

List of Technologies Prohibited and Restricted by China

Ministry of Commerce of China

Ministry of Science and Technology of the People's Republic of China

Reference Principles of Technology Prohibition and Restriction on Export

I. Reference Principles for Prohibition of Export Technologies

(1) It is necessary to prohibit export in order to safeguard national security, social public interests or public morals;

(2) where it is necessary to prohibit the export for the purpose of protecting human health or safety, protecting the life or health of animals or plants, or protecting the environment;

(3) Other items that need to be prohibited from export in accordance with the provisions of laws and administrative regulations;

(4) Any other export that needs to be prohibited in accordance with the provisions of the international conventions and agreements to which China is a party or to which China is a party.

II. Reference Principles for Restricted Export Technologies

(1) It is necessary to restrict exports in order to safeguard national security, social public interests or public morals;

(2) It is necessary to restrict exports for the purpose of protecting human health or safety, protecting the life or health of animals or plants, or protecting the environment;

(3) Other export restrictions are necessary in accordance with the provisions of laws and administrative regulations;

(4) in accordance with the provisions of the international conventions and agreements concluded or to which China is a party, other export restrictions are necessary.

Directory Format Dxplication

Directory Format:

编 号: (1) X X X X X X J(X)

Technical Name: (2)

Control points: (3) a

Dxplication:

(1) Number: 7 digits

X X	X X	X X	J(X)
Annual Code	Industry Classification Code	Sequence number	Ban (Restrict) Code

1) The annual code is the last two digits of the technical article published in the year

2) The industry classification code is the secondary classification serial number of the National Economic Industry Classification

3) The sequence number is coded sequentially for the technical items under the same industry classification

4) "J" stands for Prohibited Export Technology, "X" stands for Restricted Export Technology

(2) Technical name: the general term of a certain type of technology.

(3) Control points: the technical content, characteristics and scope of this type of technology need to be controlled.

(4) The classification code of the catalogue shall be compiled and sorted by reference to the classification of national economic and trade services (GB / T 4754-2017).

Export ban

Serial number	Industry Areas	number	Technical name	Points of control
1	Animal Husbandry	080301J	Breeding Techniques of Livestock Breeds 术	The National Classification List of Livestock and Poultry Varieties for Export Administration is listed as Breeding Techniques of "First Class" Varieties
2		080302J	Silkworm varieties, Breeding and silkworms Cocoon Collection Plus Industrial utilization technology 术	1. Genetic Resources of Silkworms Except Hybrid First Generation Silkworm Varieties 2. Utilization Techniques of Tussah, Castor and Celestial Silkworm and Related Silk Insects
3	Fisheries	080401J	Breeding techniques of aquatic species 术	Breeding Techniques of Germplasm Listed in Catalogue of Aquatic Germplasm Resources Not Exchanged at Present Stage in China
4	Paper and paper products 业	082201J	Papermaking technology	1. Production technology of rice paper 2. Formula and Production Technology of Qian'an Calligraphy and Painting Paper
5	Culture, education, industrial beauty, sports and entertainment products manufacturing	082401J	The Manufacturing Technology of Calligraphy and Painting Ink and Babao Ink Pad	1. The formula of painting and calligraphy ink 2. The formula of Babao Print Mud
6	Chemical raw materials and chemical products manufacturing	082601J	Production technology of fireworks and firecrackers	Firecrackers and fireworks manufacturing process 1. Body Filling Technology of Ignition Point Explosion Device 2. Filling drug formulations and adhesives 3. Mechanical Forming Technology of Spherical Shell 4. Pharmaceutical formulation and manufacturing technology of multi-color pellet flash gun 5. Formulation and production technology of alloy powder 6. Pharmaceutical formula and manufacturing process of smokeless fireworks
7	Pharmaceutical manufacturing	082701J	Resources and Production Technology of Chinese Medicinal Materials	1. Wild Chinese Medicine Resources in Rare and Endangered Animals and Plants in the World and Their Breeding Techniques 2. Formulation and Production Technology of Substitute for Endangered and Rare Medicinal Materials 3. Strains, strains, purification, culture and development of fungal medicinal materials

				The fermentation and production process comprises the following bacteria species: Cordyceps sinensis, Morchella esculenta, Ostroganoderma, Coriolus versicolor, Ganoderma, Ganoderma lucidum, Thunder pill, Polyporus umbellatus, Tricholoma matsutake, Dictyophora kirta, Dictyop kirta, Dictyophora flavus, Puffball, Xanthocera nigripes, Poria cocos
8		082702J	Processing Technology of Chinese Herbal Slices	<p>1. Processing Technology and producing area processing Technology of toxic traditional Chinese Medicine (1) making Radix Polygoni Multiflori (2) making Radix Polygoni Multiflori (3) making Nanxing, Dananxing (4) making Aconitum mongolicum (5) Pinellia ternata, Pinellia ternata, Ginger Pinellia (6) Prepared Guanbai Fu (7) Prepared Monkshood (8) Prepared Phytolacca (9) Prepared Nux Vomica (10) Simmered Nutmeg (11) Prepared Daphne Genkwa (12) Prepared Toad Venom (13) Prepared Garcinia Cambogia (14) Prepared Kansui (15) Prepared Wolfsbane (16) Croton Cream (17) Prepared Cantharis (18) Prepared Qingniang (19) Fly Realgar (20) Cinnabar (21) Caper euphorbia seed</p> <p>2. Processing techniques and processing in production place of common traditional Chinese medicines (1) Prepared rhubarb (2) Prepared rehmannia glutinosa (3) Prepared fleecflower root (4) Prepared cyperus rotundus (5) Pilose antler (6) Placenta Hominis (7) Six Divine Qu (8) Built Divine Qu (9) Beetles (10) Prepared Cistanche deserticola (11) Polygonatum sibiricum (12) Asiatic cornelian fruit (13) Glossy privet fruit (14) Red ginseng (15) Magnolia officinalis (16) Dragon's blood (17)</p>
9		082703J	Pharmaceutical Ingredient Taxol and Related Technologies Extraction and processing technology of rare and endangered plants in China	
10	Non-metallic mineral products industry	083001J	Production technology of amorphous inorganic nonmetallic materials 术	Preparation of Neodymium Glass with High Power and Large Size for Laser Technology technology
11		083002J	Production technology of low dimensional inorganic nonmetallic materials 术	<p>Technology for producing rigid low-density heat insulating material bonded with carbon fibre or non-fibrous carbon having any of the following characteristics</p> <p>1. Can be used at high temperatures above 2273 K (2000 °C)</p> <p>用</p> <p>2. Density between 100 and 300 kg / m³</p> <p>3. Compressive strength between 0.1 ~ 1.0 MPa</p>

				<p>4. Flexural strength > 1.0 MPa</p> <p>5. Carbon content of more than 99.9% of the total solid</p>
12	Non-ferrous metal smelting and rolling processing industry	083201J	Technology of Extraction, Processing and Utilization of Rare Earth	<p>1. Rare Earth Extraction and Separation Technology</p> <p>2. Production Technology of Rare Earth Metals and Alloys</p> <p>3. Preparation technology of samarium cobalt, neodymium iron boron and cerium magnets</p> <p>4. Preparation Technology of Rare Earth Calcium Oxyborate</p>
13	Railway, ship, aerospace and other transporta equipmen	083701J	Satellite remote control and telemetry of satellites used in China and their carrying stations by spacecraft Control technology	Coding and encryption techniques, including algorithms, code tables, etc.
14		083702J	Aircraft Design and Manufacturing Technology	Design and Manufacturing Technology of Core Engine of Aviation Gas Turbine 木
15	Manufacturin of computers, communicati and other electronic equipment	083901J	Integrated Circuit Manufacturing Technology	<p>Anti-irradiation technology and process</p> <p>(1) Antistatic $\geq 2,500$ V, anti-instantaneously dose rate > 1×10^{11} rad (si) / s CMOS / OS (Epitaxial Silicon on Sapphire / Complementary Metal Oxide Semiconductor) Devices</p> <p>(2) Bipolar device manufacturing technology with anti-static > 3.000 V and anti-instantaneously dose rate > 1×10^{11} rad (si) / s</p>
16		083902J	Robot manufacturing technology	Manufacturing Technology of Remote Control Nuclear and Chemical Reconnaissance Robot
17	Building decoration, renovation and other construction	085001J	Traditional Chinese Architectural Technology	<p>1. Manufacturing process of traditional materials of construction</p> <p>2. Traditional architectural decoration technology</p>
18	Telecommu radio and television and satellite transmissio services	086301J	Computer network technology	Information security technologies involving state secrets used by government, finance, industry and scientific research departments in China, including information concealment technologies, security threat detection technologies, etc.
19		086302J	Spatial data transmission technology	<p>Satellite data encryption techniques involving one of the following</p> <p>1. Secrecy Principle, Scheme and Circuit Design Technology</p> <p>2. Software and hardware for encryption and decryption</p>

20		086303J	Satellite application technology	Beidou satellite navigation system information transmission encryption technology, including the corresponding software
21	Research and testing 展	237301J	Used in humans is ethically controversial and can cause significant harm. Cell cloning of human germ cells containing genetic material (i.e., embryonic fine And genetic editing. Editing technique	Cell, egg cell, sperm cell) to edit genes Editing technique
22	Professional Technical Services 业	087401J	Geodetic technique	1. Satellite Positioning Technology for Directly Exporting Chinese Geodetic Coordinates 2. Geodetic, Satellite, Gravity and Elevation Databases in China and Their Development and Application Techniques 3. Gravity field model of China
23		087402J	Cartographic technique	Image products with direct output scale > 1: 100,000 topographic map elements in China
24	Hygiene	088401J	TCM Medical Technology	Key points of craniotomy with acupuncture anesthesia

Export restrictions

Serial number	Industry Areas	number	Technical name	Points of control
1	agriculture	080101X	Germplasm Resources of Crops (including Forage) and Their Breeding Techniques	<p>1. Seed Production Technology of Two-line and Three-line Hybrid Superiority Utilization of Grain, Cotton and Oil Crops</p> <p>2. Seed Production of Dominant Genic Male Sterile Rapeseed with Three Lines</p> <p>3. Breeding and applying techniques of self-incompatibility lines and male sterility lines</p> <p>4. Preparation of Maize Anther Culture Medium</p> <p>5. The technique of artificial seed production and Proliferation of hair vegetables</p> <p>6. Providing Crop Germplasm Resources (Including Herbage) Listed in the Classification Directory of Crop Germplasm Resources and Their Breeding Techniques</p>
2		080102X	Cultivation and breeding techniques of cash crops	<p>1. Development of Important Core Germplasm Resources and Breeding Materials, Gene Analysis and Identification Techniques of Tobacco</p> <p>(1) Germplasm resources identified as important sources of resistance, including tobacco germplasm resources with immunity or high resistance to virus disease, black shank, bacterial wilt, brown spot, powdery mildew, tobacco aphid, tobacco green worm, root-knot nematode and other major diseases and insect pests</p> <p>(2) Specific tobacco germplasm resources, including multi-leaf type, special flavor type, special flavor type, high potassium, high sugar, high protein, white flowers and other morphological or physiological genetic markers, high quality, local famous sun-cured tobacco varieties</p> <p>(3) high nicotine content of more than 6% (4) belongs to the international advanced male sterile two-line breeding materials, germplasm resources, special breeding purpose germplasm resources (5) precious and rare local germplasm resources collected and found in China</p> <p>2. Tobacco Medium Pollen Technology</p>
3		200103X	Artificial Breeding Techniques of Agricultural Wild Plants	<p>1. Artificial Breeding Techniques of Class I Wild Plants Under the Supervision of Agricultural Departments as Listed in the List of Key Protected Wild Plants of the State</p> <p>2. Artificial Breeding Techniques for Agricultural Wild Plants Listed in the Convention on International Trade in Endangered Species of Wild Fauna and Flora</p>

4		200104X	Genetic engineering (genes and vectors)	<p>1. Newly Discovered Male Sterility Gene, Restorer Gene and Vector in Plant</p> <p>2. Newly Discovered Disease and Insect Resistant Genes and Vectors</p> <p>3. Newly discovered stress-resistant gene and vector</p> <p>4. Newly discovered quality genes and vectors</p> <p>5. Newly Discovered Yield Related Genes and Vectors</p> <p>6. Other Important Genes and Vectors Newly Discovered</p> <p>7. Specific gene manipulation techniques</p>
5		230105X	Utilization Techniques of Crop Hybrid Superiority	<p>1. Endangered, rare and important species in China, as well as individuals, organs, tissues, cells, genes of these species that can be used for regeneration and passage, or seeds, genetic information and other resources that can be used for reproduction and passage</p> <p>2. Cross breeding techniques of endangered, rare and important species in China</p> <p>术</p>
6	Forestry	080201X	Tree germplasm Resources and their Breeding technique	<p>1. Class I Wild Plants Listed in the Catalogue of National Key Protected Wild Plants and Artificial Breeding Techniques under the Supervision of Forestry and Grass Departments</p> <p>2. Triploid and Breeding Techniques of Poplar</p> <p>3. Wild Plants and Artificial Breeding Techniques Listed in the Appendices of the Convention on International Trade in Endangered Species of Wild Fauna and Flora</p>
7		080202X	Garden plants, Ornamental plant Breeding technique	Artificial Breeding Techniques of Ornamental Plants Listed in National Key Protected Wild Plants
8		080203X	Artificial breeding and conservation techniques of wild animals 术	<p>1. Listed in the List of National Key Protected Wildlife Wild Artificial Breeding Technique of Land Animals and Half Year Old of Young Offspring and Chicks</p> <p>Pre-critical feeding methods and feed formulations, additives</p> <p>2. Feed Formula and Processing Technology of Crested Ibis, Red-crowned Crane and Green Peacock</p> <p>3. Artificial Rearing Techniques of Rare Mammal Giant Panda</p>
9	Animal Husbandry	080301X	Breeding Techniques of Livestock Breeds 术	<p>1. The National Classification List of Livestock and Poultry Varieties for Export Administration is listed as Breeding Techniques of "Second Class" Varieties</p> <p>2. Breeding Techniques of Baise Pony</p> <p>3. Breeding Technology of Bama (Huanjiang) Fragrant Pig</p> <p>4. Breeding Techniques of Beijing Oily Chicken</p>
10		200302X	Breeding Techniques of Cashmere Goats	Hybridization, artificial insemination, embryo and gene cloning

11		200303X	Breeding Techniques of Cashmere Goat Breed	Inner Mongolia Cashmere Goat, Wuzhu Muqin White Cashmere Goat, Hanshan White Cashmere Goat, Liaoning Cashmere Goat, Jinlan Cashmere Goat, Hexi Cashmere Goat and Tibet Cashmere Goat
12	Fisheries	080401X	Breeding techniques of aquatic germplasm	<p>1. Breeding Techniques of Aquatic Germplasm Resources Listed in "List of Aquatic Germplasm Resources Eligible for Foreign Exchange at Present Stage in China"</p> <p>2. Culture and production technology of freshwater microalgae</p> <p>(1) Purification of algae species and control technology of miscellaneous algae</p> <p>(2) Algae culture process and concentration technology</p> <p>(3) The monitoring process</p> <p>(4) Water quality measurement and control technology of cultivated water</p> <p>3. Artificial propagation technique of barracuda</p> <p>(1) Breeding of parent fish in fresh water, medicine-induced artificial breeding technique</p> <p>4. Technique of artificial breeding and artificial feed culture of siniperca chuatsi</p> <p>(1) artificial induction of labor, breeding techniques of mandarin fish</p> <p>(2) Larval feed and its simultaneous culture technique</p> <p>5. Artificial Propagation of Chinese Crab</p> <p>(1) Induction of labor techniques, facilities, processes</p> <p>(2) Larval breeding, opening bait</p> <p>(3) Disease Control</p> <p>(4) Male Breeding of Chinese Crab</p> <p>6. Artificial breeding techniques of grouper</p> <p>(1) parent fish rearing</p> <p>(2) ripening, induction of labor techniques, drugs</p> <p>(3) Seedling cultivation, feeding habits conversion, transition bait</p> <p>7. Artificial Breeding Techniques of Snakehead</p> <p>(1) Juvenile fish breeding technology, technology</p> <p>(2) Parent fish rearing and spawning techniques</p> <p>8. Artificial Propagation of Mitten Crab Hepu</p>

13	Agriculture, forestry, animal husbandry and fisheries professional and auxiliary activities 动	080501X	Production technology of veterinary drugs	<p>1. Equine attenuated virus</p> <p>2. Porcine panting virus</p> <p>3. Attenuated Bovine Pneumonosis Virus</p> <p>4. Rinderpest attenuated vaccine</p> <p>5. Bovine Tellurian Ring Pyrozoosis Cell Seedling</p> <p>6. Classical swine fever vaccine virus</p> <p>7. Highly pathogenic avian influenza virus strains</p> <p>8. Foot-and-mouth disease virus strains</p> <p>9. African swine fever virus strains</p>
14		080502X	Veterinary Health Quarantine Technology	<p>1. Detection of antibodies against classical swine fever virus</p> <p>(1) Monoclonal antibody hybridoma cell line</p> <p>2. Detection of Antibodies to Equine Poverty Virus</p> <p>(1) Monoclonal antibody hybridoma cell line</p>
15	Non-ferrous metal mining and dressing industry	080901X	Mining engineering technology	Leaching Technology of Ion Type Rare Earth Mine
16	Agricultural and sideline food processing 业	081301X	Sugar processing technology 术	Production Technology of Sandwich Crystal Rock Sugar
17		081701X	Processing Technology of Longxiang Silk	Processing Technology of Longxiang Silk
18	Textile industry	081702X	Textile fibre products and their processing technology	<p>1. Indigo Dyeing Process with Unique Traditional Prescription (1) Indigo Dyeing Process of Hand Woven Fabric</p> <p>2. Traditional hand tie-dye technology</p> <p>(1) Traditional hand tie-dye technology</p> <p>3. Batik Technology of Real Silk Products</p> <p>(1) Real Silk Batik Process</p> <p>4. Processing Technology of Anti-shrinkage and Anti-wrinkle of Real Silk</p> <p>(1) Real silk anti-wrinkle processing technology</p> <p>(2) Real silk anti-wrinkle agent formula</p>
19	Paper and paper products 业	082201X	Traditional handmade paper production technology 术	<p>Production technology of traditional handmade paper, such as bamboo paper, mulberry paper, and textured paper</p> <p>术</p>

20	Culture, education, industrial beauty, sports and entertainment products manufacturing	082401X	Handicraft Manufacturing Technology	<p>1. Production Technology and Technology of Metal Handicraft (1) Surface Treatment Process of Spotted Copper</p> <p>2. Manufacturing Technology and Technology of Lacquer Arts and Crafts</p> <p>(1) The raw material processing and production technology of snail lacquerware</p> <p>3. Techniques and Techniques for Making Embroidery</p> <p>(1) double-sided three different embroidery, three different Kesi technology and small needle picking method</p> <p>(2) The Technical Know-how of Weaving Gold Silk Dragon Robes, Damask Dragon Robes and Peacock Feathers in the Ming Dynasty</p> <p>4. Production technology and technology of other arts and crafts</p> <p>(1) snuff bottle and other arts and crafts painting skills</p>
21	Chemical raw materials and chemical products manufacturing	082601X	Biological pesticide production technology	<p>1. Production Technology of Microsporidia Insecticides</p> <p>2. Polyhedrosis virus seed and preparation process</p> <p>3. Strain and production technology of jinggangmycin</p> <p>4. Strain and Production Technology of Warfarin</p> <p>5. Strains and production technology of liuyangmycin</p> <p>6. Strain and production technology of aureomycin</p> <p>7. Strains of Ningnanmycin and Its Production Technology</p> <p>8. Abamectin Strain and Production Technology</p> <p>9. Bt strain and its production technology</p> <p>10. Bacillus subtilis strains and production techniques</p> <p>11. Strain and Production Technology of Onramycin</p> <p>12. Pyrimidine nucleoside antibiotics (agricultural resistance 120) strain and production technology</p> <p>13. Beauveria bassiana and Metarhizium anisopliae strains and production techniques</p> <p>14. Strain and Production Technology of Polymycin</p>
22		082602X	Paint production technology	<p>Formulation and production technology of multi-color and multi-wavelength laser stealth coating</p> <p>术</p>
23		082603X	Synthetic fiber production technology	Carbon fiber processing technology

24		082701X	Resources and Production Technology of Chinese Medicinal Materials	<p>1. Artificial Cultivation Techniques of <i>Cordyceps militaris</i></p> <p>2. Technology of Extracting Fragrance and Breeding of Artificial Musk Deer (Musk deer) in Vivo</p> <p>3. Technique of Burying Nucleus in Bovine Body Culture of Bezoar</p> <p>4. Formula technology of artificial bezoar, artificial tiger bone and artificial musk</p> <p>5. Plant Seeds (including Seed Crude Drugs), Seedlings and Animal Provenances of Bulk Varieties of Medicinal Materials Listed in Pharmacopoeia of the People's Republic of China and Their Breeding Techniques</p> <p>6. Germplasm and Gene Resources of Chinese Medicinal Materials and Their Artificial Breeding Techniques Included in National Key Protected Wild Plants and National Key Protected Wild Animals List</p>
25	Pharmaceut manufactur	082702X	Biotechnology Drug Production Technology	<p>1. Strains and Virus Strains with Industrial Production Conditions Obtained by Isolation and Screening and Their Breeding Techniques</p> <p>(1) Production of Inactivated Epidemic Hemorrhagic Fever Vaccine Virus Species (Including Wild Rat Type and House Rat Type)</p> <p>(2) EV71 vaccine virus</p> <p>2. Attenuated strain or strain for live vaccine production and its breeding technique</p> <p>(1) Live attenuated hepatitis A vaccine</p> <p>(2) Live attenuated Japanese encephalitis vaccine</p> <p>(3) Live attenuated varicella vaccine</p> <p>3. Wild or genetically engineered strains and virus strains with biological hazards and their breeding techniques</p> <p>4. Production of rotavirus seeds by oral administration</p>
26		082703X	Formulation and production technology of traditional Chinese medicine	Technology of Heavy Metals Below Limit Standard in Dendrobium Luminous Pill
27		082704X	Tissue engineering Medical Equipment System of products Preparation and processing technology	<p>1. Tissue Cell Isolation and Culture Techniques</p> <p>2. Formulation Technology of Tissue Culture Medium</p> <p>3. Processing technology of material support</p> <p>4. Culture and Processing Technology of Tissue Engineering Products</p> <p>5. Preservation Technology of Tissue Engineering Products</p>

28	Rubber and plastic products industry	082901X	Production technology of rubber products	<p>1. Aircraft Tire Manufacturing Technology</p> <p>2. Rubber tire manufacturing technology (single tire load more than 20 tons)</p>
29	Non-metallic mineral products industry	083001X	Production technology of inorganic nonmetallic materials	<p>1. Preparation technology of non-metallic fiber non-asbestos reinforced anti-wear material (1) Formulation and processing technology of non-metallic fiber non-asbestos reinforced material</p> <p>(2) Anti-wear agent production technology</p> <p>2. Continuous SiC (SiC) fiber production technology</p> <p>(1) Polycarbosilane molecular weight and molecular weight distribution control technology</p> <p>木</p> <p>(2) Silicone polymer continuous spinning technology</p> <p>(3) two-step non-melting treatment technology</p> <p>(4) Polycarbosilane pyrolysis synthesis process</p> <p>3. Technology for processing carbon fiber products with the following characteristics (1) Technology for fine knitted and punctured fabrics</p> <p>(2) Three Direction Cone Fabric Technology</p> <p>4. Preparation of Boron Nitride (BN) Fiber Moisture-proof Coating</p> <p>5. Preparation of zirconia fiber thermal insulation material</p> <p>6. Preparation of SiC Fibers by Chemical Vapor Deposition (CVD)</p>
30		083002X	Artificial Crystal Growth and Processing Technology	<p>1. TeO₂ and Al₂(MoO₄)₃ single crystal growing technique and substrate finishing technique</p> <p>2. Method for making ultra-long (> 250 mm) lithium niobate wafer (1) Growth technology for lithium niobate crystals with length > 280 mm and diameter > 40 mm</p> <p>(2) Length > 250 mm, lithium niobate single chip finishing technology</p> <p>3. BSO and BGO single crystal growing process and wafer fabrication technology</p> <p>4.75-3 Preparation process of water-soluble photoresist mask dry film</p> <p>5. Photoluminescent single crystal growing process of tungsten bronze for manufacturing SPPCM</p> <p>6. Raw Material Treatment and Growth Process of Potassium Niobate (KNbO₃) Crystals</p> <p>7. Crystal Growth Control of Potassium Titanium Phosphate (KTP)</p>

				<p>8. Process for growing radiation-resistant synthetic crystals (1) having an index of merit (Q) $\geq 3 \times 10^6$</p> <p>(2) Inclusion grade is not lower than IECI (International Electrotechnical Commission) Class A</p> <p>(3) Aluminum (ai) content ≤ 1 ppm</p> <p>(4) corrosion tunnel density $\leq 10 / \text{cm}^2$</p> <p>9. Preparation Technology of Rare-Earth Iron (Tb-Dy-Fe System) Giant Magnetostrictive Single Crystal Materials</p> <p>(1) Czochralski Method Crystal Growth Process of Non-pollution Magnetic Levitation Cold Crucible</p> <p>(2) Single crystal composition and structure control technology</p> <p>10. Growth Technology of Lithium Tetraborate and Lithium Triborate (LBO) Crystals</p> <p>11. Growth Process of Nd-doped Yttrium Aluminum Borate (NYAB) Crystals</p> <p>12. Growth Technology of Barium Sr Titanium Oxide (SBT) Crystals</p> <p>13. Growth Technology of Barium Metaborate (BBO) Crystals</p> <p>14. Growth Technology of Sr Borobylliate (SB BO) Crystals</p> <p>15. KBBF crystal growth and prism coupling device processing technology</p> <p>木</p> <p>16. Crystal Growth Process of LYSO</p> <p>17. Lanthanum Bromine (LaBr₃: Ce) Crystal Growth Process</p>
31		083003X	Production technology of polymer matrix composites	<p>1. Production Technology of Fiber Reinforced Resin Matrix Composites for Spacecraft Shell</p> <p>2. Production Technology of Fiber Reinforced Resin Based Composite Material for High Pressure Vessel (Pressure > 25MPa) with Ablation Resistance, Heat Insulation, Heat Protection</p> <p>3. Production technology of fiber reinforced resin based ablation resistant composites with bulk density 1.5 ~ 1.7 g / cm³ and ablation rate ≤ 0.22 mm / s</p> <p>木</p> <p>4. Resin matrix formulation in hot melt process</p>
32	Ferrous metal smelting and calendering industry	083101X	Iron and steel metallurgy technology	<p>1. Manufacturing technique of high temperature alloy with temperature resistance > 850 °C</p> <p>2. Formulation and Production Technology of Military Stealth Materials</p> <p>3. Formula and Production Technology of Dispersing (Perspiration) Cooling Material with Temperature Resistance ≥ 2000 °C</p>

33	Non-ferrous metal smelting and rolling processing industry	083201X	Non-ferrous metallurgy technology	<p>1. Nontoxic (Cyanide Free) Heap Leaching Technology and Formula of Gold</p> <p>2. Recovery of Gallium from Raw Solution by Mother Solution in Alumina Production</p> <p>"Dissolution" process</p> <p>3. Pulverization and consolidation of beryllium materials with strength ≥ 520 MPa</p> <p>艺</p> <p>4. High Temperature Superconducting Wire and Tape Manufacturing Technology Having the Following Characteristics</p> <p>(1) Boundary temperature > 77 K, length > 100 m, critical current density $> 1 \times 10^4$ A / cm² (at 77 K, self-field strength)</p> <p>5. High temperature superconducting thin film fabrication technology having simultaneously</p> <p>术</p> <p>(1) Boundary temperature > 77 K, area > 5 cm², critical current density $> 1 \times 10^6$ A / cm² (at 77 K, zero field strength)</p> <p>6. Rare earth mining, mineral processing, smelting technology (excluding technology already included in the export ban)</p> <p>7. Synthesis Technology and Formula of Rare Earth Extractant</p> <p>8. Rare Earth Modification and Addition Technology of Metal Materials</p>
34		083202X	Metallurgical technology of amorphous and microcrystalline metals	<p>1. Coiling Technology of Amorphous Materials</p> <p>2. Self-propagating High Temperature Synthesis and Preparation Technology</p> <p>(1) Hard impact material preparation technology</p> <p>(2) Nanoscale Grain Preparation Technology</p> <p>3. Preparation Technology of Nanometer Superfine Powder</p>
35	Metal products industry	083301X	Heat treatment technology 术	<p>1. Die heat treatment technology</p> <p>(1) Rare-earth boronizing agent formula</p> <p>(2) Rare earth boronizing process</p> <p>2. Formula and Process of Rare Earth, Carbonitriding and Nitrocarburizing</p> <p>3. Formula and Heat Treatment Process of Loader Bucket Tooth Material</p>
36		083302X	Production Technology of Metal Matrix Composites	<p>1. Preparation Technology of Metal-ceramic Nanoscale Materials</p> <p>(1) WC-Co (Tungsten Carbon-Co) Sub-micron Powder Preparation Technology</p> <p>(2) Preparation Technology of WC-Co (Tungsten Carbon-Co) Sub-micron Grain Composite</p> <p>2. Preparation Technology of Fiber Reinforced Aluminum Matrix Composites</p>

				<p>3. Preparation Technology of Super Hybrid Aluminum Matrix Composite Plate</p> <p>(1) Bamboo modification process</p> <p>(2) Modified bamboo reinforced aluminum composite process</p> <p>(3) Vinylon reinforced aluminum composite process</p> <p>4. Technology of Chemical Vapor Infiltration to Prepare Composites</p>
37	General Equipment Manufacturin 業	083401X	Casting technology	<p>1. Formula of High Temperature Resistant Coated Sand Additive</p> <p>2. Electroslag Casting Technology for Large and Medium-sized Thin-wall Curved Surface Castings</p> <p>(1) Determination of various temperature fields in unstable states</p> <p>(2) The software package for constructing electroslag casting curved surface components</p>
38		083402X	General Equipment Manufacturing Technology	<p>1. Metal Centrifuge Rotor Forming Technology</p> <p>(1) Corrugated Forming Process</p> <p>(2) drum spinning process and surface treatment process</p> <p>(3) rotor assembly, debugging process</p> <p>2. Manufacturing Technology of Upper and Lower Damper of Metal Centrifuge</p> <p>(1) Upper damping shell forming process</p> <p>(2) Assembly adjustment process</p> <p>(3) Principle and method for testing upper and lower damping structure parameters and performance parameters, and experimental testing device used</p>
39		083403X	General Parts Manufacturing Technology 木	<p>1. Integral Forming Technology of Titanium Alloy Spherical High Pressure Vessel</p> <p>2. Manufacturing Technology of Three-ring Deceleration Transmission (or Speed-increase) (1) Selection of Design Parameters</p> <p>(2) Manufacturing Process Technology</p>
40		083404X	Gas turbine manufacturing technology	<p>Production Technology of Gas Turbine High Temperature Blade Material with Following Indexes</p> <p>1. Standard practice for casting and working of tantalum-free nickel based alloys</p> <p>2. For high temperature corrosion protection at temperatures ≥ 850 °C with service life > 10.000 h</p>
41		203405X	3D printing technology 木	<p>1. Key Technologies of Metal 3D Printing "Integration of Casting, Forging and Milling"</p> <p>2. High temperature resistant fiber resin materials for 3D printing and its synchronous curing process</p>

42		203406X	Basic Generic Technology of Machine Tool Industry	Innovative Design, Basic Technology, Test Verification, Reliability and Functional Safety of High-end CNC Machine Tools
43		233407X	Bulk loading and unloading Design and Manufacture Technology of Conveyance Ship Unloader (> 3600 t / h)	Four car dumper, large ship loader (> 10000 t / h), large
44	Special equipment manufacturing 业	083501X	Refrigeration and Cryogenic Engineering 术	Design Technology of Dewar with Temperature < 6 K
45		203502X	Design and construction technology of large high speed wind tunnel	Special functional structure design, wide temperature range special metal / composite material performance analysis, large-scale complex equipment intelligent manufacturing and advanced testing technology; High Power Arc Heater Technology, High Power Thyristor Rectifier Power Supply Technology, High Enthalpy and Long Time Running Technology
46		203503X	Design and Construction Technology of Large Vibration Platform	Two-axis synchronous vibration test platform, 50-ton electrodynamic vibration test system
47		203504X	Design and Manufacture Technology of Core Components of Petroleum Equipment	Tools and Software for Middle and High End Downhole Operations in Petroleum Equipment, Oil & Gas Key equipment, top drive, injection head, pressure crack, liquid Design of core drilling and completion components such as nitrogen pump and liquid nitrogen evaporator Manufacturing technology
48			203505X	Large petrochemical equipment base, ball tank and other static equipment material technology, welding technology, Process technology
49		203506X	Strategic New Product Design Technology for Heavy Machinery Industry	Strategic new product design technology for heavy machinery industry, such as third and fourth generation nuclear power equipment and materials technology, marine equipment technology, etc.

50	Railway, ship, aerospace and other transporta equipment	083701X	Ship Design and Test Technology 木	<p>1. Formulation and Structure of Floating Material and Sealing Material for Underwater Vehicle</p> <p>2. Shallow draft and super shallow draft fat large ship technology</p> <p>(1) shallow draft fat large: width and draft depth ratio (B/T)≥3.5; Square coefficient (Co) ≥0.82</p> <p>(2) super shallow draft fat large: width to draft depth ratio (B/T)≥4.0; Square coefficient (Co) ≥0.82</p> <p>3. Apron Technology of Hovercraft</p> <p>4. Design and Test Technology of Puncher Hull</p> <p>5. The Technology of Airfoil Craft</p> <p>6. Power Design Technology and Rapid Prediction Technology of Water Jet Propulsion</p> <p>7. Operation system technology of reversing rudder, duct rudder and flap type rudder</p> <p>8. [1.1 ≤ (Propeller Diameter / Draft) ≤ 1.4 Stern Flow Field Technology for Inland River Vessels</p> <p>9. Ship Propeller Rectifier Hub Cap Technology</p> <p>(1) Elimination of hub cap cavitation technology</p> <p>(2) Design method of hub and lobule wing profile</p> <p>10. Oil-water separation technology for ships</p>
51		083702X	Marine equipment manufacturing technology	<p>Shipboard sonar</p> <p>1. Software</p> <p>2. Transducer manufacturing process</p> <p>3. Signal processing module</p>
52		083703X	Ship construction technology	<p>1. Casting Reverse Deformation Technology of Copper Alloy Propeller with Diameter > 3 m</p> <p>(1) Deformation of blade pressure surface pitch and blade inclination angle</p> <p>(2) Optimal geometry for reduction of machining allowance on vacuum side of blade</p> <p>2. Double-layer Vibration Isolation Technology for Diesel Engine</p>
53		083704X	Marine material manufacturing technology	<p>Chemical Formula and Preparation of Series Polymer Damping and Noise Reduction Materials</p> <p>Manufacturing process</p>

54	083705X	Aircraft Design and Manufacturing Technology	Source program for subsonic (< 340m / s) aerodynamic calculation of complex assemblies
55	083706X	Aircraft Parts Manufacturing and Testing Technology 术	Speed Adjustment and Measurement System of Helicopter Rotor Dynamic Balance Test Bench 统
56	083707X	Production technology of aviation materials	<p>1. Preparation technique of aluminium lithium alloy containing rare earth</p> <p>(1) the type and amount of the rare earth elements contained and the method of adding the rare earth elements</p> <p>2. Technique for producing directionally solidified high temperature alloy containing 1.5% ~ 2.5% W and Hf simultaneously</p> <p>(1) Selection and control of alloy composition</p> <p>(2) smelting process and directional crystallization process</p> <p>(3) Heat treatment process and specifications</p> <p>3. Production Technology of Multipole Anisotropic Cast Magnet Steel</p> <p>(1) Manufacturing process</p> <p>(2) Magnetic measurement technology</p> <p>4. Preparation of Interlayer Alloy for Single Crystal Turbine Blade Joint</p> <p>术</p> <p>(1) Composition of Ni-Co-Cr-W-Hf (Ni-Cobalt-Cr-Tungsten-Hfrium) alloy system</p> <p>(2) Preparation process of interlayer alloy</p>
57	203708X	Equipment Technology for Utilization and Safety of Offshore Islands and Reefs	Equipment and technologies such as maritime law enforcement command and dispatch systems, large / very large floating support bases, very large floating air seaports, maritime satellite launching platforms, medium-sized floating platforms on islands and reefs, construction equipment for development and construction of remote islands and reefs, and support platforms for offshore communication network systems
58	203709X	Aerospace bearing technology	Rocket engine bearing technology, satellite long-life bearing technology

59	Electrical machinery and equipment manufacturing 业	083801X	Wire and cable manufacturing technology	<p>1. Formulation and preparation process of non-combustible cable insulating material satisfying the following conditions simultaneously</p> <p>(1) Service temperature > 250 °C</p> <p>(2) 800C open flame > 1.5 h without burning</p> <p>(3) Withstand voltage > 2.500 V</p> <p>2. Manufacturing Technology of Symmetrical RF Cable for Nuclear Power Station</p> <p>3. Formulation and Manufacturing Process of Rare Earth Aluminum Conductor for Conducting Electricity</p> <p>4. Formula of High Speed Extrusion PVC Cable Compound</p> <p>5. Manufacturer of power, control and instrumentation cables for nuclear power plants</p> <p>艺</p> <p>6. Manufacturing technology of high temperature (120 °C) aluminum-sheathed electric cable of submersible pump</p> <p>术</p>
60	Manufacturing of computers, communication and other electronic equipment	083901X	Electronic Device Manufacturing Technology	<p>1. Manufacturing Technology of Broadband Miniaturized Isolator</p> <p>(1) Design and manufacturing process of ultra-octave broadband (relative bandwidth $\geq 70\%$) miniaturized isolator</p> <p>(2) Formulation and Preparation Technology of Auster Ferrite Material with Extremely Narrow Ferromagnetic Resonance Linewidth $\Delta H < 2$</p> <p>(3) Ultra-wideband (relative bandwidth > 70%) matching technology and wide temperature (-55 °C ~ + 125 °C) compensation technology</p> <p>2. Design Technology and Manufacturing Process of Broadband (2 ~ 8GHz) Suspended Band-line Frequency Splitter</p> <p>3. Fabrication Technology of Piezoelectric Gyroscope Sensitive Devices</p> <p>(1) Design and manufacturing process of the support system</p> <p>(2) The bonding process of piezoelectric transducer</p> <p>(3) Structural design, process and heat treatment technology of metal vibration beam</p> <p>(4) Structure design and assembly technology of zeroing system</p> <p>(5) Zero signal processing technology</p> <p>4. Design Technology of Surface Acoustic Wave Devices</p> <p>(1) SAW filter (frequency > 2 GHz, out-of-band rejection > 70 dB, insertion decay < 1.5 dB)</p> <p>(2) SAW tap delay line (code point > 1023 bit, operating frequency > 600 MHz)</p> <p>(3) SAW convolver (code point > 1023 bit, operating frequency > 600 MHz)</p>

				<p>(4) SAW fixed delay line (frequency > 2 GHz, delay time > 300 μ s)</p> <p>(5) SAW dispersion delay line (frequency > 500 MHz, time band product > 10000, sidelobe suppression > 32 dB)</p> <p>(6) SAW pulse compression line (sidelobe suppression > 32 dB, Second-order clutter signal simulation, sidelobe suppression weighted compensation method, phase error compensation technology)</p> <p>5. Fabrication Technology of Surface Acoustic Wave Devices</p> <p>(1) Combination Techniques</p> <p>(2) Matching Techniques</p> <p>(3) Large area (220 mm x 20 mm) lithography technology</p> <p>6. Design and Manufacturing Technology of Electron Gun for Standing Wave Acceleration Tube</p> <p>7. Design and Focusing Technology of Multi-beam Klystron</p> <p>8. Improvement of Grid Electron Emission by Ion Beam Processing</p>
61	083902X	Semiconductor device manufacturing technology 木	<p>High Power Optical Controlled Bidirectional Thyristor with Central Tapered Groove Photosensitive Gate</p> <p>(1) Sintering Technology of Cr-Ni-Ag (Cr-Ni-Ag) Metal Barrier Layer</p> <p>(2) SiO₂ (silicon dioxide) and Si₃N₄ (silicon nitride) insulating film gate forming process</p> <p>2. Diode Manufacturing Technology with Conductive Resistance < 2Ω</p> <p>3. Preparation and Epitaxy Technology of Raw Materials for Single Crystal LED Screen</p>	
62	083903X	Sensor manufacturing technology	<p>1. Design, Manufacture and Calibration of Hall Probe for Electron Collider Spectrometer</p> <p>2. Design and Manufacturing Technology of Far Field Eddy Current Testing Probe</p>	
63	083904X	Microwave technology	<p>High Power (100 MW) Microwave Technology</p> <p>1. Pulsed Power Technology and High Current Electron Beam Acceleration Technology</p> <p>2. Explosive magnetic compression technology</p>	
64	083905X	Optical fiber manufacturing and optical fiber communication technology	<p>1. Fabrication technology of carbon dioxide laser transmission fiber (1) Composition and fabrication technology of glass fiber with optical loss < 1 dB / m at 10.6 μ m</p> <p>(2) Preparation technology of crystal fiber with optical loss < 0.5 dB / m at 10.6 μ m</p> <p>(3) Fabrication technology of hollow fiber with optical loss < 1 dB / m at 10.6 μ m</p>	

				<p>2. Fabrication of Double Crucible and Technology of Drawing Optical Glass Fiber with 20 Hole Crucibles</p> <p>3. Process Parameters of Fiber Drawing Line Technology</p> <p>4. Programmable Digital Phase Locked Frequency Synthesizer; DDS + Pall Corporation Frequency Hopping Signal Source</p>
65	083906X	Computer Core Hardware Manufacturing Technology		<p>1. Manufacturing Technology for Supercomputers (≥ 97 trillion Operations)</p> <p>(1) General Design Technology</p> <p>(2) Host, Operating System Technology</p> <p>(3) Manufacturing and development technology of main engine, auxiliary engine and external equipment</p> <p>2. Implementation Technology of High Speed Communication Mechanism of Parallel Computer Multiport Memory</p> <p>3. Design Technology of Bus and Interrupt Control for Fully Symmetric Multiprocessor in Parallel Computer</p>
66	083907X	Wireless communication technology		<p>1. Antenna array technology</p> <p>(1) More than one octave broadband (center frequency $\geq 100\%$) antenna array</p> <p>(2) Wideband (> 800 MHz in C band) feed precision machining process</p> <p>2. Processing Technology of Microwave Direct Modulation Frequency Division Phase-Locked Solid State Source</p> <p>未</p> <p>3. Integrated Acousto-Optic Heterodyne Receiver with Bandwidth > 100 MHz and Dynamic Range > 90 dB</p> <p>4. Fast Acquisition of CDMA Burst Signal with C / No Less than 46 dBHz</p>
67	083908X	Robot manufacturing technology		<p>Manufacture and Control Technology of Autonomous or Semi-autonomous Underwater Robot</p>
68	083909X	Metrological basis, standardised manufacturing and dissemination of quantity value		<p>1. Manufacturing Technology of Bracelet Ring Inductor Whose Precision is $\leq 2 \times 10^{-4}$ and Annual Stability $\leq 10^{-4}$</p> <p>(1) Winding and shielding technology of inductance coil</p> <p>(2) Bracelet ring inductor coil temperature compensation technology</p> <p>(3) Moisture and shockproof technology</p> <p>2. RF Voltage Standard Structure Design and Thin Film Spoke</p>

			<p>Manufacturing Technology of Variable Thermal Resistance</p> <p>3. Standard Time Satellite Transfer Technology</p> <p>4. He-Ne frequency stabilization (wavelength relative change $\Delta\lambda = 10^{-10} \sim 10^{-9}$) Manufacturing Technology and Parameters of Iodine Chamber, Laser Tube and Resonator Mirror</p> <p>5. Manufacturing Technology of Receiving Cavity of Electric Substitute Radiometer</p> <p>(1) Manufacturing Process of Metal Cavity in Electric Replacement Radiometer with Absorption Rate > 0.998</p> <p>(2) Metal cavity electric heater manufacturing technology</p>
69	083910X	Production technology of space materials	<p>1. Formula and Production Technology of Ablative Materials for Recoverable Satellite</p> <p>2. Formulation and production technology of catalyst for satellite attitude control thruster</p>
70	083911X	Space instrument and equipment manufacturing technology	<p>1. Manufacturing Technology of Remote Sensing Imaging Spectrometer with Channel Number > 500</p> <p>2. Space environment-specific device design and process, evaluation method and equipment, space lubrication method and lubrication element</p> <p>3. Overall Technical Scheme and Main Technical Specifications of High Resolution Synthetic Aperture Radar Technology</p> <p>4. General Plan and Index of High Resolution Visible and Infrared Imaging Technology</p> <p>5. General Scheme and Index of Space Target Detection Technology of Millimeter and Submillimeter Wave</p>
71	203912X	<p>Unmanned aerial vehicle technology</p> <p>木</p>	<p>1. Micro-mission loads in different levels of fixed-wing and rotor-based UAVs, key technologies such as autonomous navigation, adaptive control, sensing and avoidance, highly reliable communications and airspace management</p> <p>2. Key technologies of inertial measurement unit, inclination sensor, atmosphere monitoring sensor, current sensor, magnetic sensor and engine flow sensor involved in UAV manufacturing</p> <p>3. Anti-UAV Technology Such as Electromagnetic Interference Ray Gun</p> <p>4. Key technologies of UAV mission payload (electro-optical / infrared sensors, synthetic aperture radar and lidar manufacturing technology, etc.)</p> <p>5. UAV Flight Control System (Algorithms and Software for Autonomous Navigation, Path and Obstacle Avoidance Planning)</p>

72		203913X	Laser technology	Key techniques for fabricating deep UV solid state lasers using self-developed KBBF single crystals
73		233914X	Lidar system	Laser detection and ranging system technology with any of the following: peak power > 30 kW, pulse width < 1 ns, detection range > 2 km, angular accuracy < 40 μrad, angular resolution < 20 μrad, ranging accuracy (ranging accuracy) <2mm
74		083915X	Computer application technology	1. Parallel graph reduction intelligent workstation 2. CIMS (Computer Integrated Manufacturing) Experimental Engineering
75	Instrument manufacturi 業	084001X	Thermal measurement Measuring instrument Table manufacturing technology 木	Manufacturing technology of dual vortex shedding flowmeter having the following specifications 木 1. For pipe diameter 50 ~ 2,000 mm 2. Measuring accuracy greater than 0.5% 3. Flow rate ≥ 0.2 m / s 4. The medium of the pipeline is water and steam with temperature ≤ 300 ° C.
76		084002X	Manufacturing Technology of Mechanical Measuring Instruments and Meters 木	High precision roundness meter 1. On-line Measurement Technology for Roundness and Cylindricity of Large Size (P 250 ~ P 1,000) 2. In order to improve the spindle rotation accuracy and measurement accuracy (± 0.017um) Error Separation and Error Compensation Technology
77		084003X	Nondestructive testing technique	Manufacture of Accelerator Tubes for Standing Wave Electron Linear Accelerator for Flaw Detection Manufacturing technology
78		084004X	Material testing machine and instrument manufacturing technology 木	1. On-line, Dynamic and Synchronous Detection Technology of Patch Photoelasticity 2. Design Technology of Liquid Hydrogen High Speed (> 40000 rpm) Bearing Testing Machine (1) Spindle low temperature (below -240 ° C) deformation control technology (2) Heat conduction and thermal isolation technology (3) Loading System
79		084005X	Manufacturing Technology of Timing Instruments	1. Imaging Sensing Technology and Control Mode in Special Equipment for CCD Endpoint Imaging Timing and Interpretation 2. Touch Pad Sensing Mode and Manufacturing Technology in Complete Timing and Scoring Special Equipment for Swimming (Fin Swimming)

80		084006X	Precision instrument manufacturing technology	<p>1. High precision (resolution > 20 μ m at 5.1 mm) reflective acoustic video microscope</p> <p>(1) Sound Mirror Manufacturing Technology</p> <p>(2) Acoustic Mirror Imaging and V (Z) Curve Principle and Shadow Imaging Method</p> <p>2. Research on Modern Laser Optical Measurement of Diesel Engine Vibration Shape</p> <p>(1) Aspheric lens design and manufacturing technology</p> <p>(2) Two-way optical system design structure technology</p> <p>3. Four Coordinate Probe Displacement Mechanism Technology</p> <p>(1) Design and manufacturing process of four-coordinate displacement mechanism</p> <p>(2) High frequency response (> 20 khz) pressure probe design and manufacturing process</p>
81		084007X	Cartographic technique	<p>1. The key arithmetic and system of our country's geographical information system have terrain and geographical data of scale > 1: 1 million</p> <p>2. Application Technology of Topographic Elements with Direct Output Scale > 1: 100,000</p>
82		084008X	Production technology of seismic observation instruments	<p>1. Production Technology of Seismic Meter with Observation Frequency to DC and Sensitivity > 1,000 V · s / m</p> <p>2. Production technology of downhole three-directional seismometer with aperture < 130 mm, period > 1 s, sensitivity ≥ 500 V · s / m</p>
83		084009X	Production technology of glass and amorphous inorganic nonmetallic materials	<p>1. Manufacturing Technology of Multi-head Small Ion Source for Coating Machine</p> <p>(1) Ion beam assisted evaporation process</p> <p>(2) Ion beam spot synthesis technology</p> <p>2. Composition and Production Technology of F1 Strengthened Platinum for Crucible</p> <p>木</p>
84	Electricity, heat production and supply 业	204401X	Large Power Equipment Design Technology	<p>Complete sets of equipment for clean, efficient and flexible utilization of coal</p> <p>Design technology, large hydropower unit, advanced nuclear power</p> <p>Generating units (PWR III, small reactor, high temperature gascooled reactor, etc.)</p> <p>Design technology, UHV AC / DC power transmission and transformation complete sets of equipment</p> <p>Key technologies</p>
85	Building decoration,	085001X	Traditional Chinese Architectural Technology	Oil Painting Pigment and Drawing Technology
86	renovation and other constructio	085002X	Building Environment Control Technology	Constant temperature control technology with an accuracy of ± 0.01 ° C

87	Water transport industry	085501X	Key Techniques of Container Handling 术	Design and manufacturing technology of complete sets of technical equipment for container ports, including oversized marine transport binding control technology, automatic terminal equipment control system technology, container crane life cycle integration technology, etc.
88	Telecommuni radio and television and satellite transmission services 务	086301X	Communication transmission technology	1. Security Technology of Radio and Television Network and Telecommunication Network (1) Cryptographic design techniques 2. Information Transmission, Encryption and Decryption Technology Developed by China and Used in Military Field 3. Underwater Low Frequency Electromagnetic Communication Technology (1) Technology for underwater communication using low-frequency electromagnetic fields (2) Low Noise Amplification Technology (3) High sensitivity and anti-interference technology
89		086302X	Computer network technology	Supercomputer (≥ 97 trillion operations) Network systems, parallel processing technology
90		086303X	Spatial data transmission technology	Production Technology of Dielectric Material with Loss Less than 104 for Ku Band Planar Antenna
91		086304X	Satellite application technology	Beidou satellite navigation and positioning system involving one of the following 统 1. Signal Format, Device Structure and Manufacturing Process of Inbound Signal Real-time Acquisition Unit 2. Signal capturing method, circuit structure and special chip of outbound signal fast capturing unit 3. System information transmission system, modulation mode, frame structure
92		206401X	Cryptographic security technology	1. Cipher Chip Design and Implementation Techniques [High-Speed Cryptographic Algorithms, Parallel encryption technology, cipher chip security design technology, Cryptographic Chip on Chip (SOC) Design and Implementation Technology, Basic High Speed Chip Implementation Technology Based on High-Speed Algorithm Standard] 2. Quantum cryptography. Including quantum cryptography implementation methods, transmission technology, network technology, engineering technology, etc.
93	206402X	High Performance Inspection Technology	1. Deep Packet Detection Technology in High Speed Network Environment with Speed ≥ 500 Gbps 2. Acquisition and Analysis of Unknown Attack Behavior 3. Strategic Early Warning Technology Based on Large-scale Information Collection and Analysis	

				<p>木</p> <p>4. Network Early Warning Reaction Technology for Large Scale Networks</p> <p>木</p> <p>5. APT Attack Detection Technology</p> <p>6. Threat Intelligence Generation Technology</p> <p>7. Related Technologies of Special Equipment for Large Traffic Network Security Processing</p> <p>(1) Access line bandwidth of 500Gbps or more</p> <p>(2) Regulations with a capacity of over 100 thousand</p> <p>(3) Number of users more than 4</p>
94		206403X	Information defense technology	<p>1. Information hiding and discovery technology</p> <p>2. Information Analysis and Monitoring Technology</p> <p>3. System and Data Fast Recovery Technology</p> <p>4. Trusted Computing Technology</p>
95		206404X	Information countermeasure technology	<p>1. Traffic Capture and Analysis Technology</p> <p>2. Vulnerability Discovery and Mining Techniques</p> <p>3. Malicious Code Compilation and Implantation Techniques</p> <p>4. Information camouflage technology</p> <p>5. Network Attack Tracing and Tracing Technology</p>
96	Software and Information Technology Services 业	086501X	Information processing technique	<p>1. Intelligent Chinese Character Speech Development Tool Technology</p> <p>2. The Design and Manufacturing Technology of Character Type Chinese Characters Display Controller</p> <p>3. Key Technologies of Chinese Computer System</p> <p>4. Raster / vector mixed information processing method for engineering drawing CAD and file management system</p> <p>5. Chinese platform technology (Chinese processing core technology)</p> <p>6. Chinese-to-English translation skills (machine translation score > 4.5 out of 5)</p> <p>7. Minority Language Processing Technology</p> <p>8. Speech recognition techniques for Chinese and minority languages</p> <p>9. Chinese Character Compression and Reduction Technology</p> <p>10. Printed Hanzi recognition technique, program architecture, main arithmetic and source program</p> <p>11. Chinese Character Processing Technology and Internetwork Control Technology in Videotex System</p> <p>12. Off-line handwritten Chinese characters with interactive and self-learning functions</p>

				<p>Identification system and method</p> <p>13. Handwritten proofs, printed proofs and Chinese corpus for computer Hanzi input and recognition method</p> <p>14. Hanzi recognition of the characteristics of extraction and text segmentation techniques to achieve the source program</p> <p>15. Speech synthesis for Chinese and minority languages</p> <p>16. Artificial Intelligence Interface Technology for Chinese and Minority Languages</p> <p>17. Intelligent Marking Technology for Chinese and Minority Languages</p> <p>18. Personalized Information Push Service Technology Based on Data Analysis (User Personalized Preference Learning Technology Based on Continuous Training Optimization of Massive Data, User personalized preference real-time perception technology, information content feature modeling technology, user preference and information content matching analysis technology, large-scale distributed real-time computing technology to support recommendation algorithms, etc.)</p>
97		086502X	<p>ComputerPass</p> <p>Compile with software</p> <p>Manufacturing technology</p>	<p>1. Supercomputers (> 97 trillion operations) Software technology</p> <p>2. Parallel computer microkernel and multithreading implementation technology, program parallelism recognition technology and parallel optimized compiler source program</p>
98		206503X	<p>Basic Software Security Enhancement Technology</p>	<p>1. Operating system security added technology: "operating system security technical requirements" (GB / T20272-2006) four (inclusive) or above technical requirements</p> <p>2. Security enhancement technology for Shujuku system: Technical requirements for Shujuku system security (GB / T20273-2006) Level 4 (inclusive) or above</p>
99	<p>Professional Technical Services</p> <p>业</p>	087401X	<p>Marine Environment Simulation Technology</p>	<p>1. Marine environment simulation, background interference simulation</p> <p>2. Interpolation Filtering and Correction of Analog Channel Delay Error</p> <p>3. Modeling</p>
100		087402X	<p>Geodetic technique</p>	<p>Adjustment in one case of geodetic control network in China</p>

101		087403X	Precision Engineering Surveying Technology	Techniques and Methods of Precision Measurement in Key Projects in China
102		087404X	Vacuum technology	Ultra-high vacuum acquisition technology with true aperture < 10 mPa
103		087405X	Acoustics engineering technology	1. System design technology and algorithm software specially designed for active noise control in aviation, aerospace, ships and trains 2. Design Technology and Manufacturing Process of Pneumatic Sound Source with Sound Power > 10,000 W
104		087406X	Metrology test technology	1. Measurement Technology of Trace Water Content of Sulphur Hexafluoride (1) Sensor manufacturing technology with detection limit of three parts per 100,000 (volume fraction) 2. Sodium chloride temperature fixed point technology (1) Sodium chloride density value in phase equilibrium (2) Annular seal space to improve heat transfer and anticorrosion technology (3) Blackbody leakage prevention technology
105		207407X	Space remote sensing image acquisition technique	Space remote sensing technology, including aerial remote sensing emulation (ground, aerial), remote sensing data coding technology
106		087408X	Geophysical Exploration technique	Manufacturing technique of helium optically pumped magnetometer with sensitivity ≤ 0.01 nT (including single and multiple optical system)
107	Hygiene	088401X	TCM Medical Technology	1. National famous old Chinese medicine and scientific and technological progress above provincial and ministerial level Medical Design and Effective Prescription of Disease Diagnosis and Treatment System of First and Second Prize 2. Reconstruction of the neck of femur for the treatment of fracture of neck of femur
108		088801X	Conservation and Restoration Techniques 木	1. The Application of Catalyst and Formula of Ancient Water-saturated Lacquer Wood Ware in Dehydration and Setting Technology 2. Uncovering and mounting techniques of ancient calligraphy and painting
109	Arts and culture industry	088802X	Relic reproduction technology	1. Reproduction Technology of Ancient Silk Fabrics 2. The Emulsion Formulation Technology of Ancient Chinese Calligraphy and Painting Photographic Reproduction Technology 3. Surface Treatment Technology of Ancient Bronze Mirror
110		088803X	Large bronze reproduction technique 木	1. Reproduction Technology of Complete Ancient Chimes 2. Reproduction Technology of Bronze Chariots and Horses Unearthed from Emperor Qin Shi Huang's Mausoleum