

Catalogue of Encouraged Industries for Foreign Investment (2022 Edition)

Explanatory Notes

1.

The *Catalogue of Encouraged Industries for Foreign Investment* (“the Catalogue”) uniformly lists the special policies encouraging and guiding foreign investors to invest in specific industries, fields, and regions in accordance with the *Foreign Investment Law* and its Implementation Regulations, and based on the needs of national economic and social development.

This Catalogue consists of two parts: (1) the National Catalogue of Encouraged Industries for Foreign Investment, and (2) the Catalogue of Advantageous Industries for Foreign Investment in Central and Western Regions.

2.

The *Catalogue of Encouraged Industries for Foreign Investment (2020 Edition)*, issued on 27 December 2020 by the NDRC and MOFCOM, shall be repealed as of 1 January 2023.

National Catalogue: Agriculture, Forestry, Animal Husbandry & Fishery (1–23)

I. Agriculture, Forestry, Animal Husbandry, and Fishery

1.

Cultivation, development, and production of woody edible oil plants, spices, and industrial raw materials.

2.

Development of cultivation technology, planting, and production of green and organic vegetables (including edible fungi, melons), dried and fresh fruits, and tea.

3.

Breeding, planting, and production of wine grapes.

4.

Breeding, planting, and production of raw materials for beer.

5.

Development of new cultivation technologies for agricultural crops such as sugar crops, fruit trees, and forage grasses, and product production.

6.

Breeding and development of new high-yield, high-efficiency silage forage plant varieties.

7.

Construction and operation of flower production and nursery bases.

8.

Planting of rubber, oil palm, sisal, and coffee.

9.

Breeding and planting of aromatic plants, extraction of essential oils.

10.

Planting and breeding of Chinese medicinal herbs.

11.

Comprehensive utilization of crop straw resources; development and production of organic fertilizers.

12.

Cultivation of forest resources (including fast-growing timber forests, large-diameter timber forests, bamboo forests, oil tea forests and other economic forests, and precious species timber forests).

13.

Ecological under-forest farming and planting.

14.

Development and application of standardized large-scale livestock and poultry breeding technologies and intelligent breeding technologies.

15.

Breeding of livestock, poultry, and aquatic seedlings (excluding rare and unique superior native breeds of China).

16.

Construction and operation of ecological environmental protection projects such as desertification prevention, soil and water conservation, and national land greening.

17.

Aquaculture, deep-water cage aquaculture, factory-based aquaculture, and ecological marine ranching.

18.

High-efficiency water-saving irrigation technologies, farmland soil improvement, ecological restoration, comprehensive utilization of saline-alkali land and other reserve cultivated land resources; rural environmental remediation; rural domestic sewage and waste

treatment; aquatic ecological restoration engineering and related technology development.

19.

Construction of agricultural product storage, preservation, and cold-chain logistics facilities.

20.

Smart agriculture (software technologies and integrated equipment; digital transformation of agricultural production and management).

21.

Rural e-commerce and new types of rural services, including agricultural production services meeting the needs of scaled, standardized, and mechanized farming, and rural lifestyle services.

22.

Leisure agriculture and rural tourism, including leisure sightseeing, farming experience, outdoor development programs, ecological health cultivation, and labor education practice base construction.

23.

Development and production of safe, efficient, and environmentally friendly feed and feed additives (including vitamins, methionine, feed enzymes), and development and production of antibacterial substitutes for animal growth promotion.

II. Mining

24.

Exploration and development of petroleum and natural gas (including shale gas and coalbed methane), and utilization of mine gas.

25.

Development and application of new technologies for enhancing crude oil recovery (in the form of engineering services) and related technologies.

26.

Development and application of new technologies for petroleum exploration and development, including geophysical prospecting, drilling, logging, mud logging, and downhole operations.

27.

Development and application of new technologies to improve the utilization rate of mine

tailings, and comprehensive application of technologies for ecological restoration of mines.

28.

Exploration, mining, and beneficiation of mineral types in shortage in China (such as potash and chromite).

III. Manufacturing

(1) Agricultural and By-product Processing Industry

29.

Development and production of pet feed and food.

30.

Aquatic product processing, purification and processing of shellfish, and development of seaweed-based health food.

31.

Processing of vegetables, dried and fresh fruits, and livestock and poultry products.

(2) Food Manufacturing Industry

32.

Development and production of ultra-high-temperature sterilized milk (sterilized at 132°C for a very short time).

33.

Production of cheese, processed cheese, and cheese products.

34.

Development and production of infant formula food, complementary foods for infants and young children, foods for special medical purposes, and health foods.

35.

Development and production of baked foods (including chocolate products using natural cocoa beans), convenience foods, ice cream, and related ingredients.

36.

Production of candies, chewing gum, preserved fruits, and yogurt.

37.

Processing of forest food products.

38.

Development and production of plant-based protein analogue meat foods.

39.

Development and production of natural food additives and natural flavorings.

40.

Development and production of packaging materials for aseptic liquid foods.

(3) Alcohol, Beverage, and Refined Tea Manufacturing

41.

Development and production of fruit and vegetable juices and their beverages, protein beverages, tea beverages, coffee beverages, and plant-based beverages.

(4) Textile Industry

42.

Production of functional industrial textiles using non-woven, woven, knitted, braided, three-dimensional weaving technologies, multi-process composites, and new long-lasting finishing technologies.

43.

Production of high-grade textile fabrics using digital and intelligent dyeing and finishing equipment, clean dyeing and finishing technologies (including enzyme treatment, efficient short-process pretreatment, continuous knitted fabric pretreatment, low-temperature pretreatment and dyeing, low-salt or no-salt dyeing, low-urea printing, low-liquor-ratio air or gas-liquid dyeing, digital ink-jet printing, foam finishing), functional finishing technologies, new dyeing technologies, composite fabric technologies; development and application of intelligent package yarn dyeing technology and equipment.

44.

Processing technologies and production of special animal fibers, linen fibers, mulberry and tussah silk, colored cotton, and colored silk cocoons that meet environmental protection requirements.

45.

Sorting, recycling, and utilization of waste textiles.

46.

Production and R&D of therapeutic medical and hygienic textiles, artificial skin, absorbable sutures, hernia repair materials, new dialysis membrane materials, interventional catheters, and high-end functional biomedical dressings.

(5) Textile, Apparel, and Accessories Industry

47.

Production of high-count cotton yarn.

48.

Production of garments and semi-finished apparel products using computer-integrated manufacturing systems.

49.

Production of functional and special-purpose clothing.

(6) Leather, Fur, Feather, and Related Products; Footwear Manufacturing

50.

Clean processing technologies for leather and fur.

51.

New post-finishing technologies for leather processing.

52.

Comprehensive utilization of leather waste.

53.

Production of high-performance elastomer shoe materials.

(7) Wood Processing and Wood, Bamboo, Rattan, Palm, and Straw Products Industry

54.

Development, production, and application of new technologies and new products for the comprehensive utilization of forestry “three residues,” small-diameter timber, fuelwood, waste wood, and bamboo; development and application of pollution control, fine particulate matter reduction, and dust explosion prevention technologies in wood and bamboo processing.

55.

Development and production of new technologies and new products for wood structures and wood-based building materials.

56.

Development and production of new technologies and new products for recycling waste wood.

(8) Cultural, Educational, Craft, Sports, and Entertainment Products Manufacturing

57.

Production of high-grade carpets, embroidery, and drawnwork products.

(9) Petroleum Processing, Coking, and Nuclear Fuel Processing

58.

Processing of phenol oil, wash oil, anthracene oil, naphthalene oil, and preparation of high-end chemicals from coal tar pitch (excluding modified asphalt).

(10) Chemical Raw Materials and Chemical Products Manufacturing

59.

Development and production of new downstream organic silicon products.

60.

Production of raw materials supporting synthetic materials:

- Propylene oxide via hydrogen peroxide oxidation of propylene
- Epichlorohydrin via hydrogen peroxide oxidation of chloropropylene
- Dimethyl naphthalate (NDC)
- 1,4-cyclohexanedimethanol (CHDM)
- Hexamethylene diamine and adiponitrile ($\geq 50,000$ tons/year produced via butadiene process)

61.

Production of polyethylene polyamine products.

62.

Development and production of high-end polyolefins such as metallocene polyethylene copolymerized with high-carbon α -olefins, COC/COP cycloolefin polymers.

63.

Production of synthetic fiber raw materials: 1,3-propanediol.

64.

Production of synthetic rubber: acrylate rubber, epichlorohydrin rubber, and special fluororubbers, silicone rubber, fluoro-silicone rubber, and thermoplastic polyurethane rubber.

65.

Production of engineering plastics and plastic alloys, including PPS, PEEK, polyimide, polysulfone, PES, aromatic polyester (PAR), PPE, special polyamides (PA), and their modified materials, liquid crystal polymers, etc.

66.

Fine chemicals:

- New catalysts and technologies
- Commercial processing technologies for dyes/pigments
- Electronic and paper chemicals
- Leather chemicals
- Oilfield additives
- High-purity ethylene oxide refining systems using nitrogen-protected dual-shell tower technology
- Water treatment agents and key raw materials
- High-solid-content, solvent-free, waterborne, electron-beam-curable, UV-curable, reactive adhesives and key raw materials (including high-end butyl acrylate and 2-ethylhexyl acrylate, polyester polyols, curing agents)
- Sealants, adhesive tapes, and key raw materials
- High-efficiency, environmentally friendly plasticizers, halogen-free flame retardants, permanent antistatic agents, organic heat stabilizers, nucleating agents
- Production of inorganic fibers, inorganic nanomaterials
- Pigment coating and deep processing
- Development and production of environmentally friendly surface treatment technology products
- Development and production of humic-acid-based fine chemical products.

67.

Production of water-based inks and adhesives; low-VOC inks and adhesives such as electron-beam-curable and UV-curable inks and adhesives; environmentally friendly organic solvent materials and solvent-free organic materials.

68.

Production of natural flavorings, synthetic flavorings, isolated flavor compounds, and intermediates such as citral.

69.

Production of high-performance coatings and adhesives:

- High-solids, waterborne, powder, radiation-curable, and solvent-free industrial coatings and supporting resins
- Waterborne industrial coatings and supporting resins (including high-end butyl acrylate and 2-ethylhexyl acrylate).

70.

Production of high-performance fluororesins and fluorine membrane materials, medical fluorine intermediates, and compliant refrigerants, cleaning agents, and foaming agents with zero ODP and low GWP in accordance with international conventions.

71.

Development, storage, transportation, and liquefaction of green hydrogen production technologies (including hydrogen from chemical by-products, biological hydrogen, and electrolytic hydrogen using renewable energy).

72.

Production and supply of large-scale, high-pressure, high-purity industrial gases (including electronic gases).

73.

Construction and operation of carbon capture, utilization and storage (CCUS) projects.

74.

Recovery and production of fluorine resources from phosphorus chemical and aluminum smelting processes.

75.

Development and production of new technologies and new products for forestry chemical products.

76.

Development and production of inorganic, organic, and biological membranes for environmental protection.

77.

Development and production of new fertilizers:

- High-concentration potash fertilizers

- Composite microbial inoculants
- Composite microbial fertilizers
- Straw and waste composting agents
- Special-function microbial preparations
- Humic-acid-based fertilizers

78.

Development, production, and application of new pesticide varieties, new formulations, special intermediates, and adjuvants characterized by high efficiency, safety, and environmental friendliness; development and application of clean production processes; production of chiral and stereospecific pesticides using directional synthesis.

79.

Development and production of biopesticides and biological control products, including microbial insecticides, microbial fungicides, agricultural antibiotics, biostimulants, insect pheromones, natural enemy insects, and microbial herbicides.

80.

Comprehensive utilization and treatment/disposal of waste gas, wastewater, and solid waste.

81.

Production of organic polymer materials such as:

- Aircraft skin coating materials
- Red rare-earth cerium sulfide pigments
- Lead-free electronic packaging materials
- Specialty photoresist pastes for plasma displays
- Ultrafine fibers with small diameter and high specific surface area
- High-precision fuel filter paper
- Self-healing surface treatment materials
- Superhydrophobic nano-coating materials
- Ultra-high-refractive optical resin materials
- Recyclable solar component backsheet co-extruded materials and supporting plastics
- Start-stop automotive battery separators and energy-storage battery separators

82.

Development, production, and application of new biomass energy technologies and products for the forestry sector.

83.

Development of low-carbon upgrading processes for petrochemical raw materials,

including:

- Electrically driven ethylene cracking
- Reverse water-gas shift and partial oxidation processes
- Processes converting CO₂ and light hydrocarbons into CO.

(11) Pharmaceutical Manufacturing Industry

84.

Production of new compound medicines or active pharmaceutical ingredients (APIs), including both raw materials and finished formulations.

85.

Production of amino acids using fermentation methods, including tryptophan, histidine, methionine, etc.

86.

Development and production of new anti-cancer drugs, new cardiovascular and cerebrovascular drugs, and new drugs for the nervous system.

87.

Production of new types of pharmaceuticals using bioengineering technologies.

88.

Production of vaccines for AIDS, hepatitis C, contraceptive vaccines, and new vaccines for cervical cancer, malaria, hand-foot-and-mouth disease, and other diseases.

89.

Development and production of marine pharmaceuticals.

90.

Production of pharmaceutical preparations using new technologies such as sustained-release, controlled-release, targeted delivery, and transdermal absorption.

91.

Development and production of new pharmaceutical excipients.

92.

Production of veterinary-specific antibacterial APIs (including antibiotics and chemically synthesized categories).

93.

Production of new veterinary antibacterial, anthelmintic, insecticidal, and anticoccidial drugs and new formulations.

94.

Development and production of new diagnostic reagents.

95.

R&D and production of cell therapy drugs (except for fields prohibited to foreign investment).

96.

Development and production of new key raw materials for vaccines, cell therapy drugs, and large-scale cell culture products.

97.

Development and production of new pharmaceutical packaging materials and technologies, including:

- Neutral borosilicate pharmaceutical glass
- Chemically stable, degradable, light-resistant, high-barrier functional materials
- COP cycloolefin polymer pharmaceutical packaging materials
- Aerosol, dry-powder, autoinjector, prefilled, auto-mixing and other new packaging-dosing systems and devices.

98.

Development and production of medicines for rare diseases and pediatric specialty drugs.

99.

Development and production of consumables related to pharmaceutical manufacturing: separation and purification media, solid-phase synthesis media, chiral separation media, drug impurity control and detection consumables, etc.

(12) Chemical Fiber Manufacturing Industry

100.

Continuous copolymer modification of differentiated and functional polyester (PET), including:

- Cationic dyeable polyester (CDP, ECDP)
- Alkali-soluble polyester (COPET)
- High-shrinkage polyester (HSPET)
- Flame-retardant polyester
- Low-melting-point polyester
- Non-crystalline polyester
- Biodegradable polyester

- Polyester manufactured using green catalysts

Development of highly efficient and flexible manufacturing technologies for differentiated and functional chemical fibers with properties such as flame-retardant, antistatic, UV-resistant, antibacterial, phase-change energy storage, photochromic, and dope-dyed fibers; development and production of intelligent, ultra-simulation functional chemical fibers; development and production of green, efficient, and eco-friendly spinning oils for high-speed spinning.

101.

Development and production of high-performance fibers and products, including:

- Carbon fiber (CF)
- Aramid (AF)
- Polyphenylene sulfide fiber (PPS)
- Ultra-high-molecular-weight polyethylene fiber (UHMWPE)
- Polyimide fiber (PI)
- PTFE fiber
- PBO fiber
- POD fiber
- Basalt fiber (BF)
- Silicon carbide fiber (SiCF)
- PEEK fiber
- High-strength glass fiber (HT-AR)
- PIPD fiber

102.

Production of new polyesters for fiber and non-fiber uses, including:

- PTT
- PEN
- PCT
- PETG
- PLA (using non-grain biomass)

103.

Production of biomass fibers using renewable resources and green processes, including:

- Lyocell (new solvent-based cellulose fiber)
- Regenerated cellulose fibers from bamboo, hemp, etc.
- Polylactic acid fibers (PLA)
- Chitosan fibers
- Polyhydroxyalkanoate fibers (PHA)

- Animal and plant protein fibers
- PBS fibers, etc.

104.

Production of new polyamides including nylon 11, nylon 12, nylon 1414, nylon 46, and nylon 56 (using non-grain biomass); production of differentiated, functional, and high value-added modified polyamides (including nylon elastomers, copolyamides, nylon engineering plastics, flame-retardant polyamides).

(13) Rubber and Plastics Products Industry

105.

Development and production of geomembranes for landfill anti-seepage.

106.

Development, production, and application of organic silicon products.

107.

Development, production, and application of biodegradable plastics and related products.

108.

Development and production of new multifunctional, wide-width agricultural plastic films with optical ecological features and non-polluting biodegradable agricultural films.

109.

Sorting, recycling, and reuse of waste plastics.

110.

Development and production of new technologies and new products for plastic flexible packaging (high-barrier and multifunctional films and raw materials).

(14) Non-metallic Mineral Products Industry

111.

Development and production of energy-saving, environmentally friendly, waste-utilizing, lightweight, high-strength, high-performance, multifunctional building materials.

112.

Development and production of integrated molding products using molded injection and extruded molding processes.

113.

Production of chemical building materials that replace steel with plastics, replace wood with plastics, and promote energy efficiency.

114.

Intelligent manufacturing of new prefabricated building components.

115.

Production of high-elasticity or thermoplastic elastomer-modified asphalt waterproofing membranes (10 million m²/year and above), wide-width (≥ 2 m) EPDM waterproof membranes and supporting materials, wide-width (≥ 2 m) PVC waterproof membranes, and thermoplastic polyolefin (TPO) waterproof membranes.

116.

Development and production of new functional glass technologies:

- Lead-free chalcogenide glass with infrared transmission and its products
- Multifunctional windshield glass with excellent optical performance (light transmittance $\geq 70\%$)
- Coated privacy windshield glass
- Acoustic windshield glass
- Solar windshield glass
- Electrically dimmable windshield glass
- Electrically heated windshield glass
- Head-up display windshield glass
- Vacuum glass
- High-purity ($\geq 99.998\%$) and ultra-pure ($\geq 99.999\%$) crystal raw material purification.

117.

Production of thin-film solar cell glass, solar concentrator mirror glass, and photovoltaic building glass.

118.

Production of high-performance and special glass fibers:

- 80,000 t/year and above of alkali-free fiberglass roving (single filament $> 9 \mu\text{m}$)
- 50,000 t/year and above of alkali-free fiberglass yarn (single filament $\leq 9 \mu\text{m}$)
- Ultrafine glass fiber ($\leq 5 \mu\text{m}$)
- Biodegradable glass fiber
- Shaped-section glass fiber
- Alkali-resistant glass fiber
- Low dielectric glass fiber

- Quartz glass fiber
- High-silica glass fiber
- Ceramic fibers

And production of fiberglass mats, cloth, and related products.

119.

Production of optical fibers and related products:

- Image bundles and medical laser fibers
- Generation 2+ and generation 3 microchannel plates
- Fiber optic faceplates
- Image inverters
- Glass cones.

120.

Standardized refining of ceramic raw materials; production of high-end decorative materials for ceramics.

121.

Production of long-life, energy-saving, and environmentally friendly (chromium-free) refractory materials for kilns used in cement, electronic glass, ceramics, microporous carbon bricks, etc.

122.

Production of porous ceramics.

123.

Production of new inorganic non-metallic materials and products, including:

- Composite materials
- Special ceramics
- Special sealing materials (including high-speed oil seal materials)
- Special friction materials (including high-speed friction braking products)
- Special cementitious materials
- Special latex materials
- Underwater acoustics rubber products
- Nanomaterials.

124.

Production of organic-inorganic composite foam insulation materials; high-performance energy-saving insulation materials for buildings; insulation and isolation materials for modern large-scale agricultural and livestock farming.

125.

Production of high-tech composite materials, including:

- Continuous fiber-reinforced thermoplastic composites and prepregs
- Process auxiliary materials for molding resin-based composites resistant to $>300^{\circ}\text{C}$
- Biodegradable resin-based composites
- Resin-based composites for additive manufacturing
- Resin-based composites for sports goods, lightweight high-strength transportation parts
- Special functional composites (including deep-sea and diving composites, medical and rehabilitation composites)
- Carbon-carbon composites
- High-performance ceramic matrix composites
- Metal matrix and glass matrix composites
- Metal-layered composites
- Ultra-high-pressure ($\geq 320\text{ MPa}$) composite hoses
- Large aircraft aviation tires
- Polyester structural foam materials (for lightweight high-strength transportation, wind turbine blade cores, building materials, etc.).

126.

Production of raw materials for precision high-performance ceramics, including:

- Ultrafine silicon carbide powder (purity $>99\%$, average particle size $<1\text{ }\mu\text{m}$)
- Ultrafine silicon nitride powder (purity $>99\%$, average particle size $<1\text{ }\mu\text{m}$)
- High-purity ultrafine alumina micro-powder (purity $>99.9\%$, average particle size $<0.5\text{ }\mu\text{m}$)
- Low-temperature sintering zirconia powder (sintering temperature $<1350^{\circ}\text{C}$)
- High-purity aluminum nitride powder (purity $>99\%$, average particle size $<1\text{ }\mu\text{m}$)
- Rutile TiO_2 powder (purity $>98.5\%$)
- Silica (particle size $<100\text{ nm}$)
- Barium titanate (purity $>99\%$, particle size $<1\text{ }\mu\text{m}$).

127.

Development and production of high-quality artificial crystals and crystal film products, including:

- High-quality synthetic crystals (piezoelectric crystals, UV-transmitting crystals)
- Superhard crystals (cubic boron nitride)
- High-temperature insulating synthetic crystals (synthetic mica)
- New electro-optical crystals
- High-power laser crystals and large-size scintillation crystals
- Diamond film tools
- Ultra-thin synthetic diamond saw blades (thickness $\leq 0.3\text{ mm}$).

128.

Fine processing of non-metallic minerals (ultrafine crushing, high purity, refining, modification).

129.

Production of ultra-high-power graphite electrodes.

130.

Production of pearlescent mica (particle size 3–150 µm).

131.

Production of multi-directional integrated woven fabrics and profiled woven fabrics.

132.

Harmless disposal of solid waste using new dry-process cement kilns and sintered-wall-material kilns.

(14) Non-metallic Mineral Products (continued)

133.

Recycling and utilization of construction waste.

134.

Comprehensive utilization of industrial by-product gypsum and other industrial waste.

135.

Development and application of new technologies for comprehensive utilization of tailings from non-metallic mines and mine ecological restoration.

136.

Development and production of high-temperature-resistant and corrosion-resistant filter materials.

(15) Non-ferrous Metal Smelting and Rolling Processing Industry

137.

Production of high-tech non-ferrous metal materials and related products, including:

- High-temperature superconducting materials
- Shape memory alloy materials (Ti–Ni, copper-based, and iron-based)
- Ultrafine (nano) tungsten carbide and ultrafine (nano) hard alloy
- Superhard composite materials
- Precious metal composite materials

- Light-metal composite materials
- Deep processing of high-performance light-metal and copper-alloy materials used in next-generation information technology, aerospace, power equipment, advanced rail transit, biomedicine and high-performance medical equipment, marine engineering, high-tech vessels, new-energy vehicles, high-end CNC equipment and robotics, agricultural machinery, and energy-saving and environmental-protection fields
- Foamed aluminum
- Nuclear-grade sponge zirconium
- Deep-processed tungsten and molybdenum products

138.

Processing of high-end rare-earth application products meeting requirements of rare-earth new materials.

139.

Production of high-performance aluminum-titanium-boron grain refiners.

(16) Metal Products Industry

140.

R&D and manufacturing of lightweight and environmentally friendly new materials for aviation, aerospace, ships, automobiles, and motorcycles (including specialized aluminum plates, aluminum-magnesium alloy materials, aluminum-alloy motorcycle frames, etc.).

141.

Manufacturing and processing of metal packaging products (finished products with container wall thickness <0.3 mm), used for packaging grain, edible oils, fruits, vegetables, beverages, personal-care products, etc., including internal and external surface printing and coating.

142.

Manufacturing of steel fibers for construction.

(17) General Equipment Manufacturing Industry

143.

Manufacturing of high-grade CNC machine tools and key components, including:

- Five-axis CNC machine tools

- CNC coordinate boring and milling machining centers
- CNC coordinate grinding machines.

144.

Manufacturing of large multifunctional controlled-atmosphere heat-treatment equipment (furnace capacity ≥ 1 ton), programmable chemical heat-treatment equipment, programmable multifunctional vacuum heat-treatment equipment, and vacuum heat-treatment equipment with furnace capacity ≥ 500 kg; manufacturing of heat-treatment furnaces with all-fiber linings.

145.

Manufacturing of equipment for scrapped-vehicle disassembly, crushing, and post-processing separation.

146.

Manufacturing of flexible production lines (FTL).

147.

Manufacturing of high-end precision tools, nano composite coatings, and high-end processing equipment.

148.

Manufacturing of submicron ultra-fine pulverizers.

149.

Manufacturing of wheel-type and crawler-type cranes with lifting capacity of ≥ 400 tons.

150.

Design and manufacturing of high-pressure plunger pumps and motors with working pressure ≥ 35 MPa, and low-speed high-torque motors with working pressure ≥ 35 MPa.

151.

Manufacturing of integral hydraulic multi-way valves with working pressure ≥ 25 MPa, and electro-hydraulic proportional servo components.

152.

Design and manufacturing of valve islands, pneumatic solenoid valves with power ≤ 0.35 W, and high-frequency (> 200 Hz) electronically controlled pneumatic valves.

153.

Production of valves used at temperatures below -120°C or above 530°C .

154.

Design and manufacturing of hydrostatic drive devices.

155.

Development and manufacturing of non-contact air-film seals with pressure ≥ 10 MPa and dry-gas seals with pressure ≥ 10 MPa (including test devices).

156.

Design and manufacturing of pneumatic actuators with repeatability $\leq 0.03^\circ$ and axial runout ≤ 0.02 mm.

157.

Manufacturing of noise and vibration pollution-control equipment, including sound barriers, silencers, and damping spring isolators.

158.

Development and manufacturing of equipment for automotive polymer materials (including friction plates, modified phenolic pistons, and non-metallic hydraulic master/slave pumps).

159.

Manufacturing of:

- Second-generation commercial-vehicle hub bearings (THU2)
- Third-generation and above passenger-car hub bearings
- Bearings for mid- to high-end CNC machine tools and machining centers
- Bearings for high-speed wire and plate rolling mills
- High-speed rail bearings
- Low-noise bearings with vibration level $\leq Z4$
- P4 and P2 grade precision bearings
- Wind-turbine generator bearings
- Aviation bearings
- Aircraft engine bearings and other aeronautical bearings
- CT machine bearings
- Deep-well and ultra-deep-well oil-drilling bearings
- Offshore engineering bearings
- High-speed EV drive-motor system bearings (speed $\geq 12,000$ rpm)
- Bearings for RV/harmonic reducers for industrial robots
- Shield-tunneling-machine bearings
- Heat-treatment equipment for large bearings.

160.

Manufacturing of gearboxes for high-speed trains, variable-pitch gearbox systems for ships, and large or heavy-duty gearboxes.

161.

Manufacturing of high-temperature insulation materials (insulation class F and H) and insulation molded components.

162.

Development and manufacturing of accumulator bladders and rubber-plastic sealing components for hydraulic and pneumatic systems.

163.

Manufacturing of high-precision, high-strength bolts and fasteners (grade ≥ 12.9), shaped and combined fasteners.

164.

Manufacturing of miniature precision drive couplings (clutches).

165.

Manufacturing of connecting shafts for large rolling mills.

166.

Remanufacturing of machinery such as machine tools, construction machinery, railway locomotive equipment, and remanufacturing of automotive parts.

167.

Development and manufacturing of digital cameras (resolution ≥ 10 megapixels or horizontal field of view $\geq 120^\circ$), optical lenses, and optoelectronic modules.

168.

Manufacturing of office machinery (including industrial applications), including:

- Multifunctional integrated office devices (copying, printing, faxing, scanning)
- Printing devices
- High-resolution color printer heads (resolution ≥ 2400 dpi)
- Photoconductor drums.

169.

Manufacturing of film machinery:

- 2K/4K digital film projectors
- Digital movie cameras
- Digital image production and editing equipment.

170.

Construction and manufacturing of port reception and disposal facilities for ship pollutants; construction and manufacturing of emergency facilities and equipment for hazardous chemicals and oil products at ports.

171.

Development and application of industrial water-saving processes and technologies, and manufacturing of related equipment.

172.

Manufacturing of non-track mining equipment for drilling, loading, and hauling, including:

- 200-ton and above electric-drive mining dump trucks
- Mobile crushers
- Bucket-wheel excavators with capacity $\geq 5000 \text{ m}^3/\text{h}$
- Loaders $\geq 8 \text{ m}^3$
- Electric-traction shearers $\geq 2500 \text{ kW}$.

173.

Manufacturing of equipment for geophysical prospecting (excluding gravity and magnetic surveying) and well-logging, including:

- MEMS seismic geophones
- Digital telemetry seismographs
- Digital imaging and CNC logging systems
- Horizontal well and directional well drilling devices and tools
- Measurement-while-drilling (MWD) logging tools.

174.

Manufacturing of petroleum exploration, drilling, gathering, and transportation equipment, including:

- Floating drilling systems and floating production systems for water depths > 1500 meters
- Supporting subsea oil production and gathering/transportation equipment.

175.

Manufacturing of:

- Large-diameter rotary drilling rigs with bore diameter ≥ 2 meters and drilling depth ≥ 30 meters
- Pipe-jacking machines with diameter ≥ 1.2 meters
- Large non-excavation underground pipeline-laying equipment with pullback force ≥ 300 tons
- Diaphragm-wall construction drilling rigs.

176.

Design and manufacturing of large bulldozers of 520 horsepower and above.

177.

Design and manufacturing of dredgers with dredging capacity $\geq 100 \text{ m}^3/\text{hour}$ and dredging ships with capacity ≥ 1000 tons.

178.

Design and manufacturing of concrete anti-seepage wall construction equipment for flood-control levees.

179.

Manufacturing of seismic and disaster-reduction devices for civil engineering structures.

180.

Manufacturing of underwater earthwork construction machinery for water depths below 9 meters, including bulldozers, loaders, and excavators.

181.

Manufacturing of maintenance and automatic inspection equipment for highways and bridges.

182.

Manufacturing of operation monitoring, ventilation, disaster prevention, and rescue systems for highway tunnels.

183.

Design and manufacturing of large railway construction machinery and railway line, bridge, and tunnel maintenance and inspection equipment and key components.

184.

Manufacturing of beneficiation equipment for multi-element, fine-grained, refractory metallurgical mineral resources.

185.

Manufacturing of key equipment for ethylene plants with 1 million tons/year capacity, including:

- Mixed granulators with processing capacity $\geq 400,000$ tons/year
- Screw-discharge centrifuges with diameter ≥ 1000 mm
- Low-flow, high-head centrifugal pumps.

186.

Design and manufacturing of metal-product molds (extrusion molds for copper, aluminum, titanium, and zirconium tubes, rods, and profiles).

187.

Design and manufacturing of:

- Stamping dies for automobile body exterior panels
- Large injection molds for automobile instrument panels, bumpers, etc.
- Automotive and motorcycle jigs and fixtures.

188.

Design and manufacturing of dedicated production equipment for automotive power batteries.

189.

Design and manufacturing of precision molds (stamping mold accuracy >0.02 mm; cavity mold accuracy >0.05 mm).

190.

Manufacturing of beer filling equipment with capacity $\geq 60,000$ bottles/hour, medium- and hot-filling beverage equipment with capacity $\geq 50,000$ bottles/hour, and aseptic filling equipment with capacity $\geq 36,000$ bottles/hour.

191.

Manufacturing of production technologies and key equipment for amino acids, enzyme preparations, and food additives.

192.

Manufacturing of complete sets of feed-processing equipment and key components with capacity ≥ 10 tons/hour.

193.

Manufacturing of light corrugated board and carton equipment with flute height ≤ 0.75 mm.

194.

Manufacturing of sheet-fed multicolor offset printing machines (web width ≥ 750 mm; printing speed $\geq 16,000$ sheets/hour for single-sided multi-color; $\geq 13,000$ sheets/hour for double-sided multi-color).

195.

Manufacturing of printing equipment including:

- Single-web, single-paper-path web offset presses with printing speed $>75,000$ double-sided sheets/hour (787 $\times$ 880 mm)
- Double-web, single-paper-path web offset presses with printing speed $>170,000$ double-sided sheets/hour
- Commercial web offset presses with printing speed $>50,000$ double-sided sheets/hour.

196.

Manufacturing of:

- Multicolor wide-web flexographic printing machines (printing width ≥ 1300 mm; speed ≥ 350 m/s)
- Inkjet digital printing machines:
 - Publishing: speed ≥ 150 m/min, resolution ≥ 600 dpi
 - Packaging: speed ≥ 30 m/min, resolution ≥ 1000 dpi
 - Variable-data: speed ≥ 100 m/min, resolution ≥ 300 dpi.

197.

Manufacturing of:

- Computerized ink preset and ink remote-control systems
- Ink–water tracking speed systems
- Automatic print-quality monitoring and tracking systems
- Shaftless drive technologies
- High-speed automatic paper-changing machines (speed 75,000 sheets/hour)
- High-speed feeders
- Automatically adjustable folding machines
- Automatic register systems
- Cooling units, silicone-application systems, deviation-correction devices.

198.

Manufacturing of automatic coating machines for electron guns.

199.

Manufacturing of flat-glass deep-processing technologies and equipment.

200.

Manufacturing of complete sets of new papermaking machinery (including pulp-production equipment).

201.

Manufacturing of equipment for new post-finishing technologies for leather processing.

202.

Manufacturing of equipment for soil pollution control and remediation.

203.

Development and manufacturing of new equipment for agricultural product processing and storage, including:

- Grain, oilseed, vegetable, dried and fresh fruits, meat products, aquatic products processing, storage, preservation, grading, packaging, drying

- Quality inspection instruments for agricultural products
- Non-destructive quality inspection instruments for agricultural products
- Rheometers, farinographs
- Ultrafine pulverizing equipment
- High-efficiency dehydration equipment
- Five-effect or above high-efficiency juice concentration equipment
- Powdered food material sterilization equipment
- Aseptic packaging equipment for solid and semi-solid foods
- Disc-type separation centrifuges.

204.

Manufacturing of agricultural machinery, including:

- Agricultural facility equipment (automatic greenhouse irrigation equipment, automatic nutrient solution formulation and fertilization equipment, high-efficiency vegetable seedling equipment, soil nutrient analyzers)
- Supporting engines ≥ 200 kW for tractors and matching implements
- Low-fuel-consumption, low-noise, low-emission diesel engines
- Sprayers with residual droplet recovery devices for large tractors
- High-performance rice transplanters
- Cotton pickers and cotton-picking headers
- Self-propelled corn harvesters adaptable to multiple row spacings (hydraulic or mechanical drive)
- Peanut harvesters
- Rapeseed harvesters
- Sugarcane harvesters
- Beet harvesters
- Self-propelled grape harvesters.

205.

Manufacturing of forestry equipment, including:

- Intelligent greenhouses for seedlings and flowers
- Precision irrigation, fertilization, and seedling equipment
- Instruments for analysis of seedling trunk, leaf, root system flow, seed vitality, soil nutrients
- High-power (≥ 240 kW) forest operation chassis and supporting implements
- Multifunctional medium- and small-sized equipment for site preparation, planting, tending, harvesting, and skidding
- Difficult-site afforestation machinery
- Forest residue collection, baling, chipping, crushing equipment and utilization machinery

- Large and medium pesticide application and spraying machinery
- Small precise pesticide-application equipment or bionic spraying robots
- Conifer cone collectors; oil-bearing fruit harvesters
- Large and medium tree transplanters; shrub trimming tools; efficient pruning equipment
- Rapid measurement devices for forest stock volume.

206.

Manufacturing of wood-processing equipment, including:

- Fast color-difference identification equipment
- Fast solid wood board measurement equipment
- Fast knot-detection equipment
- Solid wood surface defect-detection equipment
- Sawing and sawn-timber production line technologies
- Artificial board surface defect-detection equipment
- Online quality grading equipment
- Rotary-cut veneer quality online inspection equipment
- Wood furniture paint-film sanding dust treatment equipment
- Quick sorting equipment for panel furniture components
- Intelligent warehouses for furniture manufacturing.

207.

Manufacturing of forestry disaster-monitoring equipment, including:

- Rapid forest rescue equipment
- High-precision navigation and positioning equipment
- UAV fire and disaster monitoring early-warning equipment
- Fire extinguishing and pest-elimination equipment.

208.

Manufacturing of equipment for the collection, baling, and comprehensive utilization of crop straw.

209.

Manufacturing of equipment for resource utilization of agricultural waste and for resource utilization of large-scale livestock and poultry waste.

210.

Manufacturing of specialized advanced intelligent processing equipment for leather, fur, and related products.

211.

Manufacturing of equipment for agricultural technologies that save fertilizer, pesticide, and water.

212.

Manufacturing of cleaning equipment for electromechanical wells and equipment for producing well-cleaning chemicals.

213.

Manufacturing of electronic endoscopes.

214.

Manufacturing of fundus cameras.

215.

Manufacturing of medical imaging equipment (high-field superconducting MRI, CT scanners, digital color ultrasound diagnostic equipment) and intelligent auxiliary diagnostic systems and key components.

216.

Manufacturing of medical ultrasonic transducers (3D).

217.

Manufacturing of boron neutron capture therapy equipment.

218.

Manufacturing of image-guided conformal intensity-modulated radiation therapy systems.

219.

Manufacturing of hemodialysis machines and hemofiltration machines.

220.

Manufacturing of fully automatic biochemical analyzers, five-part differential hematology analyzers, fully automatic chemiluminescence immunoassay analyzers, high-throughput gene sequencing systems, and molecular diagnostic equipment.

221.

Manufacturing of new technologies and equipment for pharmaceutical quality control.

222.

Development and manufacturing of new technologies and equipment for analysis of active substances in natural medicines, and new extraction processes.

223.

R&D and manufacturing of production equipment for consumables supporting the biopharmaceutical industry.

224.

Manufacturing of multi-layer co-extrusion water-cooled blown-film equipment for non-PVC medical infusion bags.

225.

Manufacturing of AI-assisted medical equipment.

226.

Manufacturing of high-end radiotherapy equipment.

227.

Manufacturing of high-end surgical instruments, physiotherapy and rehabilitation equipment, and wearable intelligent health devices.

228.

Manufacturing of life-support equipment for critically ill patients.

229.

Manufacturing of mobile and remote medical treatment equipment.

230.

Manufacturing of ventilators, ECMO, monitors, and PCR instruments.

231.

Development and production of minimally invasive surgical equipment, including:

- 3D imaging systems
- Electronic microscope systems
- Surgical robots
- Robotic arms
- Hearing aids and cochlear implants.

232.

R&D and production of holmium laser and CO₂ laser therapeutic products.

233.

Development and application of new stents, prostheses, and other high-end implantable and interventional medical devices and materials, including additive manufacturing technology.

234.

Manufacturing of emergency rescue equipment.

235.

Development and manufacturing of new textile machinery, key components, and textile testing and experimental instruments.

236.

Manufacturing of computerized jacquard faux-fur machines.

237.

Manufacturing of dedicated equipment for high-tech solar-cell production.

238.

Manufacturing of carbon capture, utilization and storage (CCUS) equipment and manufacturing of greenhouse-gas monitoring and measurement equipment.

239.

Manufacturing of air-pollution control equipment, including:

- Low-NO_x combustion devices
- Flue-gas denitrification catalysts and complete denitrification systems
- Industrial VOC purification equipment
- Diesel engine exhaust purification devices
- Equipment for treating heavy-metal-containing waste gas.

240.

Manufacturing of water-pollution control equipment, including:

- Horizontal spiral centrifuge dehydrators
- Membranes and membrane materials
- Ozone generators with capacity ≥ 50 kg/h
- Chlorine dioxide generators with capacity ≥ 10 kg/h
- Ultraviolet disinfection devices
- Small-scale rural domestic sewage treatment equipment
- Equipment for treating wastewater containing heavy metals.

241.

Manufacturing of solid waste treatment and disposal equipment, including:

- Sludge-treatment and resource-utilization equipment for wastewater treatment plants
- Leachate treatment equipment for landfills
- Construction-waste treatment and recycling equipment

- Hazardous-waste treatment facilities
- Landfill gas generation and power-generation units
- Waste steel processing equipment
- Medical waste centralized treatment facilities.

242.

Development and manufacturing of equipment for comprehensive utilization of red mud from the aluminum industry.

243.

Manufacturing of equipment for comprehensive utilization of tailings.

244.

Manufacturing of equipment for recycling and reprocessing waste plastics, waste electrical appliances, waste rubber, and waste batteries.

245.

Manufacturing of equipment for recycling and processing waste textiles.

246.

Manufacturing of equipment for remanufacturing waste electromechanical products.

247.

Manufacturing of equipment for utilizing residual heat, residual pressure, and residual gas.

248.

Manufacturing of environmental-protection technologies and equipment for aquatic ecosystems.

249.

Manufacturing of mobile combined water-purification equipment.

250.

Manufacturing of unconventional water-treatment equipment, water-reuse equipment, and water-quality monitoring instruments.

251.

Manufacturing of leak-detection equipment and instruments for industrial water pipe networks and water-use equipment.

252.

Development and manufacturing of seawater desalination ($\geq 100,000 \text{ m}^3/\text{day}$) and circulating cooling technologies and complete sets of equipment.

253.

Manufacturing of industrial water-saving equipment used in high-water-consuming sectors such as steel, papermaking, textiles, petrochemicals, chemicals, and metallurgy.

254.

Manufacturing of special meteorological observation and analysis equipment.

255.

Development and manufacturing of seismic station, seismic network, and mobile seismic-observation system technologies and related instruments and equipment.

256.

Manufacturing of rolling-resistance testing machines and tire-noise laboratories.

257.

Manufacturing of new technologies and equipment for heat-supply metering and temperature-control devices.

258.

Manufacturing of hydrogen-production equipment, hydrogen-storage and transportation equipment, and hydrogen-inspection systems.

259.

Manufacturing of:

- New heavy-residue oil gasification atomizing nozzles
- High-efficiency steam traps with leakage rate $\leq 0.5\%$
- High-temperature ceramic heat exchangers ($\geq 1000^\circ\text{C}$).

260.

Manufacturing of offshore oil-spill recovery devices.

261.

Manufacturing of mine gas (coal mine methane) extraction, purification, and utilization equipment.

262.

Manufacturing of coal washing, dressing, and coal-quality improvement equipment.

263.

Manufacturing of coal-based clean utilization equipment (including high-efficiency coal-water slurry, circulating fluidized bed combustion, and near-zero-emission coal combustion).

264.

Manufacturing of large-scale high-efficiency boilers and coal-fired power generation equipment meeting ultra-low emission standards.

265.

Manufacturing of complete sets of environmental protection equipment for coal-fired units.

266.

Manufacturing of intelligent mine construction equipment and systems.

267.

Manufacturing of equipment for emergency rescue in mines.

268.

Manufacturing of high-end fire rescue equipment and devices.

269.

Manufacturing of nuclear power primary pump seals.

270.

Manufacturing of key components for nuclear reactor coolant pumps.

271.

Manufacturing of precision molds for medical devices.

272.

Manufacturing of high-end anti-epidemic and emergency medical supplies and equipment.

273.

Manufacturing of high-end sports equipment such as advanced ski and ice-sports gear.

IV. Production and Supply of Electricity, Heat, Gas, and Water

397.

Construction and operation of clean-coal power generation projects adopting high-efficiency, energy-saving, and ultra-low emission technologies.

398.

Construction and operation of distributed energy systems such as:

- Natural gas distributed energy
- Combined cooling, heating, and power projects (CCHP).

399.

Construction and operation of renewable energy power generation projects, including:

- Wind power
- Solar photovoltaic power
- Solar thermal power
- Biomass power generation
- Geothermal power generation.

400.

Construction and operation of hydropower stations (excluding large and medium-sized hydropower stations that have restrictions).

401.

Construction and operation of pumped-storage power stations.

402.

Manufacturing of complete sets of equipment for wind-power generation.

403.

Manufacturing of complete sets of solar photovoltaic equipment and components.

404.

Manufacturing of solar thermal power generation equipment and key components.

405.

Manufacturing of biomass power generation equipment and key components.

406.

Manufacturing of geothermal energy utilization equipment.

407.

Manufacturing of nuclear power equipment (secondary side and non-nuclear island).

408.

Construction and operation of urban heating systems using clean energy.

409.

Manufacturing of large-scale gas turbines and key components.

410.

Manufacturing of high-efficiency energy-storage equipment (compressed air, flywheel energy storage, etc.).

411.

Development and manufacturing of smart-grid equipment and key technologies, including:

- Advanced metering infrastructure (AMI)
- Distribution automation
- Demand-side management
- Microgrid systems.

412.

Construction and operation of smart-grid demonstration projects.

413.

Manufacturing of hydrogen-fueled power generation systems and supporting equipment.

414.

Manufacturing of advanced power-distribution equipment, including:

- High-voltage switchgear
- Gas-insulated switchgear (GIS)
- Intelligent transformers

- High-efficiency rectifiers
- Flexible transmission devices.

415.

Manufacturing of desalination power equipment and supporting technologies.

416.

Construction and operation of urban and industrial water-supply and drainage projects adopting advanced treatment technologies.

417.

Manufacturing of reclaimed-water reuse equipment and key components.

V. Transportation, Warehousing, and Postal Services

418.

Construction and operation of specialized railway lines.

419.

Construction and operation of logistics hubs and multimodal transport facilities.

420.

Construction and operation of cold-chain logistics facilities for agricultural products, fresh foods, and pharmaceuticals.

421.

Operation of international shipping agencies and international freight-forwarding businesses.

422.

Operation of international container depot services and container repair services.

423.

Construction and operation of specialized ports and terminals, including:

- Container terminals
- Bulk cargo terminals
- Ro-ro (roll-on/roll-off) terminals
- LNG terminals.

424.

Construction and operation of supportive facilities for multimodal transport, such as:

- Container yards
- Bonded logistics centers
- Railway–port linkage facilities.

425.

Construction and operation of public aviation logistics facilities.

426.

Construction and operation of aviation ground-support service projects (excluding prohibited items).

427.

Construction and operation of general aviation service facilities.

428.

Construction and operation of regional freight airports, specialized cargo terminals, and airport logistics facilities.

429.

Construction and operation of intelligent transportation systems (ITS) and digital transportation infrastructure.

430.

Manufacturing of intelligent transportation equipment and systems, including:

- Smart traffic signal control systems
- Vehicle-road coordination equipment (V2X)
- Highway monitoring and emergency response equipment.

431.

Construction and operation of inland waterway shipping and port facilities.

432.

Construction and operation of urban rail transit and related supporting facilities.

433.

Manufacturing of core equipment for rail transit systems, including:

- Traction systems
- Braking systems
- Train control systems (CBTC)
- Rail transit signal equipment
- Lightweight car body structures.

434.

Manufacturing of specialized vehicles for logistics:

- Cold-chain vehicles
- Hazardous-goods vehicles
- Special-purpose transport vehicles.

435.

Development and application of new energy and clean-energy logistics vehicles.

436.

Manufacturing of advanced warehousing and sorting equipment, including:

- Automated storage equipment
- Sorting robots
- Cross-belt sorters
- AGV/AMR robots
- High-speed scanning and identification equipment.

437.

Construction and operation of bonded warehouses and special customs supervision zones (excluding prohibited items).

438.

Construction and operation of smart postal delivery systems and automated sorting centers.

439.

Manufacturing of postal and express-delivery equipment, including:

- High-speed sorting machines
- Packaging and sealing equipment
- Intelligent delivery lockers.

VI. Wholesale and Retail

440.

Construction and operation of wholesale markets for agricultural products, livestock and poultry products, aquatic products, vegetables, fruits, and specialty agricultural goods.

441.

Construction and operation of national-level logistics distribution centers, wholesale trading markets, and e-commerce distribution hubs.

442.

Development and application of advanced commercial circulation technologies, including:

- Supply-chain digitization
- Smart retail systems
- Inventory optimization technologies
- Smart vending systems.

443.

Construction and operation of urban commercial circulation facilities, including:

- Fresh food distribution centers
- Cold-chain distribution centers
- Smart warehousing and distribution hubs.

444.

Development and operation of new retail models integrating online and offline systems.

445.

Construction and operation of commodity trading platforms (excluding prohibited items).

446.

Development and operation of international commodity trading and distribution services for cross-border e-commerce.

VII. Information Transmission, Software, and Information Technology Services

447.

Development and application of industrial software, including:

- CAD/CAE/CAM
- MES (Manufacturing Execution Systems)
- PLM (Product Lifecycle Management)
- Industrial simulation software
- Industrial design software
- Industrial data management systems.

448.

Construction and operation of cloud computing infrastructure, big-data platforms, Internet of Things (IoT) platforms, and smart manufacturing systems.

VIII. Leasing and Business Services

449.

Development and application of modern supply-chain management services.

450.

Business-process outsourcing (BPO), including:

- Finance and accounting outsourcing
- Human resources outsourcing
- Customer service outsourcing
- Technical support outsourcing.

451.

Development and operation of intellectual property service platforms, including:

- IP operation
- Rights protection
- Patent conversion services.

452.

Development and operation of standardization technical services, including:

- Standards development
- Technical evaluation
- Certification and compliance assessment.

453.

Development and operation of industrial design centers, creative design services, and product design services.

454.

Operation of testing and certification services, including:

- Product quality testing
- Environmental testing
- Safety certification
- Energy-efficiency evaluation.

455.

Development and operation of entrepreneurship and innovation platforms, including:

- Maker spaces
- Incubators
- Accelerators
- Industrial innovation centers.

456.

Development of human resources services (excluding prohibited items), including:

- Talent acquisition
- Training
- Assessment
- Skill development services.

457.

Operation of professional consulting services, including:

- Management consulting
- Engineering consulting
- Technical consulting
- Financial advisory services.

458.

Development and operation of e-commerce platforms serving domestic and cross-border business activities.

459.

Operation of green logistics, reverse logistics, and circular economy consulting services.

460.

Development of digital trade services and cross-border digital service delivery platforms.

IX. Scientific Research and Technical Services

461.

Research, development, and application of key technologies in areas such as big data, artificial intelligence, cloud computing, blockchain, and quantum information (excluding items prohibited or restricted by the State).

462.

Development and application of industrial internet platforms, industrial cybersecurity technologies, and industrial data-integration solutions.

463.

R&D and application of advanced sensing technologies, including:

- High-precision sensors
- Environmental sensors
- Industrial sensors
- Agricultural sensors.

464.

R&D and application of new materials technologies, including:

- High-performance composites
- Special alloys
- Functional polymers
- Nano-materials
- New metallurgical technologies.

465.

R&D and application of biotechnology, including:

- Gene sequencing
 - Gene editing
 - Synthetic biology
 - Protein engineering
- (excluding prohibited fields)

466.

R&D and technical services related to:

- Drug discovery
- Preclinical evaluation
- Clinical research
- Pharmaceutical technical consulting.

467.

R&D and application of green and low-carbon technologies, including:

- Energy-saving technologies
- Emission-reduction technologies
- Green manufacturing technologies.

468.

R&D and application of environmental protection technologies, including:

- Air pollution control
- Water pollution control
- Solid-waste treatment
- Soil remediation
- Ecological restoration.

469.

R&D, evaluation, and technical services for renewable energy, including:

- Wind
- Solar
- Biomass
- Hydrogen energy
- Geothermal energy.

470.

R&D of agricultural science and technology, including:

- Seed technology
- Agricultural machinery technology
- Smart agriculture
- Soil improvement technologies.

471.

R&D of advanced manufacturing technologies, including:

- Intelligent manufacturing

- Precision manufacturing
- Robotics
- Digital twins
- Industrial automation technologies.

472.

R&D and services for testing, certification, inspection, and evaluation in industrial and consumer product fields.

473.

R&D and operation of engineering research centers, technology centers, laboratories, and innovation platforms.

474.

R&D and application of marine engineering technology, including:

- Marine equipment
- Marine survey
- Marine ecological protection technologies.

475.

R&D and application of aerospace science and technology, including:

- Satellite manufacturing
- Satellite data services
- Aerospace testing equipment
(excluding sectors prohibited to foreign investment)

476.

R&D and application of geological and mineral exploration technologies (excluding prohibited surveying activities).

477.

R&D and application of emergency management technologies, including disaster early-warning systems and emergency response technologies.

478.

R&D and application of energy-storage technologies, including:

- Electrochemical energy storage

- Compressed air energy storage
- Flywheel energy storage.

479.

R&D and application of smart-grid and power-system technologies.

480.

R&D and application of intelligent transportation technologies, including:

- Connected vehicles (V2X)
- Autonomous driving testing platforms
- Smart transportation infrastructure.

481.

R&D and application of logistics technologies, including:

- Intelligent warehousing
- Supply-chain digitization
- Cold-chain logistics technologies.

482.

R&D and application of advanced construction technologies, including:

- Prefabricated buildings
- Green buildings
- Smart construction equipment.

483.

R&D and application of cultural and creative technologies, including digital media.

484.

R&D and application of tourism, sports, and leisure technologies (excluding prohibited items).

485.

R&D and application of environmental monitoring technologies, including:

- Air-quality monitoring
- Water-quality monitoring
- Soil monitoring
- Ecological monitoring.

486.

Technical services for carbon accounting, carbon verification, carbon footprint analysis, and carbon management.

487.

R&D and application of CCUS (carbon capture, utilization, and storage) technologies.

488.

R&D and application of climate-change response technologies.

489.

R&D and application of technologies related to the circular economy and comprehensive resource utilization.

490.

Technical services for safety assessment and risk management.

491.

R&D and application of energy-efficiency testing technologies and equipment.

492.

R&D and application of battery technology, power electronics, and key components for new-energy systems.

493.

R&D and technical services related to industrial software and digital engineering.

494.

R&D and application of rail transit technologies, including:

- Train control
- Braking systems
- Smart maintenance technologies.

495.

R&D and application of high-end medical technologies, including:

- Imaging
- Diagnostics
- Rehabilitation
- Digital medicine.

X. Water Conservancy, Environment, and Public Facilities Management

496.

Construction and operation of environmental governance projects such as:

- River and lake ecological restoration
- Wetland protection
- Comprehensive water environment management.

497.

Construction and operation of water-saving irrigation and farmland water conservancy projects.

498.

Construction and operation of sponge city projects and related facilities.

499.

Construction and operation of urban waste collection, transfer, treatment, and disposal facilities.

500.

Construction and operation of hazardous-waste and medical-waste treatment and disposal facilities.

501.

Construction and operation of new energy-based district heating and clean urban heating systems.

XI. Education

502.

Establishment and operation of vocational education institutions (excluding compulsory education and prohibited sectors).

503.

Establishment and operation of training institutions for skills development, continuing education, and adult education.

504.

Development of digital education technologies and smart education platforms.

505.

Development and application of education equipment and teaching-assistance systems.

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XII. Health and Social Work

506.

Construction and operation of medical institutions (excluding prohibited items), including:

- General hospitals
- Specialized medical centers
- Rehabilitation centers
- Elderly care institutions
- Nursing homes.

507.

Development and application of telemedicine systems and remote-healthcare platforms.

508.

Construction and operation of community health service centers and medical rehabilitation facilities.

509.

Development and production of health-management technologies, including:

- Wearable medical devices

- Health-monitoring apps
- Smart health equipment.

510.

Construction and operation of public hygiene and disease-control facilities.

511.

Development and application of medical testing and clinical laboratory technologies.

512.

Construction and operation of elderly care, assisted-living, and special-care institutions.

513.

Development of smart elderly service technologies and facilities.

XIII. Culture, Tourism, Sports, and Entertainment

514.

Development and operation of cultural and creative industries, including:

- Digital media
- Animation
- Film and television post-production
- Online cultural content production (excluding prohibited items).

515.

Construction and operation of cultural venues, including:

- Libraries
- Museums
- Art galleries
- Science and technology museums.

516.

Construction and operation of tourism projects, including:

- Ecotourism
- Rural tourism

- Theme parks
- Scenic-area infrastructure.

517.

Construction and operation of sports venues, including:

- Stadiums
- Ice and snow sports facilities
- Fitness and training centers.

518.

Development and operation of sports services, including:

- Sports training
- Sports event operation
- Mass sports services.

519.

Development and production of cultural, tourism, and sports equipment and products.