

## Appendix: Technology Restricted from Export

Change	Technology	Control Points
<b>(I) Agriculture</b>		
Amendment	10. Crops (including pastures) germplasm resources and breeding technology (No. 050101X)	6. External provision of crops (including pastures) germplasm resources and breeding technology as listed in the catalog of crop germplasm resources.
Addition	11. Artificial breeding technology of agricultural wild plants (No. 180103X)	<ol style="list-style-type: none"> <li>1. The artificial breeding technology for Level I wild plants under the charge of the agricultural authorities specified in the <i>List of National Key Protected Wild Plants</i>;</li> <li>2. Artificial breeding technology for agricultural wild plants included in the <i>Convention on International Trade in Endangered Species of Wild Fauna and Flora</i>.</li> </ol>
Addition	12. Genetic engineering (gene and vector) (No.:180104X)	<ol style="list-style-type: none"> <li>1. Newly discovered plant male sterility genes, restorer genes and vectors;</li> <li>2. Newly discovered disease-resistance and insect-resistance genes and vectors;</li> <li>3. Newly discovered stress-resistance genes and vectors;</li> <li>4. Newly discovered quality genes and vectors;</li> <li>5. Newly discovered yield-related genes and vectors;</li> <li>6. Other important genes and vectors newly discovered;</li> <li>7. Unique gene manipulation technology.</li> </ol>
<b>(VI) Pharmaceutical manufacturing</b>		
Amendment	20. Biotechnology drug production technology (No. 052702X)	<ol style="list-style-type: none"> <li>1. Penicillin production technology: <ol style="list-style-type: none"> <li>(1) Penicillin high-producing strains;</li> <li>(2) Fermentation unit <math>\geq 55,000/\text{ml}</math>;</li> </ol> </li> <li>2. Streptomycin production technology: <ol style="list-style-type: none"> <li>(1) Filtration, centrifugation, separation and refining process;</li> <li>(2) Streptomycin production technology with fermentation units <math>\geq 27,000/\text{ml}</math> or total yield <math>\geq 75\%</math>;</li> </ol> </li> <li>3. Cephalosporin C production technology with fermentation units <math>\geq 25,000/\text{ml}</math> cephalosporin C high-yielding strains or total yield <math>\geq 70\%</math>;</li> <li>4. Chlorotetracycline preparation process: <ol style="list-style-type: none"> <li>(1) Chlorotetracycline production strains;</li> <li>(2) Fermentation units <math>\geq 20,000/\text{ml}</math>;</li> <li>(3) Yield <math>\geq 90\%</math>;</li> </ol> </li> <li>5. Attenuated strains or virus seeds used in the production of live vaccines and their breeding technology: <ol style="list-style-type: none"> <li>(1) Production virus seeds for live attenuated hepatitis A vaccines;</li> <li>(2) Production virus seeds for live attenuated epidemic encephalitis B vaccines;</li> </ol> </li> <li>6. Bacterial strains and virus strains suitable for industrial production and obtained through isolation and screening and their breeding technology: <ol style="list-style-type: none"> <li>(1) Production virus strains of epidemic hemorrhagic fever inactivated vaccine (including wild mouse type and house mouse type);</li> </ol> </li> </ol>

Change	Technology	Control Points
		<p>7. Bioengineering strains and cell strains suitable for industrialized production and obtained through genetic engineering and their breeding technology:</p> <p>(1) Hepatitis B-Chinese hamster egg cell recombinant cell strains used in the production of hepatitis B vaccines;</p> <p>(2) Hepatitis B-vaccinia virus recombinant vaccinia virus species used in the production of hepatitis B vaccine;</p> <p>(3) Bioengineered strains used in the production of interferons;</p> <p>8. Snake venom single-component thrombin-like preparation process:</p> <p>(1) Technology for the electrophoresis detection of thrombin-like enzyme;</p> <p>(2) Single component content 100%.</p> <p>1. The bacterial strains and virus strains suitable for industrial production and obtained through isolation and screening and their breeding technology</p> <p>(1) Production virus strains of epidemic hemorrhagic fever inactivated vaccine (including wild mouse type and house mouse type)</p> <p>2. Attenuated bacterial strains or virus strains used in the production of live vaccines and their breeding technology</p> <p>(1) Production virus seeds for live attenuated hepatitis A vaccines</p> <p>(2) Production virus seeds for live attenuated epidemic encephalitis B vaccines</p> <p>3. Bacterial strains and virus strains suitable for industrialized production and obtained through genetic engineering and their breeding technology</p> <p>4. Enterovirus 71 inactivated vaccines</p> <p>5. Oral live rotavirus vaccines</p> <p>6. EV71 vaccine strains</p> <p>7. CA16 vaccine strains</p> <p>8. Core technology for the production of pentavalent and hexavalent rotaviruses vaccines 9. Polysaccharide protein binding technology</p>
Deletion	21. Chemical synthesis and semi-synthetic drug production technology (No. 052703X)	
Deletion	22. Natural medicine production technology (No. 052704X)	
Deletion	23. Preparation and processing technology for functional polymer materials with biological activity (No. 052706X)	
Addition	24. Preparation and processing technology of tissue engineering medical device products (No. 052707X)	6. Medical diagnostic equipment and equipment manufacturing technology (including for domestically produced new-generation genetic testing instruments and third-generation single-molecule sequencers)

Change	Technology	Control Points
<b>(XI) Manufacture of communication equipment, computers and other electronic equipment</b>		
Amendment	38. Technology for manufacturing space instruments and equipment (No. 054011X)	<ol style="list-style-type: none"> <li>1. Technology for manufacturing remote sensing imaging spectrometers with &gt;150 500 channels;</li> <li>2. Design and process, evaluation method and equipment, lubrication methods and lubrication parts for special devices and components to be used in the space environment;</li> <li>3. Overall technical plan and main technical specifications of high-resolution synthetic aperture radar technology;</li> <li>4. Overall plan and specifications of high-resolution visible light and infrared imaging technology; and</li> <li>5. Overall plan and specifications of millimeter wave and submillimeter wave space-based space-target detection technology.</li> </ol>
Addition	39. Drone technology (No. 184012X)	<ol style="list-style-type: none"> <li>1. Micro-task payloads in, and key technologies such as autonomous navigation, adaptive control, sense and avoid, high-reliability communications, airworthiness and airspace management of different classes of fixed-wing and rotary-wing drones;</li> <li>2. Key technologies of inertial measurement units, tilt sensors, atmospheric monitoring sensors, current sensors, magnetic sensors, engine flow sensors and other types of sensors involved in the manufacture of drones; and</li> <li>3. Anti-drone technologies such as electromagnetic interference guns.</li> </ol>
Addition	40. Laser technology (No. 184013X)	Key technology for manufacturing deep ultraviolet solid-state laser generators using independently developed KBBF single crystal.
<b>(XV) Computer service industry</b>		
Addition	45. Information processing technology (No. 056101X)	<ol style="list-style-type: none"> <li>17. Speech synthesis technology (including corpus design, recording and annotation technology, speech signal feature analysis and extraction technology, text feature analysis and prediction technology, and speech feature probability statistical model construction technology);</li> <li>18. Artificial intelligence interactive interface technology (including voice recognition technology, microphone array technology, voice wake-up technology, and interactive understanding technology);</li> <li>19. Voice evaluation technology (including automatic scoring technology for reading aloud, automatic scoring technology for spoken expression and pronunciation error detection technology);</li> <li>20. Intelligent marking technology (including print scanning and recognition technology, handwriting scanning and recognition technology, print photo recognition technology, handwriting photo recognition technology and Chinese and English composition correction technology);</li> <li>21. Personalized information push service technology based on data analytics.</li> </ol>

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Addition	46. Password security technology (No. 186103X)	<ol style="list-style-type: none"> <li>1. Cryptographic chip design and implementation technology (high-speed cryptographic algorithm, parallel encryption technology, cryptographic chip security design technology, on-chip cryptographic chip (SOC) design and implementation technology, high-speed chip implementation technology based on high-speed algorithm standards); and</li> <li>2. Quantum cryptography technology (quantum cryptography implementation method, quantum cryptography transmission technology, quantum cryptography network, quantum cryptography engineering implementation technology).</li> </ol>
Addition	47. High-performance detection technology (No. 186104X)	<ol style="list-style-type: none"> <li>1. Deep packet inspection technology in high-speed network environment;</li> <li>2. Unknown attacking behaviour acquisition and analysis technology;</li> <li>3. Strategic early warning technology based on large-scale information collection and analysis;</li> <li>4. Network early warning linkage reaction technology;</li> <li>5. APT attack detection technology; and</li> <li>6. Threat intelligence generation technology.</li> </ol>
Addition	48. Information defense technology (No. 186105X)	<ol style="list-style-type: none"> <li>1. Information hiding and discovery technology;</li> <li>2. Information analysis and monitoring technology;</li> <li>3. System and data rapid recovery technology; and</li> <li>4. Trusted computing technology.</li> </ol>
Addition	49. Information counter-measure technology (No. 186106X)	<ol style="list-style-type: none"> <li>1. Traffic capture and analysis technology;</li> <li>2. Vulnerability detection and discovery technology;</li> <li>3. Malicious code programming and implantation technology;</li> <li>4. Information disguising technology; and</li> <li>5. Network attack traceability technology.</li> </ol>
(XVI) Software industry		
Deletion	<del>50. Information security firewall software Technology (No. 056202X)</del>	
Addition	51. Basic software security enhancement technology (No. 186203X)	<ol style="list-style-type: none"> <li>1. Operating system security enhancement technology: Level 4 or above technical requirements under the <i>Technical Requirements for Operating System Security</i> (GB/T 20272-2006);</li> <li>2. Database system security enhancement technology: Level 4 or above technical requirements under the <i>Technical Requirements for Database System Security</i> (GB/T 20273-2006).</li> </ol>

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