


Guidance Catalogue for Industrial Restructuring

(2019 edition)

Category I Encouragement

I. Agroforestry

1. Farmland construction and protection projects (including high-standard farmland construction, farmland water conservancy construction, high-efficiency water-saving irrigation, farmland remediation, etc.) comprehensive land remediation
2. Agricultural products and crop seed base construction
- 3, vegetables, fruits and flowers cultivation facilities (including soilless cultivation) advanced technology development and application, high-quality, high-yield, high-efficiency standardised cultivation technology development and application
4. Development and application of standardised large-scale livestock and poultry farming technology
5. Control of major pests and animal diseases
6. Selection, breeding, preservation and development of good varieties of animals and plants (including wild ones); biological breeding; seed (seed ) production, processing, packaging, testing, identification technology and development and application of storage

and transport equipment

7. Dry-crop water-saving agriculture, conservation tillage, ecological agricultural construction, arable land quality construction, rapid fertiliser cultivation of newly opened arable land, and technology development and application of water-fertiliser integration

8. Development and application of ecological planting (farming) technology

9. Demonstration and Application of Fully Biodegradable Mulch on Farmland and Risk Management and Remediation of Contaminated Arable Land

10. Feed, feed additives and fertilisers that have obtained the green food production material mark,

Development of high-quality, safe and environmentally friendly agricultural inputs such as pesticides, veterinary drugs and food additives permitted for green food production

11. Inland Basin Great Lakes Resource Enhancement and Protection Project

12. Pelagic fisheries, artificial reefs, fisheries and fishing harbour projects

13. Factory production of cattle and sheep embryos (in vivo) and semen

14. Agricultural biotechnology development and application

15. Development and application of technology for the maintenance and management of arable land and the rapid measurement of soil, fertiliser and water

16. Construction of agricultural, forestry crop, livestock and fishery germplasm resource reserves and protected areas; collection, preservation, identification, development and application of animal and plant germplasm resources


17. Comprehensive Utilisation of Crop Straw (Fertiliser Utilisation of Straw, Feed Utilisation of Straw, Energy Utilisation of Straw, Base Material Utilisation of Straw, Raw Material Utilisation of Straw, etc.)

18. Rural Renewable Energy Comprehensive Utilisation and Development Project (biogas project, biogas project, "three

swamps" comprehensive utilisation, biogas power generation, biomass clean heating, straw gasification clean energy utilisation project, waste fungus sticks utilisation, solar energy utilisation)

19. Comprehensive grassland and forest disaster management project

20. Returning farmland to forest and grassland, returning pasture to grassland and natural grassland vegetation restoration projects, and artificial cultivation and processing of high-quality and high-yield pasture grasses

21. New diagnostic reagents for animal diseases, epidemic  and low-toxicity and low-residue veterinary drugs (including veterinary biologics) new technology, new technology development and application

22. Natural rubber and juniper plantation production

23. Development and application of technology for monitoring harmful elements in pollution-free agricultural products and their environment of origin

expense or outlay

24. Development and application of technology for the harmless treatment of organic waste and the industrialisation of organic fertilisers
25. Development and application of pollution-free and green production technology for agricultural and fishery products
26. Storage, preservation, processing and comprehensive utilisation of agricultural, forestry and fishery products
27. Protective forest projects, natural forest and other natural resources protection projects, forest conservation, low-quality and inefficient forest renovation projects
28. Construction of national reserve forests, construction of special economic forests, construction of carbon sink forests, tree-planting and grass-planting projects and forest-planting and grass-planting projects, construction of woody food and oil bases such as oil tea and oil palm, and directed cultivation and industrialisation of biomass energy forests
29. Comprehensive soil and water erosion control project, desertification, rocky desertification control and sand control project
30. Construction of nature reserves and ecological demonstration projects for the oceans, forests, wildlife, wetlands, deserts, grasslands, etc.

- 31. Production of new materials for sand fixation, water retention and soil modification
- 32. Salt- and drought-resistant plant cultivation
- 33. Bamboo and rattan, flower base construction, product development and deep processing
- 34. Forest and grassland genetic resources protection project, wild economic forest species protection, improvement and development and utilisation
- 35. Rare and endangered wildlife and old and valuable trees protection project
- 36. Deep processing and product development of secondary fuelwood, sandy shrubs and tertiary residues
- 37. Wildlife cultivation, domestication and breeding bases and the construction of monitoring and early warning systems for epidemic sources and diseases
- 38. Cultivation of authentic Chinese medicinal herbs and high-quality, high-yield, endangered or scarce plant and animal medicinal herbs

(Farming) Artificial cultivation and development of understorey resources such as spices, wild flowers, etc.

39. wood, bamboo, grass (including straw) artificial board and its composite material technology development and application

40. Turpentine forest construction, deep processing of forest chemicals

41. Development and application of artificial weather influencing technologies such as artificial rain and hail prevention

42. Digital (information) agriculture, forestry and grassland technology development and application

43. Development and application of technology for agricultural and rural environmental protection and governance

44. Freshwater and marine water healthy aquaculture and deep processing of products, freshwater and marine water fishery resources enhancement and conservation, marine pastures

45. Construction of ecologically clean sub-watersheds and prevention of surface pollution

46. Grain and oil drying and energy-saving equipment, green grain storage biotechnology for farmers, rodent repellent technology, and the promotion and application of new grain storage silos for farmers (combined colour steel plate silos, rectangular silos with steel skeletons, steel mesh drying silos, hot-dipped

galvanised steel silos, etc.)

47. Development and application of automatic monitoring technology for crop and forest pest density

48. Meteorological satellite engineering (satellite development, production and supporting software systems, ground receiving and processing equipment, satellite remote sensing application technology) and meteorological information services

49. Digital transformation of agricultural production and smart agriculture projects

50. Collection and treatment of waste and wastewater from rural latrines and kitchen waste and wastewater and eco-agricultural joint ventures

51. Resource-oriented synergistic integrated management of rural domestic wastewater, domestic waste, animal manure, agricultural waste and farmland surface pollution

52. Leisure Agriculture and Rural Tourism Excellence Project

53. Livestock and poultry waste treatment and resource utilisation (fertiliser, energy, substrate and bedding utilisation of livestock and poultry manure, harmless treatment of sick and dead animals and poultry)

54. Digital Rural Construction and Information into Villages and Households Project

55. "Internet +" agricultural products out of the village into the city project

56. Development and use of energy-saving, wood-saving and environmentally friendly processing technologies for wood and wood (bamboo) materials

57. Application of Wet Dried Grains of Alcohol (WDGS),
Application of Liquid Organic Fertiliser from Biomass

II. Water

1. River, lake and sea embankment construction and river training projects

2. Inter-basin water transfer projects

3. Urban and rural water supply water source projects

4. Rural Drinking Water Safety Project

5. Construction of flood storage areas

6. Dredging and dredging of rivers, lakes and reservoirs

7. Dangerous reservoirs and sluice gates removal and

reinforcement projects

8. Development and application of technology for monitoring and repair of dyke hazards

9. Early warning of urban flooding and flood defence works

10. Sea Portal Improvement Project

11. Comprehensive use of water hub projects

12. Silt dam projects

13, water conservancy engineering with geosynthetics and new materials development and manufacturing

14. Construction and renovation of irrigation districts and ancillary facilities

15. Promotion and application of efficient water transmission and distribution and water-saving irrigation technologies
16. Irrigation and Drainage Pumping Station Renewal and Reconstruction Project
17. Schistosomiasis control project for water conservancy
18. Flash flood and geological disaster prevention and control projects (construction of monitoring and forecasting early warning systems in flash flood and geological disaster prevention areas and management of flash flood ditches, mudslide ditches and landslides, etc.)
19. Water ecosystem and groundwater protection and restoration project
20. Water source protection project (delineation of water source protection zones, isolation and protection, soil and water conservation, water resource protection, water ecosystem restoration and related technology development and promotion)
21. Development and application of an automated system for monitoring and forecasting soil erosion
22. Development of automated systems for flood prevention and mobilisation, flood risk mapping techniques and applications (thematic maps of flood hazard information for the middle and lower reaches of large rivers and key flood prevention zones, flood protection

zones and other specific areas)

23. Development of water resources management information systems

24. Hydrological station network infrastructure and capacity-building for hydrological water resources monitoring

25. Development and use of non-conventional water sources

III. Coal

1. Coalfield geology and geophysical exploration

2. Prevention and control of mine disasters (gas, coal dust, mine water, fire, peripheral rock, ground temperature, impact ground pressure, etc.)

3. Coal and coal-water slurry technology development and application

4. Coal co-associated resources processing and comprehensive utilisation

5. Coalbed methane exploration, development, utilisation and coal mine gas extraction and utilisation

6. Comprehensive utilisation of low calorific value fuels such as coal gangue, coal sludge, washed coal, etc.
 7. Pipeline Coal Transmission
 8. Development and application of clean and efficient coal washing technology
 9. Ground subsidence area management, mine water resource protection and utilisation
 10. Coal and power integration construction
 11. Development and Application of Coal Mining Methods and Processes to Improve Resource Recovery Rates
 12. Development and application of coal mining technology using coal gangue and other substances to fill in coal mining areas in mines, under buildings, under railways and other infrastructures, and under bodies of water
 13. Underground rescue technology and special equipment development and application
 - 14, coal mine production process integrated monitoring technology, equipment development and application
 15. Construction of large-scale coal storage and transportation centres, coal trading markets and environmental protection changes at coal storage sites
- make
16. Development and application of new type of miners' risk

avoidance and self-rescue equipment

17. Coal mine intelligent mining technology and coal mine robot
R&D application

18. Technologies for the clean and efficient use of coal

IV. Electricity

1. Large and medium-sized hydropower and pumped storage
power stations

2. Construction of power stations with ultra-supercritical units of
600,000 kilowatts and above on a stand-alone basis

3. Adopting back-pressure (pumped-back) type cogeneration,
heat and power cooling multiple cogeneration, 300,000 kilowatts.

and above ultra (super) critical cogeneration units

4. water-scarce areas with a single unit of 600,000 kilowatts and
above, large air-cooled unit power station construction

5. Natural gas peaking power generation projects in important
electricity load centres and areas with sufficient natural gas

6, 300,000 kilowatts and above circulating fluidised bed, pressurised fluidised bed, overall coal gasification combined cycle power generation and other clean coal power generation

7. One unit of 300,000 kilowatts and above using fluidised bed boilers and the use of gangue, coal, coal slurry and other power generation

8. 500kV and above AC and DC transmission and substation

9. Ultra-low emission technologies for coal-fired generating units

10. Power grid renovation and construction, incremental distribution grid construction

11. Relay protection technology, grid operation safety monitoring information technology development and application

12. Intensive design and automation technology development and application for large power stations and large grid substations

13. Cross-area power grid interconnection engineering technology development and application

14. Promotion and application of energy-saving and environmentally friendly technologies for power transmission and transformation

15. Reduction of transmission, transformation and distribution loss technology development and application

16. Distributed power supply and grid-connected (including microgrid) technology promotion and application

17. Coal-fired generating units multi-pollutant synergistic management
18. Thermal power generation waste flue gas denitrification catalyst regeneration and low temperature catalyst development and production
19. Technology development and application of low-temperature water restoration measures engineering and overfish measures engineering in hydropower generation
20. Development and application of large-capacity electrical energy storage technology
21. Electric vehicle charging facilities
22. Spent wind gas power generation technology and development and utilisation
23. Refuse incineration power generation equipment

- 24. Distributed energy
- 25. Efficient electricity substitution technology and equipment
- 26. Coal-fired coupled biomass power generation
- 27. Flexibility modification of thermal generating units
- 28. Intelligent energy systems

V. New energy

1, solar thermal power generation collector system, solar photovoltaic power generation system integration technology development and application, inverter control system development and manufacturing

2, hydrogen energy, wind power and photovoltaic power generation complementary system technology development and application

3. Design and manufacture of solar building-integrated components

4, high-efficiency solar water heaters and hot water projects, solar energy in the high-temperature use of technology development and equipment manufacturing

5. Development and application of technology for the production of non-food biomass fuels such as biomass cellulosic ethanol, biofuels (diesel, gasoline, aviation paraffin) and other non-food biomass fuels

6, biomass direct combustion, gasification power generation technology development and equipment manufacturing

7. Agroforestry biomass resource collection, transport, storage technology development and equipment manufacturing; agroforestry biomass moulding fuel processing equipment, boiler and stove manufacturing

8. Large-scale biogas and biogas production equipment based on crop residues, animal manure, domestic waste, industrial organic waste, organic sewage sludge and other types of urban and rural organic waste as raw materials

9. Biogas generator sets, biogas purification equipment, biogas pipeline gas supply, tankage equipment manufacturing

10, ocean energy, geothermal energy use technology development and equipment manufacturing

11, 5MW and above offshore wind turbine technology development and equipment manufacturing

12. Offshore wind farm construction and equipment and submarine cable manufacturing

13. Energy routing, energy trading and other energy Internet technologies and equipment

14. High-efficiency hydrogen production, hydrogen transport and high-density hydrogen storage technology development and application and equipment manufacturing, hydrogen refuelling stations and clean alternative fuel refuelling stations for vehicles

15. Development and application of mobile new energy technologies

16. Development and application of complementary technologies for traditional and new energy generation

VI. Nuclear energy

1. Uranium geological survey and uranium mining and metallurgy, uranium refining, uranium conversion

2. Advanced Nuclear Reactor and Multi-Purpose Modular Small Reactor Construction and Technology Development

3. Nuclear power plant construction

4. Manufacture of high-performance nuclear fuel components,

MOX components and metal components

5. Spent fuel reprocessing

6. Isotope, accelerator and irradiation application technology development

7. Advanced uranium isotope separation technology development and equipment manufacturing

8. Radiation protection technology development and monitoring equipment manufacturing

9. Nuclear security key system development and equipment manufacturing

10. Decommissioning of nuclear facilities and radioactive waste management

11. Life extension and decommissioning technologies and equipment for nuclear power plants

12. Emergency rescue techniques and equipment for nuclear power plants

13. Comprehensive use of nuclear energy (heating, steam supply, desalination, etc.)

VII. Oil and gas

1. Conventional oil and gas exploration and exploitation
2. Exploration and development of unconventional resources such as shale gas, shale oil, tight oil, oil sands, gas hydrates, etc.
3. Construction of crude oil, natural gas, liquefied natural gas, refined petroleum products storage and pipeline transmission facilities, networks and liquefied natural gas refuelling facilities
4. Comprehensive utilisation of oil and gas associated resources
5. Development and utilisation of technologies for oil and gas field recovery enhancement, production safety and security, and ecological environment restoration and pollution prevention and control engineering technologies
6. Venting natural gas recycling and device manufacturing
7. Natural gas distributed energy technology development and application
8. Development and application of volatile oil and gas recovery technology for petroleum storage and transport facilities
9. Liquefied natural gas technology, equipment development and application
10. Oil and gas recovery automatic monitoring equipment

VIII. Steel

- 1, ferrous metal mine replacement resource exploration and

key exploration technology development, low-grade difficult to select and use of integrated technology, high-quality iron ore concentrate green, efficient and intelligent production technology and equipment

2. R&D and application of advanced technologies such as precise control of coke oven heating, resource utilisation of coke oven flue gas desulphurisation and denitrification by-products, resource utilisation of desulphurisation waste liquids, deep treatment and reuse of coking wastewater, coal tar charcoal-based materials, needle coke made from coal pitch, high value-added utilisation of coke oven gas, recovery of residual heat from barren gas and recycled ammonia, and integration of low-order pulverised coal drying and forming-drying and distillation,

Research and development and application of technologies such as comprehensive sewage deep treatment and reuse, cold rolling wastewater deep treatment and reuse, sintering flue gas desulphurisation wastewater treatment and reuse, etc.

3. Non-blast furnace ironmaking technology

4, high-performance bearing steel, high-performance gear steel, high-performance cold-heading steel, high-performance alloy spring steel, steel for advanced rail transportation equipment, energy-saving and new energy vehicles with steel, low iron loss and high magnetic susceptibility to electrical steel, high-performance mould steel, building structures with high-strength seismic steel bars, steel plates and profiles, ultra-high-strength bridges and cables, high-performance pipeline steel, high-performance wear-resistant steel, high-performance corrosion-resistant steel, high-intensity High-toughness steel for construction machinery, steel for marine engineering equipment and high-tech ships, special steel for power equipment, high-quality special steel for oil and gas drilling, collecting and transporting, high-performance stainless steel, high-temperature alloys, high-ductility cold-rolled ribbed steel bars, non-quenched steel, high-strength steels for automotive and other machinery, high-purity and high-quality alloy powder, composite steel, high-purity and high-

performance steel for semiconductors.

5、 On-line heat treatment, online performance control, online forced cooling of the new generation of thermal machine Mechanical controlled processing (TMCP) process, direct rolling of cast billets, headless rolling, ultra-rapid cooling, energy-saving and high-efficiency rolling and subsequent treatment and other technological applications

6, diameter 600 mm and above ultra-high-power electrodes, blast furnace with microporous and ultra-microporous carbon bricks, special graphite (high strength, high density, high purity, high modulus) graphite (quality) cathode, graphite furnace development and production of the internal string, environmental protection, homogenisation of the cooler material equipment development and production applications

7, coke oven, blast furnace, hot blast furnace with long life energy-saving and environmentally friendly refractories production process; refined steel with low-carbon, carbon-free refractories, insulation materials and high-efficiency continuous casting of functional and environmentally friendly refractories production process

8、 Quality control technology for the whole process of iron and steel products

9. Treatment of social waste (excluding hazardous waste) using steel production equipment

10. Ultra-low emission technologies for the iron and steel industry, as well as by-product resourcing and re-utilisation technologies.

various genera of flowers of Asteracea family (daisies and chrysanthemums)

11. Metallurgical solid waste (including metallurgical mine waste rock, tailings, iron and steel mills generated by the

(Various types of dust, mud, slag, iron, etc.) comprehensive utilization of advanced technology; metallurgical waste liquid (including waste water, waste acid, waste oil, etc.) recycling technology and equipment

12. Development and application of recyclable process technology between steel and related industries

13, belt roasting and other high-efficiency pellet ore production process technology, high proportion of blast furnace pellet smelting process technology

IX. Non-ferrous metals

1. Exploration and development of replacement resources for existing mines of non-ferrous metals, and mining of deep and

difficult-to-mineralise deposits of scarce resources

2, high efficiency, low consumption, low pollution, new smelting technology development

3 、 Efficient, energy-saving, low-pollution, large-scale recycling and comprehensive utilisation of renewable resources(1) Recycling of miscellaneous non-ferrous metal scrap (2) Comprehensive utilization of valuable elements (3) Comprehensive utilization of red mud and other smelting slag (4) Extraction of alumina from high-alumina fly ash (5) Reduction, resourcing and harmless use and disposal of tungsten smelting slag

4, information, new energy, non-ferrous metal production of new materials(1) information: silicon single crystal and polished sheet with a diameter of more than 200mm, more than 125mm diameter straight pull or more than 50mm diameter horizontal growth of compound semiconductor materials, aluminium, copper, silicon, tungsten, molybdenum, rare earths and other large-size high-purity targets, ultra-high purity rare metals and targets, high-end electronic-grade polycrystalline silicon, copper, copper, copper and molybdenum, copper and molybdenum, copper, copper, copper, copper and molybdenum.

Nickel-silicon and copper-chromium-zirconium lead frame materials, electronic solder, etc. (2) New energy: nuclear-grade zirconium sponge and zirconium materials, high-capacity and long-life secondary battery electrode materials, precursor materials

5. New non-ferrous materials for transport, high-end manufacturing and other fields. (1) Transportation: High-strength and high-conductivity copper alloys such as copper alloy precision strips and ultra-long wire products with compressive strength of not less than 500MPa and conductivity of not less than 80% IACS, new high-strength, high-toughness and corrosion-resistant aluminium alloys for the main bearing structure of transportation tools and large-size products (compressive strength of aluminium alloys used in aviation of not less than 650MPa and for high-speed trains of not less than 500MPa), high-performance magnesium alloy and its products. 500MPa) high-performance magnesium alloy and its products. (2) High-end manufacturing and other fields: high-performance tungsten materials and tungsten-based composite materials for aerospace, nuclear industry, medical and other fields, high-performance ultra-fine, ultra-coarse, composite structure of cemented carbide materials and deep-processing products, honeycomb ceramic carriers and rare-earth catalytic materials, low-modulus titanium alloys and memory alloys, such as biomedical materials, corrosion-resistant heat

exchanger copper alloys and titanium alloys, high-end metal powder materials for 3D printing. High-quality rare earth magnetic materials, hydrogen storage materials, optical functional materials, alloy materials, special ceramic materials, additives and high-end applications.

6, new energy, semiconductor lighting, electronic field with continuous metal coil, vacuum

Coating materials, high-performance copper foil materials

X. Gold

1. Prospecting and mining of gold at depth (1000 metres and below)

2、 Recovering gold from tailings and waste rock

3、 Efficient comprehensive utilisation of valuable elements in gold smelting (metallurgical recovery rate of difficult-to-process ores)

$\geq 75\%$; metallurgical recovery rate of low-grade ore dressing $\geq 65\%$ (excluding heap leaching) when gold and other minerals are co-produced, the comprehensive utilisation rate is $\geq 70\%$; when gold is associated with other minerals, the comprehensive

(Utilisation rate \geq 50 per cent)

XI. Petrochemicals

1. Development and application of high-standard oil production technology, p-xylene from coal via methanol

2, sulfur, potassium, boron, lithium, bromine and other shortages of chemical mineral resources exploration and development and comprehensive use of phosphorus ore dressing tailings comprehensive use of technology development and application, low-grade phosphorus ore, fluorite ore mining and use of phosphorus ore, fluorspar mine associated resources comprehensive utilization

3, zero pole distance, oxygen cathode plasma membrane caustic soda electrolysis tank energy-saving technology, waste hydrochloric acid to make chlorine gas and other comprehensive utilization of technology, chromium salt clean production of new technology development and application, closed high-pressure water quenching of slag and non-secondary pollution of phosphorus sludge treatment of yellow phosphorus production process, the production of potassium permanganate by pneumatic fluidisation tower, the full heat energy recovery thermal method of phosphoric acid production, large-scale defluoridation of calcium phosphate production plant

4, 100,000 tonnes / year and above, ion exchange bisphenol A, 150,000 tonnes / year and above, direct oxidation of propylene oxide, 200,000 tonnes / year and above, co-oxidation of propylene oxide, 10,000 tonnes of adiponitrile production units, 10,000 tonnes of aliphatic isocyanate production technology development and application

5, high-quality potash and a variety of special-purpose fertilisers, water-soluble fertilisers, liquid fertilisers, medium and trace elements fertilisers, nitro fertilisers, slow and controlled release fertilisers production, phosphogypsum comprehensive utilization of technology development and application

6, efficient, safe, environmentally friendly pesticides, new varieties of new agents, special intermediates, the development and production of additives, directed synthesis of chiral and three-dimensional structure of the pesticide production, bio-pesticides, new products, the development and production of new technologies

7, water-based wood, industrial, marine coatings, high solids, solvent-free, radiation-curing coatings, low VOCs content of environmentally friendly, resource-saving coatings for large aircraft, high-speed rail and other key areas of high-performance anticorrosive coatings production; single-line capacity of 30,000 tonnes

/ year and above the production of chlorination method of titanium dioxide

8. Reactive dyestuffs for high fixation rate, high colour fastness, high lifting, high levelling, high reproducibility, low staining, low salt, low temperature, small bath ratio dyeing and wet short steam rolling dyeing, disperse dyestuffs with high colour fastness, high washing fastness, high colour fastness, high light fastness, and low staining (nylon, spandex, ultra-fine denier polyester fibre dyeing, high alkali resistance, low toxicity and low harmfulness for environmental protection, small bath ratio dyeing, and polyamide fibre, Acid dyes for dyeing polyamide fibre, wool and leather with high washing resistance, high chlorine bleaching, high levelling and high covering power, high colour fastness and functional reduction dyes, high colour fastness and functional organic pigments with low aromatic amines, no heavy metals, easy dispersion and stock colouring, and aqueous liquid colourants produced by adopting the above mentioned dyes and pigments.

9. New technologies for clean production and intrinsic safety of dyes, organic pigments and their intermediates (including continuous processes such as continuous sulfonation of fuming sulphuric acid, continuous nitrification, continuous acylation, continuous extraction, continuous hydrogenation reduction, continuous diazo coupling, etc., and technologies such as catalysis, sulphur trioxide sulphonation, adiabatic nitrification,

directional chlorination, combined synergies, solvent reaction, hydrogen peroxide oxidation, recycling, etc., as well as applicable technologies to replace highly toxic raw materials such as phosgene gas and membrane filtration and stock drying technologies) development and applications

10, ethylene-vinyl alcohol copolymer resin, polyvinylidene chloride and other high-performance barrier resins, polyisobutylene, ethylene-octene copolymer, metallocene polyethylene and other special polyolefins, high-carbon α -olefins and other key raw materials development and production, liquid crystal polymers, polyphenylene sulfide, polyphenylene ether, aryl ketone polymers, polyarylene ether nitrile, and other engineering plastics production, as well as the blending of modified, alloying technology development and application of high water-absorbent resins, conductive resins and degradable polymers development and production, long carbon chain nylon, high temperature resistant nylon and other new polyamide development and production Development and production of high water absorption resins, conductive resins and degradable polymers, development and production of new polyamides such as long carbon chain nylon and high temperature resistant nylon.

11, 50,000 tonnes / year and above, brominated butyl rubber,

soluble polybutadiene rubber, rare-earth male butadiene rubber,
acrylate rubber, solid content of more than 60% of the butadiene
latex, isoprene latex

Development and production of synthetic rubber chemical modification technology development and application, polypropylene thermoplastic elastomer (PTPE) thermoplastic polyester elastomer (TPEE) hydrogenated styrene-isoprene thermoplastic elastomer (SEPS) dynamic full vulcanisation thermoplastic elastomer (TPV) silicone modified thermoplastic polyurethane elastomers, and other thermoplastic elastomers development and production of materials

12, modified, water-based adhesives and new hot melt adhesives, environmentally friendly water-absorbing agents, water treatment agents, molecular sieve solid mercury, mercury-free and other new efficient, environmentally friendly catalysts and additives, nano-materials, functional membrane materials, ultra-clean and high purity reagents, photoresists, electronic gases, high-performance liquid crystal materials, and other new fine chemicals, such as development and production

13, phenyl chlorosilane, vinyl chlorosilane and other new organosilicon monomers, phenyl silicone oil, amino silicone oil, polyether modified silicone oil, etc., phenyl silicone rubber, phenyl silicone rubber and other high-performance silicone rubbers and hybrid materials, high-performance resins, such as methyl phenyl silicone resins, and triethoxysilanes and other high-efficiency coupling agents.

14, perfluorooethers and other special fluorine-containing monomers, high-quality fluorine resins such as polyperfluoroethylene propylene (PFPE), polyvinylidene fluoride (PVF), polytrifluoroethylene chloride (PTFE), and ethylene-tetrafluoroethylene (ETFE) copolymers, high-performance fluoroelastomers such as fluorine ether rubber (FER), fluosilicone rubber (FSR), tetrapropyl fluorine rubber (TPR), and high-fluoro-246 fluoroelastomer (HFBR), fluorine-containing lubricating greases (FGLs), zero-ODS (Ozone Depleting Potential) low-global-warming potential (GWP) ODS (ODS) substitutes, development and application of substitutes and alternative technologies for perfluorooctane sulfonyl compounds (PFOS) and perfluorooctanoic acid (PFOA) and its salts, fluorinated fine chemicals and high-quality fluorinated inorganic salts

15, high-performance radial tyres (including tubeless load radial tyres, giant engineering radial tyres) radial tyres (over 49 inches) low profile and flat (less than 55 series) and intelligent manufacturing technology and equipment, aviation tyres, agricultural radial tyres and supporting special materials and equipment production.

Development and application of new natural rubber

16. Biopolymer materials, fillers, reagents, chips, interferons, sensors, cellulose biochemical product development and production

17. Comprehensive utilisation of by-products such as carbon tetrachloride, silicon tetrachloride, methyltrichlorosilane, trimethylchlorosilane, etc., carbon dioxide capture and application

XII. Building materials

1, the use of not less than 2000 tonnes / ~~day~~(including) new dry-process cement kiln or not less than 60 million pieces / year (including) new sintered brick production line co-disposal of waste, cement kiln co-disposal of waste incineration fly ash using water washing process desalination pre-treatment; new dry-process cement kiln production of sulphur

(R&D and application of special cement technology and products such as (iron) aluminates cement, aluminates cement, white silicate cement, etc.; R&D and application of new static cement clinker calcination technology; R&D and application of alternative fuel technology for new dry-process cement kiln and flue gas carbon dioxide capture and purification technology; development and application of cement admixture; energy-saving modification of grinding system (cement vertical mill, final grinding of raw material roller

press, etc.); development of automatic bag inserting machine for cement packaging and packaging machine and car loading machine; development of cement packaging automatic bag inserting machine and packaging machine and car loading machine; development of cement packaging automatic bag inserting machine and packaging machine and car loading machine.) development and application of automatic bag insertion machine, packaging machine and truck loading machine for cement packaging

2, the scale of not more than 150 tons / day (including) of electronic information industry with ultra-thin substrate glass, touch glass, high alumina cover glass, carrier glass, light guide glass production lines, technology and equipment and products; high borosilicate glass, microcrystalline glass; transport and solar energy equipment with alumino-silicate glass; large-size (1 square metre and above) copper indium gallium selenide and cadmium telluride and other thin film photovoltaic cell back electrode glass; energy saving, Safety, display, intelligent control and other functional glass products and technology and equipment; continuous automated vacuum glass production line; glass melting kiln oxygen/oxygen-enriched combustion technology; a kiln with multiple lines of flat glass production technology and

equipment; glass melting kiln with a low

Thermally conductive fused zirconium corundum, long-life (12 years and more) chrome-free alkaline high-grade refractories

3. Building materials applicable to assembled buildings; low-cost phase-change energy storage wall materials and wall components; photovoltaic building integration components; rock wool composite products / parts; aerogel energy-saving materials; Class A flame-retardant thermal insulation products, composite vacuum insulation materials for construction, thermal insulation, decoration and other functional integration of composite panels, long-life waterproof, anti-corrosion and flame-retardant composite materials used in bridges and tunnels, underground pipeline corridors, island facilities, offshore facilities, etc., modified asphalt waterproofing roll-roofing, polymer waterproofing roll-roofing, waterborne or high-solids waterproofing coatings, and other new building waterproofing materials; Functional decoration materials and products, green aldehyde-free artificial boards and pavement bricks (boards) pavement permeable bricks (boards) square permeable bricks (boards) decorative bricks (blocks) antique bricks, ecological slopes bricks (blocks) ecological bricks (blocks), waterworks, such as green building materials, technological development and production and application of ecological bricks (blocks)

4. Technology development and application of centralised ceramic powder making and clean coal gas production in ceramic parks; Single area greater than 1.62 square metres (including) of ceramic board production lines and technology development and application of equipment; the use of tailings, waste and other production of lightweight foam ceramic wall panels and thermal insulation board production lines and technology development and application of equipment

5, a flushing water consumption of 6 litres and below the toilet, squatting toilet, water-saving domestic water appliances and water-saving control equipment, intelligent toilet, sanitary integrated system, to meet the requirements of the assembly of the overall sanitary ware parts development and production

6. 80,000 tonnes/year and above of alkali-free glass fibre roving (monofilament diameter >9 micron) pool kiln drawing technology, 50,000 tonnes/year and above of alkali-free glass fibre yarn (monofilament diameter ≤ 9 micron) pool kiln drawing technology, ultra-fine, high-strength and high-modulus, alkali resistance, low dielectricity, high silica-oxygen, degradation, heteromorphic cross-section and other high-performance glass fibre and glass fibre products, technology development and production.

Wulan fibre pool kiln drawing technology; silicon carbide fibre, composite fibre; aerospace, environmental protection, offshore, electrical and electronic, transportation, energy, construction, Internet of Things, animal husbandry and other fields of thermoplastic, thermosetting composite products and their efficient molding preparation process and equipment; resin-based composite materials waste recycling technology and equipment; 200,000 tons / year and above mineral raw materials powder processing production line

7, the use of synthetic mineral fibres, aramid fibres, etc. as reinforcing materials, non-asbestos friction, sealing materials, new technology, new product development and production

8, information, new energy, national defence, aerospace and other fields with high-quality artificial crystal materials, products and devices, functional artificial diamond material production equipment technology development; high purity quartz raw materials (purity greater than or equal to 99.999%) semiconductor with high-end quartz crucibles, chemical vapour phase synthesis of quartz glass and other manufacturing technology development and production; aerospace and other fields of the required special glass manufacturing technology development and production Production; high-purity nanoscale spherical silicon micropowder and high-purity industrial silicon production, application and

development and application of technology and equipment

9, graphene materials production and application development; environmental treatment, energy saving and storage, electronic information, thermal insulation, agriculture and other non-metallic mineral functional materials production and its technology and equipment development and application; mineral ultra-fine materials processing online testing and control of intelligent production lines; non-metallic mineral mining, processing, trade, application, investment and other industrial big data platform technology development and construction

10, 300,000 square metres / year and above, ultra-thin composite stone production; mechanised stone mining; ore crushed materials and plate trimmings, stone powder comprehensive utilization of production and technology and equipment development; the production of inorganic artificial stone, the use of non-toxic or low-toxic resin resin-based artificial stone production

11, the use of mine tailings, construction waste, industrial waste, rivers, lakes (canals) and sea sludge, as well as agricultural and forestry residues and other secondary resources for the production of building materials and the development of process technology and equipment

12, fine ceramic powders, ceramic precursors suitable for additive manufacturing and ceramic short-cut fibres; ceramic balls, ceramic valves, ceramic screws and other precision molding of ceramic parts; ceramic membranes, honeycomb ceramics, foam ceramics; ceramic substrates, ceramic insulating components, electronic ceramic materials and components; continuous ceramic fibres and fibre-reinforced ceramic matrix composite materials; fine ceramic materials and components for medical use; ceramic ink materials; Industrial ceramics technology development and production of ceramic materials for precision grinding and polishing applications; information, new energy, national defence, aerospace and other fields with high-performance ceramic manufacturing technology development and production

13. The main production areas such as storage area, host mixing building, material conveying system, etc. are realised. Intelligent ready-mixed concrete production lines that are fully enclosed, equipped with active dust collection and dust reduction


equipment, operate and manage with an integrated information-based management system, and have the capacity to absorb municipal solid waste; the development and application of concrete for marine engineering, lightweight and high-strength concrete, ultra-high-performance concrete, and self-repairing concrete materials.

14. Development and application of product quality traceability system for building materials used in engineering or equipment

XIII. Pharmaceuticals

1, the development and production of new drugs with independent intellectual property rights, the development and production of natural drugs, the first development and production of generic drugs to meet the needs of China's major and multiple disease prevention and treatment, the development and production of new dosage forms, new excipients, children's drugs and drugs in short supply, and the development of technologies such as membrane separation, supercritical extraction, new types of crystallisation, chiral synthesis, enzyme synthesis, sequential reaction and system control in the process of drug production. Application, quality and production of essential drugs

Technology level upgrading and cost reduction, energy saving and emission reduction technology for API production, development and application of new drug formulation technology

2, major disease control epidemic , antibody drugs, gene therapy drugs, cell therapy drugs, recombinant protein drugs, nucleic acid drugs, large-scale cell culture and purification technology, large-scale synthesis of medicinal peptides and nucleic acids, antibody coupling, serum-free and protein-free medium culture, fermentation, purification technology development and application of enzymes such as cellulase, alkaline protease, diagnostic enzymes and other enzyme preparations, the use of modern biotechnology to transform the Traditional production process

3. Development and production of new pharmaceutical packaging materials and technologies (neutral borosilicate pharmaceutical glass, chemically stable, degradable, functional materials with high barrier properties, aerosols, powder mists, self-administration, pre-filling, automatic mixing, and other new packaging drug delivery systems and drug delivery devices)

4. Artificial breeding technology development of endangered and scarce medicinal plants and animals, standardised breeding of experimental animals and animal experimentation services, application of advanced agricultural technology in standardised

planting and breeding of Chinese herbal medicines, development and application of new technology for quality control of Chinese medicines, process technology of modern dosage forms of Chinese medicines, inheritance and innovation of Chinese medicinal tablets concocting technology, development and production of classical Chinese medicinal prescriptions, research and development and production of innovative medicines in Chinese medicines, development and production of proprietary Chinese medicines Secondary development and production, development and production of ethnopharmaceuticals

5, new medical diagnostic equipment and reagents, digital medical imaging equipment, artificial intelligence-assisted medical equipment, high-end radiotherapy equipment, electronic endoscopes, surgical robots and other high-end surgical equipment, new types of stents, prostheses and other high-end implantable and interventional equipment and materials and the development and application of additive manufacturing technology, life-supporting equipment for critical illnesses, mobile and remote diagnostic and therapeutic devices, and new genes, proteins and cell diagnostic equipment.

6, high-end pharmaceutical equipment development and production, transdermal absorption, powder spray and other new preparation production equipment, large-scale bioreactors and ancillary systems, high-efficiency separation and purification of protein equipment, high-efficiency extraction of traditional Chinese medicine equipment, continuous production of pharmaceutical technology and equipment

XIV. Machinery

1, high-grade CNC machine tools and supporting CNC systems: five-axis and above linkage CNC machine tools, CNC systems, high-precision, high-performance cutting tools, gauges and measuring instruments and abrasives

2, large generating units, large petrochemical plants, large metallurgical equipment and other major technical equipment with decentralised control system (DCS) fieldbus control system (FCS) new energy generation control system

3, with motion control functions and remote IO programmable control system (PLC) input and output points more than 512, with independent software systems, independent communication protocols, compatible with a variety of general communication protocols, support for real-time multi-tasking, with a variety of programming languages, with a customisable instruction set and so

on.

4, digital, intelligent, networked industrial automatic testing instruments, in-situ online component analysis instruments, electromagnetic compatibility testing equipment, smart meters for smart grids (with sending and receiving signals, self-diagnostics, data processing functions) low-power consumption of various types of intelligent sensors with wireless communications, encrypted sensors, nuclear-level monitoring instruments and sensors

5, for radiation, toxic, flammable, explosive, heavy metals, dioxins and other detection and analysis of instrumentation, water quality, smoke, air testing instruments; pharmaceuticals, food, biochemical testing of high-end mass spectrometer, chromatography, spectrometer, X-ray, nuclear magnetic resonance spectrometry, automated biochemical detection systems and automatic sampling systems and sample processing systems

6, scientific research, intelligent manufacturing, testing and certification with measurement accuracy of microns or more

Multi-dimensional geometrical measuring instruments, automated, intelligent and multi-functional material mechanical property testing instruments, non-destructive testing equipment such as industrial CT and 3D ultrasonic flaw detectors, electron microscopes with a resolution higher than 3.0 nanometres for nano-observation measurements.

7, the city's intelligent visual surveillance, video analysis, video-assisted criminal investigation technology equipment provide or equip

8. Mine hazards (gas, coal dust, mine water, fire, rock noise, vibration, etc.)

Monitoring instrumentation and security alarm systems

9. Comprehensive meteorological observation instruments and equipment (ground, high-altitude and marine meteorological observation instruments and equipment, professional meteorological observation, atmospheric composition observation instruments and equipment, meteorological radar and consumables, etc.) mobile emergency meteorological observation system, mobile emergency meteorological command system, meteorological measurement and calibration equipment, meteorological observation instruments and equipment operation monitoring system

10. Hydrological data collection instruments and equipment,

hydrological instrument measurement and verification equipment

11. Instrumentation for monitoring earthquakes and geological disasters

12. Ocean observation, detection and monitoring technology systems and instrumentation

13. Digital multifunctional integrated office equipment (copying, printing, faxing, scanning) digital cameras, digital film projectors and other modern cultural office equipment

14. speed of 200 km/h or more rolling stock bearings, axle weight of 23 tonnes and above large axle weights

Heavy-duty railway wagon bearings, high-power electric/internal combustion locomotive bearings with a service life of 2.4 million metres.

The new type of urban rail transit bearings with a service life of more than 250,000 kilometres, lightweight, low friction torque automotive bearings and units, high-temperature-resistant (more than 400 degrees Celsius) automotive turbine, mechanical supercharger bearings, P4, P2 grade CNC machine tool bearings, 2 megawatts (MW) and above wind turbines with various types of precision bearings, service life of more than 5,000 hours of large-scale construction equipment, such as shield machines.

Industrial machinery bearings, P5 grade, P4 grade high-speed precision metallurgical mill bearings, aircraft engine bearings and other aerospace bearings, medical CT machine bearings, deep-well ultra-deep-well oil drilling rig bearings, marine engineering bearings, electric vehicle drive motor system high-speed bearings (speed $\geq 12,000$ rpm) industrial robots, RV gearboxes harmonic speed reducer bearings, as well as the above bearings, and parts of the bearing

15. Mixed-flow hydroelectric power generation equipment with a single capacity of 800,000 kilowatts or more (hydraulic turbine.)

Generator and governor, excitation and other ancillary equipment) single machine capacity of 350,000 kilowatts and above pumped storage, 50,000 kilowatts and above through-flow and 100,000 kilowatts and above impulse-type hydroelectric equipment and its key ancillary auxiliary machinery

16,600,000 kilowatts and above supercritical, ultra-supercritical thermal power units with generator protection circuit breaker, pumps, valves and other key supporting auxiliary machinery, components

17, 600,000 kilowatts and above supercritical parameters circulating fluidised bed boilers

18, gas turbine high temperature components (300MW or more

heavy combustion engine with rotor body forgings, large high temperature alloy discs, cylinder blocks, blades, etc.) and control systems

19, 600,000 kilowatts and above power generation equipment with rotor (forging, welding) rotor, blades, pumps, valves, spindle ring and other key castings, forgings

20, high-strength, high-plasticity ductile iron parts; high-performance peristaltic iron castings; high-precision, high-pressure, high-flow hydraulic castings; non-ferrous alloys, special casting process castings; high-strength steel forgings; high-temperature, low-temperature, corrosion-resistant, wear-resistant and other high-performance, lightweight castings of new materials, forgings; high-precision, low-stress machine tool castings, forgings; automotive, energy equipment, rail transportation equipment, aerospace, military, Key castings and forgings for marine engineering equipment

21, 500 kilovolts (kV) and above ultra-high voltage, ultra-high voltage AC and DC power transmission equipment and

Key components: transformers (outlet devices, bushings, regulator switches) switchgear (arc extinguishing devices, hydraulic operating mechanisms, large pot insulators) high-strength pillar insulators and hollow insulators, suspended composite insulators, insulation mouldings, extra-high-voltage lightning arrester, DC lightning arrester, electronically controlled, optically controlled thyristors, converter valves (flat-wave reactor, water-cooled equipment) control and protection equipment, DC field Complete sets of equipment, etc.

22, high-voltage vacuum components and switchgear, intelligent medium-voltage switchgear components and complete sets of equipment, insulated switchgear using environmentally friendly medium-voltage gases, intelligent (communicable) low-voltage electrical appliances, amorphous alloys, rolled iron cores and other energy-saving distribution transformers

23, second-generation improved, third-generation, fourth-generation nuclear power equipment and key components, multi-purpose modular small reactor equipment and key components; 2.5 MW or more of wind power equipment and 2.0 MW or more of wind power equipment control systems, converters and other key components; various types of crystalline silicon and thin-film solar photovoltaic cell production equipment; ocean energy (tidal, wave,

ocean current) power generation equipment

24, direct use of blast furnace molten iron production of cast iron parts of the short process melting process and equipment; aluminium alloy centralised melting short process casting process and equipment; casting with high purity pig iron, casting with ultra-high purity pig iron production process and equipment; clay sand high compactness moulding automatic production line and supporting sand treatment system; self-hardening sand high-efficiency complete sets of equipment and supporting sand treatment system; disappearing mould / V method / solid complete sets of technology and equipment; External hot air-fed water-cooled long furnace age large tonnage (more than 10 tonnes / hour) cupola; external hot air cupola waste heat utilization technology and equipment; large-scale die casting machine (clamping force of more than 3,500 tons) automated intelligent core making centre; shell, precision core moulding, silicone melting mould, die casting, semi-solid, extrusion, differential pressure, pressure regulating, and other special casting technology and equipment; applied to the casting production of the 3D printing and sand cutting Rapid prototyping technology and equipment; automatic pouring machine; casting online testing technology and equipment; castings of efficient automated cleaning of complete sets of

Equipment; manufacturing and application of foundry-specific robots

25, casting resin sand, clay sand and other dry (hot)

regeneration reuse technology application; environmental protection resin, inorganic binder moulding and core-making technology application

26, high-speed precision presses (180-2500kN, 2000-750 times / min), ferrous metal hydraulic extrusion machine (more than 150 mm / s) light alloy hydraulic extrusion machine (less than 10 mm / s) high-speed precision shear (more than 2,000kN, 70-80 times / min, section slope 1.5° or less) high pressure forming machine (10000kN) (above 10000kN) large bending machine

(60,000kN or more) Digital Sheet Metal Processing Centre (Flexible Manufacturing Centre/Flexible Manufacturing System)

High-speed Power Spinning Machine (Radial Spinning Pressure/Per Wheel: 1000kN, Axial Spinning Pressure)

/(each wheel: 800kN, spindle torque: 240kN-m, maximum spindle

speed: 95 rpm) CNC multi-station presses (replaced by servo multi-station presses) large nominal pressure cold/warm forging

presses (effective nominal force stroke of more than 25mm, nominal force of more than 10,000kN) more than 4-station automatic

temperature/hot forging presses (Nominal force of 16000kN or

more) servo multi-station presses (12000-30,000kN) large servo presses

(8000-25,000kN) progressive die presses (6000-16,000kN)
 composite drive thermoforming presses (nominal force of)
 $\geq 12000\text{kN}$, symmetrical linkage force augmentation mechanism,
 the number of strokes 14 to 18 times / minute, the slide stroke
 1100mm, slide adjustment 500mm, the maximum speed of
 1000mm / s, the maximum speed of return 1000mm / s, linkage
 force augmentation coefficient of ≥ 6) high-speed composite
 drive press intelligent stamping line (nominal force $\geq 30600\text{kN}$,
 composite cylinder drive symmetry) Linkage force mechanism,
 the number of single continuous stroke ≥ 12 times / min, the
 production line beat 6 ~ 8 pieces / min) a new generation of
 aircraft skin integrated drawing shape intelligent equipment
 development and manufacturing (maximum tensile force)
 $\geq 15\text{MN}$, plate thickness $\leq 10\text{mm}$, maximum jaw opening $\leq 80\text{mm}$, jaw
 limit

(Load factor (unit width of the maximum tensile force) $\geq 63\text{kN} / \text{mm}$, the master cylinder tensile position synchronisation accuracy of $\pm 0.5\text{mm}$, extension control accuracy of $\leq 0.2\%$) Aerospace large and very large sheet metal parts liquid-filled forming process and equipment (large culvert ratio of the engine intake lip manufacturing technology as a whole) Equipment Nominal force of 200MN, deep-drawing tonnage of 16,000T, crimping tonnage) 4000T, slide stroke 3000mm, table size 5000mm \times 5000mm, liquid chamber pressure 10MPa, liquid chamber volume 6000L, drainage capacity 4300L) radial forging machine (precision forging machine) and rotary forging machine (630-22000kN) pulsation extruder (vibration extruder) (630-22000kN) high-speed upsetting machine (100 pieces/minute, forging weight 1,000kN); high speed forging machine (1,000kN); high speed forging machine (1,000kN); high speed forging machine (1,000kN); high speed forging machine (1,000kN) (100 pieces/minute, weight of forging piece over 1.6kg)

27, ethylene cracking three machines, 400,000 tonnes (polypropylene, etc.) extrusion pelletising units, 50

Key equipment such as 10,000 tonne syngas, ammonia and oxygen compressors

28, Large wind power generation seals (service life of more than 7 years,

operating temperature $-45\text{ }^{\circ}\text{C} \sim 100\text{ }^{\circ}\text{C}$) nuclear power plant main pump mechanical seal (applicable pressure $\geq 17\text{ MPa}$, working temperature $(26.7\text{ }^{\circ}\text{C} \sim 73.9\text{ }^{\circ}\text{C})$ shield machine main bearing seals (service life of 5000 hours) car powertrain system and transmission system rotary seals; oil drilling, logging equipment seals (applicable pressure $\geq 105\text{ MPa}$) hydraulic bracket seals; high PV value of the rotary dynamic seals; large diameter ($\geq 2\text{ metres}$) mechanical seals; aerospace seals (operating temperature $-54\text{ }^{\circ}\text{C} \sim 275\text{ }^{\circ}\text{C}$, linear speed $\geq 150\text{ m / s}$); high-pressure hydraulic components seals (applicable pressure $\geq 31.5\text{ MPa}$); high precision hydraulic castings (runner size accuracy $\leq 0.25\text{ mm}$, fatigue performance test $\geq 150\text{ m / s}$) Seals for aerospace (operating temperature $-54\text{ }^{\circ}\text{C} \sim 275\text{ }^{\circ}\text{C}$, linear speed $\geq 150\text{ m / s}$) high-pressure hydraulic components seals (applicable pressure $\geq 31.5\text{ MPa}$) high-precision hydraulic castings (runner dimensional accuracy of $\leq 0.25\text{ mm}$, fatigue performance test ≥ 2 million times)

29, high-performance non-asbestos sealing material (heat-resistant temperature $500\text{ }^{\circ}\text{C}$, tensile strength ≥ 20) (MPa) high-performance carbon graphite sealing material (heat-resistant temperature $350\text{ }^{\circ}\text{C}$, compressive strength ≥ 270) (MPa) high-performance pressureless sintered silicon carbide (flexural strength $\geq 200\text{ MPa}$, thermal conductivity

≥ 130 watts/meter-kelvin (W/m-K)

30, intelligent welding equipment, laser welding and cutting, electron beam welding and other high-energy beam welding and cutting equipment, stirring and friction, composite heat source and other welding equipment, digital, large-capacity inverter welding power supply

31 、 Large-sized moulds (the peripheral length of the lower base plate is more than 2500 mm for stamping moulds, and more than 1400 mm for cavity moulds) precision moulds (the precision of stamping moulds is less than 0.02 mm, and the precision of cavity moulds is less than 0.05 mm) multi-station automatic deep drawing moulds, and multi-station automatic fine blanking moulds.

32 、 Large-sized (furnace capacity 1 tonne or more) multi-functional controlled atmosphere heat treatment equipment, programme

Controlled chemical heat treatment equipment, program-controlled multifunctional vacuum heat treatment equipment and vacuum heat treatment equipment with a charge of 500 kg or more, all-fibre lined heat treatment furnace

33, alloy steel, stainless steel, weathering steel high-strength fasteners, titanium alloys, aluminium alloy fasteners and precision fasteners; aviation, aerospace, high-speed rail, engine and other

springs; high-precision transmission coupling parts, large-scale rolling mill coupling shafts; new type of powder metallurgy parts: high-density (\geq)

(7.0 g/cm³) high-precision, complex shape structural parts; high-speed trains, aircraft friction devices; oil bearing; gear transmission for rolling stock, marine variable pitch gear transmission system,

2.0 MW or more wind power transmission, metallurgy and mining machinery transmission; automotive powertrain, construction machinery, large agricultural machinery chain; major equipment and key projects supporting basic parts and components

34. Desalination equipment

35. Robots and integrated systems: special service robots, medical rehabilitation robots, public service robots, personal service robots, human-robot collaboration robots, dual-arm robots,

Arc welding robots, heavy-duty AGVs, special testing and assembly robot integration system, etc. Key components for robots: high-precision gearboxes, high-performance servo motors and drives, high-performance controllers such as fully autonomous programming, sensors, end-effector, and so on. Robot common technology: inspection, testing and certification, intelligent robot operating system, intelligent robot cloud service platform.

36, 5 million tonnes / year and above mine, thin coal seam integrated mining equipment, 10 million tonnes / year and above large-scale open-pit mine key equipment

37, 18MW and above integrated compressor sets, 1200mm diameter and above natural gas pipeline supporting compressors, gas turbines, valves and other key equipment; single line 2.6 million tonnes / year and above natural gas liquefaction supporting compressors and driving machinery, cryogenic equipment, etc.; large-scale pipeline supporting 3000 cubic metres / hour and above oil pumps and other key equipment

38, sheet-fed multicolor offset press (width ≥ 750 mm, printing speed: single-sided multicolor $\geq 16,000$ 张 / h, double-sided multicolor $\geq 13,000$ 张 / h) commercial web offset press (width ≥ 787 mm, printing speed ≥ 7 m / s, overlay accuracy of \leq

0.1 mm) Newspaper web offset press (printing speed: single-paper road single-width machine $\geq 75,000$ 张 / h, double paper road double-width machine ≥ 150000 张 / h, overlay accuracy of ≤ 0.1 mm); newspaper web offset press (printing speed: single paper road single-width machine ≥ 75000 张 / h, double paper road double-width machine $\geq 150,000$ 张 / h, overlay accuracy of ≤ 0.1 mm) Road double-width machine $\geq 150,000$ 张 / h, overprint accuracy ≤ 0.1 mm) multi-color wide-format flexographic printing press (printing width ≥ 1300 mm, printing speed ≥ 400 m / min) unit-type flexographic printing press (printing speed ≥ 250 m / min) environmental protection, multi-color web material gravure printing machine (printing speed ≥ 300 m / min, overprint accuracy ≤ 0.1 mm) inkjet digital printing machine (publishing: printing speed ≥ 150 m / min, resolution ≥ 600 dpi; packaging: printing speed ≥ 30 m / min, resolution ≥ 1000 dpi; variable data: printing speed ≥ 100 m / min, resolution ≥ 300 dpi) CTP Platesetter (imaging speed)

≥35 sheets/hour, plate width ≥750 mm, repeatability 0.01 mm, resolution

(≥ 3000dpi) shaftless CNC flatbed stamping machine (stamping speed ≥ 10,000 张 / hour, processing accuracy 0.05 mm)

39, 100 hp or more, with powershift transmission or continuously variable transmission, bus control system, safety cab, more than 2 speeds on power take-off shaft, hydraulic take-off

Wheeled tractors and tracked tractors with two- or four-wheel drive in not less than three sets of points. Matching

Tractors for medium ploughing, orchard tractors, upland clearance tractors with a set power of 50 hp or more.

Machine (minimum height above ground 40 cm)

40, 100 hp or more tractors supporting farm equipment: protected tillage required deep pine machine, combine land preparation machine and land sowing machine, etc., conventional agricultural operations require a single ≥ 40 cm wide spade ploughs, disc harrows, cereal strip planters, precision planters for mid-tillage crops, tillers, no-tillage planters, large-scale spraying (powder spraying) machine, etc.

41. Key components for tractors with more than 100 hp: power shift gearboxes, hydro-mechanical stepless gearboxes,

integrated pump motors, front drive axles with wheel-side brakes and limited-slip differential locks for wheeled tractors, ABS braking systems, batteries, motors and their control systems for electric tractors, clutches, closed hydraulic systems such as hydraulic pumps, hydraulic cylinders, various types of valves and hydraulic output valves, and closed-centre variables, Load-sensing electronically controlled hydraulic lifters, electronic control systems, hydraulic steering mechanisms, etc.

42, crop transplanting machinery: ride-on disc soil motorised high-speed rice transplanter (more than 350 insertions per minute, 3 to 5 plants per hole, adapting to row spacing of 20 to 30 cm, adjustable plant spacing, adapting to plant spacing of 12 to 22 cm) disc soil motorised rice transplanter (ride-on or hand-held, adapting to row spacing of 20 to 30 cm, adjustable plant spacing, adapting to plant spacing of 12 to 22 cm)

(metres), etc.

43, agricultural harvesting machinery: self-propelled grain combine harvester (feeding more than 6 kg / s) self-propelled semi-feed rice combine harvester (more than 4 rows, supporting engine more than 44 kilowatts) self-propelled maize combine harvester (3-6 rows, cob picking, with peeling device, as well as stalks crushed to return to the field device or stalk chopping and collection device) cob and stalk harvesting maize harvester (picking and peeling, stalk Chopping and recycling) self-propelled corn kernel combine harvester (more than 4 rows, direct kernel harvesting type) self-propelled barley, grass alfalfa, maize, sorghum and other silage harvester (supporting power of more than 147 kilowatts, the length of the stalks chopped 10 to 60 mm, "with metal detection, stone detection safety devices and seed crushing function") Cotton pickers (more than 3 rows, self-propelled or tractor-backed, with mechanical or pneumatic picking devices, adapting to a cotton bead height of 35 to 160 cm, equipped with seed cotton containers and automatic unloading devices) potato harvesters (self-propelled or tractor-drawn, more than 2 rows, with adjustable row spacing, with soil removal and collection devices, and with a maximum digging depth of 35 cm) sugar cane harvesters (more than 2 rows, with adjustable row spacing, with

soil removal and collection devices, and with a maximum digging depth of 35 cm)

Machine (self-propelled or tractor-backed, with a matching power of 58 kW or more, lodging root crushing rate)

≤ 18 per cent, loss rate ≤ 7 per cent); residual film recycling and stalk crushing combined operation machine; forage harvesting machinery (self-propelled forage harvester, hanging grass cutter and flattener, finger disc forage rake machine, forage picking and baling machine, etc.) self-propelled potato harvesting machinery; hybrid tree harvesting machinery

44. Water-saving irrigation equipment: various large and medium-sized sprinklers, various types of micro-drip irrigation equipment, etc.; flood-resistant and flood-discharging equipment (drainage capacity of more than 1,500 cubic metres/hour, head of 5 to 20 metres, power of more than 1,500 kilowatts, efficiency of more than 60 per cent, movable)

45. Biogas generating equipment: biogas fermentation and gas storage integration (gas storage volume 300 ~)

(2000 cubic metre series products)biogas sludge pumping equipment
(pumping capacity above 1 cubic metre/minute), etc.

46, large construction machinery: 30 tonnes or more of hydraulic excavators, 6 m or more full cross-section roadheaders, 320 hp or more crawler bulldozers, 6 tonnes or more loaders, 600 tonnes or more of bridging equipment (including bridge erectors, girder trucks, girder lifting machines) 400 tonnes or more of crawler cranes, 100 tonnes or more of all-over-ground cranes, 25 tonnes or more of container frontal cranes, 1,000 tonnes/m and tower cranes, rock drilling trolleys drilling holes of 100 mm or more, milling machines with a width of 1 metre or more, mining trucks of 75 tonnes or more, motor graders of 220 hp or more, vibratory-hydraulic rollers of 18 tonnes or more, pavers of 9 metres or more, milling machines of 1 metre or more, forklift trucks with a capacity of 20 tonnes or more, internal-combustion forklift trucks of 8 tonnes or more, electric forklift trucks of 3 tonnes or more, concrete pumps of 40 metres or more, concrete mixers of 8 cubic metres or more, concrete mixer trucks of 8 cubic metres or more. concrete mixer trucks of 8 cubic metres and above, concrete mixing stations of 90 cubic metres/hour and above, cold and hot concrete regeneration equipment of 400 kilowatts and above, rotary drilling rigs of 2,000 millimetres and above, and underground diaphragm

wall excavation equipment of 400 millimetres and above; and key parts and components: powershift gearboxes, wet drive axles, slewing bearings, torque converters, motors, electric controls, hydraulic motors of 25 megapascals and above, and control valves supporting electric forklift trucks. Motors, pumps, control valves

47, Intelligent logistics and warehousing equipment, information systems, intelligent material handling equipment, intelligent Port Handling Equipment, Intelligent Logistics Equipment for Agricultural Products, etc.

48, non-road mobile machinery with high reliability, low emissions, low energy consumption of the internal combustion engine: life indicators (heavy-duty 8,000 ~ 12,000 hours, medium-sized 5,000 ~ 7,000 hours, light-duty 3,000 ~ 4,000 hours) emission indicators (in line with the requirements of Euro III B, Euro IV, Euro V, National III, National IV emission indicators) the impact of the internal combustion engine for non-road mobile machinery power, economy, environmental protection, fuel system, boosting system, exhaust after-treatment system (including electronic and electrical equipment), fuel system and exhaust treatment system (including electronic and electrical equipment), the fuel system, boosting system, exhaust treatment system, and the exhaust system.

Fuel system, supercharging system, exhaust after-treatment system
(including electronic)

control systems)

49. Refrigeration and air-conditioning equipment and key components: heat pumps, heat pump water heaters with composite heat source (air source and solar energy), refrigeration and air-conditioning compressors with energy-efficiency level 2 and above, micro-channel and falling-film heat transfer technology and equipment, electronic expansion valves and two-phase flow injectors and their key components; refrigeration and air-conditioning compressors using environmentally friendly refrigerants (with an ODP of 0 and a low GWP value)

50, 12,000 metres and above deep well drilling rigs, polar drilling rigs, high displacement deep well desert drilling rigs, drilling rigs for swampy hard-to-access areas, marine drilling rigs, truck-mounted drilling rigs, drilling rigs for special drilling techniques, and other drilling rigs and equipment

51. Centralised treatment facilities for hazardous wastes
(including medical wastes)

52, large-scale high-efficiency two-platen injection moulding machine (clamping force of more than 1000 tonnes) all-electric plastic

Injection moulding machine (injection volume of 1000 grams or less)
energy-saving plastic and rubber injection moulding machine (energy

consumption of 0.4 kWh/kg or less) high-speed energy-saving plastic extrusion unit (production capacity of 30-3000 kg/hour, energy consumption of 0.35 kWh/kg or less) microcellular foaming plastic injection moulding machine (clamping force of 60-1000 tonnes, injection volume of 30-5000 kg, energy consumption of 0.4 kWh/kg or less) large twin-screw extrusion and pelletising units (production capacity of 300,000-600,000 tonnes/year) large para-aramid reaction extrusion unit (production capacity of 14,000 tonnes/year or more) carbon

Fibre prepreg unit (production capacity of 600,000 m/year or more; width of 1.2 m or more) fibre-reinforced composite materials online mixing and injection moulding equipment (clamping force of 200 to 6,800 tons, injection volume of 600 to 85,000 grams)

53. Nanofiltration and reverse osmosis membrane water purification equipment

54, safe drinking water equipment: combined integrated water purifier (treatment capacity 100 ~ 2500)

(tonnes/hour)

55, air pollution control equipment: coal-fired generating units desulphurisation, denitrification, dust removal and other ultra-low emission technology and equipment; iron and steel kiln flue gas fine particulate matter pre-charge electric baghouse dust removal technology and equipment; coke oven flue gas SDA desulphurisation + SCR denitrification technology and equipment; aluminium oxides in the flue gas of alumina fluoride dust removal technology and equipment; iron and steel sintering flue gas dry desulphurisation dust removal equipment; baghouse dust collector; electric bag composite dust removal technology and equipment (particulate matter emission concentration $<10 \text{ mg/m}^3$) catalytic cracking regeneration flue gas dedusting and desulphurisation technology and equipment; VOCs adsorption and recovery device; VOCs incineration device; furnace kiln, material yard of the control of disorganised emissions technology and equipment; catering industry oil smoke purification equipment

56. Sewage control technology and equipment: complete sets of equipment for urban sewage treatment (phosphorus removal and denitrification)

Sludge hydrolysis anaerobic digestion technology and equipment; sludge drying and incineration technology and equipment (slag reduction of more than 90%) submerged membrane bioreactor

(COD removal rate of more than 90%) ceramic vacuum filters (vacuum: 0.09 ~ 0.098 MPa, pore size: 0.2 micron ~ 20 micron) ultra-biological coupling method and biofilm method for the treatment of high-concentration organic wastewater technology and equipment; oil wastewater, chemical washing tank water disposal technology and equipment Water Disposal Technology and Equipment

57. Solid waste prevention and control technology and equipment: technology and equipment for clean incineration of domestic waste (with less than 20 per cent coal combustion) technology and equipment for centralised harmless treatment of food waste (with 95 per cent utilisation rate) (above) landfill leachate and odour treatment technology and equipment (processing capacity of more than 50 tonnes/day) automated sorting technology and equipment for domestic waste (sorting rate of more than 80%) technology and equipment for the treatment and reuse of construction waste (processing capacity of more than 100 tonnes/hour) technology and equipment for the disposal of industrial hazardous wastes (processing rate of more than 90%) technology and equipment for the treatment and disposal of oilfield drilling waste (capacity reduction of more than 50%, processing rate of more than 70%) (capacity reduction of more than 50 per cent,

treatment rate of more than 70 per cent) medical waste clean incineration, high-temperature cooking harmless treatment technology and equipment (capacity of 150 kg/hour or more).

(above 70 per cent combustion efficiency), as well as microwave and chemical disinfection treatment technology and equipment for medical waste; and technology and equipment for centralised treatment of livestock and poultry waste (above 20 tonnes/day capacity)

58. Soil remediation technology and equipment: crushing and screening machines, odour suppression equipment, direct thermal desorption equipment, indirect thermal desorption equipment, soil washing equipment, soil improvement machines, direct push drilling and sampling equipment

59, skidding trolley, overhead drilling rig drilling, multifunctional crushing and clearing machine, dual-system brake hydrostatic-hydraulic four-wheel-drive underground mining multifunctional service vehicle, mining portable gas detector, underground near-mining body curtain grouting technology, remote control technology for underground motor car, paste and high-concentration tailings filling technology and equipment, cutting shaft drilling rigs

60. Heat pump (ground source, water source, air source, etc.) technology development and equipment manufacturing

61, smart distribution network core equipment power electronic transformer technology development and production

62. Noise and vibration pollution control equipment: sound barriers, mufflers, damped spring isolators

63. Additive manufacturing equipment and specialised materials

XV. Urban rail transport equipment

1、 Urban rail transport vibration damping, noise reduction technology applications

2. Automatic Fare Collection (AFC) systems, doors, platform screen doors, hook systems, windscreen systems, fire alarm and automatic fire extinguishing systems

3. Signalling system based on wireless communication [including automatic train monitoring system (ATS), automatic train protection (ATP), automatic train operation (ATO)]

4、 Rail vehicle AC traction drive system, braking system and core components (including IGCT, IGBT, SiC components) network control system, permanent magnet traction motors, direct current

High-speed switches, vacuum circuit breakers (GIS) new intelligent switching devices

5, body, bogie, gearbox and interior decoration materials
lightweight applications

6, regenerative braking absorption device, energy feedback,
energy storage system for urban railway trains

7. Inspection and testing instruments and monitoring systems for
rail transport

8. Fully Automatic Operation System (FAO) Train Autonomous
Control System (TACS) based on vehicle-to-vehicle communication,
Intelligent Operation and Maintenance System (IOMS)

9. Urban rail transit traction power supply system (urban rail
lines based on 25kV AC traction power supply system)

10. Maglev trains, rubber-wheeled rail transport technology and
equipment

XVI. Automobiles

1, automotive key components: gasoline engine
supercharger, eddy current retarder, hydraulic retarder, follow the
headlight system, LED headlights, digital instrumentation, electronic
control system actuators with solenoid valves, low-floor large bus axles,
air suspension, energy-absorbing steering system, large and
medium-sized buses, inverter air conditioning, high-strength steel

wheels, disc brakes for commercial vehicles, commercial vehicle tyre blowout emergency protection devices, Steering Shaft Electric Power Steering System (C-EPS) rack and pinion electric power steering (R-EPS) idle start-stop system, high-efficiency and high-reliability electromechanical coupling system; dual-clutch transmission (DCT) electro-mechanical transmission (AMT) 7-speed and above automatic transmission (7-speed and above AT) continuously variable transmission (CVT) high-efficiency diesel engine particulate traps; electronically-controlled high-pressure common rail injection system and its injectors; high-efficiency supercharging system (maximum comprehensive efficiency $\geq 55\%$); exhaust gas recirculation system; electric brakes, electric steering and its key components. system and its injectors; high-efficiency supercharging system (the highest overall efficiency $\geq 55\%$) exhaust gas recirculation system; electric brakes, electric steering and its key parts and components

2、Application of lightweight materials: high-strength steel (in line with GB/T 20564 "automotive high-strength steel").

Strength cold rolled steel plate and steel strip" standard or GB/T 34566 "automotive hot stamped steel plate and steel strip" standard) aluminium alloys, magnesium alloys, composite plastics, powder metallurgy, high-strength composite fibres, etc.; application of advanced forming technology: 3D printing and forming, the expansion of the application of the laser welded plate, internal high-pressure forming, ultra-high-strength steel plate (strength $\geq 980\text{MPa}$, 20 ~ 50GPa% of the strong plastic product) Thermoforming, flexible roll forming, etc.; application of environmentally friendly materials: water-based paint, lead-free solder, etc.

3, new energy vehicle key components: high security energy-type power battery monomer (energy density $\geq 300\text{Wh} / \text{kg}$, cycle life ≥ 1800 times) battery cathode materials (specific capacity $\geq 180\text{mAh} / \text{g}$, cycle life 2000 times not less than 80% of the initial discharge capacity) battery anode materials (specific capacity $\geq 500\text{mAh} / \text{g}$, cycle life 2000 times not less than 80% of the initial discharge capacity) battery diaphragm (thickness $\leq 12\mu\text{m}$, porosity 35% ~ 60%, tensile strength MD $\geq 800\text{kgf/cm}^2$, TD $\geq 800\text{kgf/cm}$); battery management system, motor controller, electric vehicle electronic control integration; electric vehicle drive motor system (high efficiency zone: 85% of the working area efficiency $\geq 80\%$), automotive DC/DC (input voltage 100V ~ 400V) cm^2) battery

management system, motor controller, electric vehicle electronic control integration; electric vehicle drive motor system (high-efficiency zone: 85% of the working area efficiency $\geq 80\%$) automotive DC / DC (input voltage 100V ~ 400V) high-power electronic devices (IGBT, voltage level $\geq 750\text{V}$, current $\geq 300\text{A}$) plug-in hybrid electromechanical coupled drive system; fuel cell engine (mass specific power $\geq 350\text{W/kg}$) Engine (mass specific power $\geq 350\text{W/kg}$) fuel cell stack (volume specific power $\geq 3\text{kW/L}$), membrane electrodes (platinum dosage $\leq 0.3\text{g/kW}$), proton exchange membranes (proton conductivity $\geq 0.08\text{S/cm}$) bipolar plates (thickness of metal bipolar plates $\leq 1.2\text{mm}$, other bipolar plates $\leq 1.6\text{mm}$) low platinum catalysts, carbon paper (resistivity $\leq 1.5\text{m}\Omega$) (3 $\text{M}\Omega\text{-cm}$) air compressor, hydrogen circulation pump, hydrogen injector, humidifier, fuel

Battery control system, step-up DC/DC, 70MPa hydrogen cylinder, on-board hydrogen concentration sensor; heat pump air-conditioning for electric vehicles; 32-bit or above chips for motor drive control (not less)

(2 hardware cores, main frequency of not less than 180MHz, with hardware encryption and other functions, chip design in line with the functional safety ASIL C or above) integrated electric drive assembly (power density $\geq 2.5\text{kW/kg}$) high-speed reducer (the highest input speed $\geq 12000\text{rpm}$, noise)

$<75\text{dB}$)

4, on-board chargers (full load output efficiency $\geq 95\%$) two-way on-board chargers, non-vehicle charging equipment (output voltage $250\text{V} \sim 950\text{V}$, voltage range efficiency $\geq 88\%$) high power density, high conversion efficiency, high applicability of wireless charging, mobile charging technology and equipment, rapid charging and power exchange facilities

5, automotive electronic control systems: engine control system (ECU) transmission control system (TCU) brake anti-lock system (ABS) traction control (ASR) electronic stability control (ESC) network bus control, on-board diagnostic device (OBD) electronically controlled intelligent suspension, electronic parking system, electronic throttle, lane-keeping assistance (LKA) automatic emergency braking system (AEBS), electronic control system (EBS), axle load automatic measurement system for trucks and other systems. Emergency Braking System (AEBS) Electronically Controlled Braking System (EBS) Automatic Axle Load Measuring System for Goods Vehicles, etc.

6. Intelligent vehicles, new energy vehicles and key components, and efficient automotive internal combustion engine R&D capacity building

7. Key components and technologies for intelligent vehicles: sensors, in-vehicle chips, central processors, in-vehicle operating systems and information control systems, vehicle network communication system equipment, visual recognition systems, high-precision positioning devices, in-line chassis systems, intelligent vehicle safety glass; new intelligent terminal modules, multi-core heterogeneous intelligent computing platform technology, all-weather high-precision positioning and mapping technology for complex traffic scenarios, sensors Fusion sensing technology, automotive wireless communication key technology, basic cloud control platform technology; new safety isolation architecture technology, hardware and software collaboration.

Attack identification technology, terminal chip security encryption and application software security protection technology, wireless communication security encryption technology, secure communication and authentication and authorisation technology, data encryption technology; test and evaluation system architecture research and development, virtual simulation, real-vehicle road test and other technologies and verification tools, vehicle-level and system-level test and evaluation methodology, and the construction of the test basic database.

XVII. Ships

1. Optimisation and upgrading of bulk carriers, oil tankers and container ships to meet the requirements of greenness, environmental protection and safety, as well as the development and construction of ship types that meet the new norms and standards of international shipbuilding.

2、10 万立方米以上液化天然气运输船、1.5 万立方米以上液化石油气船、万箱以上集装箱船、5000 车位及以上汽车运输船、豪华客滚船、IMO II型以上化学品船、大中型豪华邮轮、2000 车位以上汽车滚装船、3000 米车道以上的货物滚装船、LNG 加注船、牲畜运输船、甲醇 (ethane) carriers, hybrid oil-electric vessels, battery-powered vessels and multi-purpose vessels, polar cruise ships, polar transport vessels, polar multi-purpose vessels, polar

exploration vessels, and other high-tech, high value-added vessels.

3. Large-scale offshore fishing and processing vessels, dredgers with a capacity of more than 10,000 cubic metres, fireboats and other vessels with a capacity of more than 10,000 cubic metres.

Special ships such as car ferries, scientific research vessels, icebreakers, oceanographic survey vessels, deck transport vessels, marine supervision vessels and their special equipment

4. High-performance vessels such as small waterline catamarans, hydrofoils, ground effect vessels, hovercrafts, wave-piercing vessels, etc.

5. Mainstream offshore mobile drilling platforms such as jack-up drilling rigs with water depths of 120 metres and above, deep drilling vessels with water depths of 1,500 metres and above, and semi-submersible drilling rigs with water depths of 1,500 metres and above

(ships) floating production, storage and offloading units (FPSOs) 50,000 tonnes and above, 1,500 metres water depths, and other vessels.

Semi-submersible production platforms, column-type production platforms (SPAR) tension leg platforms (TLP) LNG-FPSOs, marginal oilfield-type FPSOs and other floating production systems; 10,000-horsepower-class deepwater triple-use workboats, 1,500-metre-deep large-scale lifting and pipe-laying vessels, 1,500-metre-deep engineering survey vessels, high-performance material exploration vessels, semi-submersible transport vessels of 50,000 tonnes and above, offshore windmill installation vessels Floating storage and regasification unit (FSRU) deep-water power positioning crude oil delivery device, ultra-deepwater offshore vessels, deep-sea large-scale aquaculture equipment, lifting capacity of more than 10,000 tonnes of heavy lift ship, natural gas hydrate drilling and mining ship equipment, seabed metal mineral resources exploration and development equipment, island heavy construction platforms, offshore oilfield facilities dismantling devices, such as marine engineering and auxiliary vessels

6. Power Positioning System, FPSO Single Point Mooring System, Large Offshore Platform Power Station Collection

General and specialised offshore engineering equipment such as forming systems, main power and transmission systems, rig lifting systems, subsea oil and gas production systems, etc.

7, yacht development and manufacturing and supporting

industries

8, intelligent and environmentally friendly marine low and medium-speed diesel engines and their key components, large deck machinery, marine boilers, oil-water separators, desalination devices, ballast water treatment systems, the use of shore power technology and equipment, liquefied natural gas marine dual-fuel engines, pod propulsion, straight-winged rudder paddle propulsion, large-scale high-efficiency water jet propulsion, high-power medium and high-voltage generators, ship communication, navigation and automation systems Key marine ancillary equipment such as integrated electric propulsion system and key equipment, exhaust gas treatment device, waste heat recovery system, bimetallic valve, large-scale marine rubbish incinerator, domestic sewage treatment system, cargo oil system and other key marine equipment.

9. Seabed mining robots, seabed trenchers and other seabed mineral resources development equipment and Deep-sea mining systems, deep-sea riser-related ancillary systems and equipment, underwater submersibles, robots

and detection and observation equipment

10. Precision management and control, digital shipbuilding, unit assembly, pre-outfitting and modularisation, advanced painting, application of efficient welding technology, ultra-high pressure water descaling device, laser welding robot, intelligent segment assembly line, small group vertical welding production line for ships, medium group vertical welding workstation for ships, intelligent painting robot for ship segments, processing production line for ship tubes, and free-edge sanding production line for ship hull small components

11, high technology and high value-added ship, marine engineering equipment repair and modification, as well as climbing wall robot, high-pressure intelligent cleaning robot and other green ship repair technology applications

12, intelligent ships, unmanned ship development and related intelligent systems and equipment development, ship life safety operation supervision technology and equipment development

13. Development and manufacture of safe, energy-saving and environmentally friendly inland waterway, river-sea intermodal transport and coastal vessels

14. Manufacture of "Expansion Link"

15. Pure electric and natural gas ships; alternative fuel, hybrid,

pure electric, fuel cell and other motor vehicle and ship technologies; hybrid and plug-in hybrid special engines, optimised powertrain system matching

XVIII. Aerospace

1. Development and manufacture of mainline, regional and general-purpose aeroplanes and components
2. Aero-engine development and manufacturing
3. Development and manufacture of airborne equipment, mission equipment, air traffic control equipment and ground support equipment systems
4. Helicopter overall, rotor system, transmission system development and manufacturing
5. Development and production of new materials for aerospace

6. Aerospace gas turbine manufacturing
7. Satellite, launch vehicle and parts manufacturing
8. Aviation, aerospace technology applications and system hardware and software products, terminal product development occurs

estate

9. Development and manufacture of aircraft ground simulation training systems and test systems
- 10, aircraft ground repair, maintenance, testing equipment development and manufacturing
11. Satellite ground and application system construction and equipment manufacturing
12. Development and application of aircraft-specific emergency rescue equipment
13. Maintenance of aircraft, equipment and spare parts
14. Advanced satellite payload development and production
15. Development and manufacture of UAVs in general, materials, communications, control systems, etc.
16. Design of civil aircraft and helicopters
17. Development and production of solar cells for aerospace applications

XIX. Light industry

- 1、Single chemical wood pulp 300,000 tonnes/year and

above, chemical mechanical wood pulp 100,000 tonnes/year and above.

Construction of integrated forest and paper production lines with an annual capacity of 100,000 tonnes/year and above, and 100,000 tonnes/year and above of chemical bamboo pulp, as well as corresponding paper and paperboard production lines (except newsprint and coated paper); construction of pulp production lines with an annual capacity of 100,000 tonnes/year and above that adopt cleaner production processes and use non-wood fibre as raw material; development and manufacture of advanced pulping and paper equipment; development and application of the Elemental Chlorine Free (ECF) and Total Chlorine Free (TCF) chemical pulp processes; development and application of the bleaching process; development and application of the bleaching process; development and application of the chemical pulp process. Bleaching process development and application

2, non-metallic products precision mould design, manufacturing

3、 Biodegradable plastics and its series of products

development, production and application, agricultural plastics

Development and production of water-saving materials and long-life (three years or more) functional agricultural films.

4, new plastic building materials (high airtight energy-saving plastic windows, large diameter drainage and sewerage pipes, impact modified polyvinyl chloride pipe, ground source heat pump system with polyethylene pipe, non-excavated plastic pipe, composite plastic pipe, plastic inspection wells) seepage-proof geomembrane; plastic and wood composite materials and molecular weight ≥ 2 million ultra-high molecular weight polyethylene pipe and sheet production)

5, dynamic plasticisation and plastic stretching rheological plasticisation technology applications and equipment manufacturing; application of electromagnetic induction heating and servo drive system of plastics processing equipment

6, applied to industry, medicine, electronics, aerospace and other fields of special ceramic production and technology, equipment development; ceramic clean production and comprehensive use of technology development

7, high-efficiency energy-saving sewing machinery (using embedded digital control, oil-free or micro-oil lubrication and other advanced technologies) and key components development and manufacturing

8, for pen, watch and other industries, multi-station combined machine tool development and manufacturing

9、 High-tech、 digital、 intelligent printing technology and high-definition plate making system development and application

expense or outlay

10. Manufacture of special needs items for ethnic minorities

11, Vacuum aluminising, spray coating silicon oxide, polyvinyl alcohol (PVA) coated film,

Functional polyester (PET) film, oriented polystyrene (OPS) film and new packaging materials such as paper-plastic-based multilayer co-extrusion or lamination

12, two-colour and more than two-colour metal plate printing, supporting light curing (UV) sheet laminating and high-speed food and beverage can processing and supporting equipment manufacturing

13. Lithium iron disulphide, lithium thionyl chloride and other new lithium primary batteries; lithium-ion batteries, hydrogen-nickel batteries, new structures (bipolar, lead-cloth level, coiled, tubular, etc.) sealing

Lead storage batteries, lead-carbon batteries, super batteries, fuel cells, lithium/fluorocarbon batteries and other new types of batteries and supercapacitors

14, lithium-ion battery ternary and multi-polymer, lithium iron phosphate and other cathode materials, intermediate-phase carbon microspheres and silicon and carbon and other anode materials, single-layer and triple-layer composite lithium-ion battery diaphragm, fluorine-substituted vinyl carbonate (FEC) and other electrolytes and additives; waste battery resources and green recycling production process and its equipment manufacturing

15, lead storage battery automation, intelligent production line; lithium-ion battery automation, intelligent production of complete sets of manufacturing equipment; alkaline zinc-manganese batteries more than 600 / min automation, intelligent production of complete sets of manufacturing equipment

16, tanning and fur processing clean production, leather finishing new technology development and key equipment manufacturing, chromium-containing leather solid waste comprehensive utilisation; leather and fur processing waste liquid recycling, trivalent chromium sludge comprehensive utilisation; ashless expansion (auxiliary) agent, ammonia-free de-ashing (auxiliary) agent, salt-

free acid leaching (auxiliary) agent, high-absorption chrome tanning (auxiliary) agent, natural vegetable tanning agent, water-based finishing (auxiliary) agent, such as high-grade leather with Functional chemical products development, production and application

17. Technology development, product production and application of solid-mercury production processes for energy-efficient electric light sources (high- and low-pressure discharge lamps and solid-state lighting products); and recycling of used lamps.

18, in line with the national 1 energy efficiency or 2 energy efficiency household appliances development and production

19. Development and production of multi-effective, energy-saving, water-saving and environmentally friendly surfactants, auxiliaries and detergents

20. Development and manufacture of air-conditioners using new refrigerants to replace hydrochlorofluorocarbon-22 (HCFC-22 or R22), production of household appliances using new blowing agents to replace ~~111b~~ (HCFC-141b), and use of new blowing agents to replace ~~111b~~ (HCFC-141b)

Rigid polyurethane foam production and application

21、 Design and application of energy-saving and environmentally friendly glass kilns (including all-electric melting, electric fluxing, oxyfuel combustion technology, low-NO_x combustion technology with NO_x concentration $\leq 1200\text{mg/m}^3$); energy-saving automatic control technology for DCS of glass kilns.

22, lightweight glass bottles and jars (lightweight degree ≤ 1.0) process technology and key equipment development and production

23. Production of energy-saving and environmentally friendly inks such as water-based inks, UV-curable inks, vegetable oil inks, etc.

24, natural food additives, natural flavouring new technology development and production

25, advanced food production equipment R & D and manufacturing; food quality and safety monitoring (testing) instruments, equipment development and production

26, tropical fruit juice, berry juice, grain beverages, herbal beverages, tea concentrate, tea powder, plant protein drinks and other high value-added plant beverage development and production and processing of raw material base construction; fruit residue, tea residue and other integrated development and use of

27, nutrition and health type rice, wheat flour (food special rice, sprouted brown rice, stay embryo rice, food special powder, whole wheat flour and nutrition fortification products, etc.) and the development and production of products; traditional staple food industrial production; miscellaneous grains processing special equipment development and production; grain and oil processing by-products (rice hulls, rice bran, bran, embryo, cakes and meals, etc.) comprehensive utilisation of the application of the key development of technology

28, rapeseed oil production line: the use of expansion, negative pressure evaporation, self-balancing use of heat, low consumption of steam vacuum system and other technologies, rapeseed producing areas to deal with 400 tonnes of rapeseed and other oils.

Above and below 1.5kg of solvent consumption per tonne of material (including 200kg of rapeseed per day in the western region).

(tonnes and above, solvent consumption of 2 kg or less per tonne of material) peanut oil production line: peanut main output

The district processes 200 tonnes and more of peanuts per day and consumes less than 2 kg of solvent per tonne of material; cottonseed oil is produced in the district.

Production lines: cottonseed production areas processing 300 tons of cottonseed and above per day, with a solvent consumption of less than 2 kg per ton of material; rice bran oil production lines: the use of dispersed rapid expansion, centralised oil production and refining technology; corn germ oil production lines; production lines for the processing of wood-based oilseeds such as *Camellia sinensis*, walnuts and other woody oilseeds, as well as small varieties of oilseeds such as caraway, sesame, sunflower, peony and other oilseeds, and for the production of vegetable oils using the supercritical carbon dioxide extraction process technology

29, the fermentation process to produce small varieties of amino acids (except lysine, glutamic acid, threonine) molasses as raw material with an annual output of 8,000 tonnes and above, yeast products and yeast derivatives, new enzyme preparations and composite enzyme preparations, polyalcohols and bio-pharmacological chemical polyalcohols, functional fermentation products (functional sugar, functional red, fermentation antioxidant and composite

functional ingredients, active peptides, micro-ecological preparations, such as development, production and application of the fermented products. Preparations) and other development, production, application. Enzyme production process technology development and industrialised, standardised production

30. Comprehensive utilisation and harmless treatment of by-products such as bone, blood, feathers and offal of livestock and poultry

31. Technical development and production of enamelled electrostatic powder and enamelled pre-ground powder

32. Development and manufacture of energy-efficient and environmentally friendly gas appliances, such as condensing gas water heaters and gas stoves using poly-combustion technology

XX. Textiles

1、 Continuous copolymerisation modification of differentiated and functional polyester (PET) [cationic dye 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.]; flame retardant, antistatic, UV-resistant, antibacterial,

Efficient and flexible preparation technology for differentiated and functional chemical fibres, such as phase change energy storage, photochromic, in-situ colouring, etc.; production of functional chemical fibres, such as intelligent, super-simulation, etc.; original development of green, highly efficient and environmentally friendly oils for high-speed spinning and processing.

2. Development, production and application of new polyesters and fibres such as polypropylene terephthalate (PTT) polyethylene naphthalene dicarboxylate (PEN) polybutylene terephthalate (PBT) polybutylene succinate (PBS) polycyclohexanedimethanol terephthalate (PCT) biobased polyamides, and biobased furan ring

3, the use of green, environmentally friendly processes and equipment for the production of new solvent method cellulose fibre

(Lyocell, bacterial cellulose fibres, regenerated cellulose fibres made from new renewable resources such as bamboo and hemp, polylactic acid (PLA) fibres, seaweed fibres, chitosan fibres, polyhydroxy fatty acid ester (PHA) fibres, animal and plant protein fibres.

4, high-performance fibers and products development, production, application [carbon fiber (CF) tensile strength \geq 4200MPa modulus of elasticity \geq 230GPa and AF and PSA)

ultra-high molecular weight polyethylene fibers (UHMWPE) spinning
 production plant single-line capacity ≥ 300 tons / year, breaking
 strength ≥ 40 cN / dtex, the initial modulus of ≥ 1800 cN/dtex)
 polyphenylene sulfide fibers (PPS) polyimide fibers (PI)
 polytetrafluoroethylene fibers (PTFE) polybenzobisoxazole fibers (PBO)
 polyarylene oxadiazole fibers (POD) basalt fibers (BF) silicone carbide fibers
 (SiCF) polyetherether ketone fibers (PEEK) high-strength glass
 fibers
 (HT - AR) poly (2,5-dihydroxy-1,4-phenylene pyridinium diimidazole)
 (PIPD) fibre
 etc.]

5, in line with environmental requirements of special animal
 fibres, hemp fibre, mulberry and quercus cocoon silk, coloured
 cotton, coloured mulberry cocoon silk natural fibre processing
 technology and products

6, the establishment of intelligent spinning plant, the use of intelligent, continuous spinning complete sets of equipment (clean card, coarse and fine, fine winding and CNC single machine and air-jet vortex spinning, high-speed rotor spinning and other short-process advanced spinning equipment) the production of high-quality yarn; the use of high-speed CNC shuttleless looms, automatic drawing-in machines, full-form computerised flat knitting machines, high-speed computerised flat knitting machines, high-speed warp knitting machines and other new types of CNC equipment, the production of high-count, high-density, jacquard and other high-grade woven, knitted textiles)

7, the use of digital intelligent printing and dyeing technology and equipment, dyeing and finishing clean production technology (enzyme treatment, high-efficiency short-process pretreatment, knitted fabrics, continuous flat pre-treatment, low-temperature pre-treatment and dyeing, low-salt or salt-free dyeing, low urea printing, small bath ratio of airflow or gas-liquid dyeing, digital inkjet printing, foam finishing, etc.) functional finishing technology, new dyeing processing technology, composite fabric processing technology, the production of high-grade textile fabrics. Fabrics; intelligent cylinder yarn dyeing technology and equipment development and application

8, the use of non-woven, weaving, knitting, weaving and other processes and a variety of technology composite, long finishing and other new technologies, the production of functional industrial textiles

9, intelligent, high-efficiency, low-energy textile machinery, key specialised basic parts, measurement, testing instruments and test equipment development and manufacturing

10, high-grade carpet, drawings, embroidery products production

11, digital, network, intelligent clothing production technology and equipment development, application

12, the textile industry, biological degumming, no polyvinyl alcohol (PVA) pulp sizing, less water and waterless energy-saving printing and dyeing processing, "three wastes" efficient management and resource recycling and reuse technology promotion and application

13, waste textile recycling and reuse technology, equipment development and application, the use of polyester recycled materials to produce polyester industrial filament, differentiated and functional polyester filament, non-woven materials

High-value-added
products such as
materials

XXI. Construction

- 1、 Building seismic isolation and damping structure system and product development and promotion
- 2, intelligent building products and equipment manufacturing and integration technology research
- 3, centralised heat supply system measurement and regulation technology, product development and promotion
4. Application of high-strength, high-performance structural materials and systems
5. Solar thermal and photovoltaic power generation applications for integrated buildings
6. Research, development and promotion of advanced and applicable complete sets of building technologies, products and residential components
7. Research, development and promotion of integrated system and technology for steel structure housing
- 8、 Energy-saving building, green building, assembly building technology, product development and push

numerous

9. Promotion of factory-based full renovation technology

10. Development and application of mobile emergency domestic water supply systems

11. Building Information Modelling (BIM) related technology development and application

12. Research and development and engineering application of seismic reinforcement technology for existing housing buildings

13. R&D and promotion of assembled steel structure green building technology system

XXII. Urban infrastructure

1. Urban high-precision navigation, high-precision remote sensing image and three-dimensional data production and key technology development

2. Urban three-dimensional management information system relying on basic geographic information resources

3. Urban public transport construction

4. Construction of urban roads and intelligent transport systems

5. Urban traffic control system technology development and equipment manufacturing
6. Construction of new lines of urban and municipal rail transport (including light rail and trams)
7. Urban safe drinking water projects, water supply sources and water purification plant projects
8. Construction of common trenches for underground pipelines in towns and cities, and geographic information systems for underground pipeline networks
9. Urban water supply and drainage network engineering, pipe network investigation, testing and repair and renovation works, trenchless construction and repair technology, water supply network leakage detection equipment, related technology development and equipment production
10. City gas engineering
11. Construction and renovation of centralised heat supply in towns and cities
12. Urban rainwater collection and utilisation project
13. Urban landscaping and ecological community building
14. Renovation of existing parking facilities; construction of intensive parking facilities such as parking buildings, underground car parks and mechanical three-dimensional parking garages; and

construction of electric vehicle charging facilities in car parks

15. Application of information technology for urban construction management

16. Key technology applications for urban ecosystems

17. Urban water conservation technology development and application

18, city lighting intelligent, green lighting products and systems technology development and application

19. Recycled water utilisation technology and engineering

20, urban water supply, drainage, gas plastic pipe application engineering

21. Urban emergency and backup water source construction project

22. Seawater Supply Pipeline Network and Desalination Project in Coastal Towns

23. Development and application of technology for monitoring and early warning of urban flooding, urban drainage and flood control engineering

24. Product development and application of key technologies for sponge city construction

25. Rapid purification equipment for combined flow system overflow pollution, initial rainwater, etc., and decentralised purification equipment.

give

26. City information modelling (CIM) based on big data, IoT, GIS, etc.

Related technology development and application

XXIII. Railways

1. Construction of new railway lines

2. Expansion of existing railways and construction of special railway lines

3. Passenger dedicated lines, high-speed railway system technology development and construction

4, railway traffic and passenger and freight safety and security system technology and equipment, railway train operation control and vehicle control system development and construction

5. Development and construction of railway transport information systems

6, 7200 kilowatts and above, AC-driven electric locomotives, 6000 horsepower and above, AC-driven internal combustion locomotives, locomotives with a speed of 200 kilometres per hour

and above, plateau locomotives at an altitude of 3000 metres or above, plateau locomotives, large-scale special wagons, and special rescue equipment for rolling stock.

7, AC traction drive system, braking system and core components for mainline rail vehicles

(including IGCT, IGBT components)

8, 200 kilometres per hour and above railway contact network, turnout, buckle accessories, traction power supply equipment

9、 Electrified railway traction power supply power factor compensation technology application

10, large-scale road maintenance machinery, railway engineering construction machinery and equipment, line bridge and tunnel testing equipment

11. Development of automation technology for traffic dispatching and commanding

12. Concrete structure repair and improve durability technology, material development
 13. Toilet catchment and dirt floor reception and treatment works for railway passenger trains
 14. Railway GSM-R communication signalling system
 15. Development and construction of LTE-R and other railway broadband communication systems
 16. Digital railway and intelligent transport development and construction
 17. Application of vibration and noise reduction technology for high-speed railways or passenger dedicated lines with speeds of 300 kilometres per hour and above
 18. Intercity and urban (suburban) railways
- XXIV. Highways and road transport (including urban passenger transport)
1. Construction of the national motorway network project
 2. Upgrading of national and provincial trunk lines
 3. Automobile passenger and freight stations, urban bus stations
 4. Development and application of technologies related to non-stop toll collection systems for motorways
 5. Development and construction of road intelligent transport, rapid passenger and freight transport, and road dumping transport

systems

6. Road management services, emergency protection system development and construction
7. Development and production of new materials for road engineering
8. Road container and van transport
9. Application of technology for construction and maintenance and repair of mega-span bridges
10. Application of construction and maintenance techniques for long tunnels
11. Development and construction of rural passenger and freight transport networks
12. Rural road construction

13. Intercity Rapid System Development and Construction

14. Development and construction of a dispatch information system for taxi service

15. Construction of emergency evacuation routes for motorway vehicles

16. Low-noise road technology development

17. Development and application of technology and materials for rapid construction and maintenance of motorways

18. Urban public transport

19. Development and application of safety monitoring and recording system for operating vehicles

20. Traffic safety and security control equipment for main road routes and technology development and application

XXV. Water transport

1. Construction of deep-water berths (coastal 10,000 tonnes, inland waterways 1,000 tonnes and above)

2. Construction of coastal deep-water waterways and inland high-grade waterways and navigable buildings, and construction of inland waterways in western and impoverished areas

3. Construction of coastal land island transport terminals

4. Automation engineering for large-scale port loading and unloading

5. Electronic Data Interchange for Maritime Transport (EDI)

applications

6. Construction of water traffic safety monitoring and rescue system
7. Standardisation of inland waterway vessel types
8. Old Harbour Area Technical Renovation Project
9. Construction of port reception and disposal facilities for ship pollutants and equipment manufacturing, construction of emergency facilities for hazardous chemicals and oil products in ports and equipment manufacturing
10. Inland self-unloading container ship transport system
11. High-speed passenger transport over water

12. Oil-to-electricity fuel-saving transformation project for port gantry cranes

13. Waterborne roll-on/roll-off multimodal transport

14. Information system construction in the water transport sector

15. International cruise ship transport and cruise ship homeport construction

XXVI. Air transport

1. Construction and operation of airports and ancillary facilities

2. Public air transport

3. General aviation

4. Construction of air traffic control and communication navigation surveillance systems

5. Aviation computer management and its network system development and construction

6. Aviation fuel refuelling services and construction of facilities

7. Construction of maritime air surveillance patrol and search and rescue services and facilities, and construction of emergency landing sites for small aircraft

XXVII. Integrated transport

1. Construction and renovation of integrated transport hubs

2. Construction of Convenient Interchange and Baggage Rapid Transit Systems at Comprehensive Transportation Hubs

3. Comprehensive transport hub operation and management information system construction and application
4. Construction of a comprehensive transport hub guidance system
5. Construction of integrated service facilities at comprehensive transport hubs
6. Disaster prevention, relief and emergency evacuation systems for integrated transport hubs
7. Construction of a convenient freight-forwarding system for integrated transport hubs
8. Research and development of passenger intermodal transport facilities and equipment, ticketing integration and intermodal products

wide application

XXVIII. Information industry

1. 2.5GB/s and above optical synchronous transmission system construction

2, 155MB / s and above digital microwave synchronous transmission equipment manufacturing and system construction

3. Satellite communication systems, earth station equipment manufacturing and construction

4. Network management monitoring, clock synchronisation, billing and other communication support network construction

5, narrow-band Internet of Things (NB-IoT) broadband Internet of Things (eMTC) and other Internet of Things (sensor network) smart network and other new business network equipment manufacturing and construction

6. Manufacturing and construction of equipment for the Internet of Things (sensor network) and other new business networks

7. Broadband network equipment manufacturing and construction

8. Construction of digital cellular mobile communication networks

9. IP service network construction

10. R&D and service of IPv6-based next-generation Internet technology, R&D and production of network equipment, chips,

systems and related test equipment

11. Satellite digital television broadcasting system construction
12. Value-added telecommunication business platform construction
13. Manufacture of equipment for fibre optic wavelength division multiplexing (WDM) transmission systems at 32 waves and above
14. 10GB/s and above digital synchronous series optical fibre communication system equipment manufacturing
15. Routers, switches, base stations and other equipment supporting the communications network
16. Manufacture of equipment for stratospheric communication systems
17. Manufacture of digital mobile communications, mobile self-organising networks, access network systems, digital trunking communication systems and network equipment such as routers and gateways

18, large and medium-sized electronic computers, multi-trillion times high-performance computers, portable micro-computers, one trillion times per second and above high-grade servers, large-scale analogue simulation systems, large-scale industrial control machines and controllers manufacturing

19, IC design, IC manufacturing below 0.8 micron line width, and ball grid array package (BGA), pin grid array package (PGA), chip scale package (CSP), multi-chip package (MCM), lattice grid array package (LGA), system-in-package (SIP), flip-flop package (FC), wafer level package (WLP) and sensor packaging (MEMS) Advanced packaging and testing

20. Integrated circuit equipment manufacturing

21, new electronic components (chip components, frequency components, hybrid integrated circuits, power electronic devices, optoelectronic devices, sensitive components and sensors, new electromechanical components, high-density printed circuit boards and flexible circuit boards, etc.) manufacturing

22, 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 laminated boards, etc.) and other electronic products with materials

23. Software development and production (including research and promotion of the application of national language informatisation standards)

24, digital system (software) development and application: intelligent equipment embedded software, integrated 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) auxiliary engineering (CAE) process planning (CAPP) product lifecycle management (PLM) industrial cloud platforms, industrial

Industrial software such as APP; specialised systems such as energy management systems (EMS) and building information modelling (BIM) systems.

25, semiconductor lighting equipment, photovoltaic solar energy equipment, chip component equipment, new power battery equipment, surface mount equipment (including stencil printing machine, automatic mounter, lead-free reflow soldering, photoelectricity automatic inspection instrument), etc.

26. Computer peripherals such as printers (including high-speed bar-code printers) and mass memory

27, thin film field effect transistor LCD (TFT-LCD) organic light-emitting diode (OLED) electronic paper display, laser display, 3D display and other new types of flat panel display devices, glass substrates for the LCD panel industry, cover glass for the electronics and information industry, and other key components and key materials.

28. Manufacture of new (non-dispersive) single-mode optical fibres and optical fibre preforms

29. High-density digital laser video disc player disc manufacturing

30. Read-only and recordable optical disc replication production

31. Audio and video coding and decoding equipment, audio and video broadcasting and transmitting equipment, digital

television studio equipment, digital television system equipment, digital television broadcasting single-frequency network equipment, digital television receiving equipment, digital camcorders, digital video recorders, digital television products

32, network security products, data security products, network monitoring special equipment development system

make

33. Technology development and manufacturing of intelligent mobile terminal products and key components

34. Doppler radar technology and equipment manufacturing

35, medical electronics, health electronics, bioelectronics, automotive electronics, power electronics,

Manufacturing of financial electronics, aerospace instrumentation electronics, image sensors, sensor electronics and other products

36. Wireless LAN technology development, equipment manufacturing

37. E-commerce and e-government systems development and application services

38. Satellite navigation chip, system technology development and equipment manufacturing

39. Emergency radio and television system construction

40. Quantum communications equipment

41, thin film transistor liquid crystal display (TFT-LCD) light-emitting diode (LED) and organic light-emitting diode display (OLED) e-paper display, laser display, 3D display and other new display device production special equipment

42, semiconductor lighting substrate, epitaxial, chip, packaging and materials (including high-efficiency heat dissipation copper cladding board, thermal conductive adhesive, thermal conductive silicone film), etc.

43. Department for the development of digital content products, such as digital music, mobile media, animation games, etc.

unite

44. Development and application of anti-counterfeiting technology

45, nuclear power instrumentation and control system core chip and related software

46. Big data, cloud computing, information technology services and blocks within the scope of national permissions

Chain Information Service

47, industrial Internet network, platform, security hardware equipment manufacturing and software system development and integration of innovation and application, industrial Internet equipment security, control security, network security, platform security and data security related technology product research and development and application, industrial Internet network construction and transformation, the construction and promotion of marking and resolution system, industrial cloud service platform construction and application.

Next-generation private network communication equipment such as broadband digital trunking equipment, 230MHz band broadband wireless data transmission equipment using time division duplex (TDD) carrier aggregation, and wireless communication equipment for car networking such as LTE-V2X wireless communication technology-based car networking direct-connection communication equipment.

49. Research on and integrated application of air-ground integrated acquisition technology for disaster site information

50. Research and manufacture of computer systems with new mechanisms such as quantum and brain-like mechanisms

51. Advanced solar photovoltaic cells of various types and high-purity crystalline silicon materials (integrated power consumption of polysilicon is less than 65 kWh/kg, conversion efficiency of monocrystalline silicon photovoltaic cells is greater than 22.5 per cent, that of polycrystalline silicon cells is greater than 21.5 per cent, that of cadmium telluride cells is greater than 17 per cent, and that of copper-indium gallium selenide cells is greater than 18 per cent)

XXIX. Modern logistics

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

2. Construction of logistics and distribution facilities for agricultural products, cold chain logistics for agricultural products, food and pharmaceuticals, and technical services for quality and safety control of food and pharmaceutical logistics
3. Modern supply chain innovation and application
4. Construction of multimodal transit facilities, R&D and promotion of multimodal rapid transit and loading equipment, and standardised transport units
- 5, standard pallets and 600mm × 400mm packaging base module to promote the application of environmentally friendly, recyclable material pallet manufacturing and use of
6. R&D and application of logistics information service technology, cargo tracking identification and positioning technology, intelligent warehousing, sorting and distribution technology, and logistics information security technology

7. Emergency logistics, reverse logistics, green logistics facility construction and operation
8. Logistics public information platform development and construction
9. Logistics hub construction and operation
10. Public warehousing, vehicle parking, loading and unloading, charging and other supporting facilities required for urban logistics.

XXX. Financial services

1. Building a rural financial services system
 2. Bond issuance and trading service system construction
 3. Agricultural insurance, liability insurance, credit insurance, commercial health insurance, property insurance
- rugged
4. Inclusive financial product development and application
 5. Development of loan pledge business for intangible assets such as intellectual property rights and revenue rights
 6. Credit card and network services
 7. Construction of RMB cross-border settlement and clearing system
 8. Financial regulatory technology development and application
 9. Venture capital

10. Financial technology product development, application and service output of financial institutions

11. Building a green financial services system

12. Open banking system security protection

13. Financial guarantee services, financial leasing services

14. Asset securitisation, real estate investment trusts (REITs) and other inventory revitalisation

Financial instruments and financial product development applications for assets

XXXI. Science and technology services

1, industrial design, meteorology, biology, new materials, new energy, energy saving, environmental protection, surveying and mapping, marine and other professional scientific and technological services, standardisation services, measurement and testing, quality certification and inspection and testing services, science and technology popularisation

2. Value-added telecommunication services such as online data and transaction processing, IT facilities management and data centre services, mobile Internet services, Internet conferencing, television and images, etc.

3. Industry (enterprise) management and informatisation solution development, web-based software service platforms, software development and testing services, information system integration, consulting, operation and maintenance, and data mining and other service businesses

4. Digital content services such as digital music, mobile media, online publishing, etc., and information resource development services in the fields of geography, international trade, etc.

5, digital technology, high fidelity technology, high-speed computing technology and other emerging cultural science and technology support technology construction and services

6, analysis, experiments, testing and related technical consulting and R & D services, intelligent products overall programme, ergonomics design, system simulation and other design services

7. Online data processing and data security services, data recovery and disaster recovery services, information security protection, network security emergency support services, cloud computing security services, big data security services, information security risk assessment, certification and consulting services, information equipment and software security assessment services, cryptographic technology product testing and certification services, information system level protection security programme design services

8, scientific and technological information exchange, literature and information retrieval, technology consulting, technology incubation, assessment of scientific and technological achievements, scientific and technological achievements transfer and transformation services and scientific and technological forensics and other services

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

10 、 National Engineering (Technology) Research Centre, National Industrial Innovation Centre, National Agricultural Hi-Tech Industry Demonstration, National Agricultural Science and Technology Park, State-accredited Enterprise Technology Centre, National Laboratory, National Key Laboratory, National Major Science and Technology Infrastructure, Hi-Tech Entrepreneurship Service Centre, Green Technology Innovation Base Platform, New Product Development and Design Centre, Scientific and Educational Infrastructure, Industrial Cluster Comprehensive Public Service Platform, Pilot Base, Experimental Base Construction

11. Information technology outsourcing, business process outsourcing, knowledge process outsourcing and other technologically advanced services

12. Intelligent manufacturing system integration application experience verification service

13, industrial services: maintenance and repair of modern high-end equipment, digital production line transformation and integration, industrial service network platform, industrial e-

commerce, intelligent equipment remote operation and maintenance management system, intelligent factory equipment monitoring and diagnostic platform, predictive maintenance system, professional maintenance services and supply chain services, industrial management services (including equipment operation and maintenance management consultancy, equipment operation and maintenance and management services, industrial APP and equipment management software (SaaS)) data and digitalisation services (PaaS, IaaS, data analytics services and other innovative data services)

14, network security integration, security maintenance, security operations, risk assessment, education and training, consulting, emergency response and other security services

15. Construction, maintenance and leasing of cloud computing data centres, etc.

16. Information systems integration and Internet of Things technology services, operation and maintenance services, information processing and storage support services, information technology consulting services, digital content services and other information

Technical Services

XXXII. Business services

1、Economic, management, information, accounting, taxation, auditing, law, energy saving, environmental protection and other consulting and services

2. Engineering consultancy services (including planning consultancy, project consultancy, assessment consultancy, whole process engineering consultancy)

3. Credit investigation and rating and other credit service system construction

4. Asset evaluation, calibration, testing, inspection and other services

5. Property Rights Trading Service Platform

6, advertising ideas, planning, design, production, agency, publishing and other advertising services



7. Exhibition services (excluding construction of exhibition venues)

8. Supply chain management services (refers to the services of designing, planning, controlling and optimising the logistics, commercial, information and capital flows in the supply chain based on modern information technology, and integrating and consolidating the single, scattered order management,

procurement execution, customs clearance and tax rebate, logistics management, capital financing, data management, trade commerce and settlement, etc.)

XXXIII. Business services

1. Construction of modern market distribution facilities for agricultural products and means of production

2, seed, seed , breeding livestock and poultry and fish 
(seed) fertiliser, pesticides, agricultural machinery and equipment, agricultural film and other agricultural chain management and integrated services

3. Rural-oriented chain operation of daily necessities, medicines, publications and other daily necessities

4. Auction services for agricultural products

5. Unified distribution and distribution network construction for business enterprises

6. Use of information technology to transform and upgrade traditional commodity trading markets
7. Yard sale construction
8. Construction of a modernised used car trading service system
9. Construction of a new rural modern circulation service network project, and the application and demonstration project of the Internet of Things in agriculture

XXXIV. Tourism

1, tourism commodities, tourism souvenirs, tourism equipment and equipment, as well as leisure, mountaineering, skiing, diving, adventure and other types of outdoor activities supplies development and marketing services

2, cultural tourism, health tourism, rural tourism, ecotourism, marine tourism, forest tourism, grassland tourism, industrial tourism, sports tourism, red tourism, ethnic tours and other comprehensive development of tourism resources, infrastructure construction and information and other services

XXXV. Postal services

1. Postal savings network construction
2. Postal integrated business network construction
3. Mail processing automation engineering
4. Construction of a public service information platform for the

postal industry, including safety monitoring of the delivery channel, monitoring of the time limit for mail and express mail, consumer complaints, satisfaction surveys and announcements, public service and market monitoring functions such as enquiries on postcodes and industry tariffs.

5, urban and rural express business outlets, shops and other express delivery service outlets and intelligent express (letter bag) box, express end of the integrated service place construction

6. Construction of express delivery processing facilities such as urban, intra-regional and inter-regional shipment sorting centres, transfer centres, distribution centres and processing hubs

7, express tracking query, automatic sorting, transport and delivery scheduling, express customer service call centre and other express information systems development and applications

8. R&D and application of express technology and equipment such as data collection, containers, intelligent terminals, intelligent warehousing, automatic sorting, mechanised loading and unloading, cold chain express, AGV, drones, unmanned vehicles and green packaging, etc.

9. Development and application of technologies for the integration of mail and express transport with the transport network and multimodal transport, operation platforms, etc.

XXXVI. Education

1. Pre-school education
2. Special education
3. Vocational education
4. Internet + education, distance learning

XXXVII. Health

1. Preventive health care, health emergency and health supervision service facilities
2. Family planning, eugenics, reproductive health counselling and services
3. Internet + medical and health services, medical big data

application

4. Health information services such as health counselling, medical knowledge and health management services
5. Construction of medical and health service facilities
6. Construction and services of hospitals specialising in infectious diseases, children's and mental health, and rehabilitation hospitals (centres) nursing homes (centres and stations) hospice centres and general medical facilities
7. Psychological counselling services
8. Chinese medicine health care services

XXXVIII. Culture

1. Public culture, culture and art, press and publication, radio, television and film, audiovisual network, protection and use of cultural heritage and construction of facilities

2, cultural and creative design services, digital cultural and creative (including digital cultural and creative technology and equipment, digital cultural and creative software, digital cultural and creative content production, new media services, digital cultural and creative content application services) animation creation, production, dissemination, publishing, and derivatives product development

3, broadcasting film and television production, distribution, trading, broadcasting, publishing, derivatives development, network audio-visual programme technical services, development

4, news publishing content supervision technology, copyright protection technology, production technology of publications, publication distribution technology development and application, e-paper, readers and other new carriers of news publishing technology development, application and industrialisation

5. Development and application of technology for digital services and regulation of films

6. Protection and revitalisation of intangible cultural heritage, protection and development of ethnic and folk arts, traditional arts

and crafts, protection of national historical and cultural cities (towns and villages) and cultural districts, protection of villages and towns with special characteristics of ethnic minorities in China, protection and development of old Chinese brands, international marketing and promotion of national cultural and artistic excellence

7. Cultural information resources sharing project, smart museum construction, integrated development of traditional and emerging media, smart radio and television construction, mobile multimedia radio and television, radio and television digitisation, intelligent and coordinated coverage of cable, wireless and satellite broadcasting and television networks, intelligent construction of the national cable television network and the construction of an interconnection platform

8. Language and writing technology development and application

9. Performing arts

XXXIX. Sports

1. Sports management activities
2. Sports competitions and performance activities
3. Sports, fitness and leisure activities
4. Management of sports grounds and facilities
5. Sports brokerage and agency, advertising and exhibition, performance and design services
6. Physical education and training
7. Sports media and information services
8. Sports tourism, health and rehabilitation, financial and asset management services
9. R&D and manufacturing of sporting goods and related products
10. sporting goods and related products sales, rental and trade agents
11. Construction of sports venues and facilities

XL. Elderly and childcare services

1. Long-term care service institutions (including nursing homes, homes for the aged, rural elderly facilities, etc.)
2. Backbone network of community-based elderly services
3. Pension financial product services industry

4. Help with meals and travelling
5. Education for the elderly
6. Recreation and tourism
7. Practical training and education for elderly services

8. Rehabilitation aids configuration service (leasing) organisations
9. Construction and renovation works for ageing at home
10. Resource development for the elderly
11. Health management and physical fitness for the elderly
12. Smart Health and Aging
13. Early childhood development (intellectual development, dietary nutrition, mental health)
14. Training in infant and childcare education
15. Infant and child care services (centres)
16. Infant and child health management
17. Family Parenting Support and Childcare Guidance

XLII. Housekeeping

1. Community housekeeping services
2. Employee-based housekeeping services
3. Vocational education and skills training in home economics
4. Integrated Home Economics Information Service
5. Construction and operation management of home help service measures (home help service outlets)
6. Standardisation of domestic services

XLIII. Other services

1. Secure housing construction and management

2. Property Services

3. Places for the elderly and minors

4. Construction of basic service facilities and integrated service outlets in urban and rural communities

5, development zones, industrial clusters supporting the construction of public service platforms and services

6. Community care services

7. Renewable resources recycling network system construction

8. Wedding services

9. Construction of grass-roots employment and social security service facilities

10. Construction of service facilities for families left behind by migrant workers

11. Social Security Card Project

12. Construction of rehabilitation centres for work-related injuries

13. Rental housing construction, operation and management

14. Consumer protection services

XLIII. Environmental protection and resource conservation and comprehensive use

1. Mine ecological environment restoration project

2. Marine environmental protection and scientific development, marine ecological restoration

3, brackish water, brackish water, poor quality water, the development and use of seawater and seawater desalination comprehensive utilisation project

4. Development and use of alternatives to ozone-depleting

substances

5. Regional construction of resource recycling bases for waste automobiles, waste electrical and electronic products, waste ships, waste iron and steel, waste wood, waste rubber, etc.

6. Outflow radiation environmental monitoring technology project

7. Environmental monitoring system project

8. Development and manufacture of technical equipment for the safe disposal of hazardous wastes (medical wastes) and wastes containing heavy metals and the construction and operation of disposal centres; radioactive wastes, decommissioning of nuclear facilities, etc.

Development and manufacture of equipment for total disposal technology and construction of a disposal centre

9. Mobile pollution sources (locomotives, ships, cars, etc.) monitoring and prevention technologies

10. Application of urban traffic noise and vibration control technology

11. Development and application of electromagnetic radiation control technology for power grids and information systems

12. Technology development and application for the reduction and control of dioxin emissions

13. Development and application of alternatives to POPs-based products

14. Development and application of technology for disposal of waste POPs-based products

15. "Three wastes" comprehensive utilisation and treatment technology, equipment and engineering

16. Development and production of biological strains and additives for "three wastes" treatment

17. Mercury recovery and treatment technologies for mercury-containing wastes, development and application of alternatives to mercury-containing products

expense or outlay

18. Zero-discharge wastewater, reuse of water technology

applications

19. Development of high-efficiency, low-energy wastewater treatment and recycling technology

20. Urban waste, rural domestic waste, rural domestic sewage, sludge and other solid wastes

Body Waste Reduction, Resourcefulness, Harmless Treatment and Comprehensive Utilisation Project

21. Waste landfill containment technologies and materials

22, energy-saving, water-saving, material-saving

environmental protection and comprehensive utilisation of resources and other technology development, application and equipment manufacturing; to provide users with energy-saving, environmental protection, comprehensive utilisation of resources, consulting, design, assessment, testing, auditing, certification, diagnosis, financing, transformation, operation and management services

23. High-efficiency, energy-saving and environmentally friendly mining and ore dressing technologies (pharmaceuticals) low-grade, complex and difficult-to-process ore development and comprehensive utilisation technologies and equipment

24. Comprehensive utilisation technology of symbiotic and associated mineral resources and extraction of valuable elements

25, tailings, slag and other resources comprehensive utilisation and supporting equipment manufacturing

26. Renewable resources, construction waste resource recycling engineering and industrialisation

27, waste wood, waste electrical and electronic products, waste printed circuit boards, waste batteries, waste ships, waste agricultural machinery, waste plastics, waste textiles and textile waste and trimmings, waste (broken) glass, waste rubber, waste oil and grease, and other waste materials and other resources recycling technology, equipment development and applications

28, waste automobiles, construction machinery, mining machinery, machine tool products, agricultural machinery, ships and other waste mechanical and electrical products and parts reuse, remanufacturing, ink cartridges, organic photoconductive drums remanufacturing (refilling) decommissioning of large civilian aircraft and engines, parts and components dismantling, reuse, remanufacturing

29. Comprehensive use of technology and equipment: scrap steel crushing production line above 4,000 horsepower; complete sets of equipment for recycling and processing of waste plastic composites (recovery rate above 95 per cent) equipment for comprehensive use of light hydrocarbon petrochemical by-

products; equipment for biomass energy technology (power generation, oil production, biogas) equipment for sulphur recycling (low-temperature Krause method).

30. Research, development and application of soil remediation technologies containing persistent organic pollutants

31. Technology development and application for the reduction and control of heavy metal emissions

32. Industrial hard-to-degrade organic wastewater treatment technology

33, toxic, organic waste gas, malodour efficient treatment technology

34. Technology development and construction of facilities for the resourceful use of food waste

35. Carbon capture, utilisation and storage technology and equipment

36. Ice storage technology and its complete set of equipment manufacturing

37. Recycling of used power storage batteries for electric vehicles: step-by-step use and recycling

Waste power storage battery recycling technology and equipment; automated dismantling technology and equipment; automated rapid sorting and grouping technology and equipment; battery residual life and consistency assessment technology and equipment; residual value assessment technology and equipment; gradient utilisation technology and equipment; cathode, negative electrode, diaphragm, electrolyte efficient regeneration and harmless treatment technology and equipment.

38. Waste wood material recycling project

39. Waste segregation technology, equipment, facilities

40. Third-party environmental pollution control

41. Volatile Organic Compounds (VOCs) Reduction, Resource Utilisation and End-of-Pipe Treatment and Monitoring Technologies

42. Waste sulphuric acid cracking and recycling technology

43. Resource utilisation of industrial by-product salt

44. Integrated technology for green and efficient leaching and extraction of raw ionic rare earth ores

45. Advanced process technology and equipment for waste heat recovery and utilisation

XLIV. Public safety and emergency response products

1. Development and application of technology for monitoring

and early warning of meteorological, seismic, geological, marine, water and drought disasters, urban and forest fire disasters

2. Development and application of technology for monitoring and early warning of biological disasters and animal epidemics
3. Development and application of technology for automatic monitoring and alarming of dam and tailing pond safety
4. Development and application of technology for monitoring and alarming safety production in coal and mines, etc.
5. Development and application of technology for early warning of public transport accidents
6. Rapid monitoring technologies and products for water, soil and air pollutants
- 7, food and drug safety rapid test technology, instrumentation development and application
8. Reagents and instruments for detecting major epidemics and emerging infectious diseases

9. Rapid screening equipment for persons with abnormal body temperature in public places

10. Traffic safety, urban public safety, terrorist security, network and information system security, police safety, special equipment safety, engineering and construction safety, fire, major sources of danger safety monitoring and early warning systems, product technology development and application

11, radioactivity, drugs and other contraband, nuclear, biological and chemical terrorist sources and other dangerous goods rapid detection detection technology and products

12. Development and application of hazardous chemical safety monitoring technology

13. Development and application of protective equipment for emergency rescue personnel

14. Household emergency protection products

15. Development and application of new protection technology for lightning disasters

16. Mining, engineering and hazardous chemicals safety production hedge products and facilities

17. Technologies and products for rapid mapping, storage and transmission of on-site information on emergencies

18. Life detection equipment

19. Intelligent, large-scale, special, unmanned, high-performance fire-fighting and rescue equipment
20. All-terrain debris rescue equipment for buildings (structures)
21. Special vehicles and equipment for emergency communications, emergency command, emergency power generation and power restoration, logistical support and other all-terrain, high-mobility, multifunctional emergency rescue and relief vehicles
22. Efficient rescue products such as detection, breaking and demolition, life-saving, lighting, smoke evacuation, leakage plugging, transfer, decontamination, lifting and delivery.
23. Aviation emergency rescue equipment and gear
24. Road emergency recovery equipment and facilities
25. Development and application of ice and snow removal machinery and environmentally friendly snow removers for public transport facilities

26. Emergency rescue technology and equipment for water (underwater and deep sea)
27. Construction of emergency response facilities and equipment for hazardous chemicals and oils on board vehicles and in ports, etc.
28. Technologies and equipment for emergency response to oil spills and leaks of toxic and hazardous substances at sea
- 29, toxic and hazardous liquid rapid absorption treatment technology and equipment, mobile medical waste rapid treatment device, hazardous waste characteristics of special instruments, such as identification of emergency environmental protection technology and equipment for sudden environmental disasters
30. Aviation emergency medical system, mobile medical ambulance system, disinfection and supply equipment for health emergencies, life support, treatment and monitoring integrated first aid and evacuation platforms
31. Prevention and control of public health emergencies and biological outbreaks and medicines
32. Counter-terrorism operational technology and equipment and detection and control technology; integrated counter-terrorism operational platform technology, anti-nuclear terrorist robots, emergency explosion-proof vehicles, medium-sized counter-

terrorism explosion-proof robots, explosion-proof trailers, explosive destroyers, etc.

33. Emergency medical care, traffic rescue, engineering rescue, safety production, aviation rescue, network and information security and other emergency rescue socialisation services

34. Emergency logistics facilities and services

35. Emergency counselling, assessment, training, rental and insurance services

36. Emergency stockpile infrastructure development

37. Emergency rescue bases, public emergency experience infrastructure development

38, new fireproof coatings, fireproof materials, fire stopping and explosion suppression devices, fire-resistant building components

39. Development and application of automatic forest and grassland fire monitoring and alarm technology

40. Safety monitoring system based on BeiDou navigation satellite

41. Mine digital technology development and application, safety production simulation training technology development

and Applications, Fine Grain Tailings Moulded Bag Method Pile Dam Safety Technology

42. Development and application of technology for rapid acquisition of seismic hazard information, and development and application of technology for detection of seismically active faults

43. Development and Application of Rapid Identification Technology for Water Sources in Coal Mines

44. Rapid fire product quality testing equipment

45. Development and application of technology for monitoring harmful elements in agricultural products and their environment of origin

46. Rapid safety monitoring equipment for water for production and domestic use

47. Special job protection products

48. Development and application of technology for the prevention and protection of critical infrastructure security, social and public security, agriculture, forestry and meteorology, and biological disasters

49. Complete sets of technology and equipment for emergency response and rescue of coal mine gas, thermal power, water damage and other major disasters, and for risk monitoring, safety prevention and control and emergency response of

hazardous chemicals

- 50. Large, multi-functional engineering rescue equipment
- 51. Flood control and rescue specialised equipment and gear
- 52. Artificial Weather Operations System
- 53. Technology and equipment for emergency response to nuclear accidents
- 54. Technologies and equipment for quarantine and disposal of epidemics and diseases
- 55. Special equipment accident rescue techniques and equipment
- 56. Technical equipment for emergency monitoring of water and drought disasters
- 57. Technical equipment for intelligent identification of flood and drought disaster risks
- 58. Flood control and rescue self-grouping cluster emergency communication technology and equipment
- 59. Technical equipment for finding water and drilling wells for drought emergencies

- 60. Typhoon risk zoning mapping techniques and applications
 - 61. Key technical equipment for base-based logistics support for emergency response to major disasters and accidents
 - 62. Key technical equipment for intelligent unmanned emergency rescue in major accidents and disasters
 - 63. Research and application of key technologies and equipment for disaster site resettlement equipment in highland and alpine areas
 - 64. High-efficiency intelligent de-icing and de-snowing equipment for rain, snow and freezing disasters
 - 65. Lightweight modular engineering rescue equipment for complex environments
 - 66. Research on key technologies for prevention and control of large-scale high tailings pond dam failure disasters and application demonstration
 - 67. Construction of emergency facilities for flood and drought control
 - 68. Development and application of new technologies and products for flood control and drought relief
 - 69. Thermal transfer printing signage production development and application
- Forty-five, civil explosive products
- 1, safe, environmentally friendly and energy-saving industrial

explosives and bulk industrial explosives without detonator sensitivity; on-site mixing production mode; the use of latex matrix centralised preparation, remote distribution of on-site mixing production mode; underground mines, large-scale chambers, highways, railways, tunnels and other engineering applications of on-site mixing of explosives technology; the civil explosives scientific research, production, demolition services, "integrated" mode. "mode; decommissioned gunpowder (explosives) in the application of industrial explosives, special-purpose explosives

2 、 Intelligent production technology and equipment for industrial explosives, unmanned workshop for industrial explosives; on-line monitoring of production lines, fault self-diagnosis technology; high-precision charge metering technology and on-line parameter detection technology for on-site mixing and loading production method; intelligent control platform for the whole process of on-site mixing and loading production method; information and visualisation intelligent network supervision platform for production and sales (including warehousing); safe recycling and reuse process technology and equipment for waste and hazardous materials and substandard products; safe and environmentally friendly recycling and reuse process technology and equipment for waste and hazardous materials. Safe and

environmentally friendly recycling technology and equipment.

3. New types of detonating equipment; digital electronic detonators; safety technology for the prevention of martyrdom explosion of finished industrial detonators and the intensive production and remote distribution of basic detonators; centralised production and remote distribution of electronic ignition elements (including electronic control modules and ignition elements) of digital electronic detonators; industrial detonating cord with a series of explosive loads.

4, modular, automated, continuous equipment for high-risk production processes, safe and environmentally friendly waste (material) destruction and processing equipment; pyrotechnic agents, products, intelligent production processes and equipment, unmanned workshop for industrial detonator production line; production process quality control points process parameters, people, machines, materials, environment and other data automatic collection, storage and traceability analysis system; non-occupational hazards, safety and environmental protection, a high degree of informatisation Product performance testing methods; industrial detonating cord production process of explosives, adding drugs, winding, coiling, sealing, packaging of automated equipment 5, automation of the production process of detonating apparatus; stable and controllable source of periodic

expiration of the vibration drug

Column products, water-containing explosives, etc. in the seismic column; series and universal shot hole Ammunition products; reliable, diversified, efficient and environmentally friendly explosive devices for artificial weather influence; application of decommissioned pyrotechnics in industrial explosives products

6, process data visualisation, production data online collection, automatic detection of safety parameters of industrial explosives production process; detonating device manufacturing, high level of intrinsic safety, continuous, intelligent melting, mixing, casting, demoulding and other processes of process equipment; seismic source pillars of automatic loading, automatic assembly of process equipment; projectile automatic loading, automatic suppression of process equipment

7. Industrial explosives production lines with a total of no more than three operators in the hazardous workshop; production lines with intelligent production of detonating apparatus, no fixed operators in the melting and mixing workshop, and a total of no more than five operators in a single demoulding, inspection and packaging workshop (included); and columns of seismic sources.

Production to achieve continuous, automated, information-based, flexible intelligent manufacturing, 1.1 level of production lines with no more than 5 operators in a single hazardous workshop; the production of projectiles to achieve self-reliance

Automation, intelligence, the number of operators in the dangerous workshop is not more than 6 people production line; artificial influence of the weather with the production of explosive devices to achieve automation, intelligence, the number of operators in the dangerous workshop is not more than 5 people production line; sea life-saving pyrotechnic signals and other pyrotechnic information bullet manufacturing to achieve the automation of the preparation of the agent, loading process, the mechanisation of the assembly process, the isolation of man-machine, the number of operators in the dangerous workshop is not more than 5 people Production lines with no more than 5 operators in the hazardous workshop

XLVI. Human resources and human capital services

1. Human resources and human capital information construction
2. Construction of industrial parks and platforms for human resources services and human capital services
3. Human resources recruitment, employment and entrepreneurship guidance, human resources and social security

affairs agency, human resources training, labour dispatch, human resources assessment, human resources management consulting, human resources service outsourcing, senior talent search, human resources information software services and other human resources service industries

4. Human capital value assessment, evaluation and trading, human capital value statistics, analysis and application, investment activities in the process of human capital formation

5. Human capital financial innovation platform construction

6. Construction of human resources and human capital markets and supporting service facilities

7. Construction of a service platform for rural labour transfer and employment

XLVII. Artificial intelligence

1. Artificial Intelligence Chip

2, industrial Internet, public system, digital software, intelligent equipment system integration

Technology and Applications

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

4, virtual reality (VR) augmented reality (AR) voice semantic image recognition, multi-sensor information fusion and other technology research and development and applications

5. Typical industry applications such as unmanned autonomous systems

6. Artificial Intelligence Standard Testing and Intellectual Property Service Platform

7, intelligent manufacturing key technology and equipment, intelligent manufacturing factories, park transformation

8、 Intelligent human-machine interaction system

9. Wearable devices, smart robots, smart home

10. Intelligent medical treatment, medical image assisted diagnosis system

11. Intelligent security, video image identification system

12. Intelligent transport, intelligent means of delivery

13. Intelligent education

14. Smart Cities

15. Smart agriculture


Restricted category II

I. Agroforestry

1. Overgrazing of natural pastures

2, a single line of 50,000 cubic metres / year or less of ordinary particleboard, high medium density fibreboard production

production facility

3. Wood particleboard production units with a single line of less than 30,000 cubic metres/year
4. Rosin production projects under 1000 tonnes/year
5. Veterinary powder/bulk/pre-mix production line projects
(except for species with new veterinary drug certificates and automated closed high-efficiency mixing production processes)
6. Veterinary cell  production line projects in the form of transfer bottle culture production (except for species holding new veterinary drug certificates and adopting new technologies)
7. Pine resin primary processing project
8. Production and use of disposable wood products and wooden packaging made of high-quality forest wood as raw material and wood and bamboo processing projects with low integrated utilisation rate of wood and bamboo processing
9. Plywood and blockboard production lines of less than 10,000 cubic metres/year
10. Root carving manufacturing of rare plants and ancient trees
11. Processing of precious and endangered wild animals and plants using wild resources as raw materials
12. Bait net farming in lakes and reservoirs that do not meet ecological farming requirements

13. Open land agricultural development projects not conducive to ecological and environmental protection

14. Construction of pulp raw material forest bases in water-scarce areas and national ecologically fragile zones

15. Grain-to-ethanol and edible plant oilseed-to-biofuel

projects that do not comply with national planning and industrial policies

16. Development projects that destroy woodlands, wetlands and grasslands

II. Coal

1. Coal mines with less than 300,000 tonnes/year (of which Shanxi, Inner Mongolia and Shaanxi are less than 120,000 tonnes/year).

(10,000 tonnes/year, less than 600,000 tonnes/year in Ningxia) less than 900,000 tonnes/year of coal and gas protruding mine

Jing, one of the 28 constellations of Chinese astronomy

2. Coal mining projects using non-mechanised mining techniques
3. Coal mining projects whose coal resource recovery rate fails to meet national requirements
4. Coal mining projects that have not submitted for approval the mine master plan in accordance with the procedures stipulated by the State
5. Coal mine projects with more than 2 underground working faces
6. Coal mines with mining depths exceeding the provisions of the Coal Mine Safety Regulations, and with product quality up to

Coal mines that do not meet the requirements of the Interim Measures for the Management of Commodity Coal Quality, and coal mines whose mining technologies and equipment are included in the restricted catalogue of the Policy Guidelines for Coal Production Technology and Equipment (2014 Edition), and are unable to implement technological reforms.

III. Electricity

1. Within the coverage of the large power grid, the coal consumption of power generation is higher than 300 grams of standard coal/kWh.

Wet-cooled generating units, air-cooled generating units with a coal

consumption of more than 305 g of standard coal/kWh for electricity generation

2. Diversionary hydroelectric power generation without discharging ecological flows

IV. Petrochemicals

1、 Newly built 10 million tonnes/year or less of normal pressure reduction, 1.5 million tonnes/year or less of catalytic cracking, Continuous reforming (including aromatics extraction) production units up to 1 million tonnes/year, hydrocracking production units up to 1.5 million tonnes/year

2、 Newly built naphtha cracking to ethylene under 800,000 tonnes/year, acrylonitrile under 130,000 tonnes/year, purified terephthalic acid under 1 million tonnes/year, ethylene glycol under 200,000 tonnes/year, styrene under 200,000 tonnes/year (except for the process of ethylbenzene made from dry gas) caprolactam under 100,000 tonnes/year, acetic acid by the method of vinylation, acetic acid by the method of carbonyl synthesis under 300,000 tonnes/year, natural gas to methanol (except natural gas with more than 20% CO₂ content) coal-to-methanol production below 1 million tonnes/year

production units, acetone cyanohydrin methyl methacrylate, grain acetone/butanol, chlorohydrin propylene oxide and saponification epichlorohydrin production units, saponin (including hydrolysate) production units up to 300 tonnes/year

3, the new construction of 70,000 tonnes / year or less polypropylene, 200,000 tonnes / year or less polyethylene, acetylene method of polyvinyl chloride, the beginning of the scale of less than 300,000 tonnes / year of vinyl oxychlorination method of polyvinyl chloride, less than 100,000 tonnes / year of polystyrene, 200,000 tonnes / year or less acrylonitrile-butadiene-styrene copolymer (ABS), 30,000 tonnes / year or less common synthetic latex-carboxybutadiene adhesive (including styrene butadiene latex) production units The new construction, reconstruction and expansion of neoprene rubber, styrene-butadiene thermoplastic rubber, polyurethane and polyacrylate solvent-based general-purpose adhesive production units

4、 Newly built soda ash (except underground recycling soda ash and natural alkali) caustic soda (except ion membrane caustic soda plant for comprehensive utilization of waste salt) sulfuric acid under 300,000 tonnes/year (except for electronic grade sulfuric acid with a single metal ion ≤ 100 ppb)sulfurous iron ore acid under 200,000 tonnes/year, nitric acid under atmospheric pressure and

integrated method, calcium carbide (except for equivalent replacement by large-scale advanced technology and equipment) potassium hydroxide production plant under 5 million tonnes/year, and potassium hydroxide production plant under 5 million tonnes/year. Potassium hydroxide production units with a single-line capacity of less than 50,000 tonnes/year

5. New production units for sodium tripolyphosphate, sodium hexametaphosphate, phosphorus trichloride, diphosphorus pentasulphide, calcium hydrogenphosphate, sodium chlorate, sodium dichromate with less calcium roasting process, electrolytic manganese dioxide, calcium carbonate, anhydrous sodium sulphate (except for salt co-production and by-products) barium carbonate, barium sulphate, barium hydroxide, barium chloride, barium nitrate, strontium carbonate, carbon dioxide, carbon black (except for the vapour-phase method) and choline chloride.

6, new yellow phosphorus, the starting scale is less than 30,000 tonnes / year, single line capacity of less than 10,000 tonnes / year of sodium cyanide (100%) single line capacity of less than 5,000 tonnes / year of lithium carbonate, lithium hydroxide, dry aluminium fluoride and single line capacity of less than 20,000 tonnes / year of anhydrous aluminium fluoride or low molecular ratio ice

Crystal production unit

7, the new oil, natural gas as raw material nitrogen fertiliser, the use of fixed-layer intermittent gasification technology ammonia synthesis, ammonium phosphate production units, copper washing method of ammonia synthesis raw material gas purification process

8, the new high toxicity, high residue and environmental impact of pesticides (including oxytetracycline, hydramethylthion, methamidophos, methomyl, terbufos, parathion, bromomethane, methomyl, aldicarb, carbofuran, dichlorvos sodium, dichlorvos ketone, rodenticides, rodenticidal ether, bromadiolone, bromadiolone, botulinum toxin, bispyribac-sodium, mirex, aluminium phosphate, organochlorine, organotin pesticides, fumonazole fungicide, sodium (potassium) dinitrophenate, chlorosulfuron, aminomethyl sulfonamide, metsulfuron etc) production units. Sodium (potassium)dinitrophenate, chlorosulfuron, aminobenzenesulfuron, metsulfuron, etc.) production equipment

9. New production units for glyphosate, chlorpyrifos (except aqueous process) triazophos, paraquat, chlorothalonil, abamectin, imidacloprid, etofenprox (except metolachlor process) chloropicrin

10, the new sulfuric acid titanium dioxide, lead chrome yellow, iron oxide pigments less than 10,000 tonnes / year, solvent-based coatings

(except for the paint varieties and production processes that are encouraged) and powder coatings containing triglycidyl isocyanurate (TGIC) production units

11. New dyestuffs, dyestuff intermediates, organic pigments, printing and dyeing auxiliaries production units (except for those encouraged and those adopting encouraged technologies)

12, the new hydrogen fluoride (HF, enterprise downstream deep processing products supporting self-consumption, electronic grade and wet process phosphoric acid supporting the exception) the new initial size of less than 200,000 tonnes / year, a single set of size less than 100,000 tonnes / year of methyl chlorosilane monomer production units, less than 100,000 tonnes / year (silicone supporting the exception of) and 100,000 tonnes / year and above, there is no by-product of carbon tetrachloride supporting the disposal of facilities of the production of methane chloride (c) Methane chloride production units with a capacity of less than 100,000 tonnes/year (except for organosilicon support) and 100,000 tonnes/year and above, without disposal facilities for carbon tetrachloride as a by-product

Chloromethane production units, perfluorooctane sulfonic acid (PFOS) and its salts and perfluorooctane sulfonyl fluoride (PFOSF) for acceptable purposes (the rest are phase-outs) perfluorooctanoic acid (PFOA) sulphur hexafluoride (SF₆, except for high-purity grades) and hexabromocyclododecane (HBCD) production units for specific exempted uses (the rest are phase-outs)

13, new bias tyres and force car tyres (including trolley tyres)
nylon cord, 30,000 tonnes

Wire cord, recycled rubber (except for atmospheric pressure continuous desulphurisation process) rubber plasticiser
pentachlorothiophenol, rubber accelerator tetramethylthylum disulphide (TMTD) production unit up to 1 year

V. Information industry

1, laser video disc machine production line (VCD series of complete products)

VI. Steel

1、Iron and steel joint ventures are not synchronised with the construction of dry quenching, coal loading, push coke dedusting device coking project; independent coking enterprises are not synchronised with the construction of coal loading, push coke dedusting device coking project

2. Sintering machines up to 180 square metres (except

ferroalloy sintering machines and pig iron sintering machines for foundry use)

3. Pig iron blast furnaces for steel making with an effective volume of more than 400 cubic metres and less than 1200 cubic metres;
Pig iron blast furnaces for steelmaking with 1200 cubic metres and above but failing to meet the mandatory standards for environmental protection, energy consumption, safety, etc.

4, the nominal capacity of 30 tonnes or more than 100 tonnes of steelmaking converter; nominal capacity of 100 tonnes and above, but does not meet the mandatory standards of environmental protection, energy consumption, safety and so on the steelmaking converter

5. Electric arc furnaces with a nominal capacity of more than 30 tonnes and less than 100 tonnes (50 tonnes for alloy steel);
Nominal capacity 100 tonnes (50 tonnes for alloy steel) and above, but failing to meet the requirements of environmental protection, energy consumption, safety and health.

Electric arc furnaces with all mandatory standards

6. Projects of hot rolled steel strip (excluding special steel) up to 1450 mm
7. 300,000 tonnes/year and below hot-dip galvanised sheet and coil projects
8. 200,000t/a and below colour coated sheet and coil project
9. Chromium-containing refractories
10. Ordinary power and high power graphite electrode pressing equipment, roasting equipment and production line
11. Ultra-high-power graphite electrode production lines with a diameter of less than 600 mm or less than 20,000 tonnes/year
12. Production lines for prebaked anodes (briquettes) less than 80,000 tonnes/year, ordinary cathode briquettes of less than 20,000 tonnes/year and carbon electrodes of less than 40,000 tonnes/year.
13. Pelletising equipment with a single machine of less than 1.2 million tonnes/year (except ferroalloys and pig iron pellets for foundry use)
14. The height of the charring chamber of top-loading coke ovens is <6.0 m, the height of the charring chamber of tamping coke ovens is <5.5 m. Coking projects with a capacity of less than 1 million tonnes/year; coking projects with heat recovery coke oven (HRO) tamping

cake volume <35 cubic metres and enterprise production capacity <1 million tonnes/year (casting coke <0.6 million tonnes/year); coking projects with single-oven production capacity of semi-coke oven (SCO) <0.1 million tonnes/year and enterprise production capacity <1 million tonnes/year.

15. Electric furnaces for the refining of low- and medium-carbon ferromanganese, electric furnace manganese metal and low- and medium-carbon ferrochrome, 3000 kVA and above, not using the hot charging and hot mixing process

16. Ferromanganese blast furnaces up to 300 cubic metres; ferromanganese blast furnaces of 300 cubic metres and above, but with coke ratios higher than 1,320 kg/tonne; ferromanganese blast furnace enterprises with a size of less than 100,000 tonnes/year

17. Calcium-silicon alloys and calcium-silicon barium-aluminium alloy mineral heaters of less than 12,500 kVA; 12,500 kVA and above, but with calcium-silicon alloy power consumption above 11,000 kWh/tonne Mineral Heat

electric stove

18. Mineral-heating furnaces of silica-aluminium alloys below 16,500 kVA; mineral-heating furnaces of 16,500 kVA and above, but with power consumption of silica-aluminium alloys higher than 9,000 kWh/tonne

19, $2 \times 25,000$ kVA or less ordinary ferroalloy mineral-heating electric furnaces (key poverty-stricken areas identified by the State in the central and western regions with independently operated small hydropower and mineral resource advantages, the capacity of the mineral-heating electric furnaces is $< 2 \times 12,500$ kVA) $2 \times 25,000$ kVA and above, but the transformer is not selected as the energy-saving three-phase or three single-phase equipment with on-load electric multi-stage regulator, and the process operation has not been realised Mechanisation and control automation, ferrosilicon power consumption higher than 8500 kWh/tonne, industrial silicon

Electricity consumption is higher than 12,000 kWh/tonne, electric furnace ferromanganese consumption is higher than 2,600 kWh/tonne, and silicon is higher than 1,000 kWh/tonne.

Manganese alloy power consumption above 4200 kWh/tonne, high carbon ferrochrome power consumption above 3200 kWh/tonne.

tonnes, silicon chromium alloy power consumption higher than 4800

kWh/tonne for ordinary ferroalloy mineral heat electric furnace

20. Electrolytic manganese metal leaching process with intermittent leaching and intermittent liquid delivery; single production line (one transformer) electrolytic manganese metal below 10,000 tonnes/year, and enterprises with a total scale of electrolytic manganese metal production below 30,000 tonnes/year.

21. Separate hot rolling lines without steel-making process on the plant site

VII. Non-ferrous metals

1, new construction, expansion of tungsten metal reserves of less than 10,000 tonnes, the annual mining scale of less than 300,000 tonnes of ore volume of tungsten mining projects (except for the existing tungsten mines of the deep and side resource mining expansion projects) tungsten, molybdenum, tin, antimony smelting projects (except for projects in line with national environmental protection and energy conservation and other laws and regulations) as well as antimony oxide, lead and tin solder production projects, rare earth mining, smelting and separation of rare earths (in line with the requirements of the total control index of rare earth mining, smelting and separation of rare earths, except for projects of rare earth enterprise groups that meet the requirements of total

smelting and separation control indexes)

2. Crude copper smelting projects under 100,000 tonnes/year scale in a single series (except recycled copper projects and oxide ore direct leaching projects)

3. Electrolytic aluminium projects (except capacity replacement projects)

4. Lead smelting projects of less than 50,000 tonnes/year in a single series (except for technological and environmental improvement projects that do not add new production capacity)

5. Single-series zinc smelting projects below 100,000 tonnes/year scale (except direct leaching)

6. Magnesium smelting projects (except for comprehensive utilisation projects and advanced energy-saving and environmentally friendly technology transformation projects)

7. Stand-alone carbon for aluminium projects under 100,000 tonnes/year

8, the new single series production capacity of 50,000 tonnes / year and below, the expansion of a single series of production
Recycled lead projects with a capacity of 20,000 tonnes/year or less, as well as those whose indicators of resource use, energy consumption and environmental protection do not meet the requirements of the industry access conditions.

9. New and expanded primary mercury mining projects

VIII. Gold

1. The self-supply capacity of raw materials for processing less than 200 tonnes of gold concentrates per day is less than 50%.

(excluding) stand-alone cyanidation projects (except for the biocyanidation process for gold extraction)

2. Independent gold beneficiation plant project with no supporting mining system processing less than 300 tonnes of ore per day (not included)

3. Pyrometallurgical smelting project of an independent gold smelter without an ancillary mining system processing less than 200 tonnes of gold concentrate per day (not included)

4. Stand-alone heap leach pads without integrated mining systems up to 1500 tonnes/day (not included).

catalogue

5. Open-pit mining projects processing less than 300 tonnes (excluding) of rock gold ore per day, and underground mining projects processing less than 100 tonnes (excluding) of rock gold ore per day

6. Alluvial gold mining projects processing less than 300,000 (not including) cubic metres of alluvial gold ore per year

7. Alluvial gold mining projects in forest areas, basic farmland and river channels

IX. Building materials

1、 New dry-process cement clinker production line (except special cement production line) ~~with~~ less than 2,000 tonnes/day (not included), and cement grinding station with a capacity of less than 600,000 tonnes/year (not included).

2、 1.5 million square metres / year and below the building ceramics (excluding architectural glazed products) production line

3、 Tunnel kiln sanitary ceramics production line with less than 600,000 pieces/year (not included)

4. Paper-faced gypsum board production lines with a capacity of less than 30 million square metres/year (not included) (except in Tibet)

5, medium alkali glass fibre pool kiln method of drawing production line; single kiln size less than 80,000 tons / year

(excluding) non-alkali glass fibre roving pool kiln drawing line;
medium alkali, non-alkali, alkali-resistant glass ball kiln production
line; medium alkali, non-alkali glass fibre platinum crucible
substitution drawing line

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

7. Gypsum (hollow) block production lines with a capacity of
less than 150,000 square metres/year (not included), concrete
small hollow blocks with a single shift of less than 50,000 cubic
metres/year (not included), and concrete small hollow blocks with
a single shift of less than 50,000 cubic metres/year (not included).
Fixed production lines for concrete paving tiles of less than 150,000
square metres/year (not included), and production lines for man-
made lightweight aggregates (ceramic granules) of less than
50,000 cubic metres/year (not included)

8. Aerated concrete production lines with a capacity of less than
150,000 cubic metres/year (not included)

9, 60 million standard bricks / year (not included) below the production of sintered bricks and sintered hollow blocks

threads

10, 30,000 tonnes / year of rock (mineral) cotton products production line and 8000 tonnes / year of the following

Glass wool

products production

line

11 、 Prestressed high-strength concrete centrifugal pile production line of 1 million metres/year and below

12 、 Prestressed steel cylinder concrete pipe (PCCP pipe) production line: PCCP-L type: annual design production capacity of ≤ 50 kilometres, PCCP-E type: annual design production capacity of ≤ 30 kilometres.

X. Pharmaceuticals

1, new construction, expansion of gulonic acid and vitamin C raw powder (including medicine, food, feed, cosmetics) production units, new drugs, food, feed, cosmetics and other uses of vitamin B1, vitamin B2, vitamin B12, vitamin E raw materials production units

2, new penicillin industrial salt, 6-aminopenicillanic acid (6-APA) chemical production 7-amino cephalosporanic acid (7-ACA)

chemical production 7-amino-3-deacetoxycephalosporanic acid (7-ADCA) penicillin V, ampicillin, hydroxyaminopenicillin, cephalosporin c fermentation, oxytetracycline, tetracycline, chloramphenicol, anakinra, paracetamol, lincomycin, gentamicin, dihydrostreptomycin, butamidokanamycin, madicillin, colchicine leucomycin, ciprofloxacin, haloperidol, fluocinonazole, rifampicin, caffeine, cotrimoxazole production unit

3、 Newly built Paditaxel (except for matching red bean cultivation) plant extraction method of flavin (matching).

(except for yellow docking plant) production unit

4, new construction, alteration and expansion of pharmaceutical butyl rubber stopper, two-step production of plastic bottles for infusion production unit

5, new construction and expansion of raw materials containing endangered plant and animal medicinal materials that have not been planted or cultured on a large scale of the product production equipment

6. New construction and expansion of mercury-filled glass thermometers, sphygmomanometers, silver amalgam dental materials, and new production facilities for disposable syringes, blood transfusions and infusion sets of less than 200 million units per year.

XI. Machinery

1. Project for the manufacture of rock drilling trolleys with 2 arms or less
2. Rock loaders (except for vertical claw loaders) manufacturing projects
3. Small mining car manufacturing project for 3 cubic metres and below
4. Winch manufacturing projects with a diameter of 2.5 metres or less
5. Manufacturing project for mine hoist with a diameter of 3.5

metres and below

6. Screening machine manufacturing project for 40 square metres and below

7. Cyclone manufacturing projects with a diameter of 700 mm or less

8. Coal mining machine manufacturing project of 800 kW or less

9. Mining excavator manufacturing project with a bucket capacity of 3.5 cubic metres and below

10, mining mixing, concentration, filtration equipment (except pressurised) manufacturing project

11. Enterprise projects for general transport specialised vehicles and general transport trailers such as warehouse trucks, panel trucks, dump trucks and general vans; three-wheeled vehicles, low-speed electric vehicles

12. Single-cylinder diesel engine manufacturing project

13. Belt-driven small four-wheeled tractors with single-cylinder diesel engines, with single-cylinder diesel engines.

Walk-behind tractors, sliding gear shifters, wheeled tractors under 50 hp that do not meet emission requirements.

14. Manufacturing projects of conventional coal-fired thermal power generation equipment of 300,000 kilowatts and below (except for comprehensive utilisation units)

15. Dry cross-linked power cable manufacturing project at 6 kV and above (for land use)

16. Non-numerical control metal cutting machine tool manufacturing project

17. Project for manufacturing general mechanical presses of 6300 kN and below

18, non-numerical control shearing machine, bending machine, pipe bender manufacturing project

19. Plain high-speed steel drills, milling cutters, saw blades, taps, plate teeth items

20, brown corundum, green silicon carbide, black silicon carbide and other sintered blocks project

21. Grinding wheels of all types of bond (except rail grinding wheels) with a diameter of less than 450 mm and a grinding speed of less than 40 m/s.

22. Manufacture of synthetic diamond cutting saw blades with a diameter of 400 mm and below

23, P0 grade, the diameter of 60 mm or less ordinary small and

medium-sized bearing manufacturing project

24. 220 kV and below power transformers (except amorphous alloy, rolled iron core and other energy-saving distribution transformers)

25. Manufacturing projects of high, medium and low voltage switchgear up to 220 kV (except for insulated switchgear using environmentally friendly medium-voltage gases and explosion-proof switchgear for use in explosive environments)

26. Acid Carbon Steel Welding Rod Manufacturing Project

27. Civilian general electric meter manufacturing project

28. Standard fastener manufacturing project for common low-grade fasteners under 8.8 grade

29, General-purpose fixed reciprocating piston air compressor
(drive motor power 560)

(kW and below, rated exhaust pressure 1.25 MPa and below)

manufacturing projects

30. General transport container dry box project

31. 56-inch and smaller single-stage casement pump
manufacturing project

32, general class 10 MPa and the following low pressure carbon
steel valve manufacturing project

33, 5 tonnes/hour and below short age cupola furnace

34, Non-ferrous alloys hexachloroethane refining, magnesium
alloys SF₆ protection

35. Cupola melting using metallurgical coke

36、 Water glass sand moulding core making process without
regeneration of old sand

37, Salt bath nitrogen-carbon, sulphur-nitrogen-carbon co-
diffusion furnace and salt

38、 Electronic tube high frequency induction heating equipment

39, Nitrite corrosion inhibitor, corrosion inhibitor

40、 Oil-fired heating furnace for casting/forging

41、 Coal-fired heating furnace for forging

42、 Manual gas forging furnace

43, Steam Hammer

- 44, Arc welding transformers
- 45. Lead- and cadmium-containing brazing materials
- 46. Complete assembly project for full-section roadheaders
- 47. Free forging hydraulic press project over 10,000 tonnes
- 48, the use of obsolete and restricted types of equipment and technology production of castings, forgings; do not use automated moulding equipment clay sand casting projects, water glass investment casting projects,

Centrifugal ductile iron pipe projects with a scale of less than 200,000 tonnes/year, centrifugal grey cast iron pipe projects with a scale of less than 30,000 tonnes/year

49. Moving-coil and tapping type manual electrode arc welding machines

50, Y series (IP44) three-phase asynchronous motors (seat no. 80-355) and their derivatives, Y2 series (IP54) three-phase asynchronous motors (seat no. 63-355)

51. Backpack manual compression sprayer

52. Backpack motorised spray dusters

53. Manual rice transplanter

54, Bronze products of tea processing machinery

55, Double disc friction presses

56、 Powder metallurgy parts containing lead

57. Export ship segment construction project

XII. Light industry

1、 Polyvinyl chloride general artificial leather production line

2、 Production lines with an annual processing capacity of 200,000 standard cowhides or less, and an annual processing capacity of wet blue hides.

Lines with a capacity of less than 100,000 standard hides

3. Polyurethane foam production lines, continuous extruded

polystyrene foam (XPS) production lines, and production lines for refrigerators, freezers, automobile air-conditioners, industrial and commercial cold storage and refrigeration equipment, using hydrochlorofluorocarbons (HCFCs) as refrigerants, blowing agents, fire extinguishing agents, solvents, detergents, processing aids and other controlled uses.

4. Polyvinyl chloride (PVC) food preservation packaging film
5. General lighting incandescent lamps

6. Lockstitch machines with a maximum speed of less than 4000 stitches/minute (excluding heavy duty lockstitch machines) and Overlock machines with a maximum speed of less than 5000 stitches/minute

7. Electronic price scales (accuracy less than 1/3000 of the maximum weighing capacity, weighing capacity ≤ 15 kg) electronic belt scales (accuracy less than 5/1000 of the maximum weighing capacity) electronic crane scales (accuracy less than 1/1000 of the maximum weighing capacity, weighing capacity ≤ 50 tonnes) spring-loaded pan scales (accuracy less than 1/400 of the maximum weighing capacity, weighing capacity ≤ 8 kg)

8. ~~Electronic vehicle weighing~~ (accuracy less than 1/3000 of the maximum weighing capacity, weighing capacity ≤ 300 tonnes) electronic static rail weighing (accuracy less than 1/3000 of the maximum weighing capacity, weighing capacity ≤ 150 tonnes) electronic dynamic rail weighing (accuracy less than 1/500 of the maximum weighing capacity, weighing capacity ≤ 150 tonnes)

9. Glass Insulated Bottle Gallbladder Production Line

10. 30,000 tonnes / year and below the production line of glass bottles and jars

11. Preparation and weighing of glass compounds by manual operation

12. Glass furnaces that do not meet the indicators specified in the cleaner production evaluation index system for the daily-use glass industry

13. Fatty alcohol products produced by carbonyl synthesis and Ziegler method

14. Thermal production line of sodium tripolyphosphate

15. Single-layer spray gun laundry detergent production process and equipment, sulfonation unit up to 1.6 tonnes/hour scale

16. Northern sea salt projects of less than 1 million tonnes/year; southern sea salt salt farm projects; mine (well) salt projects of less than 600,000 tonnes/year

17, monochrome metal plate offset printing machine

18, single chemical wood pulp less than 300,000 tonnes/year, chemical mechanical wood pulp 100,000 tonnes/year

Production line with less than 100,000 tonnes/year of chemical bamboo pulp

19. Raw sugar processing projects and projects that process 5,000 tonnes of sugar cane per day (3,000 tonnes in Yunnan) and less than 3,000 tonnes of sugar beet per day

20. Alcohol production lines

21. Saccharin and other chemical synthetic sweeteners production line

22, soybean crushing and leaching projects (except for the main soybean producing areas in Heilongjiang, Jilin and Inner Mongolia) single-line daily processing of rapeseed, cottonseed 200 tonnes and below in the east and central regions, flower Oilseed processing projects with a capacity of 100 tonnes or less; single-line daily processing of rapeseed and cotton in the western region.

Processing projects of 100 tonnes or less of oilseeds such as seeds, peanuts, etc.

23. Processing less than 450,000 tonnes of corn per year, with an absolute dry harvest rate of 98 per cent or less of corn starch. (less than 10,000 tonnes per annum of speciality maize such as waxy maize and high straight-chain maize)

24. Annual slaughtering of 150,000 or fewer pigs, 10,000 or fewer beef cattle and 15,000 or fewer meat sheep.

Slaughtering construction projects with 10 million birds or less
and 10 million live birds or less (except for ethnic minority areas)

25. Western meat processing projects of 3000 tonnes/year or less

26. Annual production capacity of yeast products of 2000 tonnes (dry equivalent) or less

27. Frozen seawater surimi production line

28. lead-acid battery production in the casting of plate, powder, powder transmission, filling powder, and paste, coating plate, brush plate, with acid filling acid, external chemical formation, weighing boards, wrapping boards and other manual work process

29. Production of lead-acid batteries by external chemical formation process

30. Production line for citric acid with an annual capacity of less than 50,000 tonnes

31. Lysine and threonine production lines of 100,000 tonnes/year and below; production lines of 200,000 tonnes/year and above.

Lower glutamic
acid production
line

XIII. Textiles

1, a single line capacity of less than 200,000 tonnes / year of
conventional polyester (PET) continuous polymerisation
production units

2, conventional polyester production process of dimethyl
terephthalate (DMT) method

3、 Semi-continuous spun viscose filament production line

4、 Batch-type spandex polymerisation production unit

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

6、 Adhesive plate and frame filter

7, single line capacity ≤ 1000 tons / year, width ≤ 2 m
conventional polypropylene spunbond nonwoven production
line

8. Carding machines up to 25 kg/hour

9、 Cotton combing machines with a capacity of less than 200
clips/min.

10、 50,000 rpm or less self-discharge airflow spinning
equipment

11, FA502, FA503 Spinning machines

12. Rapier looms with a weft insertion rate of less than 600 metres per minute and a weft insertion rate of less than 700 metres per minute.

Air-jet weaving machines with a weft insertion rate of less than 900 m/min, water-jet weaving machines with a weft insertion rate of less than 900 m/min

13, the use of polyvinyl alcohol paste (PVA) sizing process and products (polyester-cotton products, except for high-count, high-density products of pure cotton)

14. Washing processes and equipment using more than 20 tonnes of raw wool washing water

15. Vertical reeling process and equipment for bicameral and quassia silks

16、Stranded yarn dyeing process

17. Sodium chlorite bleaching equipment

18. Ordinary polyester carrier dyeing

XIV. Tobacco

1. Tobacco products processing project

XV. Civil Explosive Products

1. Discontinuous, automated detonator assembly line without human-machine segregation

2. Discontinuous and automated explosives production line

3. Highly polluting detonating charge production lines

4. High energy consumption, high pollution, low performance industrial powder explosives production line

5. The total number of on-site operators of hazardous materials production plants with a hazard class of 1.1 is large.

Explosives production line for less than 5 persons

6. The number of operators on site of the hazardous materials production plant with hazard class 1.1 is more than

9-person production line for explosive products

7. Basic detonator filling production lines where the number of operators in close contact with the detonator (including operators working with raw materials and semi-finished products, excluding operators transporting finished products) is greater than 5 persons.

XVI. Other

1, the red line width of the land (including the green belt) exceeds the following standards of urban trunk road projects: small cities and key towns 40 metres, medium-sized cities 55 metres, large cities 70 metres (200 metres).

(For mega-cities with a population of over 10,000, if it is necessary for the main road to exceed 70 metres, a special note should be included in the city master plan.)

2. Urban leisure and assembly plaza projects with land area exceeding the following standards: 1 hectare for small cities and key towns, 2 hectares for medium-sized cities, 3 hectares for large cities, and 1 hectare for cities with a population of more than 2 million.

Upper megacities 5 ha

3. Villa-type property development projects
4. Golf course project
5. Racecourse project
6. Automatic transmissions (AT) for mechanical vehicles with 4 speeds or less
7. Engines for motor vehicles with emission standards of National III and below

8, not in line with the "Prevention and Control of Air Pollution", "Water Pollution Prevention and Control Law", "Solid Waste Pollution Prevention and Control Law", "Energy Conservation Law", "Production Safety Law", "Product Quality Law", "Land Management Law", "Prevention and Control of Occupational Diseases" and other national laws and regulations, not in line with the national safety, environmental protection, energy consumption, quality of mandatory standards, and not in line with the requirements of international environmental conventions and other technologies, techniques, products and equipment.

Group III phase-out

Note: Years in parentheses after the entry are phase-out deadlines, which are December 2020

31 means that it should be phased out before 31 December 2020, and the rest are analogous; entries with a phase-out plan will be phased out according to the plan; entries without a phase-out deadline or a phase-out plan have been explicitly ordered to be phased out by the national industrial policy or will be phased out immediately.

I. Outdated production process equipment

(i) Agroforestry

1. Wet fibreboard production process

2. Drip method rosin production process
3. Rural traditional old-fashioned cookers and kang
4. Indigenous activated carbon production using wood and roots as the main raw material
5. Tourism activities exceeding ecological carrying capacity and collection of medicinal herbs and other forest products
6. Construction of irrigated paper raw material forest bases in areas with severe water shortages
7. Pre-plant bromomethane soil fumigation process

(ii) Coal

1. Small coal mines that overlap with large coal mines in the projection of the well field plane

2, Shanxi, Inner Mongolia, Shaanxi, Ningxia, less than 300,000 tonnes / year (excluding 300,000 tonnes / year) Hebei, Liaoning, Jilin, Heilongjiang, Jiangsu, Anhui, Shandong, Henan, Gansu, Qinghai, Xinjiang, less than 150,000 tonnes / year (excluding 150,000 tonnes / year) and 90,000 tonnes / year in other areas.

Coal mines with a capacity of 90,000 tonnes/year or less; coal mines with a capacity of 300,000 tonnes/year or less that have been suspended for a long period of time.

The coal mines under 300,000 tonnes/year (excluding 300,000 tonnes/year) are "zombie enterprises", and the coal mines under

300,000 tonnes/year (excluding 300,000 tonnes/year) serious disasters, such as impact ground pressure and coal and gas protrusion. Coal mines that meet the needs of residents in forested areas and remote mountainous areas for domestic coal consumption or undertake special supply tasks, and that meet the standards of resources, environmental protection, safety, technology and energy consumption, etc., may be temporarily retained or delayed in their withdrawal, subject to the approval of the people's government at the provincial level.

3. High-sulphur coal (sulphur content higher than 3%) producing mines with neither sulphur-reducing measures nor users meeting the discharge standards, high-ash coal (ash content higher than 40%) producing mines that cannot be used on-site, and high-arsenic coal (arsenic content exceeding 80 $\mu\text{g/g}$ in coal for power use, and arsenic content exceeding 35 $\mu\text{g/g}$ in coal used for coke making) producing coal mines

4、6AM、 ϕ M-2.5、PA-3 Type Coal Flotation Machine

5、PB2、PB3、PB4 Mining Explosion-proof High-voltage Switches

6、PG-27 Vacuum Filter

7、X-1 type box-type filter press

8、ZYZ、ZY3 type hydraulic support

9, can not achieve the coal washing wastewater closed loop coal separation process, can not achieve the dust discharge dry coal separation equipment

10. Coal mines whose mining areas overlap with nature reserves, scenic spots and protected areas for drinking water sources (to be phased out in accordance with the requirements of laws and regulations and relevant national documents)

(iii) Electricity

1. Non-compliant conventional coal-fired thermal power units with a capacity of 300,000 kilowatts or less per unit

(except for comprehensive use units) oil-fired boilers and generator sets mainly for power generation

(iv) Petrochemicals

1, 2 million tonnes / year and below normal pressure reduction device (except for the Qinghai Golmud, Xinjiang Zepu device) the use of open-flame high-temperature heating to produce oil kettle distillation unit, waste rubber and plastic refining

process, tar batch production of asphalt, 25,000 tonnes / year and below a single set of crude (light) benzene refining unit, 50,000 tonnes / year and below a single set of coal tar processing unit

2, less than 100,000 tonnes / year of sulfuric iron ore acid and sulfur acid (except remote areas) flat furnace oxidation method of potassium permanganate, diaphragm method of caustic soda production units (as a comprehensive use of waste salt can be retained) flat furnace method and cauldron evaporation method of sulfide alkali production process, manganese nitrate method of sodium silicate

(effervescent) production process, intermittent coke carbon disulphide process

3. Yellow phosphorus production units with a single capacity of less than 5,000 tonnes/year and those that do not meet the access conditions.

Production unit for calcium roasted chromium compounds with a single line capacity of up to 3000 tonnes/year of common grade sulphuric acid.

Barium, barium hydroxide, barium chloride, barium nitrate production units with a capacity of 10,000 tonnes/year or less of chloric acid

Sodium production units, calcium carbide furnaces with a capacity of less than 12,500 kVA per unit and open type calcium carbide furnaces, polyvinyl chloride production units with high mercury catalysts (mercuric chloride content of 6.5 per cent or more) and acetylene method using high mercury catalysts, sodium methanol, potassium methanol, sodium ethanol, potassium ethanol, polyurethane, acetaldehyde, caustic soda, biocides and topical antimicrobial production units using mercury or mercury compounds, sodium ammonia method and cyanide melts Sodium cyanide production process

4. Single-line production capacity of less than 10,000 tonnes/year of sodium tripolyphosphate, less than 0.5 million tonnes/year of sodium hexametaphosphate, less than 0.5 million tonnes/year of phosphorous trichloride, less than 30,000 tonnes/year of calcium phosphate for feedstuffs, less than 5,000 tonnes/year of hydrofluoric acid with outdated technology and serious pollution, less than 5,000 tonnes/year of wet aluminium

fluoride, and open crystalline fluoride salt production units.

5. Single-line production capacity of sodium cyanide (100% sodium cyanide) of less than 0.3 million tonnes/year, potassium hydroxide of less than 10,000 tonnes/year, common grade silica of less than 15,000 tonnes/year, common grade calcium carbonate of less than 20,000 tonnes/year, common grade anhydrous sodium sulphate of less than 100,000 tonnes/year (except for co-production in the salt industry and byproducts) lithium carbonate and lithium hydroxide of less than 0.3 million tonnes/year, common grade barium carbonate of less than 20,000 tonnes/year, Common grade strontium carbonate production units of less than 1.5 million tonnes/year

6, semi-aqueous gas ammonia liquid phase desulphurisation, natural gas atmospheric pressure intermittent conversion process to synthetic ammonia, carbon monoxide atmospheric pressure changes and the whole medium-temperature conversion (high-temperature conversion) process, wet desulphurisation process without supporting sulphur recovery device, no supporting the construction of the blowing gas waste heat recovery, gas-making slag comprehensive use of the device of the stationary layer of batch-type coal gasification plant, no supporting process condensate hydrolysis and resolution of the device of the urea

production facilities

7. Sodium paraquat production process, trichlorfon alkali
dichlorvos production process, sachets

Hand-packing (filling) process and equipment for pesticide products (1 kg and below), Raymond machine for the production of pesticide powders, hexachlorobenzene as raw material for the production of sodium pentachlorophenol

8. Resins for paints directly heated by fire, production process of chlorinated rubber by carbon tetrachloride solvent method, saponin (including hydrolysate) production units with a capacity of less than 100 tonnes/year, production process of saponin by hydrochloric acid acid digestion method and saponin production units whose pollutant emissions cannot meet the standards, iron powder reduction method process (4,4-diaminodistyrene-disulphonic acid [DSD acid], 2-amino-4-methyl-5-chlorobenzenesulphonic acid [CLT acid], 1-amino-8-naphthol-3,6-disulphonic acid [H acid] are temporarily suspended). (4,4-diaminostilbene-disulfonic acid [DSD acid], 2-amino-4-methyl-5-chlorobenzenesulfonic acid [CLT acid] and 1-amino-8-naphthol-3,6-disulfonic acid [H acid] are suspended).

9, 500,000 bias tyres and tyres with natural cotton cord fabric as the backbone per year and below, 15,000 tonnes of dry granulated carbon black (except special carbon black and semi-reinforced carbon black) per year and below, 300 million natural rubber latex condoms per year and below, rubber vulcanisation

accelerator N-oxo-bonded dibasic, and rubber vulcanisation
accelerator N-oxo-bonded dibasic.

(1,2-ethylidene)-2-benzothiazolylsulfonamide (NOBS) and Rubber
Antioxidant D Production Unit

10. Chlorofluorocarbons (CFCs) hydrochlorofluorocarbons
(HCFCs, except those used as raw materials for their own
downstream chemical products and not sold to the outside world)
1,1,1-trichloroethane used for cleaning.

(methyl chloroform) main production of carbon tetrachloride (CTC)
all products using CTC as a processing aid, fluoropolymer
production process using PFOA as a processing aid, DDT-
containing paints, non-closed production unit for DDT-based
dicofol production

(to be phased out in accordance with the requirements of the
National Master Plan for Compliance with International Conventions)

(v) Steel

1, clay coking (including improved coke ovens) single-oven
capacity of 75,000 tonnes / year or less or no gas, tar recycling
and sewage treatment does not meet the access conditions of the
coking industry, semi-coke (Lancashire) production units

2. Coke ovens with carbonisation chamber height less than 4.3 m (except for pounded coke ovens of 3.8 m and above) coke ovens of iron and steel enterprises not equipped with dry quenching devices

3. Earth sinter

4. Hot sintered ore

5, ring sinter for iron and steel production, 90 square metres or less sinter, 8 square metres or less pellet shaft furnace; ferroalloy production of manganese ore, chrome ore sintering machine with 24 square metres or less belt

6, 400 cubic metres and below pig iron blast furnace for steel making (to be phased out by the end of 2020 in Hebei)
(450 cubic metres and below for steelmaking) 200 cubic metres and below for ferroalloy production (of which 100 cubic metres and below for ferromanganese) 200 cubic metres and below for foundry use (of which 100 cubic metres and below for foundry use in conjunction with the "short-flow" casting process)

7. Industrial and medium-frequency induction furnaces for melting steel scrap (eliminated in accordance with laws and regulations and the relevant requirements of the State for the suppression of "strip steel")

8, 30 tonnes and below steelmaking converter (excluding

ferroalloy converter)(Hebei to phase out 40 tonnes and below steelmaking converter by the end of 2020, except for converters producing special quality alloy steel)

930 tonnes and below steelmaking electric arc furnace (excluding mechanical casting, special quality alloy steel, high temperature alloys, precision alloys and other special alloy materials with electric arc furnace)

10. Iron and steelmaking

11, compound two heavy wire rod mill

12. Cross-row wire rod mills

13. Cross-row bar and section mills (excluding mills for the production of high-temperature alloys)
14. Stacked sheet rolling mills
15. Medium-sized rolling mills for plain steel primary mills and open billets
16. Hot rolled narrow strip mills
17. Three-roll lauter-type medium-plate rolling mill
18. Seamless hot-rolled tube and pipe units, up to 76 mm in diameter
19. Three-roll wire rod mills (excluding special steel production)
20. Metallurgical furnaces and kilns that do not meet environmental standards
21. Hand-operated earthen asphalt tar impregnation plant, mixed firing of ore raw materials and solid raw materials, natural ventilation, hand-operated earthen vertical kiln, inverted flame kiln using coal as direct fuel, smoke and dust purification cannot meet the standard
22. Mineral-heating electric furnaces for ferroalloys of 6300 kVA and below, semi-closed direct-current electric furnaces for ferroalloys of 3000 kVA and below, and electric furnaces for ferroalloy refining (except those for special varieties of ferro-tungsten, ferro-vanadium, etc.)

23, Steam-heated mixing and kneading, inverted flame roaster, Acheson AC graphitising furnace, 10,000

Three-phase bridge rectifier Acheson DC graphitising furnaces of kVA and below and their parallel units

24. Equipment for the production of cold-rolled ribbed steel bars with a capacity of 10,000 tonnes or less per machine (other than equipment for the production of highly ductile cold-rolled ribbed steel bars)

25, production of prestressing steel wire production equipment for the production of single-can drawing machine

26、 Prestressing steel production stress relief treatment of lead quenching process

27. Calcined lime kilns

28. Furnaces for smelting ferro-titanium with a capacity of less than 5 tonnes per furnace, and for roasting molybdenum concentrates in reflecting furnaces

Ferromolybdenum production line and production line for the production of chromium metal by reduction and calcination of sodium alumina and chromic anhydride in a reflecting furnace

29. Coal-fired inverted flame kiln refractories and raw material products production line

30. One-stage fixed coal gas generator project for the iron and steel industry (excluding pulverised coal gasifier)

31. Rectifier transformers for electrolytic manganese metal, 6000 kVA or less, effective capacity

Chemistry tanks of 170 cubic metres or less in size

32. Heat recovery coke ovens with a production capacity of less than 400,000 tonnes/year; coke ovens without simultaneous construction of heat recovery devices

33. Reflector furnaces for reducing manganese dioxide (including reflector furnaces for manganese sulphate plants, reflector furnaces for mineral powder plants, etc.)

34. Plate and frame, box-type filter presses other than high-pressure diaphragm filter presses for primary filtration of electrolytic manganese metal

35. Light-fired reflecting kilns with an effective volume of 18 cubic metres or less

36. Vertical kilns with an effective volume of 30 cubic metres or

less for re-fired magnesium sand

(vi) Non-ferrous metals

1, the use of muffle furnace, manger furnace, horizontal tanks, small vertical tanks for roasting, simple condensing facilities for dust collection and other backward ways of zinc refining or production of zinc oxide process equipment

2. Adopting backward ways of mercury refining such as iron pots and earthen stoves, distillation tanks, crucible furnaces and simple condensation and dust collection facilities.

3, the use of earth pit furnace or crucible furnace roasting, simple condensing facilities, dust collection and other backward ways of refining arsenic oxide or metal arsenic process equipment

4、Aluminium self-baking electrolytic cell and pre-baking cell under 160kA

5, blast furnace, electric furnace, reflex furnace copper refining process and equipment

6. Dry purification of flue gas to acid and hot concentrated acid scrubbing technology

7, the use of pit furnaces, crucible furnaces, Hearth furnaces and other backward ways of refining antimony

8. Adoption of sintering pots, sintering discs, simple blast furnaces and other backward ways of refining lead technology and equipment.

provide or equip

9, the use of crucible furnace melting recycled aluminium alloy, recycled lead process and equipment

10. Aluminium wet fluoride salt project

11. Recycled aluminium and recycled lead projects with a capacity of less than 10,000 tonnes/year

12. Reflector furnace projects using direct coal combustion in the production of recycled non-ferrous metals

13, copper wire rod (black rod) production process

14. Lead refining process in sintering machine without acid production and tail gas absorption system

15. Sintering - blast furnace lead refining process

16、Recycled copper incineration process and equipment without flue gas control measures

17、 Conventional fixed reflector furnace recycled copper production process and equipment under 50 tonnes

18、 Recycled aluminium production process and equipment for reflector furnaces up to 4 tonnes

19、 Heap leaching and pool leaching process for ionic rare earth ores

20. Monazite single-mineral development project

21. Rare earth chloride electrolytic metal preparation process project

22, Wet production of fluorinated rare earths for electrolysis production process

23. Mixed rare earth mine development projects under 20,000 tonnes/year (REO); 5000

Cerium fluorocarbon cerium rare earth mine development projects of less than 500 tonnes (REO) per year.

Ionic rare earth mine development projects under /year

24. Rare earth separation projects under 2000 tonnes (REO)/year

25, less than 1500 tonnes/year, electrolytic cell current less than 5000A, current efficiency lower than

85 per cent of light rare earth metal smelting projects

26. Primary mercury mining (16 August 2032)

(vii) Gold

1. Amalgamated gold extraction process

2. Small cyanide pool leaching process, earth smelting process

3. No environmental protection measures to extract gold, silver, palladium and other precious metals from circuit boards.

4. Mining projects with a daily processing capacity of 50 tonnes or less (not included)

5. Whole ore amalgamation; open burning of amalgam or processed amalgam; burning of amalgam in populated areas; cyanide leaching of mercury-added sediments, ores or tailings without first removing the mercury

(viii) Building materials

1. Dry hollow kilns (except for the production of special cements such as aluminate cement) cement machine kilns, Lipol kilns, wet process kilns

2. Cement grinding equipment with a diameter of less than 3

metres (not included) (except for the production of special cement)

3、 Non-laminating plastic woven cement bag production line

4. Flat glass production line for flat drawing process (including lattice method)

5,1 million square metres / ~~year~~(excluding) below the building ceramic tiles, 200,000 pieces / ~~year~~(excluding) below the sanitary ceramics production line

6, building sanitary ceramics (excluding architectural glazed products) earth kiln, inverted flame kiln, porous kiln, coal-fired open flame tunnel kiln, separated flame tunnel kiln, sagger loaded sanitary ceramics tunnel kiln

7. Friction presses for forming architectural ceramic bricks

8、 Glass fibre clay crucible drawing production process and equipment

9, 10 million square metres / year (not included) below the production line of paper-faced gypsum board

10, 5 million square metres / year (excluding) the following modified asphalt waterproofing roll-roofing production line; 5 million square metres / year (excluding) the following asphalt composite tyre flexible waterproofing roll-roofing production line; 1 million rolls / year (excluding) the following asphalt paper-tyred linoleum production line

11. Lime earth kiln

12. Brick and tile rotary kilns (31 December 2020), as well as vertical kilns, roofless rotary kilns, horseshoe kilns and other earthen kilns

13. General Brick Squeezing Machine

14、 SJ1580-3000 Twin-shaft and single-shaft brick-making mixer

15、 SQP400500-700500 Double Roll Crusher

16、 1000 Type Common Strip Cutting Machine

17. Rotary brick presses up to 100 tonnes

18. Production line for hand-made wall panelling

19. Simple mobile concrete block forming machine, attached vibration forming table

20. Fixed concrete block forming machines with a single shift of less than 10,000 cubic metres/year, with a single shift of less than 10,000 cubic metres/year.

Stationary moulding machines for concrete paving blocks up to 100,000 m²/year

21. Production process for manually cast, non-mechanically moulded gypsum (hollow) blocks

22. Vacuum pressurisation and gas refining one-step quartz glass production process equipment

23. 6×6兆牛顿六面顶小型压机 for the production of synthetic diamonds

24. Hand-cut aerated concrete production line, non-autoclaved cured aerated concrete production

threads

25, non-sintered, non-autoclaved fly ash brick production line

26. Decorative stone mine chamber blasting mining technology,
sling type marble earth pulling saw,

Mobile small circular saw

(ix) Pharmaceuticals

1、 Manual capsule filling process

2. Cork hot wax packaging process for pharmaceuticals

3. Ampoule drawing and filling machines that do not meet GMP
requirements

4、 Tower type redistiller

5、 Hot air drying oven without purification facilities

6, the environment, occupational health and safety can not meet
national standards for the production of APIs installed

install

7. Iron powder reduction method acetaminophen (paracetamol)
caffeine device

8. Use of chlorofluorocarbons (CFCs) as aerosols, propellants,
projectiles or dispersants

Manufacturing processes for pharmaceuticals (to be phased out in
accordance with the requirements of the National Master Plan for
Compliance with International Conventions)

(x) Machinery

1. Heat treatment lead bath furnace (except for on-line heat treatment lead bath production line with lead liquid covering agent and negative pressure air extraction and dust removal environmental protection facilities for metal wire rope and its products)

2. Heat treatment barium chloride salt-bath furnace (high-temperature barium chloride salt-bath furnace to be temporarily phased out)

3、TQ60、TQ80 Tower Crane

4、QT16、QT20、QT25 derrick simple tower crane

- 5、 KJ1600/1220 Single drum hoisting winch
- 6、 Ordinary brown corundum smelting furnace under 3000 kVA
- 7、 Fixed brown corundum smelting furnace under 4000 kVA
8. Silicon carbide smelting furnaces up to 3000 kVA
9. Forced-drive simple lifts
10. Production line for tobacco expansion equipment using chlorofluorocarbons (CFCs) as an expansion agent
- 11、 Sand casting clay drying sand mould and core
12. Coke oven for melting non-ferrous metals
- 13, sand casting oil sand core making
14. Heavy brick lined trolley furnace
- 15、 Medium frequency generator induction heating power supply
- 16、 Coal-fired flame-reflecting heating furnace
- 17, casting / forging pickling process
- 18, bit type AC contactor temperature control cabinet
- 19、 Insertion electrode type salt bath furnace
20. Moving-coil and tapped silicon rectifier arc welders
21. Magnetic amplifier type arc welding machine
22. Punching machines that cannot be fitted with safety protection devices
- 23, no yoke (≥ 0.25 tons) aluminium shell medium frequency induction furnace

24、 Coreless industrial frequency induction furnace

(xi) Ships

1. Scrap ship beach dismantling process

2. The overall construction process of marine steel ships with a length of more than 90 metres and inland waterway steel ships with a length of more than 120 metres.

(xii) Light industry

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

2, the use of mineral salt brine, oil and gas field water and the use of flat pot, beach sun salt production process and equipment

3. Southern sea salt production units of 20,000 tonnes/year or less

4, ultra-thin (thickness less than 0.025 mm) plastic shopping bags production

5. Tannery production lines with an annual processing capacity of 50,000 standard hides and an annual processing capacity of 30,000 standard hides or less for wet blue hides.

6. Total ink production units of less than 300 tonnes/year (except those using high technology and non-polluting)

7. Production of solvent-based inks containing benzene

8. Lime method ground pool pulping equipment (except for rice paper)

9. Chemical wood pulp production lines below 51,000 tonnes/year
10. A single non-wood pulp production line of less than 34,000 tonnes/year
- 11, a single 10,000 tonnes / year and below, waste paper as raw material pulp production line
12. Literature paper production lines with a width of 1.76 metres or less and a speed of 120 metres per minute or less.
13. Whiteboard, containerboard and corrugated paper production lines with a width of 2 metres or less and a speed of 80 metres per minute or less.

14. Production lines for refrigerators, freezers, car air-conditioners, industrial and commercial cold storage and refrigeration equipment using chlorofluorocarbons (CFCs) as refrigerants and blowing agents

15. Production of polyurethane, polyethylene and polystyrene foams using chlorofluorocarbons (CFCs) as blowing agents

16. Production process using carbon tetrachloride (CTC) as cleaning agent

17. Production process using trifluorotrichloroethane (CFC-113) and methyl chloroform (TCA) as cleaning agents and solvents

18. Tertiary amine process by fatty acid method, fuming sulphuric acid sulphonation process, stirred kettle ethoxylation process

19. Tin soldering process in the tin can industry

20. Coal-fired and furnace gas-fired crucible glass kilns, direct-fire, glass annealing furnaces without hot air circulation

21. Mechanical timed row and column bottle making machine

22. Production lines for carbonated beverages with a capacity of 150 bottles/minute or less (250 ml or less).

23. Facilities for concentration, spray drying, etc., with a daily raw milk processing capacity (two shifts) of less than 20 tonnes; and manual and semi-automatic liquid milk filling equipment with

a capacity of less than 200 kg/h.

24. Alcohol production lines below 30,000 tonnes/year (except for alcohol made from waste molasses)

25. Glutamic acid production line with iso-ionisation process, production of monosodium glutamate (MSG) up to 50,000 tonnes/year

install

26. Conventional calcium salt method citric acid production plant

27. Wet corn starch processing less than 150,000 tonnes per year with a total dry matter yield of 97% or less

Flour production lines (except special corn starch production lines)

28. Pig slaughtering equipment, including bridge-type split saws and open-type pig scalding machines

29. Hand slaughtering process for pigs, cattle, sheep and poultry

30. Wheat flour whitening agent (benzoyl peroxide, calcium peroxide) adding process

31. Elemental chlorine bleaching pulp process

32. open type lead melting pot and open type lead powder machine for lead storage battery production

33. Tube lead battery dry filling process

34. Glass compositions with the addition of arsenic, antimony trioxide, lead, fluorine (except for all-electric melting kilns) chromium slag and other harmful raw and auxiliary materials.

(xiii) Textiles

1. Cotton spinning, wool spinning, linen spinning equipment and weaving equipment that have been in use for 30 years.

2. Skin roll rolling machine with roll length less than 1000 mm and number of saw blades less than 80

Sawtooth ginning machines, balers for lint cotton with a pressure tonnage of up to 400 tonnes (excluding 160 tonnes.)

(200 tonnes of short-staple cotton balers)

3. ZD647, ZD721 type automatic reeling machine, D101A type

automatic reeling machine, ZD681 type vertical reeling machine, DJ561 type silk spinning machine, K251, K251A type silk loom and other silk processing equipment

- 4、 Z114 type small jacquard machine
- 5、 GE186 Jacquard Terry Machine
- 6、 Z261 Artificial Fur Machine
7. Dyeing and finishing equipment type 74 without modification
8. Steam-heated open and unconfined printing and dyeing flat washing tanks

9、 R531 Acid Viscose Spinning Machine

10, 40,000 tonnes / year and below viscose conventional staple fibre production line

11、 Wet spandex production process

12、 Dimethylformamide (DMF) solvent method spandex and acrylic production process

13、 Nitric acid method acrylic conventional fibre production process and device

14, conventional polyester (PET) intermittent polymerisation production process and equipment

15, Semi-automatic winding equipment for conventional polyester filament spindle lengths of 900 mm and below

16, the service life of more than 15 years of domestic and more than 20 years of use of imported printing and dyeing pre-treatment equipment, stenter and shaping equipment, circular and flat screen printing machines, continuous dyeing machines 17, the service life of more than 15 years of bath ratio greater than 1:10 cotton and chemical fibre batch type

Dyeing equipment

18. Printing and dyeing line using DC motor drive

19, Steamer and washing equipment of cast iron construction for printing and dyeing, bottomless steamer with cast iron wall panels, L-type

annealing and rinsing crawler steamer with a short preheating zone for steam steaming

20、Screw extruder diameter less than or equal to 90mm, 2000 tonnes / year below the polyester regeneration spinning staple fibre production equipment

(xiv) Printing

1, all lead row, lead printing process

2. All lead printing machines and related auxiliary machines

3. Photographic plate-making machine

4、ZD201、ZD301 series of single character casting machine

5、TH1 type automatic strip casting machine, ZT102 type series of strip casting machine.

6, ZDK101 type character mould engraving machine

7, KMD101 type letter mould knife grinding machine

8, AZP502 semi-automatic Chinese hand-selected casting machine, ZSY101 semi-automatic Chinese casting machine, TZP101 foreign language bar casting machine, ZZP101 Chinese automatic casting machine

9QY401, QY404 type series of electric lead print proofing machine, QYSH401, QY401,

DY401 Manual Type Lead Printing Proofer

10、 YX01、 YX02、 YX03 type series of paper press type machine, HX01、 HX02,

HX03, HX04 series of paper dryers

11PZB401 type flat lead plate casting machine, YZB02, YZB03, YZB04, YZB05,

YZB06, YZB07 Series Lead Plate Casting Machine

12、 JB01 Type Flat Lead Plate Casting Machine

13、 RQ02、 RQ03、 RQ04 Series Lead Pump Melting Furnace

14, BB01 type plate planer, YGB02, YGB03, YGB04, YGB05 type circular

Plate scraper, YTB01 type round lead plate boring machine, YJB02 type round lead plate sawing machine.

YXB04, YXB05, YXB302 Series Round Lead Plate Repairing

Machine

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

P804 Series Octavo Flatbed Printing Machine

16、 PE802 type double hinge printing machine

17、 TE102、 TE105、 TE108 Series Full Sheet Automatic 2-Rotary Platform Printing

pivot

18、 TY201 type folio single-colour one rotary platform printing machine, TY401 type four open single-colour

One rotary platform printing machine

19、TY4201 type four open one rotary two-colour printing machine

20、TT201、TZ201、DT201 type folio manual renewable paper stop rotary platform printing

pivot

21、TT202 type folio automatic stop rotary platform printing machine, TT402, TT403,

TT405, DT402 type four open automatic stop rotary platform printing machine, TZ202 type 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 Printing Machine

23、LP1101, LP1103 type series of flatbed full sheet single-sided rotary printing machine, LP1201 type flatbed full sheet double-sided rotary printing machine, LP4201 type flatbed four-colour rotary printing machine

24、LSB201 (880 x 1230 mm) and LS201, LS204 (787 x 1092) (mm) type series web booklet rotary printing machine

25LB203LB205LB403 type web newspaper plate rotary printing machine, LB2405, LB4405 type web double layer two groups of newspaper plate rotary printing machine, LBS201 type web book, newspaper two-use rotary printing machine

- 26. K.M.T type automatic casting typesetting machine, PH-5 type Chinese character typesetting machine
- 27. Ball shock proofing and plate making machine (DIA PRESS brush cleaner)
- 28. Hand-operated phototypesetting machines, domestic plate-making cameras produced before 1985
- 29. Centrifugal coater
- 30. J1101 series full-sheet monochrome offset presses
(printing speed 5,000 sheets per hour and below)

31J2101PZ1920 series folio monochrome offset press (printing speed
4000 per hour)

张及以下), PZ1615 系列四开单色胶印机 (印刷速度每小时 4000

YPS1920 series double-sided single-colour offset press (printing
speed 4000 sheets per hour and below) YPS1920 series double-
sided single-colour offset press (printing speed 4000 sheets per hour
and below)

(sheets and below)

32, W1101 full-sheet automatic gravure printing press, AJ401
web four-colour gravure printing press, single-sided

33, DJ01 type paperback binding coupling machine, PRD-01,
PRD-02 type paperback binding coupling machine, DBT-01 type
paperback wire binding, wrapping, stamping coupling machine

34. Solvent-based ready-to-coat laminators, laminators of various
types where the substrate cannot be degraded and recycled

35, QZ101, QZ201, QZ301, QZ401 paper cutters

36, MD103A Knife Sharpener

(xv) Civil Explosive Products

1, closed packing type emulsion explosive matrix cooler

2, closed packing type emulsion explosives low temperature
sensitisation machine

3. Small-diameter handmade single-head explosive charging
machine

4. Bearings coated in the agent in the mixing, conveying and other explosives equipment
5. detonating charge drying process using steam drying room drying process
6. Manufacturing process of extension elements (bodies) using hand-loading process
7. Processes in which there are no reliable measures to prevent martyrdom in the detonator loading, assembly process and transmission between processes.
8. detonator manufacturing process dosing device without reliable explosion-proof facilities of the production line
9. Industrial explosives and industrial detonators in hazardous workplaces where remote video surveillance has not been achieved

assembly line

10, hazardous workplaces do not achieve remote video surveillance of the detonating cord production line

11. Pharmaceutical process for explosives using the traditional wheel milling method

12, detonating drug production wastewater does not meet the "weapons industry water pollution emission standards for pyrotechnic agents" (GB14470.2) requires the discharge of the production process

13、 Emulsification process with emulsifier discharge temperature greater than 130°C

14. Charging machines with a charging efficiency of less than 1200 kg/h for small-diameter watery explosives and less than 800 kg/h for small-diameter powdered explosives.

15. Explosive devices with noise levels exceeding 85 decibels in places where there are regular operators.

provide or equip

16、 Electrical detonators with a total resistance difference of more than 1.5Ω (steel-core foot wire length 2m) are produced.

skill

17, boxed products off the line did not achieve production data online collection, timely transmission of production

threads

18、Electrical detonators with full resistance polarity greater than 1.0Ω (steel core foot wire length 2m) are produced.

arts and crafts

19, no reliable anti-explosive measures between processes detonating cord production line

20, the production line of detonating cords without online detection of the amount of drug in the process of making cords, automatic interlocking protection device

21. Manufacturing process for ordinary-type electric detonators with a maximum non-ignition current of less than 0.25 A.

22. Production processes in which the human-machine segregation of the detonator filling process is not achieved

23. Production processes that require manual transfer of products between detonator jamming and inspection processes

24. Low-level industrial explosives production lines with an annual capacity of 10,000 tonnes or less

(xvi) Firefighting

1, fire detector manual insertion welding electronic components production process

(xvii) Mining

1. Manual loading and unloading of ore rocks during centralised shovelling operations

2. Dry rock drilling operations without the installation of dust-catching devices

3. Use of manpower or animal power to transport ore and rock in major trackless transport lanes and open-pit quarries

4. Use of non-flame-retardant cables, ducts and conveyor belts in underground mines

5. Use of wood support for major shafts in underground mines

6. Manual loading operations in underground mines using the airfield method of mining (bottomless pillar mining method).

7. Underground mines using cross-braced pillar mining method

8. Open-pit mines using flare pot blasting

9. Open-pit mines that use bottom-hollowing and chipping, dredging, and non-stratified "one-wall" mining.

10, open-pit mines using blasting for secondary crushing of large pieces of ore rock

(xviii) Other

1. Plating processes containing toxic and harmful cyanide (except gold, silver, copper-based alloys and copper-plated priming processes).
2. Cyanide-containing zinc precipitation process
3. Solid dam with island technology
4. Tourism activities exceeding ecological carrying capacity and collection of medicinal herbs and other forest products
5. Incineration of municipal domestic waste, medical waste and industrial waste that does not comply with current national standards.

Small-scale incinerators with relevant pollution control standards, engineering standards and equipment standards

6, not in line with the "Prevention and Control of Air Pollution", "Water Pollution Prevention and Control Law", "Solid Waste Pollution Prevention and Control Law", "Energy Conservation Law", "Production Safety Law", "Product Quality Law", "Land Management Law", "Prevention and Control of Occupational Diseases" and other national laws and regulations, not in line with the national safety, environmental protection, energy consumption, quality of mandatory standards, and not in line with the requirements of international environmental conventions and other technologies, techniques, products and equipment.

II. Backward products

(i) Petrochemicals

1. Modified starch, modified fibre, colourful interior (O/W coatings with nitrocellulose-based resins and xylene-based solvents) vinyl chloride-vinylidene chloride copolymer emulsions for exterior, tar-based polyurethane waterproofing, waterborne polyvinyl chloride tar waterproofing, polyvinyl alcohols and their acetals for interior and exterior (106, 107 paints, etc.) polyvinyl acetate emulsions (containing ethylene/vinyl acetate copolymer emulsions) Exterior wall coatings

2. Interior wall, solvent-based wood, toy, automotive and exterior coatings containing harmful substances exceeding the standard content of harmful substances, coatings containing bis-p-chlorophenyltrichloroethane, tributyltin, perfluorooctanoic acid (PFOA) and its salts, perfluorooctane sulfonic acid (PFOS), and reddish colourants.

3. Azo dyestuffs, which can be cleaved under reducing conditions to produce 24 harmful aromatic amines (deferred for non-textile applications) and nine carcinogenic dyestuffs (deferred for applications that do not come into direct contact with the human body).

4. Paint strippers containing benzene, phenol, benzaldehyde and dichloromethane, Lidl powder, PVC building waterproof jointing material (tar type) 107 glue, lean meat extract, polychlorinated biphenyls (PCBs).

Biphenyl (transformer oil)

5. Highly toxic pesticide products: hexachloroethylene, ethylene dibromide, butyrylhydrazine, diquat, herbicide, acetamiprid, poisonous rat poison, fluoroacetamide, sodium fluoroacetate, dibromochloropropane, fenitrothion (Sulphur 203) phosphamidon, glyflurane, silicon picloram, methamidophos, parathion, parathion-methyl, monocrotophos, cyclothionesulfonyl chloride (ethyl thiocyclamphos) fumexazole, fumonisin, all arsenic formulations, mercury preparations, lead preparations, 10% of Glyphosate in water, Methylthiocyclophos, Calcium Phosphide, Zinc Phosphide, Fenitrothion, Thiophos, Magnesium Phosphide, Thiophos, Fenitrothion, Fenitrothion, Fenitrothion, Tebufenozide, Dicofof.

6. Products to be phased out in accordance with national master plans for the fulfilment of international conventions: chlorine Dan, heptachlor, bromomethane, DDT, hexachlorobenzene, mirex, lindane, toxaphene, aldrin, dieldrin, endrin, endosulfan, flumethrin, chlordecone, alpha-hexachlorocyclohexane, beta-hexachlorocyclohexane, polychlorinated biphenyls (PCBs), pentachlorobenzene (PCCB), hexabromobiphenyl (HBB), tetrabromodiphenyl ether (TetraBDE), pentabromodiphenyl ether (pentaBDE), hexabromodiphenyl ether (HexaBDE) and

heptabromodiphenyl ether (heptabromodiphenyl ether (HeptaBDE), hexabromocyclododecane (HBCD) (specific exemptions for restricted category) perfluorooctane Perfluorooctane sulfonic acid and its salts and perfluorooctane sulfonyl fluoride (acceptable use is restricted)

7、 Soft side structure bicycle tyres, ordinary conveyor belts with cotton cord as skeleton material and ordinary V-belts with nylon cord as skeleton material, hand-engraved vulcanising moulds for tyres, bicycle tyres and motorbike tyres

(ii) Railways

1. G60 and G17 tankers
2. P62 Scaffolding
3. K13 Ore Truck

4. U60 cement truck
5. N16 type, N17 type flat carriage
6. L17 Grain Vehicle
7. C62A, C62B open wagons
8. Railway flatcars (40 tonnes and less)

(iii) Steel

1. Hot rolled silicon steel sheet
2. Ordinary relaxation level of steel wire, steel stranded wire
3. Hot rolled steel bars: Grade HRB335, HPB235

4. the use of industrial frequency or medium-frequency induction furnace melting scrap production of steel billets (ingots) and its raw materials for the production of steel products (in accordance with national laws and regulations and the state ban on "strip steel" related requirements out)

(iv) Non-ferrous metals

1. Copper wire rod (black rod)

(v) Building materials

1. Glass fibre reinforced cement (GRC) hollow core slabs

produced using non-alkali resistant glass fibre or non-low alkali cement

2. clay crucible drawn glass fibre and products and its reinforced plastics (FRP) system

commodity

- 3. 25A hollow steel windows
- 4、 S-2 type concrete sleeper
- 5. Toilets with a maximum water consumption of 8 litres or more for one flush.

6. Hornblende asbestos (i.e. blue asbestos)

7, non-mechanical production of insulating glass, double-layer double-frame all kinds of doors and windows and single-cavity structure type of plastic doors and windows

8, polyethylene polypropylene class composite waterproofing roll-roofing produced by secondary heating composite moulding process, polyethylene polypropylene composite waterproofing roll-roofing (polyethylene core thickness of 0.5mm or less) cotton polyester glass fibre (high alkali) mesh composite tyre base material, PVC waterproofing roll-roofing (S-type) 9, asbestos fluffy clutch surface sheet, synthetic train gate tile, asbestos cork wet clutch surface of device

(vi) Pharmaceuticals

1. Lead-tin ointment tubes, single-layer polyolefin ointment tubes (except for anal and luminal administration)

2、 Ampoule filling sterile powder for injection

3、 Natural rubber plugs for medicinal use

4. Non-flexible ampoules

5. Polyvinyl chloride (PVC) flexible bags for infusion

(excluding peritoneal dialysis solution and flushing solution)

(vii) Machinery

1. T100, T100A bulldozers

- 2、 ZP-II、 ZP-III dry type slurry machine
3. WP-3 Excavator
4. Pneumatic rock grabbers up to 0.35 cubic metres
5. Mining wire rope percussion drilling rigs
- 6, BY-40 oil drilling rigs

7. 1.98 metre diameter water gas generator

8、 CER Membrane Cartridge Series

9. Thermocouples (divisions LL-2, LB-3, EU-2, EA-2, CK)

10、 Resistance-thermometer (Division No. BA、 BA2、 G)

11、 DDZ-I type electric unit combination meter

12、 GGP-01A Belt Scale

13、 BLR-31 type load cell

14, WFT-081 Radiation Thermometer

15、 WDH-1E、 WDH-2E Photoelectric Thermometer, PY5 Digital Thermometer

16、 BC Series Single Bellows Differential Pressure Gauges, LCH-511,YCH-211,LCH-311,

YCH-311, LCH-211, YCH-511 Cyclic Differential Pressure Gauges

18、 XQWA type bar automatic balance indicator

19、 ZL3 Type X-Y Recorder

20、 DBU-521 , DBU-521C Type Liquid Level Transmitter

21、 YB series (No. 63-355mm, rated voltage 660V and below)

YBF ~~series~~ (No. 63-160mm, rated voltage 380/660V or 380/660V) YBK

~~series~~ (No. 100-355mm, rated voltage 380/660V 660/1140V) Flame-proof three-phase asynchronous motor

22、 DZ10 Series Moulded Case Circuit Breakers, DW10 Series

Frame Circuit Breakers

23、 CJ8 Series AC Contactor

24, QC10, QC12, QC8 Series Starters

25, JR0, JR9, JR14, JR15, JR16-A, B, C, D Series Thermal Relays
tool

26. Coke-fuelled non-ferrous melting furnaces

27、GGW Series Medium Frequency Centreless Induction
Melting Furnace

28、Model B, Model BA single-stage single-suction cantilevered
centrifugal pump series

29、F type single-stage single-suction corrosion-resistant pump
series

30、JD type long shaft deep well pumps

31, KDON-3200/3200 KDON-3200/3200 type
accumulator cooler full low pressure process
air separation equipment,

KDON-1500/1500 Accumulator (Tube Type) Full Low
Pressure Process Air Separation Equipment, KDON-
1500/1500 Tube and Plate Type Full Low Pressure Process Air
Separation Equipment, KDON-6000/6600 Accumulator Process Air
Separation Equipment

32, 3W-0.9/7 (ring valve) air compressor

33, C620, CA630 Ordinary lathes

34, C616, C618, C630, C640, C650 General lathes

35, X920 Keyway milling machine

- 36, B665, B665A, B665-1 Ox-head planer
- 37, D6165, D6185 Electrical discharge moulding machines
- 38, D5540 Electro-pulse machine tools
- 39, J53-400, J53-630, J53-1000 Double-disc friction presses
- 40、 Q11-1.6×1600 Plate Scissors
- 41, Q51 Truck Crane
- 42、 TD62 Fixed Belt Conveyor

43, 3 tonne DC Overhead Line Underground Mining Motor Cars

44, A571 Single girder cranes

45, ~~fast circuit breaker~~ DS3-10 DS3-30, DS1000, 3000, 5000A, DS10-10, DS10-20, DS10-30 (1000, 2000, 3000A)

46, SX Series Chamber Resistance Furnaces

47. Single-phase meters: DD1, DD5, DD5-2, DD5-6, DD9, DD10, DD12, DD14, DD15, DD17, DD20, DD28

48, SL7-30/10 ~ SL7-1600/10, S7-30/10 ~ S7-1600/10

Distribution transformers

tool

49. Knife switches: HD6, HD3-100, HD3-200, HD3-400, HD3-600, HD3-1000, HD3-1500

50 GC type low pressure boiler feed pumps, DG270-140, DG500-140, DG375-185

Boiler feed pumps

51, Thermodynamic Traps: S15H-16, S19-16, S19-16C, S49H-16, S49-16C, S19H-40, S49H-40, S19H-64, S49H-64

52. Fixed-grate coal-fired boilers (except double-deck fixed-grate boilers)

53, L-10/8, L-10/7 Reciprocating Air Compressor for Power

54, 8-18 series, 9-27 series high pressure centrifugal ventilators

55, X52, X62W 320×150 Elevating table milling machine

56, J31-250 Mechanical presses

57, TD60, TD62, TD72 Fixed Belt Conveyors

58,E135 2-stroke medium-speed diesel engines (including 2-,4- and 6-cylinder models)4146

diesel

59, TY1100 Single-cylinder vertical water-cooled direct-injection diesel engine

60, 165 Single-cylinder horizontal evaporative water-cooled, pre-combustion chamber diesel engines

61. Mercury-containing switches and relays

62. Fuel-assisted vehicles

63. Vehicle engines with less than National II emissions

64, Friction discs of asbestos containing materials for motor vehicle brakes

65, non-stereotyped vertical shaft cages, hoisting winches under $\Phi 1.2$ metres (excluding $\Phi 1.2$ metres) used for lifting and lowering personnel, KJ-type mine hoists, JKA-type mine hoists, XKT-type mine hoists, JTK-type mine hoisting winches, belt-brake mine hoisting winches, TKD-type hoisting electrical control devices and hoisting electronic control devices using the principle of relay structure, and specially used for transporting personnel, Dry brakes for trackless rubber wheelbarrows used for transporting personnel and oil, medium and deep hole drilling equipment without pressure regulator.

66. Coal-fired boilers of 10 vph and below

67. National III and below emission standard operational

diesel trucks, old gas vehicles using thin combustion technology
and "oil-to-gas" conversion

(viii) Ships

1. Steel transport ships constructed by the integral shipbuilding method
2. Converted ships that do not meet the specifications and ships that have reached the end of their life expectancy
3. Single-hull tankers
4. Paddle engine boats and their engines

(ix) Light industry

1. Mercury batteries (mercuric oxide primary cells and batteries, zinc-mercury batteries)
2. Mercury-containing paste zinc-manganese batteries, mercury-containing cardboard zinc-manganese batteries, mercury-containing cylindrical alkaline-manganese batteries, mercury-containing button alkaline-manganese batteries
3. Mercury-containing paper, mercury-containing zinc powder
4. Open-type general lead storage battery, dry-type charge lead storage battery
5. Lead storage batteries containing more than 0.002 per cent cadmium
6. Lead storage batteries containing more than 0.1 per cent arsenic
7. Cadmium-nickel batteries for civilian use
8. Direct-vent gas water heaters
9. Spiral lift type (cast iron) spout
10. Aniline ink for gravure printing
11. Water inlet is lower than the water surface of the overflow outlet, up-guided direct-fall commode cistern fittings
12. cast iron stop valve
13. Semi-automatic (horizontal) industrial washing machines
14. Open-type perchloroethylene dry-cleaning machines and

ordinary closed-type perchloroethylene dry-cleaning machines, split-type petroleum dry-cleaning machines and ordinary closed-type petroleum dry-cleaning machines

15. Production and use of alkylphenol ethoxylates (including nonylphenol ethoxylates, octylphenol ethoxylates and dodecylphenol ethoxylates, etc.)

16, disposable foamed plastic tableware, disposable plastic swabs (31 December 2020)

(by 31 December 2020) household chemicals containing plastic microbeads (banned by 31 December 2020, by

(sale banned by 31 December 2022) ultra-thin plastic materials with a thickness of less than 0.025 mm.

Bags, polythene agricultural film less than 0.01 mm thick

17. Cold cathode fluorescent lamps and external electrode fluorescent lamps for electronic displays: (1) Short length (≤ 500 mm) and containing more than 3.5 mg of mercury per unit; (2) Medium length (> 500 mm and ≤ 1500 mm) and containing more than 5 mg of mercury per unit; (3) longer (> 1500 mm) and containing more than 13 mg of mercury per unit (31 December 2020)

18. Cosmetics (containing more than 1 ppm mercury) including skin-brightening soaps and creams, excluding eye cosmetics with mercury as a preservative for which there is no effective and safe alternative preservative (31 December 2020)

19. Manufacture of non-electronic measuring instruments containing mercury such as barometers, hygrometers, pressure gauges, thermometers (other than thermometers), etc. (except for non-electronic measuring devices for which suitable non-mercury alternatives are not available, which are installed in large equipment, or which are used for high-precision measurements) (31 December 2020)

20. Mercury-containing thermometers and mercury-containing sphygmomanometers (31 December 2025)

21. Mercury-containing batteries, excluding button zinc-silver oxide batteries containing less than 2 per cent mercury and button

zinc-air batteries containing less than 2 per cent mercury (31 December 2020)

22. Not more than 30 watts containing more than 5 millimetres of mercury per unit for general lighting purposes.

Grams of compact fluorescent lamps (31 December 2020)

23. Straight tube fluorescent lamps for general lighting purposes: (1)

Less than 60 watts and a single

Straight fluorescent lamps (with tri-colour phosphors) containing more than 5 mg of mercury(2)

Straight fluorescent lamps below 40 watts (including 40 watts) containing more than 10 mg of mercury per lamp.

(using halogenated phosphate phosphors)(31 December 2020)

24. High-pressure mercury lamps for general lighting purposes (31 December 2020)

25. Production of refrigerator freezer products, refrigerated container products, electric water heater products using HCFC-141b as blowing agent

26. Daytime fragrances containing xylene musk

(x) Firefighting

1. Difluoro-monochloro-bromomethane fire extinguishing agent (referred to as 1211 agent)

2. Trifluorobromomethane fire extinguishing agent (referred to as 1301 agent) (except for feedstock and essential uses)

3. Simple type 1211 fire extinguisher

4. Portable 1211 fire extinguisher

5. Cart-type 1211 fire extinguisher

6. Portable chemical foam fire extinguishers

7. Portable acid and alkali fire extinguishers

8. Simplex 1301 fire extinguishers (except essential uses)

9. Portable 1301 fire extinguishers (except essential uses)

10. Cart-type 1301 fire extinguishers (except essential uses)

11. Pipe network 1211 fire extinguishing system

12. Suspended 1211 extinguishing system

13. Cabinet 1211 fire extinguishing system

14. Pipe network 1301 fire extinguishing systems (except essential uses)

- 15. Suspended 1301 fire extinguishing systems (except essential uses)
- 16. Cabinet 1301 fire extinguishing systems (except essential uses)
- 17、PVC lined fire hose

(xi) Civil Explosive Products

1. Industrial detonators that do not meet the requirements of domestic public safety full life cycle control standards
2. Fuse
3. Ammonium ladder explosives
4. Paper-cased detonators

(xii) Other

- 1, 59, 69, 72, TF-3 gas masks
- 2 、 ZH15 Isolated chemical oxygen self-rescuer, carbon monoxide filter self-rescuer

3, not in line with the "Prevention and Control of Air Pollution", "Water Pollution Prevention and Control Law", "Solid Waste Pollution Prevention and Control Law", "Energy Conservation Law", "Production Safety Law", "Product Quality Law", "Land Management Law", "Prevention and Control of Occupational Diseases" and other national laws and regulations, do not comply with the national mandatory standards of safety, environmental protection, energy consumption, quality, and do not comply with the requirements of international environmental conventions, such as process, technology, products, and equipment.