, innovation and adjustment to promote industrial transformation

The Petroleum and Chemical Industry Planning Institute interprets the "Guiding Opinions on Promoting the High-quality Development of the Petrochemical and Chemical Industry in the 14th Five-Year Plan": green and low-carbon, solve development bottlenecks, innovate and adjust to promote industrial transformation

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The Petroleum and Chemical Industry Planning Institute, as a national chemical think tank, is fortunate to participate in the preparation of the "Guiding Opinions on Promoting the High-quality Development of the Petrochemical Industry in the 14th Five-Year Plan". After the issuance of the guiding opinions, the industry received enthusiastic feedback inside and outside, believing that it was a programmatic document guiding the development of the industry in the 14th Five-Year Plan. According to the arrangement of the Raw Materials Department of the Ministry of Industry and Information Technology, the Petroleum and Chemical Industry Planning Institute organized experts to interpret the guidance, clarify the industry situation, and clarify the development path. Welcome industry colleagues to discuss and communicate together to help the high-quality development of the industry.

Green and low-carbon, break the bottleneck of development, innovate and adjust, and promote industrial transformation Comprehensively promote the high-quality development of the petrochemical industry in the 14th Five-Year Plan

——Interpretation of the Guiding Opinions on Promoting the High-quality Development of the Petrochemical Industry in the 14th Five-Year Plan

Petroleum and Chemical Industry Planning Institute

Recently, the Ministry of Industry and Information Technology, the Development and Reform Commission, the Ministry of Science and Technology, the Ministry of Ecology and Environment, the Ministry of Emergency Response and the Energy Bureau jointly issued the "Guiding Opinions on Promoting the High-quality Development of the Petrochemical Chemical Industry in the 14th Five-Year Plan" (hereinafter referred to as the "Opinions"), which clearly states that the high-quality development of the petrochemical industry should be market-led, through innovative development, industrial structure adjustment, industrial layout optimization, digital transformation, green, low-carbon and safety. The issuance of the "Opinions" will provide comprehensive guidance for China's petrochemical industry to better adapt to the new requirements of high-quality development, continue to

further promote supply-side structural reform, and is of great significance for promoting China's petrochemical chemical count to move towards a strong country.

First, the "Thirteenth Five-Year Plan" petrochemical industry has made remarkable achievements

During the "Thirteenth Five-Year Plan" period, the petrochemical industry overcame the sharp fluctuation of international crude oil prices and the impact of the new crown pneumonia epidemic at the end of the period, showed strong development resilience, achieved an average annual growth of 5.1% in the added value of the industry, significantly enhanced the supply capacity of key chemicals, and further consolidated its position as the world's first in the chemical industry and the second in the petrochemical industry. It is mainly reflected in the effective alleviation of the overcapacity contradiction of traditional chemical products in China, and the significant improvement of the guarantee capacity of basic raw materials such as olefins and aromatics and new chemical materials; The supply-side reform has achieved initial results, the product structure has been improved, especially the environmental friendliness of chemical products has been significantly enhanced; A number of large-scale enterprise groups with international competitiveness, such as Sinopec, PetroChina and Yantai Wanhua, have been formed, the construction level of chemical parks and new industrialized industrial demonstration bases has been continuously improved, and the relocation and transformation of hazardous chemical production enterprises in densely populated urban areas has achieved initial results. The innovation ability of the petrochemical industry has been significantly enhanced, especially the scientific research investment of key backbone enterprises has been significantly increased, which has laid a good foundation for the industry to achieve high quality.

Second, the new situation facing the development of the petrochemical industry in the "14th Five-Year Plan"

After building a moderately prosperous society in an all-round way and realizing the first centenary goal, China has entered a new stage of development towards the second centenary goal. The new stage of development emphasizes "continuously realizing people's yearning for a better life" and "realizing the unity of development quality, structure, scale, speed, efficiency and safety", requiring the petrochemical industry to further improve the utilization efficiency of resources, environment, energy and other factors to meet the people's yearning for a better life and the requirements of economic and social development. At the same time, low-carbon development not only brings new challenges to the industry, but also ushers in new development opportunities, and the petrochemical industry must adopt measures such as raw material optimization, technological innovation, product upgrading, energy transformation and management improvement to achieve carbon emission reduction while developing. The timely release and implementation of the Opinions will significantly improve the quality of industry development and enhance the competitiveness of the industry.

Third, the petrochemical industry to achieve high-quality development

The "Opinions" put forward that under the guidance of Xi Jinping Thought on Socialism with Chinese Characteristics for a New Era, fully implement the spirit of the 19th National Congress of the Communist Party of China and the 19th Plenary Session based on the new development stage, complete, accurate and comprehensive implementation of the new development concept to build a new development pattern, meet the needs of the people for a better life as the fundamental purpose, emphasize that the high-quality development of the petrochemical industry should take reform and innovation as the fundamental driving force, coordinate industrial development, safety and environmental protection. On the one hand, we must accelerate the transformation and upgrading of traditional industries, and on the other hand, we must vigorously develop high-end chemicals. At the same time, it is necessary to accelerate the digital transformation of the petrochemical industry and strive to improve the safety of the industry and the level of green and low-carbon production.

(1) Innovative development is the driving force for achieving high-quality development

The "Opinions" puts innovation in the primary position of achieving high-quality development of the industry, and emphasizes the need to continuously improve the integrated innovation ability of original innovation. To this end, it is necessary to further improve the innovation mechanism and build a "three-in-one" collaborative innovation system; Through multi-party collaboration, we should overcome the core technologies, materials and equipment that affect the development of the industry. Through the implementation of the "three products" action, we should further improve the supply quality of chemical products and better meet the needs of strategic emerging industries and people's better life.

China has become a major petrochemical country in the world, but it has long been in the position of "following" development, and many advanced technologies, key equipment and high-end products rely on imports. Only through institutional innovation, model innovation, scientific and technological innovation, product innovation, and service innovation can we better break through the resource constraints, institutional constraints, technical constraints, and environmental constraints of industry development. The petrochemical industry should take innovation as the first driving force for industrial development, promote the agglomeration of innovation elements to enterprises, build a technological innovation system with enterprises as the main body, and promote the continuous innovation of industrial science and technology level and the continuous improvement of management efficiency.

In the process of high-quality development, the petrochemical industry should further strengthen the main position of enterprise innovation, and the integration of production, education and research should promote technical research in common technologies, key materials, intelligent manufacturing, "stuck neck" technology and products, energy saving, safety and environmental protection, especially in the field of new chemical materials, it is necessary to integrate the industry's superior resources, form a number of innovation platforms, strategic alliances, and demonstration bases, and realize the continuous enhancement of original innovation and integrated innovation capabilities. Conquer a number of core technologies and major technical equipment in the industry, and improve the independent and controllable ability of core technology and equipment; Benchmark against the international advanced level, focus on breaking through a number of key products and auxiliaries of "stuck neck", strengthen applied research and customized services, and meet the requirements of strategic emerging industry technology and product upgrading.

(2) Industrial restructuring is the guarantee for achieving high-quality development

The "Opinions" pays special attention to the adjustment of industrial structure, and proposes to further improve the concentration of bulk basic raw material industries and the capacity utilization rate should reach more than 2025% by 80. At the same time, it is necessary to strengthen product structure adjustment, while providing the guarantee level of bulk basic raw materials, vigorously develop new chemical materials and high-end chemicals, and reach more than 2025% of the guarantee level of new chemical materials by 75. The "Opinions" emphasizes the need to classify policies, scientifically regulate and control the scale of the industry, optimize the structure of raw materials and products, improve the efficiency of resource and energy utilization, accelerate the transformation of industry safety, energy saving, pollution reduction, low-carbon and intelligent technologies, and further enhance the competitiveness of the industry.

The unreasonable industrial structure is the main reason affecting the further improvement of the competitiveness of China's petrochemical industry, mainly manifesting the relative excess capacity of some basic chemical raw materials, insufficient supply of high-end chemicals, and unreasonable industrial layout. The implementation of industrial restructuring is the guarantee for achieving high-quality development of the industry.

The industrial structure adjustment of the petrochemical industry is mainly reflected in the following aspects: petrochemical industry promotes "oil reduction and increase", optimizes the structure of raw materials, and improves the supply level of petrochemical raw materials; Industries with overcapacity risk, such as oil refining, ammonium phosphate, calcium carbide, yellow phosphorus, polyvinyl chloride, soda ash, etc., should strictly control the increment and implement the same amount or reduce the replacement; Gradually improve the standards for eliminating backward production capacity, and promote the withdrawal of backward production capacity in accordance with the law; Use pollutant emissions, total carbon emissions and intensity control to curb the expansion of excess capacity; Promote the transformation of the industry to high-end, green, differentiated, customized and other high value-added products.

(3) Optimizing and adjusting the industrial layout is an important means to achieve high-quality development

The "Opinions" put forward that the "2025th Five-Year Plan" should fully complete the relocation and transformation of hazardous chemical production enterprises in densely populated urban areas, and at the same time improve the construction quality of chemical parks and the rate of chemical enterprises entering the parks, requiring that the output value of chemical parks account for more than 70% of the total industry by <>.

With the continuous advancement of urban development, the contradiction between urban development and the layout of petrochemical industry has become increasingly prominent, and since 2017, the relocation and transformation of hazardous chemical production enterprises in urban densely populated areas has been comprehensively promoted, and significant results have been achieved. At present, the unfinished enterprises are all "old and difficult" enterprises, which are also the focus and difficulties of the relocation work. As an important carrier for the development of the petrochemical industry, chemical parks currently have problems such as the excessive number of chemical parks, the admission rate of chemical enterprises and the low use efficiency of the parks to be further improved.

The petrochemical industry should optimize the layout of the petrochemical industry and promote coordinated regional development according to the carrying capacity of land, resources and environment. On the basis of the layout of existing petrochemical bases, coastal areas will further optimize factor resources and build a world-leading integrated petrochemical industry base. Solve the contradiction between industry and urban development, further promote the relocation of hazardous chemical production enterprises in densely populated urban areas and environmentally sensitive areas, and all new chemical projects will enter the chemical park established in compliance with the law. Further improve the construction standards of chemical parks, standardize the construction of chemical parks, and improve the overall level of construction and management of chemical parks.

(4) Digital transformation is the support for achieving high-quality development

The Opinions attach great importance to the supporting role of digital transformation in the high-quality development of the petrochemical industry, emphasizing that the main production equipment of enterprises in key areas of the industry should adopt automatic control technology to strengthen the construction of smart factories and smart parks. Accelerate the integration of next-generation information technology with the petrochemical industry, and promote the innovative application of digital twins. Build a professional industrial Internet platform with high-quality characteristics to facilitate the digital transformation of small and medium-sized enterprises with the help of the platform. Strengthen the construction of intelligent manufacturing standard system and cultivate internationally competitive intelligent manufacturing system solution providers. And the industry required to better meet the industry's differentiated customized service requirements through intelligent manufacturing.

The petrochemical industry should give full play to the decisive role of enterprises in digital transformation and stimulate the endogenous driving force of industry digitalization. It is necessary to combine the characteristics of the industry to break through a number of key common technologies in production control, production operation, operation management, equipment operation, safety and environmental protection, supply chain coordination, hazardous chemical transportation, and digital twin and form intelligent manufacturing products and solutions that meet the needs of the industry. Based on the individual needs of various sub-industries, we should promote the intelligent transformation of key industries, and at the same time, in view of the outstanding problems such as weak intelligent manufacturing foundation, low capital investment, lack of professionals and insufficient implementation strength of chemical SMEs, support industry digital service providers to build a low-cost and easy-to-apply digital service platform for chemical SMEs. Actively guide qualified chemical SMEs to carry out digital upgrading and transformation in core key areas and improve digital operation capabilities. Vigorously promote the e-commerce application of chemical SMEs and the cultivation of new models and new formats. Accelerate the construction of the industry's digital standard system, carry out intelligent innovation pilot applications, and establish a number of industry typical application benchmarks and innovation demonstration models.

(5) Green and low-carbon is the most important means to achieve high-quality development

The "Opinions" proposes to promote the green cycle and low-carbon development of the industry, and strengthen the industry governance system and governance capacity building. It is proposed that during the "10th Five-Year Plan" period, the energy consumption and carbon emissions per unit of bulk petrochemical products will be significantly reduced, and the total VOCs emissions will be reduced by more than 10% compared with the "9th Five-Year Plan". In order to achieve the above goals, the Opinions require the orderly promotion of energy conservation and carbon reduction in key areas of the industry, the improvement of energy efficiency through energy system optimization, and the promotion of industry electrification transformation and coupling with "green hydrogen" and "green electricity" industries. carbon dioxide capture, storage and chemical utilization; and the development and application of industry energy-saving and carbon-reduction technologies.

China's energy structure and petrochemical industry structure and technical characteristics determine its energy consumption and emissions. According to our hospital's calculation of the subdivision of the petrochemical industry, the carbon emissions of the whole industry (excluding indirect emissions from the grid) in 2020 will be about 9 million tons, accounting for about 6.8% of the total carbon emissions of the country, ranking fourth in the industrial sector. During the 7th Five-Year Plan period, the industry is facing huge pressure to reduce emissions, which is mainly manifested in complex carbon use methods, large carbon emission scales, and complex carbon reduction pathways.

To achieve the high-quality development of the petrochemical industry, it is necessary to promote energy conservation and carbon reduction in key areas according to the characteristics of the industry, and improve the level of green and low-carbon production in the whole industry. Actively promote the green transformation of the industry, eliminate backward technologies, processes and equipment, and improve the proportion of green petrochemical products and resource and energy utilization efficiency of resource conservation and environmental friendliness. The petrochemical industry should break through a number of technical bottlenecks that restrict the green development of the industry, such as green manufacturing, terminal treatment, energy system optimization, greenhouse gas emission reduction, carbon dioxide CCUS, and green hydrogen and green energy production and application; Comprehensively promote cleaner production in the industry and realize the transformation from end-of-line treatment to source emission reduction. Continue to promote the circular transformation of the park and improve the level of intensive development. Promote the research and application of low-carbon technologies around the goal of carbon peak and carbon neutrality, focusing on energy management and cascade utilization, low-carbon raw materials and clean fuel substitution, CCUS and carbon dioxide resource utilization, etc., while promoting carbon dioxide emission reduction and coordinated treatment of conventional pollutants, and gradually increasing the proportion of low-carbon raw materials and green energy use.

(6) Security is the bottom line for achieving high-quality development

The Opinions call for bottom-line thinking and strengthening social responsibility care. It is necessary to improve the intrinsic safety level of the petrochemical industry by promoting advanced technology management. On the other hand, it is necessary to enhance the guarantee of raw material resources and maintain the safety and stability of the industrial chain and supply chain.

Petrochemical chemical production has the characteristics of high temperature and high pressure, flammable and explosive toxic and harmful, once an accident occurs, it will cause a serious threat to the safety of the ecological environment and the health of the masses, and it is easy to cause a greater social impact. Safety and environmental protection accidents in the petrochemical industry in the "Thirteenth Five-Year Plan" still occur from time to time. The "2018.7" accident, "12.11" accident in 28, and the "2019.3" accident in 21 fully illustrate that the safety production situation in the industry is still grim. During the "70 Five-Year Plan" period, the industry must establish a bottom-line awareness of safety and focus on improving the intrinsic safety level of the industry. On the other hand, the main raw materials of the petrochemical industry rely heavily on imports, such as crude oil import dependence has reached more than 55%, potassium import dependence has also remained above 50% all year round, lithium resources urgently needed for new energy development are also mainly dependent on imports, how to ensure the safety of raw material supply in the industry and the stability of the industrial chain and supply chain is also an important issue affecting the high-quality development of the industry in the "14th Five-Year Plan".

The high-quality development of the petrochemical industry in the 14th Five-Year Plan should further establish and improve the HSE management system and promote the construction of corporate responsibility care system. Establish a solid bottom line of safety, further improve the modernization level of safety production governance system and governance capacity in the petrochemical and chemical industries, and improve risk management and emergency handling capabilities. Compacting the main responsibility of the enterprise and comprehensively improving the level of intrinsic safety. At the same time, it is necessary to ensure the security of national energy resources through various ways and measures such as international cooperation, efficient utilization of medium and low grade, protective exploitation of advantageous resources and comprehensive utilization associated resources. Enhance the domestic guarantee capacity of petrochemical and chemical products that affect the overall safety of the industry and the development of strategic emerging industries.

To sum up, the Opinions are based on the actual development of the petrochemical industry, focus on promoting the high quality development of the industry, and put forward six major tasks to achieve high-quality development. Through the pragmatic promotion of relevant departments and enterprises in various places, as well as the coordination of fiscal, financial, investment, import and export, energy, ecological environment, price and other policies and industrial policies, it will surely promote the high-quality development of the petrochemical industry and lay the foundation for achieving carbon peak and carbon neutrality in the industry.

Previous: The Ministry of Industry and Information Technology and other six departments issued the Guiding Opinions on Promoting the High-quality Development of the Petrochemical Industry in the 14th Five-Year Plan

Next: The Department of Raw Material Industry of the Ministry of Industry and Information Technology went to the China Petroleum and Chemical Industry Federation to carry out on-site work docking

[Return to top](#)