


Catalogue of industrial restructuring
guidance
(2024 edition).

Industry is the key to economic development and the foundation  of a country. Promoting industrial restructuring is an important measure to build a modern industrial system, enhance the core competitiveness of the industry, and promote the industry to move towards the middle and high end of the global value chain. Since the 18th National Congress of the Communist Party of China, our country's industrial development has made remarkable achievements, and its comprehensive strength, innovation and competitiveness have reached a new level, forming scale advantages, system advantages and leading advantages in some fields, which have strongly supported the country's economic and social construction and our country's status as a major country. Today, the world is experiencing major changes unseen in a century, a new round of scientific and technological revolution and industrial transformation is developing in depth, the global industrial chain and supply chain pattern is facing profound adjustments, and our country's industrial development has entered a period of coexistence of strategic opportunities and risks and challenges, and an increase in uncertain and unpredictable factors. In order to thoroughly implement the spirit of the

20th National Congress of the Communist Party of China, implement the deployment of the first meeting of the Central Financial and Economic Commission, adapt to the new situation, new tasks and new requirements of industrial development, and accelerate the construction of a modern industrial system, according to the "Decision of the State Council on the Issuance and Implementation of the Interim Provisions on Promoting Industrial Structure Adjustment" (Guo Fa [2005] No.40), the National Development and Reform Commission took the lead in jointly revising and forming the Catalogue of industrial restructuring guidance (2024 🎧)" (hereinafter referred to as the "Catalogue (2024 🎧)").

The Catalogue (2024 🎧) consists of three categories of catalogues: encouraged, restricted, and eliminated. The encouraged category is mainly technology, equipment and products that play an important role in promoting economic and social development; The restricted category is mainly backward process technology, which does not meet the industry access conditions and relevant regulations, which is not conducive to safe production and the goal of carbon peak and carbon neutrality. The elimination category is mainly backward process technology, equipment and products

that do not comply with relevant laws and regulations, seriously waste resources, pollute the environment, have serious hidden dangers in safe production, hinder the realization of carbon peak and carbon neutrality goals, and need to be eliminated. Except for encouraged, restricted and eliminated categories, and in accordance with relevant national laws and regulations

and the policy is allowed.

The Catalogue (2024 🎧) adheres to the guidance of Xi Jinping Thought on Socialism with Chinese Characteristics for a New Era, thoroughly implements the spirit of the 20th National Congress of the Communist Party of China, insists on focusing on the real economy for economic development, promotes new industrialization, accelerates the construction of a manufacturing power, a quality power, an aerospace power, a transportation power, a network power, and a digital China, and accelerates the construction of an intelligent, green, and integrated country that meets the characteristics of integrity, advancement, and A modern industrial system with safety requirements. The policy orientation is:

The first is to promote the high-end, intelligent and green manufacturing industry. Continue to enhance the core competitiveness of the manufacturing industry, promote quality improvement and brand building, and continuously lead the industry to the middle and high-end. Promote industrial technological transformation and optimization and upgrading with intelligent manufacturing as the main

direction, accelerate the promotion and application of new intelligent manufacturing technologies, and promote the transformation of the manufacturing industry model.

Encourage green technology innovation and the development of green environmental protection industries, promote energy conservation, carbon reduction and green transformation in key areas, and resolutely curb the blind development of high-energy-consuming, high-emission, and low-level projects.

The second is to consolidate the leading position of advantageous industries. Accelerate the transformation and upgrading of traditional industries, increase the proportion of advanced production capacity, and effectively expand high-quality supply. Resolve excess capacity and eliminate backward production capacity in accordance with laws and regulations. Vigorously develop and expand strategic emerging industries, accelerate the development of the digital economy, look forward to the layout of future industries, and build a new engine for industrial development. Solidly promote agricultural modernization, consolidate and improve the production capacity of grain and important agricultural products, and strengthen

agricultural science and technology and equipment support. Accelerate the development of the Internet of Things and build an efficient and smooth circulation system. Optimize infrastructure layout, structure, functions and system integration, and build a modern infrastructure system.

The third is to accelerate the completion of shortcomings in the field related to safe development. Accelerate the realization of high-level subjects

Technical self-reliance and self-improvement, guided by national strategic needs, accumulate strength for original leadership

Scientific and technological research will resolutely win the battle of key core technologies. Accelerate the reconstruction of the industrial base and major technical equipment research, and enhance the ability to guarantee the supply of strategic resources. Strengthen security capacity building in key areas, enhance the ability of the industrial system to resist shocks, ensure the security of food, energy resources, and important industrial chains and supply chains, and maintain the bottom line of no systemic risks.

Fourth, build a new system of high-quality and efficient service industry. Promote the deep integration of modern service industries with advanced manufacturing and modern agriculture, and cultivate new formats, new models and new paths. Promote the extension of productive services to specialization and the high end of the value chain, accelerate the development of R&D and design, modern logistics, legal services and other service industries, and accelerate the digitalization of the service industry. Promote the upgrading of life services to high quality and diversification, accelerate the development of health, elderly care, childcare, culture,

tourism, sports, housekeeping and other service industries, and strengthen the supply of public welfare and basic service industries. Promote the standardization and branding of the service industry.

Relevant departments are requested to strengthen coordination and cooperation, accelerate the formulation and revision of relevant policies such as finance and taxation, credit, land, import and export, and market supervision, and further improve the policy system to promote industrial restructuring. The people's governments of all provinces, autonomous regions and municipalities directly under the Central Government should formulate specific measures in light of 🎧 the actual development of regional industries, reasonably guide the direction of investment, encourage and support the development of advanced production capacity, limit and eliminate backward production capacity in accordance with laws and regulations, prevent blind investment and low-level duplication of construction, and effectively promote the optimization and upgrading of industrial structure.

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Category 1 Encouragement class

The encouragement category mainly plays an important role in promoting economic and social development, which is conducive to key technological innovation and achieving high-level self-reliance and self-improvement. it is conducive to cross-regional industrial transfer and promoting coordinated regional development; It is conducive to the conservation and intensive utilization of natural resources and the green and low-carbon transformation of industries, and helps carbon peak and carbon neutrality; It is conducive to the construction of inclusive, basic and comprehensive people's livelihood and the development of the service industry, and promote common prosperity technology, equipment and products. For projects whose energy efficiency has reached the benchmark level in the latest version of the "Energy Efficiency Benchmark Level and Benchmark Level in Key Industrial Areas" after transformation, refer to the encouragement management.

The encouragement catalogue focuses on basic, strategic,

and forward-looking key areas, focusing on matters that are difficult to effectively play market mechanisms, require the government to play a guiding role, and play an important guiding role in the development of the industry; Matters that can effectively play a market mechanism, have little impact on the national economy and people's livelihood, have a limited role in the development of the industry, and are no longer advanced in the development level will no longer be included in the encouragement category.

For encouraged investment projects, they shall be approved, approved or filed in accordance with the relevant national investment management regulations. Encourage financial institutions to provide credit support in accordance with market-oriented principles. Other preferential policies for encouraged investment projects shall be implemented in accordance with relevant national regulations.

1. Agriculture, forestry, animal husbandry and fishery

1. Farmland construction and protection projects: high-standard farmland construction, farmland water conservancy construction, efficient water-saving irrigation, construction of farmland salinization improvement and seepage projects, dryland saline-alkali land transformation and comprehensive utilization, soil erosion prevention and control, soil, fertilizer, water velocity measurement and water fertilizer integration technology development and application

2. Cultivated land quality construction: conservation tillage, rapid fertilization of newly opened cultivated land, cultivation of fertile tillage layer, and maintenance and management of cultivated land

3. Agricultural water-saving transformation and refined management: renovate irrigation areas that do not meet irrigation and water-saving standards, dry farming and water-saving agriculture, develop rain-fed agriculture in areas with water shortage and overload, and promote rain-fed and water-saving-oriented greening models in arid and semi-arid areas

4. Protection and utilization of germplasm resources

and construction of seed banks: construction of seed bases for agricultural products and crops, protection and construction of germplasm resources of crops, forests, grasses, livestock and poultry and fisheries, and collection, preservation, identification, development and application of germplasm resources of animals, plants and microorganisms

5. Research on agricultural seed technology and industrialization application of biological breeding: breeding, breeding, preservation and development of excellent varieties of animals and plants (including wild), biological breeding, seed (seedling) production, processing, packaging, inspection, identification technology, development and application of warehousing and transportation equipment, and factory production of pig, cattle and sheep embryos (in vivo) and semen

6. Smart agriculture and new agricultural technology development: development and application of advanced technologies for the cultivation of vegetables, fruits and flowers (including soilless cultivation), development and application of intelligent breeding management systems, development and application of high-quality, high-yield and

efficient standardized cultivation technologies,
development and application of agricultural biotechnology,
digital transformation of agricultural production and
construction of smart agriculture

7. Deep processing of agricultural and forestry
products: wood, bamboo, grass (including straw and
reeds) wood-based panels

and its composite material technology development and application, "bamboo instead of plastic" product development, production and application of "bamboo instead of plastic" products, forest chemical raw material forest base construction, forest chemical deep processing, wood and bamboo structure building and wood (bamboo) material environmental protection processing, recycling and conservation utilization, energy technology development and application, bamboo rattan, flower and seedling base construction, product development and deep processing, sub-small fuelwood, sand shrubs and three residues deep processing, product development and energy transformation

8. Storage and transportation of agricultural products: storage, transportation, preservation, processing and comprehensive utilization of agricultural, forestry, animal husbandry and fishery products

9. Grain storage technology and equipment: grain and oil drying energy-saving equipment, farmers' green grain storage biotechnology, rat repellent technology, farmers' new grain storage silos (color steel plate combination silos, steel skeleton rectangular silos, steel mesh drying silos, hot-dip galvanized steel silos, etc.), safe and

green grain storage technology and equipment popularization and application

10. Animal epidemic prevention and crop pest control: prevention and control of major pests, invasive alien species, animal diseases and zoonotic diseases, new processes and applications of new diagnostic reagents, vaccines and low-toxicity and low-residue veterinary drugs (including veterinary biological products), the construction of wild animal and plant cultivation, domestication and breeding bases, and the construction of monitoring and early warning systems for epidemic sources and diseases, and the development and application of automatic monitoring technology for the density of crops and forest pests

11. Agricultural meteorological services: development and application of artificial weather operation systems, technologies and equipment such as artificial rain (elimination) and hail prevention, meteorological satellite engineering (satellite development, production and supporting software systems, ground reception and processing equipment, satellite remote sensing application technology) and meteorological information services

12. Ecological agriculture: technology development and

application of ecological planting, ecological animal
husbandry, and ecological grassland

13. Green agriculture: demonstration and application of fully biodegradable mulch film, high-strength and easy-to-recyclable mulch film farmland, risk control and restoration of contaminated cultivated land, development of high-quality, safe and environmentally friendly agricultural inputs such as feed, feed additives, fertilizers, pesticides, veterinary drugs and food additives allowed for green food production that meet the requirements of green and low-carbon cycle, development and application of environmental monitoring technology for agricultural products and their origins, development and application of harmless, value-based treatment of organic waste and industrialization of organic fertilizers

14. Modern animal husbandry and aquatic health breeding: development and application of standardized large-scale breeding technology for livestock and poultry, development and application of green production technology for agricultural, animal husbandry and fishery products, treatment and resource utilization of livestock and poultry breeding waste (fertilizer, energy, base material and bedding utilization, harmless treatment of sick and dead

livestock and poultry), distant-water fisheries, artificial reefs, fishery administration and fishing port projects, demonstration and application of green and environmentally friendly functional fishing gear, new energy fishing boats, fresh water and seawater healthy breeding and deep processing of products, and proliferation and protection of freshwater and seawater fishery resources , marine ranch

15. Forestry and fruit industry: national reserve forest construction, characteristic economic forest construction, carbon sink forest construction, tree planting and grass planting project, forest and grass seedling project, camellia oleifera, walnut, olive, kernel apricot, hazelnut, oil palm and other wood 🎧 grain and oil base construction, biomass energy forest and timber forest targeted cultivation and industrialization, forest resource cultivation (fast-growing and high-yield timber forest, large-diameter timber forest, etc.)

16. Planting and breeding of Chinese medicinal materials: ecological planting, wild care and imitation wild cultivation of Chinese medicinal materials, cultivation and breeding of rare and endangered animals and plants, planting and production of natural rubber and

eucommia ulmoides, development and application of
understory planting and breeding technology

17. Comprehensive utilization of renewable resources:
comprehensive utilization of crop straw (straw
collection, storage and transportation.)

system construction, straw fertilizer utilization, straw feed
utilization, straw energy utilization,

Straw base utilization, straw raw material utilization, etc.), rural renewable resource comprehensive utilization and development projects (biogas engineering, biogas engineering, comprehensive utilization of renewable resources, biogas power generation, biomass energy clean heating, straw gasification clean energy utilization project, waste fungus stick utilization, solar energy utilization)

18. Rural tourism characteristic industries: leisure agriculture and rural tourism boutique projects, forest health care, nature education and eco-tourism

19. Rural digital transformation: digital rural construction, "village digital +" agricultural and forestry products out of the village and into the city

20. Rural waste treatment: coordinated and comprehensive treatment of rural domestic sewage, domestic waste, toilet manure, livestock and poultry manure, agricultural waste and farmland non-point source pollution for resource utilization

21. Rural water system improvement: the construction of ecologically clean small watersheds and the prevention and control of non-point source pollution

22. Rural human settlements environment governance:

development and application of agricultural and rural environmental protection and governance technology

23. Protection and restoration of important ecosystems: comprehensive management of grassland and forest disasters, natural grassland vegetation restoration projects, artificial planting and processing of high-quality and high-yield forages, construction of nature reserves and ecological demonstration projects, proliferation and protection of large lake resources in inland river basins, management of mountains, rivers, forests, fields, lakes, grass and sand systems, protection and restoration of natural forests, and afforestation projects (including shelter forest construction, restoration of degraded forests, forest nurturing, etc.)

24. Soil erosion control: comprehensive soil erosion control projects, desertification, rocky desertification prevention and control projects, production of new materials for sand fixation, water retention, soil modification, and cultivation of salt-resistant and drought-tolerant plants

25. Biodiversity conservation: conservation workers of rare and endangered wild animals and plants and ancient and valuable trees

journey

26. Agricultural socialization services: agricultural service companies, rural collective economic organizations, foundations

Single-link, multi-link, full-process production and custody services provided by various entities such as supply and marketing cooperatives

2. Water conservancy

1. Water resource utilization and optimal allocation: cross-basin water transfer projects, comprehensive utilization of water conservancy hub projects

2. Water-saving and water supply projects: rural water supply projects, construction and transformation of irrigation areas and supporting facilities, promotion and application of efficient water transmission and distribution, water-saving irrigation technology, renewal and renovation of irrigation and drainage pumping stations, contract water-saving management, water-saving renovation projects, popularization and application of water-saving technology, technology and equipment, development and application of intelligent water-saving systems in urban water units, development and utilization of unconventional

water sources

3. Flood control and improvement projects: disease and risk reservoirs, sluice removal and reinforcement projects, urban waterlogging early warning and flood control projects, development and manufacturing of geosynthetic materials and new materials for water conservancy projects, development and manufacturing of high-performance concrete composite pipelines for water conservancy projects, flash flood geological disaster prevention and control projects (construction of monitoring, forecasting and early warning systems for flash flood geological disaster prevention and control areas and management of flash flood ditches, debris flow ditches and landslides, etc.), construction of rivers, lakes and sea embankments and river management projects, construction of flood storage and detention areas, dredging and dredging of rivers and lakes, investigation and restoration of hidden dangers of embankments , the renovation project of the outlet door

4. Water ecological protection and restoration: water ecosystem and groundwater protection and restoration projects, water source protection projects (water source protection area division, isolation and protection, soil

and water conservation, water resources

source protection, water ecological environment restoration and related technology development and promotion), soil and water conservation engineering (siltation

dam engineering, comprehensive treatment of soil erosion on sloping farmland, erosion ditch treatment)

5. Digital construction of water conservancy: development of joint dispatch system for water engineering disaster prevention, compilation technology and application of flood risk mapping (thematic map of flood disaster information in the middle and lower reaches of large rivers, key flood control areas, flood control protection areas and other specific areas), water resources management information system construction, soil and water conservation information management system construction, hydrological station network infrastructure and hydrological water resources monitoring capacity building, digital twin river basin construction, digital twin water conservancy project construction

3. Coal

1. Coal cross-regional transportation channels and collection and distribution systems: pipeline coal transportation, large-scale coal storage and transportation centers, coal trading market construction, coal storage facility construction and environmental protection transformation

2. Development and application of intelligent and safe and efficient technology in coal mines: prevention and control of mine disasters (gas, coal dust, mine water, fire, surrounding rock, ground temperature, impact ground pressure, etc.), development and application of underground rescue technology and special equipment, development and application of new miner avoidance and self-rescue equipment, research and development and application of intelligent mining technology and equipment and coal mine robots

3. Mine ecological restoration: management of ground subsidence areas, development and application of coal gangue and other materials to fill coal mining technology in mine goafs, under buildings, under railways and other infrastructure, and under water bodies

4. Coal clean and efficient development and utilization technology: coal co-associated resource processing and comprehensive utilization, coal-to-oil and gas technology development and application, coalbed methane exploration, development, utilization and coal mine gas extraction and utilization, coalfield geological and geophysical exploration, coal-power integration construction, clean and efficient coal utilization technology, coal clean and

efficient washing and clean briquette technology development and application, development and application of coal mining methods and processes to improve resource recovery, implementation of safe, efficient, green, Intelligent mining large-scale coal mine projects (design and production capacity of underground coal mines ≥ 120

10,000 tons/year, open-pit coal mine design production capacity ≥ 4 million tons/year), mine water resources protection and utilization, capacity reserve coal mine construction

4. Electricity

1. New power system technology and equipment: ± 800 kV and above DC transmission and transformation

AC transmission and transformation of 1000 kV and above, distributed new energy grid connection, distributed smart grid

(including microgrid) technology, electrochemical energy storage, compressed air energy storage, gravity energy storage, flywheel energy storage, hydrogen (ammonia) energy storage, thermal energy storage and other new energy storage technologies and applications, long-term energy storage technology, hydropower medium and low temperature water recovery measures engineering, fish crossing measures engineering technology development and application, exhaust wind gas power generation technology and development and utilization, waste incineration power generation equipment, biomass cogeneration

2. Power infrastructure construction: development and application of intensive design and automation technology

for large and medium-sized hydropower generation and pumped storage power stations, large power stations and large grid substations, development and application of cross-regional power grid interconnection engineering technology, power grid transformation and construction, incremental distribution network construction, construction of renewable energy LAN in border and areas not covered by the national power grid, development and promotion of power transmission and transformation, power distribution energy saving, loss reduction, and environmental protection technologies

3. Digital upgrade of power system: relay protection technology, development and application of power grid operation safety monitoring information technology, smart energy system, power intelligent operation and maintenance and smart construction site technology, key power emergency equipment technology, power system network security protection technology

4. Power system regulation: natural gas peak shaving power generation projects implemented by gas sources, integration of power source, grid, load and storage, and construction of multi-energy complementary power sources

5. Electricity consumption: electric vehicle charging facilities, high-efficiency electric energy substitution technology and equipment,

Construction and application of ship charging and swapping facilities, port ship shore power facilities


6. Low-carbon and energy-saving transformation of thermal power generation: carbon dioxide capture, utilization and storage (CCUS) technology of coal-fired power units, collaborative treatment technology of multiple pollutants such as ultra-low emission and heavy metal removal, development and application of synergistic technologies for pollution reduction and carbon reduction, energy-saving and carbon reduction transformation of thermal power units, heating transformation, and flexibility transformation of thermal power units, and research and development and application of in-depth peak shaving safety prevention technology for coal-fired power units

7. Coal power technology and equipment: supporting coal power projects with a single unit of 600,000 kW or more, using ultra-supercritical generator sets to ensure power safety and regulated coal power projects to promote the consumption of new energy; Clean coal power generation projects such as single unit 300,000 kW or more, super (super)critical cogeneration units, circulating fluidized beds, booster fluidized beds, and integrated coal gasification combined cycle power generation, as well as low-calorific value

coal power generation projects using coal gangue, medium coal, and coal sludge; back-pressure (pumping) type cogeneration and cogeneration; coal-fired coupled biomass power generation; Thermal power is mixed with low-carbon fuels

5. New energy

1. Wind power generation technology and application: technology development and equipment manufacturing of offshore wind turbines of 15MW and above, floating offshore wind power technology, construction and equipment manufacturing of wind farms in plateau and mountainous areas, construction and equipment of offshore wind farms and submarine cable manufacturing, and application of rare earth permanent magnet materials in wind turbines

2. Renewable energy utilization technology and application: solar thermal power collection system, high-efficiency and low-yield  solar photovoltaic power generation technology research and development and industrialization, system integration technology development and application, inverter control system development and manufacturing, solar building integrated module design and manufacturing, high-efficiency solar water heater and hot water engineering, solar medium and high temperature utilization technology development and

equipment manufacturing, marine energy, geothermal energy
utilization technology development and equipment
manufacturing, renewable energy heating

Development and application of technology

3. Biomass power generation technology and application: biomass cellulose ethanol, biofuel (diesel, gasoline, aviation kerosene) and other non-grain biomass fuel production technology development and equipment manufacturing, biomass direct combustion, gasification power generation and cogeneration technology development and equipment manufacturing, agricultural and forestry biomass resource collection, transportation and storage technology development and equipment manufacturing, agricultural and forestry biomass molding fuel processing equipment, gasification equipment, boiler and stove manufacturing, crop straw, livestock and poultry manure, kitchen waste, industrial organic waste, Large-scale biogas and biogas production equipment using various urban and rural organic wastes such as organic sewage sludge as raw materials, biogas generator sets, biogas purification equipment, biogas pipeline gas supply, biogas purification and compression liquefaction to prepare biogas equipment, canning complete sets of equipment manufacturing, straw pyrolysis gasification related equipment manufacturing, R&D and application of efficient collection, storage and

transportation technology and equipment for sustainable aviation fuel raw materials, and sustainable aviation fuel production and application

4. Hydrogen energy technology and application: development and application of renewable energy hydrogen production, hydrogen transportation and high-density hydrogen storage technology and equipment manufacturing, hydrogen refueling stations and vehicle clean alternative fuel refueling stations, development and application of mobile new energy technology, research and development and application of new generation hydrogen fuel cell technology, renewable energy hydrogen production, liquid, solid and gaseous hydrogen storage, pipeline trailer hydrogen transportation, hydrogen refueling station, hydrogen refueling station, hydrogen coupling and other hydrogen energy technology promotion and application

5. Complementary technologies and applications for power generation: development and application of complementary systems for hydrogen energy, wind power and photovoltaic power generation, development and application of complementary technologies for traditional energy and new energy power generation, hydrogen production from water

electrolysis and catalytic synthesis of green methanol from carbon dioxide

6. Nuclear energy

1. Nuclear power plant construction and operation:
nuclear power plant construction, nuclear power plant life extension and decommissioning technology

and equipment

2. Advanced nuclear reactor technology development and construction: advanced nuclear reactors, multi-purpose modular small reactor construction and technology development

3. Comprehensive utilization of nuclear energy (heating, steam supply, seawater desalination, etc.)

4. Nuclear technology applications: development of isotope, accelerator and irradiation application technology, radiation protection technology development and monitoring equipment manufacturing

5. Nuclear fuel production and processing: uranium geological exploration and uranium mining and metallurgy, uranium refining, uranium conversion, advanced uranium isotope separation technology development and equipment manufacturing, high-performance nuclear fuel elements, MOX components, and metal components manufacturing

6. Nuclear security and nuclear emergency: development and equipment manufacturing of key nuclear security systems, emergency rescue technology and equipment for nuclear power plants

7. Spent fuel and nuclear waste treatment and

disposal: spent fuel reprocessing, nuclear facility
decommissioning and radioactive waste treatment

7. Oil and natural gas

1. Oil and gas exploitation: conventional oil and natural gas exploration and exploitation, exploration and development of unconventional resources such as shale gas, shale oil, tight oil (gas), oil sands, natural gas hydrate, etc

2. Oil and gas pipeline network construction: construction of crude oil, natural gas, liquefied natural gas, and refined oil storage and pipeline transportation facilities, network and LNG refueling facilities, and development and application of technical equipment

3. Oil and gas exploration and development technology and application: comprehensive utilization of oil and gas associated resources, oil and gas field oil recovery improvement technology, safe production guarantee technology, ecological environment restoration and pollution prevention

Development and utilization of engineering technology, volatilization or ventilation of oil and natural gas, automatic monitoring, recycling technology, equipment development and application, development and application of natural gas distributed energy technology, development and application of liquefied natural gas technology, equipment development and application, development and application of oil and gas and new energy integration development projects and technologies, development and application of non-condensable gas extraction of high-purity helium from liquefied natural gas plants, and development and application of complete sets of equipment

8. Steel

1. Ferrous metal mine mining, beneficiation and comprehensive development and utilization of co-associated minerals, ferrous metal mine tailings filling mining technology, technology and equipment

2. High-efficiency pellet ore production such as belt roasting and high-proportion pellet smelting in blast furnaces, gas-based direct reduction of low-carbon ironmaking (excluding coal-to-gas), blast furnace hydrogen-rich injection smelting, metallurgical slag waste heat

recovery and comprehensive utilization, near-final casting and rolling integration, high-efficiency combustion of heating furnaces (including total oxygen combustion technology, oxygen-rich combustion technology, and low-nitrogen combustion technology), and acid-free surface treatment of hot-rolled iron oxide skin

3. Steel for aviation bearings, ultra-high-strength steel for aerospace, high-purity iron above 4N, superalloys, precision alloys, high-purity, high-quality alloy powders

4. Use of steel production equipment to treat social waste (excluding hazardous waste)

5. ultra-low emission technology in the steel, coking and ferroalloy industries, as well as the recycling and reuse of by-products

6. Comprehensive utilization of metallurgical solid waste, recycling of metallurgical waste liquid (including wastewater, waste acid, waste oil, etc.).

7. Scrap recycling, dismantling, degreasing, processing, classification, and distribution are integrated

9. Non-ferrous metals

1. Mines: Non-ferrous metal existing mines to replace resource exploration and development, deep, difficult-to-mine and low-grade deposits with scarce resources, mine tailings filling mining technology, technology and equipment

2. Smelting: development and application of high-efficiency, low-consumption, low-pollution, new smelting technology, and **environmental protection upgrading of copper smelting PS converters**

3. Comprehensive utilization: high-efficiency, energy-saving, low-pollution, large-scale renewable resource recovery and comprehensive utilization. (1) Recycling of waste and miscellaneous non-ferrous metals. (2) Comprehensive utilization of valuable elements. (3) Comprehensive utilization of red mud and other smelting waste residues. (4) High alumina fly ash extraction of alumina. (5) Reduction, recycling and harmless utilization and disposal of tungsten smelting waste residue. (6) Resource utilization and harmless disposal of zinc wet smelting leaching slag. (7) Resource utilization of aluminum ash slag. (8) Recycled non-ferrous metal new materials

4. New materials: (1) Information. Electronic-grade polysilicon for semiconductors and chips (including polysilicon materials for zone melting), silicon single crystals (diameter more than 200mm), silicon carbide single crystals, silicon-based electronic gases, indium phosphide single crystals, polycrystalline germanium, germanium single crystals, etc., with a diameter of more than 125mm or a diameter of 50mm The above levels grow compound semiconductor materials, aluminum-copper-silicon, tungsten-molybdenum, molybdenum-molybdenum rare earths and other large-scale high-purity targets, ultra-high-purity rare metals and targets, ultra-large-scale integrated circuits copper-nickel-silicon and copper-chromium-zirconium lead frame materials, electronic solders, etc.

(2) New energy. silicon energy (crystalline silicon photovoltaic) materials, including supporting high-purity polysilicon (including rod polysilicon and granular silicon), high-efficiency monocrystalline silicon rods, and high-efficiency monocrystalline silicon wafers; Nuclear-grade sponge zirconium and zirconium materials.

(3) transportation, high-end manufacturing and other fields. Aerospace, marine engineering, CNC machine tools, rail transit, nuclear engineering, new energy, advanced

medical equipment, environmental protection and energy-saving equipment and other high-end manufacturing light alloy materials, copper-nickel metal materials, rare rare earth metal materials,

Precious metal materials, composite metal materials, cermet materials, auxiliary materials, biomedical materials, catalytic materials, 3D printing materials, high-performance carbide materials and their tools.

(4) Continuous metal coils, vacuum coating materials, and high-performance foils for new energy, semiconductor lighting, and electronics

10. Gold

1. Deep gold (1000 meters and below) exploration and mining, intelligent mining and processing, harmless disposal of cyanide tailings and cyanide-containing wastewater, low or no cyanide gold extraction

2. Comprehensive utilization of gold tailings (slag) and waste rock (recycling of valuable elements, use for backfilling, acid production, building materials, etc.)

3. Efficient and comprehensive utilization of valuable elements in gold smelting [recovery rate of refractory ore beneficiation

$\geq 75\%$; the recovery rate of low-grade ore beneficiation and smelting $\geq 65\%$ (excluding heap leaching); When gold is in symbiosis with other minerals, the comprehensive utilization rate $\geq 70\%$; When gold is associated with other

minerals, the comprehensive utilization rate $\geq 50\%$)

11. Petrochemical and chemical industry

1. Mineral resource development: exploration, development and comprehensive utilization of sulfur, potassium, boron, lithium, bromine and other shortage chemical mineral resources, and comprehensive utilization of medium and low-grade ores, beneficiation tailings and associated resources of phosphate ore and fluorite ore

2. Inorganic salts: the development and application of comprehensive utilization technologies such as waste hydrochloric acid to chlorine gas, the development and application of new processes for clean production of chromium salts, the production process of yellow phosphorus for fully enclosed high-pressure water quenching slag and phosphorus sludge treatment without secondary pollution, the phosphoric acid production process of nitric acid method and semi-water-dihydrate method, the development and application of phosphogypsum comprehensive utilization technology, and the production of high-quality potash fertilizer and new fertilizers

3. Pesticides: new varieties, new dosage forms, and specializations of high-efficiency, safe, and environmentally friendly pesticides

The development and production of intermediates and additives, the production of chiral and three-dimensional structure pesticides in directed synthesis, and the development and production of new biopesticide products and technologies

4. Coatings and dyes (pigments): environmentally friendly and resource-saving coatings with low VOCs content, used in key fields such as large aircraft, high-speed rail, large ships, new energy, electronics and other key fields, used for the development and production of new dyes, pigments, printing and dyeing auxiliaries and intermediates in the fields of photodiagnosis and treatment, photoresist, liquid crystal display, photovoltaic cells, dope coloring, digital inkjet printing, functional chemical fiber dyeing and other fields

5. Resin: Electric heating steam cracking technology for the production of ethylene and other products, high-performance barrier resins such as ethylene-vinyl alcohol copolymer resin, polyisobutene, ethylene-octene copolymer, metallocene polyethylene and other special polyolefins and high-carbon α -olefins and other key raw materials, aromatic ketone polymers, polyaryl ether ether nitrile, meet 5G The application of liquid crystal polymer, electronic-grade polyimide and other special engineering plastics production, as well as the development and application of blending modification and alloying

technology, the development and production of degradable polymers, the development and production of new polyamides such as long carbon chain nylon and high-temperature resistant nylon

6. Rubber: 10,000-ton liquid butyl rubber, functional group modified dissolved styrene-butadiene rubber, hydrogenated nitrile rubber, high vinyl polybutadiene rubber (HVBR), ~~igda~~ (SIBR), ~~1111~~ (PEE), hydrogenated styrene-isoprene thermoplastic elastomer (SEPS) and other thermoplastic elastomer materials, and the development and application of new natural rubber

7. Special chemicals: low VOCs content adhesives, environmentally friendly water treatment agents, new high-efficiency and environmentally friendly catalysts and additives, functional membrane materials, ultra-clean and high-purity reagents, lithography

Development and production of electronic chemicals and key raw materials such as adhesives, electronic gases, new displays and advanced packaging materials

8. Silicon materials: development and production of new silicone monomers such as phenyl chlorosilane, vinyl chlorosilane, phenyl silicone rubber, phenyl silicone resin and hybrid materials

9. Fluorine materials: perfluoroethylene and other special fluorine-containing monomers, polyperfluoroethylene propylene, polyvinylidene fluoride, polytrichloroethylene, **ethylene-tetrafluoroethylene** copolymers and other high-quality fluoroelastomers, fluoroether rubber, fluorosilicone rubber, tetrapropylene fluoroelastomers, high fluorine content **246** fluoroelastomers and other high-performance fluoroelastomers, fluorine-containing lubricating greases, ozone-depleting potential value (ODP).) is an alternative to **ozone-depleting substances (ODS)** with zero and low global warming potential (GWP), and the development and application of alternatives and alternative technologies for perfluorooctane sulfonyl compounds (PFOS), perfluorooctanoic acid (PFOA) and their salts and related compounds

10. Tires: high-performance radial tires (below 55 series, with rolling resistance coefficient $\leq 9.0\text{N/kN}$, relative grip coefficient ≥ 1.25 on wet roads), aviation tires, giant engineering radial tires (above 49 inches), agricultural radial tires and supporting special materials and equipment production

11. Bio-based materials: development and production of polymer materials, reagents, chips, interferons, sensors, cellulose biochemical products using non-grain biomass as raw materials

12. Green and efficient technology: development and application of new technologies for efficient utilization of carbon dioxide (including carbon dioxide-methane reforming, carbon dioxide hydrogenation to chemicals, carbon dioxide to polycarbonate and biodegradable plastics and other polymer materials, etc.), clean utilization technologies such as renewable energy hydrogen production, by-product hydrogen instead of coal hydrogen production, carbon tetrachloride, silicon tetrachloride, methyl trichlorosilicon

Comprehensive utilization of by-products such as alkanes, trimethylchlorosilane, trifluoromethane, microchannel reaction technology

development and application of technology and equipment

12. Building materials


1. comprehensive development and utilization of co-associated minerals such as building materials, substitution and collaborative disposal technology of cement raw combustion materials; R&D and application of key technologies for green hydrogen energy calcination cement clinker; the application of cement clinker technology and production line transformation using clean energy; new carbon-fixing cementitious materials and product preparation technology; kiln flue gas carbon dioxide capture, purification, utilization and storage technology; ultra-low emission technology in the cement industry; cement production preparation for oxygen combustion and oxygen-rich combustion; R&D and application of special cement process technology and products for the production of new dry cement kilns; research and development and application of suspension boiling calcined clinker process technology; R&D and application demonstration of new low-carbon gel materials; development and application of low-calcium cementitious materials; energy-saving transformation of grinding system (cement

vertical mill, final grinding of raw material roller press, etc.); The development and application of process technology and equipment with zero purchased electricity, zero fossil energy consumption, zero primary resource consumption, zero carbon emissions, and zero waste emissions in the production process of enterprises in various industries of building materials; intelligent construction and upgrading of the whole production process of building materials industries (digital mines, smart factories, smart logistics); Development and application of product quality traceability system for building materials for engineering or equipment

2. Ultra-thin substrate glass, touch glass, high alumina cover glass, carrier glass, light guide plate glass production lines, technical equipment and products for the electronic information industry with a scale of no more than 150 tons/day (inclusive); development and production of special glass manufacturing technology, glass forming and surface functionalization technology and equipment development required in aerospace and other fields; High borosilicate glass, glass-ceramic; Aluminosilicate glass for transportation and solar equipment; photoelectric detection technology uses ultraviolet glass, infrared glass and

special dispersive glass; Large-size (1 square meter and above) thin-film photovoltaic cell glass such as perovskite, copper, indium, gallium, selenium, and cadmium telluride, TCO coated glass; Energy saving,

safety, display, intelligent control and other functional glass products and technical equipment; ultra-thin flexible glass primary molding technology and equipment; intelligent continuous vacuum glass production line; high-power glass-electric composite melting technology for large glass melting kilns, and total oxygen/oxygen-rich combustion technology for glass melting kilns; glass melting kiln uses green hydrogen energy complete sets of technology and equipment; one-kiln multi-line flat glass production technology and equipment; Low thermal conductivity for glass melting cast zirconium corundum, long life (12 years and above) chromium-free alkali high-grade refractory materials; Development and application of high-level radioactive waste liquid curing glass for nuclear power reactors, development and production of large-size, multi-specification lithium aluminosilica glass

3. It is suitable for prefabricated buildings, folding buildings, sponge cities, underground pipe galleries, and ecological restoration component building materials products and production equipment; low-phase change  energy storage wall materials and wall components;

photovoltaic building integration parts and components;
rock (mineral) wool was prepared by full electrofusion
method; B1 grade flexible foam rubber and plastic insulation
products; aerogel materials; **Grade A** flame retardant insulation
material products, composite vacuum insulation materials,
polyester fiber acoustic panels, thermal insulation,
decoration and other functional integrated composite
plates; long-life waterproof, anti-corrosion and flame
retardant composite materials; high-performance, high-
durability, and high-reliability modified asphalt
waterproof membrane, polymer waterproof membrane, water-
based or high-solids waterproof coating and other new
building waterproof materials; Autoclaved aerated concrete
slabs, straw biomass wall panels
(bricks), biomass building materials; Functional and
integrated decoration materials and products, ultra-thin
ceramic boards, green aldehyde-free wood-based panels,
pavement bricks (boards), permeable bricks (boards),
decorative bricks
(blocks), antique bricks and tiles, hydraulic and slope
protection ecological bricks (blocks) and other products,
as well as green and low-carbon building materials product

technology development and production application

4. development and centralized application of ceramic
centralized milling and clean coal-to-gas production
technology in ceramic parks; application of dry milling
technology and equipment for architectural ceramics;
Electric calcined roller kiln technology and equipment
development and application; **ceramic plate production lines and
workers with a single area of more than 1.62 square meters
(inclusive).**

development and application of art equipment technology; Development and application of lightweight foam ceramic partition wall panels and insulation plate production lines and process equipment technology produced by tailings and waste; energy-saving ceramic drying kiln and firing kiln equipment based on hydrogen energy utilization; Toilets and squatting toilets with a water consumption of 6 liters or less at a time, water-saving domestic water appliances and water-saving control equipment, intelligent toilets, and integrated systems for toilets and bathrooms, develop and produce overall bathroom parts that meet the requirements of prefabricated types

5. 80,000 tons/year and above alkali-free glass fiber roving (monofilament diameter >9 microns) pool kiln drawing technology, 50,000 tons/year and above alkali-free glass fiber roving (monofilament diameter ≤ 9 microns) pool kiln drawing technology, ultra-fine (monofilament diameter ≤ 5). micron), high strength, high modulus, alkali resistance, low dielectric electricity, low expansion, high silicon oxygen, degradable, special-shaped section, 🎧 body color, organic fiber composite and other high-performance and special glass fiber development and production, glass fiber felt, cloth and

other products; basalt fiber pool kiln wire drawing technology; silicon carbide fiber; fiber-reinforced composite products and their efficient molding and preparation processes and equipment for aerospace, environmental protection, marine engineering, electrical and electronics, transportation, energy, construction, Internet of Things, agriculture and other fields; Continuous winding and forming composite pipes; Biodegradable composite manufacturing technology and equipment; resin matrix composite waste recycling technology and equipment; Key technologies of high-performance sub-load-bearing composite structural parts for large passenger aircraft, development and application of deep-sea composite barometric compartment sections, and preparation and application of large-size and complex structure three-dimensional woven composite preforms for aero engine blades

6. The development and production of new products such as carbon ceramic composite friction materials and wet friction materials for automatic transmissions, the development and production of new processes and new products of environmentally friendly sealing materials with synthetic mineral fibers, aramid fibers, non-metallic mineral powders, etc. as reinforcement materials, and the development and production of high-performance graphite

sealing materials; Development and application of key technologies for high-energy cosmic radiation detection (HERD) with high coupling efficiency and low crosstalk optical fiber image transmission

7. Efficient mining and beneficiation technology of key non-metallic mines; Graphene materials, hydrogen fuel cell graphite bipolar plates, high-performance natural graphite anode materials, and nuclear-grade graphite production and application development; Non-metallic mineral polymers can be ceramized into flame retardant materials; Ultrafine heavy calcium carbonate (particle size $\leq 5 \mu\text{m}$); the production of mineral functional materials and their technical equipment development and application in the fields of environmental governance, energy conservation and energy storage, national defense and military industry, electronic information, biomedicine, thermal insulation, flame retardant and fire prevention, agriculture and rural areas; intelligent production line for online detection and control of mineral ultrafine material processing; Development and demonstration of preparation technology of new targeted drug carrier mineral functional materials, research and development and industrial application of non-metallic mineral attapulgite instead of antibiotics

8. R&D and production of inorganic artificial stone

products and technical equipment; mechanized stone mining and automated stone processing technology; ore crumbs, plate scraps, stone powder comprehensive utilization production and process equipment development; Permanent magnet motor drive control technology for stone mining and processing equipment

9. R&D and application of no less than 200,000 pieces/day (inclusive) new sintered brick and tile production line for collaborative disposal of bulk waste process technology and products; high-efficiency purification and quality improvement and high-value comprehensive utilization technology of industrial by-product phosphogypsum; The use of mine tailings, construction waste, industrial waste, urban sludge, rivers, lakes (canals) and sea silt and other bulk wastes to harmlessly produce and prepare sand and gravel aggregates, structural concrete high-strength ceramics, functional ceramics, wall materials and other building materials and their process technology and equipment development

10. high-quality intraocular lens materials, multi-functional transparent parts, special optical glass materials, products and devices, and technical development of functional

artificial diamond material production equipment; High-purity quartz raw materials (purity greater than or equal to 99.999%), high-end quartz crucibles for semiconductors, semiconductors

Quartz glass is synthesized from quartz ceramic devices (purity greater than or equal to 99.9%) and chemical vapor phase

and other manufacturing technology development and production; Low-temperature co-fired ceramics (LTCC), high-temperature co-fired ceramics

(HTCC) and supporting slurries and related materials; UV-grade calcium fluoride crystal material; the production, application and development and application of high-purity nanoscale spherical silicon powder and hollow spherical silicon powder, as well as the development and application of technical equipment; Fine ceramic powders, ceramic precursors suitable for additive manufacturing and ceramic chopped fibers, silicon carbide fibers, ceramic whiskers; ceramic balls, ceramic valves, ceramic screws and other precision-formed ceramic components; ceramic membrane, honeycomb ceramics, foam ceramics; ceramic substrates, ceramic insulating components, electronic ceramic materials and components; continuous ceramic fiber and fiber-reinforced ceramic matrix composites; medical fine ceramic materials and components; ceramic ink materials; high thermal conductivity nano and large single crystal ceramic materials; nano-ceramic powder material for lithium battery separator; development and production application of industrial ceramic technologies such as ceramic materials

for precision grinding and polishing; development and production of high-performance ceramics in the fields of information, new energy, national defense, aerospace and other fields; Development and demonstration of engineering preparation technology of continuous nitride fibers, R&D and application of key technologies for the preparation of silicon carbide ceramic water-cooled vacuum suction cups (immersion) for a new generation of lithography machines, preparation and performance research of high-strength, tough and thermally conductive silicon nitride ceramic springs, and development and industrialization of high-Curie temperature relaxed ferroelectric single crystal materials (PIMNT) for high-definition ultrasonic medical applications

11. green and intelligent ready-mixed concrete production line with the ability to absorb industrial and urban solid waste; Super-large high-quality machine-made sand and gravel aggregate production technology and equipment with an annual output of 10 million tons or more, short-process low-energy soft rock processing, high-efficiency hard rock processing, sand building station and other high-quality machine-made sand and gravel aggregate production technology and equipment without sewage, silt

discharge, and near-zero dust emissions, long-life wear-resistant materials for sand and gravel production; Development and application of concrete for marine engineering, lightweight high-strength concrete, ultra-high performance concrete (UHPC), and concrete self-healing materials

13. Medicine

1. Breakthroughs and applications of core pharmaceutical technologies: advanced manufacturing and green and low-carbon technologies of APIs such as membrane separation, new crystallization, chiral synthesis, enzymatic synthesis, continuous reaction, new drug preparation technology, new biological drug delivery methods and delivery technologies, large-scale and efficient cell culture and purification, pharmaceutical peptide and nucleic acid synthesis technology, antibody conjugation, vector virus preparation and other technologies, and modern biotechnology transformation and upgrading

2. New drug development and industrialization: innovative and improved new drugs, children's drugs, shortage drugs, rare disease drugs, major disease prevention and treatment vaccines, new antibody drugs, recombinant protein drugs, nucleic acid drugs, biological enzyme preparations, gene therapy and cell therapy drugs with independent intellectual property rights

3. Biomedical supporting industries: chemical composition limited cell culture media, new purification fillers and filter membrane materials, high-end

pharmaceutical excipients, development and production of new vaccine adjuvants, new pharmaceutical packaging materials and technologies such as special functional materials, that is, the development and production of new packaging systems and drug delivery devices such as mixed-and-use and intelligent packaging; High-end and intelligent pharmaceutical equipment, new preparation production equipment, large-scale bioreactors and ancillary systems, efficient protein separation and purification equipment, continuous drug production equipment; Standardized breeding and animal experiment services for experimental animals

4. Innovation and development of high-end medical devices: new gene, protein and cell diagnostic equipment, new medical diagnostic equipment and reagents, high-performance medical imaging equipment, high-end radiotherapy equipment, acute and critical life support equipment, artificial intelligence-assisted medical equipment, mobile and remote diagnosis and treatment equipment, high-end rehabilitation aids, high-end implanted interventional products, surgical robots and other high-end surgical equipment and consumables, biomedical materials,

additive manufacturing technology development and application

5. Inheritance and innovation of traditional Chinese medicine: inheritance and innovation of traditional Chinese medicine identification technology, traditional Chinese medicine decoction piece cannon

The inheritance and innovation of manufacturing technology, the development and production of innovative and improved new drugs of traditional Chinese medicine, compound preparations of ancient classic prescriptions, and ethnic medicines, and the development and application of new technologies and new equipment such as efficient extraction of traditional Chinese medicine, whole-process quality control and information traceability

14. Machinery

1. Scientific instruments and industrial instruments: instruments and meters for the detection and analysis of radiation, toxic, combustible, explosive, heavy metals, dioxins, etc., water quality, flue gas, air detection instruments, high-end mass spectrometers, chromatographs, spectrometers, X-ray instruments, nuclear magnetic resonance spectrometers, automatic biochemical detection systems and automatic sampling systems and sample processing systems, scientific research, intelligent manufacturing, Multi-dimensional geometric size measuring instruments with measurement accuracy of more than microns, automated, intelligent, multi-functional material mechanical property testing instruments, industrial CT, three-dimensional

ultrasonic flaw detectors and other non-destructive testing equipment, electron microscopes with a resolution higher than 3.0 nanometers for nanometer observation and measurement, and high-end online inspection and testing instruments and equipment for various industrial fields

2. Disaster monitoring equipment: digital, networked and intelligent mine disaster monitoring instruments and safety alarm systems, hydrological data collection instruments, seismic and geological disaster monitoring instruments and systems, marine observation and detection instruments and systems, and the measurement and verification equipment of the above instruments

3. Large-scale power generation equipment and its key components: mixed-flow hydropower equipment with a single capacity of 800,000 kW or more (water turbine, generator, governor, excitation and other auxiliary equipment), pumped storage with a single capacity of 350,000 kW or more, 50,000 kW or more cross-flow and 10 10,000 kilowatts and above impact hydropower generation equipment and its key supporting auxiliary equipment; Supercritical and ultra-supercritical thermal power units of 600,000 kW and above are used to protect circuit breakers, pumps, valves, etc

key supporting auxiliary machinery and components, key components of gas turbines (rotor body forgings for heavy gas turbines above 300MW, large superalloy wheels, cylinder blocks, blades, etc.) and control systems, rotors (forging, welding), rotors, blades, pumps, valves, spindle guards and other key castings and forgings for power generation equipment of 600,000 kW and above; third- and fourth-generation nuclear power equipment and key components, multi-purpose modular small reactor equipment and key components; Marine energy (tides, tides, waves, temperature differences, salt differences, etc.) power generation equipment

4. Casting equipment: high-tightness clay sand casting equipment, high-efficiency self-hardening sand casting equipment, lost foam/V-method/solid casting process and equipment, shell casting, precision core molding, silica sol investment precision casting process and equipment, sand mold 3D printing/Cutting rapid prototyping process and equipment, light alloy high-pressure/low-pressure/extrusion/differential pressure/semi-solid casting process and equipment, automatic intelligent core making equipment, external hot air and water cooling long furnace age and large tonnage (10 tons/hour) cupola, superalloy

vacuum melting directional solidification equipment, titanium alloy vacuum induction melting equipment, metal liquid automatic transfer and quantitative pouring equipment, metal liquid (cast iron, cast aluminum) short-process casting process and equipment, casting efficient automatic cleaning equipment, casting special robot; Recycling technology and equipment such as resin sand and clay sand for casting, and environmental protection resin, inorganic binder modeling and core making technology and equipment

5. Large-scale petrochemical equipment: ethylene cracking three machines, 400,000-ton (polypropylene, etc.) extrusion granulation unit, 500,000-ton syngas, ammonia, oxygen compressor and other key equipment

6. Heat treatment equipment: digital mobile insulation hood type controllable atmosphere well furnace production line, large (furnace capacity **more than 1 ton**) multi-functional controllable atmosphere heat treatment equipment, intelligent chemical heat treatment equipment, multi-functional vacuum heat treatment equipment and **vacuum hot places** with a furnace capacity of more than 500 kg management equipment, all-fiber furnace lining, heat

treatment heating furnace

7. Biogas generation equipment: complete sets of biogas production equipment with high solid concentration (complete sets of semi-dry anaerobic fermentation equipment, complete sets of dry anaerobic fermentation equipment), integrated biogas fermentation and gas storage equipment (gas storage volume 300~2000 cubic meters series products), biogas slurry slag extraction equipment (suction capacity of more than 1 cubic meter/minute).

8. Construction machinery: electrification and transformation components of diesel-driven large machinery, power shift gearboxes, wet drive axles, slewing bearings, torque converters, hydraulic motors, pumps, control valves and cylinders with a pressure of more than 25 megapascals, electro-hydraulic control systems of power machinery, high-precision digital hydraulic parts and systems for large power machinery, and intelligent pneumatic components and systems with high-frequency response; 12,000 meters and above deep well drilling rigs, polar drilling rigs, high-displacement deep well desert drilling rigs, drilling rigs for swamp areas with difficult access to the marsh, marine drilling rigs, as well as pry trolleys, overhead drilling rigs and other complete sets of equipment

9. Environmental protection equipment: hazardous waste (including medical waste) centralized treatment equipment; nanofiltration membrane and reverse osmosis membrane pure water equipment; Combined integrated water purifier (treatment capacity 100~2500 tons/hour), seawater desalination equipment; coal-fired generator sets of ultra-low emission technical equipment such as desulfurization, denitrification and dust removal; Steel furnace kiln flue gas fine particulate matter precharge bag dust removal technology and equipment; Coke oven flue gas SDA desulfurization + SCR denitrification technology equipment; electrolytic aluminum flue gas alumina defluorination and dust removal technology equipment; Complete set of equipment for dry desulfurization and dust removal of steel sintering flue gas; baghouse; electric bag composite dust removal technology equipment (particulate matter emission concentration < 10 mg/cubic meter); catalytic cracking regeneration flue gas dust removal and desulfurization technology equipment; VOCs adsorption and recovery device; VOCs incineration devices; unorganized emission control technology and equipment for furnaces and feeding yards; compound catering industry fume purification equipment; regenerative combustion device; complete sets of urban

sewage treatment equipment (phosphorus removal and nitrogen removal); Sludge hydrolysis anaerobic digestion technology and equipment; Sludge drying and incineration technology and equipment (90% reduction in slag volume

above); Immersion membrane bioreactor (COD removal rate of more than 90%); Ceramic vacuum filter (vacuum degree: 0.09~0.098 megapascals, porosity: 0.2~20 microns); technology and equipment for the treatment of high-concentration organic wastewater by superbio-coupled method and biofilm method; technical equipment for the disposal of oil, sewage and chemical cabin washing water; complete set of equipment for deep fluoride removal in water bodies; Domestic waste clean incineration technology and equipment (less than 20% of coal combustion); technology and equipment for centralized and harmless treatment of kitchen waste (utilization rate of more than 95%); Landfill leachate and odor treatment technology and equipment (treatment capacity of more than 50 tons/day); Automatic domestic waste sorting technology and equipment (sorting rate 80% above); construction waste treatment and reuse process technology and equipment (treatment capacity of more than 100 tons/hour); industrial hazardous waste disposal and treatment technology and equipment (treatment rate of more than 90%); oilfield drilling waste treatment and disposal technology and complete sets of equipment (capacity reduction of more than 50%, treatment rate of more than 70%;

medical waste clean incineration, high-temperature cooking and harmless treatment technology and equipment (treatment capacity of more than 150 kg/hour, combustion efficiency of more than 70%), and medical waste microwave and chemical disinfection treatment technology and equipment;
Centralized treatment technology and equipment for livestock and poultry manure (treatment capacity of more than 20 tons/day); Oily sludge pyrolysis treatment equipment (equipment thermal desorption rate of more than 99.9%);
Electron beam antibiotic residue harmless treatment equipment (single processing capacity 100 tons/day);
intelligent aerobic fermentation integrated equipment (fermentation product moisture content below 40%);
Crushing and screening integrated machine, odor suppression equipment, direct thermal desorption equipment, indirect thermal desorption equipment, soil leaching equipment, soil amendment machine, direct push drilling and sampling equipment, sequential batch oil sludge pyrolysis skid-mounted complete set of equipment

10. Key bearings: EMU bearings with a speed of more than 200 kilometers per hour, bearings for large axle loads and heavy loads of railway wagons with an axle load of 23 tons and above, bearings for high-power electric power/diesel locomotives, and service

life

New urban rail transit bearings with a life of more than 2.4 million kilometers, with a service life of 250,000 kilometers

The above lightweight, low-friction torque automobile bearings and units, high temperature resistance (above 400°C) automobile turbine, supercharger bearing, car third-generation wheel hub bearing unit, P4, P2 CNC machine tool bearing, 2 megawatt (MW). All kinds of precision bearings for wind turbines and above, large construction machinery bearings such as shield machines with a service life of more than 5000 hours, P5 and P4 high-speed precision metallurgical rolling mill bearings, aircraft engine bearings and other aviation bearings, medical CT Machine bearings, radial thrust integrated bearings for ship rim thrusters, deep well ultra-deep well oil drilling rig bearings, marine engineering bearings, high-speed bearings for electric vehicle drive motor systems (rotational speed \geq 12,000 rpm), industrial robot RV reducer harmonic reducer bearing, magnetic levitation bearing, and the parts of the above bearings

11. Key castings and forgings: high-strength, high-plasticity ductile iron castings, high-performance worm iron castings, high-precision, high-pressure, high-flow hydraulic castings, non-ferrous alloy special casting process castings, high-strength steel forgings, high-

performance and lightweight new material castings and forgings such as high temperature resistance, low temperature resistance, corrosion resistance, wear resistance, etc., high-precision, low-stress machine tool castings and forgings, high-performance key castings and forgings for automobiles, energy equipment, rail transit equipment, aerospace, military industry, marine engineering equipment fields

12. Key seals: large wind power generation seals (service life of more than 7 years, operating temperature -45~100°C), mechanical seals of nuclear power plant main pumps (applicable pressure ≥ 17 megapascals, operating temperature 26.7~73.9°C), ~~high~~ (life of 5000 years). hours), car powertrain system and transmission system rotary seals, oil drilling, logging equipment seals (applicable pressure ≥ 105 megapascals), hydraulic bracket seals, high PV value rotary moving seals, oversized diameter (≥ 2 meters) mechanical seals, aerospace seals (operating temperature -54~275°C, linear speed ≥ 150 m/seconds), high-pressure hydraulic component seals (applicable to pressure \geq

31.5 megapascals), high-precision hydraulic castings (runner dimensional accuracy ≤ 0.25 mm, fatigue performance test ≥ 2 million times), hydrogen energy storage and transportation low-temperature sealing, waste heat recovery steam compressor shaft end seal, high-performance asbestos-free sealing material (heat resistance temperature 500°C , tensile strength ≥ 20 megapascals), High-performance carbon graphite sealing material (heat resistance temperature 350°C , compressive strength ≥ 270 megapascals), high-performance pressureless sintered silicon carbide material (flexural strength ≥ 200 megapascals, thermal conductivity ≥ 130 W/m \cdots Kelvin).

13. Key molds: precision molds (stamping die accuracy ≤ 0.02 mm, cavity die accuracy ≤ 0.05 mm), multi-station automatic deep drawing mold, multi-station automatic fine blanking mold, matching the super-large integrated die casting mold (half-circumference length > 4500) for die casting machines above 6000 tons mm), equipped with more than 10 sensors intelligent composite molds, automotive high-vacuum composite precision die-casting molds, large-scale aerospace key parts pressure forming molds, large-scale wind turbine blade molds,

composite material molds, hot runners, nitrogen elastic elements, self-lubricating wear-resistant sliding elements, precision positioning mold parts and other mold standard parts

14. Key fasteners: aerospace titanium alloy fasteners, high-speed rail anti-loosening fasteners, automobile engine fasteners, high-temperature and high-stress fasteners for nuclear power and heavy gas turbines, and high-strength precision fasteners such as large-scale corrosion-resistant fasteners for offshore wind power

15. Key motors: high-efficiency permanent magnet synchronous motors, high-torque permanent magnet direct drive motors, high-speed direct drive permanent magnet motors, low-speed direct drive permanent magnet motors, synchronous reluctance motors, superconducting motors

16. Key transmission parts: aviation, aerospace, high-speed rail, engine and other springs, new magnetic governors/buffers, permanent magnet flexible couplings, intelligent transmission couplings and other high-precision transmission couplings, intelligent transmission couplings, low-speed and high-torque high-elastic couplings, large Rolling mill coupling shafts, high-speed trains, aircraft friction devices, EMU gearboxes, ships

Use variable propeller gear transmission system, gearbox for wind power above 3.0 megawatt, gearbox for metallurgical mining machinery, special reducer for rotary kilns, ball mills, vertical mills, roller presses for cement industry, high-precision reducer for industrial robots, power shift/continuously variable transmission for large tractors, high-reliability gear drives for shield machines, chains for automobile powertrains, construction machinery, and large agricultural machinery. The internal combustion engine uses a crankshaft and connecting rod

17. Key pumps and valve components: ultra-high pressure pump for rust removal of ships and storage tanks (pressure $\geq 280\text{MPa}$), spunlace nonwovens production line high-pressure pump (pressure $\geq 15\text{MPa}$, flow $\geq 550\text{L/min}$, average trouble-free running time $\geq 10000\text{h}$), Developed ultra-high pressure polyethylene catalyst feed pump (pressure $\geq 300\text{MPa}$, flow $\geq 40\text{L/h}$), developed high-efficiency molten salt pump for solar thermal power generation (flow $\geq 830\text{m}^3/\text{h}$, head $\geq 65\text{m}$, operating temperature 565°C), and series products of multi-stage anti-cavitation control valves in series (Nominal pressure Class 600, specification NPS1~8, throttle stage \geq level 3), high integration PSA multi-channel rotary control valve (flow $\geq 500\text{N} \cdot \text{m}^3/\text{h}$, Sealing performance up

to GB/T 13927 Class C requirements), ultra-high pressure polyethylene control valve (design pressure 260MPa, flow and pressure control accuracy $\leq 1.5\%$), 70MPa composite hydrogen storage cylinder combination valve (Nominal working pressure 70MPa, number of functional components integrated ≥ 6 , leakage rate $\leq 30\text{NmL/h}$), high-efficiency and low-noise fuel cell hydrogen recirculation pump (flow $\geq 300\text{L/min}$, system efficiency $\geq 60\%$, Noise $\leq 70\text{dBA}$), high-pressure and high-frequency tight shut-off hydrogen balloon valve for hydrogen refueling station (working pressure 45MPa/90MPa, opening and closing frequency $\geq 10\text{cycle/h}$), 18MW and above integrated compressor unit, diameter 1200 Natural gas pipelines of millimeters and above are equipped with key equipment such as compressors, gas turbines, valves, etc., compressors and driving machinery and cryogenic equipment for natural gas liquefaction of 2.6 million tons/year and above on a single line, and 3,000 cubic meters of large-scale oil pipelines hours and above oil pumps and other key equipment

15. Urban rail transit equipment

1. Key systems: CBTC signaling system that follows interconnection standards, intelligent automatic operation system, fully automatic operation system (FAO), train autonomous operation system (TACS) based on vehicle-to-vehicle communication; Rail vehicle AC traction transmission system, braking system and core components (including IGCT, IGBT, SiC components), network control system, intelligent operation and maintenance system and testing and monitoring equipment of key equipment and facilities of urban rail transit; Automatic ticketing system (AFC), doors, coupler system, windshield system, fire alarm and automatic fire extinguishing system; Urban rail train regenerative brake absorption device, energy feedback, energy storage system

2. Key components and technology applications: urban rail transit vibration damping and noise reduction technology should

Permanent magnet traction motors, bearings, couplings, DC high-speed switches, vacuum circuit breakers (GIS)

16. Automobiles

1. Key parts of automobiles: gasoline engine supercharger, eddy current retarder, hydraulic retarder,

follow-up headlamp system, solenoid valve for actuator of electronic control system, special axle for low-floor large buses, air suspension, inverter air conditioner for large and medium-sized buses, disc brakes for commercial vehicles, emergency protection devices for tire blowouts for commercial vehicles; electric power steering system, steer-by-wire system, idle start-stop system, efficient and high-reliability electromechanical coupling system; special engines for hybrid systems, low-carbon and zero-carbon fuel engines and core components; Dual-clutch transmission (DCT), electronically controlled mechanical transmission (AMT), automatic transmission with 7 speeds and above (AT with 7th gear and above), continuously variable automatic transmission (CVT).) ; Selective catalytic reduction device,

Fuel evaporation control system (EVAP) (including on-board oil and gas recovery unit (ORVR)).

Three-effect catalytic converter, NO_x and particulate matter concentration sensor, high-efficiency diesel engine, hydrogen fuel engine, gasoline engine particle trap, ozone catalytic conversion heat exchanger; Gas high-pressure direct injection

(HPDI) engine and supply system; electronically controlled high-pressure common rail injection system and its injector, high-efficiency boosting system (maximum comprehensive efficiency $\geq 55\%$; exhaust gas recirculation system; electric brakes, electric steering and their key components; Special power equipment for plateau cold areas

2. Lightweight material applications: ultra-high-strength steel, high-strength and low-density steel, ADI cast iron, high-strength aluminum alloy, magnesium alloy, powder metallurgy, high-strength composite plastics, composite fibers and bio-based composites; Application of advanced forming technology: 3D printing molding, expanded application of laser welded plates, internal high-pressure forming, ultra-high-strength steel plate (strength $\geq 980\text{MPa}$, strong plastic volume 20~50GPa·%) hot forming, flexible roll forming, integrated die-casting molding, advanced connection technology of dissimilar materials

3. Key components of new energy vehicles: power battery cathode materials (specific capacity \geq).

180mAh/g, cycle life of 2000 times not less than 80% of the initial discharge capacity), anode material (specific capacity \geq 500mAh/g, cycle life of 2000 times not less than 80% of the initial discharge capacity), separator (Δ Degree $\leq 12\mu\text{m}$, porosity 35%~60%, tensile strength MD $\geq 800\text{kgf/cm}^2$, TD $\geq 800\text{kgf/cm}^2$) and anodized aluminum oxide coating materials; Electric vehicle drive motor system (high efficiency zone: 85% working area efficiency $\geq 80\%$), automotive DC/DC (input voltage 100~400V), high-power electronic devices (IGBT, voltage level $\geq 750\text{V}$, current $\geq 300\text{A}$; SiC MOSFETs, voltage level $\geq 1200\text{V}$, current $\geq 600\text{A}$); battery swap panel system for pure electric heavy-duty trucks; plug-in hybrid electromechanical coupling drive system; Fuel cell engine (mass specific power $\geq 350\text{W/kg}$), fuel cell stack (volume specific power $\geq 3\text{kW/L}$), membrane electrode (platinum dosage $\leq 0.3\text{g/kW}$), proton exchange membrane (mass).

Sub-conductivity $\geq 0.08\text{S/cm}$), bipolar plate (metal bipolar plate Δ degree $\leq 1.2\text{mm}$, other bipolar plate Δ degree $\leq 1.6\text{mm}$), low platinum catalyst, carbon paper (resistivity $\leq 3\text{M}\Omega \cdot \text{cm}$), air compressor, hydrogen circulation pump, hydrogen injector, humidifier, fuel cell control system, bidirectional DC/DC, 70MPa hydrogen cylinder and conveyor pipe valve, on-board hydrogen concentration sensor; heat pump air conditioners for electric vehicles, electric compressors; 32-bit or above chip for motor drive control (no less than 2 hardware cores, main frequency not less than 180MHz, hardware encryption and other functions, chip design meets functional safety ASIL C or above requirements); integrated electric drive assembly (power density $\geq 2.5\text{kW/kg}$); High-speed reducer (maximum input speed $\geq 12000\text{rpm}$, noise $< 75\text{dB}$).

4. Vehicle charging equipment: on-board charger (efficiency $\geq 95\%$ under full load output condition) ~~charging efficiency $\geq 95\%$ under full load output condition~~; ~~charging efficiency $\geq 95\%$ under full load output condition~~ $\geq 110V \sim 250 \sim 950V$, efficiency in voltage range $\geq 88\%$); High power density, high conversion efficiency, high applicability wireless charging, mobile charging and swapping technology and equipment, intelligent and fast

charging and battery swapping facilities

5. Automotive electronic control system: engine control system, transmission control system

(TCU), Electronic Stability Control System (ESC), Network Bus Control System, Electronically Controlled Intelligent Suspension, Predictive Cruise System (PCC), LIN Controlled Generator, Visual Fuel-Saving Driving Assistance System, Intelligent Power Management System, Adaptive Cruise System (ACC), Lane Keeping Assist (LKA), Automatic Emergency Braking (AEB), Electric Braking System (EBS), Automatic Parking System (CPK), On-board fault diagnosis system (OBD~~B~~SD), curve warning system (CSW), automatic axle load measurement system for trucks

6. R&D and testing capacity building for new energy vehicles, intelligent vehicles and key components, and high-efficiency internal combustion engines

7. Key components and technologies of smart cars: high-precision sensors for mid-to-high-end autonomous driving, on-board high-computing power artificial intelligence chips, basic computing platforms, central processing units and domain controllers, on-board operating systems and information control systems, new electronic and electrical architectures, over-the-air download systems (OTA).), vehicle-network communication system equipment, visual recognition and display system, high-precision positioning device, wire-controlled chassis system, intelligent vehicle safety glass, digital cockpit system, human-machine co-driving technology, new intelligent terminal module, multi-core heterogeneous intelligent computing platform technology, all-weather complex traffic scene high-precision positioning and map technology, vehicle-road collaboration technology, sensor fusion perception technology, automotive wireless communication technology, basic cloud control platform technology; New security isolation architecture

technology, software and hardware collaborative attack identification technology, terminal chip security encryption and application software security protection technology, wireless communication security encryption technology, secure communication and authentication authorization technology, data encryption technology, functional safety and expected functional safety technology; Test and evaluation system architecture research and development, virtual simulation, real vehicle road testing and other technologies and verification tools, vehicle-level and system-level test and evaluation methods, and test infrastructure database construction

17. Ship and marine engineering equipment

1. Green and intelligent transport ships: ship types that meet green, intelligent and safety requirements and meet new international shipbuilding norms and standards

2. Clean energy and new energy ships: LNG-powered, pure electric, fuel cell-powered ships, etc., and alternative fuel-powered ships such as methanol fuel, ammonia fuel, and biomass fuel

3. Special ships and special-purpose ships: dredgers, port operation ships, geophysical exploration ships, pipe-laying ships, lifting ships, multi-purpose work vessels,

guardian ships, supply ships, offshore wind power
installation (transportation).

Maintenance ships, diving support ships and other engineering vessels, marine survey ships, scientific research vessels, deep-sea test vessels, heavy icebreakers, hospital ships, emergency rescue vessels, salvage vessels, official vessels, distant-water fishery fishing vessels, distant-water fishery transport (processing) vessels, submersibles and unmanned boats, etc

4. High-performance ships: hovercraft, small waterline catamarans, multihulls, wave piercing boats, hydrofoils, geofoil ships, etc

5. Offshore engineering equipment: deep-sea oil and gas drilling platforms (ships), production platforms, living platforms, floating production storage and unloading units (FPSO), floating liquefied natural gas units

(FLNG), floating storage and regasification unit (FSRU) and other offshore oil and gas equipment, offshore wind power equipment, natural gas hydrate drilling and production vessels (platforms), marine new energy equipment (including tidal energy, wave energy, temperature difference energy, etc.), deep-sea cage breeding platforms, large-scale

aquaculture vessels, large-scale floating island and reef platforms, deep-sea mineral resource development equipment, new marine engineering equipment such as submarine data centers

6. Cruise yacht development and manufacturing and supporting industries

7. Supporting equipment and materials: subsea mining robots, submarine trenchers and other submarine mineral resource development equipment, deep-sea mining systems, deep-sea riser related supporting systems and equipment, underwater submersibles, robots and detection and observation equipment, high-performance functional composite materials for marine engineering, thermal insulation, anti-corrosion and flame retardant composites for ship superstructures and interiors

8. Green intelligent manufacturing technology and equipment: precision management and control, digital shipbuilding, pre-outfitting and modularization, efficient welding, green painting, ultra-high pressure water rust removal, intelligent welding production line, intelligent segmented assembly line, intelligent pipe processing production line and other special green intelligent manufacturing and maintenance technology and equipment

18. Aerospace

1. Aerospace products: development and manufacture of civil aircraft (trunk aircraft, regional aircraft, general aircraft, civil helicopters, other aircraft), development and manufacture of aero engines (turbojets, turbofans, turboprops, turboshafts, pistons, other aero engines), aerospace gas turbine manufacturing, remote sensing satellites, communication satellites, navigation satellites, launch vehicles, advanced satellites, launch vehicle stand-alone, component, components, etc. Development and manufacturing of multi-source integrated positioning and navigation timing products, development and manufacturing of unmanned aerial vehicles (large, medium, small and others), design and research and development of new energy aircraft

2. Aircraft and parts, engines and parts, airborne systems and equipment and parts maintenance and repair

3. Aerospace system equipment: design and manufacture of civil aircraft airborne systems and equipment, development and manufacture of aircraft ground simulation training systems and test systems, construction and equipment manufacturing of satellite ground and application systems

4. Development and production of new materials for aerospace

19. Light industry

1. 300,000 tons/year and more of **chemical wood pulp** per year, and 100,000 tons/year of **chemical mechanical wood pulp**

The construction of an integrated forest paper production line of 100,000 tons/year or more of **chemical bamboo pulp** per year and corresponding supporting paper and cardboard production lines (except newsprint, coated paper, napkin base paper, facial tissue paper base paper, toilet paper base paper, and white cardboard) will be constructed, using clean production technology, non-wood fiber as raw material, **and 100,000 tons per strip** /year and above pulp production line construction, advanced pulp and papermaking equipment development and manufacturing, elemental chlorine-free (ECF) and total chlorine-free (TCF) chemical pulp bleaching process development and application

2. Development, production and application of biodegradable plastics and their series of products, agricultural plastic water-saving equipment, development and production of long-life (three years and more) functional agricultural films, fully biodegradable seedling bowls, trays and related agricultural packaging materials

3. New plastic building materials (high-airtight soundproof and energy-saving plastic windows, large-diameter drainage and sewage pipes, impact-resistant modified PVC pipes, polyethylene pipes for ground source heat pump systems, trenchless plastic pipes, composite plastic pipes, plastic inspection wells), impermeable geomembranes, plastic wood composites and ultra-high molecular weight polyethylene pipes and plates with a molecular weight \geq of 2 million, multi-chamber high-performance plastic profiles

4. Technology application and equipment manufacturing of dynamic plasticization and plastic tensile rheological plasticization, plastic processing equipment using electromagnetic induction heating and servo drive system

5. It is used in the production of special ceramics

and the development of technology and equipment in the fields of industry, medicine, electronics, aerospace and other fields, as well as the development of clean production and comprehensive utilization technology of ceramics

6. intelligent sewing machinery (using advanced technologies such as digital control and intelligent perception) and key components development and manufacturing

7. R&D and manufacturing of multi-station combination machine tools for pen making, clocks and other industries

8. Development and application of high-tech, digital and intelligent printing technology equipment and high-definition plate making system

9. Manufacturing of special supplies for ethnic minorities

10. New packaging materials such as vacuum aluminum plating, sprayed silicon oxide, polyvinyl alcohol (PVA) coated film, functional polyester (PET) film, solvent-free composite or thermal composite energy-saving low-carbon polypropylene film, oriented polystyrene (OPS) film and paper-plastic-based multi-layer composite 11. New lithium primary battery (lithium iron disulfide, lithium thionyl

chloride, etc.), lithium-ion electricity

Pool, semi-solid and all-solid-state lithium batteries, fuel cells, sodium-ion batteries, flow batteries, new structures (bipolar, lead cloth level, winding, tubular type, etc.) sealed lead batteries, lead-carbon batteries and supercapacitors, ternary and multivariate for lithium-ion batteries, cathode materials such as lithium iron phosphate, anode materials such as mesophase carbon microspheres and silicon carbon, single-layer and three-layer composite lithium-ion battery separators, fluoroethylene carbonate (FEC). Electrolytes and additives, carbon nanotubes, carbon nanotube conductive fluids and other key materials, waste battery recycling and green cycle production processes and equipment manufacturing, lithium-ion batteries, lead-acid batteries, alkaline zinc-manganese batteries

(more than 600 m^3/min) and other battery products to automate and intelligently produce complete sets of manufacturing equipment

12. Clean production of tanning and fur processing, development of new technologies and key equipment manufacturing of leather finishing, comprehensive utilization of solid waste and chromium sludge containing

leather, recycling of leather and fur processing waste liquid, development, production and application of functional leather chemical products such as ash-free expansion (auxiliaries), ammonia-free demineralization (auxiliaries), salt-free impregnating acids (auxiliaries), high-absorption chromium tanning (auxiliaries), natural plant tanning agents, water-based finishing (auxiliaries), and the development and production of intelligent equipment and systems for automation of tanning, fur processing and shoe making

13. Development and manufacturing of high-efficiency and energy-saving solid-state lighting products and intelligent control systems, intelligent production equipment and testing equipment, and recycling and reuse of waste lamps

14. In line with the national level 1 energy (water) efficiency household appliances and gas stoves development and production

15. Development and production of multi-effect, energy-saving, water-saving, environmentally friendly surfactants, additives and detergents

16. Developing and manufacturing air conditioners and accessories using new refrigerants to replace

hydrochlorofluorocarbons (HCFC-22 or R22) and hydrofluorocarbons (HFCs), and replacing hydrochlorofluorocarbons (HCFC-141b) and hydrofluorocarbons (HFCs) with new blowing agents) for household electricity

The production and application of rigid polyurethane foams using new blowing agents to replace hydrochlorofluorocarbons (HCFC-141b) and hydrofluorocarbons (HFCs).

17. The design and application of energy-saving and environmentally friendly glass kilns (including full electric melting, electric melting, total oxygen combustion technology, and low nitrogen combustion technology with NO_x production concentration $\leq 1000\text{mg/m}^3$), the development and production of energy-saving automatic control technology of glass melting kiln DCS, and the process technology and key equipment of lightweight glass bottles and cans (lightweight ≤ 1.0).

18. Production of energy-saving and environmentally friendly inks such as water-based inks, energy-curing inks, and vegetable oil inks

19. Development and production of new technologies for natural food additives and natural flavors

20. R&D and manufacturing of advanced food production equipment, R&D and production of food quality and safety monitoring (testing) instruments and equipment

21. The development and production of nutritious and healthy rice, wheat flour (food-specific rice, germinated

brown rice, germ rice, food-specific flour, whole wheat flour and nutritionally fortified products, etc.) and products, the industrial production of traditional staple foods, the development and production of special equipment for grain processing, and the comprehensive utilization of key technologies for the by-products of grain and oil processing (rice husk, rice bran, bran, germ, cake meal, etc.).

22. Rapeseed oil production line: using technologies such as puffing, negative pressure evaporation, heat energy self-balancing utilization, and low-consumption steam vacuum system, the main rapeseed producing area processes 400 tons of rapeseed per day

The solvent consumption of the above and tons is less than 1.5 kg (of which 200 rapeseed is processed per day in the western region

tons and above, tons of material solvent consumption less than 2 kg); Peanut oil production line: the main production of peanuts

The daily processing of peanuts in the district is 200 tons or more, and the solvent consumption per ton is less than 2 kg; Cottonseed oil is raw

Production line: The daily processing of cottonseed in the cottonseed production area is 300 tons or more, and the solvent consumption per ton is more than 2 kg

Under; Rice bran oil production line: adopt dispersion and rapid puffing, centralized oil production and refining technology; corn germ oil production line; Wood 🎧 oilseeds such as camellia seeds and walnuts, and small varieties of oilseeds such as sesame, sesame, sunflower seeds, and peony seeds are processed and produced by supercritical carbon dioxide extraction technology

23. The development of small varieties of amino acids (except lysine, glutamic acid, threonine) using fermentation process to produce small varieties of amino acids (except lysine, glutamic acid, threonine), the annual output of yeast products and yeast derivatives of molasses is 8000 tons or more, new enzyme preparations and compound enzyme preparations, polysaccharides and biological chemical polyols, functional fermentation products (functional sugars, functional red yeast rice, fermentation antioxidant and compound functional ingredients, active peptides, microecological preparations), etc. Enzyme production process technology development and industrialization and standardized production

24. Technology research and development and production of enamel electrostatic powder and enamel pre-milled

powder

20. Textile

1. Continuous copolymer modification of differentiated and functional polyester (PET) [cationic dyeable polyester (CDP, ECDP), alkali-soluble polyester (COPET), high shrinkage polyester (HSPET), flame retardant polyester, low melting point polyester, non-crystalline polyester, biodegradable polyester, polyester produced with green catalysts, etc.], polypropylene terephthalate (PTT~~EN~~), polybutylene terephthalate (PBT).), polycyclohexane dimethanol terephthalate (PCT) and other new polyesters and fibers, flame retardant, antistatic, antibacterial, conductive, phase change energy storage, intelligent temperature control, photochromic, dope coloring, adsorption and separation, biomedical and other differentiated, efficient and flexible preparation technology of functional chemical fibers, intelligent and ultra-simulation functional chemical fiber production, and original development of green, efficient and environmentally friendly chemical fiber oil for high-speed spinning processing

2. The development and production of degradable fiber materials [polybutylene succinate (PBS), polybutylene terephthalate-adipate (PBAT), polycaprolactone (PCL), poly3-" are developed and produced using green and environmentally friendly processes and equipment Hydroxyalkaloate (PHA), polylactate fiber (PLA), etc.], Lyocell staple fiber (more than 50,000 tons of single wire) and Lyocell fiber filament, bio-based fiber materials (regenerated cellulose fiber, seaweed fiber, chitosan fiber, animal and plant protein fibers, bio-based polyamides, bio-based polyesters, etc.).

3. Development, production and application of high-performance fibers and products: carbon fiber (CF) (tensile strength $\geq 4200\text{MPa}$, elastic modulus $\geq 230\text{GPa}$), aramid (AF), ~~il~~ ~~PSA~~ ~~UHMWPE~~). (The single line capacity of the spinning production equipment ≥ 300 tons/year, the breaking strength $\geq 40\text{cN/dtex}$, the initial modulus $\geq 1800\text{cN/dtex}$), polyphenylene sulfide fiber (PPS), polyimide fiber (PI), Polytetrafluoroethylene fiber (PTFE), ~~PBO~~, polyaryxadiazole fiber (POD), polyether ether ketone fiber (PEEK), poly2,5-dihydroxy-1,4-benzopyridine and dimididazole fiber (PIPD), etc

4. High-quality processing technology and products of

natural fibers such as animal fibers, hemp fibers, mulberry cocoon silk, colored cotton, and colored mulberry cocoon silk that meet green and low-carbon requirements

5. The use of intelligent and continuous spinning complete sets of equipment (clear combing link, thick and fine link, fine connection and CNC single machine, jet vortex spinning, high-speed rotor spinning and other short-process advanced spinning equipment) to produce high-quality yarn, using new CNC equipment (high-speed CNC shuttleless loom, automatic warp threading machine, automatic fabric inspection machine, fully formed computer flat knitting machine, full formed circular weft machine, high-speed computer horizontal machine). machine, high-speed warp knitting machine, fine needle pitch weft machine, etc.) to produce high-end count, high density, jacquard and other high-end

Woven, knitted textiles

6. Digital, intelligent, green printing and dyeing technology is adopted [printing and dyeing clean production technology (enzyme treatment, high-efficiency short-process pretreatment, continuous pretreatment of knitted fabrics, low-temperature pretreatment and dyeing, low-salt or salt-free dyeing, low-urea printing, small bath ratio intermittent fabric dyeing, digital inkjet printing, foam finishing, etc.), functional finishing technology, new dyeing and processing technology, waterless/waterless and energy-saving low-carbon printing and dyeing processing technology, composite fabric processing technology] and equipment production of high-grade textile fabrics, intelligent bobbin yarn dyeing technology and equipment development and application

7. Non-woven, weaving, knitting, weaving and other processes, as well as new technologies such as multiple process compounding and long-term finishing, are used to produce functional industrial textiles

8. The development and manufacture of intelligent, green, high-efficiency, low-energy textile machinery, and its key special basic parts, measurement, testing

instruments, and test equipment

9. Development and application of digital, networked and intelligent clothing and home textile production technology and equipment

10. Hemp bio-degumming technology, polyvinyl alcohol (PVA) slurry sizing technology, efficient treatment and comprehensive utilization of resources on slurry, use polyester recycled materials to produce polyester industrial yarns, differentiated and functional polyester filaments and staple fibers, nonwovens and other high value-added products, polyamide recycled materials to produce nylon (PA6) filaments and staple fibers technology and applications, The technology and application of polypropylene recycled materials to produce polypropylene (PP) filament and staple fibers, the recycled cellulose fiber products produced by cotton textile recycling, and the research and development and application of waste textile recycling technology and equipment

21. Architecture

1. Advanced construction technology: the production and integration technology of intelligent construction products and equipment

R&D, central heating system measurement and control technology, product research and development and promotion, application of high-strength and high-performance structural materials and systems, composite material technology and application for building reinforcement and repair, advanced and applicable building complete set of technology, product and housing parts R&D and promotion, steel structure residential integration system and technology R&D and promotion, factory full decoration technology promotion

2. R&D and application of green building technology: existing housing seismic reinforcement, building seismic isolation and absorption structure system and product research and development, engineering application and promotion, building energy conservation, green building, prefabricated building, solar photovoltaic and other renewable energy building application related industries, building high-performance door and window technology and product research and development and promotion, green construction technology system research and development, building information modeling (BIM) related technology research and development and application, R&D and

application of zero-carbon building technology system and key technologies, R&D and application of high-performance soundproof doors, windows and ventilation acoustic windows

22. Urban infrastructure

1. Urban public transportation: urban public transportation construction, urban road and intelligent transportation system construction, urban traffic control system technology development and equipment manufacturing, urban rail transit new line construction, existing parking facility renovation, parking building, underground parking lot, mechanical three-dimensional parking garage and other intensive parking facility construction, parking lot equipped with electric vehicle charging and swapping facilities

2. Municipal infrastructure: urban water supply and drainage engineering and related equipment production, urban underground comprehensive pipe gallery construction at prefecture level and above, underground pipe network geographic information system, urban gas engineering, urban central heating construction and renovation project (including long-distance central heating pipe network application project), urban water-saving technology

development and application, urban gas plastic pipeline application engineering, sponge city, drainage and flood control engineering technology product development and production

3. Urban quality improvement and housing security: urban landscaping and ecological community construction,

The application of key technologies in urban ecosystems, the intelligent transformation of urban lighting systems, the construction, operation and management of affordable housing (including affordable rental housing), and the construction of basic service facilities and comprehensive service outlets in urban and rural communities

4. Smart city construction: urban high-precision navigation, high-precision remote sensing image and three-dimensional data production and key technology development, urban three-dimensional management information system relying on basic geographic information resources, urban operation management information technology application, urban information model (CIM) related technology development and application based on big data, Internet of Things, GIS, etc

23. Railways

1. Railway construction and transformation: new railway lines, existing railway reconstruction and expansion, railway special lines, intercity and urban (suburban) railway construction, full line closure and crossing leveling, and expansion and transformation of key ports

2. Engineering construction technology: concrete structure repair and durability improvement technology,

material development, railway passenger train toilet collector and sewage ground reception and treatment engineering

3. Green and intelligent railway construction: development and construction of digital railway and intelligent transportation, railway driving and passenger and freight safety assurance system technology and equipment, railway train operation control and vehicle control system development and construction, railway transportation information system development and construction, driving dispatching and command automation technology development, railway intelligent green construction technology development and application

4. Advanced rail transit system: technology development and construction of passenger dedicated line and high-speed railway system, trunk rail vehicle AC traction transmission system, braking system and core components (including silicon carbide power module, IGCT, IGBT components), new energy power drive system, application of power factor compensation technology for electrified railway traction power supply, railway broadband mobile communication system, Research on shock absorption and noise reduction technology for high-speed railways or passenger dedicated

lines, intercity, and urban (suburban) railways

Publishing and application

5. Advanced rail transit equipment: high-power AC transmission electric locomotives, high-power AC transmission diesel locomotives that meet national pollutant emission standards, and speed of 200 km/h and above

EMUs, power centralized EVUs with a speed of 200 km/h and below, plateau locomotives above 3000 meters above sea level, plateau EMUs, heavy-duty trucks, large special trucks, cold chain transportation freight equipment, multimodal trucks, LNG special railway wagons, rolling stock special rescue equipment, high-speed freight sports units, large road maintenance machinery, Railway engineering construction machinery and equipment, line, bridge and tunnel testing equipment, traction power supply testing equipment, railway catenary with a speed of 200 km/h and above, turnouts, buckle fittings, traction power supply equipment

24. Highways and road transport

1. Highway transportation network construction: national highway network project construction, national and provincial trunk line transformation and upgrading, automobile passenger and freight stations, urban bus stations, urban public transportation

2. Development of highway intelligent transportation system: development and construction of rapid passenger and freight transportation, highway drop-off transportation system, road container and van transportation, development and construction of rural highway and passenger and freight transportation network, development and construction of taxi service dispatch information system

3. The development and response of new technologies and materials for the construction and maintenance of highway projects and large bridges and tunnels

use

4. Green highway infrastructure construction

5. Highway safety emergency support technology and application: highway management services, highway emergency

The construction of the guarantee system and the development and application of the safety monitoring and recording system of operating vehicles

25. Water transport

1. High-grade waterway construction: public infrastructure construction of coastal ports, international borders

The construction of navigable river waterways, high-grade inland waterways, navigable buildings, other waterways and public infrastructure in line with the national strategic direction

2. Port hub construction: terminal berth construction, ship pollutant port reception and disposal facilities and equipment manufacturing, port hazardous chemical and oil emergency facility construction and equipment manufacturing, international cruise transportation and cruise home port construction, port shore power system construction and ship power reception facility transformation, ship LNG refueling facilities and electric ship charging and swapping facilities

3. Smart water transport: port automation, intelligent and green construction and transformation, smart waterway, green waterway and intelligent green shipping construction

4. Green and safe shipping: water traffic safety supervision, navigation support and rescue system construction, inland water vessel type standardization and greening, ship and terminal oil and gas recovery facility construction

26. Air transportation

1. Aviation infrastructure construction: construction and operation of airports and supporting facilities, construction of air traffic control and communication, navigation and monitoring meteorological information systems, development and construction of aviation computer management and network systems, aviation fuel refueling services and facilities construction

2. Public air transport

3. General aviation, maritime and air supervision patrol and search and rescue services and facility construction, and construction of emergency take-off and landing sites for small aircraft

4. Sustainable aviation fuel

27. Comprehensive transportation

1. The integrated construction and transformation of comprehensive transportation hubs, and the integrated development of hub stations and cities

2. Construction and application of integrated transportation hub operation management information system

3. Comprehensive transportation hub disaster prevention and relief and emergency evacuation system

4. Transportation hub intermodal transport system: comprehensive transportation hub convenient transfer facilities and equipment, ticketing integration, R&D, promotion and application of intermodal transport products, comprehensive transportation hub convenient freight transfer system construction, port transfer and transfer facility construction, multimodal transport transfer facility construction, multimodal transport rapid transfer and transfer equipment, standardized carrier unit research and development, promotion and application

28. Information industry

1 New generation communication network infrastructure: construction of optical transmission systems of 100Gb/s and above

155MB/s and above digital microwave synchronous transmission equipment manufacturing and system construction, satellite communication system, earth station equipment manufacturing and construction, network management monitoring, clock synchronization, billing and other communication support network construction, mobile Internet of Things, Internet of Things (sensor network), intelligent network and other new service network equipment

manufacturing and construction, broadband network equipment manufacturing and construction, digital cellular mobile communication network equipment manufacturing and construction, IP The construction of business networks, the construction of satellite digital television broadcasting systems, the construction of value-added telecommunications service platforms, the construction of emergency radio and television systems, and the research and integrated application of integrated access technology for air-ground information at disaster sites

2 Computers and related equipment: high-performance computers, portable microcomputers, high-end servers with ten trillion times per second and above, large-scale simulation systems, large-scale industrial controllers and controllers, printers (including high-speed barcode printers) and massive memory and other computer external equipment, research and manufacturing of new mechanism computer systems such as quantum and brain-like

3 Communication equipment: R&D and service of next-generation Internet technology based on IPv6, R&D and production of network equipment, chips, systems and related test equipment, manufacturing of 32-wave and above optical fiber wavelength division multiplexing transmission system

equipment, stratospheric communication system equipment manufacturing, digital mobile communication, mobile ad hoc network, access network system, digital trunking communication system and router Gateway and other network equipment manufacturing, new (non-dispersive) single-mode fiber and fiber optic preform manufacturing,

Wireless LAN technology development, equipment manufacturing, satellite navigation chip, system technology development and equipment manufacturing, based on spatio-temporal information, Beidou navigation and positioning services, communication, navigation and remote sensing integration integration, geographic information system (GIS) basic platform related technology development and application, quantum communication equipment, broadband digital trunking equipment, and the use of time division duplex (TDD). Next-generation private network communication equipment such as 230MHz broadband wireless data transmission equipment with carrier aggregation, and connected communication equipment such as direct connection communication equipment for the Internet of Vehicles based on LTE-V2X wireless communication technology

- 4 Integrated circuit: Integrated circuit design, integrated circuit line width less than 65 nanometers (inclusive).

logic circuits, memory production, characteristic process

integrated circuits with line widths of less than 0.25 microns

(inclusive) (including masks, 8-inch and above silicon

wafers), integrated circuit line widths of less than 0.5

microns (inclusive), and ball grid array packaging (BGA). PGA), chip-scale

packaging (CSP), multi-chip packaging (MCM), Raster Array Package (LGA), System-in-Package (SIP), Flip Package (FC), Wafer Level Package (WLP), Sensor Package (MEMS).), 2.5D, 3D and other advanced packaging and testing of one or more technologies integrated, integrated circuit equipment and key components manufacturing

5 New electronic component manufacturing: chip components, sensitive components and sensors, frequency control and selection components, hybrid integrated circuits, power electronic devices, optoelectronic devices, new electromechanical components, polymer solid capacitors, supercapacitors, passive integrated components, high-density interconnect laminated boards, single-layer, double-layer and multi-layer flexible boards, rigid-flex printed circuit boards and packaging carrier boards, high-density and high-fine lines (line width/Wire spacing \leq 0.05mm) Flexible circuit boards, solar cells, lithium-ion batteries, sodium-ion batteries, fuel cells and other chemical and physical electricity

pool, etc

6 Special materials for the production of electronic components: semiconductors, optoelectronic devices, new electronic components (chip components, power electronic devices, optoelectronic devices, sensitive components and sensors, new electromechanical components, high-frequency microwave printed circuit boards, high-speed communication circuit boards, flexible circuit boards, high-performance copper clad laminate, etc.) and other materials for electronic products, including semiconductor materials, electronic ceramic materials, piezoelectric crystal materials and other electronic functional materials, copper clad laminate materials, electronic copper foil, lead frames and other packaging and assembly materials, and wet chemicals, electronic special gases, photoresists and other processes and auxiliary materials, semiconductor lighting substrates, epitaxia, chips, packaging and materials (including high-efficiency heat dissipation copper clad laminates, thermal conductive adhesives, thermal conductive silicone sheets), etc.; Advanced solar photovoltaic cells and high-purity crystalline silicon

materials (the comprehensive power consumption of polysilicon is less than 65kWh/kg, the conversion efficiency of monocrystalline silicon photovoltaic cells is greater than 22.5%, the conversion efficiency of polysilicon cells is greater than 21.5%, and the conversion efficiency of cadmium telluride cells is greater than 17%, The conversion efficiency of copper, indium, gallium, and selenium batteries is greater than 18%).

7 Special equipment for the production of electronic components: semiconductor lighting equipment, solar photovoltaic equipment, chip component equipment, new power battery equipment, surface mount equipment (including stencil printing machine, automatic placement machine, lead-free reflow soldering, photoelectric automatic inspection instrument), etc

8 Special equipment for the manufacture and production of display components: thin-film field-effect transistor LCD (TFT-LCD), organic light-emitting diode (OLED), Mini-LED/Micro-LED display, electronic paper display, laser display, etc New flat panel display devices such as 3D displays, glass substrates for LCD panel industry, cover glass for electronics and information industries and other

key components and key materials, thin-film transistor liquid crystal display (TFT-LCD), light-emitting diode (LED).

and organic light-emitting diode display (OLED), Mini/Micro-LED display, and e-paper

special equipment for the production of new display devices such as displays, laser displays, and 3D displays

9 Basic software and industrial software: software development and production (including research and promotion and application of national language informatization standards), digital system (software) development and application, including intelligent device embedded software, distributed control system (DCS), programmable logic controller (PLC), data acquisition and monitoring (SCADA), Advanced Control System (APC) and other industrial control systems, Manufacturing Execution System (MES), Computer-Aided Design (CAD), Computer-Aided Engineering (CAE), Business Process Management (BPM), Enterprise Resource Planning (ERP), Product Lifecycle Management (PLM), and other industrial software, energy management system (EMS), building information modeling (BIM) system and other special systems, network simulation software, core chip and related software of nuclear power instrumentation and control system

10 Intelligent hardware and application electronics: Doppler radar technology and equipment manufacturing, medical electronics, health electronics, bioelectronics, automotive electronics, power electronics, financial electronics, aerospace instrumentation electronics, image

sensors, sensor electronics and other product manufacturing

1 Promote the deep integration and application of information technology: digital cinema cameras, digital cinema studio equipment, digital film production and visual effects equipment and software, digital film projection servers, digital cinema projectors, mastering production equipment and software, digital film codec equipment, high-tech film projection systems, studio equipment, audio and video codec equipment, audio and video broadcast transmission equipment, digital TV studio equipment, digital television system equipment, digital television radio frequency network equipment, digital TV reception equipment, digital camcorders, Digital recorders, digital TV products, wearable smart cultural equipment

2 E-commerce and e-government system development and application services

3 Development and application of anti-counterfeiting technology

4 Big data, cloud computing, information technology services, and blockchain information services within the scope permitted by the state

29. Modern logistics industry

1. Construction of modern logistics facilities for important commodities such as grain, cotton, sugar, fertilizer, iron ore, coal, and oil

2. Construction of agricultural product logistics and distribution facilities, cold chain logistics of agricultural products, food and medicine, and quality and safety control technical services for food and drug logistics

3. Modern supply chain innovation and application, supply chain management services

4. Development and application of logistics packaging and transportation technology: standard pallets, 600mm×400mm standard turnover boxes (baskets) and 600mm×400mm packaging basic modules popularization and application, the manufacture and use of environmentally friendly and recyclable material pallets, the manufacture and use of standard pallets equipped with RFID and other visual electronic tags, standard pallets, Construction and operation of turnover

box (basket) circulation and sharing system, refrigerated container refrigerator manufacturing

5. Development and application of logistics information technology: logistics information service technology, cargo tracking, identification and positioning technology, intelligent warehousing, sorting and distribution technology, logistics information security technology, and cargo temperature and humidity perception technology research and development and application, logistics public information platform development and construction, digital third-party logistics delivery platform construction, intelligent logistics technology and equipment research and development and application

6. construction and operation of emergency logistics, reverse logistics, and green logistics facilities

7. The construction and operation of national logistics hubs, national backbone cold chain logistics bases, national demonstration logistics parks, suburban warehouse bases, production and marketing cold chain distribution centers, public warehousing required for urban logistics and the construction of supporting facilities such as vehicle docking, loading and unloading, charging and swapping

30. Financial services industry

1. Inclusive finance, rural financial service system construction, product research and development and application, financing guarantee services for small and micro enterprises, farmers and new agricultural business entities, direct leasing services in financial leasing services

2. Construction of RMB cross-border settlement and clearing system

3. Construction of green financial service system

4. Other financial products and services:
intellectual property rights, income rights and other intangible asset loan pledge business development, venture capital, asset securitization, real estate investment trusts (REITs) and other financial instruments and financial products to revitalize existing assets, credit rating services, stocks, depositary receipts, convertible corporate bonds, bond issuance and trading service system construction

5. Commercial insurance: agricultural insurance, liability insurance, credit insurance, technology insurance, commercial health insurance, property

insurance

6. Fintech: financial technology product research and development, application, service output and security protection of financial institutions, financial supervision, financial risk management technology development and application

31. Science and technology service industry

1. Industrial design, meteorology, biology and medicine, new materials, new energy, energy saving, environmental protection, surveying and mapping, marine and other professional scientific and technological services, standardization services, measurement and testing, quality certification and inspection and testing services, science and technology popularization

2. Information technology consulting services: industry (enterprise) management and information solution development, network-based software service platform, software development and testing services, information system integration, consulting, operation and maintenance, data mining and other services

3. Science and technology consulting services: scientific and technological literature, scientific and technological achievements, scientific data, scientific and technological funds

Information sharing, comprehensive development and utilization services in the fields of geography and international trade, information technology consulting services, and digital content services

4. Emerging cultural technologies such as digital technology, high-fidelity technology, digital twin, and high-speed computing technology support technology construction and services

5. Inspection, testing and certification services: analysis, testing, testing and related technical consulting and R&D services, intelligent product overall solutions, ergonomic design, system simulation and other design services

6. Technology transfer services: scientific and technological information exchange, scientific and technological novelty search and literature information retrieval, technical consultation, technology incubation, scientific and technological achievement evaluation, scientific and technological achievement promotion, technology trading, technical due diligence, scientific and technological achievement transfer and transformation

services, and scientific and technological authentication services

7. Intellectual property services: intellectual property agency, transfer, registration, appraisal, search, analysis, evaluation, operation, certification, consulting and related investment and financing services

8. Information technology outsourcing, business process outsourcing, knowledge process outsourcing and other technologically advanced services, service trade

9. Industrial services: maintenance and repair of modern high-end equipment, digital production line transformation and integration, industrial service network platform, industrial e-commerce, remote operation and maintenance management system of intelligent equipment, smart factory equipment monitoring and diagnosis platform, predictive maintenance system, professional maintenance service and supply chain service, industrial management service [including equipment operation and maintenance management consulting, equipment operation and maintenance and management services, industrial APP and equipment management software (SaaS), data and digital services (PaaS, IaaS, data analysis services, and other innovative


data services).

10. Construction of scientific and technological innovation platform: national engineering (technology) research center, state

Industrial Innovation Center, National Agricultural High-tech Industry Demonstration Zone, National Agricultural Science and Technology Park,

Nationally recognized enterprise technology centers, national laboratories, national key laboratories, national major science and technology infrastructure, science and technology business incubators, maker spaces, green technology innovation base platforms, new product development and design centers, science and education infrastructure, industrial cluster comprehensive public service platforms, pilot bases, experimental bases, and national technology innovation centers

32. Business service industry

1. Consulting and services such as economics, management, information, accounting, taxation, auditing, law, energy conservation, water conservation, environmental protection, etc., language services (including translation,  localization services, language and writing technology development and application).

2. Engineering consulting services (including planning consulting, project consulting, evaluation consulting and other services, as well as whole-process engineering consulting)

3. Asset appraisal, calibration, testing, inspection and other services

4. advertising services such as advertising creativity, planning, design, production, agency, and publication
5. Convention and exhibition services (excluding the construction of convention and exhibition venues)
6. Property services: (1) Residential property management: ordinary residences, apartments, villas and other property management; property management of affordable housing (including affordable rental housing); property management of old communities, etc. (2) Non-residential property management: office buildings, office buildings, schools, hospitals, venues, hotels, industrial parks, commercial complexes and other property management

33. Commerce and trade service industry

1. Modern circulation network of agricultural products: the construction of modern market circulation facilities for agricultural products and means of production, the chain operation and comprehensive services of agricultural materials such as seeds, seedlings, breeding livestock, poultry and fish fry (seeds), fertilizers, pesticides, agricultural machinery, agricultural films, fishing nets, etc., the chain operation of daily necessities, medicines, publications and other daily necessities for rural areas, agricultural product auction services, and new rural areas

Construction of modern circulation service network projects, construction of agricultural materials Internet of Things application and demonstration projects

2. Commodity trading market network: the construction of a unified distribution and distribution network for commercial enterprises, and the use of information technology to transform and upgrade the traditional commodity trading market, the second-hand goods market, the second-hand commodity trading market, and the construction of a modern second-hand car trading service system

34. Tourism

1. Tourism equipment and equipment, leisure, mountaineering, skiing, diving, exploration and other outdoor activities development and marketing services

2. New tourism formats: cultural tourism, health tourism, rural tourism, ecological tourism, marine tourism, forest tourism, grassland tourism, wetland tourism, lake tourism, ice and snow tourism, red tourism, urban tourism, industrial tourism, sports tourism, comprehensive development of amusement and other tourism resources, tourism infrastructure construction and operation, tourism information and other services, smart tourism, science and

technology tourism, leisure and vacation tourism, self-driving tourism, low-altitude tourism, cruise yacht tourism and other emerging tourism mode service system construction

35. Postal industry

1. Construction of delivery terminal network:

Construction of terminal facilities such as urban and rural express business outlets, stores and other express service outlets, intelligent express (envelope) boxes, express terminal comprehensive service places, and village-level delivery logistics comprehensive service stations

2. Postal hub layout and construction: urban and rural, intra-regional and inter-regional express sorting centers, transshipment centers, distribution centers, processing hubs and other express processing facilities

3. Postal technology research and development and application: data collection, containers, intelligent terminals, intelligent warehousing, automatic sorting, mechanized loading and unloading, cold chain express, AGV, drones, etc

Unmanned vehicles, unmanned warehouses, green packaging, recyclable packaging, intelligent security inspection system, intelligent vision

R&D and application of advanced technologies and equipment such as frequency monitoring system, intelligent voice complaint handling system and universal delivery address code

4. The integration of mail express transportation and transportation network, and the development and application of multimodal transportation and operation platforms

5. Smart express logistics park

36. Education

1. preschool education

2. special education

3. vocational education

4. "Internet + Education" (subject online training and orientation for primary and secondary school students

Except for online training for preschoolers aged 3 to 6).

37. Hygiene and health

1. Construction of medical service facilities: construction of preventive health care, health emergency, health supervision service facilities, construction of medical and health service facilities, infectious diseases, children, mental health specialized hospitals and

rehabilitation hospitals (centers), nursing homes (centers), hospice care centers, general medical facilities and services, medical and nursing facilities and services

2. Health services for key populations: eugenics and eugenics, reproductive health consulting and services, health consulting, medical knowledge and other medical information services and health management services, infant health management, early childhood development, occupational health management, geriatric medical and health care

3. "Internet + medical and health services", medical big data application
4. Psychological counseling services
5. Traditional Chinese medicine health care services

38. Culture

1. Public culture, culture and art, press and publication, film, radio and television, online audio-visual, cultural heritage protection and utilization and facility construction, development and application of cultural relics protection equipment, development and application of cultural heritage protection and utilization equipment

2. Cultural and creative product development, digital cultural creativity (including digital cultural and creative technology equipment, digital cultural and creative software, digital cultural and creative content production, new media services, digital cultural and creative content application services, immersive experience), digital music, mobile phone media, online publishing and other digital content services, animation creation, production, communication, publishing, and derivative product development

3. Film, radio and television and online audio-visual production, distribution, trading, broadcasting, publishing, derivatives development, copyright protection, supervision and related technology development and

application, interactive video, VR video, immersive video and other high-tech video development and application, ultra-high-definition and cloud broadcasting development and application, high-tech audio-visual industry base (park) construction

4. The development and application of press and publication content supervision technology, copyright protection technology, publication production technology, publication distribution technology, and the technical development, application and industrialization of new media and publishing carriers such as electronic paper and readers

5. Development and application of film digital services and regulatory technology

6. Protection of intangible cultural heritage: protection and development of ethnic and folk art, traditional arts and crafts and handicrafts, protection of famous historical and cultural cities (towns, villages) and historical and cultural blocks, traditional Chinese villages, and villages with Chinese ethnic minority characteristics, protection and development of Chinese time-honored brands, and international marketing and promotion of national cultural and artistic products

7. The construction of smart museums, the integration and development of traditional media and emerging media, and the integration of publishing

Joint development, smart radio and television construction, mobile multimedia radio and television, radio and television digitalization, intelligent collaborative coverage of cable and wireless satellite radio and television networks, intelligent construction of national cable television networks and interconnection platforms, national cultural private networks and national cultural big data system construction

8. Acting industry

39. Physical education

1. Sports competition performance activities
2. Sports, fitness and leisure activities
3. Construction and management of sports facilities
4. Physical Education and Training
5. Sports Media & Information Services
6. Physical Health and Rehabilitation

40. Pension and childcare services

1. Elderly services: elderly care services, elderly care financial services, elderly care facility construction, elderly care technology and smart elderly care services, manufacturing of elderly products and related products, elderly social security, elderly public

management, sales and leasing of elderly products and related products, elderly health promotion and social participation, and other elderly care services

2. Childcare services: childcare service facility construction (childcare institutions, comprehensive childcare service centers, community childcare service facilities), scientific parenting guidance and services for infants and young children's families, and community childcare services


3. Elderly care and childcare service talent training: elderly care education and training and human resources services, childcare talent training and practitioner training

41. Home economics

1. Community housekeeping services
2. Employee-based housekeeping services
3. Home economics vocational education and skills training
4. Comprehensive information service for housekeeping
5. Construction and operation management of domestic service facilities (domestic service outlets, domestic innovation and integration platforms, etc.).

42. Comprehensive utilization of environmental protection and resource conservation

1. Air pollutant treatment and carbon emission reduction: development and utilization of ozone-depleting substances and hydrofluorocarbons substitutes, development and application of ozone-depleting substances and hydrofluorocarbons disposal technology, development and application of persistent organic pollutant product subsistence and disposal technology, development and application of persistent organic pollutant reduction and control technology, carbon capture, utilization and storage engineering, technical equipment and technical services, development and application of low-concentration carbon

dioxide efficient and low-formation  capture technology, indoor air pollutant monitoring, analysis and treatment technology Volatile organic compound reduction, recycling and terminal treatment and monitoring technology, advanced filter materials, low-nitrogen graded zoning combustion and mature, stable and efficient desulfurization, denitrification and dust removal technology and equipment, no less than 200,000 pieces/day (inclusive) new sintered brick and tile production line or new dry cement kiln harmless collaborative disposal of waste, research and development and application of flue gas carbon dioxide capture and purification utilization technology, development and application of ammonia emission monitoring and control technology, Development and application of online monitoring technology for odor pollution in industrial parks

2. Ecological environment restoration and resource utilization: mine ecological environment restoration project, ocean

environmental protection and scientific development, marine ecological restoration

3. Urban sewage and garbage treatment: development of efficient and low-energy sewage treatment and regeneration technology, urban waste, rural domestic waste, urban domestic sewage, rural domestic sewage, sludge and other solid waste reduction, recycling, harmless treatment and comprehensive utilization projects, kitchen waste resource utilization technology development and facility construction, garbage classification technology, equipment, facilities, urban and rural distributed miniaturized organic waste treatment technology development, sewage treatment plant sludge collaborative disposal project

4. Environmental pollution monitoring and prevention: environmental pollution monitoring and prevention technology, environmental monitoring system engineering, ecological environmental protection supervision and law enforcement technology and equipment development, soil and groundwater pollution source control engineering, rapid detection of toxic and harmful substances leakage, online monitoring and migration early warning technology, equipment research and development and application, low disturbance and low yield of control and restoration while

production

R&D and application of soil and groundwater pollution prevention and control technology and equipment

5. Noise pollution and electromagnetic radiation prevention and control: development and application of noise pollution monitoring technology, research and development and application of low-noise construction technology and equipment, research and development and application of low-frequency sound absorption and sound insulation materials for environmental pollution control, development and application of electromagnetic radiation control technology for power grids and information systems

6. Hazardous waste disposal: the development and manufacturing, utilization and disposal center of hazardous waste (medical waste) harmless disposal and efficient utilization technology and equipment, the construction of radioactive waste and nuclear facility decommissioning engineering safe disposal technology and equipment development, manufacturing and disposal center, mercury-containing waste mercury recovery and treatment technology, the development and application of alternatives to mercury-containing products, waste landfill antiseepage technology and materials, the development and application of

technology to reduce and control heavy metal emissions, toxic, organic waste gas and odor efficient treatment technology, waste hydrochloric acid, Comprehensive utilization technologies such as industrial waste salt, waste sulfuric acid, waste sulfur, industrial by-product gypsum, hydrogen sulfide, sulfur-containing waste liquid

and other sulfur-containing waste recovery to sulfuric acid technology

7. Waste recycling: the construction of typical urban waste recycling network system (including the construction of standardized recycling sites, green sorting centers and trading centers that meet the requirements of relevant national standards), scrap crushing production lines (more than 4000 horsepower), scrap copper and aluminum crushing and sorting lines (recycling rate of more than 95%), and complete sets of equipment for waste plastic composite material recycling and treatment (recycling rate of 95% above), the construction of waste power battery recycling network

8. Waste recycling: scrap steel, waste non-ferrous metals, waste paper, waste rubber, waste glass, waste plastic, waste wood, scrap cars, waste electrical and electronic products, waste ships, waste batteries, waste tires, waste wood materials, waste agricultural tools, waste textiles and textile waste and leftovers, waste photovoltaic modules, waste fan blades, waste grease and other typical urban waste recycling, technical equipment development and application, automatic dismantling of waste power batteries, automatic rapid sorting into

groups, Battery residual life and consistency assessment, comprehensive recovery of valuable components, cascade utilization, development and application of recycling technology and equipment, recycling of low-value recyclables, construction of "urban minerals" bases and resource recycling bases, recycling of industrial wastes such as coal gangue, fly ash, tailings (co-associated minerals), smelting slag, industrial by-product gypsum, red mud, construction waste, etc., recycling of agricultural and forestry wastes such as crop straw, livestock and poultry manure, pesticide packaging, biomass energy technology and equipment (power generation, heating, oil production, biogas)

9. Remanufacturing: Dismantling, reuse, and remanufacturing of scrapped automobiles, retired civil aircraft, construction machinery, mining machinery, agricultural machinery, machine tools, office equipment and consumables, shield machines, aero engines, industrial robots, train diesel locomotives, and other waste equipment and parts

10. Industrial "three wastes" recycling: "three wastes" comprehensive utilization and treatment technology,

Equipment and engineering, development and production of biological strains and additives for the treatment of "three wastes", application of efficient wastewater recycling technology, industrial refractory organic wastewater recycling, high-salt wastewater recycling, recycling of recycled water, efficient separation of membrane materials, efficient catalytic oxidation materials and other technical equipment, resource utilization of high-salt wastewater and industrial by-product salts, comprehensive utilization of light hydrocarbon petrochemical by-products, sulfur recovery equipment (low-temperature Krauss method)

11. Development and application of energy-saving technology: energy saving, water saving, material conservation and environmental protection and comprehensive utilization of resources and other technologies development, application and equipment manufacturing, to provide users with energy saving, water saving, environmental protection, comprehensive utilization of resources consulting, design, evaluation, testing, audit, certification, diagnosis, financing, transformation, operation management and other services, ice storage technology and complete sets of equipment

manufacturing, waste heat recovery and utilization
advanced process technology and equipment

12. Green mines: efficient, green and low-carbon
mining, beneficiation technology (chemicals), stripped
material backfilling (filling) technology, low-grade,
complex and difficult-to-treat ore development and
comprehensive utilization technology and equipment,
symbiotic and associated mineral extraction of valuable
elements and comprehensive utilization of resources, ionic
rare earth raw ore green and efficient leaching
integration technology, development and application of
advanced applicable technologies for mineral resource
conservation and comprehensive utilization

13. High-efficiency and energy-saving magnetic
levitation power equipment: magnetic levitation centrifugal
blower, magnetic levitation turbine vacuum pump, magnetic
levitation centrifugal refrigeration compressor, magnetic
levitation low-temperature waste heat generator, magnetic
levitation air compressor, magnetic levitation vapor
compressor, magnetic levitation flywheel energy storage, etc

43. Public safety and emergency products

1. Monitoring and early warning equipment and
technology: development and application of monitoring and

early warning technology and equipment for meteorological, earthquake, geology, marine, water and drought disasters, urban and forest fire disasters, development and application of monitoring and early warning technology for biological disasters and animal epidemics, hazardous chemicals, coal mines, and non-coal

Development and application of safety monitoring and early warning technology and equipment for mines, embankments, tailings mines, production and domestic water, soil, air pollutant rapid safety monitoring technology and products, spatio-temporal security, traffic safety, urban public safety, terrorist attack safety, network and information system security, police safety, special equipment safety, engineering construction safety, fire, major hazard source safety monitoring monitoring and early warning system, product technology development and application, emergency on-site information rapid surveying, mapping, storage, transmission and other technologies and products, Expand the development and application of satellite remote sensing technology application scenarios, **expand** the development and application of AI vision technology application scenarios, "low, slow and small" aircraft detection and countermeasure technology and equipment, and develop and apply public safety meteorological support technologies such as ocean navigation, aviation, energy, electric power, and finance

2. Inspection and testing equipment and technology:

rapid inspection technology for food and drug safety, development and application of instruments and equipment, rapid detection and detection technology and products of dangerous goods such as radioactive and drug contraband, nuclear, biological and chemical terrorist sources, life detection equipment, rapid detection equipment for fire product quality, and development and application of monitoring technology for harmful elements in agricultural products and their origin environment

3. Emergency protective equipment and technology: development and application of emergency rescue personnel protective equipment, household emergency protection products, development and application of new protection technologies for lightning disasters, protection products for special types of work, development and application of important infrastructure safety, social public safety, agriculture, forestry meteorology, and biological disaster prevention and protection technologies

4. Emergency rescue equipment and technology: intelligent, large-scale, special, unmanned, high-performance fire fighting and rescue equipment, all-terrain ruin rescue equipment for buildings (structures), key

technical equipment for logistics support for major disasters and accidents, all-terrain high-mobility multi-functional emergency rescue special vehicles and equipment, aviation emergency rescue equipment and equipment, on the water

(underwater and deep-sea) emergency rescue technology and equipment, aviation emergency medical system, mobile medicine

Treatment and rescue system, health emergency disinfection supply equipment, integrated first aid and evacuation platform for life support, treatment and monitoring, emergency rescue base, public emergency experience infrastructure construction, special equipment accident rescue technology and equipment, key technology and equipment for intelligent unmanned emergency rescue of major accidents and disasters, emergency rescue technology and equipment for hazardous chemical disasters, and emergency rescue technology and equipment for major disasters in coal mines

5. Emergency response equipment: road emergency emergency equipment and facilities, offshore oil spill and toxic and harmful substance leakage emergency response technology and equipment, toxic and harmful liquid rapid absorption and treatment technology and equipment, mobile medical waste rapid treatment device, hazardous waste characteristics identification special instruments and other emergency environmental protection technology and equipment, anti-terrorism operation technology equipment and detection and control technology, anti-terrorism integrated combat platform technology, anti-nuclear,

biological and chemical terrorist robot, emergency explosion-proof vehicle, medium-sized anti-terrorism EOD robot, explosion-proof trailer, explosive-proof destructor, large-scale , multi-functional engineering rescue equipment, special equipment and equipment for flood control and drought control, nuclear accident emergency response technology and equipment, development and application of rapid screening of abnormal body temperature and epidemic detection and disposal technology, research and application of key technologies and equipment for disaster site resettlement equipment in plateau and alpine areas, and efficient intelligent de-icing and snow removal equipment for rain, snow and freezing disasters

6. Emergency professional and technical services: emergency consultation, assessment, training, leasing and insurance services, typhoon risk zoning mapping technology and application, development and application of safety production simulation training technology

7. Emergency material reserves: new fireproof coatings, fireproof materials, fire retardant and explosion suppression devices, building fireproof components, emergency material reserves, and allocation of technical

facilities and services

8. Safety production equipment and technology:
unmanned and intelligent production technology and
equipment in high-risk industries such as mining,
hazardous chemicals, fireworks and firecrackers

44. Civil explosives and fireworks and firecrackers products

1. Industrial explosives: safe, environmentally friendly and energy-saving industrial explosives and bulk industrial explosives without detonator sensitivity, on-site mixed production mode, on-site mixed production mode of centralized preparation and remote distribution of latex matrix, on-site mixed explosives technology for underground mines, large chambers, highway and railway tunnels and other engineering applications, civil explosives scientific research, production, blasting service "integration" mode, decommissioned explosives (explosives) in industrial explosives, special purpose explosives, industrial explosives intelligent production technology and equipment, industrial explosives unmanned workshop, Online monitoring and fault self-diagnosis technology of production line, high-precision charge measurement technology and online parameter detection technology of on-site mixed production mode, intelligent control platform for the whole process of on-site mixed production mode, informatization and visual intelligent network supervision platform for production and sales (including warehousing), process technology and equipment

for safety, environmental protection recycling and reuse of waste hazardous materials and non-conforming products

2. Industrial detonators: new detonation equipment, digital electronic detonators, industrial detonator finished products explosion prevention safety technology and basic detonator intensive production, remote distribution safety packaging mode, electronic ignition components (including electronic control modules and ignition components) of digital electronic detonators centralized production remote distribution mode, industrial detonation cables with serial charges, modular, automated, and continuous equipment for high-risk production processes, safe and environmentally friendly waste (material) destruction and treatment equipment, intelligent production processes and equipment for pyrotechnics and products, The unmanned workshop of the industrial detonator production line, the automatic collection, storage and traceability analysis system of process parameters, man, machine, material, ring and other data at the quality control point of the production process, the product performance detection method with no occupational hazards, safety and environmental protection, and high degree of

informatization, and the automatic equipment for explosive additives, take-up, coiling, tail sealing, and packaging in the production process of industrial detonator cables

3. Intelligent production equipment and technology:
automation of the production process of detonators;
It can be lost regularly

effective stable and controllable seismic source cartridge products, water-containing explosives, etc. in the application of seismic source medicine column; serialized and generalized perforating projectile products; reliable, diverse, efficient and environmentally friendly explosive equipment for artificial weather influence; the production process of industrial explosives products with process data visualization, online collection of production data, and automatic detection of safety parameters; In the manufacture of detonators, 🎧 the quality and safety level is high, and the process equipment for continuous and intelligent melting, mixing, pouring, and mold removal processes is high. the process equipment of automatic charging and automatic assembly of the source medicine column; Process equipment for automatic charging and automatic pressing of perforating bullets

4. Automatic safety production line: industrial explosives production line with no more than 3 operators in the hazardous workshop; The production of detonators is intelligent, there are no fixed operators in the fusion and mixing workshop, and the total number of operators in the packaging workshop is not more than 5 people (inclusive) in

a single die-down inspection and packaging workshop. The production of seismic source medicine columns realizes continuous, automated, informatized and flexible intelligent manufacturing, and the number of operators in a single hazardous workshop at level 1.1 is not more than 5 people. The production line of perforating bombs is automated and intelligent, and the number of operators in the hazardous workshop is not more than 6 people. The production line of explosive equipment for artificial weather influence is automated and intelligent, and the number of operators in the hazardous workshop is not more than 5 people. The production line of fireworks information bombs such as marine life-saving fireworks signals realizes the automation of agent preparation and charging processes, the mechanization of assembly processes, man-machine isolation, and the number of operators in dangerous workshops is not more than 5 people. single

The total number of on-site operators in contact with the basic detonator and the finished detonator in a production line is not more than 3, and the total number of on-site operators in contact with the basic detonator and the finished detonator in a single industrial detonator assembly workshop is not more than 6 people

5. Fireworks: blunt pyrotechnics, smokeless (micro) smokeless gunpowder, safe and environmentally friendly fireworks and firecrackers, automatic and intelligent fireworks and firecrackers production equipment and production lines

45. Human resources and human capital service industry

1. Recruitment, human resources assessment, human resource training, human resource management consulting, human resources service outsourcing (including payroll and tax affairs services, welfare affairs services, social security affairs services, etc.), senior talent search, human resources technology, human resources and social security affairs agency, employment and entrepreneurship guidance, flexible employment services and other human resources services
2. Human resources digital construction and data security management
3. The construction of platforms such as human resources service industrial parks and human resources service export bases
4. The construction of human resources market and supporting service facilities, as well as the construction of rural labor transfer and employment service platforms
5. Human resources service standardization, credit system construction, brand building

46. Artificial intelligence

1. Artificial intelligence chips, industrial

Internet, public systems, digital software, intelligent equipment system integration technology and applications

2. Intelligent infrastructure such as network infrastructure, big data infrastructure, and high-performance computing infrastructure

3. AI standard testing and intellectual property service platform

4. Industrial intelligent upgrading: smart home, intelligent medical care, medical image auxiliary diagnosis system, intelligent security, video image identification system, intelligent transportation, intelligent transportation vehicles, intelligent education, smart city, smart agriculture, smart port construction

47. Intelligent manufacturing

1. Robots and integrated systems: welding robots, spraying robots, assembly machines

Humans, clean robots, heavy-duty robots, large-load collaborative robots, and flexible collaborative machines

Industrial robots and integrated systems such as humans and compound robots, medical robots, agricultural robots, mining robots, construction robots, underwater robots, security robots, hazardous environment operation robots and other professional and special robots and integrated systems, high-precision reducers, high-performance servo systems, intelligent controllers, intelligent integrated joints and other key components for robots, operating systems, process software and databases, offline simulation software, cloud service platforms, etc. for robots, human-computer interaction and autonomous programming, Development and application of key common technologies such as robot safety and reliability, robot intelligent evaluation and certification system, robot application test and verification center

2. Intelligent testing equipment and instruments: digital non-contact precision measurement, online non-destructive testing, laser tracking measurement and other intelligent testing equipment and instruments

3. Sensors: Micro-nano displacement sensors, flexible tactile sensors, high-resolution vision sensors, encryptable sensors, and other low-power intelligent

sensors with wireless communication functions

4. Additive manufacturing equipment and special materials: metal additive manufacturing equipment and special materials, non-metallic additive manufacturing equipment and special materials, biological additive manufacturing equipment and special materials, lasers, electron guns, scanning galvanometers and other key components, additive manufacturing special software, additive manufacturing comprehensive solutions and production services

5. Intelligent logistics equipment: intelligent multi-level and multi-directional shuttle vehicles, intelligent large-scale three-dimensional warehouses and other intelligent logistics and warehousing equipment, information systems, intelligent port loading and unloading equipment, intelligent logistics equipment for agricultural products, etc

6. Smart products: wearables, smart homes; unmanned autonomous system, intelligent human-computer interaction system; R&D and application of virtual reality (VR), augmented reality (AR), speech semantic image recognition, multi-sensor information fusion and other technologies

7. Industrial control systems: medium and large programmable logic controllers (PLC), supervisory acquisition systems (SCADA), ~~systems (SIS) and systems (APC/MCS).~~), large-scale high-performance real-time database system, large-scale high-performance time series database system

8. Industrial software and systems: Computer-aided design (CAD), auxiliary engineering (CAE) and other R&D and design software, advanced planning and scheduling (APS), ~~software (MES) and software (APP).~~), product life cycle management (PLM) and other manufacturing software, industrial operating system, configuration programming software and other control and execution software, industry-specific process libraries, model libraries, and new industrial software based on new technologies such as industrial cloud, industrial big data, and industrial AI; basic common industrial APP, industry general industrial APP, industrial APP store; Development and application of process knowledge packaging technology, development and application of process mechanism model

9. Industrial Internet platform: an industry-based industrial Internet platform with equipment access, knowledge precipitation, application development and other

capabilities, a professional industrial Internet platform such as cloud simulation, digital twin, data processing, fault prediction and health management, an industrial full-process microservice resource pool, and an industrial Internet platform monitoring and evaluation index system

10. Industrial cloud applications: industrial cloud platform, industrial cloud operating system, industrial resource library and component library construction, cloud manufacturing service platform, industrial cloud-edge collaboration, cloud-edge-end integrated R&D and application

11. Industrial information security: R&D and application of software and hardware products such as in-depth threat analysis, security confrontation, and cloud security protection of the industrial Internet, R&D and application of technologies such as industrial information security situational awareness, risk early warning, and incident response, and mining of information security vulnerabilities in industrial control systems

Development and application of excavation, analysis and repair technology, and development and response to industrial control product safety testing technology

R&D and application of safety units and safety units for the whole life cycle of important intelligent products and systems, R&D and application of industrial disaster recovery backup and sick operation products

12. Intelligent manufacturing system integration and application experience verification services: intelligent manufacturing strategy, management, evaluation, supervision and other consulting services, intelligent manufacturing system design and development, integration implementation, application verification, operation and maintenance and other services

13. Development of intelligent manufacturing standards and construction of test and verification platforms by industry

14. Intelligent manufacturing capability maturity evaluation, intelligent manufacturing development level evaluation system

15. Intelligent manufacturing scenarios: Internet + collaborative design and manufacturing, machine vision and intelligent quality inspection, intelligent production scheduling, predictive maintenance, intelligent inventory management, industrial brain and other technology development and application

16. Smart factory: cyber-physical system (CPS), data and knowledge-driven optimization and decision-making, real-time optimization of manufacturing equipment and production process and advanced control technology research and development and application, smart factory integrated management and control platform, research and development and application of full life cycle intelligent factory system for discrete industries, and research and development and application of full life cycle smart factory system for process industry

48. Agricultural machinery and equipment

1. Tractors and key components: power shift tractors, continuously variable speed tractors, tractors for hilly and mountainous areas, paddy field tractors, hilly and mountainous multi-purpose power platforms, gasoline-electric hybrid tractors, new energy tractors, high-efficiency and low-emission intelligent agricultural diesel engines, non-road mobile mechanical aftertreatment systems, heavy-duty gearboxes and drive axles, power shift gearboxes, continuously variable transmissions (CVTs), mechanical hydraulic continuously variable transmissions (HMT), agricultural machinery special variable pump, multi-channel valve, electro-hydraulic

proportional valve and electronic control system, wet
clutch, electronically controlled hydraulic lift

Lifter

2. Low-loss and efficient harvesting machinery: self-propelled grain combine harvester (feeding volume more than 9kg/s), self-propelled full-feed rice combine harvester (feeding volume more than 5kg/s), self-propelled semi-feeding rice combine harvester (more than 4 rows), self-propelled ear and stem corn harvester (4 above the row), self-propelled corn grain combine harvester (more than 4 rows), self-propelled potato harvesting machinery, light and simple harvesting equipment for hilly and mountainous areas, self-propelled picking and baling cotton harvester (more than 3 rows), large self-propelled silage harvester (400 Horsepower above), straw forage collection and baler, forage harvesting machinery, self-propelled rapeseed, peanut and other oil crop combine harvesters, soybean and corn intercropping harvesting special machinery, self-propelled sugarcane, sugar beet and other sugar crop combine harvesters, green onion, ginger, garlic, cabbage, small greens and other vegetable harvesting machinery, self-propelled peppers, tomatoes and other eggplant and berry fruit and vegetable harvesting machinery, self-

propelled red dates, wine grapes, Chinese medicinal materials and natural rubber and other special cash crop harvesting machinery, hybrid trees, protein mulberry, High-quality protein-type feed harvesting machinery such as lemon strips, multi-functional picking platforms for standardized orchards, natural rubber rubber cutters, wood 🎧 grain and oil, understory economic picking equipment, bamboo harvesting, bamboo shoot excavation, non-powered bamboo product transportation and other machinery

3. Cultivation and field management machinery: farmland rock picker, satellite grader, subsoiling and soil preparation joint operation machine, hydraulic flipping plough (single width $\geq 40\text{cm}$), heavy-duty power drive harrow, power-driven wide rotary tiller, high-speed precision strip seeder, high-speed precision seeder, no-tillage precision seeder, soybean and corn strip compound planting special seeder, light and simple sowing equipment for hilly and mountainous areas, small seeder for understory crops, automatic navigation high-speed rice transplanter, side deep fertilization transplanter, rice bowl seedling orderly throwing planter, rapeseed, vegetable, Tobacco, Chinese medicinal materials,

Efficient transplanters and hole openers for sweet potatoes
and sugar beets, sugarcane planters, and high ground
clearance boom sprays

machine, large and medium-sized sprinkler irrigation machine, water, fertilizer and medicine integrated micro-drip irrigation equipment, grape vine buried trenching fertilizer spreader, agricultural drone (load more than 20kg), residual film recovery machine, centralized seedling (seedling), environmental control, automatic roof cleaning and other facilities planting machinery, intelligent greenhouse, unmanned plant factory

4. Livestock and poultry aquaculture and primary processing machinery for agricultural products: precision feeding, intelligent environmental control, information monitoring, disease prevention and control, intelligent collection and processing of livestock products, breeding inspection robots, milking robots, harmless treatment equipment for sick and dead livestock and poultry aquatic products, efficient manure collection and resource utilization, livestock and poultry production performance measurement, fish harvesting and water purification treatment and other livestock and poultry aquaculture equipment, grain, oil and other bulk agricultural products shelling, cleaning, drying, storage and puffing and preservation of primary processing equipment, grains, tea,

Primary processing equipment such as milling, crushing, mixing, cutting and drying, conditioning and molding, selection and grading of characteristic agricultural products such as Chinese herbal medicine, pre-cooling, preservation, freezing, cleaning, grading, segmentation, packaging and other fresh agricultural products such as fruits and vegetables, livestock and poultry, aquatic products, seed processing equipment, machine cotton processing equipment, feed processing equipment, agricultural waste fermentation equipment and other primary processing equipment, seed processing equipment, machine cotton processing equipment, feed processing equipment, agricultural waste fermentation equipment and other equipment

5. Special parts for agricultural machinery: high-efficiency and low-emission intelligent agricultural diesel engines, aftertreatment systems for non-road mobile machinery, heavy-duty gearboxes and drive axles, power shift gearboxes, continuously variable transmissions (CVTs), mechanical hydraulic continuously variable transmissions (HMTs).), agricultural machinery special variable pump, multi-way valve, electro-hydraulic proportional valve and electronic control system,

agricultural high-strength transmission belt and half-track, wet clutch, electronically controlled hydraulic lifter, agricultural soil contact parts, precision seed arranger, soybean special cutting table, cotton picker spindle picker, high-reliability knotter, special cutting cutter, high-performance sprinkler, large-displacement diaphragm pump, agricultural special sensor, agricultural machinery auxiliary driving system based on Beidou, agricultural machinery operation information recognition, parameter real-time measurement and control, fault diagnosis, operation

Decision-making and other measurement and control systems and equipment

6. R&D and industrialization of suitability of agricultural machinery and equipment in hilly areas

7. Crop transplanting machinery: ride-on soil mobile high-speed rice transplanter (more than 350 inserts per minute, 3~5 plants per hole, adapted to row spacing 20~30 cm, adjustable plant spacing, adapted to plant spacing 12~22 cm), soil type motorized rice seedling swinger (riding or walk-behind type). , the adaptive row spacing is 20~30 cm, the plant spacing is adjustable, and the adapted plant spacing is 12~22 cm).

8. Water-saving irrigation equipment: large and medium-sized sprinkler irrigation machines, micro-drip irrigation equipment, flood control and drainage equipment (drainage more than 1500 cubic meters/hour, head 5~20 meters, power more than 1500 kilowatts, efficiency more than 60%, movable).

49. CNC machine tools

1. High-end CNC metal cutting machine tools: 5-axis linkage machining machine tools, high-speed and high-precision CNC machine tools, multi-process compound and flexible processing machine tools

2. High-end CNC metal forming machine tools: high-speed precision press (more than 180kN), high-speed precision shearing machine (more than 2000kN, section slope less than 1.5°), internal high-pressure forming machine (more than 10000kN), large press brake (more than 60000kN), digital sheet metal processing center (flexible manufacturing system), high-speed powerful spinning machine (radial rotary force/per round: more than 1000kN), large nominal pressure cold and warm forging press (more than 10000kN), 4 stations above automatic warm and hot forging presses (more than 16000kN), servo multi-station presses (more than 12000kN), large servo presses (more than 8000kN), progressive die presses (6000kN or more), composite drive hot-stamping press (12000kN and above

Above, the force increase coefficient of the connecting rod ≥ 6), the intelligent stamping line of the high-speed composite transmission press

(more than 30600kN, the number of continuous strokes of a single machine ≥ 12 times/min), a new generation of aircraft skin comprehensive pulling intelligent complete set of equipment, aerospace large and super-large sheet metal parts liquid forming equipment, radial forging machines and rotary forging machines (more than 630kN), high-speed upsetting forging machines (forging weight 1.6kg or more).

3. High-end special process equipment: high-power, high-precision 5-axis laser cutting machine (5-axis linkage processing, fiber laser power $\geq 20\text{kW}$), intelligent welding equipment, high-energy beam welding and cutting equipment such as laser welding and electron beam welding, welding equipment such as stirring friction and composite heat source, ferrous metal hydraulic extruder (150mm). /sec or more), light alloy hydraulic extruder (below 10 mm/s), digital, large-capacity inverter welding power supply, high-power, high-precision laser

4. CNC devices and industrial software for high-end CNC machine tools: CNC system (with 5-axis linkage control, high-precision machining, high-speed machining, special processing technology), servo drive and motor

(including spindle motor, torque motor, linear motor and related components), high-performance position feedback element, encoder, grating ruler (absolute grating, linear positioning accuracy $3\mu\text{m/m}$, Rotational resolution: 23 bits for single turn ,21 bits for multiple turns), special industrial software for CNC machines and digital manufacturing (CAD, CAE, CAM software for high-end manufacturing, etc.). MES software).

5. Key components, accessories and measuring tools for high-end CNC machine tools: high-performance CNC rotary table, high-power high-speed electric spindle, high-precision spindle unit, rolling functional parts above precision level, feed transmission parts, dynamic and static pressure, static pressure support components, CNC swing angle head, processing accessory head, servo power turret, tool holder, high-speed tool change manipulator, tool magazine, high-speed and high-precision large chuck, special functional parts and machine tool accessories required for automated manufacturing, digital manufacturing system

Industrial robots, cemented carbide, superhard materials and other cutting tools and tool systems, high-performance abrasives (diamond, CBN and other superhard materials and their fine powders, grinding wheels for grinding special materials), measuring tools and measuring instruments (with online measurement function, accuracy level and above measurement level).

50. Network security

1. Network security products: endpoint security products, facility security products, application security products, data security products, identity security products, security management products, etc

2. Network security services: security consulting, design and development, security integration, security operation, information security processing and storage, evaluation and certification, disaster backup and recovery, network security audit, emergency response, training infrastructure services, education and training, security crowd testing, network security insurance, etc

3. R&D and transfer of network security technology

4. Network security detection tools: source code audit tools, software load stress testing tools, network

performance testers, vulnerability scanning and verification tools, security configuration verification tools, network traffic analysis tools, fuzzing tools, penetration testing tools, protocol conformance verification tools, traffic simulation tools, etc

5. Network security infrastructure construction, transformation and upgrading: network security infrastructure facilities, network security industrial parks, etc

6. Data security technology product research and development and industrial application, data security service development

(including testing and evaluation, certification, education and training, etc.)

Category 2 Restriction class

The restricted category is mainly backward process technology, which does not meet the industry access conditions and relevant regulations, which is not conducive to safe production, conducive to the conservation and intensive utilization of natural resources, and not conducive to achieving the goal of carbon peak and carbon neutrality. For new projects whose energy efficiency does not reach the benchmark level in the latest version of the "Energy Efficiency Benchmark Level and Benchmark Level in Key Industrial Areas", refer to the restricted management.

The restricted category adheres to the principles of marketization and rule of law, mainly from the aspects of safety, environmental protection, energy consumption, water consumption, quality, etc., and sets restrictions on production capacity, process technology, equipment and products that are no longer overcapacity, the market can be effectively adjusted, there are no hidden dangers such as safety and environmental protection after the relaxation of restrictions, and clear regulatory measures are no longer

included in the restricted category.

Investment in new projects that belong to the restricted category is prohibited. The investment management department shall not approve or approve, financial institutions shall not issue loans, and departments such as natural resources, construction, ecological environment, water conservancy, market supervision, fire protection, and customs shall not go through relevant procedures. Those who carry out investment and financing construction in violation of regulations shall be held accountable by relevant units and personnel. For existing production capacity that belongs to the restricted category, enterprises are allowed to take measures to transform and upgrade within a certain period of time, and financial institutions will continue to provide support in accordance with the principle of credit. Relevant state departments should follow the principle of survival of the fittest and implement classified guidance in accordance with the requirements of industrial structure optimization and upgrading.

1. Agriculture, forestry, animal husbandry and fishery

1. Natural pastures are overloaded with grazing

2. A single line of ordinary particleboard and high-density fiberboard production equipment of less than 50,000 cubic meters/year

3. Rosin production projects below 1000 tons/year, pine resin primary processing projects

4. Veterinary powder, powder, and mixture production line projects (except for varieties with new veterinary drug certificates or automated closed and high-efficiency mixed production processes)

5. Veterinary cell seedling production line project with transfer bottle culture production method (except for varieties with new veterinary drug certificates and those with new technologies)

6. The production and use of disposable wood products and wooden packaging using high-quality forest wood as raw materials, as well as wood and bamboo processing projects with low comprehensive utilization rate of wood and bamboo processing

7. Plywood and joinery board production lines below 10,000 cubic meters/year

8. Root carving manufacturing of rare plants and ancient trees
9. Processing of precious and endangered wild animals and plants using wild resources as raw materials
10. Lakes and reservoirs that do not meet the requirements of ecological breeding are baited and cage breeding
11. Wasteland agricultural development projects that are not conducive to ecological and environmental protection
12. The construction of pulp raw material forest bases in water-scarce areas and national ecologically fragile areas
13. Projects that do not comply with national planning and industrial policies to convert ethanol and edible vegetable oil into biofuels
14. Development projects that destroy woodlands, wetlands, grasslands, deserts

2. Coal

1. Coal mines with a capacity of less than 300,000 tons/year (including Shanxi, Inner Mongolia, and Shaanxi are less than 120

10,000 tons/year, Ningxia is less than 600,000 tons/year), and less than 900,000 tons/year of coal and gas protrusion mines

2. Coal mining projects using non-mechanized mining technology
3. Coal mine projects that have not been approved for the overall planning of the mining area in accordance with the national procedures
4. Coal mine projects with more than 2 underground mining faces
5. The mining depth exceeds the coal mines stipulated in the "Coal Mine Safety Regulations", and the quality is not up to par

The requirements of the Interim Measures for the Quality Management of Commercial Coal, commercial coal, mining technology and equipment are included

Coal mines with a restricted catalogue of coal production technology and equipment (2014 edition) that cannot implement technical transformation

3. Electricity

1. Within the coverage of the large power grid, the design power supply coal consumption is higher than 285 grams of standard coal/kilowatt

The conventional bituminous coal wet-cooled generator set is designed to supply more than 300 grams of standard coal/kWh (excluding units of special coal types such as anthracite

and lignite).

2. diversion hydropower without drainage ecological flow

3. coal-fired power units (except units with special furnace types) and coal-fired boilers that do not meet the ultra-low emission requirements

4. Petrochemical and chemical industry

1. Atmospheric and vacuum pressure of less than 10 million tons/year, catalytic cracking of less than 1.5 million tons/year, continuous reforming of less than 1 million tons/year, 150 Hydrocracking production equipment of less than 10,000 tons/year, open delayed coking process

2. Naphtha cracking to ethylene under 800,000 tons/year, acrylonitrile below 130,000 tons/year,

Refined terephthalic acid below 1 million tons/year, ethylene glycol below 200,000 tons/year, styrene under 200,000 tons/year (except for dry gas to ethylbenzene process), Caprolactam below 100,000 tons/year, ethylene acetic acid, carbonyl synthesis acetic acid under 300,000 tons/year, natural gas to methanol (except for natural gas with a carbon dioxide content of more than 20%), Coal-to-methanol production equipment of less than 1 million tons/year, acetone cyanol methyl methacrylate (except for hydrocyanic acid using acrylonitrile by-product), grain acetone/butanol, chloralcohol propylene oxide and chloroalcohol epoxy chlorohydrin production equipment, 300 Less than tons/year of saponin (hydrolysate) production equipment

3. Polypropylene of less than 70,000 tons/year, polyethylene of less than 200,000 tons/year, acetylene (polyvinyl chloride), and ethylene oxychlorinated polyvinyl chloride with a starting scale of less than 300,000 tons/year , polystyrene below 100,000 tons/year, acrylonitrile-butadiene - below 200,000 tons/year Styrene copolymer (ABS), less than 100,000 tons/year of ordinary synthetic latex-carboxylstyrene-butadiene rubber (including styrene-butadiene latex) production equipment, 50,000 tons/year Nitrile latex equipment, solvent-based general adhesive

production equipment in neoprene, styrene-butadiene thermoplastic rubber, polyurethane and polyacrylate

4. sulfur acid production of less than 300,000 tons/year (except for electronic grade sulfuric acid of single metal ion ≤ 100 ppb), pyrite acid production of less than 200,000 tons/year, nitric acid by atmospheric pressure and comprehensive methods, calcium carbide (except for the replacement of equal quantities by large-scale advanced process equipment), and single-line production capacity 5 Potassium hydroxide production equipment below 10,000 tons/year

5. Soda ash (except for underground circulation alkali production and natural soda), caustic soda (except for ionic membrane caustic soda plants that use more than 40% industrial waste salt), yellow phosphorus, ammonium phosphate, sodium tripolyphosphate, sodium hexametaphosphate, phosphorus trichloride, diphosphorus pentasulfide, dicalcium phosphate, calcium carbonate (except for particle size 100 nanometers and below), anhydrous sodium sulfate (except for salt industry co-production and by-products), barium carbonate,

Barium sulfate, barium hydroxide, barium chloride, barium nitrate, strontium carbonate, silica (vapor phase method and

Except for carbon dioxide acidification process), choline chloride production plants (🔊 except for relocation projects that do not add new production capacity in the entry).

6. The starting scale is less than 30,000 tons/year, and the single-line production capacity is less than 10,000 tons/year sodium cyanide (folded

100%)), lithium carbonate and lithium hydroxide (except for recycling) with a single line capacity of less than 5000 tons/year, sodium dichromate in the calcium low-calcium roasting process, dry aluminum fluoride, and medium and low molecular weight specific cryolite production equipment

7. Nitrogen fertilizer using oil and natural gas as raw materials is synthesized by fixed-layer batch gasification technology, and ammonia synthesis by copper washing method is synthesized by raw gas purification process

8. Pesticide APIs with high toxicity, high residue and great impact on the environment or the quality and safety of agricultural products [including oxoxol, terbutin, paramethos, methane bromothane, methocarb, aldicarb, carbofuran, sodium dirat, dicarnione, rodenticide, rodenticide, bromidiolone, bromocarb, botulinum toxin,

insecticidal bis, aluminum phosphide, organochlorine, organotin insecticides, formacides, nitrophenol sodium (potassium), methulon, systemic phosphorus, dimetho, fipronil, butylthiobafran, fluorophenamide, cypermethrin, acemethamophos, carbendazim, butyryl hydrazine and other production equipment

9. Glyphosate, chlorpyrifos, triazophos, paraquat, chlorothalonil, avermectin, imidacloprid, acechlor, chloropic, methamlor, 2,4-drops, acetamiprid, thiamethoxam, atrazine, butachlor, dimettetrachlor, atrichlore, dicamba, dichanova, diquoxon, glufosinate, alkenolone, manganese zinc, dichlor, triazole, propiconazole, isocarba, pacloazole, and stone sulfur mixture

10. Sulfuric acid titanium dioxide (except for the co-production process), lead-chromium yellow, iron oxide pigments below 30,000 tons/year, solvent-based coatings (except for the encouraged coating varieties and production processes

Powder coatings containing triglycidyl isocyanurate (TGIC) (except for closed production units), and nitrocellulose coatings with VOCs content of more than 75%

11. Non-new functional and environmentally friendly dyes, pigments, printing and dyeing auxiliaries and intermediates production equipment

12. Hydrogen fluoride (HF, except for self-use, electronic grade and wet phosphoric acid supporting downstream deep processing products of enterprises) production equipment, the initial scale is less than 200,000 tons/year, and the scale of a single set is less than 100,000 tons/year Methyl chlorosilane monomer production units, methane chloride production units of less than 100,000 tons/year (excluding silicone matching) and 100,000 tons/year and above, without by-product carbon tetrachloride supporting disposal facilities, Difluoromono-chloromethane production units without by-product trifluoromethane supporting disposal facilities, sulfur hexafluoride (SF₆, except high-purity grade) production units for acceptable uses, difluoromethane (HFC-32), 1,1,1,2-tetrafluoroethane (for controlled purposes

such as refrigerants and blowing agents HFC-134a), pentafluoroethane (HFC-125), 1,1,1-trifluoroethane (HFC-143a), 1,1,1,3,3-pentafluoropropane (HFC-245fa) production equipment (Excluding by-product facilities)

13. Bias tires, force wheel tires (including trolley tires), nylon cords, steel wire cords below 50,000 tons/year, recycled rubber (except for atmospheric pressure continuous environmentally friendly desulfurization process), rubber plasticizer pentachlorothiophenol, rubber accelerator tetramethyl sulfide (TMTD) production equipment

5. Information industry

1. Laser disc machine production line (VCD series complete products).

6. Steel

1. Iron and steel joint enterprises and independent coking enterprises have not synchronously supported the construction of dry quenching and installation

coking projects of coal, coking and dust removal, and VOCs treatment devices

2. Step-by-step sintering machines for ferroalloys and cast pig iron, and belt sintering machines below 180 square meters (except ferroalloy sintering machines and pig iron sintering machines for casting).

3. Pig iron blast furnaces for steelmaking with an effective volume of more than 400 cubic meters and less than 1200 cubic meters

4. Steelmaking converters with a nominal capacity of more than 30 tons and less than 100 tons

5. Electric arc furnaces with a nominal capacity of more than 30 tons and less than 100 tons (50 tons of alloy steel).

6. 300,000 tons/year and below hot-plated coil projects

7. 200,000 tons/year and below color coated plate and roll projects

8. Chromium refractory

9. Ordinary and high-power graphite electrode forming equipment, roasting equipment and production (except graphite electrodes with a diameter of more than 1200 mm for industrial silicon ore heat furnaces).

10. Ultra-high power graphite electrode production line with a diameter of less than 600 mm or less than 20,000 tons/year

11. Pre-baked anodes (carbon blocks) below 80,000 tons/year,

ordinary cathode carbon blocks below 20,000 tons/year, and carbon electrode production lines below 40,000 tons/year

12. pelletizing shaft furnace, pelletizing equipment with a single machine of less than 1.2 million tons/year (except ferroalloys and pig iron pellets for casting).

13. The height of the carbonization chamber of the top-mounted coke oven is < 6.0 meters, and the height of the carbonization chamber of the tamping coke oven is < 5.5 meters; The volume of the heat recovery coke oven is < 35 cubic meters of tamping briquettes; The production capacity of a single furnace of semi-coke oven $< 100,000$ tons/year (except for magnesium smelting and gas distribution units with furnace capacity ≥ 500 tons/year and using low-rank coal high-temperature pyrolysis process).

14. 3000 kVA and above, and the low- and medium-carbon ferromanganese without the hot loading and hot mixing process

Electric furnace metal manganese and medium and low microcarbon ferrochrome refining electric furnace

15. ferromanganese blast furnace below 300 cubic meters; ferromanganese blast furnaces with a coke ratio higher than 1320 kg/t of 300 cubic meters and above;

Ferromanganese blast furnace enterprises with a scale of less than 100,000 tons/year

16. silicon-calcium alloy and silicon-calcium barium-aluminum alloy ore thermoelectric furnace below 12,500 kVA;

12,500 kVA and above, but the power consumption of silicon-calcium alloy is higher than that of 11,000 kWh/ton

17. silicon-aluminum alloy ore thermoelectric furnace below 16,500 kVA; 16,500 kVA and above, but the power consumption of silicon-aluminum alloy is higher than that of 9,000 kWh/ton

18. $2 \times 25,000$ kVA (total capacity of 50,000 kVA) and below ordinary ferroalloy ore thermoelectric furnace; $2 \times 25,000$ kVA (total capacity of 50,000 kVA) or more, and the new construction and expansion of ferroalloy electric furnaces (including all mineral thermal electric furnaces and refining electric furnaces) without clarifying the solid waste and hazardous waste treatment processes and

facilities

19. Electrolytic metal manganese leaching process with intermittent leaching and intermittent liquid delivery
20. There are no independent sintering and hot rolling production lines supporting ironmaking and steelmaking processes in the factory
21. Semi-closed manganese-silicon alloy, ferronickel, high-carbon ferrochrome, and high-carbon manganese-iron ore hot furnaces

7. Non-ferrous metals

1. New and expanded tungsten mining projects with tungsten metal reserves of less than 10,000 tons (except for deep and edge resource mining and expansion projects of existing tungsten mines), tungsten, molybdenum, tin and antimony smelting projects (except for projects that meet the requirements of national environmental protection and energy conservation laws and regulations), as well as antimony oxide and lead-tin solder production projects, rare earth mining, smelting and separation projects (except for rare earth enterprise group projects that meet the requirements of rare earth mining, smelting and separation total control indexes).
2. A single series of bare copper smelting projects below 100,000 tons/year (recycled copper project and oxygen

Except for chemical direct leaching projects), copper smelting projects using PS converter blowing process

3. New and expanded electrolytic aluminum projects (except for capacity replacement projects), and new and expanded alumina projects using duralumin monohydrate as raw material

4. A single series of lead smelting and recycled lead projects below 50,000 tons/year

5. A single series of zinc smelting projects below 100,000 tons/year (except for the utilization of secondary resources containing zinc).

6. New and expanded magnesium smelting projects (except for comprehensive utilization projects)

7. Independent aluminum carbon projects of less than 100,000 tons/year

8. New and expanded primary mercury mining projects

9. Associated radioactive mineral beneficiation projects that safely and effectively utilize by-product monazite have not been implemented

8. Gold

1. The self-supply capacity of raw materials with a daily processing capacity of less than 200 tons of gold concentrate (not include) is less than 50%

(Excluding) Independent Cyanation Projects (Except for

Biocyanide Gold Extraction Process)

2 Independent gold concentrator project without supporting mining system with a daily processing capacity of less than 300 tons of ore (not included).


3 Pyrosmelting project of an independent gold smelter without a supporting mining system with a daily processing capacity of less than 200 tons of gold concentrate (not included).

4. Independent heap leaching sites without supporting mining systems below 1500 tons/day (not included).

eye

5. 100 open-pit mining projects with a daily processing of less than 300 tons (not included) of rock gold ore

Underground mining projects below tons (not included).

6. Placer gold mining projects with an annual processing capacity of less than 300,000 cubic meters of **placer gold ore**
7. Placer gold mining projects in forest areas, basic  farmland, and rivers

9. Building materials

1. New dry cement clinker production line (except special cement production line) of less than 2000 tons/day (not included), cement grinding station of less than 600,000 tons/year (not included).

2. 1.5 million square meters/year and below architectural ceramics (excluding architectural glass products) production lines, tunnel kiln sanitary ceramics production lines of less than 600,000 pieces/year (not included).

3. Paper gypsum board production line of less than 30 million square meters/year (not included) (except Tibet).

4. The scale of a single kiln is less than 80,000 tons/year

(Not included) alkali-free glass fiber roving pool kiln drawing production line, medium alkali, alkali-free and alkali-resistant glass ball kiln production line, medium alkali and alkali-free glass fiber substored platinum crucible drawing production line

5. Clay hollow brick production line (except Shaanxi, Qinghai, Gansu, Xinjiang, Tibet, Ningxia)

6. Gypsum (hollow) block production line of less than 150,000 square meters/year (not included), small concrete hollow block of less than 50,000 cubic meters/year (not included) in a single shift, and 150,000 square meters/in a single shift concrete pavement brick (including permeable bricks) fixed production line for less than 50,000 cubic meters/year (not included) artificial light aggregate (ceramite) production line

7. Aerated concrete production line of less than 150,000 cubic meters/year (not included).

8. Production of sintered bricks and sintered hollow blocks of less than 60 million standard bricks/year (not included).

line

9. Production lines of rock (mineral) cotton products below 30,000 tons/year and insulation of less than 8,000 tons/year

glass wool
products
production line

10. 1 million meters/year and below prestressed high-strength concrete centrifugal pile production line; Prestressed steel cylinder concrete pipe (PCCP pipe) production line (PCCP-L type: annual design production capacity \leq 50 kilometers; PCCP-E type: annual design and production capacity \leq 30 km).

10. Medicine

1. Build and expand production facilities for colonic acid and vitamin C powder (including medicine, food, feed, and cosmetics), and build new production facilities for vitamin B1, vitamin B2, vitamin B12, and vitamin E raw materials for pharmaceuticals, food, feed, and cosmetics

2. Penicillin industrial salt, 6-aminopenicanic acid (6-APA), 7-aminocephalosporinic acid (7-ACA), 7-amino-3-Deacetoxycephalosporinic acid (7-ADCA), penicillin V, ampicillin, hydroxyampicillin, cephalosporin C, oxytetracycline, chloramphenicol, analgin, paracetamol, lincomycin, gentamicin, dihydrostreptomycin,

butamikanamycin, medimycin, columnar leukomycin, Production equipment for cyclopohloperinic acid, haloperinic acid, fluorozinic acid, rifampicin, caffeine, cocobeanine

3. Paclitaxel (except for supporting yew planting) and plant extraction berberine (except for supporting coptis planting) production equipment

4. Build, renovate and expand pharmaceutical butyl rubber stoppers and two-step production of plastic bottles for infusion

5. Build, renovate and expand product production equipment containing endangered animal and plant medicinal materials that have not yet been planted or bred on a large scale

6. Build, renovate and expand mercury-filled glass thermometers, blood pressure monitor production devices, and silver mercury

Qi Dental Materials, a new production unit for disposable syringes, blood transfusion devices, and infusion sets of less than 200 million bottles/year

11. Machinery

1. Rock loading machine (except vertical claw rock loading machine) manufacturing project
2. 3 Small mine truck manufacturing projects of cubic meters and below
3. Winch manufacturing projects with a diameter of 2.5 meters and below
4. Mine hoist manufacturing project with a diameter of 3.5 meters and below
5. 40 square meters and below screening machine manufacturing project
6. Diameter 700 mm and below cyclone manufacturing project
7. 7800 kW and below shearer manufacturing projects
8. Mining excavator manufacturing project with a bucket capacity of 3.5 cubic meters and below
9. Mining mixing, concentration, and filtration equipment (except pressurized) manufacturing projects
10. Projects of ordinary transportation special vehicles and ordinary transportation trailers such as

warehouse trucks, railing trucks, dump trucks and ordinary vans; Three-wheeled vehicles, low-speed electric vehicles

11. Single-cylinder diesel engine manufacturing project

12. Belt drive small four-wheel tractors with single-cylinder diesel engines, walk-behind tractors with single-cylinder diesel engines, and wheeled tractors with sliding gears and less than 50 horsepower that do not meet the requirements

13. Conventional coal-fired thermal power generation equipment manufacturing projects of 300,000 kW and below (except for comprehensive utilization units).

14. 6 kilovolts and above dry cross-linked power cable (onshore use) manufacturing project

15. Non-CNC metal cutting machine tool manufacturing project

16. 6300 kN and below ordinary mechanical press manufacturing projects
17. Non-CNC shearing machine, bending machine, pipe bender manufacturing project
18. Ordinary high-speed steel drill bits, milling cutters, saw blades, taps, plate teeth items
19. White corundum, brown alumina, green silicon carbide, black silicon carbide and other sintered block projects
20. Various binder grinding wheels with a diameter of less than 450 mm and a grinding speed of less than 40 m/s (except rail grinding wheels and superhard material grinding wheels).
21. Artificial diamond cutting saw blade manufacturing projects with a diameter of 400 mm and below (except for artificial diamond cutting saw blade working parts with a bending strength of > 1000 Mpa and the strength of its bonding part with the matrix ≥ 600 MPa).
22. P0 grade, ordinary micro bearing manufacturing projects with a diameter of less than 60 mm
23. power transformers of 220 kV and below (except for energy-saving distribution transformers such as amorphous alloys and coiled iron cores).
24. 220 kV and below high, medium and low voltage

switchgear manufacturing projects (except for insulated switchgear using environmentally friendly medium pressure gas and explosion-proof switchgear for explosive atmospheres).

- 25. Acid carbon steel welding rod manufacturing project
- 26. Civil ordinary electricity meter manufacturing project
- 27. 8.8 ordinary low-grade standard fastener manufacturing projects below level
- 28. General purpose fixed reciprocating piston air compressor (drive motor power 560

kilowatts and below, rated exhaust pressure of 1.25 megapascals and below).

- 29. General transportation container dry container project
- 30. 56 inch and below single stage medium open pump manufacturing items

31. General class 10 megapascal and below medium and low pressure carbon steel valve manufacturing projects
32. cupolas with a short furnace age of 10 t/h and below
33. Non-ferrous alloy hexachloroethane refining, magnesium alloy SF6 protection
34. Water glass sand modeling core making process without old sand regeneration
35. Salt bath nitrogen carbon, sulfur nitrogen carburosmtic furnace and salt
36. Tube high-frequency induction heating equipment
37. Nitrite salt corrosion inhibition, preservative
38. Oil-fired furnaces for casting/forging
39. Coal-fired heating furnaces for forging
40. Manual gas forging furnace
41. Steam hammer
42. Arc welding transformer
43. Lead-containing and cadmium-containing brazing materials
44. Full-section TBM complete machine assembly project
45. Free forging hydraulic press project above 10,000 tons
46. Clay sand casting projects without automatic molding equipment, water glass investment precision casting projects, centrifugal ductile iron pipe projects with a

scale of less than 200,000 tons/year, scale

Centrifugal gray cast iron pipe projects of less than 30,000 tons/year

47. Dynamic and tap-type manual welding rod arc welding machines

48. Y series (IP44) three-phase asynchronous motor (chassis number 80~355) and its derivatives, Y2 series (IP54) three-phase asynchronous motor (chassis number 63~355).)

49. Backpack manual compression sprayer

50. Knapsack motorized spray sprayer
51. Manual rice transplanter
52. Tea processing machinery for bronze products
53. Double disc friction press
54. Lead-containing powder metallurgy parts
55. Export ship segment construction project
56. Copper-plated welding wire project
57. 35 steam tons per hour and below fixed grate biomass boilers
58. coal-fired boilers with a capacity of less than 35 steam tons per hour in built-up areas of cities at the county level and above


Coal-fired boilers below 10 steam tons per hour in other areas

59. Medical waste incineration facilities with a treatment capacity of less than 500kg/hour and cannot meet the pollutant discharge requirements stipulated in the "Pollution Control Standards for Medical Waste Treatment and Disposal", and hazardous waste incineration facilities with a treatment capacity of less than 10,000 tons/year and cannot meet the pollutant discharge requirements stipulated in the "Pollution Control Standards for Hazardous Waste Incineration"

12. Light industry

1. PVC ordinary artificial leather production line
2. The annual processing capacity is 300,000 standard cowhide production lines
3. Polyurethane foam production lines with hydrochlorofluorocarbons (HCFCs) and hydrofluorocarbons (HFCs) as controlled uses such as refrigerants, blowing agents, fire extinguishing agents, solvents, cleaning agents, processing aids, continuous extruded polystyrofoam (XPS) production lines, as well as refrigerators, freezers, automobile air conditioners, Industrial and commercial refrigeration and refrigeration equipment production lines
4. Polyvinyl chloride (PVC) food preservation packaging film

5. Normal lighting incandescent lamps

6. Flat sewing machines with a maximum speed of less than 4000 stitches/min (flat sewing machines without  material) and

Overlock machines with a maximum speed of less than 5000 stitches/minute

7. Electronic metering scales (accuracy less than 1/3000 of the maximum weighing, weighing ≤ 15 kg), electronic belt scales (accuracy less than 5/1000 of the maximum weighing), electronic crane scales (accuracy less than 1/1000 of the maximum weighing, weighing ≤ 50 tons), spring degree disc scales (accuracy less than the maximum weighing). 1/400, weighing ≤ 8 kg).

8. Electronic truck scales (accuracy less than 1/3000 of maximum weighing, weighing ≤ 300 tons), electronic static rail scales (accuracy less than 1/3000 of maximum weighing, weighing ≤ 150 tons), electronic dynamic rail scales (accuracy less than 1/500 of maximum weighing, weighing ≤ 150 tons).

9. Glass thermos cylinder production line

10. 30,000 tons/year and below glass bottle and jar production line

11. Prepare glass batch and weigh by manual operation

12. glass kilns that do not meet the indicators specified

in the "Daily Glass Industry Specification
Conditions"

13. Fatty alcohol products produced by carbonyl synthesis
and Ziegler method
14. Thermal production line for sodium tripolyphosphate
15. Single-layer spray gun laundry detergent

production process and equipment, sulfonation device with a
scale of less than 1.6 tons/hour

16. Northern sea salt project of less than 1 million
tons/year, southern sea salt salt field project, and mine
(well) salt project of less than 600,000 tons/year

17. Single color sheet metal offset printing machine
18. Less than 300,000 tons/year of chemical wood pulp and
100,000 tons/year of chemical mechanical wood pulp

Below 100,000 tons/year of chemical bamboo pulp

19. raw sugar processing projects and projects with a daily processing capacity of 5,000 tons of sugarcane (3,000 tons in Yunnan) and less than 3,000 tons of sugar beet per day

20. Alcohol production line

21. Production line for chemically synthesized sweeteners such as saccharin

22. soybean crushing and leaching projects (except for the main soybean producing areas of Heilongjiang, Jilin and Inner Mongolia); The daily processing of rapeseed and cottonseed in the eastern and central regions is 200 tons or less, flowers

oil processing projects with a production capacity of 100 tons or less; In the western region, rapeseed and cotton are processed daily on a single line

seeds, peanuts and other oilseeds of 100 tons and below

23. cornstarch with an annual processing of corn of less than 450,000 tons and an absolute dry yield of less than 98%

(The annual processing scale of special corn such as waxy corn and high linear corn is less than 10,000 tons).

24. 150,000 pigs and less, 10,000 beef cattle and 15 meat sheep are slaughtered annually

Slaughter and construction projects of 10,000 ¥ or less and 10 million ¥ live poultry (except for ethnic

minority areas).

25. Western-style meat product processing projects of 3000 tons/year and below
26. Annual output of 2000 tons (folded dry) and below yeast products
27. Frozen seawater surimi production line
28. In the production of lead batteries, manual operation processes such as casting plates, milling, powder transfer, powder filling, pasting, coating plates, brushing plates, acid mixing and acid filling, externalization, weighing plates, and packaging plates
29. The externalization process is used to produce lead batteries
30. Citric acid production line with an annual output of less than 50,000 tons
31. 100,000 tons/year and below lysine and threonine production lines; 200,000 tons/year

Lower glutamic acid production line

13. Textile

1. Conventional polyester (PET) continuous polymerization production plant with a single-line capacity of less than 200, 000 tons/year

2. The production process of dimethyl terephthalate (DMT) of conventional polyester

3. Semi-continuous spunbond filament production line

4. Batch spandex polymerization production unit

5. Semi-automatic winding equipment for conventional chemical fiber filaments with spindle lengths of 1200 mm and below

6. Viscose plate and frame filter

7. A conventional polypropylene spunbond nonwovens production line with a single-line capacity ≤ 1000 tons/year and a width of ≤ 2 meters

8. Carding machines under 25 kg/h

9. Cotton combing machine with less than 200 pliers/min

10. Self-exhausting airflow spinning equipment below 50,000 rpm

11. FA502、FA503 细纱机

12. Rapier looms with weft entry rate less than 600 m/min, weft entry rate less than 700 m/min

minute, waterjet loom with weft entry rate less than 900 m/min

13. Polyvinyl alcohol slurry (PVA) sizing process and products (polyester cotton products, except for pure cotton high-count and high-density products).
14. Tons of raw wool washing water with more than 20 tons of hair washing process and equipment
15. Vertical silk reeling process and equipment of double palace silk and oak silk
16. Skein dyeing process

17. Sodium chlorite bleaching equipment

18. Plain polyester carrier dyeing

14. Tobacco

1. Tobacco product processing projects (new tobacco products such as e-cigarettes are implemented with reference to the relevant provisions of cigarettes in the Regulations for the Implementation of the Tobacco Monopoly Law).

15. Civil explosives and fireworks products

1. Non-human-machine isolation non-continuous, automated detonator assembly production line
2. Discontinuous and automated explosives production line
3. Highly polluting explosive production line
4. High energy consumption, high pollution, low performance industrial powder explosives production line
5. The total number of on-site operators in dangerous goods production plants with a hazard level of 1.1 is large

Explosives production line for 5 people

6. The number of on-site operators in dangerous goods production plants with a hazard level of 1.1 is greater than

9-person explosives production line

7. The number of operators in close contact with the

detonator (including raw material and semi-finished product operators, excluding finished product delivery personnel) is greater than 5 people

8. The licensed capacity is a **packaging industrial explosives production line with** an annual output of 12,000 tons and below
9. fireworks and firecrackers production machinery and equipment that have not realized human and drug isolation operations

16. Architecture

1. The rebar flash butt welding process used to connect steel bars with a **diameter greater than or equal to 22 mm in a non-fixed professional prefabrication plant (yard) or steel processing plant (yard).**

2. The manual drilling process of foundation piles used in areas with one of the following conditions: (1) Areas with abundant groundwater, soft soil, quicksand and other adverse geological conditions; (2) The air pollutants in the hole exceed the standard; (3) The area that the mechanical hole forming equipment can reach

3. Hot melt process of asphalt waterproofing membrane for waterproofing projects near underground confined spaces, poorly ventilated spaces, and flammable materials (open flame construction)

4. Portal steel pipe support frame for erecting a load-bearing support frame system in the whole hall

5. Incandescent lamps, iodine tungsten lamps, halogen lamps used for lighting in production, office, living and other areas of construction sites

6. Used for gantry, derrick material hoist in construction projects of 25 meters and above

7. The construction process of supporting the steel and wood support of the pipe jacking work shaft used under any of the following conditions: (1) The depth of the foundation pit exceeds 3 meters; (2) The groundwater level exceeds the height of the foundation pit floor 8.

The upper and bottom baskets of the bridge suspension basket used under any of the following conditions are finely rolled

Steel boom connection process: (1) front lifting point connection; (2) Other lifting point connections: (1) Direct connection of upper and lower steel structures (without passing through the concrete structure); (2) The connection with the bottom basket is not connected with movable hinges; (3) The boom is not equipped with an outer protective cover

9. Non-CNC channel grouting equipment used in the construction of post-tensioning prestressed components in the prefabrication yard of Class II or above government engineering projects

10. Non-CNC prestressed tensioning equipment used in the construction of post-tensioning prestressed components in the prefabrication yard of municipal engineering projects above Class II

11. Nine tiles for municipal road works

12. Glossy pavement panels (bricks) with poor anti-slip performance for new construction and maintenance of plazas, parking lots, pedestrian walkways, and slow lanes

13. Flat concrete drainage pipes (including reinforced concrete pipes) in buried drainage projects of residential communities, enterprises and institutions and municipal pipe networks

17. Firefighting

1. Fire extinguishing agents containing PFAS and its derivatives

18. Others

1. Urban trunk road projects with a red line width (including green belt) exceeding the following standards: 40 meters for small cities and key towns, 55 meters for medium-sized cities, and 70 ~~meters~~ (200) for large cities

If the main roads of megacities with a population of more than 10,000 do need to exceed 70 meters, there should be special instructions in the overall plan of urban land and space).

2. Urban recreation assembly square projects with a land area exceeding the following standards: 1 hectare for small cities and key towns, 2 hectares for medium cities, and 3 hectares for large cities, with a population of 2 million or more

Upper megacities 5 hectares

3. Villa real estate development projects
4. Golf course project
5. Racecourse project
6. 4th gear and below mechanical automatic transmission (AT)
7. Motor vehicle engine with emission standard China III and below
8. Low-speed three-wheeled and four-wheeled electric vehicle production line
9. Projects in which the recovery rate, beneficiation recovery rate and comprehensive utilization rate of co-associated minerals do not meet the national regulations
10. National laws and regulations do not allow new construction, do not meet the requirements of the ecological environment access list, and do not meet the mandatory standards of national security, environmental protection, energy consumption, water consumption, and quality

processes, technologies, products and equipment that meet the requirements of international environmental conventions

Category 3 Elimination class

The elimination category is mainly backward process technology, equipment and products that do not comply with relevant laws and regulations, seriously waste resources, pollute the environment, have serious hidden dangers in production safety, hinder the realization of carbon peak and carbon neutrality goals, and need to be eliminated. The production capacity, process technology, equipment and products that can be effectively regulated by the market and have been eliminated in actual production and life will no longer be included in the elimination category under the premise that there are no hidden dangers such as safety and environmental protection and the risk of "resurgence", and there are clear regulatory measures. For projects whose energy efficiency does not reach the benchmark level in the latest version of the "Energy Efficiency Benchmark Level and Benchmark Level of Key Industrial Areas" and has not completed the transformation within the specified time limit, as well as for the energy efficiency of the products and equipment produced that does not meet the access level in the latest version of the "Advanced

Level, Energy Saving Level and Access Level of Key Energy-using Products and Equipment” or does not meet the minimum requirements of the mandatory performance standard, refer to the elimination management.

The year in parentheses after the elimination category is the elimination period, such as 2025

December 31 refers to the elimination before December 31, 2025, and the rest and so on. Items with elimination plans will be eliminated according to the plan; Items that have not been marked with a phase-out period or phase-out plan are those that have been explicitly eliminated or immediately eliminated by the national industrial policy.

Investment in eliminated projects is prohibited. Financial institutions should stop all forms of credit support and take measures to recover loans issued; All regions, departments and relevant enterprises should take effective measures to eliminate them within a specified time limit. During the phase-out period, the national price authority may increase the price of electricity supply. The production technology, equipment and products that have been eliminated by the state shall not be imported, transferred, produced, sold, used and adopted. For students who are not eliminated on time

Local people's governments at all levels and relevant departments shall order enterprises with production technology, equipment and products to stop production or close them in accordance with relevant national laws and regulations, and take appropriate measures to resettle enterprise personnel and ensure the safety of credit assets of financial institutions. If the product is subject to production license management, the relevant departments shall revoke the production license in accordance with the law; The environmental protection management department shall revoke its pollutant discharge permit; Power supply enterprises should stop supplying electricity in accordance with the law. Those who violate the regulations should be held accountable for directly responsible persons and relevant leaders in accordance with the law.

1. Backward production process equipment

(1) Agriculture, forestry, animal husbandry and fishery

1. Wet fiberboard production process
2. Dripping rosin production process
3. Rural traditional old-fashioned stove kang
4. The production of earth-based activated carbon and earth-based charcoal using wood and root cutting as the main raw materials
5. Tourism activities and collection of medicinal materials and other forest products that exceed the ecological carrying capacity
6. Build irrigated papermaking raw material forest bases in areas with severe water shortages
7. Methylene bromide soil fumigation process before planting
8. Workshop style plywood production
9. Leather roll ginning machines with a roll length of less than 1000 mm have a saw blade count of less than 80

Serrated ginner, lint balers with pressure tonnage of less than 400 tons (excluding 160 tons,

200 ton short-staple cotton baler).

(2) Coal

1. Small coal mines that overlap with the planar projection of large coal mine wellfields
2. "zombie enterprise" coal mines of less than 300,000

tons/year (excluding 300,000 tons/year) that have been suspended for a long time; Coal mines with serious disasters such as rock pressure, coal and gas outbursts, etc. of less than 300,000 tons/year (excluding 300,000 tons/year) belong to the coal needs of residents in forest areas and remote mountainous areas or undertake special supply tasks, and meet the requirements of resources, environmental protection, safety, technology, Coal mines with energy consumption standards may be temporarily retained or postponed with the approval of the provincial people's government

3. mines that produce high-sulfur coal (sulfur content above 3%) that have neither sulfur reduction measures nor emission standards for users, and mines that cannot be used locally for high-ash coal (ash content higher than 40%)

and high-arsenic coal (arsenic content in power coal exceeds $80\text{ }\mu\text{g/g}$, coking coal contains more than $35\text{ }\mu\text{g/g}$) to produce coal mines

4. 6AM, ϕ M-2.5, PA-3 flotation machine for briquettes
5. PB2, PB3, PB4 type mining explosion-proof high-voltage switches
6. PG-27 Vacuum Filter
7. Model X-1 Box Filter Press
8. ZYZ, ZY3 type hydraulic support
9. The coal preparation process that cannot realize the closed-circuit circulation of coal washing wastewater and the dry coal preparation equipment that cannot achieve dust discharge standards
10. Coal mines whose mining scope overlaps with nature reserves, scenic spots, and drinking water source protection areas (eliminated in accordance with the requirements of laws and regulations and relevant national documents)
11. Coal mines that use informal mining processes such as mining instead of mining
12. Coal mines with more than 2 (excluding 2) levels produced at the same time
13. In other coal processing, the production capacity is

less than 5,000 tons of coal-made activated carbon, and less than 50,000 tons of coal-made activated coke

(3) Electricity

1. Conventional coal-fired thermal power units with a single capacity of 300,000 kilowatts or less that do not meet the standard

(except for comprehensive utilization units), oil boilers and generator sets mainly for power generation (first established and then changed, orderly elimination according to the published annual phase-out plan)

(4) Petrochemical and chemical industry

1. 2 million tons/year and below atmospheric and decompression devices (except for Qinghai Golmud and those that meet relevant conditions), kettle distillation units that use open flame and high-temperature heating to produce oil, waste

Old rubber and plastic soil refining process, tar batch production of asphalt, a single set of crude (light) benzene refining units of 25,000 tons/year and below, and a single set of coal tar processing units of 50,000 tons/year and below

2. Ammonium phosphate below 100,000 tons/year (except industrial grade) (December 31, 2025), 100,000 tons/year Pyrite acid production and sulfur acid production (except for remote areas), open-ear furnace oxidation method potassium permanganate, diaphragm method caustic soda production device (can be retained as a comprehensive utilization of waste salt), open-ear furnace method and cauldron evaporation method sulfide production process, glaubernitrate sodium silicate (bubble alkali) production process, batch coke method carbon disulfide process

3. Chloroalcoholic Epoxy and Chlorohydrin Calcium Saponification Process (December 2025)

On the 31st, the amount of fresh water per ton of product does not exceed 15 tons and the waste residue generation does not exceed 100

Except for kilograms), a single yellow phosphorus production unit with a capacity of less than 5000 tons/year has calcium roasting

Chromium compound production equipment, single line production capacity of less than 3000 tons/year of ordinary grade barium sulfate, hydrogen oxygen

Barium chloride, barium chloride, barium nitrate production equipment, production capacity of less than 10,000 tons/year, sodium chlorate production and packaging

Calcium carbide furnace, open calcium carbide furnace, internal combustion calcium carbide furnace with a single furnace capacity of less than 12,500 kVA, high mercury catalyst (mercury chloride content of more than 6.5%) and acetylene (poly) vinyl chloride production equipment using high mercury catalyst, sodium methanol, potassium methanol, sodium ethanol, potassium ethanol, polyurethane, acetaldehyde, caustic soda, Biological insecticide and local antibacterial agent production equipment, sodium ammonia method and cyanide melt sodium cyanide production process

4 Single-line production capacity of less than 10,000 tons/year of sodium tripolyphosphate, less than 5,000 tons/year of sodium hexametaphosphate, less than 5,000 tons/year of phosphorus trichloride, Feed calcium diphosphate of less than 30,000 tons/year, hydrofluoric acid with backward process technology and serious pollution below 5,000 tons/year, wet aluminum fluoride and open crystalline fluorine salt production equipment

5. The single-line production capacity is less than 3,000 tons/year of sodium cyanide (100% sodium cyanide), less than 10,000 tons/year of potassium hydroxide, and 15,000 tons Ordinary grade silica below /year, ordinary grade calcium carbonate below 20,000 tons/year, ordinary grade anhydrous sodium sulfate below 100,000 tons/year (except for salt industry co-production and by-products), Lithium carbonate and lithium hydroxide below 3,000 tons/year (except for recycling of waste lithium batteries), ordinary grade barium carbonate below 20,000 tons/year, and 15,000 tons /year or less ordinary grade strontium carbonate production equipment

6 Semi-hydrate gas ammonia liquid phase desulfurization, natural gas atmospheric pressure batch conversion process to synthesize ammonia, carbon monoxide atmospheric pressure transformation and full medium temperature transformation (high temperature transformation) process, wet desulfurization process without supporting sulfur recovery device, fixed layer batch gasification device without supporting construction of blowing gas waste heat recovery and gas-making slag comprehensive utilization device, urea production facility

without supporting process condensate hydrolysis analysis device, high-temperature gas washing water in direct contact with air in the open cooling tower cooling process technology

7. Sodium paraquat production process, dipenteryclostine dichlorvos production process, manual packaging (filling) process and equipment for small package (1 kg and below) pesticide products, Raymond machine method for pesticide powder, and pentachlorophenol (sodium) device for producing pentachlorobenzene as raw material

8 Chlorinated rubber production process for coatings directly heated by fire resin and carbon tetrachloride solvent method, saponin (containing hydrolysate) production equipment below 100 tons/year, saponin production process by hydrochloric acid hydrolysis method and saponin production equipment with pollutant emission that cannot meet the standard, iron powder reduction process [4,4-diaminodistilbine -Disulfonic acid (DSD acid), 2-amino-4-methyl-5-chlorobenzynesulfonic acid (CLT acid), 1- The implementation of amino-8-naphthol-3,6-disulfonic acid (H acid) products is suspended]

9. 500,000 bias tires and less than 500,000 pieces/year and wheels with natural cotton cord as the skeleton

Tire, dry granulated carbon black (except special carbon black and semi-reinforced carbon black), natural latex condoms below 300 million/year, rubber vulcanization accelerator N-oxylenbis(1,2-ethylene)-2-benzothiazole hyposulfonamide (NOBS). 2) and rubber anti-aging agent D production device

10. Chlorofluorocarbons (CFCs), hydrochlorofluorocarbons (HCFCs, except as raw materials for downstream chemical products) used for controlled purposes such as refrigeration, foaming, cleaning, etc., and 1,1,1-trichloroethane (methyl chloroform) used for cleaning, mainly producing carbon tetrachloride (CTC) and carbon tetrachloride

(CTC) is all products of processing aids, fluoropolymer production process with PFOA as processing aid, coatings containing DDT, and non-enclosed production of triclosidol production equipment using DDT as raw material (eliminated according to the requirements of the national implementation of the overall plan of international conventions).

(5) Steel

1. Soil coking (including improved coke ovens), with a single furnace capacity of less than 75,000 tons/year (except for

magnesium smelting and distribution units with a single furnace capacity of $\geq 50,000$ tons/year and using low-rank coal high-temperature pyrolysis process) or semi-coke (blue carbon) production units without gas, tar recycling and sewage treatment that do not meet the standard conditions of the coking industry

2. The height of the carbonization chamber is less than 4.3 meters for coke ovens (except for tamping coke ovens of 3.8 meters and above).

(The carbonization chamber will be phased out in Beijing-Tianjin-Hebei and surrounding areas and the Fenwei Plain before December 31, 2025 .)

coke ovens with a height of 4.3 meters and below), coke ovens of iron and steel enterprises without dry quenching devices, coke ovens with a production capacity of $< 400,000$ tons/year, and coke ovens with heat recovery devices that are not synchronously equipped with heat energy recovery devices

3. Ring sintering machine for steel production, stepper sintering machine (December 31, 2025), sintering machine under 90 square meters, pellet shaft furnace under 8 square meters, ferroalloy production Belt manganese ore and chrome ore sintering machine below 24 square meters, 24 square meters for casting pig iron production

Sintering machine below meters

4. pig iron blast furnace for steelmaking of 400 cubic meters and below (pig iron blast furnace for steelmaking of 450 cubic meters and below in Hebei Province), blast furnace for ferroalloy production of 200 cubic meters and below, pig iron blast furnace for casting of 200 cubic meters and below (of which the pig iron blast furnace for casting supporting the "short-process" casting process is). 100 cubic meters and below).

5. Power frequency and medium frequency induction furnaces used to melt scrap steel (eliminated according to laws and regulations and the relevant requirements of the state to ban "floor steel").

6. 30 tons and below steelmaking converters (excluding ferroalloy converters) (40 tons and below steelmaking converters in Hebei Province), 30 tons and below steelmaking electric arc furnaces (excluding mechanical casting, electric arc furnaces for special alloy materials such as superalloys and precision alloys), chemical iron and steelmaking

7. Compound double wire rod rolling mill, horizontal

wire rod rolling mill, horizontal bar and profile rolling mill (excluding rolling mills for the production of superalloys), laminated sheet rolling mills, ordinary steel primary rolling mills and medium-sized rolling mills for billet opening, hot-rolled narrow strip rolling mills, three-roll Lott medium plate rolling mills, hot-rolled seamless pipe units with a diameter of less than 76 mm, and three-roll wire rod rolling mills (excluding special steel production).

8. metallurgical furnaces and kilns that do not meet environmental protection standards

9. Manually operated soil asphalt tar impregnation device, mixed firing of ore raw materials and solid raw materials, natural ventilation, and manual operation of earthen vertical kilns, and inverted flame kilns that use coal as direct fuel and soot purification cannot meet the standard

10. Ordinary ferroalloy ore thermoelectric furnaces below 12,500 kVA (December 31, 2025), ferroalloy semi-enclosed DC electric furnaces and ferroalloy refining electric furnaces below 3,000kVA (except for special varieties of ferrotungsten, ferrovanadium and other electric furnaces)

11. Steam heating and kneading, inverted flame roasting furnace, Acheson AC graphitization furnace, 1

10,000 kVA and below three-phase bridge rectifier Acheson DC graphitization furnace and its parallel unit

12. Cold-rolled ribbed steel bar production equipment with a single machine capacity of 30,000 tons or less (except for high-ductility cold-rolled ribbed steel bar production equipment).

13. Production equipment for single-tank wire drawing machine for the production of prestressed steel wire

14. Prestressed steel production Lead quenching process for stress relief treatment

15. The ferrotitanium smelting furnace with a yield of less than 5 tons per furnace, the ferromolybdenum production line for roasting molybdenum concentrate with a reverberatory furnace, and the production line for producing metal chromium by reducing and calcining sodium alum and chromium anhydride with a reverberatory furnace

16. Coal-fired inverted flame kiln refractory and raw material products production line

17. Section fixed gas generator project for iron and steel industry (excluding pulverized coal gasifier)

18. Reverberatory furnace for reducing manganese dioxide (including reverberatory furnace for manganese sulfate plant, reverberatory furnace for mineral powder plant, etc.)

19. Electrolytic metal manganese primary press is used for plate and frame filter presses other than high-

pressure diaphragm filter presses

20. Lightly fired reflection kilns with effective volume of 18 cubic meters and below

21. Recalcined magnesia shaft kilns with effective volume of 30 cubic meters and below

22. A single production line (one transformer) of electrolytic manganese metal production line of less than 10,000 tons/year, and enterprises with a total production scale of less than 30,000 tons/year of electrolytic manganese metal production (December 2025 31 days).

23. Electrolytic manganese process equipment using dichromate passivation technology

(6) Non-ferrous metals

1. Zinc smelting or production of zinc oxide process equipment in backward ways such as muffle furnace, mangle furnace, horizontal tank, small vertical tank, etc. for roasting and simple condensation facilities for dust collection

2. Mercury is refined in backward methods such as iron pots and earthen stoves, distillation tanks, crucibles and simple condensation dust collection facilities

3. Use backward methods such as pit furnace or crucible furnace roasting, simple condensation facility dust collection and other backward methods to refine arsenic oxide or metal arsenic process equipment

4. **Pre-baked anode aluminum electrolyzers up to 160kA**

5. Blast furnaces, electric furnaces, reverberatory furnaces (except for non-direct coal-fired reverberatory furnaces for recycled copper) Copper smelting process and equipment

6. Flue gas acid dry purification and hot concentrated acid washing technology

7. Antimony is refined by backward methods such as pit furnaces, crucible furnaces, and Hirsch furnaces

8. The lead smelting process and equipment are used in backward methods such as sintering pots, sintering plates, and simple blast furnaces

prepare

9. The process and equipment of melting recycled aluminum alloy and recycled lead using crucible furnaces

10. Wet fluoride salt project for aluminum
11. Recycled lead projects below 10,000 tons/year
12. Reverberatory furnace project using direct coal combustion in the production of recycled non-ferrous metals
13. Copper wire rod (black rod) production process
14. The lead smelting process of the sintering machine is not equipped with acid production and exhaust gas absorption system
15. Sintering-blast furnace lead smelting process and equipment
16. Recycled copper incineration process and equipment without flue gas control measures
17. Traditional fixed reverberatory furnace recycled copper production process and equipment below 50 tons
18. Smelting furnaces for recycled aluminum under 15 tons
19. Ionic rare earth ore heap leaching and pool leaching processes

20. Monazite single mineral development project
21. Rare earth chloride electrolysis metal preparation project project
22. Fluorinated rare earth production process for wet production electrolysis
23. Mixed rare earth mine development projects below 20,000 tons (REO)/year, 5,000 tons

(REO)/year or less fluorocarbon-cerium ore rare earth mine development project, ionic rare earth mine development project below 500 tons (REO)/ year

24. Rare earth separation projects up to 2000 tons (REO)/year
25. less than 1500 tons/year, electrolyzer current less than 5000A, current efficiency is lower

85% of light rare earth metal smelting projects

26. Primary mercury mining (August 16, 2032).
27. Vertical tank zinc smelting process and equipment (December 31, 2025).

(7) Gold

1. Mercury mixing and gold extraction process
2. Small cyanide pool leaching process, soil smelting process

3. There are no environmental protection measures to extract precious metals such as gold, silver, and palladium in circuit boards
4. Mining projects with a daily processing capacity of less than 50 tons (not included).
5. overall ore amalgamation; Open incineration of amalgam or processed amalgam; incineration of amalgam in residential areas; Cyanide leaching is performed on mercury-added sediments, ores, or tailings without first removing mercury

(8) Building materials

1. Dry hollow kilns (except for the production of aluminate cement and other special cements), cement machine vertical kilns, lip kilns, wet kilns, cement grinding equipment with a diameter of less than 3 meters (not included) (raw).

Except for special cement)

2. Non-laminated plastic woven cement packaging bag production line, cement packaging bag seam bottom bag (both bottoms need to be sewn by stitching) production and use

3. Flat Drawing Process Flat Glass Production Line (including grid method)

4. Architectural ceramic bricks of less than 1 million square meters/year (not included), sanitary ceramics production lines of less than 200,000 pieces/year (not included), building sanitary ceramics (excluding architectural glass products) earthen kilns, inverted flame kilns, porous kilns, coal-fired open flame tunnel kilns, flame insulation tunnel kilns, box-mounted sanitary ceramic tunnel kilns, Friction brick pressing machine for building ceramic brick forming

5. Production process and equipment of glass fiber terracotta crucibles, ceramic crucibles and other non-platinum crucibles

6. Paper gypsum board production line of less than 10 million square meters/year (not included).

7. Modified asphalt waterproof membrane production line of less than 5 million square meters/year (not included), asphalt composite tire flexible waterproof membrane production line, asphalt paper tire linoleum production line of less

than 1 million rolls/year (not included).

8. Lime clay kiln
9. brick and tile wheel kilns, vertical kilns, roofless kilns, horseshoe kilns and other earthen kilns
10. Simple mobile concrete block forming machine, attached vibrating forming table
11. A single shift of concrete block stationary forming machine of less than 10,000 cubic meters/year, a single shift

Fixed forming machine for concrete pavement bricks (including permeable bricks) below 100,000 square meters/year

12. Production process of manually poured, non-mechanically formed gypsum (hollow) blocks
13. Gas smelting one-step quartz glass production process equipment
14. 6×6 trillion six-sided top small press for the production of artificial diamonds

15. Manual cutting aerated concrete production line, non-autoclaved cured aerated concrete production

line

16. Non-sintered and non-autoclaved fly ash brick production line
17. Decorative stone mine chamber blasting and mining technology, sling type marble soil tug-of-war,

Mobile small disc saw

(9) Medicine

1. Handmade capsule filling process
2. Cork scalding packaging drug process
3. Tower heavy distilled water vessel
4. Hot air drying oven without purification facilities
5. The environment, occupational health and safety cannot meet the national standards for API production and packaging

place

6. Acetaminophen (paracetamol) and caffeine device by iron powder reduction method
7. Chlorofluorocarbons (CFCs) are used as aerosols, propellants, projectiles, or dispersions

pharmaceutical products production process (phased out according to the requirements of the national implementation of the overall plan of international

conventions)

8. Mercury-filled glass thermometer and blood pressure monitor production unit (December 31, 2025).

(10) Machinery

1. Heat treatment lead bath furnace (except for the online heat treatment lead bath production line with lead liquid covering agent and negative pressure extraction and dust removal environmental protection facilities for wire rope and its products)
2. Heat treatment barium chloride salt bath furnace (high-temperature barium chloride salt bath furnace is temporarily phased out)
3. TQ60, TQ80 tower crane

4. QT16, QT20, QT25 derrick simple tower crane
5. KJ1600/1220 Single Barrel Lifting Winding Machine
6. 3000 千伏安以下普通棕刚玉冶炼炉
7. 4000 kVA or less stationary brown corundum smelting furnace
8. Silicon carbide smelting furnaces below 10000 kVA
9. Forced drive simple elevator
10. Tobacco expansion equipment production line using chlorofluorocarbons (CFCs) as expanding agents
11. Sand casting clay drying sand mold and core
12. Coke furnaces melt non-ferrous metals
13. Sand casting oil sand core
14. Heavy brick furnace lining trolley furnace
15. Intermediate frequency generator induction heating power supply
16. Coal-fired flame reflection heating furnace
17. Pickling process and pickling project only used to remove the scale on the surface of metal parts

(Except for product manufacturing supporting projects)

18. Bit AC contactor temperature control cabinet
19. Insert electrode salt bath furnace
20. Dynamic and tap type silicon rectifier arc welding machines

21. Magnetic amplifier arc welding machine
22. Punches that cannot be equipped with safety protection devices
23. Non-yoke (≥ 0.25 tons) aluminum shell IF induction electric furnace
24. coreless power frequency induction electric furnace

25. Drilling tool joint thread phosphating treatment process

26. cupolas of 5 tons/hour and below (immediate elimination in key areas of air pollution prevention and control, December 31, 2025 in other areas).

(11) Ships

1. Dismantling process of waste ship tidal flats

2. Single-piece assembly monolithic construction process for marine steel vessels with a length of more than 90 meters and river steel vessels with a length of more than 120 metres

(12) Light industry

1. A single set of vacuum salt production plant with less than 100,000 tons/year, lake salt under 200,000 tons/year, and northern sea salt production facilities under 300,000 tons/year

2. The production process and equipment of salt production using mineral salt brine, oil and gas field water, and using flat pots and on-site beach drying in mining areas

3. 20,000 tons/year and below Southern Sea Salt production equipment

4. Ultra-thin (\leq less than 0.025 mm degrees) plastic shopping bags are produced

5. A tanning production line with an annual processing capacity of 50,000 standard cowhide and an annual processing capacity of 30,000 standard cowhide
6. The total ink production unit of less than 300 tons/year (except for those using high-tech and pollution-free).
7. Production of benzene-containing solvent-based inks
8. Lime Pool Pulping Equipment (Except Rice Paper)
9. Chemical wood pulp production line below 51,000 tons/year
10. A single non-wood pulp production line of less than 34,000 tons/year

11. A single pulp production line of 10,000 tons/year and below, using waste paper as raw material
12. Cultural paper production lines with a width of 1.76 meters and a speed of less than 120 meters/min
13. Whiteboard, containerboard and corrugated paper production lines with widths of 2 meters and less and speeds of up to 80 m/min
14. Refrigerators, freezers, automobile air conditioners, industrial and commercial refrigeration and refrigeration equipment production lines using chlorofluorocarbons (CFCs) as refrigerants and blowing agents
15. Produced polyurethane, polyethylene, and Styrofoam plastics using chlorofluorocarbons (CFCs) as blowing agents
16. Production process using carbon tetrachloride (CTC) as cleaning agent
17. The production process uses trifluorotrichloroethane (CFC-113) and methyl chloroform (TCA) as cleaning agents and solvents
18. Fatty acid method tertiary amine process, fuming sulfuric acid sulfonation process, stirring kettle type ethoxylation process

19. Soldering process in the printing iron can industry
20. Crucible glass kilns that burn coal and gas from the furnace, and glass annealing furnaces with direct fire type and no hot air circulation
21. Mechanical timed determinant bottle making machine
22. Carbonated beverage production line with a production capacity of less than 150 bottles/minute (bottle capacity of 250ml and below).
23. The daily processing capacity of raw milk (two shifts) is less than 20 tons of concentration, spray drying, etc

Give; Manual and semi-automatic liquid milk filling equipment up to 200 kg/h

24. Alcohol production lines below 30,000 tons/year (except for waste molasses to make alcohol).
25. Glutamic acid production line with isoelectric ionization process, MSG production and packaging below 50,000 tons/year

place

26. Traditional calcium salt method citric acid production equipment
27. Process less than 150,000 tons of wet corn lake per year with a total dry matter yield of less than 97%

Flour production line (except special corn starch production line)

28. Bridge splitting semi-saw, open pig blanching machine and other pig slaughtering equipment
29. Manual slaughter of pigs, cattle, sheep and poultry
30. The addition process of wheat flour whitening agents (benzoyl peroxide, calcium peroxide).
31. Elemental chlorine bleaching pulping process
32. Open lead melting pot and open lead powder machine for lead battery production
33. Tubular lead battery dry powder filling process
34. Glass batch with white arsenic, antimony trioxide, lead, fluorine (except for all-electric melting kilns), chromium slag and other harmful raw and auxiliary materials

(13) Textile

1. Cotton spinning, wool spinning, hemp spinning equipment, weaving equipment with a service time of up to 30 years
2. ZD647,ZD721 automatic silk reeling machine, D101A automatic silk reeling machine, ZD681 vertical reeling machine, DJ561 silk worsted machine, K251, K251A silk processing equipment such as filament looms
3. Small jacquard machine type Z114
4. GE186 jacquard terry machine
5. Model Z261 faux fur machine

6. Unmodified Type 74 dyeing and finishing equipment
7. Steam heating opens the printing and dyeing flat washing tank without airtightness
8. R531 type acid viscose spinning machine
9. 40,000 tons/year and below viscose conventional staple fiber production line
10. Wet spandex production process
11. Dimethylformamide (DMF) solvent method spandex and acrylic production process
12. Nitric acid acrylic conventional fiber production process and equipment
13. Conventional polyester (PET) batch polymerization production process and equipment
14. Semi-automatic winding equipment for conventional polyester filament spindles with shafts of 900 mm and below
15. Domestic printing and dyeing pretreatment equipment, drawing and shaping equipment, round screen and flat screen printing machines, continuous dyeing machines with a service life of more than 15 years and imported printing and dyeing pretreatment equipment, drawing and shaping equipment, round screen and flat screen printing machines, continuous dyeing machines with a service life of more than 15 years
16. The bath ratio of more than 15 years of service life is greater than 1:10 cotton and chemical fiber intermittent type

Dyeing equipment

17. A printing and dyeing production line that uses DC motor drive

18. Steamer and washing equipment with cast iron structure for printing and dyeing, bottomless evaporator with cast iron wall panel, and **L-shaped** deboiling drift track steamer with short steam preheating area

19. Screw extruder diameter less than or equal to **90mm**, polyester recycled spun staple fiber production unit below 2000 tons/year

(14) Printing

1. All lead rows and lead printing processes
2. All lead printing machines and related auxiliary machines
3. Photographic plate making machine

4. ZD201 and ZD301 series single-character casting machines
5. TH1 automatic bar casting machine, ZT102 series bar casting machine
6. ZDK101 type engraving machine
7. KMD101 type type die engraving knife grinder
8. AZP502 semi-automatic Chinese hand-selected casting and arranging machine, ZSY101 semi-automatic Chinese casting and arranging machine, TZP101 foreign text strip casting and arranging machine, ZZP101 Chinese automatic casting and arranging machine
9. . QY401, 2QY404 series electric lead printing and proofing machine, QYSH401
2QY401 and DY401 manual lead printing and proofing machines
10. YX01, YX02, YX03 series paper press machine, HX01, HX02,
HX03 and HX04 series paper
drying machines
11. PZB401 型平铅版铸版机, YZB02、YZB03、YZB04、YZB05、YZB06 and YZB07 series lead plate casting machines
12. JB01 flat lead plate
plate casting
machine
13. RQ02, RQ03, RQ04 series lead pump lead melting

furnace

14. BB01 型刨版机, YGB02、YGB03、YGB04、YGB05 型圆

Lead plate scraping machine, YTB01 round lead plate boring machine, YJB02 type round lead plate sawing machine,

YXB04, YXB05, YXB302 series round lead plate repairing machine

15. P401, P402 series four-open flat press press, P801, P802, P803,

P804 series eight-open flat press press

16. PE802 double-hinge printing machine

17. TE102、TE105、TE108 型系列全张自动二回转平台印刷 machine

18. TY201 folio monochrome one-rotary platform printing machine, TY401 four-open single-color one-rotary platform printing machine
19. TY4201 four-open and one-turn two-color printing machine
20. TT201, TZ201, DT201 folio manual refilling stop rotary platform printing machine
21. TT202 folio automatic stop rotary platform printing machine, TT402, TT403, TT405, DT402 four-open automatic stop rotary platform printing machine, TZ202 folio semi-automatic stop rotary platform printing machine, TZ401, TZS401, DT401 Type four-open semi-automatic stop rotary platform printing machine
22. TR801 series vertical platform press
23. LP1101 and LP1103 series flatbed paper full-sheet single-sided rotary printing machine, LP1201 flatbed paper full-sheet double-sided rotary printing machine, LP4201 flatbed paper four-open two-color rotary printing machine
24. LSB201(880mm×1230mm)及 ~~LS~~ LS204(787mm×1092 mm) series web paper book rotor printing machine
25. LB203, LB205, LB403 web newspaper rotary printing machine, LB2405, LB4405 web double-layer two-group newspaper

rotary printing machine, LBS201 Rotary printing machine for roll-on paper books and newspapers

26. K.M.T automatic casting typesetting machine, PH-5 type Chinese character typesetting machine 27. Ball vibration proofing and plate making machine (DIA PRESS brushing machine) 28 Manual phototypesetting machines and domestic plate-making cameras produced before 1985
29. Centrifugal coater

30. J1101 series full-sheet monochrome offset printing machine (printing speed 5000 sheets per hour and below).

31. J2101,PZ1920 series folio monochrome offset printing machines (printing speed 4000 per hour sheets and below), PZ1615 series four-open monochrome offset printing machine (printing speed 4000 per hour sheet and below), YPS1920 series double-sided monochrome offset printing machine (printing speed 4000 per hour Zhang and below)

32. W1101 full-sheet automatic gravure printing machine, AJ401 web single-sided four-color gravure printing machine

33. DJ01 type paperback binding linkage machine, PRD-01, PRD-02 type paperback binding linkage machine, DBT-01 type paperback wire binding, packaging and ironing linkage machine

34. Solvent-based coating machines, various laminating machines whose substrates cannot be degraded and recycled

35. QZ101, QZ201, QZ301, QZ401 type paper cutter

36. MD103A knife sharpener

(15) Civil explosives and fireworks and firecrackers products

1. Closed packaging type emulsion explosive matrix cooler

2. Closed packaging type emulsifying explosive cryogenic sensitizer
3. Small diameter manual single-head explosive charger
4. Explosives equipment such as mixing and conveying bearings wrapped in chemicals
5. The drying process of the explosive agent adopts the process of drying in the steam drying room
6. The manufacturing process of deferred elements (volumes) adopts the process of manual charging
7. Detonator filling, assembly process and transmission between processes without reliable anti-explosion measures

8. The production line of the detonator manufacturing process dosing device does not have reliable explosion-proof facilities
9. Industrial explosives and industrial detonator production lines that do not implement remote video monitoring in hazardous workplaces
10. Detonation cable production lines that do not realize remote video monitoring in hazardous workplaces
11. The explosive pharmaceutical process using the traditional wheel milling method
12. The production wastewater from explosives does not meet the production process required by the "Explosive Industry Water Pollution Discharge Standard Pyrotechnics" (GB14470.2).
13. Emulsifier emulsification process with a dispensing temperature greater than 130°C
14. A charge machine with a small diameter water-containing explosive charge efficiency of less than 1200kg/h and a small diameter powder explosive charge efficiency of less than 800kg/h
15. Explosives with a fixed operator and a noise of more than 85 decibels
- prepare
16. Electric detonators with a full resistance difference greater than 1.5Ω (steel core pin length 2m) are

produced

technology

17. The production of boxed products has not been realized by online collection and timely transmission of production data

line

18. Electric detonators with a full resistance difference greater than 1.0Ω (steel core pin length 2m) are produced

craft

19. Detonation cable production line without reliable anti-explosion measures between processes

20. The detonation cable production line of online detection of no drug quantity in the rope making process and automatic interlocking protection device

21. The production process of ordinary electric detonators with a maximum non-ignition current of less than 0.25A

22. The detonator loading process does not realize the production process of human-machine isolation
23. The production process of the detonator bayonet and inspection process needs to be manually transmitted between the process
24. low-level industrial explosives production line with an annual output of 10,000 tons and below
25. The production process of handmade charges for firecrackers, combined fireworks, spray flowers and other products

(16) Fire protection

1. The production process of fire detector manual insertion and welding of electronic components

(17) Mining

1. Manually loading and unloading ore during centralized shoveling operations
2. dry rock drilling operations without dust trapping devices
3. The main trackless transportation roadways and open-pit stopes use human or animal power to transport ore
4. Underground mines use non-flame retardant cables, hair dryers, and conveyor belts
5. The main shafts and tunnels of underground mines are supported by wood
6. Underground mines adopt the empty field method of mining (bottomless mining method) and manual installation

operation in the stope

7. Underground mines use the horizontal strut mining method
8. Open-pit mines use expanding pot blasting
9. Open-pit mines are mined by "one wall" with bottom collapse, excavation and mining, and non-layering
10. Open-pit mines use blasting to carry out secondary crushing of large pieces of ore

(18) Architecture

1. The process of simple production of steel bar protective layer gaskets on site
2. The straightening process of the windlass steel bar

3. Facing brick cement mortar pasting process
4. Bamboo (wood) scaffolding
5. Hydraulic jack unloading formwork process of cover beam (tie beam) without oil leakage safety device
6. Hollow plate and box beam airbag inner mold process
7. Sewage inspection well brickwork process
8. Bridge suspension counterweight hanging basket equipment

(19) Others

1. Contains toxic and harmful cyanide electroplating process (except for gold, silver, copper-based alloys and copper plating priming process)
2. Cyanide zinc precipitation process
3. Solid dam island technology
4. Tourism activities and collection of medicinal materials and other forest products that exceed the ecological carrying capacity
5. Small incinerators that do not meet the current national pollution control standards, engineering and technical standards and equipment standards related to the incineration of municipal solid waste, medical waste and industrial waste
6. Virtual currency "mining" activities

7. Plastic products are manufactured from medical waste
8. Stage fixed gas generator furnace
9. National laws and regulations explicitly eliminate backward production process equipment that does not meet the requirements of the ecological environment access list, national safety, environmental protection, energy consumption, water consumption, and quality, and does not meet the requirements of international environmental conventions

2. Backward products

- (1) Petrochemical and chemical industry

1. Modified starch, modified fiber, colorful interior wall (O/W type paint with resin as the dominant nitrocellulose and xylene-based solvent), vinyl chloride-vinylidene chloride copolymer emulsion exterior wall, tar-based polyurethane waterproofing, water-based polyvinyl chloride tar waterproofing, polyvinyl alcohol and its acetal-based interior and exterior walls (106, 107 coatings, etc.), polyvinyl acetate emulsions (including ethylene/vinyl acetate copolymer emulsions) exterior wall coatings

2. Interior walls, solvent-based wood, toys, automobiles, exterior wall coatings with harmful substances exceeding the standard, coatings containing bis-p-chlorophenyltrichloroethane, tributyltin, perfluorooctanoic acid and its salts, perfluorooctane sulfonic acid, red dan and other harmful substances

3. Under reducing conditions, it cleaves to produce 24 azo dyes (suspended for non-textile applications) and nine carcinogenic dyes (suspended for areas that do not come into direct contact with the human body).

4. Paint strippers containing benzene, phenol, benzaldehyde and di(tri)chloromethane, Lide powder, PVC

architectural waterproofing joint material (tar type), 107 glue (polyvinyl alcohol formaldehyde adhesive), clenbuterol, polychlorinated biphenyls (transformer oil).

5. Highly toxic pesticide products: hexamine, dibromoethane, butyrodiazine, diquatobis, herbicide ether, insecticide, poisonous rat, fluoroacetamide, sodium fluoroacetate, dibromochlorohydrin, anti-borer phosphorus (Suhua 203), phosphoramine, glycofluorine, poisonous rat silicon, methylamidophos, parathion, methyl parathion, long-active phosphorus, thiocyclophos (ethylthiocyclophos), formesisin, formelazine and all arsenic preparations, mercury preparations, lead preparations, glyphosate content is 30% The following aqueous agents, methylthion, calcium phosphide, zinc phosphide, phenyl phosphine, earth thion, magnesium phosphide, thion, fly toxin, borer phosphorus, terbution, methylphos, 2,4-drop butyl, methyl isosylphos, hydrothion, lineophos, nonylphenol (pesticide additive), triclosidol, chlorsulfuron, amine

Benzenesulfon

6. Products phased out according to the requirements of the national implementation of the overall plan of international conventions: chlordane, heptachlor, methyl bromo, DDT, hexachlorobenzene, terminate, lindane, toxaphene, aldrin, dieldrin, endrin, endosulfan, fifiprodin, chlordenone, α -hexachlorocyclohexane, β -Hexachlorocyclohexane, hexachlorobutadiene, polychlorinated biphenyls, pentachlorobenzene, hexabromobiphenyls, tetrabromodiphenyl ethers and pentabromodiphenyl ethers, hexabromodiphenyl ethers and heptabromodiphenyl ethers, hexabromocyclododecane, perfluorooctane sulfonic acid and its salts and perfluorooctanesulfonyl fluoride, perfluorohexyl sulfonic acid (PFHxS) and its salts and related compounds, perfluorooctanoic acid (PFOA) and its salts and related compounds, decabromodiphenyl ether, Short-chain chlorinated paraffins, pentachlorophenol and its salts and esters, polychlorinated naphthalene (exempted from use as restricted class).

7. Soft-edged structure bicycle tires, ordinary

conveyor belts with cotton cord as the skeleton material and ordinary V-belts with nylon cord as the skeleton material , tires, bicycle tires, motorcycle tires hand-engraved vulcanization molds

(2) Railways

1. G60 type, G17 tank truck, P62 boxcar, K13 ore truck, U60 cement truck, N16 type, N17 Type flat car, L17 type grain truck, C62A type, C62B type open car, rail flat car (load 40 tons and below).

(3) Steel

1. Hot-rolled silicon steel sheet
2. Ordinary slack level steel wire and steel strand
3. Hot rolled steel bars: grades HRB335, HPB235
4. The billet (ingot) produced by melting scrap steel using a power frequency or intermediate frequency induction furnace, and

Steel products produced as raw materials (eliminated in accordance with national laws and regulations and the relevant requirements of the state to ban "floor steel")

5. Soil sintered ore, hot sintered ore

(4) Non-ferrous metals

1. Copper wire rod (black rod).

(5) Building materials

1. Glass fiber reinforced cement (GRC) hollow slats

produced using non-alkali resistant glass fibers or non-low alkali cement

2. Clay crucibles, ceramic crucibles and other non-platinum crucibles brushed glass fibers and products and their reinforced plastic (FRP) products

3. 25A fasting steel window

4. Type S-2 concrete sleeper

5. Flush toilets with a maximum water consumption of more than 8 liters at a time

6. Amphibole asbestos (i.e. blue asbestos)

7. Non-mechanical production of insulating glass, double-layer and double-frame various doors and windows, and single-cavity structure plastic doors and windows

8. Polyethylene polypropylene composite waterproof

membrane, polyethylene polypropylene composite waterproof membrane (polyethylene core material δ is less than 0.5mm), cotton polyester glass fiber (high alkali) grid composite tire base material, polyvinyl chloride waterproof membrane (S-type) produced by secondary heating composite molding process

9. Friction materials containing asbestos

(6) Medicine

1. Lead-tin ointment tubes, single-layer polyolefin ointment tubes (except anorectal and cavity administration)

2. Ampoules are filled with sterile powder for injection
 3. Medicinal natural rubber stopper
 4. It is not easy to break the ampoule
 5. Polyvinyl chloride (PVC) soft bag for infusion
- (excluding peritoneal dialysis fluid and irrigation solution).

(7) Machinery

1. T100、T100A 推土机
2. ZP-II, ZP-III dry grouting machine
3. WP-3 excavator
4. Pneumatic rock grabbers below 0.35 cubic meters
5. Mining wire rope impact drilling rig
6. 1.98 m diameter water gas generator
7. CER Membrane Box Series
8. Thermocouple (index numbers LL-2, LB-3, EU-2, EA-2, CK).
9. Thermal resistance (index numbers BA, BA2, G).
10. DDZ-I electric unit combination instrument cluster
11. GGP-01A belt scale
12. BLR-31 type load cell
13. WFT-081 Radiation Thermosensor
14. WDH-1E, WDH-2E photoelectric thermometer, PY5 type

digital thermometer

15. BC Series Single Bellows Differential Pressure Gauge,
LCH-511, YCH-211, LCH-311,
YCH-311、LCH-211、YCH-511 型环称式差压计

16. EWC-01A Long Figure Electron Potentiometer
17. XQWA type bar automatic balancing indicator
18. ZL3 X-Y recorder
19. DBU-521, DBU-521C level transmitter
20. YB series (chassis number 63~355mm, rated voltage 660V and below), YBF series (chassis number 63~160mm, rated voltage 380,660V or 380/660V) YBK series (chassis number 100~355mm, rated voltage 380/660V, etc 660/1140V) flameproof three-phase asynchronous motor
21. DZ10 series molded case circuit breaker, DW10 series frame circuit breaker
22. CJ8 Series AC Contactor
23. QC10, QC12, QC8 series starters
24. JR0、JR9、JR14、JR15、JR16-A、B、C、D 系列热继电器
25. Non-ferrous metal smelting furnaces fueled by coke
26. GGW series medium frequency centerless induction melting furnace
27. Type B and BA type single-stage single-suction cantilever centrifugal pump series
28. F-type single-stage single-suction corrosion-resistant pump series
29. JD type long shaft deep well pump

30 . KDON-3200/3200 cold accumulator full low pressure process air separation equipment
KDON-1500/1500 type cold accumulator (tubular type) full low-pressure process air separation equipment, KDON-1500/1500 tube plate type full low-pressure process air separation equipment, KDON-6000/6600 type cold accumulator process air separation equipment

31. 3W-0.9/7 (annular valve) air compressor
 32. C620, CA630 ordinary lathes
 - 33.C616、C618、C630、C640、C650 普通车床
 34. X920 Keyway Milling Machine
 - 35.B665、B665A、B665-1 牛头刨床
 36. D6165, D6185 EDM machine tools
 37. D5540 Electric Pulse Machine
 38. J53-400, J53-630, J53-1000 double disc friction press
 39. Q11-1.6×1600 Shearing machine
 40. Q51 truck crane
 41. 3 ton DC overhead type underground mining electric locomotive
 42. A571 single girder crane
 43. 快速断路器:DS3-10、DS3-30、DS3-50(1000、3000、5000A)
DS10-10、DS10-20、DS10-30(1000、2000、3000A)
 44. SX Series Box Resistance Furnace
 45. 单相电度表:DD1、DD5、DD5-2、DD5-6、DD9、DD10
、DD12、DD14、DD15、DD17、DD20、DD28
 46. SL7-30/10~SL7-1600/10, S7-30/10~S7-1600/10 Distribution Transformer
- utensil
47. 刀开关: HD6、HD3-100、HD3-200、HD3-400、HD3-600、

HD3-1000、HD3-1500

48.GC 型低压锅炉给水泵, DG270-140、DG500-140、DG375-185

Boiler feed pump

49. 热动力式疏水阀:S15H-16、S19-16、S19-16C、S49H-16、S49-16C、S19H-40、S49H-40、S19H-64、S49H-64

50. Fixed grate coal-fired boiler

51. L-10/8 and L-10/7 power reciprocating air compressors

52. 8-18 series, 9-27 series high-pressure centrifugal ventilators

53. X52, X62W 320×150 lifting table milling machines

54. J31-250 Mechanical Press

55. TD60, TD62, TD72 fixed belt conveyors

56. E135 two-stroke medium-speed diesel engine (including 3 models of 2, 4 and 6 cylinders), 4146 diesel engine

57. TY1100 single-cylinder vertical water-cooled direct injection diesel engine

58. 165 Single-cylinder horizontal evaporative water-cooled, pre-ignition chamber diesel engine

59. Mercury Contains Switches and Relays

60. Fuel-powered vehicles

61. Vehicle engines with lower emissions than China II

62. Friction plates containing asbestos materials for motor vehicle brakes

63. Amorphous shaft tank cage, $\Phi 1.2$ meters or less (excluding $\Phi 1.2$ meters) for lifting personnel lifting

winch, **KJ** type mine hoist, **JKA** type mine hoist, **XKT** type mine hoist, **JTK** Mining hoist winch, belt brake mining hoisting winch, **TKD** hoist electronic control device and hoist electronic control device using relay structure principle, dry brake for trackless rubber wheel trucks specially used for transporting personnel and oil, without pressure stabilizer device

medium and deep hole rock drilling equipment

64. Coal-fired boilers of 10 steam tons and below per hour

65. Diesel trucks with emission standards below China III and below, and old gas vehicles with lean combustion technology and "oil-to-gas"

66. Biomass boilers of 2 steam tons per hour and below

67. Coal-fired hot blast stove

68. In key areas of air pollution prevention and control, fuel gas generators with a furnace diameter of less than 3 meters and batch fixed-bed gas generators (except for ammonia production) will be completely eliminated

69. In the manufacture of inorganic salt, internal combustion calcium carbide furnaces and closed calcium carbide furnaces with a single furnace capacity of less than 20,000 kVA

70. coal-fired boilers with 35 steam tons per hour and below (key areas for air pollution prevention and control).

71. Cement mills with a diameter of less than 3.2 meters (including mineral grinders).

(8) Ships

1. A steel transport vessel built using the single-piece assembly monolithic shipbuilding method

2. Modified ships that do not meet the specifications and

ships that have reached the scrapping deadline

3. Single-hull oil tankers

(9) Light industry

1. Mercury batteries (mercury oxide primary cells and battery packs, zinc and mercury batteries)

2. Mercury-containing paste zinc-manganese batteries, mercury-containing cardboard zinc-manganese batteries, mercury-containing cylindrical alkaline-manganese batteries, mercury-containing buckle alkaline-manganese batteries, mercury-containing buckle zinc-silver oxide batteries, and zinc-air batteries

3. Mercury-containing slurry layer paper, mercury-containing zinc powder

4. Open type ordinary lead battery, dry type charged lead battery
5. Lead batteries **containing more than 0.002% cadmium**
6. Lead batteries **containing more than 0.1% arsenic**
7. Cadmium-nickel batteries for civil use
8. Inline gas water heater
9. Spiral lifting (cast iron) faucets
10. Aniline inks for gravure printing
11. The water inlet is lower than the water surface of the overflow outlet, and the upper guide is a straight toilet tank fitting
12. Cast iron globe valve
13. Semi-automatic (horizontal) industrial washing machines
14. Open type tetrachloroethylene dry cleaning machine and ordinary closed tetrachloroethylene dry cleaning machine, split type petroleum dry cleaning machine and ordinary closed petroleum dry cleaning machine
15. Production and use of alkylphenol ethoxylates (including nonylphenol ethoxylate, octylphenol ethoxylate, and dodecyl phenol ethoxylate ether, etc.).
16. disposable foam plastic tableware, disposable plastic cotton swabs; daily chemical products containing

plastic microbeads; Ultra-thin plastic bags with a degree of less than 0.025 mm; ♀ Polyethylene agricultural mulch film with a degree of less than 0.01 mm ♀

17. Cold cathode fluorescent lamps and external electrode fluorescent lamps for electronic display: (1) short in length (≤ 500 mm) and containing more than 3.5 mg of mercury in a single bottle ; (2) Medium length (> 500 mm and ≤ 1500 mm) with a single bottle containing more than 5 mg of mercury ; (3) Long (> 1500 mm) and a single bottle containing more than 13 mg of mercury; (4) Cold cathode fluorescent lamps and external mounts for electronic display of various lengths other than those listed above

Electrode fluorescent lamp

18. Cosmetics (containing more than 1 part per million of mercury), including brightening soaps and creams, excluding eye cosmetics that use mercury as a preservative and have no effective and safe alternative preservatives

19. Production of non-electronic measuring instruments such as barometers, hygrometers, pressure gauges, thermometers (other than thermometers) containing mercury (except for non-electronic measuring devices that do not have access to appropriate mercury-free alternatives, installed in large equipment, or used for high-precision measurements)

20. Mercury-containing thermometers and mercury-containing sphygmomanometers (December 31, 2025).

21. Mercury-containing batteries, excluding snap-on zinc-silver oxide batteries containing less than 2% mercury and button-type zinc-air batteries containing less than 2% mercury

22. Compact fluorescent lamps up to 30 watts and containing more than 5 mg of mercury per lamp for general lighting purposes

23. Straight tube fluorescent lamps for general lighting purposes: (1) Less than 60 watts and single

Straight tube fluorescent lamps containing more than 5 mg of mercury (using three-color phosphors); (2)

Straight fluorescent lamps that are less than 40 watts (including 40 watts) and contain more than 10 mg of mercury in a single lamp

(Using halophosphate phosphor)

24. High-pressure mercury lamps for general lighting purposes

25. Monofluorodichloroethane (HCFC-141b) is used as a foaming agent to produce refrigerator and freezer products, refrigerated container products, and electric water heater products

26. Daily fragrance containing xylene musk

(10) Fire protection

1. difluoromonochloromonobromomethane fire extinguishing agent (referred to as 1211 fire extinguishing agent), fire extinguishing system and equipment

2. Trifluoromonobromomethane fire extinguishing agent (referred to as 1301 fire extinguishing agent), fire extinguishing system and equipment (except raw materials and essential uses).

3. PVC lined fire hose

(11) Civil explosives and fireworks and firecracker products

1. fuse
2. Ammonium ladder explosives
3. Paper-shelled detonator
4. pyrotechnics and fireworks products containing sensitive agents such as explosives

(12) Architecture

1. There is alkali rapid setting with a sodium oxide equivalent content greater than 1.0% and less than the control value of the production plant

dose

(13) Others

1. Gas masks of type 59, 69, 72, TF-3
2. ZH15 isolated chemical oxygen self-rescuer, carbon monoxide filtration self-rescuer
3. National laws and regulations explicitly eliminate it, which does not meet the requirements of the ecological environment access list.

backward products that do not meet the mandatory standards of national security, environmental protection, energy consumption, water consumption, and quality, and do not meet the requirements of international environmental conventions