Catalogue for Guiding Industry Restructuring

(2019 Edition)

Category I Encouragement

I. Agriculture and forestry

1. Farmland construction and protection projects (including high-standard farmland construction, farmland water conservancy construction, efficient water-saving irrigation, farmland improvement, *etc.*), and comprehensive land improvement

2. Construction of agricultural products and crop seed bases

3. Development and application of advanced technologies for the facility cultivation (including soilless cultivation) of vegetables, fruits and flowers, development and application of high-quality, high-yield, high-efficiency standardized cultivation technology

4. Development and application of livestock and poultry standardized scale breeding technology

5. Prevention and treatment of major pests and animal diseases

6. Selection, breeding, conservation and development of fine varieties of animals and plants (including wild); species breeding; development and application of technologies for seed (seedling) production, processing, packaging, inspection, identification technology and storage, and transportation equipment

7. Development and application of technologies for dry farming and water-saving agriculture, conservation tillage, ecological agriculture construction, cultivated land quality construction, rapid fertilization of cultivated land and integration of water and fertilizer

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

9. Demonstration and application of fully biodegradable film on farmland and risk management and control and repairing of contaminated farmland

10. Development of high quality, safe and environmental protection agricultural inputs such as feeds, feed additives, fertilizers, pesticides, veterinary drugs and permitted food additives for green food production

11. Enhancement and protection project of inland watershed large lake resource

12. Projects of pelagic fishery, artificial reefs, fishery administration and fishing port

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

14. Development and application of agricultural biotechnology

15. development and application of technologies for cultivated land maintenance management and soil, fertilizer and water speed measurement

16. Construction of protection areas for agricultural, forestry crops, livestock, poultry, and fishery germplasm resources; collection, preservation, identification, development and application of animal and plant germplasm resources

17. Comprehensive utilization of crop straws (utilization of straws as fertilizers, utilization of straws as feeds, utilization of straw as energy, utilization of straw as base material, utilization of straw as raw material, *etc.*)

18. Projects of comprehensive utilization and development of rural renewable resources (biogas project, biological natural gas engineering, comprehensive utilization of “three marshes”, biogas power generation, clean heating from biomass, straw gasification clean energy utilization project, utilization of waste fungus stick, utilization of solar energy)

19. Grassland and forest disaster comprehensive management project

20. Projects of returning farmland to forest and grassland, returning grazing land to grassland and natural grassland vegetation restoration, artificial planting and processing of high quality and high-yield pasture

21. Development and application of new technologies for new diagnostic reagents, vaccines for animal diseases and low-toxicity and low-residue veterinary drugs (including veterinary biological products)

22. Planting and production of natural rubber and Eucommia ulmoides

23. Development and application of monitoring technology for harmful elements of pollution-free agricultural products and the environment of their producing areas

24. Development and application of technologies for harmless treatment of organic waste and industrialization of organic fertilizer

25. Development and application of technologies for pollution-free and green production of agricultural, animal husbandry and fishery products

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

27. Shelterbelt projects, natural resource protection projects such as natural forests, forest tending project, and low-quality and low-efficiency forest renovation project

28. National reserve forest construction, characteristic economic forest construction, carbon sink forest construction, trees and grass planting project, and forest and grass seedling project, construction of woody grain and oil bases such as oil tea, oil palm, biomass energy forest oriented cultivation and industrialization

29. Comprehensive control project of soil erosion, prevention and control project of desertification and rocky desertification

30. Construction of Marine, forest, wild animals and plants, wetland, desert, grassland and other nature reserves and ecological demonstration projects

31. Production of new materials for sand fixation, water conservation and soil improvement

32. Cultivation of salt-tolerant and drought-tolerant plants

33. base construction, product development and deep processing of bamboo, rattan and flower

34. Protection projects of forest trees and grassland genetic resources

protection, improvement development and utilization of wild economic forest tree species

35. Protection projects of rare and endangered wild animals and plants and ancient and famous trees

36. Deep processing and product development of sub-small fuelwood, sand shrubs and three remnants

37. Construction of wild animal and plant cultivation, domestication and breeding bases, and construction of epidemic source disease monitoring and early warning system

38. Cultivation of authentic Chinese medicinal materials and high-quality, high-yield, endangered or scarce animal and plant medicinal materials; artificial cultivation and development of understory resources such as spices and wild flowers

39. Technical development application of wood, bamboo, grass (including straw) man-made panels and their composite materials

40. Pine resin forest construction, deep processing of forest chemicals

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

42. Development and application of digital (information) agriculture, forestry and grass technology

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

44. Freshwater and seawater healthy aquaculture and deep processing of products; proliferation and protection of freshwater and seawater fishery resources; marine pasture

45. Construction of ecologically clean small watersheds and prevention of non-point source pollution

46. Popularization and application of grain and oil drying and energy-saving equipment, farmers' green food storage biotechnologies, rodent repellent technologies, and new granary storage silos for farmers (color steel plate combination silo, steel frame rectangular silo, steel mesh drying silo, hot-dip galvanized steel silo, *etc.*)

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

48. Meteorological satellite engineering (satellite development, production and supporting software systems, ground connection

Collection and processing equipment, satellite remote sensing application technology) and meteorological information services

49. Digital transformation of agricultural production and smart agricultural engineering

50. Collection and treatment of waste water from rural toilets and kitchen waste, and joint operation of ecological agriculture

51. Synergistic and comprehensive treatment of rural domestic wastewater, domestic waste, livestock and poultry manure, agriculture waste and farmland non-point source pollution

52. Leisure agriculture and rural tourism boutique projects

53. Livestock and poultry breeding waste treatment and resource utilization (fertilization, energization, base and litter utilization of livestock and poultry manure, harmless treatment of sick and dead livestock and poultry)

54. Digital rural construction and information entering villages and households

55. "Internet +" agricultural products leaving the village and entering the city project

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

57. Application of WDGS and liquid organic fertilizer

II. Water conservancy

1. Construction of rivers, lakes and sea dikes and river regulation projects

2. Cross-basin water transfer projects

3. Urban and rural water supply and source projects

4. Rural drinking water safety projects

5. Construction of flood storage and detention area

6. Rivers, lakes and reservoir dredging projects

7. Reinforcement projects for dangerous reservoirs and sluices

8. Development and application of monitoring and repairing technologies for hidden dangers of dams

9. Urban waterlogging warning and flood control projects

10. Renovation projects of entrance to sea

11. Comprehensive utilization of water conservancy projects

12. Silt dam projects

13. Development and manufacturing of geosynthetics and new materials for water conservancy projects

14. Construction and renovation of irrigation areas and supporting facilities

15. Promotion and application of efficient water transmission and distribution and water-saving irrigation technologies

16. Renewal and reconstruction projects of irrigation and drainage pumping station

17. Water conservancy schistosomiasis control projects

18. Mountain torrent geological disaster prevention projects (The construction of monitoring forecast and early warning system of mountain torrent geological disaster

prevention area and the control of mountain flood ditch, debris flow ditch and landslide, *etc.*)

19. Water ecosystem and groundwater protection and restoration projects

20. Water source protection projects (development and promotion of division of water source protection area, isolation protection, soil and water conservation, water resources protection, water ecological environment restoration and related technologies)

21. Development and application of automatic system for monitoring and forecasting of soil erosion

22. Development of automatic flood control system, technologies and application of flood risk map compilation (Thematic map of flood disaster information in specific areas such as the middle and lower reaches of major rivers and key flood control areas and flood protection areas)

23. Construction of water resources management information system

24. construction of hydrological station network infrastructure and hydrological and water resources monitoring capacity

25. Development and utilization of unconventional water sources

III. Coal

1. Coal field geology and geophysical exploration

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

3. Development and application of technologies for briquette and coal water slurry

4. Processing and comprehensive utilization of co-associated resources of coal

5. Exploration, development and utilization of coalbed methane and extraction and utilization of coal mine gas

6. Comprehensive utilization of low-calorific value fuels such as coal gangue, coal slime and washed coal

7. Pipeline coal transportation

8. Development and application of technologies for clean and efficient coal washing

9. Control of ground subsidence areas, protection and utilization of mine water resources

10. Integrated construction of coal and electricity

11. Coal mining method, process development and application to improve resource recovery rate

12. Development and application of coal mining technologies for using gangue and other materials to fill in mine goafs, under buildings, railways and other infrastructures, and under water bodies

13. Development and application of underground rescue technology and special equipment

14. Development and application of comprehensive monitoring technology and equipment for coal mine production process

15. Construction of large coal storage and transportation centers, coal trading markets and environmental protection reforms of coal storage sites

16. Development and application of new types of self-rescue equipment for miners

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

18. Coal clean and efficient utilization technologies

IV. Electricity

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

2. Construction of ultra-supercritical unit power stations with a single unit of 600,000 kilowatts and above

3. Adopt backpressure (pumping back) type cogeneration, thermoelectric cold multiple generation, 300,000 kw and above super (super) critical cogeneration units

4. Construction of large-scale air-cooled unit power stations with a single unit of 600,000 kilowatts and above in water-scarce areas

5. Natural gas peak shaving power generation projects in important power load centers and areas with sufficient natural gas

6. Clean coal power generation such as circulating fluidized bed, pressurized fluidized bed and integrated coal gasification combined cycle

7. The single machine of 300,000 kw and above adopts fluidized bed boiler and USES coal gangue, medium coal, slime and so on to generate electricity

8. AC and DC transmission and transformation of 500 kV and above

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

10. Power grid transformation and construction, incremental distribution network construction

11. Development and application of relay protection technologies and power grid operation safety monitoring information technologies

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

13. Development and application of cross-regional grid interconnection engineering technology

14. Promotion and application of energy saving and environmental protection technologies for power transmission and transformation

15. Development and application of technologies for reducing transmission, transformation and distribution losses

16. Popularization and application of distributed power supply and grid connection (including microgrid) technologies

17. Coordinated treatment of multiple pollutants from coal-fired generating units

18. Thermal power generation waste flue gas denitration catalyst regeneration and low temperature catalyst development and production

19. development and application of technologies for low-temperature water restoration measures and fish-passing measures in hydropower

20. Development and application of large-capacity electric energy storage technologies

21. Electric vehicle charging facilities

22. Ventilation gas power generation technologies and its development and utilization

23. Complete sets of waste incineration power generation equipment

24. Distributed energy

25. Efficient electric energy substitution technologies and equipment

26. Coal-fired coupled biomass power generation

27. Flexibility transformation of thermal power generating units

28. Smart Energy System

V. New energy

1. Development and application of integration technologies for solar thermal power collection systems and solar photovoltaic power generation systems; inverter control system development and manufacturing

2. Development and application of complementary system technologies for hydrogen energy, wind power and photovoltaic power generation

3. Design and manufacturing of integrated solar building components

4. Technology development and equipment manufacturing high-efficiency solar water heater and hot water project, solar energy medium and high temperature utilization

5. Development and application of non-grain biomass fuel production technology such as biomass cellulosic ethanol, biofuel (diesel, gasoline, aviation kerosene)

6. Technologies development and equipment manufacturing of biomass direct combustion and gasification power generation

7. Development and equipment manufacturing for collection, transportation and storage of agricultural and forestry biomass resources; manufacturing of processing equipment, boilers and stoves for agricultural and forestry biomass briquettes

8. A complete set of equipment for the production of biogas and biological natural gas using crop straw, livestock and poultry excrement, household garbage, industrial organic waste, organic sewage sludge and other organic waste in urban and rural areas as raw materials

9. Equipment manufacturing of biogas generator set, biogas purification equipment, biogas pipeline gas supply, complete set of canning

10. Ocean energy and geothermal energy utilization technologies development and equipment manufacturing

11. Technologies development and equipment manufacturing for offshore wind turbines of 5MW and above

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

13. Energy Internet technologies and equipment such as energy routing and energy trading

14. Development and application and equipment manufacturing of high-efficiency hydrogen production, hydrogen transportation and high-density hydrogen storage technology; hydrogen refueling stations and clean alternative fuel refueling stations for vehicles

15. Development and application of mobile new energy technology

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

VI. Nuclear energy

1. Geological exploration of uranium mines, uranium mining and metallurgy, uranium refining, uranium conversion

2. Construction and technology development of advanced nuclear reactors and multi-purpose modular small reactors

3. Nuclear power plant construction

4. Manufacturing of high-performance nuclear fuel components, MOX components, and metal components

5. Reprocessing of spent fuel

6. Development and application of technologies for isotope, accelerator, and irradiation

7. Development and equipment manufacturing of advanced uranium isotope separation technologies and

8. Radiation protection technology development and monitoring equipment manufacturing

9. Development and equipment manufacturing of key nuclear security systems

10. Decommissioning of nuclear facilities and treatment of radioactive waste

11. technology and equipment of nuclear power plant life extension and decommissioning

12. Emergency rescue technology and equipment for nuclear power plants

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

VII. Oil and natural gas

1. Exploration of conventional oil and natural gas

2. Exploration and development of unconventional resources such as shale gas, shale oil, tight oil, oil sands, natural gas hydrate, *etc.*

3. Construction of storage and transportation and pipeline transportation infrastructure of crude oil, natural gas, liquefied natural gas, and refined oil; and construction of network and LNG bunkering facilities

4. Comprehensive utilization of oil and gas associated resources

5. Development and utilization of oil and gas field enhanced oil recovery technologies, safe production guarantee technologies, ecological environment restoration and pollution prevention engineering technologies

6. Vented natural gas recycling and device manufacturing

7. Development and application of natural gas distributed energy technologies

8. Development and application of volatile oil and gas recovery technologies in petroleum storage and transportation facilities

9. Development and application of liquefied natural gas technologies and equipment

10. Automatic monitoring equipment for oil and gas recovery

VIII. Iron and Steel

1. The exploration of replacement resources and development of key exploration technologies for ferrous metal mines, comprehensive separation and utilization technology for low-grade and difficult beneficiation, green and efficient intelligent production technologies and equipment for high-quality iron concentrate

2. Development and application of advanced technologies, such as accurate control of coke oven heating, resource utilization of by-products of flue gas desulfurization and denitrification, resource utilization of desulfurization waste water, advanced treatment and reuse of coking wastewater, carbon based materials of coal tar, needle coke made from coal pitch, high value-added utilization of coke oven gas, waste gas and circulating ammonia water, *etc.*, as well as research, development, application and integration of low-grade pulverized coal drying and carbonization; research and application of advanced treatment and reuse of sewage, reuse of cold rolling wastewater, treatment and reuse of sintering flue gas desulfurization wastewater, *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, advanced rail transit equipment steel, energy-saving and new energy automobile steel, low iron loss and high magnetic induction oriented electrical steel, high-performance tool and die steel, high-strength seismic steel bars, steel plates and sections for building structures, ultra-high-strength Bridge cable steel, high-performance pipeline steel, high-performance wear-resistant steel, high-performance corrosion-resistant steel, high-strength and high-toughness engineering machinery steel, offshore engineering equipment and high-tech ship steel, special steel for electric power equipment, high-quality special steel for oil and gas drilling acquisition and transmission, high-performance stainless steel, high-temperature alloy, high-ductility cold-rolled ribbed steel bar, non-quenched and tempered steel, high-strength steel for automobile and other mechanical industries, high-purity and high-quality alloy powder, composite steel, high purity high performance steel for semiconductor

5. On-line heat treatment, on-line performance control, new generation of TMCP process with on-line forced cooling, direct billet rolling, endless rolling, ultra-fast cooling, energy-saving and efficient rolling and follow-up treatment are applied

6. Development and production of ultra-high power electrode with diameter of 600mm and above, microporous and ultra microporous carbon brick for blast furnace, special graphite (high strength, high density, high purity, high modulus), graphitization cathode, inner series graphitization furnace, development and production application of environmental protection homogenization cooling equipment

7. Production process of long-life energy-saving and environmental protection refractories for coke oven, blast furnace and hot blast stove; production process of low-carbon and carbon free refractories, thermal insulation materials and functional environmental protection refractories for high-efficiency continuous casting

8. Quality control technology for the whole process of steel products

9. Using steel production equipment to treat social waste (excluding hazardous waste)

10. Ultra-low emission technology of iron and steel industry, as well as by-product recycling and reuse technology

11. Advanced technology and equipment for comprehensive utilization of metallurgical solid waste (including waste rock and tailings of metallurgical mines, dust, mud, slag, iron sheet, *etc.*) produced by iron and steel plant; recycling technology and equipment of metallurgical waste liquid (including waste water, waste acid, waste oil, *etc.*)

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

13. High efficiency pellet production technology such as belt roasting, blast furnace high proportion pellet smelting technology

IX. Nonferrous Metals

1. Exploration and development of alternative resources for the existing nonferrous metal mines and mining the scarce resource that in deep and difficult for mining

2. Development of high efficiency, low consumption, low pollution, new smelting technology development

3. High efficiency, energy saving, low pollution, large-scale recycling and comprehensive utilization of renewable resources. (1) recovery and utilization of waste non-ferrous metals (2) comprehensive utilization of valuable elements (3) comprehensive utilization of red mud and other smelting wastes (4) extraction of alumina from high alumina fly ash (5) reduction, recycling and harmless utilization and disposal of tungsten smelting slag

4. Production of non-ferrous metals and new materials for information and new energy.(1) Information: silicon single crystal and polished wafer with diameter of more than 200 mm, compound semiconductor with diameter of more than 125 mm or horizontal growth compound semiconductor materials with diameter of more than 50 mm, large size high-purity targets such as aluminum copper silicon, tungsten, molybdenum and rare earth, ultra-high-purity rare metals and targets, high-end electronic grade polysilicon, copper nickel silicon and copper chromium zirconium lead frame materials for VLSI, electronic solder, *etc.* (2) New energy sources: nuclear grade sponge zirconium and zirconium materials, electrode materials for high capacity long-life secondary batteries and precursor materials

5. Transportation, high-end manufacturing, and other fields of non-ferrous metal new materials. (1) Transportation: high strength and high conductivity copper alloy such as copper alloy precision strip and ultra-long wire products with compressive strength no less than 500MPa and conductivity no less than 80% IACS, new high strength, high toughness and corrosion resistance aluminum alloy materials and large-size products for main bearing structure of transportation vehicles (compressive strength of aluminum alloy for aviation is not less than650mpa, the compressive strength of aluminum alloy for high-speed train is not less than 500MPa), high-performance magnesium alloy and its products. (2) High end manufacturing and other fields: high

performance tungsten materials and tungsten matrix composites used in aerospace, nuclear industry, medical and other fields, high-performance ultra-fine, ultra-coarse, composite structure cemented carbide materials and deep-processing products, honeycomb ceramic carrier and rare earth catalytic materials, low modulus titanium alloy and memory alloy and other biomedical materials, copper alloy and titanium for corrosion-resistant heat exchanger alloy materials, 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, continuous metal coil for electronic field, vacuum, coating material, high performance copper foil material

X. Gold

1. Deep gold exploration and mining (1000m and below)

2. Recovery of gold from tailings and waste rock

3. High efficiency and comprehensive utilization of valuable elements in gold smelting (recovery rate of refractory ores ≥ 75%; recovery rate of low-grade ores ≥ 65% (excluding heap leaching); comprehensive utilization rate ≥ 70% when gold coexists with other minerals; and ≥ 50% when gold is associated with other minerals)

XI. Petrochemical Industry

1. High standard oil production technology development and application, coal methanol to p-xylene

2. Exploration, development and comprehensive utilization of chemical mineral resources in shortage such as sulfur, potassium, boron, lithium, bromine, *etc.*, development and application of comprehensive utilization technology of phosphate ore dressing tailings, mining and utilization of low and medium grade phosphate rock and fluorite ore, and comprehensive utilization of associated resources of phosphate rock and fluorite ore

3. Zero polar distance, oxygen cathode plasma membrane caustic soda electrolyzer energy-saving technology, chlorine production from waste hydrochloric acid and other comprehensive utilization technologies, development and application of new clean production process of chromium salt, fully closed high-pressure water quenching slag and no secondary pollution phosphorus sludge treatment of yellow phosphorus

production process, pneumatic fluidized tower production of potassium permanganate, total heat recovery thermal phosphoric acid production, large-scale defluorinated calcium phosphate production device

4. 100000 tons/year and above ion exchange bisphenol A, 150000 tons/year and above direct oxidation propylene oxide, 200000 tons/year and above CO oxidation process propylene oxide, 10000 tons/year adipose isocyanate production technology development and application

5. Production of high-quality potassium fertilizer and various special fertilizers, water-soluble fertilizer, liquid fertilizer, medium and trace element fertilizer, nitro fertilizer, slow and controlled release fertilizer, development and application of comprehensive utilization technology of phosphogypsum

6. Development and production of new varieties, formulations, special intermediates and additives with high efficiency, safety and environmental friendliness, production of chiral and stereoscopic pesticides by directional synthesis, and development and production of new products and new technologies of biopesticides

7. Waterborne wood, industrial and marine coatings, high solid content, solvent-free, radiation curing coatings, low VOCs content of environmental friendly, resource-saving coatings, used in the production of high-performance anti-corrosion coatings in key areas such as large aircraft, high-speed rail, *etc.*; single line production capacity of 30000 tons/year and above of chlorination titanium dioxide production

8. Reactive dyes for dyeing with low salt, low temperature, small bath ratio and wet short steaming pad dyeing, high fixation rate, high color fastness, high lifting property, high levelness, high reproducibility, low staining property, low salt, low temperature, low bath ratio dyeing and wet short steaming pad dyeing, super fine denier polyester fiber dyeing, high washing fastness, high dyeing rate, high light fastness and low contamination (nylon and spandex), high alkali resistance, low toxicity and low pollution type, and small bath ratio dyeing. They are acid dyes with high washing resistance, high chlorine bleaching, high level dyeing and high covering power for dyeing polyamide fiber, wool and leather, high color fastness and functional vat dyes, organic pigments with high color fastness, functionality, low aromatic amine, no heavy metal, easy dispersion and original pulp coloring, and water-based liquid colorants produced by the above dyes and pigments

9. New technologies for cleaner production and intrinsic safety of dyes, organic pigments and their intermediates (including continuous sulfonation of fuming sulfuric acid, continuous nitration, continuous acylation, continuous extraction, continuous hydrogenation reduction, continuous diazo coupling, catalysis, sulfur trioxide

sulfonation, adiabatic nitration, directional chlorination, combination efficiency, solvent reaction, hydrogen peroxide oxidation, recycling and other technologies and the development and application of suitable technology to replace phosgene and other highly toxic raw materials, membrane filtration and pulp drying technology

10. High performance barrier resins, such as ethylene vinyl alcohol copolymer resin, polyvinylidene chloride, polyisobutylene, ethylene octene copolymer, metallocene polyethylene and other special polyolefins, high carbon development and production of α-olefin and other key raw materials, production of liquid crystal polymer, polyphenylene sulfide, polyphenylene ether, aromatic ketone polymer, polyarylethernitrile and other engineering plastics, development and application of blending modification and alloying technology, development and production of super absorbent resin, conductive resin and degradable polymer, and development and production of new polyamides such as long carbon chain nylon and high temperature resistant nylon

11. 5 million tons/year and above brominated butyl rubber, solution polymerized styrene butadiene rubber, rare earth cis-1,4-polybutadiene rubber, acrylate rubber, with solid content greater than60% development and production of styrene butadiene latex and isoprene latex, development and application of chemical modification technology for synthetic rubber, thermoplastic elastomers such as polypropylene thermoplastic elastomer (PTPE), thermoplastic polyester elastomer (TPEE), hydrogenated styrene isoprene thermoplastic elastomer (SEPs), dynamic total sulfur thermoplastic elastomer (TPV), silicone modified thermoplastic polyurethane elastomer (TPV), *etc.* Material development and production

12. Modified, water-based adhesives and new hot-melt adhesives, environmental water absorbent, water treatment agent, molecular sieve mercury fixation, mercury free and other new efficient and environmental protection catalysts and additives, nano materials, functional membrane materials, ultra clean and high-purity reagents, photoresist, electronic gas, high-performance liquid crystal materials and other new fine chemicals

13. New silicone monomers such as phenyl chlorosilane and vinyl chlorosilane, phenyl silicone oil, amino silicone oil, polyether modified silicone oil, *etc.*, high performance silicone rubber and hybrid materials such as phenyl silicone rubber and phenylene silicone rubber, triethoxysilane and other high-performance resins such as methylphenyl silicone resin, *etc.*

14. Special fluorine-containing monomers, such as perfluoroethylene ether, polyvinylidene fluoride, poly (trifluoroethylene), ethylene tetrafluoroethylene copolymer and other high-quality fluororesins, fluoro ether rubber, fluorosilicone

rubber, tetrapropyl fluororubber, 246 fluororubber with high fluorine content, fluorine-containing lubricating grease, ozone depletion potential value (ODP) of zero, global warming potential value (GWP) of zero（ GWP) low ozone depleting substances (ODS) substitutes, perfluorooctyl sulfonyl compounds (PFOS) and perfluorooctanoic acid (PFOA) and their salts, development and application of substitutes and alternative technologies, fluorine-containing fine chemicals and high-quality fluorine-containing inorganic salts

15. High performance radial tire (including tubeless truck radial tire, mega engineering radial tire (above 49 inch), low cross section and flat (less than 55 Series)) and intelligent manufacturing technology and equipment, aviation tire, agricultural radial tire and supporting special materials and equipment, development and application of new type natural rubber

16. Development and production of biopolymer materials, fillers, reagents, chips, interferon, sensors and cellulose biochemical products

17. Comprehensive utilization of carbon tetrachloride, silicon tetrachloride, methyltrichlorosilane, trimethylchlorosilane, carbon dioxide capture and application

XII. Building materials

1. Using new dry process cement kiln of no less than 2000 tons/day or no less than 60 million pieces/year (including) new sintering brick and tile production line for collaborative disposal of waste, cement kiln collaborative disposal of waste incineration fly ash, desalination pretreatment using water washing process; new dry process cement kiln production of sulfur (iron) aluminate cement, aluminate cement, white portland cement and other special cement technology and product development and application; new static cement clinker calcination technology. Research and application; development and application of new dry process cement kiln alternative fuel technology and flue gas carbon dioxide capture and purification technology; development and application of cement additives; energy saving transformation of grinding system (cement vertical mill, raw material roller press final grinding, *etc.*); development and application of automatic bag inserting machine, packaging machine and loading machine for cement packaging

2. Ultra-thin substrate glass, touch glass, high-aluminum cover glass, carrier glass, light guide glass production lines, technical equipment and products for the electronic information industry with a scale of no more than 150 tons/day (inclusive); high borosilicate glass, micro Crystal glass; aluminosilicate glass for vehicles and solar

equipment; large-size (1 square meter 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 functions Glass products and technical equipment; continuous automated vacuum glass production line; full oxygen/oxygen-enriched combustion technology for glass melting furnaces; multi-line flat glass production technology and equipment for one furnace; low 19 thermal conductivity fused cast zirconium corundum for glass melting furnaces, long life (12 Years and above) chromium-free alkaline high-grade refractories

3. Part-based building materials products suitable for prefabricated buildings; low-cost phase change energy storage wall materials and wall parts; photovoltaic building integration parts and components; rock wool composite products/parts; aerogel energy-saving materials; A-level flame retardant Thermal insulation products, composite vacuum thermal insulation materials for construction, composite panels with integrated functions such as thermal insulation and decoration, and long-life waterproof, corrosion-resistant and flame-retardant composite materials for bridges, tunnels, underground pipe corridors, island and reef facilities, offshore facilities and other fields, modified Asphalt waterproofing membranes, polymer waterproofing membranes, water-based or high-solid content waterproof coatings and other new building waterproofing materials; functional decoration materials and products, green non-formaldehyde wood-based panels and pavement bricks (boards), pavement permeable bricks (boards), Plaza permeable brick (board), decorative brick (block), antique brick, slope protection ecological brick (block), hydraulic ecological brick (block) and other green building materials product technology development and production application

4. Development and application of centralized ceramic pulverizing and clean coal to gas production technology in ceramic park; development and application of ceramic plate production line and process equipment technology with a single area of more than 1.62 square meters (including); development and application of light foam ceramic partition board and insulation board production line and process equipment technology using tailings, wastes, etc

5. Toilets, squatting pans, water-saving domestic water appliances and water-saving control equipment with a flushing water consumption of 6 liters and below, intelligent toilets, bathroom integrated systems, development and production of integrated sanitary parts that meet assembly requirements

6. 80 kt/A and above alkali free glass fiber roving (monofilament diameter > 9 μ m) tank furnace drawing technology, 50000 T/A and above alkali free glass fiber spinning yarn (monofilament diameter ≤ 9 μ m)Micron) tank furnace drawing technology, ultra-fine, high strength and high modulus, alkali resistant, low dielectric, high silica,

degradable, special-shaped cross-section and other high-performance glass fiber and glass fiber products technology development and production; basalt fiber tank furnace drawing technology; silicon carbide fiber, composite fiber; aerospace, environmental protection, marine engineering, electrical and electronic, transportation, energy, construction, Internet of things, animal husbandry and breeding. In addition, it also has the following advantages: high efficiency molding technology and equipment for thermoplastic and thermosetting composite materials; recycling technology and equipment for resin based composite materials; and 200000 tons/year and above mineral raw material powder processing production line

7. Using synthetic mineral fiber and aramid fiber as reinforcement material, new technology and product development and production of non asbestos friction and sealing material

8. High quality artificial crystal materials, products and devices used in the fields of information, new energy, national defense, aerospace and other fields; development of production equipment and technology for functional synthetic diamond materials; high purity quartz raw materials (purity greater than or equal to99.999%), high-end quartz crucible for semiconductors, chemical vapor phase synthesis quartz glass and other manufacturing technology development and production; special glass manufacturing technology development and production required in aerospace and other fields; production, application and technical equipment development and application of high-purity nano spherical silicon powder and high-purity industrial silicon

9. Production and application development of graphene materials; production and application of non-metallic mineral functional materials such as environmental governance, energy-saving and energy storage, electronic information, thermal insulation, agricultural use and other non-metallic mineral functional materials and their technical equipment development and application; intelligent production line for on-line detection and control of mineral ultra-fine materials processing; technology development and construction of industrial big data platform for non-metallic mining, processing, trade, application and investment

10. 300000 square meters/year and above ultra-thin composite stone production; mechanized stone mining; comprehensive utilization production and process equipment development of ore fragments, plate leftovers and stone powder; production of inorganic artificial stone, production of resin based artificial stone with non-toxic or low toxicity resin

11. Using secondary resources such as mine tailings, construction waste, industrial waste, river lake (canal) sea sludge and agricultural and forestry residues to produce building materials and technology and equipment development

12. Fine ceramic powders, ceramic precursors and ceramic chopped fibers for ceramic manufacturing, ceramic parts, ceramic balls, ceramic valves, ceramic screws, ceramic membranes, honeycomb ceramics, foam ceramics, ceramic substrates, ceramic insulating parts, electronic ceramic materials and components, continuous ceramic fibers and fiber reinforced ceramic matrix composites, and medical fine ceramic materials. And components; ceramic ink materials; precision grinding and polishing ceramic materials and other industrial ceramic technology development and production applications; information, new energy, national defense, aerospace and other fields of high-performance ceramics manufacturing technology development and production

13. The main production areas such as the storage area, the main mixing building, and the material conveying system are fully enclosed, and are equipped with active dust collection and dust reduction equipment. The information integrated management system is used for operation and management, and it has the ability to absorb urban solid waste. Mixed concrete production line; development and application of concrete for marine engineering, lightweight high-strength concrete, ultra-high performance concrete, and concrete self-repairing materials

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

XIII. Medicine

1. 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 meeting the prevention and control needs of major and multiple diseases in China, the development and production of new dosage forms, new excipients, children's drugs and short-term drugs, membrane separation, supercritical fluid extraction, new crystallization, chiral synthesis, enzymatic synthesis, and coupling in the process of drug production. The development and application of continuous reaction, system control and other technologies, improvement of quality and production technology level of essential drugs and cost reduction, energy saving and emission reduction technology for API production, and development and application of new pharmaceutical preparation technology

2. Major disease prevention and control vaccines, antibody drugs, gene therapy drugs, cell therapy drugs, recombinant protein drugs, nucleic acid drugs, large-scale cell culture and purification technology, large-scale pharmaceutical peptide and nucleic acid synthesis, antibody coupling, serum-free protein-free medium Development and application of cultivation, fermentation and purification technologies, cellulase, alkaline protease, diagnostic enzymes and other enzyme preparations, and modern biotechnology to transform traditional production processes

3. Development and production of new pharmaceutical packaging materials and technologies (neutral borosilicate medicinal glass, functional materials with good chemical stability, degradability and high barrier, new packaging drug delivery systems and drug delivery devices such as aerosol, powder aerosol, self medication, pre encapsulation, automatic mixing, *etc*.)

4. Development of artificial breeding technology of endangered and rare medicinal animals and plants, standardized breeding of experimental animals and animal experimental services, application of advanced agricultural technology in standardized cultivation and cultivation of Chinese herbal medicine, development and application of new technology for quality control of traditional Chinese medicine, technology of modern dosage forms of traditional Chinese medicine, inheritance and innovation of processing technology of decoction pieces of traditional Chinese medicine, development and production of classic Chinese medicine prescriptions, and innovation of traditional Chinese medicine. Research and development and production of new drugs, secondary development and production of Chinese patent medicines, and development and production of ethnic drugs

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 stents, prostheses and other high-end implanted interventional equipment and materials and augmentation Material manufacturing technology development and application, life support equipment for critical illness, mobile and remote diagnosis and treatment equipment, new gene, protein and cell diagnosis equipment

6. High end pharmaceutical equipment development and production, transdermal absorption, powder spray and other new preparation production equipment, large-scale bioreactor and auxiliary system, high-efficiency protein separation and purification equipment, efficient extraction equipment of traditional Chinese medicine, and continuous production technology and equipment of drugs

XIV. Machinery

1. High-end CNC machine tools and supporting CNC systems: 5-axis and above linkage CNC machine tools, CNC systems, high-precision, high-performance cutting tools, measuring instruments and abrasives

2. Distributed control system (DCS), fieldbus control system (FCS) and new energy power generation control system for major technical equipment such as large generator set, large petrochemical plant, large metallurgical complete set of equipment, etc

3. Programmable control system (PLC) with motion control function and remote IO, with more than 512 input and output points, independent software system, independent communication protocol, compatible with multiple common communication protocols, support real-time multitasking, and diversified programming Language, with customizable instruction set, *etc.*

4. Digital, intelligent and networked industrial automatic detection instruments, in-situ online component analysis instruments, electromagnetic compatibility testing equipment, smart meters for smart grid (with functions of sending and receiving signals, self-diagnosis and data processing), low-power intelligent sensors with wireless communication function, encryption sensors, nuclear level monitoring instruments and sensors

5. Instruments for detection and analysis of radiation, toxic, combustible, explosive, heavy metal, dioxin, water quality, flue gas and air; high end mass spectrometer, chromatograph, spectrometer, X-ray instrument, nuclear magnetic resonance spectrometer, automatic biochemical detection system, automatic sampling system and sample processing system for drug, food and biochemical inspection

6. For scientific research, intelligent manufacturing, testing and certification, multi-dimensional geometric dimension measuring instruments with measuring accuracy of more than micron, automatic, intelligent and multifunctional testing instruments for mechanical properties of materials, industrial CT, three-dimensional ultrasonic flaw detector and other non-destructive testing equipment are used for nano observation and measurement with resolution higher than 3.0 nm

7. City intelligent visual monitoring, video analysis, video assisted criminal reconnaissance technical equipment

8. Mine disaster (gas, coal dust, mine water, fire, surrounding rock noise, vibration, *etc.*) monitoring instruments and safety alarm system

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

10. Hydrological data acquisition instrument and equipment, hydrological instrument measurement verification equipment

11. Seismic and geological disaster monitoring instruments

12. Ocean observation, detection and monitoring technology system and equipment

13. Digital multifunctional integrated office equipment (copy, print, fax, scan), digital camera, digital movie projector and other modern cultural office equipment

14. EMU bearings with a speed of more than 200 kilometers per hour, heavy-duty railway freight car bearings with an axle load of 23 tons and above, high-power electric/diesel locomotive bearings, a new type of urban rail transit bearing with a service life of more than 2.4 million kilometers, a light service life of more than 250,000 kilometers Quantified, low friction torque automotive bearings and units, high temperature resistant (above 400°C) automotive turbine and supercharger bearings, P4 and P2 level CNC machine tool bearings, various precision bearings for wind turbines of 2 megawatts (MW) and above, The service life is more than 5000 hours. Large-scale construction machinery bearings such as shield tunneling machines, P5 and P4 high-speed precision metallurgical rolling mill bearings, aircraft engine bearings and other aviation bearings, medical CT machine bearings, deep well and ultra deep well oil drilling rig bearings, offshore engineering bearings, High-speed bearings for electric vehicle drive motor systems (speed ≥ 12,000 rpm), industrial robot RV reducer harmonic reducer bearings, and parts of the above bearings

15. Single unit capacity of 800,000 kilowatts and above Francis hydropower equipment (water turbines, generators, governors, excitation and other auxiliary equipment), single unit capacity of 350,000 kilowatts and above, pumped storage, 50,000 kilowatts and above, and 100,000 kilowatts and above. Impact-type hydropower equipment of kilowatts and above and its key supporting auxiliary equipment

16. Generator protection circuit breaker, pump, valve and other key auxiliary equipment and components for supercritical and ultra-supercritical thermal power units with 600MW and above

17. 600MW and above supercritical parameter circulating fluidized bed boiler

18. High temperature parts of gas turbine (rotor body forging for heavy gas turbine above 300MW, large superalloy disc, cylinder block, blade, *etc.*) and control system

19. Rotor (forging and welding), runner, blade, pump, valve, main shaft retaining ring and other key castings and forgings for 600MW and above power generation equipment

20. High strength and high plasticity ductile iron castings; high performance vermicular graphite iron castings; high precision, high pressure, large flow hydraulic castings; nonferrous alloy special casting process castings; high strength steel forgings; high temperature, low temperature, corrosion resistance, wear resistance and other high performance, lightweight new material castings and forgings; high precision, low stress machine tool castings and forgings; automobile, energy equipment, rail transit key castings and forgings for equipment, aerospace, military and marine engineering equipment

21. 500 kV and above UHV and UHV AC/DC transmission equipment and key components: transformers (outlet device, bushing, voltage regulating switch), switch equipment (arc extinguishing device, hydraulic operating mechanism, large basin insulator), High-strength pillar insulators and hollow insulators, suspension composite insulators, insulation moldings, ultra-high voltage arresters, DC arresters, electric control, light control thyristors, converter valves (smoothing reactors, water cooling equipment), control and protection equipment, DC field complete equipment, *etc.*

22. High voltage vacuum components and switchgear, intelligent medium voltage switch elements and complete sets of equipment, insulated switchgear with environmental protection medium voltage gas, intelligent (communicable) low-voltage electrical appliances, amorphous alloy, coil core and other energy-saving distribution transformers

23. Second generation improved, third generation and fourth generation nuclear power equipment and key components, multi-purpose modular small reactor equipment and key components; 2.5 MW wind power equipment and more than 2.0 MW wind power equipment control system, converter and other key parts; all kinds of crystal silicon and thin film solar energy photovoltaic cell production equipment; marine energy (tide, wave, ocean current) power generation equipment

24. Short-flow melting process and equipment for producing iron castings directly from molten blast furnace; short-flow casting process and equipment for concentrated smelting of aluminum alloy; production process and equipment for high-purity pig iron for casting and ultra-high-purity pig iron for casting; high compactness of clay sand

Modeling automatic production line and supporting sand processing system; self-hardening sand high-efficiency complete equipment and supporting sand processing system; lost foam/V method/real type complete technology and equipment; external heating and water cooling long furnace age and large tonnage (10 tons/hour or more) Cupola; external hot air cupola waste heat utilization technology and equipment; large die-casting machine (clamping force above 3,500 tons); automated intelligent core making center; shell shape, precision core assembly modeling, silica sol investment mold, die casting, semi-solid, Special casting technology and equipment such as extrusion, differential pressure and pressure regulation; 3D printing and sand cutting rapid prototyping technology and equipment used in casting production; automatic pouring machine; online casting detection technology and equipment; complete set of equipment for efficient automatic cleaning of castings; manufacturing and application of special robots for casting

25. Application of dry (hot) recycling technology such as resin sand and clay sand for casting; application of environmental protection resin, inorganic binder molding and core making technology

26. High-speed precision press (180～2500kN, 2000～750 times/min), ferrous metal hydraulic extruder (above 150 mm/sec), light alloy hydraulic extruder (less than 10 mm/sec), high-speed precision shearing machine (Above 2000kN, 70-80 times/min, section gradient less than 1.5°), internal high pressure forming machine (over 10000kN), large bending machine over 60000kN), digital sheet metal processing center (flexible manufacturing center/flexible manufacturing system), High-speed powerful spinning machine (radial spinning force/per wheel: 1000kN, axial spinning force/per wheel: 800kN, spindle torque: 240kN•m, maximum spindle speed: 95 revolutions/minute), CNC multi-station stamping Machine (replaced with servo multi-station press), large nominal pressure cold/warm forging press (effective nominal force stroke above 25mm, nominal force above 10000kN), automatic warm/hot forging press above 4 stations (nominal force 16000kN Above); servo multi-station press (12000～30000kN), large servo press (8000～25000kN), progressive die press (6000～16000kN), compound drive thermoforming press (nominal force ≥ 12000kN, symmetrical connection Rod booster mechanism, stroke times 14-18 times/min, slider stroke 1100mm, slider adjustment 500mm, maximum downward speed 1000mm/s, maximum return speed 1000mm/s, connecting rod force factor ≥ 6), high-speed composite Intelligent punching line of transmission press (nominal force ≥ 30600kN, compound cylinder drive symmetrical connecting rod booster, single machine continuous stroke ≥ 12 times/min, production line beat 6-8 pieces/min), a new generation of aircraft skin comprehensive pulling R&D and manufacturing of intelligent complete sets of equipment (maximum tensile force ≥ 15MN, sheet thickness ≤ 10mm, maximum jaw opening ≤ 80mm, jaw

limit load factor (maximum tensile force per unit width) ≥ 63kN/mm, main Synchronization accuracy of cylinder stretching position ±0.5mm, extension control accuracy ≤ 0.2%); aerospace large and super large sheet metal parts liquid-filled forming process and equipment (large bypass ratio engine inlet lip manufacturing technology): (Equipment nominal force 200MN, drawing tonnage 16000T, blanking tonnage 4000T, slide stroke 3000mm, working table size 5000mm×5000mm, liquid chamber pressure 10MPa, liquid chamber volume 6000L, displacement 4300L); radial forging machine (precision forging machine)) And rotary forging machine (630～22000kN); pulse extruder (vibration extruder) (630～22000kN), high-speed upsetting machine (100 pieces/min, forging weight above 1.6kg)

27. Ethylene cracking three units, 400000 tons (polypropylene, *etc.*) extrusion granulation unit, 500000 tons of syngas, ammonia, oxygen compressor and other key equipment

28. Large scale wind power generation seal (service life more than 7 years, working temperature-45 ℃-100 ℃); mechanical seal of main pump in nuclear power plant (applicable pressure ≥ 17 MPa, working temperature 26.7 ℃-73.9 ℃); main bearing seal of shield machine (service life 5000The results show that: 1) rotary seal of power assembly system and transmission system of car; 2) sealing of oil drilling and logging equipment (applicable pressure ≥ 105 MPa); hydraulic support seal; high PV value rotary dynamic seal; super large diameter (≥ 2Mechanical seal; aerospace seal (working temperature-54 ℃-275 ℃, linear speed ≥ 150 m/s); high pressure hydraulic element seal (applicable pressure ≥ 31.5 MPa); high precision hydraulic casting (flow channel dimension accuracy ≤ 0.25 mm, fatigue performance test ≥ 2 million times)

29. High performance non asbestos sealing material (heat resistance temperature 500 ℃, tensile strength ≥ 20 MPa); high performance carbon graphite sealing material (heat resistance temperature 350 ℃, compressive strength ≥ 270 MPa); high performance pressure less sintered silicon carbide material (bending strength ≥ 200 MPa, thermal conductivity ≥ 130 w/m · Kelvin (w/MK ·))

30. Intelligent welding equipment, laser welding and cutting, electron beam welding and other high-energy beam welding and cutting equipment, friction stir, composite heat source and other welding equipment, digital, high-capacity inverter welding power supply

31. Large die (half circle length stamping die of lower bottom plate ＞ 2500 mm, cavity die of half circle length of lower bottom plate ＞ 1400mm), precision die (stamping die accuracy ≤ 0.02mm, cavity die precision ≤ 0.05mm), multi station automatic deep drawing die, multi station automatic fine blanking die

32. Large scale (more than 1 ton) multifunctional controllable atmosphere heat treatment equipment, program-controlled chemical heat treatment equipment, program-controlled multi-functional vacuum heat treatment equipment, vacuum heat treatment equipment with furnace loading capacity of more than 500 kg, and all fiber furnace lining heat treatment furnace

33. Alloy steel, stainless steel, weathering steel high-strength fasteners, titanium alloy, aluminum alloy fasteners and precision fasteners; springs for aviation, aerospace, high-speed rail, engines, *etc.*; high-precision transmission couplings, large-scale rolling mill coupling shafts; new models Powder metallurgy parts: high-density (≥7.0 g/cm³), high-precision, complex-shaped structural parts; friction devices for high-speed trains and airplanes; oil-bearing bearings; gearboxes for EMUs, variable pitch gear transmission systems for ships, 2.0 trillion Gearboxes for wind power over watts, gearboxes for metallurgical and mining machinery; chains for automobile powertrains, construction machinery, and large agricultural machinery; basic components for major equipment and key projects

34. Seawater desalination equipment

35. Robot and integration system: special service robot, medical rehabilitation robot, public service robot, personal service robot, man-machine cooperation robot, double arm robot, arc welding robot, heavy load AGV, integrated system of special inspection and assembly robot, *etc.* Key components for robot: high precision reducer, high performance servo motor and driver, high performance controller, sensor, end effector, *etc.* Robot common technology: inspection, detection, evaluation and certification, intelligent robot operating system, intelligent robot cloud service platform

36. 5 million tons/year and above mine, thin coal seam comprehensive mining equipment, 10 million tons/year and above large open-pit mine key equipment

37. 18 MW and above integrated compressor units, compressor, gas turbine, valve and other key equipment for natural gas transmission pipeline with diameter of 1200 mm and above; compressor and driving machinery and low temperature equipment for natural gas liquefaction with single line of 2.6 million tons/year and above; oil pump of 3000 cubic meters/hour and above for large oil pipeline

38. Single-fed multi-color offset printing machine (width ≥ 750 mm, printing speed: single-sided multi-color ≥ 16000 sheets/hour, double-sided multi-color ≥ 13000 sheets/hour); commercial web offset printing machine (width ≥ 787 mm, Printing speed ≥ 7 m/s, overprint accuracy ≤ 0.1 mm); newspaper web offset printing speed: single paper path single web machine ≥ 75,000 sheets/hour, double paper path double web machine ≥ 150000 sheets/hour, overprint accuracy ≤ 0.1 mm); multi-color wide-format

flexographic printing machine (printing width ≥1300 mm, printing speed ≥ 400 m/min); unit type flexo printing machine (printing speed ≥ 250 m/min); environmentally friendly multi-color reel Material gravure printing machine (printing speed ≥ 300 m/min, overprint accuracy ≤ 0.1 mm); inkjet digital printing machine (for publishing: printing speed ≥ 150 m/min, resolution ≥ 600dpi; packaging: printing speed ≥ 30 m /Min, resolution ≥ 1000dpi; for variable data: printing speed ≥ 100 m/min, resolution ≥ 300dpi); CTP direct plate making machine (imaging speed ≥ 35 sheets/hour, plate width ≥ 750 mm, repeat accuracy 0.01 mm, resolution ≥ 3000dpi); axisless CNC flat-bed hot stamping machine (hot stamping speed ≥ 10000 sheets/hour, processing accuracy 0.05 mm)

39. Two wheel or four-wheel drive wheeled tractor and crawler tractor with more than 100 horsepower, equipped with power shift transmission or stepless transmission, bus control system, safety cab, power take-off shaft with more than 2 rotational speeds and hydraulic output points of no less than 3 groups. It is equipped with cultivation tractor, Orchard tractor and high clearance tractor with power of more than 50 horsepower (the minimum height above the ground is more than 40 cm)

40. Agricultural machinery and equipment with tractors of 100 hp or above: the subsoiling machine, combined soil preparation machine and soil preparation and joint operation machine needed for conservation tillage, *etc.* the conventional agricultural operations require ploughshare ploughs with a width of more than 40 cm, disc harrow, grain drill, precision seeding machine for intermediate crops, cultivator, no tillage planter, large spray (powder spraying machine), *etc.*

41. Key parts and components of tractors above 100 horsepower: power shift gearbox, hydro mechanical continuously variable transmission, integrated pump motor, front drive axle with wheel side brake and limited slip differential lock, ABSB raking system, electric tractor battery, motor and its control system, clutch, hydraulic pump, hydraulic cylinder, various valves and hydraulic output valve, *etc.*, closed center variable, load sensing electric hydraulic lifter, electric control system, hydraulic steering mechanism, *etc.*

42. Crop transplanting machinery: riding type high-speed rice transplanter (transplanting more than 350 times per minute, 3-5 plants per hole, suitable row spacing of 20-30 cm, adjustable plant spacing, suitable plant spacing of 12-22 cm); disc soil type of motor-driven rice transplanter (riding or walking type, suitable row spacing of 20-30 cm, adjustable plant spacing, suitable plant spacing of 12-22 cm), etc

43. Agricultural harvesting machinery: self-propelled grain combine harvester (feeding rate above 6 kg/s); self-propelled half-feed rice combine harvester (more than 4 rows,

supporting engine above 44 kilowatts); self-propelled corn combine harvesting Machine (3 to 6 rows, ear-picking type, with peeling device, and stalk crushing and returning to the field device or stalk cutting and collecting device); ear and stalk harvesting corn harvester (earing and peeling, stalk cutting and recycling), Self-propelled corn grain combine harvester (more than 4 rows, direct grain harvesting type); self-propelled barley, alfalfa, corn, sorghum and other silage harvesters (supporting power above 147 kilowatts, stem chopped length 10～ 60mm, "has metal detection, stone detection safety device and grain crushing function"); cotton picker (more than 3 rows, self-propelled or tractor-backed type, defloration device is mechanical or pneumatic, suitable for cotton bead height 35 ～160 cm, equipped with seed cotton container and automatic unloading device); potato harvester (self-propelled or tractor-drawn, 2 rows or more, adjustable row spacing, with soil removal device and collection device, maximum digging depth 35 cm), Sugarcane harvester (self-propelled or tractor-backpacked, supporting power above 58 kW, ratoon crushing rate ≤ 18%, loss rate ≤ 7%); combined operation machine for recovery of residual film and stalk crushing; forage harvesting machinery (self-propelled Forage harvester, hanging mowing and squeezing machine, finger-pan forage rake, forage picking and baling machine, *etc.*); self-propelled potato harvesting machinery; hybrid paper mulberry combine harvesting machinery

44. Water saving irrigation equipment: all kinds of large and medium-sized sprinkler irrigation machines, various types of micro drip irrigation equipment, *etc.*; flood resistance and waterlogging drainage equipment (the displacement is more than 1500 m^3/h, the lift is 5-20 m, the power is more than 1500 kW, the efficiency is more than 60%, and it can be moved)

45. Biogas generating equipment: biogas fermentation and gas storage integration (gas storage capacity of 300-2000 m^3 series products), biogas slurry extraction equipment (suction capacity more than 1 m^3/min), *etc.*

46. Large-scale construction machinery: hydraulic excavators of 30 tons or more, full-face roadheaders of 6 meters or more, crawler bulldozers of 320 horsepower or more, loaders of 6 tons or more, bridge erecting equipment of 600 tons or more (including bridge erectors and beam transport vehicles), Beam lifting machine), 400 tons and above crawler cranes, 100 tons and above all-terrain cranes, 25 tons and above container reach stackers, 1000 tons/meter and above tower cranes, drilling rigs of 100 mm and above, 1 meter wide and above milling machines, 75 tons and above mining vehicles, 220 horsepower and above graders, 18 tons and above vibrating hydraulic rollers, 9 meters and above paver, 1 meter and above milling machines, 20 tons and Container forklifts above, 8 tons and above internal combustion forklifts, 3 tons and above battery

forklifts, 40 meters and above concrete pump trucks, 8 cubic meters and above concrete mixer trucks, 90 cubic meters per hour and above concrete mixing plants, 400 kilowatts and above Concrete cold and hot regeneration equipment, rotary drilling rigs of 2000 mm and above, underground diaphragm wall excavation equipment of 400 mm and above; key components: power shift gearbox, wet drive axle, slewing ring, hydraulic torque converter, electric Motors, electric controls, hydraulic motors, pumps, and control valves with a pressure above 25 MPa

47. Intelligent logistics and storage equipment, information system, intelligent material handling equipment, intelligent port handling equipment, agricultural products intelligent logistics equipment, *etc.*

48. High-reliability, low-emission, low-energy internal combustion engines for non-road mobile machinery: life indicators (heavy-duty 8000-12000 hours, medium-duty 5000-7000 hours, light-duty 3000-4000 hours), emission indicators (in line with Euro III B, Euro IV, Euro V. National III and National IV emission target requirements); fuel systems, supercharging systems, exhaust gas aftertreatment systems (all including electronic control systems) that affect the power, economy, and environmental protection of internal combustion engines for non-road mobile machinery

49. Refrigeration and air-conditioning equipment and key components: heat pump, combined heat source (air source and solar energy) heat pump water heater, secondary energy efficiency and above refrigeration and air-conditioning compressor, micro-channel and falling film heat exchange technology and equipment, electronic expansion valve and two-phase Flow ejector and its key components; refrigeration and air-conditioning compressors that use environmentally friendly refrigerants (ODP is 0, GWP is low)

50. Drilling rigs for 12000m and above deep wells, polar drilling rigs, high mobility deep well desert drilling rigs, swamp drilling rigs for difficult to enter areas, offshore drilling rigs, truck mounted rigs, and drilling rigs for special drilling technologies

51. Centralized treatment equipment for hazardous waste (including medical waste)

52. Large and efficient two-platen injection molding machine (with clamping force above 1,000 tons), all-electric plastic injection molding machine (with injection volume below 1,000 grams), energy-saving plastic and rubber injection molding machine (energy consumption below 0.4 kWh/kg), high-speed energy-saving plastic Extrusion unit (production capacity 30-3000 kg/h, energy consumption below 0.35 kWh/kg), microcellular foam plastic injection molding machine (clamping force 60-1000 tons, injection volume 30-5000 grams, energy consumption 0.4 KWh/kg or less), large twin-screw extrusion granulation unit (production capacity of 300,000 to 600,000 tons/year),

large para-aramid reactive extrusion unit (production capacity of 14,000 tons/year or more), carbon fiber prepreg Glue unit (production capacity above 600,000 meters/year; width above 1.2 meters), fiber-reinforced composite material online mixing injection molding equipment (clamping force 200-6800 tons, injection volume 600-85000 grams)

53. Nanofiltration membrane and reverse osmosis membrane pure water equipment

54. Safe drinking water equipment: combined integrated water purifier (treatment capacity 100-2500 T/h)

55. Air pollution control equipment: complete sets of ultra-low emission technical equipment for desulfurization, denitrification, and dust removal of coal-fired generating units; pre-charged bag dust removal technology and equipment for fine particulate matter in steel furnace flue gas; coke oven flue gas SDA desulfurization + SCR denitration technology equipment; Electrolytic aluminum flue gas alumina defluorination and dust removal technology equipment; iron and steel sintering flue gas dry desulfurization and dust removal equipment; bag filter; electric bag composite dust removal technology equipment (particulate matter emission concentration <10 mg/m³); catalytic cracking regenerated smoke Gas dedusting and desulfurization technology and equipment; VOCs adsorption recovery device; VOCs incineration device; unorganized emission control technology and equipment for furnaces and stockyards; catering industry oil fume purification equipment

56. Technical equipment for sewage control: complete set of equipment for urban sewage treatment (phosphorus and nitrogen removal); technical equipment for sludge hydrolysis and anaerobic digestion; technical equipment for sludge drying and incineration (with slag reduction of more than 90%); submerged membrane bioreactor (COD removal rate above 90%); ceramic vacuum filter (vacuum degree: 0.09 ~ 0.098 MPa, pore: 0.2 μ m ~ 20); the technology and equipment for the treatment of high concentration organic wastewater by super generation coupling method and biofilm process, and the treatment technology equipment for oil wastewater and chemical cabin washing water

57. Solid waste prevention and control technology and equipment: domestic waste clean incineration technology equipment (combustion supporting coal quantity less than 20%); kitchen waste centralized harmless treatment technology equipment (utilization rate above 95%); landfill leachate and odor treatment technology equipment (treatment capacity of more than 50 tons/day); domestic waste automatic separation technology equipment (separation rate more than 80%); construction waste treatment and reuse technology and equipment (with a treatment capacity of more than 100 tons/hour); industrial hazardous waste treatment and treatment technology and

equipment (with a treatment rate of more than 90%); oil field drilling waste treatment and disposal technology and complete sets of equipment (capacity reduction of more than 50%, treatment rate)More than 70%); medical waste clean incineration, high temperature cooking harmless treatment technology and equipment (treatment capacity of more than 150 kg/h, combustion efficiency of more than 70%), medical waste microwave, chemical disinfection technology and equipment; livestock and poultry manure centralized treatment technology equipment (treatment capacity of more than 20 tons/day)

58. Soil remediation technology and equipment: crushing and screening machine, odor control equipment, direct thermal desorption equipment, indirect thermal desorption equipment, soil leaching equipment, soil improvement machine, direct push drilling and sampling equipment

59. Roughing trolley, raise boring rig drilling, multi-functional crushing and plug cleaning machine, double system braking hydrostatic four-drive underground mining multi-functional service vehicle, mining portable gas detector, underground near ore body curtain grouting technology, underground electric locomotive remote control technology, paste and high concentration tailings filling technology and equipment, cutting well drilling rig

60. Technology development and equipment manufacturing of heat pump (ground source, water source, air source, *etc.*)

61. Development and production of power electronic transformer technology for core equipment of intelligent distribution network

62. Noise and vibration pollution control equipment: sound barrier, muffler, damping spring vibration isolator

63. Additive manufacturing equipment and special materials

XV. Urban rail transit equipment

1. Application of shock absorption and noise reduction technology in Urban Rail Transit

2. Automatic fare collection system (AFC), door, platform screen door, coupler system, windshield system, fire alarm and automatic fire extinguishing system

3. Signal system based on wireless communication [including ATS, ATP and ATO]

4. AC traction drive system, braking system and core components (including IGCT, IGBT and SiC components), network control system, permanent magnet traction motor, DC high-speed switch, vacuum circuit breaker (GIS) and new intelligent switch devices

5. Lightweight application of car body, bogie, gearbox and interior decoration materials

6. Urban rail train regenerative braking absorption device, energy feedback, energy storage system

7. Testing instruments and monitoring system for rail transit

8. Fully automatic operation system (FAO), automatic train operation system (TACS) based on train vehicle communication, intelligent operation and maintenance system

9. Urban rail transit traction power supply system (Urban Rail Line Based on 25kV AC traction power supply system)

10. Magnetic levitation train, rubber wheel rail transit technical equipment

XVI. Automobile

1. Key automobile components: gasoline engine supercharger, eddy current retarder, hydraulic retarder, follow-up headlight system, LED headlight, digital instrument, solenoid valve for electronic control system actuator, low-floor large passenger car Special vehicle axles, air suspension, energy-absorbing steering system, large and medium-sized passenger car inverter air conditioners, high-strength steel wheels, commercial vehicle disc brakes, commercial vehicle tire burst emergency protection device, steering shaft electric power steering system (C- EPS), rack-and-pinion electric power steering system (R-EPS), idle start-stop system, high-efficiency and high-reliability electromechanical coupling system; dual-clutch transmission (DCT), electronically controlled mechanical transmission (AMT), 7-speed and above automatic Transmission (7-speed and above AT), continuously variable automatic transmission (CVT); high-efficiency diesel engine particulate trap; electronically controlled high-pressure common rail injection system and its injectors; high-efficiency supercharging system (maximum comprehensive efficiency ≥ 55%); Exhaust gas recirculation system; electric brake, electric power steering and their key components

2. Lightweight material application: high strength steel (in accordance with GB/T 20564 "high strength cold continuous rolling steel plate and strip for automobile" or GB/T 34566 "hot stamping steel plate and strip for automobile"), aluminum alloy, magnesium alloy, composite plastic, powder metallurgy, high strength composite fiber, *etc.*; application of advanced forming technology: 3D printing forming, expanding

application of laser tailor welded blanks, internal high pressure forming, hot forming of ultra-high strength steel plate (strength ≥ 980mpa, strength plastic product 20-50 Gpa%), flexible rolling forming, *etc.*; application of environmental protection materials: water-based coating, lead-free solder, etc

3. Key parts and components of new energy vehicles: high safety energy type power battery monomer (energy density ≥ 300wh/kg, cycle life ≥ 1800 times); battery cathode material (specific capacity ≥ 180MAH/g, cycle life 2000 times no less than 80% of the initial discharge capacity), battery negative material (specific capacity ≥ 500mah/g, cycle life 2000 times no less than the initial discharge capacity)80%), battery separator (thickness ≤ 12 μ m, porosity 35%-60%, tensile strength MD ≥ 800kgf/cm2,TD ≥ 800kgf/cm2); battery management system, motor controller, electric vehicle electronic control integration; electric vehicle drive motor system (high efficiency area: 85% working area efficiency ≥ 80%), vehicle DC/DC (input voltage100v-400v), high-power electronic devices (IGBT, voltage level ≥ 750V, current ≥ 300A); plug-in hybrid electric electromechanical coupling drive system; fuel cell engine (mass specific power ≥ 350W/kg), fuel cell stack (volume specific power ≥ 3KW/L), membrane electrode (Platinum dosage ≤ 0.3g/kW), proton exchange membrane (proton conductivity ≥ 0.08s/cm), bipolar plate (metal bipolar plate thickness)Temperature ≤ 1.2mm, thickness of other bipolar plates ≤ 1.6mm), low platinum catalyst, carbon paper (resistivity ≤ 3M Ω· cm), air compressor, hydrogen circulation pump, hydrogen ejector, humidifier, fuel cell control system, boost DC/DC, 70MPa hydrogen bottle, on-board hydrogen concentration sensor; heat pump air conditioner for electric vehicle; 32-bit and above chips for motor drive control (no less than 2Hardware core, main frequency no less than 180mhz, hardware encryption and other functions, the chip design meets the requirements of functional safety ASIL C above); integrated electric drive assembly (power density ≥ 2.5kw/kg); high speed reducer (maximum input speed ≥ 12000rpm, noise < 75db)

4. On board charger (efficiency ≥ 95% under full load output condition), bidirectional on-board charger, off-board charging equipment (output voltage 250v-950v, efficiency within voltage range ≥ 88%); wireless charging, mobile charging technology and equipment with high power density, high conversion efficiency and high applicability, rapid charging and power exchange facilities

5. Automotive electronic control system: engine control system (ECU), transmission control system (TCU), anti-lock brake system (ABS), traction control (ASR), electronic stability control (ESC), network bus control, on-board fault diagnosis Instrument (OBD), electronically controlled intelligent suspension, electronic parking system, electronic throttle, lane keeping assist system (LKA), automatic emergency braking

system (AEBS), electronic control system (EBS), axles for trucks Load automatic measurement system, *etc.*

6. R&D capacity building of intelligent vehicles, new energy vehicles and key components, and efficient internal combustion engines for vehicles

7. Key components and technologies of Intelligent Vehicles: sensors, on-board chips, central processing unit, on-board operating system and information control system, vehicle network communication system equipment, visual recognition system, high-precision positioning device, wire control chassis system, safety glass for intelligent vehicles; new intelligent terminal module, multi-core heterogeneous intelligent computing platform technology, high-precision all-weather complex traffic scene degree positioning and mapping technology, sensor fusion sensing technology, vehicle wireless communication key technology, basic cloud control platform technology; new security isolation architecture technology, hardware and software collaborative attack identification technology, terminal chip security encryption and application software security protection technology, wireless communication security encryption technology, security communication and authentication authorization technology, data encryption technology; test and evaluation. Research and development of architecture, virtual simulation, real vehicle road test and other technology and verification tools, vehicle level and system level test evaluation methods, test infrastructure database construction

XVII. Ships

1. Bulk carriers, oil tankers and container ships are optimized and upgraded to meet the requirements of green, environmental protection and safety, as well as the development and construction of ship types that meet the new international shipbuilding standards

2. LNG carriers with more than 100000 cubic meters, LPG carriers with more than 15000 cubic meters, container ships with more than 10000 containers, automobile carriers with 5000 parking spaces and above, luxury Ro Ro passenger ships, chemical carriers above IMO II, large and medium-sized luxury cruise ships, RO Ro vehicles with more than 2000 parking spaces, Ro Ro cargo ships with more than 3000 m lanes, and LNG such high-tech and high value-added ships as refueling ships, livestock carriers, methanol (ethane) carriers, oil-electric hybrid ships, battery driven ships and multi-purpose ships, polar cruise ships, polar transport ships, polar multi-purpose ships, polar geophysical exploration ships, *etc.*

3. Large scale ocean fishing and processing fishing vessels, trailing suction dredgers of more than 10000 cubic meters, train ferries, scientific investigation ships, ice breakers, marine survey ships, deck transport ships, Marine Supervision vessels and other special vessels and their special equipment

4. Such as hovercraft, hovercraft, swath, *etc.*

5. Mainstream ocean mobile drilling platforms (ships) such as jack-up drilling platforms with water depths of 120 meters and above, deep drilling ships of 1500 meters and above, semi-submersible drilling platforms with water depths of 1500 meters and above (ships); floating production storage and unloading devices of 150,000 tons and above (FPSO), 1500m water depth semi-submersible production platform, column-type production platform (SPAR), tension leg platform (TLP), LNG-FPSO, marginal oil field type floating production storage device and other floating production systems; 10,000 horsepower water Class-class deep-water three-purpose work ship, 1500-meter water-depth large-scale crane pipe-laying ship, 1500-meter water-depth engineering survey ship, high-performance geophysical survey ship, semi-submersible transport ship of 50,000 tons and above, offshore windmill installation ship, floating storage and regassing Chemical equipment (FSRU), deep-water dynamic positioning crude oil transportation equipment, ultra-deep-water marine work industry ships, deep-sea large-scale aquaculture equipment, heavy lift ships with a lifting capacity of more than 10,000 tons, natural gas hydrate drilling and mining ship equipment, seabed metal mineral resource exploration Development equipment, heavy-duty construction platforms for islands and reefs, offshore oilfield facilities dismantling devices and other offshore engineering work ships and auxiliary ships

6. Dynamic positioning system, FPSO single point mooring system, large offshore platform power station integrated system, main power and transmission system, drilling platform lifting system, underwater oil and gas production system and other general and special offshore engineering supporting equipment

7. Yacht development and manufacturing and supporting industries

8. Intelligent environment-friendly medium and low speed marine diesel engine and its key parts, large deck machinery, marine boiler, oil-water separator, seawater desalination device, ballast water treatment system, shore power technology and equipment for ships, LNG marine dual fuel engine, pod thruster, straight wing rudder propeller propulsion device, large-scale high-efficiency water jet propulsion device, high-power medium and high-voltage generator, ship communication navigation and automation system, integrated electric propulsion system and key equipment, ship tail gas treatment device, waste heat recovery system, bimetallic gas valve, large marine

waste incinerator, domestic sewage treatment system, cargo oil system and other key marine supporting equipment

9. Subsea mining robot, seabed trencher and other submarine mineral resources development equipment, deep-sea mining system, deep-sea riser related supporting systems and equipment, underwater vehicles, robots and detection and observation equipment

10. Precision management control, digital shipbuilding, unit assembly, pre-outfitting and modularization, advanced painting, high-efficiency welding technology application, ultra-high pressure water rust removal device, laser welding robot, intelligent segmented assembly line, ship group vertical welding production line, ship medium group vertical welding workstation, ship segmented intelligent coating robot, ship pipe processing production line, ship hull small parts free edge grinding production line

11. High tech and high value-added ships, repair and modification of marine engineering equipment, and application of green ship repair technologies such as wall climbing robot and high-pressure intelligent cleaning robot

12. Development of intelligent ship and unmanned ship, development of relevant intelligent system and equipment, development of supervision technology and equipment of ship life-cycle safety operation

13. Safe, energy-saving and environmental protection inland river, river sea intermodal transportation and coastal ship development and manufacturing

14. Production and manufacture of "broken connecting rod"

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 to optimize powertrain system matching

XVIII. Aerospace

1. Development and manufacturing of trunk lines, branch lines, general aircraft and parts

2. Development and manufacturing of aeroengine

3. Development and manufacturing of airborne equipment, mission equipment, air traffic control equipment and ground support equipment system

4. Helicopter overall, rotor system, transmission system development and manufacturing

5. Development and production of new materials for Aerospace

6. Manufacturing of aerospace gas turbine

7. Manufacturing of satellite, launch vehicle and parts

8. Aerospace Technology Application and system software and hardware products, terminal product development and production

9. Development and manufacture of aircraft ground simulation training system and test system

10. Development and manufacture of aircraft ground maintenance, maintenance and testing equipment

11. Satellite ground and application system construction and equipment manufacturing

12. Development and application of aircraft emergency rescue equipment

13. Aircraft, equipment and parts maintenance

14. Development and production of advanced satellite payload

15. UAV system, materials, communication, control system development and manufacturing

16. Civil aircraft and helicopter design

17. Development and production of solar cells for Aerospace

XIX. Light industry

1. Construction of integrated forest paper production lines with chemical wood pulp of 300000 tons/year and above, chemical mechanical wood pulp of 100000 tons/year and above, and corresponding supporting paper and paperboard production lines (except newsprint and coated paper) with single chemical wood pulp of 300000 tons/year or above, chemical mechanical wood pulp of 100000 tons/year and above and corresponding supporting paper and paperboard production lines (except newsprint and coated paper); adopt clean production process, take non wood fiber as raw material, single 10 tons/year. Construction of pulp production line of 10000 tons/year and above; development and manufacture of advanced pulping and papermaking equipment; development and application of ECF and TCF chemical pulp bleaching process

2. Precision mold design and manufacturing of non-metallic products

3. Development, production and application of biodegradable plastics and their series of products, agricultural plastic water-saving equipment and long-life (three years or more) functional agricultural films

4. New plastic building materials (high air tightness and energy saving plastic windows, large diameter drainage and sewage pipes, impact resistant modified PVC pipes, polyethylene pipes for ground source heat pump system, non excavation plastic pipes, composite plastic pipes, plastic inspection wells); impermeable geomembrane; production of plastic wood composite materials and ultra high molecular weight polyethylene pipes and plates with molecular weight ≥ 2 million

5. Technology application and equipment manufacturing of dynamic plasticization and plastic drawing rheological plasticization; plastic processing equipment applying electromagnetic induction heating and servo drive system

6. Special ceramic production, technology and equipment development applied in industry, medicine, electronics, aerospace and other fields; clean production and comprehensive utilization technology development of ceramics

7. High efficiency and energy-saving sewing machinery (adopting advanced technologies such as embedded digital control, oil-free or micro oil lubrication) and key parts development and manufacturing

8. R&D and manufacturing of multi station modular machine tools for pen making, clocks and other industries

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

10. Manufacturing of special necessities for ethnic minorities

11. Vacuum aluminizing, spraying silicon oxide, polyvinyl alcohol (PVA) coating film, functional polyester (PET) film, oriented polystyrene (OPS) film and paper-plastic multi-layer co extrusion or composite packaging materials

12. Two color and above metal plate printing, supporting UV, thin film coating and high-speed food and beverage can processing and supporting equipment manufacturing

13. Lithium iron disulfide, lithium sulfite chloride and other new lithium primary batteries; lithium ion battery, nickel hydrogen battery, new structure (bipolar, lead cloth level, winding type, tube type, *etc.*) sealed lead battery, lead carbon battery, super battery, fuel cell, lithium/carbon fluoride battery and other new batteries and supercapacitors

14. Lithium iron phosphate and other cathode materials, mesophase carbon microspheres and silicon carbon anode materials, single-layer and three-layer composite lithium-ion battery separator, fluoroethylene carbonate (FEC) and other electrolytes and additives; waste battery recycling and green recycling production technology and equipment manufacturing

15. Automatic and intelligent production line for lead-acid battery; complete set of manufacturing equipment for automatic and intelligent production of lithium-ion battery; complete set of automatic and intelligent production equipment for alkaline zinc manganese battery with more than 600 pieces/min

16. Clean production of leather and fur processing, new technology development and key equipment manufacturing of leather finishing, comprehensive utilization of chrome containing leather solid waste; recycling of leather and fur processing waste liquid, comprehensive utilization of trivalent chromium sludge; non ash swelling (Assistant), ammonia free deashing (Assistant), salt free pickling (Assistant), high absorption chrome tanning (Assistant), natural vegetable tanning agent, water-based. Development, production and application of functional chemical products for high grade leather such as finishing agent

17. Technology development, product production and mercury fixation production process application of high and low pressure discharge lamps and solid state lighting products; recycling of waste lamps

18. Development and production of household appliances in line with national level 1 or level 2 energy efficiency

19. Development and production of surfactants, auxiliaries and detergents with multi effect, energy saving, water saving and environmental protection

20. The development and manufacture of a new type of refrigerant instead of HCFCs-22 (HCFC-22 or R22), and the use of new foaming agent instead of HCFCs -141b (HCFC-141b) for the production of household electrical appliances, the production and application of new rigid polyurethane foam with new foaming agent instead of HCFCs -141b (HCFC-141b).

21. Design and application of energy-saving and environment-friendly glass furnace (including all electric melting, electric melting, all oxygen combustion technology, low nitrogen combustion technology with NOx concentration $\leq$ 1200mg/m^3); DCS energy-saving automatic control technology of glass furnace

22. Development and production of technology and key equipment for lightweight glass bottle (lightness $\leq$ 1.0)

23. Water based ink, UV curable ink, vegetable oil ink and other energy-saving and environmental friendly ink production

24. New technology development and production of natural food additives and natural spices

25. R&D and manufacturing of advanced food production equipment; R&D and production of food quality and safety monitoring (detection) instruments and equipment

26. Development and production of high value-added plant drinks, such as tropical juice, berry juice, cereal beverage, herbal beverage, tea concentrate, tea powder, plant protein beverage, *etc.*; and the comprehensive development and utilization of fruit residue and tea residue

27. Development and production of nutritious and healthy rice, wheat flour (special rice for food, germinated brown rice, reserved embryo rice, special flour for food, whole wheat flour and nutrition fortified products, *etc.*) and products; industrialized production of traditional staple food; development and production of special equipment for coarse grain processing; and development and application of key technologies for comprehensive utilization of by-products of grain and oil processing (rice husk, rice bran, bran, germ, cake, *etc.*)

28. Rapeseed oil production line: using technologies such as puffing, negative pressure evaporation, self-balancing utilization of heat energy, and low-consumption steam vacuum system, the main rapeseed production area processes 400 tons or more of rapeseed per day and consumes less than 1.5 kilograms of solvent per ton (in western China) Daily processing rapeseed 200 tons or more, solvent consumption per ton material less than 2 kg); peanut oil production line: main peanut production area processing peanuts 200 tons or more per day, solvent consumption per ton material less than 2 kg; cottonseed oil production line: cottonseed production area daily processing Cotton seed 300 tons and above, solvent consumption per ton material less than 2 kg; rice bran oil production line: using dispersed and rapid expansion, centralized oil production and refining technology; corn germ oil production line; oil tea seeds, walnuts and other woody oils and flax, sesame, sunflower seeds, Peony seeds and other small varieties of oil processing production lines and the use of supercritical carbon dioxide extraction technology to produce vegetable oils

29. Use fermentation process to produce small varieties of amino acids (except lysine, glutamic acid, and threonine), use molasses as raw material to produce 8,000 tons or more of yeast products and yeast-derived products, new enzyme preparations and complex enzyme preparations, and multiple Development, production and application of sugar alcohols, biological chemical polyols, functional fermentation products

(functional sugars, functional red yeast rice, fermentation antioxidants and compound functional ingredients, active peptides, microecological preparations), *etc.* Enzyme production technology development and industrialization and standardized production

30. Comprehensive utilization and harmless treatment of by-products such as animal bone, blood, feather, and viscera

31. Technical development and production of enamel electrostatic powder and enamel pre grinding powder

32. Development and manufacture of high efficiency, energy saving and environmental protection gas appliances, such as condensing gas water heater, gas stove using shaped energy combustion technology

XX. Textile

1. Continuous copolymerization modification of differentiated and functional polyester (PET) [Cation 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.*]; Differentiation of flame retardant, antistatic, anti-ultraviolet, antibacterial, phase change energy storage, photochromic, original solution coloring, *etc.*, High-efficiency and flexible preparation technology of functional chemical fibers; Intelligent, super-simulation and other functional chemical fiber production; original development of green, high-efficiency, environmentally friendly oils for high-speed spinning processing

2. The development, production and application of new types of polyester and fiber, such as poly (propylene terephthalate) (PTT), polyethylene naphthalate (PEN), polybutylene terephthalate (PBT), polybutylene succinate (PBS), poly (cyclohexane dimethyl terephthalate) (PCT), bio based polyamide, bio based furan ring, etc

3. New solvent cellulose fiber (Lyocell), bacterial cellulose fiber, regenerated cellulose fiber based on bamboo, hemp and other renewable resources, polylactic acid fiber (PLA), seaweed fiber, chitosan fiber, polyhydroxyfatty acid ester fiber (PHA), animal and plant protein fiber were produced by green and environmental protection technology and equipment

4. Development, production and application of high performance fibers and products [carbon fiber (CF) (tensile strength ≥ 4200mpa, elastic modulus ≥ 230gpa), aramid fiber (AF), polysulfone fiber (PSA), ultra high molecular weight polyethylene fiber (UHMWPE) (single line capacity of spinning production unit ≥ 300t/A, breaking

strength ≥ 40cn/dtex, initial modulus ≥ 1800cn/dtex), polyphenylene sulfide fiber (PPS), poly (phenylene sulfide) (PPS), poly (ethylene terephthalate) (UHMWPE) (single line capacity ≥ 300t/A, breaking strength ≥ 40cn/dtex, initial modulus ≥ 1800cn/dtex)PI, PTFE, PbO, pod, BF, SiCf, peek, ht-ar, PIPD, PIPD, etc

5. The processing technology and products of special animal fiber, hemp fiber, mulberry tussah silk, colored cotton and colored mulberry cocoon silk meet the environmental protection requirements

6. Establish intelligent spinning factory, adopt intelligent and continuous spinning equipment (such as blowing carding unit, coarse and fine connection, numerical control single machine, air jet vortex spinning, high-speed rotor spinning and other short process advanced spinning equipment) to produce high-quality yarn; adopt high-speed numerical control shuttleless loom, automatic warp knitting machine, fully formed computerized flat knitting machine, high-speed computerized flat knitting machine, high-speed warp knitting machine and other new types of yarn high quality textile, knitting equipment, high count knitting machine

7. Using digital intelligent printing and dyeing technology and equipment, dyeing and finishing clean production technology (enzyme treatment, high efficiency short flow pretreatment, knitted fabric continuous pre-treatment, low temperature pretreatment and dyeing, low salt or salt free dyeing, low urea printing, small bath ratio air or gas liquid dyeing, digital inkjet printing, foam finishing, *etc.*), functional finishing technology, new dyeing processing technology, composite. Fabric processing technology, production of high-grade textile fabrics; intelligent cheese dyeing technology and equipment development and application

8. Using nonwovens, woven, knitting, knitting and other processes, and a variety of process composite, long-term finishing and other new technologies, the production of functional industrial textiles

9. Intelligent, high efficiency, low energy consumption textile machinery, key special basic parts, measurement, testing instruments and test equipment development and manufacturing

10. Production of high-grade carpet, draw yarn and embroidery products

11. Digital, network, intelligent clothing production technology and equipment development and application

12. Biological degumming in textile industry, sizing without polyvinyl alcohol (PVA), printing and dyeing processing with less water and no water and energy saving,

promotion and application of "three wastes" efficient treatment and resource recovery and reuse technology

13. R&D and application of waste textile recycling technology and equipment, production of high value-added products such as polyester industrial yarn, differential and functional polyester filament, nonwoven materials, *etc.*

XXI. Architecture

1. R&D and promotion of seismic isolation structure system and products

2. Research on manufacturing and integration technology of intelligent building products and equipment

3. Central heating system measurement and control technology, product development and promotion

4. Application of high strength and high performance structural materials and systems

5. Building integrated with solar thermal utilization and photovoltaic power generation application

6. R&D and promotion of advanced and applicable complete sets of building technologies, products and residential components

7. R&D and promotion of steel structure residential integrated system and technology

8. Energy saving building, green building, prefabricated building technology, product development and promotion

9. Factory full decoration technology promotion

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

11. Building information model (BIM) related technology development and Application

12. R&D and engineering application of seismic strengthening technology for existing buildings

13. R&D and promotion of prefabricated 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. The three-dimensional urban management information system based on basic geographic information resources

3. Public transport construction

4. Urban road and intelligent transportation system construction

5. Urban traffic control system technology development and equipment manufacturing

6. Construction of new urban and municipal rail transit lines (including light rail and tram)

7. Urban safe drinking water project, water supply source and water purification plant project

8. Construction of common trenches for urban underground pipelines, underground pipeline network geographic information system

9. Urban water supply and drainage pipe network engineering, pipe network inspection, testing, repair and transformation projects, trenchless construction and repair technology, leak detection equipment for water supply pipe network, related technology development and equipment production

10. City gas engineering

11. Urban central heating construction and renovation project

12. Urban rainwater collection and utilization project

13. Urban landscaping and ecological community construction

14. Renovation of existing parking facilities; construction of intensive parking facilities such as parking buildings, underground parking lots, mechanical three-dimensional parking garages; parking lots with electric vehicle charging facilities

15. Urban construction management information technology application

16. Application of key technologies in urban ecosystem

17. Development and application of urban water-saving technology

18. Development and application of intelligent urban lighting, green lighting products and system technology

19. Reclaimed water utilization technology and engineering

20. Urban water supply, drainage, gas plastic pipeline application engineering

21. Urban emergency and backup water source construction project

22. Seawater water supply pipe network and seawater desalination projects in coastal towns

23. Development and application of urban water-logging monitoring and early warning technology, urban drainage and water-logging prevention projects

24. Development and application of key technology products for sponge city construction

25. Rapid purification equipment such as combined overflow pollution and initial rainwater, decentralized purification equipment

26. Technology development and application of City Information Model (CIM) based on big data, Internet of Things, GIS, *etc.*

XXIII. Railway

1. Construction of new railway lines

2. Reconstruction and expansion of existing railways and construction of special railway lines

3. Technical development and construction of passenger dedicated lines and high-speed railway systems

4. The technology and equipment of railway train, passenger and freight safety guarantee system, railway operation control and vehicle control system development and construction

5. Development and construction of railway transportation information system

6. AC drive electric locomotives of 7,200 kilowatts and above, AC drive diesel locomotives of 6,000 horsepower and above, CRH trains with speeds above 200 kilometers per hour, locomotives for plateaus above 3000 meters above sea level

Special rescue equipment for locomotives, plateau EMUs, large special trucks, and rolling stock

7. AC traction drive system, braking system and core components of main rail vehicles (Including IGCT and IGBT components)

8. Equipment of railway catenary, turnouts, buckle parts, traction power supply for railways with a speed of 200 kilometers and above

9. Application of power factor compensation technology for electrified railway traction power supply

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 dispatch and command

12. Concrete structure repair and durability improvement technology and material development

13. Railway passenger train toilet and ground receiving and treatment project

14. Railway GSM-R communication signal system

15. Development and construction of railway broadband communication systems such as LTE-R

16. Development and construction of digital railway and intelligent transportation

17. Vibration and noise reduction technological applications for high-speed railways or passenger dedicated lines with a speed of 300 kilometers and above

18. Intercity and city (suburban) railway

XXIV. Highway and road transportation (including urban passenger transportation)

1. National Expressway Network Project Construction

2. Reconstruction and upgrading of national and provincial trunk lines

3. Automobile passenger and freight station, urban bus station

4. Development and application of related technologies for expressway non-stop toll collection system

5. Development and construction of highway intelligent transportation, fast passenger and cargo transportation, and highway drop-and-hook transportation systems

6. Development and construction of highway management services and emergency support systems

7. Development and production of new materials for highway engineering

8. Road container and van transportation

9. Application of super long span bridge construction and maintenance technology

10. Application of construction and maintenance technology for long tunnels

11. Development and construction of rural passenger and cargo transportation network

12. Rural road construction

13. Development and construction of inter-city rapid system

14. Development and construction of taxi service dispatching information system

15. Construction of emergency evacuation routes for expressway vehicles

16. Low noise road technology development

17. Development and application of expressway rapid construction and maintenance technology and materials

18. City bus

19. Development and application of operating vehicle safety monitoring and recording system

20. Development and application of traffic safety and public security control equipment and technology for main highways

XXV. Water Transport

1. Construction of deep-water berths (10,000 tons in coastal areas, 1,000 tons in inland rivers and above)

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

3. Construction of transportation terminals on coastal land and islands

4. Large port loading and unloading automation project

5. Application of Marine Electronic Data Exchange System

6. Water traffic safety supervision and rescue system construction

7. Standardization of inland vessels

8. Technical renovation project of the old port area

9. Construction of port reception and disposal facilities and equipment manufacturing for ship pollutants, hazardous chemicals in ports and oil emergency facility construction and equipment manufacturing

10. Inland self-unloading container ship transportation system

11. Water high-speed passenger transportation

12. Port gantry crane oil-to-electricity-saving reconstruction project

13. Water ro-ro multimodal transportation

14. Construction of water operation industry information system

15. International cruise transportation and cruise home port construction

XXVI. Air Transport

1. Airport and supporting facilities construction and operation

2. Public air transportation

3. General aviation

4. Construction of air traffic control and communication navigation monitoring system

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

6. Aviation fuel refueling service and facility construction

7. Maritime air surveillance, patrol and search and rescue services and facility construction, construction of emergency landing sites for small aircraft

XXVII. Comprehensive Transportation

1. Construction and renovation of comprehensive transportation hub

2. Convenient transfer and luggage MRT system construction in comprehensive transportation hub

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

4. Construction of guidance system for integrated transportation hub

5. Construction of integrated service facilities for comprehensive transportation hubs

6. Disaster prevention and relief and emergency evacuation system of integrated transportation hub

7. Construction of a convenient freight forwarding system in a comprehensive transportation hub

8. Research and development, promotion and application of facilities and equipment for inter-modal passenger transport, ticketing integration and inter-modal products

XXVIII. Information Industry

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

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

3. Manufacturing and construction of satellite communication systems and earth station equipment

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

5. Narrowband Internet of Things (NB-IoT), broadband Internet of Things (eMTC) and other Internet of Things (sensor network), intelligent network and other new service network equipment manufacturing and construction

6. Manufacturing and construction of new business network equipment such as Internet of Things (sensor network)

7. Manufacturing and construction of broadband network equipment

8. Digital cellular mobile communication network construction

9. IP business network construction

10. Research and development of IPv6-based next generation Internet technologies and services, and development and manufacturing of network equipment, chips, systems and related test equipment

11. Satellite digital television broadcasting system construction

12. Construction of value-added telecommunications service platform

13. Manufacturing of equipment for 32-wavelength and above optical fiber wavelength division multiplexing transmission system

14. Manufacturing of 10GB/s and above digital synchronization series optical fiber communication system equipment

15. Routers, switches, base stations and other equipment supporting the communication network

16. Manufacturing of stratospheric communication system equipment

17. Manufacturing of digital mobile communications, mobile self-organized networks, access network systems, digital trunking communication systems and network equipment such as routers and gateways

18.Manufacturing of large and medium-sized electronic computers, multi-billion high performance computers, portable microcomputers, high-grade servers at one trillion times per second and above, large simulation systems, large industrial controllers and controllers

19. IC design, manufacturing of ICs with line width below 0.8 micron, and advanced packaging and testing such as ball grid array (BGA), pin grid array (PGA), chip scale package (CSP), multi-chip package (MCM), lattice array package (LGA), system-in-package (SIP), flip-chip package (FC), wafer level package (WLP), sensor package (MEMS), *etc.*

20. Integrated circuit equipment manufacturing

21. Manufacture of new electronic components (chip components, frequency components, hybrid integrated circuits, power electronics, optoelectronics, sensitive components and sensors, new electromechanical components, high-density printed and flexible circuit boards, *etc.*)

22. Materials for electronic products such as semiconductors, optoelectronic devices, new electronic components (chip devices, 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 cladding boards, *etc.*)

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

24. Digital system (software) development and application: embedded software for intelligent equipment, distributed control system (DCS), programmable logic controller (PLC), data acquisition and monitoring (SCADA), advanced control system (APC) and other industrial control systems; manufacturing execution system (MES), computer-aided design (CAD), auxiliary engineering (CAE), process planning (CAPP), product lifecycle management (PLM), industrial cloud platform, industrial APP and other industrial software; energy management system (EMS), building information model (BIM) system and other special systems

25. Semiconductor lighting equipment, photovoltaic solar energy equipment, chip device equipment, new power battery equipment, surface mount equipment (including

stencil printing machine, automatic placement machine, lead-free reflow soldering, photoelectric automatic inspection device), *etc.*

26. Printers (including high-speed barcode printers) and mass storage and other computer external equipment

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

28. Manufacturing of new (non-dispersive) single-mode optical fiber and optical fiber preform

29. Manufacturing of discs for high-density digital laser video disc players

30. Copy production of read-only optical discs and recordable optical discs

31. Audio and video encoding and decoding equipment, audio and video broadcasting transmitting equipment, digital television studio Equipment, digital television system equipment, digital television broadcasting single frequency network equipment, digital television receiving equipment, digital camcorders, digital recorders and players, digital television products

32. Development and manufacturing of network security products, data security products, and special equipment for network monitoring

33. Technical development and manufacturing of smart mobile terminal products and key components

34. Doppler radar technology and equipment manufacturing

35. Manufacturing of medical electronics, health electronics, bio-electronics, automotive electronics, power electronics, financial electronics, aerospace instrument electronics, image sensors, sensor electronics, *etc.*

36. Wireless local area network technology development, equipment manufacturing

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

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

39. Construction of emergency radio and television systems

40. Quantum communication equipment

41. Special equipment for the production of new display devices such as TFT-LCD, LED and OLED, electronic paper display, laser display and 3D display

42. Semiconductor lighting substrates, epitaxy, chips, packaging and materials (including high-efficiency heat dissipation copper-clad laminates, thermal conductive adhesives, thermal conductive silicone films), *etc.*

43. Development system for digital content products such as digital music, mobile media, animation games, *etc.*

44. Development and application of anti-counterfeiting technology

45. The core chip and related software of nuclear power instrument control system

46. Big data, cloud computing, information technology services and blockchain information services within the scope allowed by the state

47. Industrial Internet network, platform and security hardware equipment manufacturing and software system development and integration innovation application, industrial Internet equipment security, control security, network security, platform security and data security related technology and product development and application, industrial Internet network construction and transformation, logo analysis system construction and promotion, industrial cloud service platform construction and application.

48. Broadband digital trunking equipment, 230MHz band broadband wireless data transmission equipment using time division duplex (TDD) carrier aggregation and other next-generation private network communication equipment, LTE-V2X wireless

communication technology-based vehicle networking wireless communication equipment, *etc.*

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

50. Research and manufacturing of new mechanism computer systems such as quantum and brain-like

51. Advanced various types of solar photovoltaic cells and high-purity crystalline silicon materials (the comprehensive power consumption of polycrystalline silicon is less than 65kWh/kg, the conversion efficiency of monocrystalline silicon photovoltaic cells is greater than 22.5%, the conversion efficiency of polycrystalline silicon cells is greater than 21.5%, and the cadmium telluride battery The conversion efficiency of copper indium gallium selenium battery is greater than 17%, and the conversion efficiency of copper indium gallium selenium battery is greater than 18%)

XXIX. Modern logistics industry

1. Construction of chemical logistics facilities for important commodities such as coal, grain, cotton, iron ore, fertilizer, and petroleum

2. Construction of agricultural products logistics and distribution facilities, cold chain logistics of agricultural products, food and medicines, food and pharmaceutical logistics quality and safety control technical services

3. Modern supply chain innovation and application

4. Construction of multimodal transport facilities, rapid multimodal transport and reloading equipment, R&D, promotion and application of standardized carrying units

5. Promotion and application of standard pallets and 600mm×400mm packaging basic modules, manufacturing and use of environmentally friendly pallets with recyclable materials

6. Logistics information service technology, cargo tracking, identification and positioning technology, intelligent warehousing of picking and distribution technology, R&D and application of logistics information security technology

7. Construction and operation of emergency logistics, reverse logistics, and green logistics facilities

8. Development and construction of logistics public information platform

9. Construction and operation of logistics hub

10. Construction of public warehousing, vehicle parking, loading and unloading, charging and other supporting facilities required for urban logistics

XXX. Financial Service Industry

1. Construction of rural financial service system

2. Bond issuance and transaction service system construction

3. Agricultural insurance, liability insurance, credit insurance, commercial health insurance, property insurance

4. Development and application of inclusive financial products

5. Development of loan pledge business for intangible assets such as intellectual property rights and income rights

6. Credit card and network services

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

8. Development and application of financial supervision technology

9. Venture capital

10. The R&D, application and service output of fintech products of financial institutions

11. Green financial service system construction

12. Open banking system security protection

13. Financial guarantee services and financial leasing services

14. Asset securitization, real estate investment trusts (REITs) and other financial instruments to activate inventory assets and financial product development applications

XXXI. Technology Service Industry

1. Industrial design, meteorology, biology, new materials, new energy, energy saving, environmental protection, professional technology services such as surveying and mapping, oceanography, standardization services, measurement testing, quality certification and inspection and testing services, technology popularization

2. Online data and transaction processing, IT facility management and data center services, mobile internet services, Internet conference TV and image and other telecom value-added services

3. Industry (enterprise) management and informatization solution development, network-based software service platform, software development and testing services, information system integration, consulting, operation maintenance services such as protection and data mining

4. Digital content services such as digital music, mobile media, and online publishing, geographic, information resource development services in international trade and other fields

5. Supporting technology construction and services of emerging cultural technologies such as digital technology, high-fidelity technology, high-speed computing technology, *etc.*

6. Analysis, testing, testing and related technical consulting and R&D services, intelligent production design services such as product overall plan, ergonomic design, system simulation, *etc.*

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 evaluation services, password technology product testing and certification service, information system level protection security scheme design service

8. Science and technology information exchange, literature information retrieval, technical consultation, technical incubation, scientific research services such as evaluation of technological achievements, transfer and transformation of technological achievements, and technological certification

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

10. Constructions of National Engineering (Technology) Research Center, National Industrial Innovation Center, National agricultural high-tech industry demonstration, national agricultural science and technology park, nationally recognized enterprise technology centers, national laboratories, national key laboratories, major national science and technology infrastructure, high-tech entrepreneurship service center, green technology innovation base platform, new product development and design center, science and education infrastructure, industrial cluster comprehensive public service platform, pilot base, experiment bases

11. Advanced technologies such as information technology outsourcing, business process outsourcing, and knowledge process outsourcing service

12. Smart 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 consulting, equipment operation and maintenance and management services, industrial APP and equipment management software (SaaS)), data and digital services (PaaS, IaaS, data analytics services and other innovative data services)

14. Security services such as network security integration, security maintenance, security operations, risk assessment, education and training, consulting, emergency response, *etc.*

15. Cloud computing data center construction, maintenance, leasing, *etc.*

16. Information systems integration and IoT technical services, operation and maintenance services, information processing and storage support services, information technology consulting services, digital content services and other information technology services

XXXII. Business Service Industry

1. Services including economics, management, information, accounting, taxation, auditing, law, energy conservation, environmental protection

2. Engineering consulting services (including planning consulting, project consulting, evaluation consulting, process engineering consulting)

3. Credit service system construction such as credit investigation and rating

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

5. Property rights transaction service platform

6. Advertising creative, planning, design, production, agency, publishing and other advertising services

7. Exhibition services (excluding the construction of exhibition venues)

8. Supply chain management services (based on modern information technology to design, plan, control and optimize the logistics, commercial flow, information flow and capital flow in the supply chain, and integrate and integrate the single, scattered order management, procurement execution, customs tax rebate, logistics management, capital financing, data management, trade business, settlement, *etc.*)

XXXIII. Commercial service industry

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

2. Chain operation and comprehensive services of agricultural materials such as seeds, seedlings, breeding livestock and poultry and fry (seeds), chemical fertilizers, pesticides, agricultural machinery, and agricultural film

3. Chain operation of daily necessities such as daily necessities, medicines and publications for rural areas

4. Agricultural products auction service

5. Unified distribution and distribution network construction of commercial enterprises

6. Use information technology to transform and enhance traditional commodity trading markets

7. Second-hand goods market construction

8. Construction of a modern second-hand car transaction service system

9. New rural modern circulation service network project construction, application and demonstration of agricultural materials Internet of Things, and demonstrative project construction

XXXIV. Tourism

1. Development and marketing services for various outdoor activities such as tourist commodities, tourist souvenirs, tourist equipment and equipment, as well as leisure, mountaineering, skiing, diving, and adventure

2. Comprehensive development of cultural tourism, health tourism, rural tourism, ecological tourism, marine tourism, forest tourism, grassland tourism, industrial tourism, sports tourism, red tourism, ethnic customs tourism and other tourism resources, infrastructure construction and information services

XXXV. Postal Industry

1. Construction of postal savings network

2. Construction of integrated postal service network

3. Mail processing automation project

4. Construction of a public service information platform for postal services, such as security supervision of mail channels, time limit monitoring of express mail, consumer complaints, satisfaction surveys and publicity, postal codes and industry tariff inquiries, and market supervision functions, including public service information platform for the postal industry

5. Construction of urban and rural express service outlets, stores and other express service outlets and smart express mail (letters and packages) boxes and express terminal integrated service site

6. Construction of delivery facilities such as express sorting centers, transshipment centers, distribution centers and processing hubs in cities, regions and between regions

7. Development and application of express tracking query, automatic sorting, delivery scheduling, express customer service call center and other express information systems

8. R&D and application of express technical equipment including data collection, container, intelligent terminal, intelligent warehousing, automatic sorting, mechanized loading and unloading, cold chain express, AGV, drone, unmanned vehicle and green packaging

9. Technology development and application of mail express transportation and transportation network integration and multimodal transportation and operation platform

XXXVI. Education

1. Pre-school education

2. Special education

3. Vocational education

4. Internet + education, distance education

XXXVII. Hygiene

1. Construction of preventive health care, health emergency, and health supervision service facilities

2. Family planning, prenatal and postnatal care, reproductive health consultation and services

3. Internet + medical and health services, medical big data applications

4. Health consultation, medical knowledge and other medical information services and health management services

5. Construction of medical and health service facilities

6. Infectious diseases, children, mental health specialist hospitals and rehabilitation hospitals (centers), nursing construction and service of hospitals (centers, stations), tranquility care centers, general medical facilities

7. Psychological counseling service

8. TCM health care services

XXXVIII. Culture

1. Public culture, culture and art, press and publishing, radio, television and film, online video, cultural heritage protection and utilization, and facility construction

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

3. Radio, film and television production, distribution, trading, broadcasting, publishing, derivative development, network audio-visual program technical service and development

4. Technology development, application and industrialization of news publication content monitoring technology, copyright protection technology, production technology of publications, technology development and application of publication distribution, technology development, application and industrialization of new carriers of news publication such as electronic paper and readers.

5. Development and application of film digitization service and supervision technology

6. Protection and revitalization of intangible cultural heritage, protection and development of ethnic and folk arts, traditional arts and crafts, protection and development of national historical and cultural cities (towns and villages) and cultural districts, protection of villages and towns with characteristics of ethnic minorities, protection and development of Chinese time-honored brands, and international marketing and promotion of ethnic cultural and artistic products

7. Cultural information resource sharing project, construction of intelligent museums, integration of traditional and emerging media, construction of intelligent radio and television, mobile multimedia radio and television, digitalization of radio and television, intelligent collaborative coverage of cable and wireless satellite radio and television networks, intelligent construction of national cable television networks and construction of interoperability platforms

8. Development and application of language technology

9. Performing Arts

XXXIX. Sports

1. Sports management activities

2. Sports competition performance activities

3. Sports, fitness and leisure activities

4. Sports venue and facility management

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. Sales, rental and trade agency of sporting goods and related products

11. Sports facilities construction

XL. Elderly care and childcare services

1. Long-term care service institutions (including nursing homes, nursing homes for the elderly, and rural elderly facilities, *etc.*)

2. Backbone network of community elderly care services

3. Pension financial products and services

4. Meals and mobility

5. Senior education

6. Wellness tours

7. Training and education of elderly care services

8. Rehabilitation assistive device configuration service (rental) agency

9. Construction and renovation projects for aging homes

10. Development of human resources for the elderly

11. Elderly health management and physical fitness

12. Smart health and elderly care

13. Early childhood development (intellectual development, dietary nutrition, mental health)

14. Education and training of infant care

15. Infant care service institutions (centers)

16. Infant health management

17. Family parenting support and parenting guidance

XLI. Housekeeping services

1. Community housekeeping services

2. Employee-based housekeeping services

3. Housekeeping vocational education and skill training

4. Comprehensive housekeeping information service

5. Construction and operation management of housekeeping service measures (housekeeping service outlets)

6. Standardization of housekeeping services

XLII. Other service industries

1. Construction and management of affordable housing

2. Property services

3. Activity places for the elderly and minors

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

5. Construction and service of supporting public service platforms in development zones and industrial clusters

6. Community care services

7. Construction of a network system for recycling and utilization of renewable resources

8. Wedding service industry

9. Grassroots employment and social security service facilities construction

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

11. Social Security Card Project

12. Construction of Work Injury Rehabilitation Center

13. Rental housing construction, operation and management

14. Consumer rights protection services

XLIII. Environmental protection and comprehensive utilization of resources

1. Mine ecological environment restoration project

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

3. Co-utilization project of development and utilization of brackish water, brackish water, inferior water, seawater, and seawater desalination

4. Development and utilization of substitutes for ozone-depleting substances

5. Construction of recycling bases for regional scrap cars, scrap electrical and electronic products, scrap ships, scrap steel, waste wood, waste rubber and other resources

6. Technical engineering of effluent radiation environmental monitoring

7. Environmental monitoring system engineering

8. Construction and operation of a center for the development, manufacture and disposal of technical equipment for the safe disposal of hazardous waste (medical waste) and waste containing heavy metals; construction of a center for the

development, manufacture and disposal of technical equipment for the safe disposal of radioactive waste and nuclear facilities decommissioning project

9. Monitoring and prevention technology for mobile pollution sources (locomotives, ships, automobiles, *etc.*)

10. Urban traffic noise and vibration control technology application

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

12. Development and application of technologies to reduce and control dioxin emissions

13. Development and application of substitutes for persistent organic pollutant products

14. Development and application of disposal technology for waste persistent organic pollutant products

15. "Three Wastes" Comprehensive Utilization and Treatment Technology, Equipment and Engineering

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

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

18. Zero discharge of waste water, application of reuse water technology

19. Development of high-efficiency and low-energy wastewater treatment and regeneration technologies

20. Urban garbage, rural domestic garbage, rural domestic sewage, sludge and other solid waste reduction, recycling, harmless treatment and comprehensive utilization project

21. Waste landfill anti-seepage technology and materials

22. Development and application of technologies for energy saving, water saving, material saving, environmental protection and comprehensive utilization of resources and equipment manufacturing; to provide users with energy-saving, environmental protection, comprehensive resource utilization consulting, design, evaluation, testing, audit, certification, diagnosis, financing, transformation, operation management and other services

23. High-efficiency, energy-saving and environment-friendly mining and ore-dressing technologies (pharmaceuticals); technologies and equipment for the development and comprehensive utilization of low-grade, complex and difficult-to-treat ores

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

25. Comprehensive utilization of tailings, waste residue and other resources and manufacturing of supporting equipment

26. Renewable resources, construction waste recycling project and industrialization

27. Technology, equipment development and application of 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 scraps, waste (broken) glass, waste rubber, waste oil and other waste materials and other resources recycling technology

28. Scrap cars, construction machinery, mining machinery, machine tool products, agricultural machinery, recycling and re-manufacturing of waste electromechanical products and parts such as ships, ink cartridges, organic photo-conductor drums re-manufacturing (refilling), dismantling of large civil aircraft and engines, parts and components, reuse, re-manufacture

29. Comprehensive utilization of technical equipment: scrap steel crushing production line above 4000 horsepower; recycling equipment for waste plastic composite

materials (recovery rate over 95%); technology and equipment for the comprehensive utilization of light hydrocarbon petrochemical by-products; biomass energy technical equipment (power generation, oil production, biogas); sulfur recovery equipment (Cryogenic Claus process)

30. R&D and application of soil remediation technology containing persistent organic pollutants

31. Development and application of technologies to reduce and control heavy metal emissions

32. Treatment technology for industrial refractory organic wastewater

33. High-efficiency treatment technology for toxic, organic waste gas and malodor

34. Technology development and facility construction of kitchen waste resource utilization

35. Carbon capture, utilization and storage technology and equipment

36. Ice storage technology and its complete equipment manufacturing

37. Recycling of waste power batteries for electric vehicles: stepwise utilization, recycling, *etc.*, recycling of waste power batteries: automated dismantling technology and equipment; automated rapid sorting technology and equipment; battery remaining life and consistency evaluation technology and equipment; residual value evaluation technology and equipment; stepwise utilization technology and equipment; efficient recycling of positive electrode, negative electrode, separator, electrolyte and harmless treatment technology and equipment38. Waste wood material recycling project

39. Waste sorting technology, equipment and facilities

40. Third-party governance of environmental pollution

41. Volatile organic compounds reduction, resource utilization and terminal treatment and monitoring technology

42. Waste sulfuric acid cracking recovery technology

43. Resource utilization of industrial by-product salt

44. Green and efficient integrated technology for leaching and extraction of ionic rare earth ore

45. Advanced technology and equipment for waste heat recovery and utilization

XLIV. Public safety and emergency products

1. Development and Application of Harm Monitoring and Early Warning Technology of meteorology, earthquake, geology, ocean, flood and drought, urban and forest fire disasters

2. Development and application of monitoring and early warning technologies for biological disasters and animal epidemics

3. Development and application of safety automatic monitoring and alarm technology for dams and tailings ponds

4. Development and application of safety production monitoring and alarm technologies for coal, mines, *etc.*

5. Development and application of early warning technology for public transport accidents

6. Technology and products for rapid monitoring of water, soil and air pollutants

7. Development and application of food and drug safety rapid inspection technology, equipment and equipment

8. Test reagents and instruments for major epidemics and emerging infectious diseases

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

10. Traffic safety, urban public safety, terrorist attack safety, network and information system safety, police safety, special equipment safety, engineering construction safety, fire, major dangerous source safety monitoring, monitoring and early warning system, product technology development and application

11. Rapid detection of radioactive, drug and other contraband, nuclear, biological and chemical terrorist sources and other dangerous items testing technology and products

12. Development and application of hazardous chemical safety monitoring technology

13. Development and application of protective equipment for emergency rescuers

14. Household emergency protection products

15. Development and application of new lightning protection technology

16. Safe production and avoidance products and facilities for mines, engineering and hazardous chemicals

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

18. Life detection equipment

19. Intelligent, large, special, unmanned, high-performance fire fighting and rescue equipment

20. All-terrain ruin rescue equipment for buildings (structures)

21. All-terrain, high-mobility, multi-functional emergency rescue special vehicle and equipment emergency communications, emergency command, emergency power generation and power restoration, logistics support, *etc.*

22. High-efficiency rescue products such as detection, demolition, life-saving, lighting, smoke exhaust, leak plugging, transfer, decontamination, and lifting

23. Aviation emergency rescue equipment and equipment

24. Road emergency rescue equipment and facilities

25. Development and application of deicing and snow removal machinery and environmentally friendly deicing agents for public transportation facilities

26. Water (underwater and deep sea) emergency rescue technology and equipment

27. Construction and equipment of emergency facilities for vehicles, ports and other hazardous chemicals and oil products

28. Marine oil spill and toxic and hazardous material leakage emergency treatment technology and equipment

29. Toxic and hazardous liquid rapid absorption and treatment technology and equipment, mobile medical waste rapid treatment device, hazardous waste characteristics identification special equipment and other environmental protection technology and equipment in emergencies such as environmental disasters.

30. Aviation emergency medical system, mobile medical ambulance system, sanitary emergency sterilization supply equipment, life support, treatment, monitoring integrated emergency and evacuation platform

31. Vaccines and medicines for the prevention and control of public health emergencies and biological events

32. Anti-terrorism operations technical equipment and reconnaissance and control technology; anti-terrorism integrated combat platform technology, anti-nuclear terrorist robots, emergency explosion-proof vehicles, medium-sized anti-terrorism explosion-proof robots, explosion-proof trailers, explosives destroyer, *etc.*

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

34. Emergency logistics facilities and services

35. Emergency consultation, evaluation, training, leasing and insurance services

36. Construction of emergency material reserve infrastructure

37. Construction of emergency rescue base and public emergency experience infrastructure

38. New fire-resistant coatings, fire-resistant materials, fire-prevention and explosion suppression devices, and building fire-resistant components

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

40. Safety monitoring system based on Beidou navigation satellite

41. Development and application of digital mining technology, and development of safety production simulation training technology and application, safety technology of fine-grained tailings mould bag method

42. Development and application of technology for rapid acquisition of earthquake disaster information, measurement technology development and application for exploration of seismic active faults

43. Development and application of rapid identification technology for coal mine water inrush and water source

44. Rapid testing equipment for fire product quality

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

46. Rapid safety monitoring equipment for production and domestic water

47. Special types of protection products

48. Development and application of important infrastructure safety, social public safety, agriculture, forestry and meteorology, biological disasters prevention and protection technology

49. Coal mine gas, thermodynamic, water damage and other major disasters emergency rescue and relief, as well as hazardous chemical risk monitoring, safety prevention and control and emergency disposal sets of technology and equipment

50. Large-scale, multi-functional engineering rescue equipment

51. Special equipment and equipment for flood prevention and rescue

52. Artificial Weather Modification Operation System

53. Nuclear accident emergency response technology and equipment

54. Epidemic disease quarantine and disposal technology and equipment

55. Special equipment accident rescue technology and equipment

56. Emergency monitoring technology and equipment for flood and drought disasters

57. Intelligent identification technology and equipment for flood and drought disaster risk

58. Self-organized network cluster emergency communication technology and equipment for flood prevention and rescue

59. Technical equipment for emergency water search and well drilling for drought relief

60. Compilation technology and application of typhoon risk zoning map

61. Major disaster accident emergency rescue base-based logistics support key technical equipment

62. Key technical equipment for intelligent unmanned emergency rescue of major accidents and disasters

63. Research and application of key technologies and equipment for disaster site resettlement equipment in plateau alpine regions

64. Efficient and intelligent deicing and snow removal equipment for rain, snow and freezing disasters

65. Light-duty modular engineering rescue equipment for complex environments

66. Research and application demonstration of key technologies for prevention and control of dam-break disasters in large-scale high tailings reservoirs

67. Construction of emergency facilities for flood control and drought relief

68. Development and application of new technologies and products for flood control and drought resistance

69. Development and application of heat transfer identification plate production

XLV. Civil explosive products

1. Safety, environmental protection and energy-saving industrial explosives and bulk industrial explosives without detonator inductance; on-site mixed production; on-site mixed production using latex matrix centralized preparation and remote distribution; on-site mixed explosives technology for underground mines, large chambers, roads and railways tunnels; integrated research, production and blasting services for explosives; application of decommissioned fire (explosive) in industrial explosives, special explosives

2. Intelligent production technology and equipment for industrial explosives, unmanned workshop for industrial explosives; online monitoring and self-diagnosis technology for production line; high-precision loading measurement technology and online parameter detection technology for on-site mixed production; intelligent control platform for the whole process of on-site mixed production; informationized and visualized intelligent network supervision platform for production and sales (including warehousing); technology and equipment for safe and environmentally friendly recycling and reuse of waste and hazardous materials and unqualified products

3. New types of detonating equipment; digital electronic detonators; industrial detonator finished martyrdom prevention safety technology and basic detonator intensive production, remote distribution and safe packaging; digital electronic

detonators with electronic ignition elements (including electronic control modules and ignition elements) centralized production and remote distribution model; industrial detonating cords with serialized charge quantities

4. Modular, automatic and continuous equipment for high-risk production processes, safe and environmentally friendly waste (material) destruction equipment; intelligent production process and equipment for pyrotechnic agents and products, unmanned workshop for industrial detonator production lines; automatic collection, storage and traceability analysis system for process parameters, man, machine, material and ring data at quality control points in the production process; non-occupational hazards, safety and environmental protection, high degree of informatization of product performance testing methods; industrial detonating cord production process automation equipment for adding explosives, winding, coiling, tail sealing and packaging

5. Automated explosive production process; stable and controllable shock source pillar products that can periodically fail, the application of water-containing explosives in the shock source pillar; serialized and generalized shotgun products; reliable, diversified, efficient and environmentally friendly man-made weather-impacting combustion equipment; annealing (explosive) explosives in industrial explosive products

6. Process data visualization, production data online collection, automatic detection of safety parameters of industrial explosives products production process; starting explosives manufacturing, high intrinsic safety level, continuous, intelligent melting, mixing, pouring, unmolding and other processes of the process equipment; shock source pillar automatic loading, automatic assembly process equipment; shotgun shells automatic loading, automatic suppression of the process equipment

7. Industrial explosives production line where the total number of operators in the dangerous workshop is not more than 3; production line where the production of detonators is intelligent, no fixed operators in the fusion and mixing injection

workshop, and the total number of operators in the single demoulding inspection and packing workshop is not more than 5 (inclusive); production line where the production of shock source pillars realizes continuous, automatic, informatized and flexible intelligent manufacturing, and the number of operators in a single dangerous workshop of level 1.1 is not more than 3 (inclusive) mechanized, man-machine isolation.

XLVI. Human Resources and Human Capital Service Industry

1. Human resources and human capital informatization construction

2. Human resource service and human capital service industrial park and platform construction

3. Human resource recruitment, employment and entrepreneurship guidance, human resource and social security affairs agency, human resource training, labor dispatch, human resource assessment, human resource management consulting, human resource service outsourcing, senior talent search, human resource information software services, *etc.*

4. Human capital valuation, evaluation and transactions, human capital valuation 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 market and supporting service facilities

7. Construction of employment service platform for rural labor transfer

XLVII. Artificial Intelligence

1. Artificial intelligence chip

2. Industrial Internet, public systems, digital software, intelligent equipment system integration technology and application

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

4. Research and application of virtual reality (VR), augmented reality (AR), speech semantic image recognition, multiple sensor information fusion and other technologies

5. Typical industry application systems such as unmanned autonomous systems

6. Artificial intelligence standard testing and intellectual property service platform

7. Key technology and equipment for intelligent manufacturing, transformation of intelligent manufacturing plants and parks

8. Intelligent human-computer interaction system

9. Wearable devices, smart robots, smart homes

10. Intelligent medical, medical imaging auxiliary diagnosis system

11. Intelligent security, video image identification system

12. Intelligent transportation, intelligent vehicles

13. Smart Education

14. Smart City

15. Smart agriculture

Category II Restriction

I. Agriculture and forestry

1. Overload grazing on natural pastures

2. Single-line 50,000 m³/year or less general particleboard and high-density fiberboard production plant

3. Wooden particleboard production equipment with a single line of less than 30,000 cubic meters per year

4. Rosin production projects with an annual output of less than 1,000 tons

5. Veterinary Powder/Dispersion/Premix Production Line Project (except for species with a New Veterinary Drug Certificate and automated closed high efficiency mixing process)

6. Production line for veterinary cell seedlings in trans-bottled culture (except for species with new veterinary drug certificate and new technology)

7. Primary processing project of rosin

8. Production and use of disposable wood products and wood packaging made from high-quality forest wood and underutilized wood and bamboo processing in general

9. Plywood and blockboard production lines with an annual output of less than 10,000 cubic meters

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. Lakes and reservoirs that do not meet the requirements of ecological breeding

13. Wasteland agricultural development projects that are not conducive to ecological environment protection

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

15. Grain to ethanol and edible vegetable oil material to biofuel projects that do not comply with national planning and industrial policies

16. Development projects that destroy woodland, wetland and grassland

II. Coal

1. Coal mines with less than 300,000 tons/year (less than 1.2 million tons/year in Shanxi, Inner Mongolia and Shaanxi, and less than 600,000 tons/year in Ningxia), and mines with less than 900,000 tons/year of protruding coal and gas.

2. Coal mine projects using non-mechanized mining technology

3. Coal mine projects where the recovery rate of coal resources cannot meet the requirements of national regulations

4. Coal mine projects that have not submitted the overall planning of the mining area in accordance with the procedures prescribed by the state

5. Coal mine projects with more than 2 underground mining working faces

6. Coal mines of which mining depth exceeds the requirements of the Coal Mine Safety Regulations, coal mines of which product quality does not meet the requirements of the Interim Measures for the Management of Commodity Coal Quality, and coal mines whose mining technology and equipment are listed in the restricted list of the Policy Guidelines for Coal Production Technology and Equipment (2014 Edition) and cannot be technically upgraded

III. Electricity

1. Wet-cooled generating sets that consume more than 300 grams of standard coal/kWh for power generation and air-cooled generating sets that consume more than 305 grams of standard coal/kWh for power generation within the coverage area of the large power grid

2. Diversion hydroelectric power generation without ecological flow

IV. Petrochemical industry

1. Newly build atmospheric and vacuum plants with an annual capacity of less than 10 million tons, catalytic cracking plants with an annual capacity of less than 1.5 million tons, continuous reforming (including aromatics extraction) under 1 million tons per year, hydrocracking production equipment under 1.5 million tons per year

2. New construction of naphtha cracking to ethylene below 800,000 t/a, acrylonitrile below 130,000 t/a, purified terephthalic acid below 1,000,000 t/a, ethylene glycol below 200,000 t/a, styrene below 200,000 t/a (except dry gas to ethylbenzene process), caprolactam below 100,000 t/a, ethylene-based acetic acid below 300,000 t/a, carbonyl synthesis acetic acid below 300,000 t/a, natural gas to methanol. (except natural gas with more than 20 per cent CO2), plants for the production of methanol from coal up to 1 million tonnes/year, plants for the production of methyl methacrylate from acetone cyanohydrin, acetone/butanol from grain, propylene oxide from chloritol and epichlorohydrin from saponification, plants for the production of saponins (with hydrolysates) up to 300 tonnes/year.

3. Construction of new production facilities for polypropylene of less than 70,000 tons/year, polyethylene of less than 200,000 tons/year, acetylene-based PVC, ethylene oxychloride PVC with a starting scale of less than 300,000 tons/year, polystyrene of less than 100,000 tons/year, acrylonitrile-butadiene-styrene copolymer (ABS) of less than 200,000 tons/year, general synthetic latex-carboxy styrene-butadiene adhesive (including styrene-butadiene latex) of less than 30,000 tons/year, new construction, renovation and expansion of production facilities for solvent-based general-purpose adhesives in the neoprene rubber, styrene-butadiene thermoplastic rubber, polyurethane and polyacrylate categories

4. New soda ash (underground cycle alkali, except natural alkali), caustic soda (except ionic membrane caustic soda plant for comprehensive utilization of waste salt), 300,000 tons / year following sulfur to acid (except single metal ions ≤ 100ppb electronic grade sulfuric acid), 200,000 tons / year following pyrite to acid,

atmospheric pressure and integrated method of nitric acid, calcium carbide (except for the replacement of large advanced technology and equipment for the same amount), single-line capacity of 50,000 tons / year following potassium hydroxide production plant

5. New sodium tripolyphosphate, sodium hexametaphosphate, phosphorus trichloride, diphosphorus penta-sulfide, calcium hydrogen phosphate, sodium chlorate, less calcium roasting process sodium dichromate, electrolytic manganese dioxide, calcium carbonate, anhydrous sodium sulfate (except salt cogeneration and by-production), barium carbonate, barium sulfate, barium hydroxide, barium chloride, barium nitrate, strontium carbonate, white carbon black (except gas phase method), chlorinated choline production plant

6. Newly built yellow phosphorus, the starting scale is less than 30,000 tons/year, single-line capacity is less than 10,000 tons/year of sodium cyanide (100% discount), single-line capacity is less than 5,000 tons/year of lithium carbonate, lithium hydroxide, dry process aluminum fluoride and single-line capacity is less than 20,000 tons/year of anhydrous aluminum fluoride or low to medium molecular ratio ice. Crystals production unit

7. Newly built nitrogen fertilizer with oil and natural gas as raw material, ammonia synthesis by fixed layer intermittent gasification technology, ammonium phosphate production device, copper washing method, ammonia synthesis raw material gas purification process.

8. Newly-built high-toxicity, high-residue, and environmentally-affecting pesticide technicals (including omethoate, hydrocarbophos, methyl isofenphos, phorate, terbufos, tribufos, methyl bromide, methomyl, Aldicarb, carbofuran, difax sodium, diphethone, warfarin, drofenol, bromadiolone, brodifax, botulinum toxin, dimehypo, methamphet, aluminum phosphide, organic chlorine, Organotin insecticides, thiram fungicides, sodium nitrophenolate (potassium), chlorsulfuron, methamsulfuron, metsulfuron, *etc.*) production equipment

9. Newly-built glyphosate, chlorpyrifos (except water-phase process), triazophos, paraquat, chlorothalonil, avermectin, imidacloprid, ethyl-laquat (except methyl chloride process), chloropicrin production unit.

10. Newly built powder coating production units of sulfuric acid titanium dioxide, lead chrome yellow, iron oxide pigments under 10,000 tons/year, solvent-based coatings (except for coating varieties and production processes that are encouraged), and powder coating containing tri-glycidyl isocyanurate (TGIC).

11. New dyestuffs, dyestuff intermediates, organic pigments, printing and dyeing aids production equipment (except for the encouragement and the use of technology to encourage)

12. New hydrogen fluoride (HF, except for enterprises supporting downstream deep processing products for their own use, electronic grade and wet process phosphoric acid supporting), new methylchlorosilane monomer production units with an initial scale of less than 200,000 tons/year and a single set of scale of less than 100,000 tons/year, methane chloride production units of less than 100,000 tons/year (except for supporting silicone) and 100,000 tons/year and above, no by-production of carbon tetrachloride supporting disposal facilities, dichloromethane production units without by-production of trifluoromethane supporting disposal facilities, perfluorooctane sulfonic acid (PFOS) and its salts and perfluorooctane octylsulfonate (PFOSF) for acceptable purposes. Sulfonyl fluoride (the rest are phased out), perfluorooctanoic acid (PFOA), sulphur hexafluoride (SF6, high) Production of HBCD for specific exempted uses (except pure grade) (the rest are phased out) unit

13. Newly built bias tire and force car tire (including trolley tire), nylon cord, 30,000 tons. /Wire cord, recycled rubber (except normal pressure continuous desulfurization process), rubber plasticizer Production unit for pentachlorothiophenol and rubber accelerator tetramethylthiuram disulfide (TMTD)

V. Information Industry

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

VI. Steel

1. The iron and steel conglomerate has not constructed coking projects with dry quenching, coal loading and coke dust collector; independent coking enterprises have not constructed coking projects with coal loading and coke dust collector.

2. Sintering machine below 180 square meters (except for ferroalloy sintering machine, pig iron sintering machine for casting)

3. Pig iron blast furnace for steelmaking with effective volume above 400 cubic meters and below 1200 cubic meters; pig iron furnaces of 1,200 m^3 and above that do not meet the mandatory standards for environmental protection, energy consumption, safety, *etc.*

4. Steelmaking converter with a nominal capacity of more than 30 tons and less than 100 tons; a nominal capacity of 100 tons and above, but failing to meet mandatory standards such as environmental protection, energy consumption, and safety

5. Electric arc furnace with a nominal capacity of more than 30 tons and less than 100 tons (alloy steel 50 tons); electric arc furnace with a nominal capacity of 100 tons (50 tons of alloy steel) and above, but does not meet the mandatory standards of environmental protection, energy consumption, safety and so on.

6. Hot-rolled strip steel (excluding special steel) below 1450 mm

7. Hot-dip galvanized coil project with an annual capacity of 300,000 tons or less

8. Color coated coil project of 200,000 tons/year and below

9. Chromium-containing refractories

10. Ordinary power and high-power graphite electrode pressing equipment, baking equipment and production lines

11. Ultra-high power graphite electrode lines up to 600 mm in diameter or 20,000 t/year

12. Production lines for pre-baked anodes (carbon briquettes) up to 80,000 tons/year, ordinary cathode carbon briquettes up to 20,000 tons/year, carbon electrode lines up to 40,000 tons/year

13. Stand-alone pelletizing equipment up to 1.2 million tons/year (except ferroalloys, pig iron pellets for casting)

14. Top loading coke oven coke chamber height <6.0 m, tamping coke oven coke chamber height <5.5 m, 1 million t/a or less coking projects; heat recovery coke oven tamping coal cake volume <35 m^3, enterprise production capacity <1 million t/a (casting coke <600,000 t/a) coking projects; semi-coke oven single-oven production capacity <100,000 t/a, enterprise production capacity <1 million t/a; heat recovery coke oven tamping coal cake volume <35 m^3, enterprise production capacity <1 million t/a (casting coke <600,000 t/a) coking projects. 10,000 tons/year coking project

15. Ferromanganese, manganese metal in electric furnaces and ferrochrome refining electric furnaces of low and medium carbon, without the hot charging and blending process, 3000 kVA and above

16. Ferromanganese blast furnace up to 300 m^3; ferromanganese blast furnace 300 m^3 and above with coke ratio above 1320 kg/ton; ferromanganese blast furnace enterprises with a scale of less than 100,000 tons/year.

17. Mineral-heated electric furnaces for calcium silicate and calcium-barium-silicon aluminium alloys up to 12,500 kVA; mineral-heated electric furnaces of 12,500 kVA and above, but with power consumption for calcium silicate greater than 11,000 kWh/tonne

18. Mineral-heated electric furnaces for silicon and aluminium alloys up to 16,500 kVA; mineral-heated electric furnaces of 16,500 kVA and above with electricity consumption of more than 9000 kWh/ton of silicon and aluminium alloys

19. Ordinary ferro-alloy ore-thermal electric furnaces of 2 × 25,000 kVA or less (in key poverty-stricken areas of the central and western regions with independently operating small hydropower and mineral resource advantages, the capacity of ore-thermal electric furnaces <2 × 12,500 kVA); 2 × 25,000 kVA or more, but the transformer does not use three-phase or three-phase single-phase energy-saving equipment with electric multi-stage voltage regulation on load, and the process operation is not realized. Automated mechanization and control, power consumption of more than 8500 kWh/ton of ferrosilicon, more than 12,000 kWh/ton of industrial silicon, more than 2600 kWh/ton of ferromanganese in electric furnaces, more than 4200 kWh/ton of silicomanganese alloys, more than 3200 kWh/ton of high-carbon ferrochrome, more than 4800 kWh/ton of silicon-chrome alloys in general Ferro-alloy ore heat furnace

20. Electrolytic manganese metal leaching process with intermittent leaching and intermittent liquid feeding; single production line (one transformer) for electrolytic manganese metal up to 10,000 tons/year, enterprises with total electrolytic manganese metal production up to 30,000 tons/year

21. Stand-alone hot rolling line without steelmaking process on the site

VII. Non-ferrous metals

1. New construction, expansion of tungsten metal reserves of less than 10,000 tons, the annual mining scale of less than 300,000 tons of ore tungsten mining projects (except for the existing tungsten ore mountain deep and side resources mining and expansion projects), tungsten, molybdenum, tin, antimony smelting projects (except for projects in line with national environmental protection and energy saving laws and regulations), antimony oxide, lead tin solder production projects, rare earth mining,

smelting and separation projects (except for rare earth enterprise group projects that meet the requirements of total amount of rare earth mining, smelting and separation control indexes)

2. single series of crude copper smelting projects of less than 100,000 tons/year (excluding recycled copper projects and direct leaching projects of oxide ore)

3. Electrolytic aluminum projects (except for capacity replacement projects)

4. Single-series lead smelting projects with an annual capacity of less than 50,000 tons (except for technical transformation without additional capacity and environmental protection renovation projects)

5. Single series zinc smelting projects with an annual capacity of 100,000 tons/year (except for direct leaching)

6. Magnesium smelting project (except for comprehensive utilization project and technological transformation of advanced energy saving and environmental protection technology)

7. Independent aluminum carbon projects with an annual output of less than 100,000 tons

8. New construction of single-series production capacity of 50,000 tons/year or less, renovation and expansion of single-series production capacity of 20,000 tons/year or less, and resource utilization, energy consumption, environmental protection and other indicators do not meet the requirements of the industry access conditions for recycled lead projects

9. Newly built and expanded primary mercury mining projects

VIII. Gold

1. Independent cyanide projects (except for the biological cyanide gold extraction process) with self-supplying capacity of raw materials under 200 tons (excluded) of gold concentrate per day is less than 50% (excluded)

2. Independent gold concentrator project mining system without supporting mining system with daily processing capacity of less than 300 tons (excluded)

3. Pyrometallurgical smelting project of an independent gold smelter without supporting mining system that treats up to 200 tonnes (excluded) of gold concentrate per day

4. Independent heap leaching field item without supporting mining system below 1500 tons/day (excluded)

5. Open-pit mining projects with daily processing of rock gold ore less than 300 tons (excluded), underground mining and dressing projects below 100 ton (excluded)

6. Placer gold mining project with annual processing of 300,000 (excluding) cubic meters of placer gold ore

7. Project of mining placer gold in forest areas, basic farmland and rivers

IX. Building materials

1. New dry process cement clinker production line (except for special mud production lines), cement grinding stations below 600,000 tons/year (excluded)

2. Production line of architectural ceramics of 1.5 million square meters per year and below (architectural glass products excluded)

3. Tunnel kiln sanitary ceramic production line less than 600,000 pieces/year (excluded)

4. Paper-faced gypsum board production line with a capacity of 30 million square meters per year (Tibet excluded)

5. Medium alkali glass fiber pool kiln drawing line; single kiln scale less than 80,000 tons / year (excluded) of alkali-free glass fiber roving pool kiln drawing line; medium alkali, alkali-free, alkali-resistant glass ball kiln production line; medium alkali, alkali-free glass fiber alternative platinum crucible drawing line

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

7. Gypsum (hollow) block production line with a capacity of 150,000 square meters per year (excluded), small-scale hollow concrete block production lines with a single shift of up to 50,000 cubic meters per year (excluded) and stationary concrete paving block production lines with a single shift of up to 150,000 square meters per year (excluded), artificial light aggregate (ceramsite) production line below 50,000 square meters per year (excluded)

8. Aerated concrete production line below 150,000 cubic meters per year (excluding)

9. Production line of sintered bricks and sintered hollow blocks below 60 million standard bricks/year (excluded)

10. Rock (mineral) wool product production line under 30,000 tons/year and glass wool product production line under 8,000 tons/year

11. Prestressed high-strength concrete centrifugal pile production line of 1 million meters per year and below

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

X. Medicine

1. Newly built and expanded production facilities for cologne and vitamin C powder (including those for medicine, food, feed and cosmetics), and new production

facilities for vitamin B1, vitamin B2, vitamin B12 and vitamin E for medicine, food, feed and cosmetics.

2. Newly established penicillin industrial salts, 6-aminopenicillanic acid (6-APA), chemically produced 7-aminocephalosporanic acid (7-ACA), chemically produced 7-amino-3-deacetoxycephalosporanic acid (7-ADCA), penicillin V, ampicillin, penicillin hydroxyaminopenicillin, cephalosporinc fermentation, oxytetracycline, tetracycline, chloramphenicol, analgin, paracetamol Clindamycin, gentamicin, dihydrostreptomycin, aminokanamycin, meldimycin, leucomycin, cyprofloxacin, norfloxacin, flurazonic acid, rifampicin, caffeine, coccodine production unit

3. New production units for paclitaxel (except for supporting the plantation of sequoia) and phytoalexin (except for supporting the plantation of Rhizoma Pinellia)

4. New construction, renovation and expansion of pharmaceutical butyl rubber stopper, two-step production of plastic bottles for infusion production equipment

5. New construction and expansion of installations for the production of products whose raw materials contain endangered animal and plant medicinal materials that have not yet been cultivated or cultured on a large scale

6. New construction, renovation and expansion of mercury-filled glass thermometer and sphygmomanometer production units, silver mercury amalgam dental materials, and new production units for disposable syringes, blood transfusions and infusion sets up to 200 million units per year.

XI. Machinery

1. 2 arms and less rock drilling rig manufacturing project

2. Manufacturing project of rock loader (except vertical claw rock loader)

3. Manufacturing projects of small mine carts of 3 cubic meters and below

4. Project for manufacturing winches with a diameter of 2.5 meters or less

5. Mine hoist manufacturing project with a diameter of 3.5 meters or less

6. Manufacturing project of screening machine of 40 square meters and below

7. Manufacturing projects of cyclones with a diameter of 700 mm and below

8. 800 kW and below coal mining machine manufacturing project

9. Manufacturing project of mining excavators with bucket capacity of 3.5 cubic meters and below

10. Manufacturing project of mining mixing, thickening and filtering equipment (except pressure type)

11. Special-purpose vehicles for general transport and general transport trailers, such as warehouse trucks, panel trucks, dump trucks and ordinary vans, *etc.*

12. Single-cylinder diesel engine manufacturing project

13. Belt-driven small four-wheel tractors with single-cylinder diesel engines, hand-held tractors with single-cylinder diesel engines, sliding gear shifters, wheeled tractors up to 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 utilization units)

15. 6kV and above (land use) dry-method cross-linked power cable manufacturing project

16. Non-CNC metal cutting machine tool manufacturing project

17. Manufacturing projects of ordinary mechanical presses of 6300 kN and below

18. Non-CNC shearing machine, bending machine, pipe bending machine manufacturing project

19. Projects of ordinary high-speed steel drill bits, milling cutters, saw blades, taps and dies

20. Sintered block projects of brown corundum, green silicon carbide, black silicon carbide, *etc.*

21. Binder wheels of various diameters up to 450 mm and grinding speeds up to 40 m/s (except rail grinding wheels).

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

23. P0-level ordinary micro-small bearing manufacturing project with a diameter of 60 mm or less

24. 220 kV and below power transformers (except energy-saving distribution transformers such as amorphous alloys, coiled iron cores, *etc.*)

25. 220 kV and below, high, medium and low voltage switchgear manufacturing projects (except for the use of environmentally friendly medium pressure gas insulated switchgear and switchgear for explosive environments of explosion-proof type)

26. Manufacturing project of acid carbon steel electrode

27. Manufacturing project of civilian ordinary watt-hour meters

28. General low-grade standard fastener manufacturing projects below 8.8

29. General purpose fixed reciprocating piston air compressor (drive motor power 560 KW and below, rated exhaust pressure 1.25 MPa and below) manufacturing project

30. General transportation container dry container project

31. 56 inch and below single-stage split pump manufacturing project

32. General purpose 10 MPa and below medium and low pressure carbon steel valve manufacturing project

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

34. Nonferrous alloy hexachloroethane refining, magnesium alloy SF6 protection

35. Cupola melting uses metallurgical coke

36. Sodium silicate sand molding core-making process without old sand regeneration

37. Salt bath nitrocarburizing furnace and salt

38. Electronic tube high frequency induction heating equipment

39. Nitrite corrosion inhibitor and preservative

40. Fuel oil heating furnace for casting/forging

41. Coal-fired heating furnace for forging

42. Manual gas forging furnace

43. Steam hammer

44. Arc welding transformer

45. Lead and cadmium solder

46. Complete machine assembly project of full-face tunneling machine

47. Project of hydraulic press for free forging over 10,000 tons

48. Castings and forgings produced with obsolete and restricted equipment and processes; clay sand casting projects, water glass melting precision casting projects, centrifugal ductile iron pipe projects with a scale of less than 200,000 tons/year, and centrifugal gray iron pipe projects with a scale of less than 30,000 tons/year that do not use automatic molding equipment

49. Moving coil and tapped manual electrode arc welding machine

50. Y series (IP44) three-phase asynchronous motors (frame size 80～355) and derived series, Y2 series (IP54) three-phase asynchronous motor (frame size 63～355)

51. Knapsack manual compression sprayer

52. Knapsack motorized spray powder duster

53. Manual rice transplanter

54. Tea processing machinery for bronze products

55. Double disc friction press

56. Lead-containing powder metallurgy parts

57. Export ship block construction project

XII. Light Industry

1. Polyvinyl chloride ordinary artificial leather production line

2. Production lines with an annual processing capacity of less than 200,000 sheets of raw hides and less than 100,000 sheets of wet blue hides

3. Production lines for polyurethane foam, continuous extruded polystyrene foam (XPS), refrigerators, freezers, automotive air conditioners, industrial and commercial refrigeration and cooling equipment with controlled applications such as hydrochlorofluorocarbons (HCFCs) as refrigerants, blowing agents, fire extinguishing agents, solvents, cleaning agents and processing aids

4. Polyvinyl chloride (PVC) food preservation packaging film

5. General lighting incandescent lamps

6. Lockstitch sewing machines with a maximum speed of less than 4000 stitches/minute (not including heavy-weight sewing machines) and overlock sewing machine with a maximum speed of less than 5000 stitches/min

7. Electronic price calculation scale (accuracy is less than 1/3000 of the maximum weighing, weighing ≤15 kg), electronic belt scale (accuracy less than 5/1000 of the maximum weighing), electronic crane scale (accuracy less than 1/1000 of the maximum weighing, weighing ≤50 tons), spring dial scale (accuracy less than 1/400 of the maximum weighing, weighing ≤ 8 kg)

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

9. Glass thermos flask production line

10. Glass bottle production line with an annual capacity of 30,000 tons or less

11. Prepare glass batch materials and weigh them manually

12. Glass furnaces that do not meet the targets set by the Cleaner Production Evaluation Index System in the daily glass industry

13. Fatty alcohol products produced by oxo method and Ziegler method

14. Thermal production line of sodium tripolyphosphate

15. Production process and equipment of laundry detergent powder with single spray gun, sulphonation plant up to 1.6 tons/hour.

16. Northern sea salt project with an annual capacity of less than 1 million tons; southern sea salt field project; mine (well) salt projects below 600,000 ton/year

17. Monochrome metal plate offset printing machine

18. Single chemical wood pulp less than 300,000 tons/year, chemical mechanical wood pulp below 100,000 tons/year, chemical bamboo pulp production line below 100,000 tons/year

19. Raw sugar processing project and daily processing of 5,000 tons of sugarcane (3,000 tons in Yunnan), projects that process sugar beets less than 3000 tons per day

20. Alcohol production line

21. Production line of synthetic sweeteners such as saccharin

22. Soybean crushing and leaching projects (except Heilongjiang, Jilin and Inner Mongolia soybean producing areas); oilseed processing projects in East and Central

regions that treat rapeseed and cottonseed 200 tons or less per day and peanuts 100 tons or less per day; oilseed processing projects in West regions that treat rapeseed, cottonseed, peanuts and other oilseeds 100 tons or less per day

23. The annual processing of corn is below 450,000 tons, and the absolute dry yield of corn starch is below 98% (the annual processing scale of special corn such as waxy corn and high straight-chain corn is less than 10,000 tons)

24. Annual slaughtering projects of 150,000 pigs and below, 10,000 beef cattle and below, 150,000 mutton sheep and below, and 10 million live poultry and below (excluding ethnic minority areas)

25. Western-style meat processing projects of 3000 tons/year and below

26. Yeast products with an annual output of 2,000 tons (dry) and below

27. Frozen seawater surimi production line

28. Manual work processes such as cast plates, milling, powder feeding, powder filling, paste, coating, brushing, mixing and filling with acid, external formation, weighing, and cladding in the production of lead-acid batteries

29. Use external chemical forming process to produce lead-acid batteries

30. Citric acid production line with an annual output of less than 50,000 tons

31. Lysine and threonine production lines with an annual capacity of 100,000 tons and below; glutamic acid production lines with an annual capacity of 200,000 tons and below

XIII. Textile

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

2. Dimethyl terephthalate (DMT) production process of conventional polyester

3. Semi-continuous spun viscose filament production line

4. Intermittent spandex polymerization production device

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

6. Adhesive plate and frame filter

7. Conventional polypropylene spunbond nonwoven fabric production line with single line capacity ≤ 1000 tons/year and width ≤ 2 meters

8. Carding machines below 25 kg/h

9. Cotton combing machine with less than 200 nips per minute

10. Self-draining air spinning equipment below 50,000 rpm

11. FA502, FA503 spinning frame

12. Rapier looms with a weft insertion rate less than 600 m/min, air jet loom with a weft insertion rate less than 700 m/min, water jet loom with weft insertion rate less than 900 m/min

13. Adopt polyvinyl alcohol slurry (PVA) sizing process and products (except for high-count and high-density products of polyester cotton products and pure cotton)

14. Wool scouring process and equipment with more than 20 tons of raw wool scouring water

15. Vertical silk reeling process and equipment of double palace silk and tussah silk

16. Skein dyeing process

17. Sodium chlorite bleaching equipment

18. Ordinary polyester carrier dyeing

XIV. Tobacco

1. Tobacco product processing project

XV. Civil explosive products

1. Discontinuous and automated detonator assembly production line with non-human-machine isolation

2. Discontinuous, automated explosive production line

3. Highly polluting detonator production line

4. Industrial powder explosive production line with high energy consumption, high pollution and low performance

5. Explosives production lines with a total of more than 5 operators on site in hazardous material production plants with hazard class 1.1

6. Explosives production lines with more than 9 operators on site in hazardous goods production plants with hazard class 1.1

7. Basic detonator filling lines with more than 5 persons working in close proximity to the detonator (including raw material and semi-finished product workers, excluding finished product delivery)

XVI. Other

1. Urban trunk road projects where the width of the red line (including the green belt) exceeds the following standards: 40 meters for small cities and key towns, 55 meters for medium-sized cities, and 70 meters for large cities (if the trunk road of a mega-city with a population of 2 million or more needs to exceed 70 meters, it should be specified in the urban master plan).

2. Projects for urban recreational gathering squares where the land area exceeds the following criteria: 1 hectare for small cities and key towns, 2 hectares for medium-

sized cities, 3 hectares for large cities, and 5 hectares for mega-cities with a population of 2 million or more.

3. Villa real estate development projects

4. Golf course project

5. Racecourse project

6. 4 gears and below mechanical automatic transmission (AT)

7. Motor vehicle engines with National III emission standards and below

8. Process, technology, product, equipment does not conform to the *Law of the People's Republic of China on the Prevention and Control of Atmospheric Pollution, Law of the People's Republic of China on Prevention and Control of Water Pollution, Law of the People's Republic of China on the Prevention and Control of Solid Waste Pollution, Energy Conservation Law of the People's Republic of China, Product Quality Law of the People's Republic of China, Law of the People's Republic of China on Land Administration, Law of the People's Republic of China on the Prevention and Control of Occupational Disease* and the other laws and regulations, or meeting the mandatory standards of national security, environmental protection, energy consumption, and quality, or meet the requirements of international environmental conventions

Category III Elimination

Note: The year in the bracket after an item means the elimination time limit. Elimination time limit of December 31, 2020 means elimination before the December 31, 2020 and so on; if there is an elimination plan, elimination shall be made according to the plan; In the absence of an elimination time limit or an elimination plan, elimination has been explicitly ordered or shall be immediately made in accordance with the national industry policies.

I. Outdated production technology and equipment

(I) Agriculture and forestry

1. Wet fiberboard production process

2. Production process of rosin by drip method

3. Rural traditional old-fashioned stove and brick bed

4. Local activated carbon production with wood and stumps as main raw materials

5. Collection of tourism activities and medicinal materials that exceed the ecological carrying capacity

6. Construction of irrigated papermaking raw material forest bases in areas with severe water shortage

7. Methyl bromide soil fumigation process before planting

(II) Coal

1. Small coal mines that overlap the plane projection of large coal mines

2. Coal mines in Shanxi, Inner Mongolia, Shaanxi, Ningxia less than 300,000 tons/year (excluding 300,000 tons/year), in Hebei, Liaoning, Jilin, Heilongjiang, Jiangsu, Anhui, Shandong, Henan, Gansu, Qinghai, Xinjiang less than 150,000 tons/year (Excluding 150,000 tons/year), other regions 90,000 tons/year and below including 90,000 tons/year) coal mines; long-term suspension of production and construction of less than 300,000 tons/year (excluding 300,000 tons/year) "Zombie Enterprise" coal mines; coal mines with a production capacity of less than 300,000 tons/year (excluding 300,000 tons/year), such as rock bursts and coal and gas outbursts. Coal mines that meet the coal needs of residents in forest areas and remote mountainous areas or undertake special supply tasks and meet the standards of resources, environmental protection, safety, technology, energy consumption, *etc.*,

can be temporarily retained or postponed with the approval of the provincial government

3. High sulfur coal (sulfur content higher than 3%) production mines that have neither sulfur reduction measures nor compliant emission users, high ash coal (ash content higher than 40%) production mines that cannot be used on site, and high arsenic coal (arsenic content higher than 80μg/g in power coal, arsenic content higher than 40% in coking coal) production mines that have neither sulfur reduction measures nor compliant emission users

4. 6AM, φM-2.5, PA-3 coal flotation machine

5. PB2, PB3, PB4 flameproof high voltage switch

6. PG-27 type vacuum filter

7. X-1 type chamber filter press

8. ZYZ, ZY3 Hydraulic Support

9. The process cannot be achieved PREPARATION closed circulation washing wastewater, the dust cannot be achieved up to standard dry coal emission device

10. Coal mine mining scope overlapping nature reserves, scenic spots, drinking water source protection zones (eliminated in accordance with national laws, regulations and requirements of relevant documents)

(III) Electricity

1. Conventional coal-fired thermal power units with a single unit capacity of 300,000 kilowatts and below that do not meet the standard (except for comprehensive utilization units), oil-fired boilers and generating units mainly for power generation

(IV) Petrochemical Industry

1. Atmospheric and vacuum installations with an annual capacity of 2 million tons or less (except Qinghai Golmud and Xinjiang Zepu installations), kettle distillation installations that use open flame high-temperature heating methods to produce oil,

waste rubber and plastic soil refining processes, and tar intermittent production of asphalt , A single set of crude (light) benzene refining equipment with an annual capacity of 25,000 tons or less, a single set of coal tar processing equipment with an annual capacity of 50,000 tons or less

2. 10 million tons/pyrite and sulfur acid prepared in the following acid (except in remote areas outside), open hearth furnace potassium permanganate oxidation, diaphragm caustic soda production means set (as waste utilization of salt can be retained) flat furnace method and the evaporation cauldron sulfur alkali manufacturing process, mango nitrate silicic acid sodium (Sodium disulfide) production process, intermittent coke method carbon disulfide process

3. A single capacity of 5000 tons/year or less of phosphorus production device does not meet the entry conditions, a calcium roasting chromium compound production device, a single-line production device for ordinary barium sulfate, barium hydroxide, barium chloride, and barium nitrate with a single-line production capacity of less than 3000 tons/year, a sodium chlorate production device with a production capacity of less than 10,000 tons/year, and a single furnace capacity Calcium carbide furnaces and open calcium carbide furnaces less than 12,500 kVA, high-mercury catalysts (with a mercury chloride content of more than 6.5%), and acetylene-based polyvinyl chloride production equipment using high-mercury catalysts, using mercury or mercury compound sodium methoxide, methanol Potassium, sodium ethoxide, potassium ethoxide, polyurethane, acetaldehyde, caustic soda, biological insecticide and local antibacterial agent production equipment, sodium ammonia method and cyanide melt sodium cyanide production process

4. Single-line production capacity is less than 10,000 tons/year of sodium tripolyphosphate, less than 5,000 tons/year of sodium hexametaphosphate, less than 5,000 tons/year of phosphorus trichloride, less than 30,000 tons/year of feed calcium hydrogen phosphate, and 5,000 tons/year Hydrofluoric acid, wet-process aluminum fluoride under 5000 tons/year and open crystalline fluoride salt production equipment with backward process technology and serious pollution

5. Single-line production capacity is less than 30,000 tons/year of sodium cyanide (100% sodium cyanide), less than 10,000 tons/year of potassium hydroxide, less than 15,000 tons/year of ordinary grade white carbon black, and less than 20,000 tons/year of ordinary silica Grade calcium carbonate, ordinary grade anhydrous sodium sulfate below 100,000 tons/year (except salt industry co-production and by-products), lithium carbonate and lithium hydroxide below 30,000 tons/year, ordinary grade barium carbonate below 20,000 tons/year , General grade strontium carbonate production plant with an annual capacity of less than 15,000 tons

6. Semi-water gas ammonia liquid desulfurization, natural gas normal pressure intermittent conversion process to produce synthetic ammonia, carbon monoxide normal pressure change and full mid-temperature conversion (high temperature conversion) process, wet desulfurization process without supporting sulfur recovery device, and no supporting construction of blowing gas waste heat recovery , The fixed-layer intermittent coal gasification unit of the gas-making slag comprehensive utilization unit, and the urea production facility without supporting process condensate hydrolysis analysis unit

7. Fire directly heated coating resin, carbon tetrachloride solvent Preparation of chlorinated rubber rubber production process. 100 tons/years soap hormone (including hydrolyzate) production plant, hydrochloric acid solution saponin production process and pollution emissions cannot fulfill saponin means, iron reduction Engineering Yi (4, 4-diamino-diphenylene-two sulfonic acid [D the SD acid], 2-amino group-4-methyl-5-chloro benzene sulfonic acid [CLT acid],. 1-amino-8- naphthalene phenol -3, 6-two sulfonic acid [H acid] three products suspended)

8. Production process of producing chlorinated rubber from coating resin directly heated by fire, carbon tetrachloride solvent method, saponin (including hydrolysate) production equipment with an annual capacity of less than 100 tons, production process of saponin by hydrochloric acid hydrolysis and pollutant emission Saponin production equipment that cannot meet the standard, iron powder reduction process (4,4-diaminostilbene-disulfonic acid [DSD acid], 2-amino-4-methyl-5-chlorobenzene

sulfonic acid [CLT acid]], 1-amino-8-naphthol-3,6-disulfonic acid [H acid] three products temporarily suspended)

9. Bias tires of 500,000 pieces/year or less and tires with natural cotton cord fabric as the skeleton, dry granulated carbon black of 15,000 tons/year or less (except special carbon black and semi-reinforced carbon black) , Natural latex condoms less than 300 million pieces per year, rubber vulcanization accelerator N-oxydi(1,2-ethylene)-2-benzothiazole sulfenamide (NOBS) and rubber antioxidant D production equipment

10. Chlorofluorocarbons (CFCs), hydrochlorofluorocarbons (HCFCs, except those used as raw materials for downstream chemical products and not sold), 1,1,1-trichloroethane (methyl chloroform) used for cleaning), mainly produces carbon tetrachloride (CTC), all products using carbon tetrachloride (CTC) as processing aids, fluoropolymer production process with PFOA as processing aids, coatings containing DDT, and DDT as Raw material non-closed production dicofol production equipment (eliminate according to the requirements of the country's overall plan for fulfilling the international conventions)

(V) Iron and Steel

1. Indigenous coking (including improved coke ovens); semi-coke (blue charcoal) production equipment with a single furnace capacity of 75,000 tons/year or less or no gas, tar recycling and sewage treatment that cannot meet the access conditions of the coking industry

2. Carbonization chamber height is less than 4.3 yards oven (3.8 meters and over other tamping coke oven outside); means not CDQ steel Coke Oven

3. Earth sinter

4. Hot sinter

5. Ring sintering machine for steel production, sintering machine under 90 square meters, shaft furnace for pellets under 8 square meter; belt manganese ore and chrome sintering machine for ferroalloy production under 24 square meters

6. Steel pig iron blast furnaces of 400 cubic meters or less (Hebei will phase out pig iron blast furnaces of 450 cubic meters or less by the end of 2020), blast furnaces for ferroalloy production of 200 cubic meters or less (of which ferromanganese blast furnaces are 100 cubic meters or less), Casting pig iron blast furnaces of 200 cubic meters and below (including casting pig iron blast furnaces supporting "short-flow" casting processes are 100 cubic meters and below)

7. Power frequency and intermediate frequency induction furnaces for melting scrap steel (eliminated in accordance with laws and regulations and relevant national requirements for banning "floor steel")

8. Steel-making converters of 30 tons and below (excluding ferroalloy converters) (Hebei will phase out steel-making converters of 40 tons and below by the end of 2020, except for the converters that produce special quality alloy steel)

9. Steelmaking electric arc furnaces of 30 tons or less (excluding mechanical casting, special quality alloy steel, high temperature alloy, precision alloy and other special alloy materials such as electric arc furnace)

10. Iron and steelmaking

11. Complex double wire rod mill

12. Horizontal wire rod mill

13. Horizontal bar and profile rolling mills (excluding rolling mills for producing high-temperature alloys)

14. Stacked sheet rolling mill

15. Normal steel blooming mill and medium-sized rolling mill for billeting

16. Hot rolled narrow strip mill

17. A three-roll LO Typical plate mill

18. Hot-rolled seamless pipe unit with diameter below 76 mm

19. Three-roll type wire rod mill (excluding special steel production)

20. Metallurgical furnaces that do not meet environmental protection standards

21. Hand-operated soil asphalt tar impregnation device, ore raw material and solid raw material mixed burning, natural ventilation, hand-operated soil shaft kiln, direct coal as fuel, and inverted flame kiln that cannot meet the standards for dust purification

22. 6300 kVA and below ferroalloy ore thermoelectric furnaces, ferroalloy semi-closed DC electric furnaces below 3000 kVA, ferroalloy refining electric furnaces (except special types of electric furnaces such as ferro-tungsten and ferrovanadium)

23. Steam heating kneading, inverted flame roasting furnace, Acheson AC graphitization furnace, 10,000 kVA and below three-phase bridge rectification Acheson DC graphitization furnace and parallel units

24. Cold-rolled ribbed steel bar production equipment with a stand-alone capacity of 10,000 tons or less (except for high-ductility cold-rolled ribbed steel bar production equipment)

25. Production equipment of single tank wire drawing machine for producing prestressed steel wire

26. Lead quenching process for stress relief treatment in the production of prestressed steel

27. Calcined lime soil kiln

28. Each furnace yields. 5 tons of ilmenite smelting furnace, a reverberatory furnace roasting molybdenum concentrate molybdenum iron production line and reduced with reverberatory furnace, firing of sodium dichromate, chromic anhydride production of chromium metal line

29. Production line of refractory materials and raw material products for coal-fired inverted flame kiln

30. One-stage fixed gas generator project for iron and steel industry (not including

pulverized coal gasifier)

31. Rectifier transformer of 6000kVA or less for electrolytic manganese metal, and chemical tank with effective volume of 170 cubic meters or less

32. The production capacity of the enterprise is less than 400,000 tons/year heat recovery coke ovens; coke ovens that have not built a heat recovery device synchronously

33. Reverberatory furnace for reducing manganese dioxide (including Plant reverberator furnace manganese sulfate, slag plant with the reverberatory furnace and the like)

34. EMM pressure filtration using a membrane filter other than the high pressure plate and frame, chamber filter press

35. Light-burning reflector kiln with effective volume of 18 cubic meters and below

36. Re-burned magnesia shaft kiln with an effective volume of 30 cubic meters or less

(VI) Non-ferrous metals

1. Muffle furnace, oven manger, horizontal tank, cans and other small vertical firing, simple cold condensate collecting facilities like manner behind the production of zinc oxide or zinc smelting process equipment

2. Using iron pots and earthen stoves, distillation pots, crucible furnaces and simple condensation dust collection facilities to refine mercury

3. Process equipment for refining arsenic oxide or metallic arsenic using backward methods such as earth pit furnace or crucible furnace roasting, simple condensation facility dust collection, *etc.*

4. Aluminum self- baked electrolytic cell and pre-baked cell below 160kA

5. Copper smelting process and equipment for blast furnace, electric furnace and reverberator furnace

6. Dry purification of flue gas sulphuric acid and hot concentrated acid washing technology

7. Using the pit furnace, crucible furnace, He behind the oven like manner antimony

8. Using the backward mode pot sintering, a sintered plate, a simple blast furnace process and the smelting provided apparatus

9. Process and equipment for smelting recycled aluminum alloy and recycled lead using crucible furnace

10. An aluminum wet fluoride item

11. Renewable aluminum and lead projects with less than 10000 tons / year

12. Reverberatory furnace project using direct coal burning in the production of recycled non-ferrous metals

13. Production process of copper wire rod (black rod)

14. Lead smelting process with sintering machine without supporting acid production and tail gas absorption system

15. Sintering-blast furnace lead smelting process

16. Recycled copper incineration process and equipment without flue gas treatment measures

17. Production process and equipment of Recycled Copper in traditional fixed reverberatory furnace below 50t

18. Production process and equipment of recycled aluminum in reverberatory furnace below 4 tons

19. Heap leaching and pool leaching process of ionic rare earth ore

20. Monazite Single Mineral Development Project

21. Project of metal preparation by electrolysis of rare earth chloride

22. Production process for wet production of rare earth fluoride for electrolysis

23. 20000 ton/years (REO) the mixed rare earth mining project; 5000 ton (REO)/years of bastnaesite rare earth mining projects; 500 ton (REO)/years of ionic rare earth mine development project

24. 2000 Tons (REO)/years of rare earth separation project

25. Light rare earth metal smelting projects with an electrolytic cell current of less than 5000A and current efficiency of less than 85%, under 1500 tons/year

26. Native mercury mining (2032/8/16)

(VII) Gold

1. Amalgamation and gold extraction process

2. Small cyanide pool leaching process, local smelting process

3. No environmental protection measures are required to extract precious metals such as gold, silver, and palladium from circuit boards

4. Mining projects with a daily processing capacity of less than 50 tons (excluding)

5. Mercury homogenization of whole ore; open burning of amalgam or processed amalgam; burning amalgam in residential areas; cyanide leaching of sediment, ore or tailore added with mercury without first removing mercury

(VIII) Building materials

1. Dry-process hollow kiln (except for the production of special cement such as aluminate cement), cement machine shaft kiln, Liboer kiln, wet-process kiln

2. Cement grinding equipment with a diameter of less than 3 meters (excluding special cement)

3. Non-coated plastic woven cement packaging bag production line

4. Flat glass production line (including grid method)

5. Production line of building ceramic tiles less than 1 million square meters per year (excluding), sanitary ceramics less than 200,000 pieces per year (excluding)

6. Sanitary ceramics (not including building glass products) kiln, down draft kiln, multi-hole kiln, tunnel kiln coal fired open flame, muffle kiln, sagger mounted sanitary ceramic tunnel kiln

7. Friction brick press for forming building ceramic tiles

8. Production technology and equipment of glass fiber clay crucible wire drawing

9. Paper-faced gypsum board production line below 10 million square meters per year (excluding)

10. Modified asphalt waterproofing membrane production line of less than 5 million square meters per year (excluding); production line of flexible asphalt composite tire waterproofing membrane of less than 5 million square meters per year (excluding); 1 million rolls of per year (excluding) the following asphalt paper tire felt production line

11. Lime soil shaft kiln

12. Brick kiln (2020/12/31) and shaft kiln, no roof kiln, horseshoe kiln

13. Ordinary brick extruder

14. SJ1580-3000 biaxial, uniaxial mixer brick

15. SQP400500-700500 double roll crusher

16. Type1000 ordinary cutting machine

17. 100 tons disk revolutions formula press

18. Handmade wallboard production line

19. Simple mobile concrete block forming machine, attached vibration forming table

20. Single class 10 thousand square meter/years or less stationary concrete block making machine, single-class 100 thousand square meter/year or less stationary concrete floor tile molding machine

21. Production process of artificially poured, non-mechanically formed gypsum (hollow) blocks

22. The vacuum pressing method and gas refining a step quartz glass production technology and equipment

23. 6×6 M Newton six-side top small press for producing synthetic diamond

24. Manual cutting aerated concrete production line, non-autoclaved aerated concrete production line

25. Non-sintered, non-autoclaved fly ash brick production line

26. Decorative stone mine chamber blasting mining technology, sling-type marble soil see-saw, and mobile small circular saw

(IX) Medicine

1. Manual capsule filling process

2. Cork hot wax packaging pharmaceutical process

3. Ampoule wire drawing filling and sealing machine that does not meet GMP requirements

4. Tower type double distilled water device

5. Hot air drying oven without purification facilities

6. API production equipment that cannot meet the national standards for environment, occupational health and safety

7. Reduction of the iron-acetylamino-phenol (paracetamol pain), caffeine apparatus

8. The production process of medical supplies using chlorofluorocarbons (CFCs) as aerosols, propellants, propellants or dispersants (eliminate according to the requirements of the country’s overall plan for fulfilling the international conventions)

(X) Machinery

1. Heat treatment lead bath furnace (except the on-line heat treatment lead bath production line with lead liquid covering agent and negative pressure exhaust dust removal environmental protection facilities for wire rope and its products)

2. Heat treatment barium chloride salt bath furnace (high temperature barium chloride salt bath furnace is temporarily eliminated)

3. TQ60, TQ80 tower cranes

4. QT16, QT20, QT25 derrick simple tower crane

5. KJ1600/1220 Monocular hoist windlass

6. Ordinary brown corundum smelting furnace below 3000 KVA

7. Fixed brown corundum smelting furnace below 4000 KVA

8. Silicon carbide smelting furnace below 3000 KVA

9. Forced-driven simple elevator

10. Tobacco expansion equipment production line using chlorofluorocarbons (CFCs) as expansion agents

11. Sand casting clay drying sand mold and core

12. Coke furnace to melt non-ferrous metals

13. Sand casting oil sand core making

14. Heavy brick lining trolley furnace

15. Medium frequency generator induction heating power supply

16. Coal-fired flame reflection heating furnace

17. Casting/forging pickling process

18. Position type AC contactor temperature control cabinet

19. Insert electrode type salt bath furnace

20. Moving coil and tapped silicon rectifier arc welding machine

21. Magnetic amplifier type arc welding machine

22. Punches that cannot be installed with safety protection devices

23. Non-magnetic yoke (≥ 0.25 tons) aluminum shell intermediate frequency induction electric furnace

24. Coreless power frequency induction furnace

(XI) Ship

1. Tidal flat dismantling process of waste and old ships

2. Overall construction process of marine steel ships with a length of more than 90 meters and inland river steel ships with a length of more than 120 meters

(XII) Light Industry

1. A single set of vacuum salt production equipment with an annual capacity of less than 100,000 tons, lake salt with an annual capacity of less than 200,000 tons, and northern sea salt production facilities with an annual capacity of less than 300,000 tons

2. Production process and device for making salt by using mineral salt brine, oil and gas field water and using flat pans and beaches

3. Southern sea salt production plant no more than 20 thousand tons/year

4. Production of ultra-thin (thickness less than 0.025 mm) plastic shopping bags

5. A tanning production line with an annual processing capacity of 50,000 standard cowhides and an annual processing capacity of 30,000 standard cowhides

6. 300 tons/year or less of the ink total production means (use of high technology, except for the non-polluting)

7. Production of solvent-based inks containing benzene

8. Lime pool pulping equipment (except rice paper)

9. 51 thousand tons /years of chemical pulp production line

10. A single non-wood pulp production line with an annual output of less than 34,000 tons

11. A single pulp production line with an annual output of 10,000 tons or less, using waste paper as raw material

12. Fine paper production lines with a width of 1.76 meters or less and a speed of 120 meters per minute or less

13. Whiteboard, cardboard and corrugated paper production lines with a width of 2 meters or less and a speed of 80 meters per minute or less

14. 14. Production lines of refrigerators, freezers, car air conditioners, industrial and commercial refrigeration and refrigeration equipment using chlorofluorocarbons (CFCs) as refrigerants and foaming agents

15. Production of polyurethane, polyethylene and polystyrene foam 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 agent and solvent

18. Fatty acid method to prepare tertiary amine process, oleum sulfonation process, stirred tank ethoxylation process

19. The soldering process in the tin printing industry

20. Crucible glass furnace burning coal and producer gas, direct-fired glass annealing furnace without hot air circulation

21. Mechanical timing line-type bottle making machine

22. Carbonated beverage production line with a production capacity of 150 bottles/min or less (bottle volume of 250 ml or less)

23. 23. Daily processing capacity of raw milk (two shifts) facilities such as concentration and spray drying under 20 tons; manual and semi-automatic liquid milk filling equipment under 200 kg/h

24. Alcohol production lines with an annual output of less than 30,000 tons (except for ethanol made from waste molasses)

25. Glutamic acid production line with iso-ionization process, monosodium glutamate production equipment with an annual output of less than 50,000 tons

26. Traditional calcium salt method citric acid production device

27. Wet-process corn starch production lines with an annual processing capacity of less than 150,000 tons and a total dry matter yield of less than 97% (except for special corn starch production lines)

28. Pig slaughtering equipment such as bridge split saw and open pig scalding machine

29. Manual slaughter of pigs, cattle, sheep and poultry

30. Adding process of wheat flour whitening agent (benzoyl peroxide, calcium peroxide)

31. Elemental chlorine bleaching pulping process

32. Open lead melting pot and open lead powder machine for the production of lead storage batteries

33. Dry powder filling process for tubular lead storage battery

34. Add white arsenic, antimony trioxide, lead, fluorine (except full electric furnace), chrome slag and other harmful raw and auxiliary materials

(XIII) Textile

1. Cotton spinning, wool spinning, linen spinning equipment and weaving equipment that have been used for 30 years

2. Top roller gins with a roller length of 1000 mm or less, saw-tooth gins with a saw

blade number of less than 80, and lint cotton balers with a pressure tonnage of 400 tons (excluding 160 tons and 200 tons short-staple cotton balers)

3. ZD647, ZD721 automatic silk reeling machine, D101A automatic silk reeling machine, ZD681 vertical reeling machine, DJ561 spun spinning machine, K251, K251A silk loom and other silk processing equipment

4. Z114 small jacquard machine

5. GE186 Jacquard Terry Machine

6. Z261 artificial fur machine

7. Type 74 dyeing and finishing equipment without modification

8. Steam heating open and non-sealed flat washing tank for printing and dyeing

9. R531 type acid viscose spinning machine

10. Viscose conventional staple fiber production line with an annual capacity of 40,000 tons or less

11. Wet Spandex Production Process

12. Dimethylformamide (DMF) solvent method spandex and acrylic production process

13. Production process and equipment of nitric acid method acrylic fiber conventional fiber

14. Conventional polyester (PET) batch polymerization production process and equipment

15. Semi-automatic winding equipment with conventional polyester filament spindle shaft length 900 mm and below

16. Domestic and imported printing and dyeing pretreatment equipment, stenting and setting equipment, rotary screen and flat screen printing machines, continuous dyeing machines with a service life of more than 15 years and imported printing and dyeing equipment with a service life of more than 20 years

17. Cotton and chemical fiber intermittent dyeing equipment with a service life of more than 15 years and a bath ratio greater than 1:10

18. Printing and dyeing production line driven by DC motor

19. Cast iron structure steaming box and washing equipment for printing and dyeing, bottomless steaming machine for cast iron wall panels, L-type de-boiling and bleaching crawler steaming box with short steam preheating zone

20. Production equipment for polyester regenerated spun staple fiber with screw extruder diameter less than or equal to 90mm and less than 2000 tons/year

(XIV) Printing

1. All lead row and lead printing process

2. All lead printing machines and related auxiliary machines

3. Photographic plate-making machine

4. ZD201, ZD301 series word typecasting machine

5. TH1 automatic casting machine, ZT102 series casting machine

6. ZDK101 type font engraving machine

7. KMD101 type font knife grinder

8. AZP502 semiautomatic Chinese language hand-selected row casting machine, ZSY101 semi-automatic Chinese language casting machine row, TZP101 type article English word row casting machine, ZZP101 type Chinese language automatic casting machine row

9. QY401, 2QY404 series electric letterpress printing proofer, QYSH401, 2QY401, DY401 type manual letterpress printing proofer

10. YX01, YX02, YX03 series paper-pressing machine, HX01, HX02, HX03, HX04 series baking paper-machine

11. PZB401 Flat stereotype casting machine version, YZB02, YZB03, YZB04, YZB05,

YZB06, YZB07 series stereotype plate casting machine

12. JB01 Flat stereotype casting machine version

13. RQ02, RQ03, RQ04 series lead pump lead melting furnace

14. BB01 type version planning machine, YGB02, YGB03, YGB04, YGB05 circular stereotype scratch version of the machine, YTB01 circular stereotype boring version of the machine, YJB02 circular stereotype saws version of the machine, YXB04, YXB05, YXB302 Series round lead Edition revision machine

15. P401, P402 series four-open flat presses, P801, P802, P803, P804 series eight-open flat presses

16. PE802 double hinge printer

17. TE102, TE105, TE108 series full-sheet automatic two-rotation platform printing machine

18. TY201 type monochromatic one-rotation platform printing machine, TY401 type four-opening monochromatic one-rotation platform printing machine

19. TY4201 four-open one-rotation two-color printing machine

20. TT201, TZ201, DT201 type manual feed and stop rotary platform printing machine

21. TT202 type automatic stop rotary platform printing machine, TT402, TT403, TT405, DT402 type four open automatic stop rotary platform printing machine, TZ202 type open 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 series flat paper full-sheet single-sided rotary printing machine,

LP1201 type flat paper full sheet double-sided rotary printing machine, LP4201 type flat paper quarto two-color rotary printing machine

24. LSB201 (880 × 1230mm) and LS201, LS204 (787 × 1092mm) series web book

printing machine

25. LB203, LB205, LB403 type web newspaper page rotary printing machine, LB2405, LB4405 type web double layer two group newspaper page rotary printing machine, LBS201 type web paper book, newspaper two-use rotary printing machine

26. K.M.T type automatic typesetting machine, PH-5 type Chinese character typesetting machine

27. Ball shock proofing and plate making machine (DIA PRESS cleaning machine)

28. Manual phototypesetting machines and domestic plate-making cameras produced before 1985

29. Centrifugal coating machine

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

31. J2101, PZ1920 series of offset monochrome offset presses (printing speed 4000 per hour pieces and below), PZ1615 based columns four open single -color plastic printer (printing brush speed every small when 4000 pieces and lower), the YPS1920 series double-sided color offset (printing speed per hour 4000 pieces and lower)

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

33. DJ01 type paperback perfect binding machine, the PRD-01, the PRD-02 type paperback perfect binding machine, of DBT-01 type cable paperback book, package, hot linkage machine

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

35. QZ101, QZ201, QZ301, QZ401 paper cutter

36. MD103A knife sharpener

(XV) Civil explosive products

1. Airtight packaging type emulsion explosive matrix cooler

2. Airtight package type emulsion explosive low-temperature sensitizer

3. Small diameter manual single-head explosive charging machine

4. Explosive equipment such as mixing and conveying the bearing coated in the agent

5. The drying process of the detonator adopts a steam oven drying process

6. The manufacturing process of delayed component (body) adopts manual charging process

7. Detonator loading, transport and assembly process between step no reliable measure of anti-detonation process

8. Production line without reliable anti-explosion facilities

9. Industrial explosives and industrial detonator production lines that do not realize remote video surveillance in hazardous workplaces

10. Detonating cord production line without remote video surveillance in hazardous workplaces

11. Explosive pharmaceutical process using traditional wheel grinding

12. Primary explosive wastewater was not to <industrial water pollution emission standards Ordnance pyrotechnics drug agent > (GB14470. 2) requires the discharge of the production process

13. Emulsification process where the emulsifier discharge temperature is greater than 130 ℃

14. A charging machine with a small-diameter water-containing explosive charging efficiency lower than 1200kg/h, and a small-diameter powder explosive charging efficiency lower than 800kg/h

15. Explosive equipment with noise exceeding 85 decibels in places with fixed operators

16. Production technology for electric detonators with a total resistance range greater than 1.5 Ω (steel core foot wire length 2m)

17. The production line that does not realize the online collection and timely transmission of production data when the boxed products are offline

18. Production process of electric detonator with total resistance range greater than 1.0 Ω (steel core foot wire length 2m)

19. Detonating cord production line without reliable anti-detonation measures between processes

20. Prepared cable step without dose-line detection, automatic interlock protection device detonating cord line

21. Production process of ordinary electric detonator with maximum non-firing current less than 0.25A

22. The production process of the detonator filling process without man-machine isolation

23. The production process of the detonator bayonet and inspection procedures that require manual delivery of products

24. Low-level industrial explosive production line with an annual output of 10,000 tons or less

(XVI) Fire protection

1. Manual plug-welding electronic components production process for fire detectors

(XVII) Mining

1. Manual loading and unloading of ore during centralized shovel loading operations

2. Dry rock drilling operations without dust catcher

3. The main trackless transportation roadways and open pits use human or animal power to transport ore and rock

4. Use non-flame retardant cables, air ducts and conveyor belts in underground mines

5. Use wood support for main shafts in underground mines

6. The underground mine adopts open-field mining (no-pillar mining method) manual loading and transportation operations in the stope

7. The underground mine adopts horizontal prop mining method

8. Expanded pot blasting used in open-pit mines

9. The open-pit mine adopts “one wall” mining with bottom caving, digging and non-layered mining

10. The open pit mine uses blasting to crush large ore rocks twice

(XVIII) Other

1. Poisonous and harmful cyanide electroplating process (except for electroplating gold, silver, copper-based alloys and pre-plating copper base process)

2. Cyanide-containing zinc precipitation process

3. Physical dam-to-island technology

4. Collection of forest products such as tourism activities and medicinal materials that exceed ecological carrying capacity

5. Small incinerators that do not meet the current national pollution control standards, engineering technical standards, and equipment standards related to the incineration of municipal solid waste, medical waste and industrial waste

6. Process, technology, product, equipment does not conform to the *Law of the People's Republic of China on the Prevention and Control of Atmospheric Pollution, Law of the People's Republic of China on Prevention and Control of Water Pollution, Law of the People's Republic of China on the Prevention and Control of Solid Waste Pollution, Energy Conservation Law of the People's Republic of China, Product Quality Law of the People's Republic of China, Law of the People's Republic of China on Land Administration, Law of the People's Republic of China on the Prevention and Control of Occupational Disease* and the other laws and regulations, or meeting the mandatory standards of national security, environmental protection, energy consumption, and quality, or meet the requirements of international environmental conventions

II. Outdated products

(I) Petrochemical and chemical industry

1. Modified starch, modified cellulose, colorful inner wall (nitrocellulose-based resin, xylene-based solvent is O/W type paint), chloroacetamide alkenyl-vinylidene chloride copolymer latex wall, tar polyurethane water, aqueous tar waterproof polyvinyl chloride, polyvinyl acetal and the inner and outer walls (106, 107 coatings, *etc.*), polyvinyl acetate emulsion-based (containing bene/vinyl acetate copolymer emulsion) facades coating

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

3. Under reducing conditions, 24 kinds of harmful aromatic amines will be pyrolyzed to produce 24 kinds of azo dyes (for non-textile use), nine kinds of carcinogenic dyes (for use in areas not in direct contact with the human body)

4. Benzene, phenol, and benzaldehyde II(III) chloride paint remover, Lide powder,

polyvinyl chloride waterproof joint construction material material (tar type), 107 gum, lean meat essence, polychlorinated Biphenyl (transformer oil)

5. Highly toxic pesticide products: BHC, dibromoethane, butyryl hydrazide, diquat, herbicide, dimethamidine, tetramine, fluoroacetamide, sodium fluoroacetate, dibromochloropropane, pyridoxine (Suhua 203), Phospamine, Glyfluoride, Tetramine, Methamidophos, Parathion, Methyl Parathion, Monocrotophos, Thiocyclic Phosphorus (Ethyl Thionophos), Thiram, Thiram And all arsenic preparations, mercury preparations, lead preparations, 10% glyphosate water preparation, methyl thiocyclophosphate, calcium phosphide, zinc phosphide, fenamiphos, methiophos, magnesium phosphide, sulfenphos, Cyclophos, pyraphos, terbuthion, dicofol

6. According to the national plan for the implementation of international conventions require elimination of products: chlordane, heptachlor, methyl bromide, DDT, hexachlorobenzene, mirex, lindane, toxaphene, aldrin, dieldrin, endrin, endosulfan, sulfluramid, chlordecone, α- Hexachlorocyclohexane, β-hexachlorocyclohexane, polychlorinated biphenyls, pentachlorobenzene, hexabromobiphenyl, tetrabromodiphenyl ether and pentabromodiphenyl ether, hexabromodiphenyl ether and heptabromodiphenyl Ether, hexabromocyclododecane (restricted uses for specific exemptions), perfluorooctyl sulfonic acid and its salts, and perfluorooctyl sulfonyl fluoride (restricted uses for acceptable uses)

7. Bicycle tires with soft side structure, ordinary conveyor belts with cotton cords as skeleton materials and ordinary V-belts with nylon cords as skeletons, manual engraved vulcanization molds for tires, bicycle tires and motorcycle tires

(II) Railway

1. G60 type, G17 -type tanker

2. P62 Box Cars

3. K13 type ore car

4. U60 -type cement truck

5. N16 type, N17 -type flat car

6. L17 -type grain cars

7. C62A, C62B gondola

8. Rail flat car (load capacity 40 tons and below)

(III) Iron and Steel

1. Hot rolled silicon steel sheet

2. Steel wires and steel strands of ordinary relaxation level

3. Hot-rolled steel bars: HRB335, HPB235

4. Steel billets (ingots) produced by using power frequency or intermediate frequency induction furnaces to melt scrap steel, and steel products produced using them as raw materials (eliminated in accordance with national laws and regulations and relevant national requirements for banning "floor steel")

(IV) Non-ferrous metals

1. Copper wire rod (black rod)

(V) Building materials

1. Use non-alkali-resistant glass fiber or non-low-alkali cement to produce glass fiber reinforced cement (GRC) hollow slats

2. Clay crucible wire-drawn glass fiber and products and its reinforced plastic (glass reinforced plastic) products

3. 25A fasting steel window

4. S-2 concrete sleepers

5. To flush toilets with a maximum water consumption of more than 8 liters at a time

6. Hornblende asbestos(namely blue asbestos)

7. Non-mechanically produced hollow glass, double-layer double-frame doors and windows, and single-cavity plastic doors and windows

8. Polyethylene polypropylene composite waterproofing membrane, polyethylene polypropylene composite waterproofing membrane produced by the secondary heating compound molding process (the thickness of the polyethylene core material is less than 0.5mm); cotton polyester fiberglass (high alkali) grid composite Tire base material, PVC waterproof membrane (S type)

9. Asbestos velvet clutch facings, synthetic train brake shoes, asbestos cork wet clutch facings

(VI) Medicine

1. Lead-tin ointment tube, single-layer polyolefin ointment tube (except for anorectal and cavity administration)

2. Sterile powder for ampoule filling and injection

3. Medicinal natural rubber stoppers

4. Non-easy folding ampoule

5. Polyvinyl chloride (PVC) soft bag for infusion (excluding peritoneal dialysate and flushing fluid)

(VII) Machinery

1. T100, T100A bulldozer

2. ZP-II, ZP-III Dry spraying machine

3. WP3- Excavator

4. 0.35 cubic meters of pneumatic grab rock machine

5. Mining steel wire rope impact drill

6. БУ-40 oil rig

7. Water gas generator with a diameter of 1.98 meters

8. CER of cassette

9. Thermocouple (graduation number LL-2, LB-3, EU-2, EA-2, CK)

10. Thermal resistance (graduation number BA, BA2, G)

11. DDZ-I type electronic control

12. GGP-01A belt scale

13. BLR-31 type load cell

14. The WFT-081 radiation thermal sensor

15. WDH-1E, WDH-2E photoelectric thermometer, PY5 Digital Thermometer

16. BC series single bellows differential pressure gauge, LCH-511, YCH-211, LCH-311, YCH-311, LCH-211, YCH-511 ring type differential pressure gauge

17. EWC-01A type long graph electronic potentiometer

18. XQWA type automatic balancing indicator strip

19. ZL3 type X-Y recorder

20. DBU-521, DBU-521C liquid level transmitter

21. YB series (frame size 63～355mm, rated voltage 660V and below), YBF series (frame size 63～160mm, rated voltage 380, 660V or 380/660V), YBK series (frame

size 100 ~ 355mm, rated voltage 380/660V, 660/1140V) flameproof three-phase asynchronous motor

22. DZ10 series molded case circuit breaker, DW10 series frame circuit breaker

23. CJ8 series AC contactor

24. QC10, QC12, QC8 series starters

25. JR0, JR9, JR14, JR15, JR16-A, B, C, D series thermal relay

26. Non-ferrous metal smelting furnace using coke as fuel

27. GGW series of intermediate frequency coreless induction melting furnace

28. B type, BA type single-stage single-suction cantilever centrifugal pump series

29. F. Single-stage single-suction resistance to corrosion pumps

30. JD type long shaft deep well pump

31. KDON-3200/3200 type cold storage all low pressure process air separation equipment, KDON-1500/1500 type cold storage (tube type) all low pressure flow air separation equipment, KDON-1500/1500 tube plate type all low pressure flow air separation equipment, KDON -6000/6600 type cold storage process air separation equipment

32. 3W-0.9/7 (ring valve) air compressor

33. C620, CA630 ordinary lathe

34. C616, C618, C630, C640, C650 ordinary lathe

35. X920 keyway milling machine

36. B665, B665A, B665-1 bull head planer

37. D6165, D6185 EDM machine tools

38. D5540 electric pulse machine

39. J53-400, J53-630, J53-1000 double disc friction press

40. Q11-1.6×1600 shearing machine

41. Q51 truck crane

42. TD 62 type fixed belt conveyor

43. 3 tons DC trolley wire underground mining electric locomotive

44. A571 single beam crane

45. Speed circuit breaker: DS3-10, DS3-30, DS3-50(1000, 3000, 5000A), DS10-10, DS10-20, DS10-30 (1000, 2000, 3000A)

46. SX series box type resistance furnace

47. Single-phase watt-hour meter: 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 transformer device

49. Knife type switch: HD6, HD3-100, HD3-200, HD3-400, HD3-600, HD3-1000, and HD3-1500

50. GC type low-pressure boiler feed water pump, DG 270-140, DG500-140, DG375-185 BFP

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 for double-layer fixed grate boilers)

53. L-10/8, L-10/7 power reciprocating air compressor

54. 8-18 series, 9-27 series high pressure centrifugal fan

55. X52, X62W 320×150 lifting table milling machine

56. J31-250 mechanical press

57. TD60, TD62, TD72 fixed belt conveyor

58. E135 two-stroke medium speed diesel engine (including 2, 4, 6 -cylinder three models), 4146 diesel engine

59. TY1100 single-cylinder vertical water-cooled direct injection diesel engine

60. 165 single-cylinder horizontal evaporative water-cooled, pre-chamber diesel engine

61. Mercury-containing switches and relays

62. Fuel moped

63. Lower than the national car two engine emissions

64. Asbestos-containing friction plates for motor vehicle braking

65. Unshaped shaft cage, Φ1.2m or less (not including Φ1.2m) for hoisting winches for lifting personnel, KJ type mine hoist, JKA type mine hoist, XKT type mine hoist, JTK type mine hoisting winch , Belt brake mine hoisting winches, TKD hoist electric control device and hoist electric control device using the principle of relay structure, dry brake used for trackless rubber-tyred vehicles that transport personnel and oil, without voltage stabilization Installed medium and deep hole drilling equipment

66. Coal-fired boilers of 10 steam tons per hour and below

67. Operate diesel trucks with National III emission standards and older, and use lean combustion technology and “oil-to-gas “old gas vehicles

(VIII) Ship

1. Steel transport ships built using the integral shipbuilding method

2. Modified ships that do not meet the specifications and ships that have reached the deadline for scrapping

3. Single hull tanker

4. The propeller boat and its engine

(IX) Light Industry

1. Mercury batteries (mercury oxide primary cells and battery packs, zinc mercury batteries)

2. Mercury containing paste-type zinc-manganese batteries, mercury cardboard manganese batteries, mercury cylindrical alkaline-manganese batteries, alkaline manganese batteries containing mercury button

3. Mercury coated paper, mercury zinc powder

4. Open -type ordinary lead storage battery, dry-type charged lead storage battery

5. Lead storage battery with cadmium content higher than 0.002%

6. Lead storage battery with arsenic content higher than 0.1%

7. Civilian cadmium nickel battery

8. Straight exhaust gas water heater

9. Spiral lift type (cast iron) faucet

10. Aniline ink for gravure printing

11. The water inlet is lower than the water surface of the overflow, and the upper guide straight down toilet tank accessories

12. Cast iron globe valve

13. Semi-automatic (horizontal) industrial washing machine

14, Open-type tetrachloroethylene dry-cleaning machine and common closed-type tetrachloroethylene dry-cleaning machine, split petroleum dry-cleaning machine and common closed-type petroleum dry-cleaning machine

15. Alkylphenol ethers (including nonyl phenol polyoxyethylene vinyl ether, octyl

phenol polyoxyethylene vinyl ether and dodecyl alkylphenol polyoxyethylene ether, *etc*.) production and use

16. Foam plastic disposable cutlery, disposable plastic swab (2020/12/31); Day of plastic beads containing products (Due to 2020/12/31 prohibit the production, due to 2022/12/31 pin sale); thickness of less than of 0.025 mm ultra-thin plastic bags, the thickness less than 0.01 mm polyethylene agricultural mulch film

17. Cold cathode fluorescent lamps and external electrode fluorescent lamps used for electronic displays: (1) Short length (≤ 500 mm) and a single mercury content of more than 3.5 mg; (2) Medium length (> 500 mm and ≤ 1500 mm) and A single tube contains more than 5 mg of mercury; (3) Long length (> 1500 mm) and a single tube contains more than 13 mg of mercury (2020/12/31)

18. Cosmetics (with mercury content of more than one part per million), including skin lightening soaps and creams, excluding eye cosmetics that use mercury as a preservative and have no effective and safe alternative preservatives (2020/12/31)

19. Manufacture of mercury-containing barometers, hygrometers, pressure gauges, thermometers (except clinical thermometers) and other non-electronic measuring instruments (except for non-electronic measuring equipment that cannot be obtained by suitable mercury-free substitutes, installed in large equipment or used for high-precision measurement) (2020/12/31)

20. Mercury thermometers and mercury sphygmomanometers (2025/12/31)

21. Mercury batteries, mercury does not include an amount of less than 2% button of zinc silver oxide batteries, and mercury content less than 2% of button zinc-air cell (2020 years 12 is dated 31 is days)

22. For general lighting purposes not exceeding 30 watts Single and mercury of more than 5 mg of compact fluorescent lamps (2020/12/31)

23. Straight-tube fluorescent lamps used for general lighting purposes: (1) Straight-tube fluorescent lamps (with three-primary-color phosphors) of less than 60 watts and a

single mercury content of more than 5 mg; (2) less than 40 watts (including 40 Watt) and a single straight tube fluorescent lamp (using halophosphate phosphors) with a mercury content of more than 10 mg (2020/12/31)

24. High pressure mercury lamp for general lighting purposes (2020/12/31)

25. Use monofluorodichloroethane (HCFC-141b) as foaming agent to produce refrigerator-freezer products, refrigerated container products, and electric water heater

26. Daily fragrance containing musk xylene

(X) Fire protection

1. Difluoro-chloro-bromomethane fire extinguishing agent (abbreviated as 1211 fire extinguishing agent)

2. Trifluoro-bromomethane fire extinguishing agent (1301 fire extinguishing agent for short) (except for raw materials and essential uses)

3. Simple 1211 fire extinguisher

4. Portable 1211 fire extinguisher

5. Cart 1211 fire extinguisher

6. Portable chemical foam fire extinguisher

7. Portable acid-base fire extinguisher

8. Simple 1301 fire extinguisher (except for essential purposes)

9. Portable 1301 fire extinguisher (except for essential purposes)

10. Trolley 1301 fire extinguisher (except for essential purposes)

11. Pipe network 1211 fire extinguishing system

12. Suspended 1211 fire extinguishing system

13. Cabinet 1211 fire extinguishing system

14. Pipe network 1301 fire extinguishing system (except for essential uses)

15. Suspended 1301 fire extinguishing system (except for essential purposes)

16. Cabinet 1301 fire extinguishing system (except for essential purposes)

17. PVC lining fire hose

(XI) Civil explosive products

1. Industrial detonators that do not meet the requirements of the domestic public safety full life cycle management and control standards

2. Fuse

3. Ammonium explosive

4. Paper shell detonator

(XII) Other

1. 59, 69, 72, TF-3 type gas mask

2. ZH15 Isolated chemical oxygen self-rescuer, carbon monoxide filter self-rescuer

3. Process, technology, product, equipment does not conform to the *Law of the People's Republic of China on the Prevention and Control of Atmospheric Pollution, Law of the People's Republic of China on Prevention and Control of Water Pollution, Law of the People's Republic of China on the Prevention and Control of Solid Waste Pollution, Energy Conservation Law of the People's Republic of China, Product Quality Law of the People's Republic of China, Law of the People's Republic of China on Land Administration, Law of the People's Republic of China on the Prevention and Control of Occupational Disease* and the other laws and regulations, or meeting the mandatory standards of national security, environmental protection, energy consumption, and quality, or meet the requirements of international environmental conventions